THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

INTENSIVE LIVESTOCK PRODUCTION

Report by the
Senate Select Committee on Animal Welfare

June 1990

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TERMS OF REFERENCE AND CONDUCT OF INQUIRY

The intensive livestock production inquiry is the sixth specific inquiry undertaken since the Senate Select Committee on Animal Welfare was established in November 1983 to inquire into and report upon:

> 'the question of animal welfare in Australia, with particular reference to:
>
> (a) interstate and overseas commerce in animals;
>
> (b) wildlife protection and harvesting;
>
> (c) animal experimentation;
>
> (d) codes of practice of animal husbandry for all species; and
>
> (e) the use of animals in sport.'

To date the Committee has presented five reports to the Senate:

Export of Live Sheep from Australia	1985
Dolphins and Whales in Captivity	1985
Kangaroos	1988
Animal Experimentation	1989
Sheep Husbandry	1989

A report on its inquiry into animal welfare issues involved in the racing industry (thoroughbred, standardbred and greyhound racing) is currently being finalised by the Committee.

The inquiry into intensive livestock production was undertaken because of the developing concern in Australia that the welfare of our domestic livestock is being jeopardised in many of the housing systems currently operating.

Issues of concern about intensively produced livestock were raised when this Committee was first established. The Committee has been receiving submissions, taking evidence and inspecting facilities over a number of years on the three areas of most concern - the pig, chicken meat and egg industries. This report focusses on these three areas.

Public hearings and other meetings were held in Canberra and interstate at which representatives of Government and industry bodies, veterinary associations, animal welfare organisations, and research scientists gave evidence in support of their written submissions. Witnesses who appeared before the Committee are listed in Appendix 1. Details of Committee inspections are listed in Appendix 2. The transcript of evidence is available for inspection at the Senate Committee Office, the Australian National Library and the Commonwealth Parliamentary Library.

During the course of this inquiry the Committee received valuable assistance from many organisations and individuals. The Committee acknowledges the efforts made by those who prepared submissions and gave evidence. It also thanks those who provided the opportunity to inspect production facilities.

LIST OF TABLES

ABBREVIATIONS USED IN REPORT

ACEP	Australian Council of Egg Producers
AFWA	Australian Federation for the Welfare of Animals
ANZFAS	Australian and New Zealand Federation of Animal Societies
APIA	Australian Poultry Industries Association
APPF	Australian Pork Producers Association
AVA	Australian Veterinary Association
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DARA	Victorian Department of Agriculture and Rural Affairs
MAFF	UK Ministry of Agriculture, Fisheries and Food
RSPCA	Royal Society for the Prevention of Cruelty to Animals

RECOMMENDATIONS

PART ONE: INTRODUCTION

Welfare and Welfare Assessment

1. The Committee **recommends** that research funding bodies ensure that all intensive livestock production studies and specific animal welfare related research methodologies take an integrated approach to problems addressed so that findings contain elements of matters relating to housing environment, animal reaction to it, specific management issues, and animal/human interaction. (Paragraph 3.42)

PART TWO: THE DOMESTIC FOWL

Cage Housing of Layers

Stocking densities

2. The Committee **recommends** that as an initial step the maximum stocking density for cages with three or more birds be reduced from 52 kilograms per square metre to 46 kilograms per square metre. (Paragraph 5.41)

3. The Committee favours a shift away from the current practice of calculating floor space per hen by kilogram of live-weight per unit of floor area and **recommends** that in future, the space allowance for hens be expressed in terms of square centimetres of floor area per bird. (Paragraph 5.42)

4. To give effect to the Committee's objective of addressing the need for further reductions in stocking densities for hens the Committee **recommends** the following reforms:

(a) that each cage have a minimum area for each bird of:

1000 square centimetres where one hen is kept in a cage;

750 square centimetres where two hens are kept in a cage;

600 square centimetres where three or more hens are kept in a cage; and

(b) that an early date of effect be introduced for new cages with a phasing-in period to apply for existing systems. (Paragraph 5.43)

5. The Committee **recommends** that the stocking densities for laying hens be regularly reviewed by the Sub-Committee on Animal Welfare of the Australian Health Committee within the Australian Agricultural Council. (Paragraph 5.44)

Overstocking

6. The Committee **recommends** that more regular inspections of commercial establishments be undertaken by the appropriate authorities to monitor husbandry practices generally and to ensure that stocking densities do not exceed those specified in the Code of Practice for the domestic fowl. (Paragraph 5.50)

Cage design

7. The Committee, recognising the significant welfare benefits that may derive from the introduction of innovative cage design, **recommends** that the Commonwealth Government provide tax incentives to encourage farmers to invest in cages incorporating improved design features. (Paragraph 5.70)

Alternative Housing Systems

8. The Committee **recommends** that the banning of laying cages be considered when it can be demonstrated that viable alternative systems can be developed suitable to Australian conditions and that these alternative systems have positive welfare advantages. (Paragraph 6.79)

9. The Committee **recommends** that a combination of cage and non-cage production systems be continued with market forces dictating the relative market share of the different systems. (Paragraph 6.79)

10. The Committee **recommends** that the Commonwealth Government fund a research project in Australia to examine and evaluate alternative housing systems that may be suitable to Australian conditions and that this review:

    (a) examine overseas research findings into alternative housing systems;

    (b) assess the welfare benefits and any welfare disadvantages of such systems;

    (c) evaluate the economic viability of alternative systems; and

    (d) consult with poultry producers, State Governments, the veterinary profession, and specialist ethologists, both in the initial and subsequent stages of the project. (Paragraph 6.81)

Husbandry Practices

Beak Trimming

11. The Committee believes that beak trimming should only be performed by competent operators and **recommends** that more formal training and supervision be introduced by the poultry industry for beak trimmers so that improved standards of practice may be achieved. (Paragraph 7.32)

Induced Moulting

12. The Committee **recommends** that only humane methods of induced moulting be utilised and notes, with approval, the preferred method of feeding barley ad libitum. (Paragraph 7.48)

13. The Committee believes that moulting practices that deprive birds of food or water for excessive periods cannot be justified on welfare grounds and **recommends** that the starvation method of induced moulting be prohibited. (Paragraph 7.48)

Handling and Transport

14. The Committee **recommends** that the information contained in the Codes of Practice for road transport of livestock be more widely disseminated by government extension services, poultry companies, transport operators and the veterinary profession. (Paragraph 8.15)

15. The Committee believes that sufficient resources should be provided to ensure that the provisions of the Code are enforced and **recommends** that additional manpower resources be provided to each State and Territory Department of Agriculture to ensure compliance with the provisions of the Codes of Practice for road transport of livestock. (Paragraph 8.16)

Broiler Chickens

Stocking Densities

16. The Committee **recommends** that the maximum stocking densities for broilers in sheds be set at a rate consistent with the live-weight of the birds immediately prior to processing to ensure that overcrowding does not occur. (Paragraph 9.18)

17. The Committee **recommends** that the stocking densities for broiler chickens be regularly reviewed by the Sub-Committee on Animal Welfare of the Australian Health Committee within the Australian Agricultural Council. (Paragraph 9.19)

Processing of Broilers

18. The Committee believes that all slaughtering practices should ensure a humane death and that as to the methods of slaughter, other than by decapitation, the Committee **recommends** that in all instances broiler chickens be stunned prior to slaughter in accordance with the guidelines laid down in the Codes of Practice for poultry at slaughtering establishments. (Paragraph 9.56)

19. The Committee **recommends** that research be conducted into effective means of stunning in an effort to overcome the problems associated with the current methods. (Paragraph 9.56)

PART THREE: PIGS

Intensive Pig Housing

Research and Evaluation

20. The Committee **recommends** that the Pig Research Council actively encourage research to address the cost equation associated with capital costs of pig housing and loss of production with a view to clarifying some welfare stress issues. (Paragraph 11.70)

21. The Committee **recommends** that the maximum recommended stocking densities for growing and adult pigs in groups be reviewed to take account of the advances in understanding of physiology and behaviour and the welfare consequences of pen space, stocking rates and group sizes. (Paragraph 11.71)

Sows

22. The Committee **recommends** that future trends in housing the dry sow should be away from individually-confined stall systems and that this be reflected in the Codes of Practice for the welfare of the pig. (Paragraph 11.72)

23. The Committee **recommends** that tethering of sows be banned. (Paragraph 11.72)

24. The Committee, noting that sow size has increased over the years, **recommends** that immediate attention be given to ensure that stalls and farrowing crates currently in use do not cause suffering due to cramping. (Paragraph 11.73)

25. The Committee **recommends** that the Codes of Practice for the pig be revised to ensure stalls and crates reflect the body dimensions of large sows. (Paragraph 11.73)

26. On the issue of farrowing crates, noting that piglet mortality due to sow overlay is a major welfare consideration, the Committee **recommends** the encouragement of some producer pilot systems to test the viability of designs which will allow sows more freedom of movement and access to a separate exercise area at least some time each day. (Paragraph 11.74)

27. The Committee **recommends** that governments and the industry encourage the adoption of alternative approaches to accommodating sows through their various stages and the improvement in husbandry skills needed to avoid welfare problems. (Paragraph 11.75)

28. The Committee questions the management practice of birth induction and **recommends** that the welfare implications of prostaglandin use be investigated. (Paragraph 11.76)

Housing Systems Evaluation

29. The Committee **recommends** that the Commonwealth Government fund a research project in Australia to examine and evaluate housing systems that may be suitable to Australian conditions and that this review:

(a) examine overseas research findings into alternative housing systems;

(b) assess the welfare benefits and any welfare disadvantages of such systems;

(c) evaluate the economic viability of alternative systems; and

(d) take account of the views of producers, industry service providers, design engineers and specialist ethologists. (Paragraph 11.77)

Tax Incentives

30. The Committee **recommends** that the Commonwealth Government provide tax incentives to encourage producers to upgrade their systems to incorporate improved design features to improve pig welfare. (Paragraph 11.78)

Overstocking

31. The Committee **recommends** that the appropriate authorities ensure that regular inspections of intensive pig production units be undertaken to monitor husbandry practices generally and to ensure that stocking densities do not exceed those specified in the Codes of Practice for welfare of the pig. (Paragraph 11.79)

Pig Husbandry Practices

Tailbiting

32. The Committee, noting that taildocking involves some pain and stress, **recommends** that stockpersons are properly trained in the procedure, so that the task is undertaken with dexterity and with as little trauma to the pig as possible. (Paragraph 12.39)

33. The Committee **recommends** that further research into the causal factors of tailbiting be undertaken as the issue is so closely linked to overall aspects of pig welfare in close confinement production. (Paragraph 12.39)

Teeth clipping

34. The Committee is surprised at the high susceptibility to infection which apparently occurs in intensive systems and noting the emphasis placed on the health benefits of intensive production **recommends** that further research be conducted into the underlying reasons for infection that necessitates teeth clipping. (Paragraph 12.40)

Pigs-Off Farm Handling

35. The Committee, noting the importance of a multi-sector approach to strategies to minimise stress, deaths, and decrease yield and quality losses during post-farm handling of pigs, **recommends** a State and Territory-wide multi-sectoral review of off-farm handling of pigs with a view to upgrading existing codes of practice and disseminating information to service providers, producers, transporters, abattoirs and other interested parties. The review process should take account of the views of animal welfare organisations and specialist ethologists. (Paragraph 13.16)

36. The Committee **recommends** that in addition to ensuring that information is widely disseminated on the proper handling of pigs from farm loading to slaughter, adequate monitoring should also be undertaken to ensure compliance with the provisions of the Codes of Practice associated with the transport and slaughter of livestock. (Paragraph 13.17)

PART FOUR: THE WAY FORWARD

Stockmanship, Education and Training

37. The Committee **recommends:**

(a) that the subject of animal behaviour be recognised as an integral component of the curriculum in agricultural and veterinary colleges in Australia, especially as a component of welfare;

(b) the development of certificate training courses for stockpersons in the pig and poultry industries by Technical and Further Education and agricultural college courses;

(c) funding initiatives be developed to support skills training of stockpersons unable to gain access to formal training courses; and

(d) the Pig Industry Research Council, the Chicken Meat Research Council and the Egg Industry Research Council give greater priority to welfare-related stockmanship research. (Paragraph 14.24)

38. The Committee also **recommends** that the Codes of Practice be revised to take account of advances in the understanding of the importance of stockmanship in the welfare of animals in intensive systems. (Paragraph 14.25)

Legislation and Regulation

39. The Committee **recommends** that to ensure that the Codes of Practice remain relevant there should be continuing revisions as appropriate and major reviews every five years to take account of technological changes in husbandry practices, include advances in the understanding of domestic fowl and pig physiology and behaviour, and to reflect prevailing community attitudes. Codes should include statements on the importance of suitable education and training in maximum welfare in intensive systems. The review process should take account of the views of the industries, industry service providers, consumer and animal welfare organisations, and specialist ethologists. (Paragraph 15.7)

40. Noting that each State and Territory Government has the responsibility to implement policies and enact and upgrade existing legislation which it thinks will best enhance animal welfare within its jurisdiction the Committee **recommends:**

    (a) legislation for the prevention of cruelty to animals and other relevant Acts specify that Codes of Practice for the welfare of animals must be followed; and

    (b) that State and Territory Governments around Australia develop a complementary legislative and regulatory approach to animal welfare. (Paragraph 15.9)

Conclusion

Standards for Husbandry Systems

41. Noting that standards are set for a range of commodities which are released onto the market the Committee **recommends** that governments with responsibility in this area develop standards for new and modified animal husbandry systems. (Paragraph 16.4)

PART ONE

INTRODUCTION

CHAPTER 1

OVERVIEW

1.1 Australians face a challenge over the next decade in balancing the forces which impact on their standard of living. In order to prosper as a nation we must lift our production performance while at the same time lower the exploitative nature of progress and development to date.

1.2 This report highlights these forces in the examination of animal welfare issues and concerns associated with the pig, egg and broiler chicken industries. They can best be summed up as follows:

> The Government is working to develop a more prosperous Australia, with much better economic performance, improved standards of living, enhanced quality of life, and greater care for our environment. Such human progress can only come from the expansion and more efficient use of our productive capacity - our human skills, capital, technology and natural resources.
> Government Statement by John Kerin, Minister for Primary Industries and Energy and Peter Cook, Minister for Resources, May 1989.[1]

> Shifts in lifestyles and increased disposable incomes have changed what, when and how people eat. People are increasing their demand for convenience, nutrition, variety and quality. ... This is impacting right through the whole agribusiness system i.e. through distributors, processors and traders, to rural producers and the suppliers of their inputs. The implication of these is profound. For example, it must be recognised that consumers do not buy meat as such, but rather a certain cut of a certain kind of meat which has desirable attributes.

> These attributes will vary from market to market, and will change over time. A failure to meet those requirements means lower return to producers and all others involved in the system, or no returns at all. It is as simple as that.
> Mr Keith Lawson, Managing Director, Elders Pastoral, speaking at the Outlook 90 National Agricultural and Resources Conference.[2]

> I think what you should really be asking for the purposes of investigation of intensive farming is: 'Is this at all a tolerable life for the animals, looking at the life as a whole?'. I believe that if you look at the cases of intensive farming and a life that basically consists of a year to 18 months being crowded into a battery cage and then getting thrown out and killed, or in the cases of a breeding sow, say months on end spent unable to walk around, turn around, socialising in the normal way, simply lying there with nothing to do, then I think that it is pretty clear that that is not a tolerable life for an animal. I think that minimum standards ought to be implemented to make sure that they can have for the duration something that we can regard as a reasonable life to inflict on another creature.
> Professor Peter Singer, Vice-President, Australian and New Zealand Federation of Animal Societies in evidence to Committee, 11 August 1989.[3]

1.3 Intensive livestock production is an issue which is now on the political agenda of most developed countries around the world. This has occurred because changes over recent decades to livestock husbandry have made farm animal welfare a controversial issue. Although abuse can occur under all systems there is a feeling that the intensification of livestock husbandry has been associated with a deterioration in the welfare of farm animals.

1.4 Prior to the 1960s there was relatively little community interest in, or concern about, the welfare of farm animals apart from the long-held belief that they should be treated humanely. Within 'developed', more affluent societies, however, along with a general awakening and growth of consumerism, environmentalism, naturalism, questioning of materialism and general 'activism' in the 1960s, came a growth in concern about the way animals were being treated and the ethics of animal production methods.

1.5 Specific community concern about the intensification of animal production led the British Government to set up a Technical Committee, Chaired by Professor F.R.W. Brambell, in 1964 to inquire into animal welfare.[4] There have been other inquiries since then as well as changes to animal welfare laws - notably in Holland, Sweden, Switzerland, Denmark and the United Kingdom.

Intensive Systems Defined

1.6 There are obviously varying degrees of intensification, but to most people the word 'intensive' implies that the husbandry system is carried out within buildings and involves either the crowding of large groups of animals within restricted spaces, e.g. fattening pigs kept on concrete floored pens and table birds reared in broiler houses, or the confining of one or more animals in small crates, stalls or cages, e.g. crate-reared pigs and laying hens in cages. In most cases the air around the animals is kept within certain temperature and humidity ranges by mechanical devices (i.e. a controlled environment), food and water is usually supplied ad libitum and in many of the systems bedding is not provided (broilers on deep litter floors being the exception to this).[5]

1.7 The food provided is usually of a high nutritional value, and disease levels are kept down by the adoption of high standards of hygiene, by the use of vaccines and, in some cases, by the regular incorporation of antibiotics into the food. Many of the routine tasks, such as the dispensing of food and water and the removal of dung, have been mechanised and it is possible for large numbers of animals to be looked after by a small number of attendants.[6]

1.8 Over the last 30 to 40 years strains of poultry and pigs have been deliberately selected to thrive, i.e. to grow and produce well, in intensive systems. It is presumed that these animals have become adapted to the environmental conditions imposed on them. The extreme forms of intensive husbandry carried out entirely within buildings and which are independent of the use of the surrounding land have been labelled by some as 'factory farming'.[7]

Benefits of Intensive Husbandry

1.9 The benefits of intensive husbandry, from man's point of view are as follows.

1. The encouragement of maximum production - daily live weight gains and egg yields.

2. Efficient food conversion, due partly to the controlled environment and partly to the improved genetic make-up of the animals.

3. The maximum utilisation of the equipment and buildings.

4. A reduction in the number of workers needed to look after the animals. This factor is possibly the one which brings about the greatest saving in costs.[8]

1.10 Some animals are intensively kept throughout their lives. Table birds, for example, are placed in a broilerhouse as day-old chicks and kept there for the whole of their 12-14 weeks of life only leaving the building on their final journey to the processing works. On the other hand, fattening pigs and laying poultry, with more easily separated stages in their relatively long lives, can have parts of their production regimes intensified, while other parts can be less intensive.[9]

1.11 These separate stages may be carried out on different farms or in different sites on the same farm. It is usual nowadays for the fattening or laying stages to be intensified, but there is an increasing tendency to start intensification earlier.[10]

1.12 Obvious benefits for the animals are freedom from malnutrition, vagaries of the weather, and parasitic infestation. Indeed intensive livestock production is undertaken in intensive conditions largely because there is improved control over the environment variables which limit health and productivity. Although significant advances have been made in nutrition, genetics and health, environmental design in animal housing has, until recently, been concerned mainly with climatic control, labour-saving devices and hygiene. Little attention has been paid to the effects of housing on behaviour. In addition the focus of research, innovation and advisory effort over recent decades has been upon controlled environment intensive techniques, which has often affected the rate at which less intensive techniques have been developed.

Welfare Concerns

1.13 The argument advanced by those opposing intensive systems is that close confinement is ill-treatment because it deprives livestock of the opportunity to express physiological and ethological needs and behaviour.

1.14 Opponents are seeking answers to questions about the level of suffering, the amount of fear, the degree of frustration and the severity of pain or discomfort experienced by intensively kept livestock under particular systems or during specific procedures. The industries themselves, and other interested groups and individuals including research scientists are looking for answers to questions about these issues but some are not directly accessible to scientific investigation. These involve an animal's subjective feelings including whether or not it is suffering mentally.

1.15 Animal welfare organisations in Australia acknowledge that any usage of animals by man inevitably involves some degree of restriction on the animal's activities and some modification to its environment. However, they consider that the extreme forms of intensive husbandry which have evolved in recent years and which restrict movement, space allowance and social contacts raises serious quality of life questions for these food animals.

1.16 Professor Singer, representing the Australian and New Zealand Federation of Animal Societies, stated in evidence that:

> ... if one takes the total quantity of suffering that is involved then the greatest animal welfare issue of them all is intensive farming, because of the enormous number of animals involved in it and because of the prolonged duration of the suffering that occurs. Animals in intensive farming are suffering, not just for a few moments or hours or even days, but for months continually; and the numbers of animals involved run into billions, if one looks at it on a world-wide level. Certainly the numbers run into the hundreds of millions in Australia alone.[11]

1.17 Professor Singer believes that the free market system coupled with modern technology has turned farms into factories and farm animals into commodities[12] and that there are economically viable alternatives to the more extreme intensive livestock production practices.

1.18 Farmers and the industries generally acknowledge the economic pressures on the industry but do not accept that they compromise welfare to the extent claimed by those opposing intensification. They argue that all systems have an impact on the social and physical environment and are concerned about inexperienced observers making judgements based on perceptions rather than knowledge. They are especially critical of arguments which rely on the attributions of human emotions and motives to animals. In short they are concerned that many of the concerns of critics are unfounded, critics ignore welfare aspects of extensive systems, and they propose the adoption of commercially untenable husbandry measures.

1.19 The Australian Pig Industry Policy Council stated in its submission that:

> While community concern about animal welfare has been a more recent phenomenon, farmers have for generations generally treated their livestock in a humane and considerate manner.
>
> Good farmers have always been aware that proper animal care and profitability are inexorably linked. To farmers, animal welfare is part and parcel of practical animal husbandry.
>
> The farming community is justifiably suspicious that the more extreme activist groups have an agenda which goes well beyond improved animal welfare and includes not only total vegetarianism for the community but the transformation of society into a classless democracy where the profit motive is replaced with public co-operative ownership. (Social Alternative Vol. 5, (2), pp. 17-20)[13]

1.20 All parties to this inquiry demonstrated a real concern for the welfare of food animals and agreed that the least stressful effective methods of production should be used. At issue is the extent to which welfare is affected by intensified production, the importance of components of the production system most likely to impose suffering, and the ethological needs of the livestock involved.

1.21 So it is generally accepted in Australia that evaluation of intensive systems, processes and practices for livestock production is essential in order to meet the responsibility to remove undue suffering and that these systems can influence behaviour and welfare either through their effects on the animal's social environment or by providing a very artificial physical environment. One of the problems associated with measuring changes in behaviour of a domestic species is in trying to decide what is 'normal' or 'natural'.

1.22 Scientists in Australia, with the support and encouragement of the pig and poultry industries, have been grappling with this problem. It is central to the animal welfare debate and has led researchers to recognise that behavioural research is a major element in establishing objectivity in relationship to the aversiveness of some conditions and practices, and in establishing the validity or otherwise of charges of deprivation levelled at conditions in intensive industries in the case of particular classes of animal.

Conclusion

1.23 Any discussion of animal welfare involves both ethical and practical considerations. Whether improvements can and should be made depends on complex social and biological priorities. Incomplete knowledge about the technical and economic potential of different methods of husbandry compounds the problem. In addition, Australian society is an urban society - the majority of our population live in cities and have had little exposure to animal husbandry in any form - and so there is potential for misunderstanding, for rural romanticisation, and over-reaction.

1.24 An informed debate is now due. It must be Australia based, relevant to Australian conditions, and open to overseas knowledge and experience.

1.25 It cannot take place without at least some answers being found concerning fundamental issues such as:

- whether intensive systems deny the welfare of animals;

- whether animals should be able to undertake particular innate behaviours;

- whether an animal bred and reared in a series of generations really does suffer some sense of deprivation about the things it is denied access to;

- whether the proposed alternative systems can produce the quantity and quality of food that society seems to demand;

- whether they are capable of producing this food at a price society is willing to pay;

- whether the systems have a true welfare advantage for the animals?

ENDNOTES

1. Government Statement by John Kerin, Minister for Primary Industries and Energy and Peter Cook, Minister for Resources, May 1989. Research, Innovation and Competitiveness. Policies for Reshaping Australia's Primary Industries and Energy Portfolios Research and Development, p. 1.

2. K. Lawson, 'International Marketing Strategies for the 1990s - an Australian rural industry perspective', Outlook 90 - National Agricultural and Resources Outlook Conference, Canberra, 30 January-1 February 1990, Session 15, p. 6.

3. Evidence, Australian and New Zealand Federation of Animal Societies, p. 9470.

4. Report of the Technical Committee to Enquire into the Welfare of Animals Kept Under Intensive Livestock Husbandry Systems, HMSO, London, 1965. That Committee's reference was: To examine the conditions in which livestock are kept under systems of intensive husbandry and to advise whether standards ought to be set in the interests of their welfare, and if so what they should be. (p. 1)

5. Roger Ewbank, MVSc, MRCVS, FIBiol, Director UFAW, 'Alternatives: Definitions and Doubts', in Alternatives to Intensive Husbandry Systems, Proceedings of a Symposium held at Wye College (University of London), Ashfort Kent, July 1981, Published by The Universities Federation for Animal Welfare, 8 Hamilton Close, South Mimms, Potters Bar, Hertfordshire, p. 5.

6. ibid.

7. ibid.

8. ibid.

9. ibid.

10. ibid.

11. Evidence, Australian and New Zealand Federation of Animal Societies, 9453.

12. ibid.

13. Evidence, Australian Pig Industry Policy Council, p. S8794.

CHAPTER 2

THE DEVELOPMENT AND IMPORTANCE OF INTENSIVE LIVESTOCK INDUSTRIES IN AUSTRALIA

Production and Consumption

2.1 The intensive pig and poultry industries in this country are dynamic and adaptive industries which contribute significantly to the economy and to the daily diets of most Australians. As with the farm sector generally these industries also generate activity in:

- the manufacture, transport, handling, wholesaling, retailing and financing of farm inputs;
- the provision of contract services;
- the handling, financing, transporting and merchandising of farm products, along with
- the supply of inputs to these downstream activities.

2.2 The following table provides an establishments profile of these industries which provide food, employment, and generate economic activity in the millions.

Table 2.1: Agricultural Establishments (a),
31 March 1989

Description	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust. (b)
Poultry for meat	374	123	89	57	50	12	-	-	705
Poultry for eggs	225	150	146	55	93	18	3	1	691
Pigs	570	252	554	270	139	58	1	-	1,844

(a) Establishments with an estimated value of agricultural operations of $20,000 or more.

SOURCE: Australian Bureau of Statistics, Agricultural Industries, Structure of Operating Units, Australia, 31 March 1989 (7102.0)

2.3 In 1988-89 for example the pig, poultry meat and egg industries had a gross value of production of $1,673.5 million[1].

2.4 Tables 2.2, 2.3 and 2.4 provide comparative details over eight years of the gross value of agricultural commodities produced in Australia, production of meat by type and numbers of livestock slaughtered for human consumption.

2.5 Governments around Australia assist these industries to produce optimum levels of production at a competitive price. This goal is addressed by conducting research, providing advisory and diagnostic services, encouraging improvement in technology applied and, where necessary, implementing regulatory procedures to maintain standards and protect resources.[2]

Table 2.2: Production of Meat by Type (a)
('000 tonnes)

	Carcass weight						Dress weight (b)	
Year	Beef	Veal	Mutton	Lamb	Pig meat	Total Meat	Chickens	Total all poultry (c)
1983-84	1,303	42	169	296	253	2,064	272	298
1984-85	1,271	39	215	301	260	2,086	315	345
1985-86	1,344	41	258	320	269	2,232	334	367
1986-87	1,481	40	288	296	283	2,388	345	384
1987-88	1,549	39	293	293	297	2,471	362	-
1988-89	1,459	32	254	290	308	2,343	368	-

(a) Excludes offal. (b) Dressed weight of whole birds, pieces and giblets. (c) Includes other fowls, turkeys, ducks and drakes.[3]

SOURCE: Australian Bureau of Statistics, Livestock Products, Australia, April 1990, (7215.0).

Table 2.3: Numbers of Livestock and Poultry Slaughtered for Human Consumption
(million head)

Year	Cattle	Calves	Sheep	Lambs	Pigs	Chickens (a)	Other fowls (b) & turkeys	ducks and drakes
1983-84	6.0	1.3	8.4	17.1	4.4	216.2	10.2	1.7
1984-85	5.8	1.2	10.5	17.5	4.5	244.2	10.7	2.1
1985-86	6.2	1.2	12.9	19.1	4.5	258.4	11.8	2.3
1986-87	6.8	1.2	14.7	17.7	4.7	269.3	11.2	2.1
1987-88	6.9	1.2	15.0	17.2	4.9	273.6	-	-
1988-89	6.3	1.0	12.4	16.5	5.0	274.1	-	-

(a) Comprises broilers, fryers and roasters. (b) Comprises hens, roosters, etc.[4]

SOURCE: Australian Bureau of Statistics, Livestock Products, Australia, April 1990, (7215.0).

Table 2.4: GROSS VALUE OF AGRICULTURAL COMMODITIES PRODUCED
($ million)

	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89p
Crops-						
Barley for grain	732.6	759.3	586.8	432.6	459.8	570.0
Oats for grain	203.8	129.6	138.3	164.8	195.0	224.5
Wheat for grain	3,605.6	3,202.9	2,719.4	2,530.0	2,015.7	2,866.1
Other cereal grains	408.7	400.8	346.3	322.4	402.3	406.0
Sugar cane cut for crushing	516.6	512.2	494.2	586.4	618.2	770.7
Fruit and nuts	552.5	670.9	678.6	837.2	886.0	936.7
Grapes	217.0	259.4	270.0	272.2	353.7	403.7
Vegetables	738.6	628.8	713.6	885.4	952.9	1,092.8
All other crops (a)	1,451.1	1,303.5	1,430.5	1,706.7	1,928.4	2,155.5
Total crops	8,426.5	7,867.4	7,377.7	7,737.7	7,812.0	9,426.0
Livestock slaughterings and other disposals (b)-						
Cattle and calves (c)	2,118.0	2,253.2	2,367.3	2,819.7	3,057.0	3,144.6
Sheep and lambs	585.0	576.1	531.6	721.2	803.9	712.3
Pigs	375.5	438.1	438.3	468.5	536.1	620.0
Poultry	430.2	512.6	559.1	601.7	671.2	717.0
Total livestock slaughterings and other disposals	3,508.6	3,783.3	3,896.4	4,611.0	5,074.3	5,194.0
Livestock products-						
Wool	2,016.1	2,434.4	2,693.4	3,333.6	5,516.6	5,925.7
Milk	1,153.2	1,035.4	1,106.7	1,257.4	1,390.0	1,606.9
Eggs	295.2	291.2	297.7	291.6	304.4	336.5
Total livestock products (d)	3,489.8	3,792.8	4,125.3	4,915.6	7,256.2	7,916.2
Total value of agricultural commodities produced	15,424.9	15,443.5	15,406.0	17,272.5	20,151.8	22,546.5

(a) Includes pastures and grasses cut for hay and harvested for seed. Excludes crops for green feed or silage.
(b) Includes net exports of livsetock. (c) Includes dairy cattle slaughtered.
(d) Includes goat milk, honey and beeswax.

SOURCE: Australian Bureau of Statistics, Value of Agricultural Commodities Produced, Australia, 1988-89, Preliminary (7502.0).

p - preliminary

Role of Governments

2.6 Broadly speaking the goals of State primary industry portfolio departments around Australia are to benefit the community by maintaining and improving agriculture in keeping with the need for long term sustainability:

- to increase the productivity of agriculture industries;

- to provide market oriented services to maximise opportunities for the development of competitive agricultural enterprises;

- to protect agricultural resources and the environment generally;

- to protect the consumer and benefit the producer by ensuring the marketing of wholesome acceptable produce.[5]

2.7 The Commonwealth Government's objective in agriculture is to foster the development of efficient, low cost, internationally competitive, innovative and adaptable livestock and pastoral industries and so further enhance their contribution to the Australian economy.[6]

2.8 In its industries assistance and development role the Commonwealth assists industry through a variety of measures including direct financial assistance, taxation concessions, guaranteed domestic price and other marketing arrangements, financial guarantees, a degree of selective preference for local industries in Commonwealth sector purchasing policy, the customs tariff, and import quota restrictions.[7]

2.9 Direct financial assistance from the Budget is provided in several forms: bounties and other subsidies, price support and adjustment schemes, development projects primarily in support of industry, disease eradication schemes, contributions to research and promotion, and other outlays to or for the benefit of industry. It includes outlays of some departments and organisations which service industry (eg. the Departments of Industry, Technology and Commerce, Primary Industries and Energy, and the Australian Tourist Commission). Such departments and organisations provide many services either free of charge or for charges which do not recover fully the costs involved.[8]

Economic and social pressures

2.10 As with primary industry generally, producers of food animals are at the end of a long line of economic and social pressures a fact which is highlighted in a major Commonwealth Government primary industries and resources policies for growth statement released in May 1988.

> While the challenge of restructuring industry and improving our competitiveness is clear, the underlying objective is often overlooked. The end result of an improved economic performance is that there are more and better jobs, and people can enjoy higher incomes and living standards and more readily achieve their individual goals and aspirations.
>
> Underpinning the economic policy reforms are the Government's **social goals** of greater and more equal opportunity, substantial improvements in living standards, an enhanced quality of life for all Australians and care for our environment. While objectives for the primary industries and energy sector are expressed in terms of efficient economic and resource management principles, it is progress towards these social goals that is the ultimate outcome of improved economic performance.
>
> Our long-term objectives can be grouped into three important areas:

- Enhancing our productive capacity
- Developing a more responsive and productive industry structure
- Influencing and responding to the external environment.[9]

2.11 The economic pressures on farmers were highlighted in Outlook 90 National Agricultural and Resources Conference. Speaking on the subject of rural debt Dr John Marsden, Director of Research with the Australian Bankers Association, noted that since 1950 the number of farms in Australia has fallen by more than 36,000; an average of almost 1,000 each year. Since the mid 1960s the number of farmers has fallen by 10,000, or around 400 each year. While many farmers leaving the land either retired, or have used their success in the rural sector to pursue other ventures, the majority have left because of loss of financial viability. However, loss of financial viability is usually closely correlated with other evidence that the farm is not a sustainable enterprise. Loss of financial viability means that the debt levels can no longer be serviced from available cash flow. Essential requirements for long term survival are the control of debt levels relative to production size, together with the capacity to modify activities to meet market conditions.[10]

Development of intensification

2.12 Over the past 30 years there have been significant changes to the structure of the pig and poultry industries, changes which have been due to economic pressures, scientific and technological advances and consumer demands. Pigmeat and poultry production are considered to be among the most scientifically based commercial industries in Australia.[11] Confinement housing of pigs and poultry was first implemented in Australia to improve productivity, to produce better working conditions for stockpersons, to reduce labour input per head of livestock and increase efficiency of production. The increasing availability of antimicrobial substances capable of controlling outbreaks of disease of bacterial origin and for the use as a strategic tool for preventive health programs assisted the intensification of these industries.[12]

2.13 The following details are from industry profiles published in the Australian Bureau of Statistics' Year Book Australia 1989.

2.14 Up until the early 1960s pigs were raised as part of a dairying operation where there were abundant supplies of liquid skim milk. With the introduction of factory separation of milk and cream, coupled with the low grain prices of the 1960s, pig raising has become more and more associated with grain production.[13]

2.15 In addition there has been a major move away from the so called extensive method of pig raising to the intensive conditions that apply today. This has meant an increase in the capital investment in the industry and a greater degree of specialisation in pig raising. The average pig production unit today would be based on approximately 300 sows with feeds being almost exclusively grain based. While the number of sows in Australia has remained fairly constant the number of pig farmers has decreased.[14]

2.16 Capital investment and corporate takeovers have seen the emergence of a few large companies producing 30 per cent of all pigs sold in Australia. These moves on top of the trend to more intensive and efficient production techniques have seen pigmeat production rise steadily since 1982 to reach 285,000 tonnes in 1987-88. In addition, there has been an increase in the slaughter weights of pigs reflecting the demands of the fresh pork trade.[15]

2.17 It is believed that about 60 per cent of production is processed into bacon, hams and smallgoods, with the rest sold as fresh pork. Less than 2 per cent of the industry's output is exported. The increasing production of pigmeat therefore reflects a steady increase in per capita domestic consumption over the past three years.[16]

2.18 The commercial poultry industry comprising hatcheryworkers, egg producers and broiler growers is highly specialised, although a proportion of production comes from 'backyard' egg producers. There are also separate research schemes funded jointly by industry and government for the egg and meat chicken industries but close liaison exists. Both sectors are good examples of specialised, large scale, capital-intensive production.[17]

2.19 The poultry meat industry developed rapidly in the 1970s with both output and consumption rising steeply, although in recent years production has exceeded demand and excess production capacity in the industry continues. Genetic and technical improvements and the organisation of the industry into large-scale enterprises have raised efficiency and helped to reduce production costs relative to other meats. The price competitiveness of chicken meat compared with other meats, especially beef, continues to improve, consolidating the position of poultry meat as the second most important meat after beef in Australian diets.[18]

2.20 In a paper to the Outlook 90 Conference entitled 'Australian Meat: A Decade of Opportunity', Michael Blyth from the Australian Bureau of Agricultural Resource Economics (ABARE) forecast a continuation of the expansion of Australia's livestock industries in the short term under the influence of relatively favourable returns for most livestock products.[19]

2.21 He added that new technologies, including genetic engineering techniques and improved management practices are expected to provide the basis for additional gains in efficiency in the intensive livestock industries over the medium term.[20] Table 2.5 summarising forecasts and projections for pigs and poultry are from an ABARE table presented with this paper.

Table 2.5: **Summary of Australian Statistics and Projections for Meat**

Item	Unit	1988(p)	1989(s)	1990(f)	1991(z)	1992(z)	1993(z)	1994(z)	1995(z)
Nominal Price									
Pigs									
- saleyard	c/kg	201	225	240	250	260	260	250	265
- retail	c/kg	601	670	715	745	775	775	745	790
Poultry, retail	c/kg	296	320	340	350	360	365	365	370
Livestock numbers									
Pigs	'000	2,766	2,765	2,850	2,950	3,050	3,060	3,030	3,040
Production									
Pig meat	kt	304	305	309	319	328	341	354	343
Poultry	kt	406	415	432	447	462	467	472	477
Export value									
Pig meat	$m	33	32	33	31	32	41	56	35
Poultry	$m	3.0	2.5	4.0	5.0	5.5	6.0	5.5	5.5
Export volume									
Pig meat (a)	kt	9.9	7.5	7.0	8.0	8.0	10.0	14.0	9.0
Poultry (a)	kt	1.4	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Consumption per person (b)									
Pig meat	kg	17.7	17.7	17.7	17.9	18.2	18.5	18.7	18.1
Poultry	kg	24.4	24.6	25.1	25.6	26.1	26.0	25.8	25.7

(a) Fresh, chilled or frozen shipped weight. (b) Includes canned and miscellaneous meats. (p) Preliminary. (s) ABARE estimate. (f) ABARE forecast. (z) ABARE projection.
Sources: Australian Bureau of Statistics (1989a, b); Australian meat and Livestock Corporation; ABARE.

SOURCE: 1990 National Agricultural and Resources Outlook Conference Paper, Australian Meat: A Decade of Opportunity, ABARE p. 2 (session 9)

Consumer and Farm Cost Pressures

2.22 It is expected however that farm input costs will rise. Farm inputs are all those goods and services that a farmer needs to carry on the profession of farming. Any changes that affect farmers such as climatic conditions, commodity prices or environmental pressure influence the use of agricultural inputs.

2.23 These issues were also highlighted at the Outlook 90 Conference. In a paper entitled 'Expected Developments in the Use of Agricultural Inputs', Graham Foster, Managing Director of Combined Rural Traders Limited, warned that tight economic conditions in Australia will probably see farmers spending more on inputs than on capital expenditure in the year ahead. He drew attention to the fact that consumer and community pressures on agricultural inputs usage is a dominant theme today and highlighted the input cost implications.[21]

2.24 Consumer concerns about what fertilisers and chemicals are used to produce safe and high quality food will have implications for farmers and input producers alike in the years to come. Foster argues that the rate of food and fibre production needs to be constantly increased to cope with the growth in world population growth. A balanced approach to safety from consumers, the media, farmers, the scientific community, politicians and manufacturers is essential if the benefits of high technology are to be understood and appreciated by future consumers.[22]

2.25 He stressed the point that worldwide interest in food residues by consumer bodies will pressure governments into maintaining strong control through regulation and initiating more environmental research activity as opposed to production research and development activity.[23]

2.26 A further impact on farmers is consumer driven demand. As indicated on page one of this report (in a quote from Mr Keith Lawson, Managing Director of Elders Pastoral) diet consciousness and fashion have important implications for producers. In his paper to the Outlook 90 Conference Keith Lawson said that the entire vertical food system needs to become pro-active in creating what the consumer wants, that is, value. A major implication of this is that we can longer view what we produce in rural industry as a commodity. We must generate extra value for consumers according to their ever-changing needs.[24] Consumer driven demand means the need for marketing and speedy responses throughout the chain in order to meet consumer needs and generate value. The alternative to a marketing led approach is stagnation and a declining position for our rural products.[25]

2.27 Some animal rights activists consider that individual farmers are on the whole too isolationist. They need to become much more involved in consumer concerns. Jim Mason and Peter Singer write, in their book ANIMAL FACTORIES: The mass production of animals for food and how it affects the lives of consumers, farmers, and the animals themselves, published in 1980 that:

> The natural forces of commodity marketing are the primary cause of ... sectarianism and specialization in agriculture. With hard times nearly always in sight for independent farmers, they tend to turn to the one crop or type of livestock operation that provides the most security ... they dare not whisper about the immense power that commodities traders and other agribusiness interests have over them. ... With a truly progressive attitude about food and environmental issues, farmers could gain a fair amount of muscle in coalition with groups working on these issues. Farmers who ignore these trends, or who fight for the narrow goal of making the agricultural status quo more profitable, can expect deepening powerlessness and an increasing trend towards expensive, complicated farming as agribusiness promotes its same old self-serving technology, and government slaps on controls in response to consumer concerns for the environment and food quality.[26]

2.28 Animal welfare is not an issue which is included in the cost equation debates over agricultural productivity, at least not at the national conference level. Clearly it is not yet seen in the agribusiness sector to be a significant consumer pressure issue in Australia.

2.29 The peak bodies associated with intensive pig and poultry industries recognise the implications of activism in this area. Industry bodies and veterinary and government service providers argued in this inquiry that consumers would have to pay higher prices if intensive farming techniques were radically modified or abandoned altogether. However neither they nor the peak animal society bodies have offered any quantifiable information on the question of costs.

Conclusion

2.30 It is time now in Australia for a rigorous discussion of these matters and it is vital that farmers take an active part. Vital because they are close to the animals in their care and to input cost impact and they are at the start of a long agribusiness chain which gets stronger as it moves away from the farm gate.

ENDNOTES

1. Australian Bureau of Statistics Year Book Australia 1989, p. 390, reproduced in this Chapter in Table 4.

2. State Departments of Agriculture/Primary Industries Annual Reports.

3. The ABS collects details of slaughterings and meat production from abattoirs, commercial poultry and other slaughtering establishments and includes estimates of animals slaughtered on farms and by country butchers. The data relate only to slaughterings for human consumption and do not include animals condemned or those killed for boiling down.

4. See Footnote 4.

5. State Departments of Agricultural Primary Industries Annual Reports.

6. Commonwealth Department of Primary Industries and Energy Annual Report 1988-89, p. 21.

7. Budget Paper No. 1, 1989-90, p. 216

8. ibid.

9. Primary Industries and Resources Policy for Growth, A Government Policy Statement by John Kerin, Minister for Primary Industries and Energy and Peter Cook, Minister for Resources, May 1988, AGPS, p. 4.

10. Dr J. Marsden, 'Rural Debt, Mediation and the ABA/NFF Scheme', Outlook 90 National Agricultural and Resources Conference, Canberra, 30 January-1 February 1990, Session 4, p. 1.

11. Australian Encyclopaedia, Fourth Edition, 1983, p. 50.

12. Evidence, Australian Veterinary Association, p. S9022, S9030.

13. Australian Bureau of Statistics Yearbook Australia 1989, p. 424.

14. ibid.

15. ibid., p. 427.

16. ibid.

17. ibid., p. 424.

18. ibid., p. 427.

19. M. Blyth, 'Australian Meat: A Decade of Opportunity', Outlook 90 National Agricultural and Resources Outlook Conference, Canberra, 30 January-1 February 1990, Session 9, p. 7-9.

20. Ibid, p. 7-8.

21. G. Foster, 'Expected Developments in the Use of Agricultural Inputs', Outlook 90 National Agricultural and Resources Outlook Conference, 30 January-1 February 1990, Session 4, p. 1.

22. ibid.

23. ibid, p. 1-2.

24. K. Lawson, Outlook 90 National Agricultural and Resources Outlook Conference, 30 January-1 February 1990, Session 15, p. 6.

25. ibid, p. 11.

26. J. Mason and P. Singer, '<u>Animal Factories: The Mass Production of Animals for Food and How it Affects the Lives of Consumers, Farmers and the Animals Themselves</u>', Crown Publishers, New York, 1980, pp. 141-2.

CHAPTER 3

WELFARE AND WELFARE ASSESSMENT

Welfare Definitions and Concepts

3.1 The task of defining animal welfare is extremely difficult and has taxed the abilities of numerous expert committees in a number of countries. It is a term which lacks precise definition because it is a multifaceted concept caught up in an ideological tangle. To that extent welfare is, as Carpenter has defined it:

> ... not unitary but is the algebraic sum of dozens of different parameters, most of which are relative rather than absolute.[1]

3.2 The Technical Committee to Enquire into the Welfare of Animals kept under Intensive Livestock Husbandry Systems (the Brambell Committee) established in 1964 by the British Government[2] brought down a report which was a benchmark in the animal welfare debate.

3.3 The Technical Committee's deliberations were strongly influenced by contemporary behavioural ideas[3] and it defined welfare as being:

> ... a wide term that embraces both the physical and mental well being of the animal. Any attempt to evaluate welfare therefore, must take into account the scientific evidence available concerning the feelings of animals that can be derived from their structure and functions and also from their behaviour.[4]

3.4 Submissions to this inquiry have mainly quoted other people when attempting to define the term animal welfare. The concept of physiological and behavioural (ethological) needs of animals is generally accepted in Australia. The debate today revolves around whether there are specific conditions that result in physiological or behavioural responses that are in themselves the result of undue suffering or are indications of such a state.[5]

3.5 Environmental design in animal housing has, until recently, been concerned mainly with climate control, labour-saving devices and hygiene. Little attention has been paid to the effects of housing on behaviour.[6] The increasing public focus and stress aspects which have affected productivity have seen an increase in investigations of this kind.

3.6 Of course, what we want to know ultimately is whether or not animals are suffering. The term 'suffering' implies a particular type of mental experience; a subjective feeling. Subjective feelings are not accessible to scientific investigations but that does not mean that they do not exist.[7]

3.7 During this inquiry it was repeatedly stated that we can only advance our insight into concepts like animal welfare if we succeed in advancing our scientific knowledge of basic behaviour.

3.8 Professor A.R. Egan and Dr D.G. Hutson from the Animal Production Section of the School of Agriculture and Forestry, University of Melbourne have submitted to this Committee that:

> Any environmental factor or practice which can be identified as a cause of suffering or stress should receive attention resulting in modification of management practices. The interests of production are served, since it is likely that stress is reflected in reduced productivity of the animals. There are some practices in production systems which appear to most observers to be undesirable. These require two kinds of research which are often linked. One is to evaluate the degree of suffering involved since it may be that while

> to the observer the conditions are abhorrent, they do not offend against the needs of the animals. The other is to address the perceived or imputed causes of psychological and behavioural reactions around which welfare/suffering issues arise and find alternative ways of achieving the objectives of management.[8]

Welfare Assessment

3.9 All criteria used to assess welfare rely on showing some evidence of change. For example, changes associated with the stress response have been widely used as physiological indicators of welfare due to the belief that if stress increases, welfare decreases. Changes in behaviour, particularly the occurrence of abnormal behaviour have also been used as behavioural indicators of welfare. It was repeatedly stated in evidence to this Committee that it is important to recognise that change per-se is not an indication of a change in welfare; animals' behaviour and physiology are continually being adjusted to maintain equilibrium with the environment (homoeostasis) and animals are obviously not in a continual state of changing welfare because of these continued adjustments. The important question for welfare research in both physiology and behaviour is "at what level of change is welfare at risk?"[9]

3.10 Dr Barnett, Senior Research Scientist with the Victorian Department of Agriculture and Rural Affairs and Scientific Advisor to the Australian Pig Industry Policy Council, said in evidence that:

> ... Whatever measure we look at in trying to assess welfare all we are looking at is a change. It is a change in physiology or a change in behaviour and with physiology the question we are trying to come to grips with at the moment, and one has to come to grips with it first in what we are trying to do, is at what level of change is welfare at risk? So physiologically when we assess stress in animals we say that there is evidence that these animals are stressed from hormone measurements. But that does not mean their welfare is at risk. You then go and look at

> the consequences to the animal of that change in hormone level. If you start finding consequences which can be indicative of nutritional problems or energy problems by going to energy deficit; it has effects on the immune system; it has effects on production. Once you start finding those effects of the consequence of stress you say, who is at risk? That is what we are trying to do physiologically. Behaviourally I do not think they are so far advanced.[10]

Vices and Stereotypic Behaviour

3.11 Several classes of abnormal behaviour have been recognised in intensive systems.

3.12 The following clarification and comment concerning pigs is from a conference paper by J.L. Barnett and G.D. Hutson and presented to the inaugural conference of the Australian Pig Science Association held in Albury in 1987.

> (1) Vices, which are destructive behaviour patterns resulting in injury or damage to the performer or pen mates. These behaviour patterns may be originally derived from motivational systems concerning aggressive, feeding, grooming or exploratory behaviour. Obvious examples are ear-and tail-biting. There is universal agreement that these severe forms of abnormal behaviour are indicative of reduced welfare since they lead to physical injury, and on occasions, death.
>
> (2) Stereotypies, which are usually defined as morphologically identical movements which are repeated regularly, are unusual, and have no apparent function (Odberg, 1986). Examples are bar biting, sham chewing (also referred to as vacuum chewing or champing), rhythmic snout rubbing, head weaving, etc. The well-being of animals performing stereotyped behaviour is open to dispute as some authors have argued that the animal is responding to a barren environment by creating its own stimulation or arousal. The aetiology of stereotypes is complex ...
>
> (3) Apathetic behaviours such as motionless standing and sitting have been recognised as abnormal behaviour (Wiepkema, 1983; Broom, 1986).

> Unlike the preciseness of the physiological concept of stress, the underlying causation of abnormal behaviour is complex and varied. Thus vices may develop as a response to boredom (van Putten, 1969), stereotypies may be a response to restraint by a tether (Cronin, 1985), frustration of feeding behaviour (Rushen, 1985), or boredom from understimulation in a barren environment (Kiley-Worthington, 1977), and apathetic behaviour may be a reflection of "learned helplessness". (Fox, 1984)
>
> The occurrence of abnormal behaviour is generally acknowledged to indicate the presence of discord between animal and environment. This should alert us to the possibility that welfare may be at risk and that a more detailed examination is necessary.[11]

3.13 A number of stereotypies have been identified in poultry. Fox has noted that:

> Pacing behaviour in poultry can become a highly stereotyped action, occurring when the bird is frustrated or is attempting to avoid some threatening stimulus (Duncan and Wood-Gush, 1971). Duncan and Wood-Gush (1972b) studied the effects of thwarting of feeding behaviour in poultry and concluded that displacement preening is associated with mild and short-term frustration and stereotyped pacing movements with long-term and intense frustration. Intense frustration may be aversive and lead to escape movements, which develop into stereotyped pacing movements that are fixated in the bird's behavioural repertoire. ... Wood-Gush (1972) has demonstrated a greater susceptibility of one strain of laying hens to frustration pacing when confined in battery cages. His study shows that the husbandry system can create such behavioural abnormalities in genetically susceptible strains.[12]

3.14 Preening and redirected pecking are also recognised displacement behaviours in poultry and indicative of frustration. Fox has argued that the head-flick stereotypy in poultry has been interpreted:

> ... as a repetitive stereotypy caused by monotony, movement, restraint and social isolation, which individually or together lead to a reduction in sensory input.[13]

3.15 As with many stereotyped behaviours, the repetitive movements may be a compensatory action to increase sensory input.[14]

3.16 Although it might be argued that poultry are simple creatures whose essentially instinctive behaviour is governed largely automatically, Fox has argued that "there is sufficient evidence to support the probability that, under reduced levels of stimulation and environmental complexity, poultry may suffer from boredom. This could lead to such "vices" as feather pecking".[15]

3.17 Cannibalism and feather pecking have been identified as two of the major vices in poultry. Cannibalistic pecking is directed toward blood, bleeding tissue (skin or muscle), or internal organs and occurs in both uncrowded floor pens and multiple-hen cages. As Craig has noted:

> It usually resembles feeding behaviour and when several hens are attracted to any injured bird, the results can be deadly within a day or two. The vent or cloacal area is particularly vulnerable for hens kept in cages without nest areas as the uterus is everted during egg laying and is an attractive target. However, pecking of other areas can also be fatal; the tail region is frequently involved and areas where feathers have been lost, so that bare skin is exposed and may be scratched, causing bleeding to begin ... although heavy feather loss may make birds more susceptible to the vice, it is not a necessary condition.[16]

3.18 Basically then the welfare of managed animals relates to the degree to which they can adapt without suffering to the environments designed by man.

Research and Scientific Assessment

3.19 Much of the research done internationally in the field of animal welfare assessment is quite divergent in purpose and methodology. To attempt to summarise, let alone critically analyse and compose the findings of such research, is beyond this Committee's brief and area of expertise.

3.20 Intensive industries and animal welfare researchers in these industries around the world have influenced each other considerably. Global changes in approaches to research - especially the return to an "extensive approach" in some countries - have had an important effect on attitudes towards animal welfare in intensive industries. This influence has been paramount in raising national and worldwide awareness of welfare considerations especially amongst intensive industry and industry support providers.

3.21 Welfare research in Australia is highly regarded internationally. Australian researchers not only make an important written contribution to this field but they have established a high international reputation as lecturers on welfare assessment. Their work is used in many countries as an indicator for evaluating other welfare research. Their participation in welfare assessment studies overseas is further proof of Australia's high global standing in animal welfare research.

3.22 Yet Australian welfare assessment studies are by no means well advanced. By the standards of agricultural science, animal welfare research in this country is comparatively new and relatively peripheral. Its chief assessment criteria include behaviour, physiological factors, health status and production. However, as the Australian Veterinary Association (AVA) pointed out in its submission to the Committee, there are certain areas in which considerable progress has been made through new approaches, for example, in the pig industry.

3.23 According to the AVA, in the past, Australian pig industry projects have generally sought to establish objective measurements of "stress" in housed pigs, particularly in systems of confinement. In addition, research on methodology which might be used to "improve" the housing conditions of pigs was undertaken. Community concern has recently led to a concentration of research effort on objectively quantifying the alleged stressful effects of confinement housing. Research sponsored by the industry through the Australian Pig Research Council, in relation to the industry's size, is quite extensive by world standards.[17]

3.24 In his evidence to the Committee, Professor A.R. Egan, from the School of Agriculture and Forestry, at the University of Melbourne, raised three issues of particular importance regarding animal welfare research and assessment. He referred to the mass of opinion surrounding what constitutes stressful or damaging elements in intensive animal production. While conceding that trauma is recognisable in some circumstances, he emphasised that in other areas a more objective measure than opinion is required:

> ... Behavioural research particularly will allow us to determine whether or not practices - or, alternatively, the deprivations that might be perceived to be present in a system - are truly contradictory to the welfare of the animal; whether or not the animal recognises them as such; and also, to some degree, whether the animal is being placed in a position where it does not even have the opportunity to determine whether or not these things are in its best interest. Those are the philosophical questions that are being addressed in some of the behavioural research being undertaken. ... The assessment of suffering is one area that is important.[18]

3.25 The second issue raised by Professor Egan relates to the necessity (or otherwise) of animals undertaking "particular innate behaviours". If they are prevented from doing so, a stress is induced which is difficult to attribute to any factor other than their absence from their ancestral environment.

3.26 Finally, Professor Egan asks, do these issues mean much in terms of animal welfare assessment? Do animals bred and reared over generations in certain conditions really suffer from a sense of deprivation about other ways of living denied them?[19]

3.27 The scientific assessment of animal suffering is a central element in animal welfare research. The Australian and New Zealand Federation of Animal Societies (ANZFAS) acknowledges this in its submissions to the committee and refers at length to the conclusions reached by Marian Stamp Dawkins in her book Animal Suffering.[20] Dawkins evaluated several approaches to the investigation of suffering in animals and found each one on its own to have shortcomings. She concluded that all must be considered in conjunction with the others. According to ANZFAS, evidence gathered using several of the approaches described by Dawkins points to the conclusion that animals suffer in intensive systems.[21]

3.28 Another factor in animal welfare research concerns the question of proof - how accurately is it possible to determine and prove if animals are suffering? Dr Hugh Wirth, President of the Royal Society for the Prevention of Cruelty to Animals Australia (RSPCA) told the Committee that, in his opinion, "you will [never] get to that idyllic state where you apply a simple test or a series of tests and are able to prove this, that, or the other thing".[22] The difficulties involved in defining stress and evaluating its effect on animals cannot be overstated. 'Objective' measures of the impact of stress should be treated with caution.

3.29 In this context Professor Peter Singer, Vice-President of ANZFAS would discount the interests of some parties who are involved in the production side, either directly as producers or indirectly, for example, as employees of departments of agriculture or government and university scientists receiving research moneys from producers. He believes that most credence can be given to those with a background in observing and assessing animal behaviour, rather than to those coming from a production standpoint.[23]

3.30 It is generally acknowledged that in the intensive livestock production industry, welfare has in the past been primarily linked to production, and that this is too narrow a focus. Much production research is related to industry problems - as Professor Egan has noted in relation to pigs[24] - and therefore has, in animal welfare terms, an even more concentrated focus.[25] Professor A.R. Egan has stated that the Australian Pig Research Council's research projects, like those in many other industries, reflect too strong on emphasis on biotechnology at the expense of inquiry into "behaviour and behaviour physiology relationships".[26]

3.31 This important issue was also referred to in evidence by Dr John Barnett, a Senior Research Scientist with the Victorian Department of Agriculture and Rural Affairs who stated he had:

> ... more confidence ... in interpreting the physiological data than I have in some of the behavioural data. Whatever measure we look at in trying to assess welfare all we are looking at is a change. It is a change in physiology or a change in behaviour and with physiology the question we are trying to come to grips with ... is at what level of change is welfare at risk? So physiologically when we assess stress in animals we say that there is evidence that these animals are stressed from hormone measurements. But that does not mean their welfare is at risk.[27]

3.32 Increasingly, broader community concerns about animal welfare - rather than just those of the production industries - are being reflected in the activities of the Australian Pig Research Council which was reconstituted in the mid-1980s to take greater account of non-industry research requirements (see Chapter 11 for detail on welfare related projects). However, though change is occurring, a significant problem remains: as Dr John Holder, representing the Pig Research Council has pointed out, it will take some time to broaden the present, long-established research emphasis on projects related to nutrition, health and genetics.[28]

3.33 Though such developments are encouraging, the research approach must be widened further. As the Australian Federation for the Welfare of Animals has argued in relation to "Stress, Behaviour and Welfare":

> Because of the role of behavioural change in animals' adaptation processes, scientists have considered behaviour as a sensitive indicator of animal stress. However, while behavioural change alone may indicate that adaptation mechanisms have been evoked, behavioural change does not tell us whether the animal is successfully adapting, because behaviour is only part of the adaptive response.
>
> Stress is frequently viewed as the sum of a number of (behavioural and physiological) responses to environmental change and consequently stress should be viewed as a multi-faceted phenomenon: A phenomenon that requires a multi-disciplinary approach for its elucidation, involving assessment of both behaviour and physiology.[29]

3.34 Care must be taken in applying the results of animal welfare research overseas to Australian conditions. Not only are industries organised differently but several other factors come into play, for example, significant differences in climate and thus in energy costs between Europe and Australia.[30]

3.35 Central to the whole research debate is the question: how do we determine what constitutes 'objective' inquiry in this field? In Professor Peter Singer's opinion the objectivity of animal welfare researchers can certainly be impaired when their involvement is funded by production industries themselves.[31] Dr John Auty, Honorary Technical Adviser to ANZFAS, told the Committee even more forcefully that, "the test of ... objectivity [is] whether the scientists are prepared to show you the real picture, not some put together one ... Let us be objective ... Let us all be objective".[32]

3.36 As Dr Auty intimated to the Committee, mixed motives and insufficient practical knowledge of what is happening "in the field" undoubtedly have an adverse effect on the findings of animal welfare researchers.

3.37 But the degree of objectivity attainable in any scientific and social scientific investigation rests very much on the assumptions made and the models assumed and constructed. An equally important factor is that rational thinking and a preoccupation with the scientific approach to solving problems has come to assume an overly inflated position in our high technology, post-industrial society. The Western obsession with rationality, the urge to measure, quantify and predict to an inordinate degree, has often resulted in an inadequate understanding of behaviour. Overt behaviour is too often taken to represent all or practically all, of the criteria needed to arrive at a social scientific conclusion and basis for action.

3.38 The Committee has noted that the majority of submissions presented to it appeared to place undue weight in their assessments of animal welfare on this scientific approach to the resolution of animal welfare problems. Evidence to the Committee also seemed to reflect too heavy a reliance on the scientific method at the expense of more experimental, intuitive approaches to data gathering and formulating recommendations.

3.39 The question to be considered are wider ethical ones which must be resolved, not only by particular industries or groups of scientists, but through political decision-making in the wider society. The Committee endorses the conclusions reached by Professor A.R. Egan and Dr C.D. Hutson, that the principal philosophical issues surrounding animal welfare assessment are those relating to the environment and the animals' reaction to it; those relating to specific management issues; and those relating to animal/human interactions.[33] The Committee believes that these central issues of "ethics and morality of animal utilisation"[34] can <u>only</u> be successfully addressed if animal welfare assessment and research takes into account ethical considerations; scientific evidence; and the hitherto largely neglected aspects of animal feelings and reactions which are not easily susceptible to quantification and measurement. As I.J.H. Duncan has argued:

> Agriculture is the exploitation of plants and animals for man's benefit. The decisions as to whether or not we exploit animals and, if we do, to what extent we exploit them, are, in the final analysis, ethical decisions. They are therefore decisions that should be made by society at large and not by any one small sector of it. However, society should not be expected to make these decisions without knowing the facts, and the facts, or scientific evidence, can be provided by scientific research. Scientists should be expected to produce evidence on such things as the disease risk, the amount of fear, the degree of frustration and the severity of pain or discomfort that will be experienced by animals under particular systems or during specific procedures. These are facts. It is possible to be objective about them.[35]

3.40 Duncan's main contention is based on the conviction that "what we want to know ultimately is whether or not animals are suffering". He continues:

> The term "suffering" implies a particular type of mental experience, a subjective feeling ... Subjective feelings are not directly accessible to scientific investigation but that does not mean that they do not exist. Other human beings are generally accepted to have subjective feelings and mental experiences although, strictly speaking, we cannot prove it ... Evidence from animal orientation and navigation studies and from animal communication studies suggests that animals do have mental images, subjective feelings and intentions. Although objectivity is usually assumed to be the first principle of ethology, nevertheless even its founders have occasionally speculated on subjective feelings.[36]

Conclusion

3.41 The Committee agrees with Duncan's conclusion that more emphasis must be given to obtaining knowledge, through experimentation, of animals' subjective feelings and to determining whether, or not, they are suffering mentally. The Committee is convinced that, only through a more integrated approach to animal welfare assessment and research, can substantial progress be made in this complex field. This would entail consideration of ethical principles; behavioural science continuing to provide evidence on aspects such as fear, frustration, conflict, pain and discomfort; and a fresh approach, through new forms of experimentation, to arrive at a deeper knowledge of animals' overall well-being or suffering.

3.42 The Committee **recommends** that research funding bodies ensure that all intensive livestock production studies and specific animal welfare related research methodologies take an integrated approach to problems addressed so that findings contain elements of matters relating to housing environment, animal reaction to it, specific management issues, and animal/human interaction.

ENDNOTES

1. Cited in Evidence, by the Australian Pig Industry Policy Council, p. S8801.

2. See Endnote No. 4 of Chapter 1 for details of this Committee and its report.

3. R. Ewbank, 'Animal Welfare' in Management and Welfare of Farm Animals the UFAW Handbook, Third Edition, Balliere Tindall, London, 1988, p. 4.

4. Brambell report, op. cit., p. 9.

5. Evidence, Professor A.R. Egan and Dr G.D. Hutson, Animal Production Section, School of Agriculture and Forestry, University of Melbourne, p. S8928.

6. I.J.H. Duncan, 'Animal Behaviour and Welfare' in J.A. Clark (Ed.) Environmental Aspects of Housing for Animal Production, Butterworths, London, 1981, p. 455.

7. ibid., p. 456.

8. Evidence, p. S8926.

9. Evidence, Australian Federation for the Welfare of Animals, p. S8935.

10. Evidence, Australian Pig Industry Policy Council, p. 9420.

11. J.L. Barnett and G.D. Hutson, 'Objective Assessment of Welfare in the Pig: Contributions from Physiology and Behaviour' in Manipulating Pig Production, proceedings of the Inaugural Conference of the Australian Pig Science Association (APSA) held in Albury, New South Wales, on November 23 to 25, 1987, Edited by APSA Committee Werribee, Victoria, p. 3.

12. M.W. Fox, Farm Animals, University Park Press, Baltimore, 1984, p. 192.

13. ibid.

14. ibid., p. 192-193.

15. ibid., p. 193.

16. J.V. Craig, Domestic Animal Behaviour, Prentice Hall, New Jersey, 1981, p. 210.

17. Evidence, Australian Veterinary Association, p. S9026.

18. Evidence, Professor A.R. Egan, op. cit., p. 9495.

19. ibid., see pp. 9495-9496.

20. Marian Stamp Dawkins, Animal Suffering: The Science of Animal Welfare, Chapman and Hall, London, 1980.

21. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8824.

22. Evidence, Dr H.J. Wirth, RSPCA Australia, pp. 9599-9600.

23. Evidence, Professor Peter Singer, Australian and New Zealand Federation of Animal Societies, pp. 9464-9465 and 9487.

24. Professor A.R. Egan, op. cit., pp. 9494-9495.

25. ibid., p. 9508.

26. ibid., p. 9510.

27. Evidence, Dr John Barnett, Australian Pig Industry Policy Council, p. 9420.

28. Evidence, Dr John Holder, Pig Research Council, pp. 9614-9615.

29. Evidence, Australian Federation for the Welfare of Animals, pp. S8935-S8936.

30. Evidence, Dr Linda Murphy, Poultry Researcher, pp. 9550-9552.

31. Evidence, Professor Peter Singer, Australian and New Zealand Federation of Animal Societies, See Endnote 18.

32. Evidence, Dr John Auty, Australian and New Zealand Federation of Animal Societies, pp. 9471-9472.

33. Evidence, Professor A.R. Egan and Dr C.D. Hutson, pp. S8925-S8926.

34. ibid., p. S8925.

35. Duncan, op. cit., p. 456.

36. ibid.

CHAPTER 4

PEAK NATIONAL BODIES

4.1 There are a great range of issues and opinions concerning animal welfare in intensive livestock production. The peak national bodies most concerned and involved have played a key role in this inquiry. Their submissions and oral evidence have provided a proper context in which to consider intensive animal husbandry and its relationship to the welfare of animals. Each one has contributed a wealth of experience, expertise and philosophical standpoints.

4.2 While these are discussed throughout the report in the context of particular issues the following summary provides a general introduction to these bodies and their perspectives on this important debate.

4.3 National bodies and key contributions to this inquiry have been the:

- Australian and New Zealand Federation of Animal Societies
- Australian Council of Egg Producers
- Australian Federation for the Welfare of Animals
- Australian Pig Industry Policy Council
- Australian Poultry Industries Association
- Australian Veterinary Association
- Royal Society for the Prevention of Cruelty to Animals (Australia).

Australian and New Zealand Federation of Animal Societies

4.4 The Australian and New Zealand Federation of Animal Societies (ANZFAS) is a federal umbrella body representing more than fifty animal welfare, animal rights and conservation organisations of various types. It was formed in 1980 to promote the cause of animal welfare in Australia and New Zealand. The main areas of concern can be summarised as livestock, wildlife, animal experimentation, companion animals and, animals used in sport and entertainment.

4.5 ANZFAS considers that intensive systems of animal husbandry are those most criticised from the point of view of welfare. Criticism, however, is sometimes dismissed as ill-informed, if well meaning, anthropomorphism.[1]

4.6 ANZFAS submits that intensive animal production demonstrably causes suffering to animals and that to justify the continuation of this suffering is tantamount to saying that ethics have no place in our decisions about animal husbandry.[2]

4.7 Physical and psychological stress associated with close confinement, high stocking densities, lack of access to outdoors and certain husbandry practices (mutilation) underlies much of the concern expressed by ANZFAS. Basically ANZFAS disapproves of the degree of confinement which frustrates most of the major activities which make up an animal's natural behaviour.

4.8 ANZFAS recommendations relating to intensive livestock production are at Appendix 3.

Australian Council of Egg Producers

4.9 The Australian Council of Egg Producers (ACEP), established in 1962, is a federal organisation which represents Australia's 2,400 commercial egg producers. The organisation's primary aim is to ensure that the interests of egg producers in Australia are represented to the relevant government and non-government bodies. The Association's main objectives are:

- to collect relevant statistical and other information on the egg industry, locally, nationally and overseas;

- to make submissions to Federal and State Governments on matters pertaining to the Australian egg industry; and

- to co-operate with other primary producer organisations in matters of common interest.[3]

4.10 All six State egg producer organisations are affiliated with and provide delegates to the ACEP Council.

4.11 ACEP submits that the current intensive poultry production system ensures that hens are kept in an environment which, in an overall sense, has the potential to maximise the welfare of laying hens.[4]

4.12 The Association recognises a perfect welfare environment for hens is not attainable because of a combination of factors but supports systems of production which approach an ideal welfare environment.

4.13 The Association considers that the caged layer system continues to satisfy the overall welfare needs of hens in a commercial farming environment to a greater extent than other production systems based on the experience of Australian and overseas egg producers and current research.

4.14 ACEP also believes there is a close link between animal welfare and the interests of consumers insofar as egg production is concerned. This allows the industry to pass on the economic benefits of such systems to consumers.

4.15 However, ACEP recognises that the rights of consumers are important insofar as egg production systems are concerned and therefore commercial egg producers are prepared to satisfy particular niche markets where groups of consumers have preferences for eggs produced from other than cage systems. Producers in all systems will seek to maximise the welfare of hens within constraints associated with particular production systems.[5]

4.16 ACEP supports and funds research into the welfare aspects of commercial egg production systems in Australia and believes that the current research effort will ensure that the welfare needs of laying hens are addressed.

Australian Federation for the Welfare of Animals Inc.

4.17 The Australian Federation for the Welfare of Animals (AFWA) is an animal dependent body, formed in May 1987, with the 'objective of restoring sanity and balance to the animal welfare debate'. Its philosophy is that it is up to an informed society to make decisions about the acceptability of various forms of human dependence on animals such as in the production of animals for food or scientific research for human health. It believes that it is legitimate for humans to use animals provided this is done in a humane caring way according to appropriate codes of practice that emphasise animal welfare.[6]

4.18 AFWA's aim is to promote humane treatment of animals through the promotion of codes of practice, education and peer pressure.[7]

4.19 The membership of AFWA reflects the scope of animal based industries in Australia. It includes primary producer groups, research scientists, educationists, commercial support groups, processors and retailers, recreation groups, custodians, and professional associations. Included in the latter is the Australian Veterinary Association. Membership details are at Appendix 4.

4.20 AFWA's concerns are based on the fact that most Australians live in cities and rarely experience modern farming systems. This lack of knowledge often results in negative reactions to animal production systems.[8]

4.21 AFWA believes there are three ways to approach welfare issues: the political, the philosophical and the objective or scientific aspects. It believes the political aspects are often based on biased community perceptions and the philosophical aspects conflicting.[9] AFWA believes that objective scientific criteria are important for the assessment of the welfare of intensively housed stock[10] and that such data should be presented to the community so that an informed opinion can be reached.[11]

Australian Pig Industry Policy Council

4.22 The Australian Pig Industry Policy Council established under the provisions of Part III, Section 53 of the Pig Industry Act No. 157 of 1986 forms part of the statutory arrangements for the Australian pig industry. The objective of the Council is to provide a forum for the discussion of matters affecting the industry, and in which industry policy can be established.[12]

4.23 There are six constituent members of the Australian Pig Industry Policy Council (APIPC). Member organisations of the APIPC are:

- Australian Pork Producers' Federation
- Pig Research Council
- Australian Pork Corporation
- National Smallgoods Council
- Stockfeed Manufacturers' Association
- National Meat Processors' Association.

4.24 Within the Australian Pork Producers' Federation (APPF), there are six constituent member organisations which represent pig farmers in individual States and one, the special interests of intensive pork producers. Member organisations of the APPF are:

- Intensive Pig Producers of Australia
- Victorian Farmers' Federation (VFF Pig Commodity Council)
- NSW Farmers' Association (NSW Pig Producers' Council)
- Queensland Pork Producers' Organisation
- Tasmanian Farmers' and Graziers' Association (State Pork and Bacon Industry Division)
- United Farmers and Stockowners of South Australia (Commercial Pig Section)
- West Australian Pig Producers' Association.

4.25 Members of the Pig Research Council and the Australian Pork Corporation are appointed by the Minister for Primary Industries and Energy on the recommendation of ministerially appointed selection committees. The National Smallgoods Council, the Stockfeed Manufacturers' Association and the National Meat Processors' Association are the relevant national bodies representing the interests of the meat processing and stockfeed industries throughout Australia.[13]

4.26 The Australian Pig Industry Policy Council submits that it, in principle and practice, is committed to safeguarding and actively promoting the welfare of pigs in Australia. The Council believes in the need to actively promote animal welfare as a means of ensuring high levels of livestock productivity and the profitability of the industry. The Committee believes that animal welfare and sound piggery management are inexorably linked.[14]

4.27 It is actively involved in the development and promotion of education, research and awareness raising of welfare issues within and outside the industry and welcomes objective and rational debate on the subject.[15]

4.28 The Council recognises community concerns about animal welfare but is concerned about the influence of certain elements of the 'emotionally based' arguments might have on what should be an objective and rational debate.[16]

Australian Poultry Industries Association

4.29 The Australian Poultry Industries Association (APIA) is a national industry organisation whose member companies produce between 80-85 per cent of all commercial chicken meat processed in Australia.[17]

4.30 Membership of the APIA is voluntary and each company engaged in the industry is eligible for membership. The objectives for which the Association was established are, among other things, to promote and protect the interests of the chicken meat industry, to collect and circulate to members technical, statistical and other information, and to promote improvements and uniformity in the law, policies and regulations.[18]

4.31 Members of the Association were actively involved in the preparation of the first Code of Practice for the Welfare of the Domestic Fowl. Members have been involved in revisions of the Code from time to time and have also been involved in and supported research into aspects of poultry welfare.[19]

4.32 The Association and its members are acutely aware of the interaction of bird welfare and efficient chicken meat production and are therefore totally committed to poultry welfare.[20]

Australian Veterinary Association

4.33 The Australian Veterinary Association (AVA) is the peak body of the veterinary profession in Australia. Its purpose is to serve the needs of the profession and to promote animal health, productivity and welfare. The Association has an Animal Welfare Standing Committee and Special Interest Groups to advise it on matters relating to animal welfare. Special Interest Groups in this context are the Australian Veterinary Poultry Association and the Australian Association of Pig Veterinarians.

4.34 Veterinarians are closely involved with intensive livestock industries, in regulatory matters related to control of disease outbreaks and in matters of production, disease prevention and treatment.[21]

4.35 The AVA considers that animal welfare and human needs must be considered at the same time, and policies on each must be complementary, not detrimental, to the other. It believes that this balanced approach is practical and achievable.[22] It acknowledges problems in the present systems but argues that for the most part intensive methods equal good animal husbandry and such environments are superior to the extremes of extensive systems.

4.36 It also considers that to properly address the issues of animal welfare it is necessary to reliably assess and precisely define the actual and specific welfare needs of each type and group of animals.

4.37 AVA believes:

> It is inevitable that trends in one direction will sometimes be perceived to conflict with progress in another. These complex issues involve and evoke emotions which can confuse a balanced assessment. Extremists, who wilfully remain ignorant and intolerant of the opinions and needs of others, tend to dominate debate and the real issues become lost in the process. Fortunately, the attitudes of most people in the community are more moderate.[23]

4.38 AVA summaries and general recommendations on pig and poultry production are at Appendix 5.

Royal Society for the Prevention of Cruelty to Animals (Australia)

4.39 The Royal Society for the Prevention of Cruelty to Animals in Australia was established in 1984 as a national co-ordinating body of state and territory RSPCA's.

4.40 RSPCA Australia believes that no animal should be used for the production of food or fibre, either by farming practice, transportation, or method of slaughter which in any way may cause suffering, injury or distress.[24]

4.41 It argues that the acceptability of intensive systems will be determined from the animal welfare viewpoint by three basic criteria.

1. Is it in the animal's best interest (weather, predators, health)?

2. Do the animals have sufficient freedom to follow normal behavioural and physiological patterns?

3. Is it necessary in this climate for animals not susceptible to problems with predators and health associated with extensive farming?

4.42 Statements of RSPCA Australia's position on intensive animal systems are at Appendix 6.

ENDNOTES

1. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8822.

2. ibid.

3. Australian Council of Egg Producers, Submission, dated March 1984, pp. 2-4.

4. Australian Council of Egg Producers, letter dated 1 May 1990.

5. ibid.

6. Introductory address by Dr George Alexander, President, Australian Federation for the Welfare of Animals, at launch of Association, 8 May 1987.

7. Evidence, Australian Federation for the Welfare of Animals, p. S8931.

8. ibid.

9. ibid., p. S8932.

10. ibid., p. S8943.

11. ibid., p. S8932.

12. Australian Pig Industry Policy Council, Annual Report, 1988-89, p. 2.

13. Evidence, Australian Pig Industry Policy Council, p. S8790.

14. ibid., p. S8788.

15. ibid., p. S8788-9.

16. ibid., p. S8789.

17. Australian Poultry Industries Association, letter dated 5 June 1990.

18. Australian Poultry Industries Association Constitution and Rules.

19. Australian Poultry Industries Association, letter dated 5 June 1990.

20. ibid.

21. Evidence, Australian Veterinary Association, p. S9020.

22. ibid., p. S8766.

23. ibid., p. S8768.

24. Evidence, Royal Society for the Prevention of Cruelty to Animals Australia, p. S9046.

25. ibid., p. S9100.

PART TWO

THE DOMESTIC FOWL

CHAPTER 5

CAGE HOUSING OF LAYERS

5.1 The majority of layers in Australia are housed under a cage-layer system. More than 90 per cent of commercial laying hens in Australia are housed in this way. Under this system, several hens are usually housed together in a series of single-tiered cages. The cages are accommodated in special sheds featuring temperature controls such as ventilation units and fans and cooling or sprinkler systems. Hens have access to feed and water in their cages and are routinely inspected for general health and physical injury.[1]

5.2 The other main commercial egg production method in Australia is the 'free range' system. This system allows birds to move freely inside and outside the housing facility that is provided, although they are generally shedded at night to protect against predators. A discussion of this system and other alternative housing systems is given in Chapter 6.

5.3 The Committee received widely divergent views on the appropriateness of the current cage housing system used in Australia. Some groups, such as RSPCA (Australia) and ANZFAS were opposed to the keeping of poultry in cages and have argued that the practice should be phased out.[2] Other witnesses, however, such as ACEP, AFWA and NSW Department of Agriculture and Fisheries argued that the present cage system in Australia provided numerous welfare benefits.[3] Still other groups, such as the AVA, took a more neutral stance arguing that cages offer both advantages and disadvantages in terms of welfare.[4]

5.4 The Committee, on the basis of its inspections of several cage systems in a number of States was impressed by the modern facilities and standards of hygiene in these establishments. The Committee was able to see that the hens housed in these systems had ready access to the basic requirements of food and water. The birds also appeared to be in a good state of physical health. The sheds were clean, there were few flies and other insects and, the temperature control, and other environmental conditions appeared adequate.

5.5 The proponents of the cage housing system in Australia provided evidence to the Committee that the system offered numerous welfare benefits. The ACEP argued that the hens were protected from exposure to extremes of temperature and inclement weather, as well as from natural predators, such as hawks, foxes, feral dogs and cats. It was also argued that the hens are under close supervision and are routinely and easily inspected, allowing for immediate treatment or separation in the case of illness or physical injury.[5]

5.6 NSW Department of Agriculture and Fisheries argued in its submission that despite the relatively high stocking densities the incidence of disease was low among caged layers. This was due in part to the fact that the birds were not in contact with their faeces. The incidence of internal and external parasites was also lower than with hens housed on the ground.[6]

5.7 Regarding the incidence of external parasites in caged layers as compared with other systems, Mr Roth, of NSW Department of Agriculture and Fisheries, told the Committee:

> I do not have any actual precise statistics that I could refer to, but I could guarantee that internal parasites are not a problem in caged birds. You do very occasionally get round worms and very occasionally you get tape worms, but they certainly are not a problem. ... But in the free-range birds the internal parasites can be a problem and probably would necessitate anthelmintics to get rid of them, and so they would be much more of a problem.

> The external parasites would be more of a problem also in the free-range birds because again you have that earth-bird contact and a number of parasites, such as stickfast fleas, have a lava stage in the ground which just comes onto the birds and it is very very difficult to break it.[7]

5.8 The Committee questioned several witnesses on the use of antibiotics to control disease in cage laying flocks. Mr Holland, of the Australian Council of Egg Producers, told the Committee that:

> I cannot remember the last time when I would have used antibiotics on my farm. It is certainly not a regular additive to feed. It would only be used in an outbreak of disease or some such thing, which is pretty rare in today's commercial flocks. I would suggest that there are far more antibiotics used in direct human consumption for all sorts of complaints than there is in the laying hen industry.[8]

5.9 Dr Kite, of the NSW Farmers Association, also told the Committee that antibiotics are only 'infrequently used'. She added:

> In fact, the necessity for using medication of any sort is being reduced all the time because, I believe, the industry is basically becoming more efficient. The sorts of facilities and equipment that people are using are better. As we have been saying all along, in a cage system there is less opportunity for birds to pick up disease organisms, so there is less disease about generally and the whole disease status of the Australian flock would be improving all the time. And that means less requirement for medication of any sort.[9]

5.10 ACEP also told the Committee that the hens are subjected to minimal levels of social stress associated with fighting, pecking and bullying in cages. As hens in cages only have a limited number of flockmates within their immediate social hierarchy, they have consequently no difficulty in recognising their flockmates and remembering their social position in relation to each other. A condition of social inertia results and there is no need for members to continually re-establish or recontest their social position once it has been initially established. Social stress is therefore kept to a minimum under these conditions. Hens kept in alternative systems where hens come into contact with many more flockmates have a far more complex social order (peck order) leading to frequent conflicts. Outbreaks of fighting, feather pecking and bullying are therefore far more common than in a cage system.[10]

5.11 The more stable social environment that hens in cages experience also means that they are subjected to less risk of physical injury being inflicted by flockmates. This, combined with a reduced risk of physical injury due to mechanical means, significantly reduces the opportunity for outbreaks of cannibalism, vent pecking and feather pecking. Cannibalism is a major problem in laying flocks housed in large groups on the floor or at range. In addition, the hens are protected from the risk of suffocation and physical injury resulting from mass panicking which can occur when large groups of birds are housed together, for example, on the floor or at range.[11]

5.12 It was also pointed out to the Committee that such systems have many commercial advantages over alternative systems. NSW Department of Agriculture and Fisheries noted that laying cages are more cost effective to build and operate than other housing systems. The system is also labour efficient - one operator can effectively operate an automatic laying cage system with up to 20,000 laying hens (excluding egg packing). The working environment of a cage system also provides advantages for farm operators especially in respect to the inspection and handling of birds. For the farm operator there is also protection from the elements, freedom from obstructions, and from direct contact with the birds or their droppings.[12] The environmental conditions with hens housed at the optimal temperature (20^{o} - 28^{o}), means that hens eat less food and produce eggs that are 5-10 cents per dozen cheaper than is the case where the ventilation and temperature is unregulated.

5.13 These systems also provide consumers with eggs of high quality and of known age and freshness. NSW Department of Agriculture and Fisheries has commented that the quality of eggs produced by caged layers is at least equal to the achieved in other systems, but with less labour input. The eggs cool more quickly on the egg trays and fewer eggs are soiled and require washing. Egg handling is also reduced by automatic egg collection and on-farm packing systems.[13] The only opportunities for spoilage came from incorrect storage and marketing.

5.14 Dr Kite also told the Committee that there was less risk of bacterial contamination of eggs from caged systems than other systems. She also suggested there was a greater risk of salmonella getting into non-caged produced eggs.[14] Mr Miller, of the Victorian Department of Agriculture and Rural Affairs, told the Committee that only rarely was there a problem with chemical residues in caged eggs. He noted:

> Very rarely there have been occasions where eggs have been detected above the maximum residue limit, but these cases have normally been due to operator error of a chemical contractor or something of that nature. They happen seldomly. If you try to compare what happens in an extensive system versus an intensive system in terms of residues; I guess it is more likely in keeping poultry in a range situation or on the floor that they are going to be prone to parasitism from external and internal parasites and some protozoan organisms as well.[15]

5.15 The question of yolk colouring as an indication of egg quality was also raised by the Committee. The Committee was told that the colour of the yolk does not reflect the quality of the egg. Fowls in free-range systems eating green grass and other natural plant food with pigmentation qualities produce eggs with dark yolks, while fowls fed on high protein grain mixes produce eggs with light yolks. Farmers provide food additives to darken yolk colouring in intensively produced eggs in response to consumer preference for eggs with dark yellow yolks. However, the colouring agents are natural food substances and not residual-producing chemicals.[16]

5.16 While the Committee received numerous arguments in favour of the current cage system, many welfare groups and individuals presented evidence to the Committee opposing the current system of intensive egg production.

5.17 ANZFAS in its submission to the Committee argued that the cage system did not provide for either the physical well-being of hens nor for their behavioural needs. The Federation argued that caged birds suffer a range of physical injuries including bone weakness through lack of exercise, injuries to the foot through constant contact with the wire mesh cage, and feather and skin damage due to pecking by other birds as well as abrasions and skin wounds caused by overcrowding.[17] ANZFAS also argued that hens suffer behavioural deprivation in the cage environment. They asserted that caged hens are frustrated by their inability to engage in natural activities, such as laying their eggs in a nest, wing flapping, roosting off the ground, scratching and pecking the ground, and dustbathing. To compensate, birds often engage in displacement behaviour, in particular aggression and pacing, which in turn, often causes physical injury.[18]

5.18 Dr Wirth of RSPCA (Australia) also suggested to the Committee that the cage system did not ensure the welfare of fowls because the cage environment failed to meet several requirements. He suggested that confined animals, including fowls, needed to:

> ... perform some natural movement ... they should be able to stretch, to lie down, to turn around, to walk, and to flap wings. Secondly, there is a need to allow the formation of social groups, preferably by keeping together litter mates or those animals reared together with reference to segregation of breeds, sexes, size and temperament.[19]

5.19 Both the AVA and Dr Murphy, a poultry researcher, among others, argued that the present intensive system provides both welfare advantages and disadvantages. The AVA in evidence to the Committee suggested that there is no one ideal system. The

Association argued that cage systems have certain welfare advantages, including a cleaner environment for the birds, ready access to food and water and easier bird inspection and catching. However, they noted that the principal disadvantage of cages are that they 'limit bird movement and the expression of some normal behavioural activities such as nesting, perching and dust-bathing'.[20]

5.20 Dr Murphy also emphasised that all housing systems had both good and bad welfare aspects. She argued that the welfare of an animal at any point in time comprised many components - both physical aspects (such as hunger, thirst, disease, injury, comfort and space, lack of noise, and light) and mental components, (such as fear, frustration, boredom, stress and deprivation). To assess the overall welfare status of an animal, or of a housing system, each one of these aspects needed to be measured and assessed.[21]

5.21 Dr Murphy further argued that many of the alleged negative welfare aspects of conventional cages involved the fact that cages restricted or prevented birds from performing certain behaviour patterns, often referred to as 'natural' behaviour. The question of when, why and if animals needed to behave in certain ways and what the consequences were if they could not was, she suggested, extremely complex. Dr Murphy also suggested that domestication and selection had changed behavioural traits, as well as physical and production traits - thus each behaviour needed to be examined separately. From a consideration of the many and varied individual aspects which combined to comprise an animal's overall welfare, Dr Murphy argued that it was obvious that no husbandry system had yet been devised which was positive in all respects - this is why housing systems could not be referred to as either good or bad but as comprising both good and bad welfare aspects.

5.22 Several specific aspects relating to the cage housing system were commented on during the inquiry. These included the adequacy of stocking densities, the extent of overstocking, and the need for improved cage design.

Stocking Densities

5.23 The adequacy of current stocking densities or stocking rates was a major concern during this inquiry. The Model Code of Practice for the Welfare of the Domestic Fowl lays down maximum recommended stocking densities for fowls in different systems of housing under good management conditions.[22] (The Code is reproduced at Appendix 7 of this report).

5.24 The stocking densities for domestic fowls are shown in Table 5.1. As the table indicates the figures are expressed in terms of kilograms of liveweight per square metre of floor space. For caged layers the maximum recommended stocking rate in multi-bird cages, with three or more birds, is 52 kilograms per square metre. For cages with two fowls per cage it is 40 kilograms per square metre and for single fowl cages it is 26 kilograms per square metre. Single bird cages provide more space per bird than multi-bird cages. NSW Department of Agriculture and Fisheries also estimated the stocking densities for birds of different bodyweight. For example, in multi-bird cages, with three or more birds per cage for light, average and heavy birds the stocking density is approximately 370, 400 and 470 square centimetres per bird, respectively.[23] The stocking rate will also vary according to cage size and according to the average bodyweight of the particular strain of bird.

5.25 Some contributors to the inquiry, especially industry representatives, suggested that the present stocking densities were adequate. Mr Holland of the ACEP suggested that 'research that has been done around the world would indicate that the size of the cage that we are using is very close to the optimum' from both a welfare and production point of view.[24]

Table 5.1: **Maximum Recommended Stocking Densities for Domestic Fowls in Cages**

	Density (live-weight per unit of floor area)	Qualifications
Rearing of fowls for laying or breeding	40 kg/m^2	Relates to cage floor area.
Laying or breeding fowls (includes cockerels) 3 or more fowls per cage	52 kg/m^2	Density relates to cage floor area.
2 fowls per cage	40 kg/m^2	Irrespective of the number of birds per cage, each bird should have a minimum trough space of 10 cm.
Single fowl cages	26 kg/m^2	

SOURCE: Australian Bureau of Animal Health, Sub-Committee on Animal Welfare, Model Code of Practice for the Welfare of Animals: No. 2 - The Domestic Fowl, Canberra, 1983, Appendix 1.

5.26 However, witnesses including representatives of ANZFAS, Dr Murphy, Dr Wirth of RSPCA Australia and others argued that the current stocking densities were unacceptably high.[25] ANZFAS argued that while cages should be banned entirely over a five-year period, that in the interim period, the stocking density for hens should not exceed three birds per square metre.[26]

5.27 It was argued that current stocking densities do not provide sufficient space for hens to lie down, turn around and engage in grooming behaviour, such as preening, head scratching, body-wing shaking and feather ruffling.[27] An assessment of space requirements is closely bound up with the concept of behavioural need, which remains a controversial subject. Some ethologists argue that the mere presence of a behaviour pattern in an animal's repertoire is sufficient evidence that the opportunity and space to perform the behaviour must be provided. Others hold that behavioural patterns are such that animals can satisfactorily adapt even to an environment as barren and confining as a cage. These questions are complex, continue to be the subject of intense debate and have yet to be resolved.[28]

Current Research into Space Requirements

5.28 The Committee examined the results of several major studies in Europe that are looking into the space requirements for birds in cages. Most of these studies have concluded that greater space allowances are necessary for the physical well-being of fowls.

5.29 A study by Zayan and Doyen in Belgium reported on the results of experiments over a nine-month period to test the effects of cage density on behavioural patterns in two strains of laying hens.[29] The study concluded that it was preferable to house birds in pairs rather than in larger groups. The study also recommended minimum floor space allowances for birds in pairs, based on observed behavioural patterns over a nine-month period. For light hybrid birds, such as White Leghorns, they recommend a minimum space requirement of 600 to 680 square centimetres per bird, and twice that for the pair. They argued that medium hybrids should be allowed between 760 and 800 square centimetres per bird in a pair, and if in cages of three or four birds, each bird required additional space.

5.30 A second group that is looking at space requirements is Dawkins and others in the United Kingdom.[30] This group has measured the amount of space hens use when performing common behaviour patterns such as standing still, turning around, stretching or flapping their wings. In the studies they placed a video camera above the hens and then analysed, by computer, the area the birds occupied.

5.31 In one study hens weighing 2.1 kilograms, on average were used. The study found that the hens occupied between 428 and 592 square centimetres when standing. They required between 978 and 1626 square centimetres to turn around, while flapping their wings occupied between 1085 and 2060 square centimetres. Even to preen their feathers the birds required more than 800 square centimetres.

5.32 While it is sometimes argued that hens can 'share each other's space' by protruding into the space allowance of other birds, because some birds occupy more than 450 square centimetres when they are merely standing still, there is little additional space to share. A bird may still be able to flap its wings by moving them above the heads and bodies of other hens in its cage, but contact with other birds and the sides of the cage is almost inevitable.

5.33 Another study by Dawkins and Hardie used Ross Brown hens for a similar experiment.[31] The results of the study indicated that the hens used between 540 and 1006 cm^2 when turning, 653 to 1118 cm^2 when using flapping, 676 to 1604 cm^2 when feather ruffling, 814 to 1270 cm^2 when preening and 540 to 1005 cm^2 when ground scratching.

5.34 It is clear from these studies that the current European Commission Directive on space allowance for laying hens that requires that each bird be given a minimum space of 450 square centimetres does not allow sufficient opportunity for hens to perform a range of behaviour patterns such as preening, turning around or wing flapping.

5.35 The French group under Lagadic has conducted experiments in which birds are placed in cages which have movable walls which the hens can manipulate by pecking at a set of keys, the effect of which is to either increase or decrease the area of the cage.[32] In the latest experiment eight groups of birds have been tested; two groups of birds have consistently increased their cage size to the maximum possible; two groups of birds have consistently reduced their cage size to the minimum possible and four groups have varied their cage size in a random fashion. The results indicate that there may be considerable individual differences amongst hens regarding their preference for cage size. However, several other studies have consistently shown that battery-kept hens have shown a preference for larger rather than small cages.[33]

5.36 Hughes, in summarising the current research into the space requirements of caged layers, has argued that:

> ... there is now convincing evidence available from a number of different sources that the amount of space available in a typical battery cage is too small. There is production response when hens are given more space, hens carrying out a limited range of basic activities cover an area greater than that which they are commonly offered, some of the behaviour patterns which they perform in more spacious environments require much more space then the battery cage can provide, and they show a preference for spaces much larger than those they are presently offered. Thus the evidence, fragmentary though it is, all points in the same direction. There may be economic arguments why no more space can be provided at present, but there is unquestionably a strong case for offering more space on welfare grounds. Although however, one may safely conclude that more space is desirable, the evidence is such that, at present, no particular figure can be confidently recommended as adequate.[34]

Developments in Europe

5.37 An EEC regulation has recently laid down a uniform minimum cage size area for laying hens in battery cages.[35] Legislation became operative in several EEC countries on 1 January 1988 to implement the requirements of the 1986 EEC Directive for the protection of laying hens in battery cages. Member states of the Community are required to ensure that from 1 January 1988 for new or reconstructed cages, and from 1 January 1995 for all others, each cage shall provide a minimum cage floor area of 450 cm^2 per bird.

5.38 Some countries have, however, gone further and imposed additional regulations unilaterally. In the United Kingdom, higher minimum cage floor space allowances are required where there are less than four birds kept in a cage - 550 cm^2 per bird is required where there are three birds per cage, 750 cm^2 per bird for two birds per cage and 1000 cm^2 for cages containing one bird. In West Germany from 1 July 1989 each hen must have unrestricted use of at least 450 cm^2 of cage floor. If the average weight of the hens in the cage is more than two kilograms, each hen must have unrestricted use of at least 550 cm^2. In Denmark birds of up to three kilograms must have a minimum cage area of 600 cm^2 per bird (and 900 cm^2 for birds over three kilograms). Additionally, where only one bird is housed in a cage, the minimum cage area required is 1000 cm^2.

5.39 The United Kingdom, Danish and West German Governments have indicated that a more appropriate European standard for the minimum space allowance in battery cages should be about 600 cm^2 per bird, and these countries will be seeking improvements in this area when the review of the Directive takes place in 1993.[36]

5.40 The Farm Animal Welfare Council in the United Kingdom, an independent body set up to advise the Minister of Agriculture, has recently criticised the European standard of 450 square centimetres as inadequate for the welfare of hens. The Council suggested that 600 square centimetres should be adopted as the minimum in Europe and that this minimum still needed to be increased progressively.[37] In this context, it should be noted that in the United Kingdom, the Ministry of Agriculture, Fisheries and Food recommended that each hen have 600 cm^2 of space prior to 1987, when it was reduced to 450 cm^2, to bring the United Kingdom into line with other EEC countries.

Conclusion

5.41 On the basis of evidence received during the inquiry, current research, overseas trends and the Committee's inspections, the Committee believes that caged layers should have more space than currently prescribed under the Code of Practice. The Committee therefore **recommends** that as an initial step the maximum stocking density for cages with three or more birds be reduced from 52 kilograms per square metre to 46 kilograms per square metre.

5.42 The Committee favours a shift away from the current practice of calculating floor space per hen by kilogram of live-weight per unit of floor area and **recommends** that in future, the space allowance for hens be expressed in terms of square centimetres of floor area per bird.

5.43 To give effect to the Committee's objective of addressing the need for further reductions in stocking densities for hens the Committee **recommends** the following reforms:

(a) that each cage have a minimum area for each bird of:

1000 square centimetres where one hen is kept in a cage;

750 square centimetres where two hens are kept in a cage;

600 square centimetres where three or more hens are kept in a cage; and

(b) that an early date of effect be introduced for new cages with a phasing-in period to apply for existing systems.

5.44 The Committee also believes that the stocking densities should be regularly reviewed to take account of advances in the understanding of animal physiology and behaviour, changes in husbandry systems and their relationship to the welfare of poultry. The Committee therefore **recommends** that the stocking densities for laying hens be regularly reviewed by the Sub-Committee on Animal Welfare of the Australian Health Committee within the Australian Agricultural Council.

Overstocking

5.45 The Committee during its inspections of several poultry establishments during the inquiry did not see evidence of overstocking. It did, however, receive some evidence of overstocking from several witnesses. As noted by the AVA, overstocking is detrimental to welfare. It can result in some birds being deprived of adequate food and water, underventilation, increased spread of infectious diseases, and increased social stress within the flock. Flock performance (such as egg production, and growth rate), may also be reduced if the optimal stocking rate for a facility is exceeded.[38]

5.46 Professor Singer cited an example of a poultry farm in Victoria where the number of birds per cage far exceeded the stocking rate recommended in the Code of Practice. In the example cited, Professor Singer argued that:

> ... [the] cage ... measured 45 centimetres by 45 centimetres. According to the code of practice in Victoria, this cage should have no more than four birds in it, because the code requires 10 centimetres of front feeder space per bird. So with a 45-centimetre front you can only have four birds ... You can see that this cage has seven birds in it.[39]

5.47 Mr Poole of NSW Department of Agriculture and Fisheries, in evidence to the Committee, also stated that there was some evidence that the stocking rate was exceeded in New South Wales. He mentioned the instance of one producer who exceeded the provisions of the Code because he used a particular type of cage system and a heavy strain of bird.[40]

5.48 In contrast, NSW Department of Agriculture and Fisheries in its submission claimed that there was little evidence that the recommended stocking rates were exceeded in practice but conceded that no regular inspections were undertaken to ensure that this was so.[41] Dr Murphy also indicated that, on the basis of her experience of the industry, there was little evidence of overstocking in Queensland.[42]

5.49 The AVA pointed out to the Committee that while it is regrettable, overstocking can sometimes be economically advantageous. By increasing the number of birds housed in a facility, the capital, labour and other production costs per bird can be reduced, and these savings may offset lower flock performance and result in a greater capital return from the facility. This undesirable practice results, for example, in three layers being placed in a cage that was only designed to accomodate two.[43]

5.50 The Committee believes that stocking densities should be strictly adhered to and enforced. The Committee therefore **recommends** that more regular inspections of commercial establishments be undertaken by the appropriate authorities to monitor husbandry practices generally and to ensure that stocking densities do not exceed those specified in the Code of Practice for the domestic fowl.

Cage Design

5.51 Many organisations and individuals, including Mr Macindoe, of NSW Department of Agriculture and Fisheries, and Dr Linda Murphy, a poultry researcher, who gave evidence to the Committee, commented on the need for improvements in cage design.[44]

5.52 Cages designed, especially prior to the mid 1970s, often incorporated features that had undesirable welfare consequences. For instance, the design features often led to accidental trapping of hens involving the hens' comb, wing or toe. In addition, the cage design often reduced the space available for the hens, especially in the cage fronts at the feed trough.[45]

5.53 A study by Professor Tauson of the Swedish University of Agricultural Sciences conducted over the period 1974-1984 found that the parts of the hens' body most frequently trapped were the head or neck (29 per cent), comb joint/jaw bones and the body/wings (28 per cent). Some 15 per cent of the trapped hens had their toes or claws trapped, 13 per cent their hocks and 16 per cent other parts of the body.[46] The study also found that 40 per cent of accidents in cages occurred between the manure deflector/egg guard and the cage floor/partition and 15 per cent occurred at the front of the cage. The rest occurred between the partition and the floor, in the wire mesh floor itself and in the feeder.

5.54 Tauson also found that in 1974, when his study first began, the mortality rate caused by accidental trapping due to poor cage design was more than 20 per cent of the total mortality rate. However in 1984, with improvements in cage design the frequency of accidental mortality did not exceed 0.1 - 0.2 per cent of hens housed, that is, about one per cent of total mortality.[47]

5.55 Most cages in Australia are now imported from Europe and cost approximately $8.00 per bird capacity to buy, assemble and instal, complete with automatic feeding, drinking and egg collection belts.[48] There is only one cage manufacturer in Australia at present.[49] The life of a cage system is of the order of 20 to 25 years.

5.56 In recent years the emphasis of research in Europe and the United Kingdom has been towards improving the design and welfare aspects of the cage system. Some significant improvements to cage design have resulted from this work. Recently cage manufacturers in Europe have become aware of the results of studies on behaviour patterns and biological performance of birds in a variety of modified and alternative cages. This information is increasingly influencing the design and layout of laying cages and equipment. Several manufacturers have taken the opportunity to redesign and improve their laying cages incorporating welfare benefits where possible. Such benefits include:

- the use of solid cage partitions to prevent excessive feather loss;

- horizontal bar gates which maintain better frontal feathering and provide easier access for several birds to the feeder at the same time;

- the installation of movable deflectors positioned at an increasing distance into the cage between the manure deflector short side and the side partition;

- improved methods of joining side and rear partitions with cage floors, so that gaps between them do not develop allowing birds' toes, legs, wattles, combs or heads to be trapped; trapping points causing injury or discomfort are now generally avoided in laying cages;

- some drinker lines have been repositioned and drinkers protected so as to give birds better access whilst limiting spillage and waste;

- cage floor slopes have been reduced by several manufacturers which aim to reduce shell damage in the collecting area;

- the use of smaller wire floor mesh sizes; and

- inspection techniques have been developed for birds in the upper tiers of multi-tiered cage blocks; such as steps on the lower tiers, moving gantries or mobile inspection steps or trolleys.[50]

5.57 The Committee, during discussions with Professor Tauson questioned him regarding the possible benefits of these improved cage design features for bird welfare. He told the Committee that plumage condition was substantially improved in these new cages. He noted that feather loss was reduced by 15 per cent in cages using solid partitions as compared to wire partitions and feed consumption was also reduced for hens with good plumage.[51]

5.58 Tauson also commented on the improvement in foot condition where there was a smoother galvanising of the cage floor, a reduced floor slope and cages that used smaller wire mesh floor sizes.

5.59 The Committee, however, questioned Professor Tauson as to whether there was a welfare concern with cages that incorporated solid partitions, in that they may restrict the hens' visual contact with other birds. Professor Tauson argued that he did not believe this was a problem. He also pointed to the fact some cages now had semi-rear partitions - the birds were found to be calmer in these cages and also had better plumage condition.[52] Tauson noted that there were two reasons for the significant decrease in feather loss in cages with solid partitions. The first was that there was less feather pecking against the wings, head and tail and secondly, there was less abrasion.

5.60 Professor Tauson also told the Committee of several new cage design modifications that are taking place to enhance the birds' well-being.[53] These innovations have not been widely adopted in the design of cages at this stage. Following research by Professor Tauson perches and abrasive strips have been installed in conventional 4-bird cages on an experimental basis in an effort to improve foot and claw conditions.

5.61 Self-adhesive strips of abrasive tape have been placed onto the manure deflector\egg guard installed in cages to blunt the birds' claws. Excessively long claws may injure other birds and may get caught in various parts of the cage. Hens on cage floors are unable to successfully wear-down their claws as is done by birds kept on litter or on free-range.

5.62 Professor Tauson indicated that the installation of the abrasive strips had led to a marked reduction in the growth of the claws. The tape can be installed in existing cages and at relatively low cost. New cages sold in Sweden now have the abrasive tape attached, but they are not widely used elsewhere in Europe.

5.63 Another innovation has been the installation of perches in conventional cages housing up to five hens. Professor Tauson argued that they are used extensively and there is less arousal in the cage where they have been installed. They also have the effect of reducing feed consumption, due in part to the reduced heat loss as the hens tend to congregate together at night on the perch.

5.64 However, Professor Tauson indicated there were some problems with perches. One problem was an increased frequency of dirty eggs, as the manure is often not trampled through the floor under the perch. There was also a higher frequency of cracked eggs; although this was also dependent on the floor design of the cage.[54]

5.65 Some research in Scotland involves the inclusion of nesting facilities, 'nest cups', as well as perches, in otherwise conventional cages. It is not clear at this stage, whether it will be feasible to include a nest box in small, for example, 4-5 bird, multi-bird cages.[55]

5.66 The Committee questioned Professor Tauson concerning the attitude of cage manufacturers to his work.[56] He argued that initially most cage manufacturers adopted a negative attitude, especially because his work pointed out many of their cage design deficiencies. However, now the attitude of manufacturers is more positive and Tauson indicated that they consult with him on ways to improve their designs. The result is that now the innovations developed in Sweden have spread to most cage manufacturers in the rest of Europe.

5.67 The EEC Directive and European codes of practice have also had a major effect on the design of new laying cages in some European countries. Some producers have selected cage sizes that allow 480-500 cm^2 per bird for five birds, so that if a requirement of 600 cm^2 per bird is introduced during the life of their cages, it can be met by removing one bird.[57]

5.68 Evidence to the Committee suggested that some of these design improvements have not yet being introduced in Australia. Dr Murphy told the Committee:

> I think we should be trying to get the improvements in cage design which exist in Europe into Australia. For instance, I rang up a couple of our cage suppliers in Brisbane the other day and asked whether they had ever heard anything about cages with perches, which

> I believe you can now buy in Europe, or cages with solid sides. ... I got a completely negative response. The people had never heard of such a thing as perches in the cages or cages with solid sides.[58]

5.69 NSW Department of Agriculture and Fisheries suggested that some form of tax relief be made available to provide an incentive for egg producers to replace existing cages with newer cages incorporating improved design features.[59] This tax relief would provide an incentive for farmers to make that very substantial investment in upgrading their facilities, which would be beneficial from both a welfare and economic point of view. This proposal was supported by Dr Murphy although not by Dr Sheldon of AFWA.[60] He suggested that farmers replace cages for a variety of reasons, for example, to incorporate labour saving devices. He argued that a farmer would not replace his cages solely for welfare considerations especially given the life of a cage system.[61]

5.70 The Committee believes that any improved design features that advance welfare should be encouraged. The Committee, recognising the significant welfare benefits that may derive from the introduction of innovative cage design, **recommends** that the Commonwealth Government provide tax incentives to encourage farmers to invest in cages incorporating improved design features.

ENDNOTES

1. Evidence, Australian Council of Egg Producers, p. S8151, p. S8171.

2. Evidence, RSPCA Australia, p. S9062; ANZFAS, p. S8834.

3. Evidence, Australian Council of Egg Producers, pp. S8146-55; AFWA, pp. S8937-39; and NSW Department of Agriculture and Fisheries, pp. S8171-73.

4. Evidence, Australian Veterinary Association, p. 9350.

5. Evidence, Australian Council of Egg Producers, p. S8150.

6. Evidence, NSW Department of Agriculture and Fisheries, p. S8171.

7. Evidence, Mr Roth, NSW Department of Agriculture and Fisheries, p. 8780.

8. Evidence, Mr Holland, Australian Council of Egg Producers, p. 8732.

9. Evidence, Dr Kite, NSW Farmers Association, p. 8732.

10. Evidence, Australian Council of Egg Producers, p. S8151. Feather pecking refers to any pecking of the plumage, regardless of whether conducted by the bird itself or by another bird or birds.

11. ibid., p. S8151.

12. Evidence, NSW Department of Agriculture and Fisheries, p. S8171.

13. Evidence, NSW Department of Agriculture and Fisheries, p. S8171.

14. Evidence, Dr Kite, NSW Farmers Association, p. 8702.

15. Evidence, Mr Miller, p. 9382.

16. Livestock and Grain Producers' Association of NSW, Animal Welfare in Agriculture, n.d., pp. 40-1.

17. Evidence, ANZFAS, p. S8840.

18. ibid., p. S8841-8846.

19. Evidence, Dr H. Wirth, RSPCA Australia, p. 9601.

20. Evidence, Australian Veterinary Association, pp. 8769-8770.

21. Evidence, Dr L. Murphy, p. S8960.

22. Australian Bureau of Animal Health, Sub-Committee on Animal Welfare, Model Code of Practice for the Welfare of Animals: No. 2 - The Domestic Fowl, Canberra, 1983, Appendix 1.

23. NSW Department of Agriculture, 'Poultry Welfare - Recommended Stocking Rates', Agdex 450/20.

24. Evidence, Mr Holland, Australian Council of Egg Producers, p. 8716.

25. Evidence, Dr L. Murphy, p. 9553; and Dr Wirth, RSPCA Australia, p. 9601.

26. Evidence, ANZFAS, p. S8834.

27. B.O. Hughes, 'Space Requirements in Poultry', in S.H. Baxter et. al. (eds), Farm Animal Housing and Welfare, Martinus Nijhoff, Boston, 1983, p. 122.

28. ibid., p. 121.

29. R. Zayan and J. Doyen, 'Spacing Patterns of Laying Hens Kept at Different Densities in Battery Cages', in R. Zayan (ed.), Social Space for Domestic Animals, Martinus Nijhoff, Dordrecht, 1985, pp. 57-64.

30. M.S. Dawkins and C. Nicol 'No Room for Manoeuvre', New Scientist, 16 September 1989, pp. 26-28.

31. M.S. Dawkins and S. Hardie, 'Space Needs of Laying Hens', British Poultry Science, 1989, 30:413-416.

32. H. Lagadic, 'Defining the Domestic Hen's Requirement for Space: Do Operant Conditioning Techniques and Physiological Measures of Stress Agree?', in J. Faure and A.D. Mills (eds.), The Proceedings of the Third European Symposium on Poultry Welfare, World Poultry Science Association, 1989, Tours, pp. 67-77.

33. See M.S. Dawkins, 'Welfare and the Structure of a Battery Cage: Size and Cage Floor Preferences in Domestic Hens', British Veterinary Journal 1978, 13:469-475; and M.S. Dawkins, 'Priorities in the Cage Size and Flooring Preferences of Domestic Hens', British Poultry Science, 1981, 22:255-263.

34. Hughes, op. cit., p. 126.

35. EEC Directive (86/113/EEC).

36. H.A. Elson, 'A Welfare Update on Laying Cages', Poultry - Misset, April-May 1989, pp. 33-35.

37. Dawkins and Nicol, op. cit., p. 26.

38. Evidence, Australian Veterinary Association, p. S8770.

39. Evidence, Professor P. Singer, pp. 9454-9455.

40. Evidence, Mr Poole, NSW Department of Agriculture and Fisheries, pp. 8781-8782.

41. Evidence, NSW Department of Agriculture and Fisheries, p. S8172.

42. Evidence, Dr L. Murphy, p. 9546.

43. Evidence, Australian Veterinary Association, p. S8770.

44. Evidence, NSW Department of Agriculture and Fisheries, p. 8766; and Dr L. Murphy, p. 9547, p. 9555.

45. R. Tauson, 'Cages for Laying Hens: Yesterday and Today - Tomorrow?' in Faure and Mills, op. cit., p. 168.

46. R. Tauson, 'Effects on Welfare and Production of Redesign of Cages for Laying Hens', paper presented to the Cambridge Poultry Conference, 12 April 1988, p. 5.

47. R. Tauson, Technical Environment for Caged Laying Hens, Report No. 154, Swedish University of Agricultural Sciences, Uppsala, 1986, p. 16.

48. Evidence, NSW Department of Agriculture and Fisheries, p. S8171.

49. Evidence, Mr Poole, NSW Department of Agriculture and Fisheries, p. 8788.

50. Elson, op. cit., pp. 33-4.

51. Committee discussion with Professor Tauson, 14 May 1990.

52. ibid.

53. ibid.

54. ibid.

55. Elson, op. cit., pp. 33-35, 86-88.

56. Committee discussion with Professor Tauson, 14 May 1990.

57. Elson, op. cit., p. 33.

58. Evidence, Dr L. Murphy, p. 9555.

59. Evidence, NSW Department of Agriculture and Fisheries, p. 8766, p. 8788, p. S8173.

60. Evidence, Dr L. Murphy, p. 9554.

61. Evidence, Dr Sheldon, p. 9524.

CHAPTER 6

ALTERNATIVE HOUSING SYSTEMS

6.1 In response to criticisms of intensive poultry production by animal welfare groups and others a number of alternative systems have been proposed. These systems generally provide a greater space allowance within which the fowls may move, and some provide access to litter and perches.

6.2 This chapter reviews the various alternative egg production systems operating in Australia and overseas countries. It also looks at recent developments in Europe where, in some countries, conventional cages are being phased out and alternative egg production systems have been introduced. The chapter also looks at the economic viability of alternative systems and finally considers the issue of consumer demand for non-cage eggs.

6.3 The Committee, during the course of the inquiry inspected a range of different housing systems, including aviary, deep litter and free-range systems in addition to various types of cage systems, in several States. The information gained during these visits, and especially the opportunity to discuss features of these alternative sytems with producers, assisted the Committee in gaining some appreciation of both the advantages and disadvantages of the respective systems. The Committee also received a large volume of evidence in submissions and at public hearings from both proponents and opponents of the alternative egg production systems. In addition, the Committee reviewed various Australian and overseas studies that have examined these systems.

6.4 In Australia, as discussed in Chapter 5, the cage system accounts for over 90 per cent of layer production. There are, in addition, free-range farms in all States, as well as some relatively small, barn, deep litter and semi-intensive systems. However, the collective flock size from these alternative systems represents only a small proportion of the total commercial laying industry in Australia.[1]

An Analysis of Alternative Systems

6.5 A range of alternative systems to the conventional cage systems have been proposed over the years. Some of these systems have been introduced on an experimental basis, such as get-away cages, while others have been introduced commercially, such as deep litter and aviary systems.

6.6 The main alternatives include:

- other cage systems such as get-away cages;
- other intensive systems such as deep litter, and aviary or perchery systems;
- semi-intensive systems which combine a house and small yard or straw yard; and
- extensive or free-range systems.

These alternative systems are discussed and evaluated below.

<u>Get-Away Cages</u>

6.7 Get-away cages are enlarged versions of a conventional cage, housing 15-30 birds each, with one or more vertical levels of perches inside the cage which allow the birds to get away from each other. Attached to the outside of the cages are boxes for nesting, dust bathing and ground scratching.

6.8 The concept of the get-away cage was first developed at the Experimental Husbandry Farm at Gleadthorpe, England, in the mid 1970s. Although this type of cage system has been introduced experimentally in a number of overseas countries it has not been tested in Australia.

6.9 These cage systems are designed as a means of maintaining the economy of production and high egg quality associated with conventional cages while at the same time providing birds with nest boxes, dust bathing boxes, perches and enough space to move around and get away from other birds. The major research into get-away cages has been conducted at Celle Poultry Research Centre, West Germany. Current experiments, which were first commenced in 1979, have yet to prove this system as being a suitable alternative for laying hens. Dr Murphy, a poultry researcher, noted that the following problems had been highlighted at Celle in relation to get-away cages:

- Inspection and access to the birds is difficult. The nest and dust boxes and feed troughs obscure vision into the cages, which also makes behavioural observation of the birds difficult.

- Birds do not restrict their laying to the nest boxes but nest and dust-bathe in them. This results in up to one-third of eggs being dirty plus an unknown number of destroyed or eaten eggs. Costly nest litter has to be replaced frequently and the hens also destroy 'permanent' nest mats.

- Birds not only dust-bathe in the sand box but lay there and those eggs also become soiled or broken. Also sand is spread around the cage by the birds, damaging the movable parts such as manure belts.

- Perching birds soil birds below and birds may abrade their back on overhead perches.[2]

6.10 Experiments are however being conducted at Celle with design modifications to try to overcome some of the problems discussed above while maintaining an economically efficient system.

6.11 The Committee also discussed the concept of get-away cages with Professor Tauson of the Swedish University of Agricultural Sciences. He indicated that the experiments he has conducted with these types of cages have been mixed - while the birds have an enriched environment compared with the conventional cage, he reported there was higher feed consumption and some deterioration in foot condition and plumage condition.[3]

6.12 However, get-away cages do allow birds greater space. Observations on birds in get-away cages at Celle found that birds preen more in get-away cages than in conventional cages, although this may be because conventional cages are so small that they inhibit preening or because the get-away birds have dirty plumage.[4] From the operators' perspective the get-away cages have the same advantage as conventional cages in that there is no direct physical contact with the birds. While the get-away cages are still cages, in the sense that they have bars, and therefore still convey confinement and restriction of freedom, they do not restrict the performance of certain types of activities, as happens in conventional cages.

6.13 Another construction similar to the get-away cage is the Ventilated Litter Shelf System (VLSS). The system consists of cages with groups of 15-25 birds per cage at 720-1200 cm^2 floor space per hen. The cages also include nests and perches. The main difference compared to the get-away cage is that the cage floor itself is covered with litter. It may also be ventilated by air pressure from under the cage and up through the top of the cage in order to keep up the condition of the litter and to be able to filtrate the dust from the air in the poultry house. For this purpose the sides of this system are made of plexiglass.

6.14 The results so far obtained with the VLSS-system are encouraging with a low frequency of floor laid eggs reported and relatively easy inspection of birds.[5]

Deep Litter

6.15 In deep litter systems, birds are housed in sheds on an earthen floor covered with wood shavings, sawdust or some similar material to absorb moisture and droppings. For laying hens, nests are provided. Groups of birds may be confined in pens within the shed or given access to the full shed area.

6.16 Several contributors to the inquiry, including Dr Wirth of RSPCA (Australia), favoured this system over the cage system. Mr Bell of the AVA also suggested that if the cage system was phased out, the deep litter system would be his preferred option.[6] The Committee questioned Mr Bell as to the likely effect on the health of the birds of this system and whether under a deep litter more chemicals would have to be used on the birds to control worms, lice, coccidiosis and other diseases that they may pick up off the ground. However, Mr Bell saw few potential health problems, He argued that:

> ... [it] would depend on how well managed the deep litter system was. If a high standard of quarantine and hygiene was maintained, if the litter was cleaned out between every batch, a lot of those potential problems could be controlled by management. There would not necessarily be an increased use of drugs, particularly during the laying period. With coccidiosis, for example, certainly birds, young chickens on litter, need to receive a coccidiostat continuously to prevent major outbreak of coccidiosis. But generally, by the time they have approached adulthood they become immune and those drugs can be withdrawn. So, considering the laying cycle, it is not necessary to feed drugs continuously.[7]

6.17 Mr Bell, however, emphasised some [illegible]he disadvantages of the system. He noted that:

> ... the main disadvantages of moving egg producing birds into deep litter systems have come back to economics again. The birds are more active so they consume more feed and there would be higher labour costs in collecting the eggs and. generally, looking after the birds.[8]

6.18 Some other disadvantages associated with deep litter systems have been identified. For instance, a large number of eggs are laid on the floor and many become extremely soiled. In addition, unrestricted access in deep litter sheds can lead to suffocation and injury to birds. Domestic fowls frequently panic and take fright at an unfamiliar noise or smell and flock to one end or corner of the shed. Food consumption also tends to be greater than in cage systems. Deep litter birds may also be exposed to many of the problems encountered in 'free range' systems such as disease (via access to droppings in the litter), parasites, difficulty of inspection and supervision. Feather pecking and cannibalism may also be a problem. This system also requires greater capital investments per bird than cage system because of the housing space requirements.[9]

6.19 While acknowledging these disadvantages such systems also provide a number of welfare advantages. For instance, there is freedom to move within the house area and an opportunity to stretch wings to the full extent and to exercise in a variety of different ways. There is also the opportunity to use nest boxes and achieve privacy when laying. There is also no exposure to predators in this system.

<u>Aviary or Perchery Systems</u>

6.20 An aviary or perchery system is a plastic site house with perches, feed and water on several vertical levels. Dr Murphy reported on two centres studying aviaries - the Experimental Husbandry Farm at Gleadthorpe, England and the Federal Small Animal Research Institute at Celle in West Germany.

Both aviaries provided a litter section at floor level and a vertical arrangement of wiremesh floor and/or wooden perches or platforms. Preliminary trials of the system commenced in 1979. Dr Murphy reported that initial results of these experiments which indicated the following disadvantages of both systems:

- there was extensive floor laying by birds with the resultant loss of eggs through the slats;

- the hens used nest litter as a medium for scratching and dust bathing, thus soiling the nests, resulting in over a third of the eggs being dirty and requiring frequent replenishment of nest litter;

- feed consumption was consistently higher in the aviary than in cages. This may be due to increased food wastage or changes in energy requirements due to postural differences and an increase in activity;

- there were unacceptably high levels of ammonia in the aviary;

- clean out between flocks was difficult as the slats and most of the equipment had to be removed from the buildings for effective cleaning;

- inspection and access to birds was difficult (movement around the aviary by people was difficult as many sections had restricted head room);

- birds in the aviary had fewer head feathers and a greater incidence of comb damage suggesting higher levels of aggression than occurring in cages; and

- feather pecking and cannibalism have been a major problem in both aviaries and both have reported severe feather loss amongst the birds.[10]

6.21 Dr Murphy also observed the behaviour of the birds in the Celle aviary. Her observations suggested some aspects of the birds' welfare was improved (e.g. with the provision of nest boxes, litter for scratching, dust bathing and space for running and wing flapping) but in some respects it was reduced. A very high level of agonistic behaviour was observed - although the birds had no physical restraints on movements these were social restraints e.g. birds 'guarded' the ladders between the two slat levels, challenging all birds attempting to ascend or descend. While it appeared that the birds had complete freedom to perform any behaviour this was not necessarily the case.[11] Ewbank also reported that bone damage may be significantly higher in these systems.[12]

6.22 Commercial aviary systems have been introduced in Switzerland and the Netherlands and this system is the preferred production system by large producers in these countries. Studies of these systems have reported that there are several advantages of these systems including easy and effective inspection of birds and the possible mechanisation of daily routines such as feeding, watering, egg collection and removal of droppings.[13] A study by Folsch on aviary systems operating in Switzerland reported that fowls in such systems displayed a tight plumage, which among other things conserved energy, thus preventing an excessive feed intake and beak and claw-cutting was found to be unnecessary as the litter-covered floor surface contained abrasive material such as sand which kept claws and beaks blunt and short.[14]

6.23 These observations suggest that many of the problems noted in the experimental studies may be overcome, at least to some extent, where the system has been introduced on a commercial basis. However, in discussions with Professor Tauson the Committee was told that in the Netherlands, the tiered wire-floor aviary system has not been totally successful.[15]

Covered Straw Yard

6.24 The straw yard system is a covered shed, uninsulated and naturally ventilated, giving protection from the weather. The floor is deeply strawed and is kept topped up throughout the laying period. Inside the house there are nest boxes for laying, hanging feeders and drinkers and movable perch units for roosting.

6.25 Both advantages and disadvantages have been reported for this system from studies conducted in the United Kingdom. The system compares favourably in capital costs with cage systems. Production has been found to be much the same as for birds kept in cages and food consumption is also similar. The similar levels of food consumption may be due to the birds deriving extra food from the straw and the fact that caged birds consume food and water more from boredom than actual need. The birds have a varied physical environment and are able to scratch in the straw. The birds appear to develop a good covering of feathers which seem to act as effective insulation for the cold weather. Running costs are not excessive since there are no fans or mechanical equipment - with only artificial lighting as essential.

6.26 The disadvantages of the system is that it requires more skill and care to operate than a cage system, and it cannot be easily automated. In addition, some eggs may become dirty, depending on the state of the litter. While such a system fits well into a mixed farm environment it is unlikely that the system would be suitable for large-scale production.[16]

Free-Range Systems

6.27 This system, referred to as 'free-range', 'open-range' or the 'flock' system, involves running birds in an open paddock where they are free to roam at will. Usually, shelter is provided by a central shed or a number of small sheds spread over the area.

6.28 As indicated previously in the chapter, there are free-range farms in all States. In New South Wales there are four producers which have between 1,000 and 6,000 hens per farm on range. Victoria has eight producers each with between 1,000 and 8,000 hens on range. In Western Australia there are five range producers each with 1,000 to 6,000 hens, some of which have a more conventional semi-intensive element to their operations. Tasmania has one producer with more than 1,000 hens on range. In Queensland and South Australia there are no range producers with more than 1,000 hens.[17]

6.29 The Committee visited a number of free-range farms during the course of the inquiry. In general, the Committee found that the physical condition of the birds was not as good as in the cage systems visited. The Committee saw evidence of feather pecking and cannibalism. In addition, the hens were observed drinking from stagnant and polluted pools of water and the areas where the birds were located were often not adequately grassed. There also appeared to be only minimal use made by the birds of the range area, with most birds using the sheds. The Committee was also concerned at the risk of disease under these conditions and the prospect of dirty or contaminated eggs. There also appeared to be a major problem with the inspection of the birds.

6.30 Many of these concerns were raised in evidence presented to the Committee by witnesses such as the ACEP, AVA, and the NSW Department of Agriculture and Fisheries. The AVA and Dr Kite, of the NSW Farmers Association claimed that the risk of disease and internal parasites was high under free-range systems because parasites and disease organisms are carried in the soil, litter and droppings.[18] The Committee also raised the possible problem of salmonella contamination of eggs in free-range systems. Dr Kite claimed that:

> In free-range situations, if they [the eggs] are laid in nests, if there is manure in nests or even if they are just laid on the ground, there is a fair risk that those eggs could pick up all sorts of contaminants, and salmonella is one that could certainly be

> picked up in that way. Yes, there is a much greater risk of salmonella getting into eggs under free-range conditions than there is under cage conditions.[19]

6.31 As to the question of chemical contamination of eggs in general, Mr Holland of ACEP stated that:

> The fact that the birds are running on the ground, and very often in backyard situations under fruit trees and this sort of thing, where the trees have been treated with chemicals, and the birds tend to absorb these chemicals. An examination of all the reported chemical contamination of eggs would show that the largest percentage of these come from free-range operations.[20]

6.32 The AVA also claimed that former agricultural land may be contaminated with pesticides and other chemicals, to the detriment of both the birds and the people consuming their eggs.[21]

6.33 Inspection of birds is often difficult under free range conditions because they are spread over such a wide area (usually 240-370 birds per hectare). Therefore, birds suffering from disease or injury may remain unnoticed and left to suffer or die.

6.34 In addition, the well-established 'peck order' of domestic fowls is uncontrolled under 'open range' conditions. Cannibalism and feather pecking among domestic fowls can occur under these conditions where the birds are not strictly controlled. Dr Kite told the Committee that in a free-range situation the birds' social hierarchy, which is based on recognising a small number of flock mates, is disrupted. She added:

> When they have a lot of other mates to recognise you run into trouble, because obviously they cannot recognise a thousand others. That is where agonistic or aggressive behaviour tends to come about. That is why you see more aggressive behaviour at free range, because each of those birds has potentially a much larger group of companions that it is regularly coming into contact with.[22]

6.35 In addition, there is no control over environmental conditions on the range. Access to water, and the quality of that water, may be a problem; and extremes of temperature can have serious effects. The Committee questioned Mr Holland about comparisons of losses in heatwave conditions between caged and free-range birds. He argued that:

> I imagine they would be much the same. The free-range sheds tend not to have the sophisticated cooling equipment but the birds have natural methods of cooling themselves in a free-range situation - they get into the soil and transfer heat in that direction and they tend to move to cooler areas. I would not think there would be a great deal of difference.[23]

6.36 Mortality may also be higher than under other systems in part due to predation; in the cage system this problem is eliminated. In a cage system, Mr Holland estimated that the mortality rate was about one per cent per month, with some farms averaging half of one per cent.[24] Dr Kite argued that mortality is typically much higher in free-range systems, predominantly due to increased cannibalism.[25]

6.37 A further disadvantage of the 'free-range' system is that eggs are laid in various parts of the paddock and often in unhygienic conditions. Failure to find eggs on the day of laying - a common occurrence under these systems - can result in eggs that are unfresh reaching the market.

6.38 Feed consumption, labour requirements and management demands are also considerably higher under this system leading to greater production costs. Generous land requirements are also needed. The Committee estimated that if the current population of laying hens in Australia were put out at range, at a stocking density of 10 square metres per bird, as recommended by ANZFAS, it would require a land area of some 13,500 hectares or 135 million square metres.[26]

6.39 Annual egg production is likely to be lower in free range systems than for other systems. Egg production costs are also higher than under alternative systems. A study by Carnell estimated that in the United Kingdom egg production costs for free range eggs were 52 per cent greater than for caged eggs.[27]

6.40 Despite the disadvantages and problems associated with free-range production, proponents including Professor Singer and others, claim that the system provides considerable welfare benefits. They claim that the birds are free to move within the range area and within the shed or sheds provided. A varied physical environment is provided with ample opportunity to exercise and dust bathe. The environment provides an opportunity to feed on vegetation and to augment and vary diet in other ways during the warmer months of the year. There is also the opportunity to use nest boxes and therefore to get away from other birds when laying and achieve privacy.[28]

6.41 While it is possible to extract a premium from the market to cover the extra production costs, market research indicates that less than five per cent of consumers are willing to pay this premium.[29] Evidence to the Committee also indicated that a certain proportion of eggs sold as free-range are in fact from cage systems.[30]

6.42 Mr McMaster of the ACEP also suggested that the premium would be greater and their market share would decline, if free-range operators had to establish entirely new farms or if they had to make significant capital replacements to their existing facilities. He suggested that, at the present time, most of the producers who supply the market are only covering their marginal costs.[31]

6.43 It is often claimed that eggs produced under open range conditions have a higher nutritional value than eggs produced under intensive conditions. However research in the United Kingdom and Australia, comparing eggs from different production techniques and at different times of the year has found that there is no significant nutritional difference between the various systems.[32] Evidence presented to the Committee indicated that free-range eggs probably contain slightly more chemical contamination because of the way they are produced.[33]

6.44 Another claim often made in relation to eggs produced in open-range systems is that they are fresher than eggs from cage systems. However, in many instances, the opposite may be the case as so called 'farm fresh', free-range eggs are produced under largely unsupervised conditions. Whereas 'open range' produced eggs may not be collected for some time after laying, intensively produced eggs are collected immediately, packed, refrigerated and sent to market on the same day.

6.45 In summary, it appears that there are numerous welfare disadvantages associated with free-range egg production in Australia. On the basis of the evidence received and its observations of free-range operations, the Committee believes that such systems have a higher incidence of disease, a significant problem of predation; the possibility of chemical contamination of eggs; and a high rate of feather pecking and cannibalism, when compared with other systems of egg production. Evidence also indicates that such systems require large land areas on which to operate and a high level of stockmanship skills. Labour inputs and overall production costs are also considerably greater than for alternative systems.

Recent Developments in Europe

6.46 Several countries in Europe have either begun phasing-out battery cages and/or introducing alternative egg production systems on a commercial basis.

6.47 In 1981 Switzerland began a 10 year program for the phasing out of the battery cage system. The 1981 Swiss regulations prohibits the installation of new battery cage systems and existing systems must be converted to alternative systems by the end of 1991. In addition, by the end of 1991 all laying hens are required by law to have direct access to protected, darkened, soft-floored or litter-lined nesting boxes. There has been noticeable progress towards the introduction of alternative systems under these regulations. ANZFAS provided figures that indicated that at the beginning of 1990, some 70-75 per cent of Swiss eggs were produced from hens housed under alternative systems. Data in a study by Amgarten and Mettler confirmed these figures - the study estimated that 35 per cent of eggs on the Swiss market were produced from battery systems, 50 per cent from new housing systems and 15 per cent from free-range farms.[34]

6.48 To date, five alternative systems have been approved by the Swiss Federal Veterinary Office. Smaller producers have generally introduced deep litter systems whereas larger producers have generally preferred the aviary system. The number of semi-intensive and free range establishments is also increasing due to the considerable consumer demand for non-battery eggs.[35]

6.49 However, it also needs to be noted that Swiss egg production provides only 50 per cent of total consumption - with the remainder imported from cage systems in Germany and elsewhere in Europe.[36] The Swiss egg market is also relatively small and production has traditionally been concentrated in small farming units, making the transfer to alternative systems less difficult. Professor Tauson also told the Committee that some 30 per cent of birds are still in cage systems, albeit in cages that offer considerably more space per hen than in other countries. The Swiss cages are required to provide laying hens with 800 cm^2 of space per bird and also are required to provide perches and nest boxes.[37]

6.50 In Sweden, a new Animal Protection Act came into force which in 1988 providing for the phasing-out of battery cages over the next ten years. Since 1 July 1988 the construction of new battery cages has not been permitted.

6.51 ANZFAS, in evidence to the committee claimed that the Swedish Government had indicated that the free-range system will be considered as an alternative to the current battery cage system.[38] In discussions with the Committee, Professor Tauson said that Sweden had not as yet decided on an alternative system. He indicated that the alternative systems tested to date had not been able to meet a number of criteria laid down by the Government - that is, that any new system not impair the hens' health, lead to increased medication, involve beak trimming (which is banned in Sweden), nor impair the working environment.[39] Professor Tauson also told the Committee that he believed a free-range system would not be a realistic option in Sweden because of the climatic conditions.

6.52 The Dutch Government is also committed to the phasing-out of the battery cage system of egg production by July 1994. ANZFAS claimed that the Government has set down specific regulations for the housing of laying hens to apply by that date. For instance, a floor surface of at least 1,000 cm^2 must be provided for laying hens and at least one third of the floor surface must be provided with litter.[40] Regulations have also been established for aviary and tiered wire floor systems. However, Professor Tauson claimed that these regulations have not yet been agreed to.[41]

6.53 At present 15 per cent of Dutch eggs are produced in deep litter systems. Since the 1970s consumer preference for non-battery eggs has been growing and has led to the development of alternative systems. A survey conducted in the Netherlands in April 1986 revealed that 86 per cent of respondents indicated a willingness to pay more for 'animal freely' products such as deep litter eggs.[42]

6.54 The demand for deep litter eggs comes not only from the domestic market but from neighbouring West Germany as well which has imported over 40 million deep litter eggs (over 15 per cent of production) annually from the Netherlands over the past few years. In the past, production has been mainly on deep litter farms with fewer than 10,000 hens, however, the number of larger farms is increasing and farms of 40,000 hens are not unusual.[43]

6.55 In Denmark, although legislation has not been passed to ban cages, battery cage egg production is declining and the number of new alternative farms in increasing. Strict Danish requirements for hen welfare, such as the establishment of maximum stocking densities of 7 birds per square metre and a minimum litter area of one-third of floor area, has provided an incentive for farmers to convert to deep litter production and other alternative systems. Since the 1970s egg production using deep litter systems has increased significantly. It is estimated that at the present rate of conversion for battery cage to deep litter production, by the end of the 1990s non-cage production will account for 80 per cent of Danish egg production.[44]

The Economics of Alternative Systems

6.56 Several studies have been undertaken in overseas countries and Australia which have attempted to assess the economic viability of alternative systems, by calculating the differences in production costs between various production systems.

6.57 A study by Elson in 1986 compared the production costs for different egg production systems in the United Kingdom. Table 6.1 shows the results of that study.

Table 6.1: Egg Production Costs in Different Housing Systems

System	Space[a]	Cost[b]
Laying cage	450 cm^2/bird	100
Laying cage	560 cm^2/bird	105
Laying cage	750 cm^2/bird	115
Laying cage	450 cm^2/bird + perch	100
Laying cage	450 cm^2/bird + perch + nest	102
Shallow laying cage	450 cm^2/bird	102
Get-away cage, 2-tier aviary	10-12 birds/m^2	115
Aviary and perchery and multi-tier housing	20 birds/m^2	105-108
Deep litter	7-10 birds/m^2	118
Straw yard	3 birds/m^2	130
Semi-intensive	1000 birds/ha	135 (140)[c]
Free range	400 birds/ha	150 (170)[c]

[a] Space refers in cages to cage floor area, in houses to house floor area and in extensive systems to land area.
[b] Taking battery cages as the 100% base cost.
[c] Includes land rental.

Source: H.A. Elson, 'The Economics of Poultry Welfare', in Report on Second Symposium on Poultry Welfare, World Poultry Science Association, Celle, 1986.

6.58 The table shows that production costs for eggs produced in battery cages under various stocking densities increased from between 2 and 15 per cent over the cost of eggs produced in battery cages at a stocking density of 450 cm^2 per bird. There were cost increases of between 5 to 18 per cent for eggs produced in aviary or deep litter systems; increases of between 35 to 40 per cent for eggs produced in semi-intensive systems, and increases of 50 to 70 per cent in free-range systems.

6.59 A Dutch study published in 1989 by the Institute of Agricultural Engineering estimated that production costs for eggs produced under aviary systems were 4.6 per cent higher than eggs produced under cage systems. For deep litter systems the comparable figure was 15.7 per cent higher.[45]

6.60 A study by Amgarten and Mettler compared the production costs of three groups of alternative systems in Switzerland. The study found that production costs were between 4 and 9 per cent higher than that of the battery cage system.[46] The higher egg production costs in the new housing systems were largely due to higher equipment and construction costs and increased labour costs. Feed costs per egg were found to be similar to those of battery cages.[47] Evidence also indicates that despite the availability of cheaper foreign eggs, Swiss eggs are still largely preferred by Swiss consumers.[48]

6.61 In 1980 the UK Ministry of Agriculture, Fisheries and Food (MAFF) made a cost comparison of different commercial egg production systems. The egg production costs were estimated as follows:

Cages	40.5p per dozen
Deep Litter	47.4p per dozen (+ 17%)
Straw Yards	47.4p per dozen (+ 17%)
Free-Range	72.5p per dozen (+ 79%).[49]

6.62 The additional costs of egg production under systems other than battery cages were:

Deep Litter	6.9p per dozen
Straw Yards	6.9p per dozen
Free-Range	32.0p per dozen.[50]

6.63 The data show that egg production costs from deep litter and straw yard systems were 17 per cent greater than for battery produced eggs. Free-range egg production costs were some 79 per cent greater than battery produced eggs. The cost increases for free-range eggs were mainly due to higher labour costs, lower egg production, and additional land rental costs and fixed capital investment costs associated with these systems.

6.64 Another comparative study of systems in the United Kingdom was conducted by Carnell.[51] The different egg production costs are shown below:

Table 6.2: A Comparison of Egg Production Costs

	Cost	Percentage increase (a)
Battery cages (5 birds/cage)	44p	-
Deep-litter (1.5 ft^2/bird)	48p	9
Aviary	49p	11
Straw yard	54p	23
Semi-intensive	58p	32
Free-range	67p	52

(a) Percentage increase over battery egg production.

SOURCE: P. Carnell, 'An Economic Appraisal of Less Intensive Systems', in Universities Federation for Animal Welfare, Alternatives to Intensive Husbandry Systems, UFAW, Potters Bar, 1981, p. 24.

6.65 This study also found that egg production costs were substantially greater for extensive systems. For example, free-range production costs were found to be some 52 per cent greater than eggs produced under the battery system. However, the figures were significantly lower than the MAFF estimates.

6.66 Prior to the mid-1980s there had been little systematic attempt to assess the economic implications of alternative systems in Australia. In 1987, Macindoe estimated the production costs in Australia of the caged system compared with three alternative systems, based on costs in Australia in 1985-86.[52] The alternative systems were the tiered wire-floor (TWF) aviary, litter/slats and free-range systems.

Table 6.3: Estimated Cost of Egg Production in Australia from Caged Layers and Alternative Systems

	Cages	TWF Aviary(a)	Litter/ Slats	Free-Range
		(cents/doz)		
Depreciation & fixed costs (ex. labour)	20	22	22	30
Feed	40	40	40	45
Flock replacement	20	22	22	22
Marketing	15	15	15	15
Labour	10	12	14	30
Other costs	5	5	5	5
TOTAL	110	116	118	147

(a) TWF: tiered wire-floor aviary system

SOURCE: R.N. Macindoe, 'Alternative Systems for Housing Layers', in P. Henry et. al. (eds.), Intensive Animal Welfare, Australian Veterinary Association, Brisbane, 1987, p. 133.

6.67 The data in Table 6.3 indicate that egg production costs under free-range conditions were some 34 per cent greater than eggs produced under cage systems. Production costs under aviary and litter/slats systems were six and seven per cent greater respectively, when compared with cage systems.

6.68 The study showed that the major operating costs associated with commercial cage egg production were, in order of importance, the cost of feed , flock replacement, marketing amd labour. All operating (or variable costs) were directly related to the level of egg production.

6.69 For free-range systems, labour costs were shown to be significantly higher than for alternative systems as fewer birds could be maintained per unit of labour under such a system. Depreciation and fixed costs were also shown to be significantly greater under free-range systems. Feed costs were shown to be higher and flock replacement costs were also greater, due to higher mortality rates under free-range conditions.[53]

Consumer Preference

6.70 Some evidence received by the Committee indicated that there was an increasing demand in Australia for non-cage eggs, although the market for such eggs was still relatively small. A study conducted in 1984 for the Victorian Egg Board revealed that 76 per cent of people surveyed were prepared to pay a price premium of 50 cents per dozen for a free-range product, 47 per cent would pay 80 cents per dozen more and 32 per cent up to $1.00 more.[54]

6.71 The Victorian Egg Marketing Board estimated that free-range egg sales in Victoria increased by 278 per cent over a four year period. Other evidence provided to the Committee indicated that the demand for free-range eggs far exceeded demand.[55]

6.72 Overseas evidence also indicates a growing consumer demand for non-battery produced eggs. As indicated previously, some 65 to 75 per cent of eggs on the Swiss market are non-battery eggs and demand is increasing. However, in Australia, as reported earlier in this chapter, NSW Department of Agriculture and Fisheries indicated that at present free-range egg production only accounts for about five per cent of the market.[56]

6.73 The Committee recognises that the current cage system of egg production provides a plentiful and relatively cheap source of supply of a basic and important food product to consumers. While many consumers may be willing to support the ideal of non-cage production of eggs, fewer may be willing to pay the higher costs associated with the production of these eggs. The Committee believes that any significant shift towards non-cage egg production should be dictated primarily by market forces, having due regard for the animal welfare implications of any change. The Committee believes that if consumers are willing to pay more for eggs produced in non-cage systems the industry will respond to this changing market demand.

Conclusion

6.74 The Committee has examined a range of alternative housing systems available for layers. It believes that the welfare advantages of particular systems need to be balanced against potential welfare disadvantages. For instance, while semi-intensive and free-range systems may provide an opportunity for birds to move freely within the house or on the range and engage in a variety of activities to satisfy their behavioural needs, a high incidence of disease, high mortality rates, and other welfare problems are often encountered in these systems.

6.75 The Committee considers on the basis of its observations of free-range farms in particular and from the evidence received, that this type of housing system may have many negative welfare consequences. In addition to a high incidence of disease, feather pecking and cannibalism appear to be more pronounced. Environmental conditions are often difficult to control; feed consumption, labour requirements and management demands are considerably higher than for other systems; egg production is often lower and there is a risk of contaminated eggs reaching the market.

6.76 The Committee believes that a number of welfare concerns associated with the free-range system of egg production, and the significantly higher production costs of this system, will inhibit the introduction of large-scale free-range operations in Australia.

6.77 However, the Committee believes that certain other non-cage systems could be viable in Australia, at least in the longer term. The fact that several European countries are phasing-out the battery-cage system of production and introducing a range of other semi-intensive systems, indicates that such systems are potentially commercially viable. Such developments, although largely in their initial stages, offer the prospect of a change in egg production methods. The Committee believes that these overseas developments should be closely monitored in Australia.

6.78 The Committee, however, believes that any large-scale introduction of alternative systems in Australia needs to be proceeded with cautiously taking into account the animal welfare implications of any such change. As Ewbank has noted:

> It could be both a welfare and an economic disaster to force the present population of battery birds out into the relatively untried alternative systems. Free range and intermediate systems (percheries, aviaries, straw yards, deep litter, etc.) do give the birds considerably more freedom but they are more difficult to run than battery units: they demand a higher level of stockmanship, the outdoor systems seem to have a higher level of disease, and the eggs cost more to produce. There is a real need for further research and development work on the intermediate and free range systems, in the hope that the problems will be solved and that it will finally be possible to phase out battery cages.[57]

6.79 The Committee believes that when assessing the many types of alternative systems that have been suggested as being capable of replacing the present intensive systems, a primary concern should be whether the proposed systems provide a true welfare advantage for the birds in terms of their physiological and behavioural needs. In addition, the Committee believes it important that Australia avoid the situation that occurred in several European countries where new systems were not properly evaluated under local conditions prior to their introduction. Accordingly, the Committee **recommends** that the banning of laying cages be considered when it can be demonstrated that viable alternative systems can be developed suitable to Australian conditions and that these alternative systems have positive welfare advantages. The Committee further **recommends** that a combination of cage and non-cage production systems be continued with market forces dictating the relative market share of the different systems.

6.80 The Committee notes that while significant research has been conducted into alternative systems in many overseas countries, comparatively little research has been undertaken in Australia. As there are several different genetic strains of bird in Australia compared with European strains, and these strains will, on the basis of overseas experience, respond differently to various husbandry systems, the Committee believes it to be essential that more research be initiated in Australia.

6.81 The Committee believes that any research in Australia should also examine both the welfare aspects and economic viability of alternative systems to ensure the long-term success of such systems. The Committee also believes that the industry itself, State governments and other interest groups should be consulted throughout the research process. It notes that in some overseas countries a wide consultative process did not occur. In addition, overseas experience has shown that in some intances those conducting the research had little practical experience of large-scale husbandry systems. A broad consultation with qualified people may have predicted in advance many of the problems encountered. The Committee therefore **recommends** that the Commonwealth Government fund a research project in Australia to examine and evaluate alternative housing systems that may be suitable to Australian conditions and that this review:

(a) examine overseas research findings into alternative housing systems;

(b) assess the welfare benefits and any welfare disadvantages of such systems;

(c) evaluate the economic viability of alternative systems; and

(d) consult with poultry producers, State Governments, the veterinary profession, and specialist ethologists, both in the initial and subsequent stages of the project.

ENDNOTES

1. Letter to the Committee from the Australian Council of Egg Producers (ACEP), dated 28 May 1990.

2. Evidence, Dr L. Murphy, pp. S9002-4.

3. Committee discussion with Professor Tauson, 14 May 1990.

4. Evidence, Dr. L. Murphy, p. S9004.

5. R. Tauson, 'Cages for Laying Hens: Yesterday and Today-Tomorrow?', in J.M. Faure and A.D. Mills (eds.), The Proceedings of the Third European Symposium on Poultry Welfare, World Poultry Science Association, Tours, 1989, p. 174.

6. Evidence, Dr Wirth, Royal Society for the Prevention of Cruelty to Animals (Australia), p. 9596 and Mr Bell, Australian Veterinary Association, p. 9366.

7. Evidence, Mr Bell, Australian Veterinary Association, p. 9366.

8. ibid., p. 9366.

9. Livestock and Grain Producers' Association of NSW, Animal Welfare in Agriculture, n.d., pp.35-6.

10. Evidence, Dr L. Murphy, pp. 8956-57, pp. S9009-9010.

11. ibid., pp. S9011-9012.

12. Personal communication with Dr R. Ewbank.

13. ANZFAS supplementary submission, p. 5.

14. D. Folsch et.al, 'Research on Alternatives to the Battery System for Laying hens', Applied Animal Behaviour Science, 20 (1988), pp. 34-36.

15. Committee discussion with Professor Tauson, 14 May 1990.

16. D. Sainsbury, 'The Covered Straw Yard', in Universities Federation for Animal Welfare, Alternatives to Intensive Husbandry Systems, UFAW, Potters Bar, 1981, pp.37-8.

17. Letter to the Committee from the Australian Council of Egg Producers, dated 28 May 1990.

18. Evidence, Dr. Kite, NSW Farmers Association, p. 8702; and Australian Veterinary Association, pp. S8769-70.

19. ibid., p. 8702.

20. Evidence, Mr Holland, Australian Council of Egg Producers, p. 8701.

21. Evidence, Australian Veterinary Association, pp. S8770.

22. Evidence, Dr Kite, p. 8713.

23. Evidence, Mr Holland, p. 8711.

24. ibid., p. 8720.

25. Evidence, Dr Kite, p. 8714.

26. There are approximately 13.5 million laying hens in Australia. See evidence, Australian and New Zealand Federation of Animal Societies, pp. S8834-5. Calculations provided to the Committee by the Statistics Group, Parliamentary Library.

27. P. Carnell, 'An Economic Appraisal of Less-Intensive Systems in Egg Production and Breeding Pigs', in Universities Federation for Animal Welfare, op.cit, pp. 21-31.

28. Evidence, Professor Singer, pp. 9474-76.

29. Evidence, NSW Department of Agriculture and Fisheries, p. S8173.

30. Evidence, Mr Holland, Australian Council of Egg Producers, p. 8700.

31. Evidence, Mr McMaster, Australian Council of Egg Producers, p. 8702.

32. Livestock and Grain Producers Association, op.cit., p.41.

33. Evidence, Mr Holland, Australian Council of Egg Producers, p. 8701.

34. M. Amgarten and A. Mettler, 'Economic Consequences of the Introduction of Alternative Housing Systems for Laying Hens in Switzerland', in Faure and Mills, op. cit., p. 214.

35. Australian and New Zealand Federation of Animal Societies, supplementary submission, pp.6-7.

36. Amgarten and Mettler, op.cit., p.214.

37. Committee discussion with Professor Tauson, 14 May 1990.

38. Australian and New Zealand Federation of Animal Societies, supplementary submission, p. 7.

39. Committee discussion with Professor Tauson, 14 May 1990.

40. Australian and New Zealand Federation of Animal Societies, supplementary submission, p. 8.

41. Committee discussion with Professor Tauson, 14 May 1990.

42. Australian and New Zealand Federation of Animal Societies, supplementary submission, pp. 8-9.

43. ibid., pp. 8-9.

44. ibid., pp. 9-10.

45. ibid., p. 12.

46. Amgarten and Mettler, op cit., p. 227.

47. ibid., pp. 215-216.

48. Australian and New Zealand Federation of Animal Societies, supplementary submission, p. 7.

49. Ministry of Agriculture, Fisheries and Food, A Cost Comparison of Commercial Egg Production Systems, HMSO, London, 1980, p. 5.

50. ibid., pp. 5, 10.

51. Carnell, op.cit., pp. 21-31.

52. R.N. Macindoe, 'Alternative Systems for Housing Layers', in P. Henry et. al. (eds.), Intensive Animal Welfare, Australian Veterinary Association, Brisbane, 1987.

53. ibid., pp. 132-3.

54. Australian and New Zealand Federation of Animal Societies, supplementary submission, p. 10.

55. ibid., pp. 10-11.

56. Evidence, NSW Department of Agriculture and Fisheries, p. S8173.

57. R. Ewbank, 'Animal Welfare', in Universities Federation for Animal Welfare, Management and Welfare of Farm Animals, Bailliere Tindall, London, 1988, p. 11.

CHAPTER 7

HUSBANDRY PRACTICES

7.1 Several husbandry practices in the poultry industry were the subject of concern during the inquiry. These practices included beak trimming, induced moulting and the use of artificial lighting cycles.

7.2 The practice of beak trimming has been criticised by some welfare groups who see it as a distasteful mutilation which is painful to the bird and may have adverse long-term effects. Some methods of induced moulting have also been criticised as inimical to welfare, as have the use of artificial lighting patterns to enhance production performance. Each of these issues is discussed below.

Beak Trimming

7.3 Beak trimming refers to removal of part of the beak of the chicken. Generally the portion of the beak removed varies, ranging from one third of the upper mandible to the whole beak.[1] The amount removed may also vary as between upper and lower mandible, for example, two thirds upper, one third lower. Research indicates that beaks continue to grow after trimming, and by 65 weeks will be 12 per cent shorter than normal beaks.[2]

7.4 The Model Code of Practice for the Domestic Fowl prescribes that not more than half of the upper beak and one-third of the lower beak be removed, but the Committee received evidence that there was considerable variability in the results. Greater uniformity occurs overseas, possibly because it is done before 12 weeks of age in some countries. Evidence indicated that beak trimming in Australia is done from 18 to 22 weeks. Other evidence indicated that chickens are generally beak trimmed in hatcheries at one day of age, or on the farm at 7-10 days of age.[3] However, the evidence did not support a specific time (age of chicken) being prescribed in the Code.[4]

7.5 According to the Australian Council of Egg Producers (ACEP), beak trimming involves removal of the very tip of the beak (usually the upper mandible). The procedure is extremely quick, and is carried out using a hot blade.[5] The most commonly used method is to remove about one third of the upper beak and a little of the lower beak, by electrocautery. An electrically headed blade is used to simultaneously cut and sear the beak to prevent bleeding.[6]

7.6 The responses of birds to beak trimming varies according to the age of the bird. Research has indicated that the earlier in life birds are beak trimmed, the smaller their responses. Research suggests that adult birds may suffer short term pain and/or fear, reduced food intake for a period, and reduced body weight but little effect on egg production. Most investigations have not shown a significant effect on mortality.[7]

7.7 Beak trimming may be repeated later in the growing period if necessary, usually to prevent or curb an outbreak of cannibalism.[8]

Reasons for Beak Trimming

7.8 Beak trimming is used to prevent or eliminate cannibalism, and pecking between birds (feather pecking); activities which can occur in all housing systems.[9]

7.9 The Australian Veterinary Association (AVA) argued that beak trimming is widely practiced by the industry to control cannibalism, and is justified on welfare as well as economic grounds. The AVA stated, however, that standards of practice could be improved by better staff training and less incentive for haste.[10]

7.10 Injury to birds occurs during normal social interaction between birds as they establish dominance (peck orders). Sick or injured birds, and those with oviduct protrusion are also attacked. Injuries, presumably, are painful and can result in bleeding, infection, and carcass downgrading.[11]

7.11 Some strains tend to feather peck, which can lead to cannibalism. What triggers cannibalism is not fully understood, although reduced lighting intensities do inhibit both activities.[12]

7.12 Certain strains of layers are prone to prolapse, and the oviduct everts on laying. The oviduct is bright red which encourages cannibalism.[13]

7.13 The banning of beak trimming would lead to heavy mortality in flocks (estimated at up to 30 per cent) and extensive injuries would also increase.[14]

Consequences of Beak Trimming

7.14 Evidence to the Committee indicated that beak trimming does cause at least temporary pain. Evidence was given that the beaks of chickens are enervated.[15] Research has identified some of the types of nerve cells which, in other species, for example, humans are sensitive to pain.[16] Dr Kite told the Committee it was possible chickens experience some pain as a result of beak trimming, but the extent of the pain was difficult to quantify.[17] While it is difficult to quantify pain in humans, let alone in birds, research is being conducted to try to quantify the pain experienced by chickens due to beak trimming.

7.15 The Australian Veterinary Association (AVA) submitted that beak trimming 'causes immediate pain and short-term discomfort' but is essential to minimise prolonged suffering due to cannibalism.[18] Observations of producers indicate that birds are reluctant to peck at feed for perhaps a number of hours to a day or two after beak trimming. Beyond that, from observation, birds appear to behave normally.[19]

7.16 Other evidence, from Mr Miller of the Victorian Department of Agriculture and Rural Affairs, indicated that if beak trimming was done correctly, there did not appear to be any lasting consequences for the bird.[20]

7.17 Beak trimming at day old produces least fear and pain in chickens. Evidence from NSW Department of Agriculture and Fisheries indicated that if carried out at under 10 days of age, beak trimming does not adversely affect feed intake, growth rate or subsequent egg production.[21]

7.18 The long-term neurological consequences of beak trimming have been investigated at the Poultry Research Centre, Midlothian, Scotland. The studies have found that beak trimming damaged the nerves of the beak for up to three millimetres from the cut end. By six days, the damaged nerve had degenerated, but by 10 days there was evidence of regrowth. By fifteen days a neuroma was present at the end of the nerve stump. In some birds, a large and complex neuroma formed adjacent to the scar tissue at the end of the beak. The authors concluded that these findings were consistent with the formation of neuromas following peripheral nerve damage in humans, rats and mice which are implicated in post-amputation stump pain.[22]

7.19 If beak trimming is done badly, it can cause the bird problems. Dr Murphy, a poultry researcher, in evidence to the Committee argued that it was essential to ensure 'that beak trimming was always done by people who were properly trained'.[23]

7.20 The practice of beak trimming also causes the bird some stress. Actual handling of the bird is stressful; studies indicate heart rate is elevated more, or as much by handling, than the actual beak trimming.[24] Gradual increase of the fear response to being caught, handled, and beak trimmed occurs as the birds age.[25]

7.21 Research is being conducted into the stress effect of beak trimming to establish the 'optimum' age to beak trim in relation to stress and performance.[26]

7.22 Evidence to the Committee also indicated that beak trimming reduces the bird's ability to preen itself and remove external parasites. In well-managed housing systems, however, external parasites are normally kept under control.[27]

When Beak Trimming is Performed

7.23 Evidence submitted to the Committee indicated considerable variation as to the age of chickens when beak trimming is performed. The Committee saw trimming at eight days but were informed that usually it is done at about 15 days.[28]

7.24 Precision in performing beak trimming was of concern to some witnesses, including Mr Macindoe of the NSW Department of Agriculture and Fisheries, who argued that there was a need to improve the exactness and skill of operators.[29]

Alternatives to Beak Trimming

7.25 One alternative to beak trimming for mature birds is the fitting of 'polypeepers'. These are small pieces of plastic which clip onto a chicken's beak and obstruct forward vision preventing direct focus, eye-to-eye contact, with other chickens; peripheral vision is, however, unimpaired. The AVA argued that polypeepers should be used with care as they can injure the nasal septum, get caught in the cage and may make feeding, drinking and nesting more difficult.[30] Polypeepers are seldom used in Australia.

7.26 The use of dietary supplements and drugs have been successfully used overseas to reduce aggression in chickens and as an alternative to beak trimming, although this method has not been used in Australia.[31]

7.27 The need for beak trimming may be reduced given the change in the temperament of layer strains, with some modern strains being more docile.[32] Encouragement of this development, and an increasing trend towards controlled environment housing was seen as reducing the incidence of cannibalism which in turn, may reduce the need for beak trimming.[33]

7.28 Various witnesses supported the concept of genetic selection for birds less prone to cannibalism which could also minimise the need for beak trimming.[34] Control of light intensities, with quite low light intensities, also appears to reduce the incidence of cannibalism and hence the need for beak trimming.[35] These alternatives, in themselves, raise concerns regarding welfare: for example, continuous reduced lighting arguably alters certain aspects of the birds' natural behaviours.

Standards of Practice

7.29 Evidence to the Committee indicated that it was essential that beak trimming be carried out with precision by experienced operators using proper equipment. The NSW Department of Agriculture and Fisheries indicated that 80 per cent of beak trimming is now performed by hatchery operators and professional contractors.[36]

7.30 The AVA submitted that staff training could be improved in this area.[37] In Victoria, Mr Miller indicated that the industry self-regulated, and operators who did not beak trim correctly were not re-employed.[38] Currently, the training of new operators is done by poultry companies or contractors.[39] Most beak trimmers employed by hatcheries are paid on a piece rate basis.

7.31 The AVA submitted to the Committee that formal training and licensing of beak-trimmers may ensure a higher and more consistent standard of practice.[40]

Conclusion

7.32 The Committee does not oppose the practice of beak trimming although it considers the procedure should be performed at the optimum time to avoid stress to the bird. The Committee supports research into temperament of layer strains, and the use of less invasive methods to control cannibalism. The Committee believes that beak trimming should only be performed by competent operators and **recommends** that more formal training and supervision be introduced by the poultry industry for beak trimmers so that improved standards of practice may be achieved.

Induced Moulting

7.33 Natural moulting occurs when birds are between 8-12 months of age.[41] Egg production ceases, and feathers are shed before the birds build up body reserves in preparation for another season of egg production.

7.34 In a natural environment, moulting occurs during autumn and winter being induced by declining day length, reduced temperature and reduced feed availability. A moult can also occur at other times as a natural response to stress.[42]

7.35 Moulting may be deliberately introduced in poultry as a management technique. The reasons include:

- extension of the productive life of layers - a second period of egg production can be gained from the flock without the costs associated with buying and/or rearing replacement birds;

- larger eggs are produced during the second laying period; and

- egg quality may also be improved.[43]

7.36 Other evidence indicated that egg production after a moult is generally lower than in the first year of lay. Methods used in induced moulting not only attempt to shorten the time of the moult, but also to increase post-moult production.[44]

7.37 The economic success of induced moulting depends on how quickly and uniformly the flock can be taken out of lay and brought back into full production again.[45]

Procedures for Induced Moulting

7.38 There are various methods of inducing a moult in laying hens. Such methods include turning off supplementary lights to reduce day length, increasing shed ventilation to reduce temperatures, and reducing food and water intake.[46]

7.39 Force moulting by the starvation method (depriving birds of food and water for up to two weeks) is unacceptable to both veterinary and animal welfare groups.[47] The traditional method of inducing a moult involves 'fasting' the birds by severely restricting the food supply for a period of 6-10 days, although water is provided at all times.[48]

7.40 The Committee considers deprivation of food and water an unacceptable practice. The Committee notes that the matter is addressed in the Code of Practice, which in relation to hens, states that water should not be withheld for more than 24 hours, and food for no more than 48 hours.[49]

7.41 The Australian and New Zealand Federation of Animal Societies (ANZFAS) in its submission to the Committee was opposed to any method of induced moulting that involved the deprivation of food and water. The Federation considered that other methods now being considered to replace the traditional ones should be viewed with concern and referred to research into dietary levels of specific nutrients on moulting and their adverse welfare effects.[50]

7.42 An alternative, and now recommended as preferred, method of induced moulting being used successfully in Australia is feeding whole barley ad libitum.[51] Whole barley grain is used without restriction of water or lighting. This is continued until egg production ceases (usually within several days) when normal feed is introduced.[52] Once normal feed is re-introduced, biochemical changes, including activity of the thyroid, triggers the laying cycle. Barley may produce the same effect on the endocrine system as fasting, while still allowing the birds to feed.[53]

7.43 The barley method has the potential to allow hens to be kept on for two laying seasons and may not be experienced as deprivation as the hens are still ingesting the same volume of food.[54]

Welfare Effects of Induced Moulting

7.44 Little research has been done on the stress effects of induced moulting. While the practice causes some stress, albeit shortlived, continuous egg production itself is stressful.[55] As previously noted, moulting occurs naturally in laying hens.

7.45 Various methods of inducing a moult by dietary manipulation include calcium restriction, sodium restriction, high iodine or high zinc in the diet. Some research has been done into these methods, however, none are considered suitable for commercial use.[56]

7.46 There is a need for further research into the stress and welfare aspects of induced moulting, while continuing to seek less stressful methods of inducing a moult.[57]

7.47 The Committee does not recommend prohibiting induced moulting. To do so would result in birds being slaughtered and replaced at the end of the first laying season.[58]

7.48 The Committee believes that moult inducement is an acceptable management practice provided it causes only minimal stress to the hens. The Committee therefore **recommends** that only humane methods of induced moulting be utilised and notes, with approval, the preferred method of feeding barley ad libitum. The Committee believes that moulting practices that deprive birds of food or water for excessive periods cannot be justified on welfare grounds and **recommends** that the starvation method of induced moulting be prohibited.

Artifical Lighting Cycles

7.49 Light intensity and duration govern a number of important physiological and behavioural functions of poultry, for example, their activity, their feeding habits and their reproductive cycle. Under natural conditions, poultry are normally active and feed during daylight hours, resting at night. Hens are typically maintained on a constant lighting schedule of 16 hours light and 8 hours darkness.

7.50 Intensive housing systems commonly provide artificial light so that the duration and intensity of light may be controlled. Day length is controlled to bring breeding and commercial egg producing poultry into lay and to maintain egg production througout the year. Light intensity may be reduced to minimise activity and thereby improve feed conversion efficiency.

7.51 Evidence to the Committee by the ACEP, AVA and AFWA indicated that the lighting programs used by the commercial poultry industry do not adversely effect welfare.[59]

7.52 AFWA noted that:

> There is no evidence that these practices, derived from scientific knowledge of poultry physiology and behaviour, are detrimental to the birds' welfare. On the contrary, the improvements in egg production, growth and low mortality achieved are evidence of lack of stress in the flocks involved.[60]

7.53 The ACEP also noted that laying flocks are not routinely kept under conditions of continuous light as this would actually depress their productivity.[61] In addition, AFWA noted that light intensities may be reduced to effectively control feather pecking and cannibalism.[62]

7.54 The Committee believes that, on the basis of the evidence received, the lighting cycles currently employed by the industry do not adversely affect the welfare of laying hens.

ENDNOTES

1. Evidence, Australian Federation for the Welfare of Animals, p. S8942.

2. M.J. Gentle, 'Beak Trimming in Poultry', WPSA Journal, Vol. 42, No. 3, October 1986.

3. Evidence, NSW Department of Agriculture and Fisheries, p. S8178.

4. ibid., p. 8776.

5. Evidence, Australian Council of Egg Producers, p. S8154.

6. Evidence, Australian Veterinary Association, p. S8777.

7. Evidence, Australian Federation for the Welfare of Animals, p. S8942.

8. Evidence, NSW Department of Agriculture and Fisheries, p. S8178.

9. Evidence, Australian Veterinary Association, p. S8777; and NSW Department of Agriculture and Fisheries, p. S8178.

10. Evidence, Australian Veterinary Association, p. 9349.

11. ibid., p. S8777.

12. Evidence, Victorian Department of Agriculture and Rural Affairs, p. 9413; and NSW Department of Agriculture and Fisheries, p. 8766.

13. Evidence, Australian Veterinary Association, p. 9354.

14. Evidence, NSW Department of Agriculture and Fisheries, p. S8179.

15. Evidence, Australian Council of Egg Producers, p. 8723.

16. Gentle, op. cit.

17. Evidence, Dr Kite, NSW Farmers Association, p. 8724.

18. Evidence, Australian Veterinary Association, p. S8766.

19. Evidence, Australian Veterinary Association, p. 9353.

20. Evidence, Mr Miller, Victorian Department of Agriculture and Rural Affairs, p. 9412.

21. Evidence, NSW Department of Agriculture and Fisheries, p. S8178.

22. Letter to the Committee from the Australian Veterinary Poultry Association, dated 27 September 1989.

23. Evidence, Dr Murphy, p. 9555.

24. Evidence, Australian Council of Egg Producers, p. 8724.

25. Evidence, NSW Department of Agriculture and Fisheries, p. S8178.

26. ibid., p. S8179.

27. Evidence, Australian Federation for the Welfare of Animals, p. 9529.

28. Evidence, Australian Council of Egg Producers, p. 8724.

29. Evidence, Mr Macindoe, NSW Department of Agriculture and Fisheries, p. 8766.

30. Evidence, Australian Veterinary Association, p. S8778.

31. Evidence, NSW Department of Agriculture and Fisheries, p. S8178.

32. Evidence, NSW Department of Agriculture and Fisheries, p. 8766; and Victorian Department of Agriculture and Rural Affairs, p. 9413.

33. Evidence, NSW Department of Agriculture and Fisheries, p. 8766.

34. Evidence, NSW Department of Agriculture and Fisheries, p. S8179; and Australian Veterinary Association, p. 9349.

35. Evidence, Australian Federation for the Welfare of Animals, p. 9534; and NSW Department of Agriculture and Fisheries, p. S8178.

36. Evidence, NSW Department of Agriculture and Fisheries, p. S8178, p. S8766.

37. Evidence, Australian Veterinary Association, p. 9349.

38. Evidence, Mr Miller, Victorian Department of Agriculture and Rural Affairs, p. 9413.

39. Evidence, Dr L. Murphy, p. 9549; and Australian Veterinary Association, p. S8778.

40. Evidence, Australian Veterinary Association, p. S8778.

41. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8839.

42. Evidence, Australian Veterinary Association, p. S8778.

43. Evidence, NSW Department of Agriculture and Fisheries, p. S8181, Evidence, Australian Veterinary Association, p. S8778.

44. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8839.

45. Evidence, Australian Veterinary Assocdiation, p. S8778.

46. Evidence, Australian Veterinary Association, p. S8778.

47. Evidence, Australian Veterinary Association, p. 9350, p. S8767, p. S8779; and Australian and New Zealand Federation of Animal Societies, p. S8834, p. S8837, p. S8839.

48. Evidence, NSW Department of Agriculture and Fisheries, p. S8181.

49. Evidence, Australian and New Zealand Federation of Animal Societies, pp. S8839-8840.

50. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8840.

51. Evidence, NSW Department of Agriculture and Fisheries, p. S8181; Australian Veterinary Association, p. S8779, p. S8793; and Australian and New Zealand Federation of Animal Societies, p. S8840.

52. Evidence, Australian Veterinary Association, p. S8783.

53. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8840.

54. ibid.

55. Evidence, NSW Department of Agriculture and Fisheries, p. S8181.

56. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8840; and NSW Department of Agriculture and Fisheries, p. S8181.

57. Evidence, NSW Department of Agriculture and Fisheries, p. S8182.

58. ibid.

59. Evidence, Australian Council of Egg Producers, p. S8154; Australian Federation for the Welfare of Animals, p. S8942; and Australian Veterinary Association, p. S8772.

60. Evidence, Australian Federation for the Welfare of Animals, p. S8943.

61. Evidence, Australian Council of Egg Producers, p. S8154.

62. Evidence, Australian Federation for the Welfare of Animals, p. S8942.

CHAPTER 8

HANDLING AND TRANSPORT

8.1 The handling and transport of poultry was also a major area of concern during the inquiry. The Code of Practice for the Road Transport of Livestock recognises the importance of proper handling of poultry and emphasises the responsibilities of the owners and the drivers involved in the transportation process.[1] The Committee believes it is important to encourage the efficient and considerate treatment of fowls so that any stress or injury associated with handling and transport is minimised.

8.2 The Code of Practice lays down special guidelines for the transport of poultry. These guidelines provide that:

- the design, construction and state of repair of any crate or container used to carry birds should allow them to be put in, conveyed and taken out without injury;
- containers should be ventilated and deep enough (about 25 cm) to allow all birds space to stand, move and seek comfort, but prevent bruising during transport;
- covers should be used to protect birds in crates from wind and rain and from excessively hot or cold conditions; and
- birds should not be held in crates or containers for longer than 24 hours unless they are provided with food and water.[2]

8.3 More than four million spent hens are transported and slaughtered each year in New South Wales alone. These birds are sometimes transported over distances of 800 kilometres or more.[3]

Handling Procedures

8.4 Started pullets and spent hens (those that have finished their period of lay in the egg industry) are removed manually from their cages, placed in crates and transported to the egg farms or processing plants. While it is in the interest of producers and processors to carry out this operation quickly and with care in order to minimise mortality and/or carcass damage, the AVA, Dr Murphy, a poultry researcher, and others noted that transport problems still occur from time to time, particularly between farm and processing plant. These problems include rough handling when catching and unloading birds, poor maintenance or stacking, overcrowding, delays during transport and unloading, exposure to excessive heat or cold, loading and unloading birds too hastily and the problem of birds escaping.[4] The AVA also noted that because of their low market value, spent hens are at the greatest risk of poor handling during transport.[5]

8.5 Catching itself, the placing into crates and transportation is a stressful experience for poultry. Because of this the catching and transport needs to be carried out with full consideration of the birds' welfare. Statistics show that about one per cent of birds die before reaching the slaughter house and, on average, four per cent of carcasses are bruised or have other injuries.[6] The NSW Department of Agriculture and Fisheries argued that the management practices required to limit stress and carcass damage are well understood and catching crews are generally instructed and supervised to ensure that these practices are followed, although the Committee believes there is nevertheless a need for improvement.[7]

8.6 Dr Murphy, in evidence to the Committee, noted that from her experience of the industry there was a need for gentler handling on some occasions.[8] The Committee also received evidence that those people involved in the transport of poultry need to be made more aware of the welfare requirements of the animals in their care and, in particular, that they have a sufficient understanding of their responsibilities under the relevant codes of practice. The RSPCA proposed that a licensing system be introduced for those involved in the transportation of animals commercially and that the equipment used in the transport of animals also be licensed.[9]

Transport of Spent Hens and Pullets

8.7 Other contributors to the inquiry noted the excessively long distances involved in the transport of spent hens and pullets. Mr Poole, of NSW Department of Agriculture and Fisheries, told the Committee of the situation in New South Wales where the processing plant capacity for spent hens has been significantly reduced. This necessitates spent hens having to be transported long distances from farms in New South Wales to Queensland. Mr Poole told the Committee of an instance where a truckload of spent hens en route to Toowoomba broke down at night and the hens were left on the truck. He noted:

> The code of practice stipulates that they should not be transported without food or water for any time longer than, say, 24 hours. After that truck was broken down for somewhere around 24 hours they were then transported to Toowoomba. ... By the time those birds were finished being processed it might have been another eight hours. So it is possible that those birds were without food or water for in excess of 40 hours, which I do not believe to be acceptable.[10]

8.8 Mr Poole also recounted another incident involving the transport of spent hens to Queensland. In that incident the vehicle was stopped en route and it was found that some ten per cent of the birds were dead due to overloading of the truck and the transport of the birds in the heat of the day. Mr Poole noted that the mortality rate would have been substantially higher by the time the birds reached their destination and were processed in Toowoomba.[11] The Committee believes that effective transport back-up needs to be available to cope with these situations.

8.9 Mr Macindoe of NSW Department of Agriculture and Fisheries told the Committee that the Department was concerned 'to the point where we should and do normally speak to the operator concerned', due to instances of breaches of the Code of Practice in the area of transport, although he added that most were isolated cases often with 'extenuating circumstances'.[12]

8.10 The Committee was particularly concerned with the problems associated with the transportation of spent hens. The Committee notes that this problem is further accentuated because of their low market value. The Committee was also told that spent hens are more likely to suffer fractures during handling and transportation because of the brittleness of their bones.[13]

8.11 Another area of concern was the conditions under which pullets are transported. Mr Poole told the Committee that:

> It is known that pullets can travel across a State from another State, say from Victoria to Queensland, to satisfy a market. Once they are crated, it is near impossible to provide those birds with water; so again those birds, I suggest, would be without water during that period of transport.[14]

8.12 Mr Poole further noted that the problem was mainly with the smaller pullet suppliers. He remarked:

> There are several independent pullet growers-suppliers in the State [NSW] and I have been informed verbally by those operators that it sometimes takes them well in excess of 24 hours, and maybe up to 40 hours, to get to the areas that they need to in order to drop off their small quantities of birds along the way.[15]

Mr Poole also argued that especially in hot weather and where sufficient water was not provided situations such as these constituted cruelty to the birds transported in this manner.[16]

8.13 The Committee believes that instances such as these provide a clear case where the welfare of the birds are being seriously compromised. Contraventions of the Code of Practice are also involved in these cases where birds are being transported for periods in excess of 24 hours without being provided with food and water.

Conclusion

8.14 The Committee, on the basis of its own observations and the evidence presented to it, was concerned about the conditions under which some spent hens and pullets are transported.

8.15 The Committee's main areas of concern have been the insufficient care taken during the handling and transportation process and the often excessive distances involved in the transport of poultry. The Committee believes that in many cases the reasons for these deficiencies lay with the handlers and transport operators. The Committee therefore **recommends** that the information contained in the Codes of Practice for road transport of livestock be more widely disseminated by Government extension services, poultry companies, transport operators and the veterinary profession.

8.16 The Committee was also concerned that the conditions under which poultry are sometimes transported involved breaches of the Code of Practice. The Committee believes that sufficient resources should be provided to ensure that the provisions of the Code are enforced and **recommends** that additional manpower resources be provided to each State and Territory Department of Agriculture to ensure compliance with the provisions of the Codes of Practice for road transport of livestock.

ENDNOTES

1. Australian Bureau of Animal Health, Sub-Committee on Animal Welfare, Model Code of Practice for the Welfare of Animals: No. 3 - Road Transport of Livestock, Canberra, 1983.

2. ibid., p. 18.

3. Evidence, NSW Department of Agriculture and Fisheries, p. S8185.

4. Evidence, Australian Veterinary Association, p. S8779; Dr L. Murphy, p. 9550.

5. Evidence, Australian Veterinary Association, p. S8779.

6. Evidence, NSW Department of Agriculture and Fisheries, p. S8185.

7. Evidence, NSW Department of Agriculture and Fisheries, p. S8185.

8. Evidence, Dr L. Murphy, p. 9550.

9. Evidence, Dr Wirth, RSPCA Australia, p. 9607.

10. Evidence, Mr Poole, NSW Department of Agriculture and Fisheries, p. 8769.

11. Letter to the Committee from Mr G. Poole, NSW Department of Agriculture and Fisheries, dated 31 October 1990.

12. Evidence, Mr Macindoe, NSW Department of Agriculture and Fisheries, p. 8771.

13. Evidence, Mr Bell, Australian Veterinary Association, p. 9363.

14. Evidence, Mr G. Poole, NSW Department of Agriculture and Fisheries, p. 8769.

15. ibid., p. 8770.

16. ibid., p. 8771.

CHAPTER 9

BROILER CHICKENS

9.1 Modern large-scale integrated broiler chicken production had its beginning on the outskirts of Sydney in the 1950s. The industry has grown significantly since then with very large increases in production controlled by relatively few commercial enterprises.

9.2 Chicken meat (broiler) production is located relatively close to areas of consumption. Besides the main areas around the capital cities there is substantial broiler production around Tamworth and Newcastle in New South Wales, Geelong in Victoria and Murray Bridge in South Australia. Location is determined mainly by the economics of transport in relation to markets, feed and processing facilities.

9.3 Most commercial enterprises are intensive, highly mechanised units which occupy relatively small areas compared to conventional farming. Broilers are run at high density on litter floors in houses ranging from open, naturally ventilated structures in the warmer climates, to fully enclosed controlled environment houses in colder climates.

9.4 The chicken meat industry provides a good example of modern agribusiness. The chicken industry operates largely through vertical integration with company ownership of breeding farms, multiplication farms, hatcheries, feed mills, some broiler growing farms and processing.

9.5 Two large companies - the Ingham Group of companies and Australian Poultry Ltd. - are responsible for between 75 and 80 per cent of the meat chickens produced in Australia.[1] A typical farm would have 60 000 broiler chickens and produce 200 000 to 300 000 birds a year.[2]

9.6 A number of welfare issues involving the meat chicken industry were raised during the inquiry. These included:

- aspects of the housing system, including stocking densities and the condition of the litter used in sheds;
- handling and transportation of broilers;
- processing operations; and
- health problems of broilers, including leg weakness and other deformities of the skeletal structure, respiratory disease and skin damage.

Housing Systems

9.7 More than 90 per cent of commercial meat chickens in Australia are reared in large fully intensive deep litter houses equipped with some degree of environmental control. The houses also provide for automatic feeding, watering and lighting systems.[3]

9.8 The sheds are either open sided or controlled environment. With open sided sheds, heat is maintained during the early growing phase by mechanical heaters, insulation and by side wall shutters or blinds. The sheds are naturally lit during daylight hours, and through wired mesh sides, are open to the environment. In controlled environment shedding, ventilation and lighting are mechanically controlled. The Australian industry houses about 60 per cent of its birds in open-sided sheds. In all shed types, maximum use is made of equipment to maintain the birds within the thermal comfort zone for their age. Such equipment includes fans, foggers and roof sprinklers. Additionally, sheds are insulated and often painted to assist in temperature control.[4]

Stocking Densities

9.9 The maximum stocking density for broilers raised on deep litter recommended by the Model Code of Practice for the Domestic Fowl is 40 kilograms per square metre - this stocking density relates to fully grown birds.[5] Several contributors to the inquiry argued that this stocking density was excessive, leads to 'crowding', and leaves little space for the chickens to dust bathe and scratch in the litter.

9.10 ANZFAS in its submission argued that the maximum stocking densities were inadequate. They pointed out that:

> ... if birds are of a marketable 2 kg weight, 20 birds may be kept per square metre. At this stocking density, each bird would have a space allowance of only 500 sq cm; an A4 page is about 630 sq cm. Only when there are 16 chickens per square metre do they have the luxury of a space allowance equivalent to an A4 page! It should be noted that the minimum space allowance recommended by the Code is in reality even lower than 500 sq cm because it includes the area occupied by feeding and watering equipment.[6]

9.11 ANZFAS recommended that the stocking density in sheds be reduced to 0.28 square metre/2 kilograms, that is, no more than four birds per square metre at market weight.[7]

9.12 Dr Fairbrother of the Australian Poultry Industries Association (APIA), conceded that at a maximum density of 40 kilograms per square metre the birds 'are fairly close together, even though they can still move around a shed'.[8] Mr Bell of the AVA also argued that stocking densities of broilers on deep litter is an area that can be a problem especially as the birds grow older and increase in size.

9.13 Mr Bell argued that:

> As long as people do not exceed the recommendations included in codes of practice then we believe that the welfare of the birds is reasonably well looked after. There is,

> however, an economic incentive at times to increase stocking density and overcrowd the birds and from time to time you will get a situation where processing is delayed and birds may grow on for another few days, and again overcrowding can occur.[9]

9.14 Dr Fairbrother of APIA told the Committee that while:

> Stocking densities are designed to provide adequate space for birds to move, but also for economic reasons it is necessary to consider overall shed size and numbers of birds in a batch. When we talk of density of, say, 40 kilos per square metre, as in the recommended code of practice, this is related to fully grown birds at the time of picking up. It is a maximum density and, of course, can be varied downward if environmental conditions warrant such a change.[10]

9.15 The tendency to overcrowd broiler chickens to increase productivity, based on how much can be produced per square metre of floor space, may need to be reconsidered in the light of recent research findings. Studies have found that crowding stress, due to high stocking densities, leads to a reduction in body weight and an adverse affect on carcass quality.[11]

9.16 Another consequence of housing large numbers of birds together is that the reactions of one or two birds can be magnified abnormally to create mass hysteria in the broiler shed. A sudden disturbance can create mass panic, leading to the crushing or suffocation of many birds confined in a relatively small area.[12] However, Dr Murphy, a poultry researcher, indicated to the Committee that she had seen little evidence of smothering. She added:

> I know it is something that is talked about a lot as a meat chicken thing to do, but I have never come across it or heard of it. I think I can honestly say that, and I work closely with meat chicken producers all the time.[13]

9.17 Some researchers have also suggested that in addition to providing broiler chickens with more floor space a more varied and stimulating environment should be provided. Perches may make the birds less skittish, since birds that cannot get off the ground to roost may be more nervous. This might also reduce the incidence of breast blisters. Also, providing low upright floor panels with specific marks at intervals may help the birds form smaller stable groups and have a sense of place. Such visual 'placers' could also help in moving chicks out to fill the shed as they mature as chicks raised next to familiar objects will tend to follow and stay close to these objects.[14]

9.18 The Committee received insufficient evidence to determine whether the current stocking densities laid down in the Code of Practice are adequate. The Committee was, however, concerned that some crowding may occur in the period immediately prior to the broiler chickens being transported to processing plants. Accordingly, the Committee **recommends** that the maximum stocking densities for broilers in sheds be set at a rate consistent with the live-weight of the birds immediately prior to processing to ensure that overcrowding does not occur.

9.19 The Committee also believes there is a need for regular revisions of the stocking densities to take account of current industry practices and developments in the understanding of animal physiology and behaviour. The Committee therefore **recommends** that the stocking densities for broiler chickens be regularly reviewed by the Sub-Committee on Animal Welfare of the Australian Health Committee within the Australian Agricultural Council.

Litter flooring

9.20 Concern was raised during the inquiry regarding the possibility of contamination of the litter in broiler sheds.

9.21 As the birds will eat some litter, the base material must be free of contaminants that could be absorbed into the edible tissues of the chicken. For the same reason, litter materials should also be free of other substances - including chemicals, disease organisms and moulds - that may damage the birds' health. A number of materials are used as litter in sheds including wood shavings, sawdust, rice hulls or shredded paper. The litter is usually spread to a depth of 2-8 cm over the earth floor of the poultry house.

9.22 Dr Fairbrother of APIA informed the Committee that in past years there had been a problem with contaminated sawdust or wood shavings that was used as litter in some sheds.[15]

9.23 Dr Ryan of APIA told the Committee that because of this their growers are not permitted to use wood shavings as litter because of the risk of the wood having been treated with pesticides.[16]

9.24 In a publication of the NSW Department of Agriculture it was stated that timber by-products are acceptable for use as poultry litter only if they have come from untreated timbers. To avoid the risk of using contaminated by-products, some countries, including France, United Kingdom and Denmark now produce a softwood shaving specially for the intensive poultry industry.[17]

9.25 The litter used in broiler sheds needs to be absorbent, soaking up moisture from body wastes, while providing a dry, comfortable medium for the birds to dust themselves in and nest upon. It therefore needs to be capable of drying quickly and be soft and compressible, absorbent and buoyant. Rice hulls are being increasingly used as litter. Their size, freedom from dust, thermal conductivity, drying rate and compressibility make them a very suitable litter base. Performance trials conducted in 1970 by the University of Georgia showed rice hulls to be the best litter for growing broilers. Composted litter, which may be produced by composting old broiler litter, is also a good litter material in all areas of the broiler shed except those used for brooding baby chickens, where complete freedom from ammonia is required.[18]

Alternative Housing Systems

9.26 The Committee also examined the alternative housing systems to deep litter housing including cage-rearing and free-range systems.

9.27 Each of these systems have a number of advantages and disadvantages. The NSW Department of Agriculture and Fisheries noted that meat chickens can be reared successfully in cages and this is now common in some parts of Europe and the Middle East. These systems are labour efficient; reduce the cost per bird of controlling the environment; eliminate the need for some preventative medication; reduce the incidence of groundborne diseases; and make harvesting easier and less stressful for the birds. However the system is costly to install and may be opposed by some consumers. For these reasons they have not been introduced to any extent in Australia to date.[19]

9.28 The Committee does not favour this method of rearing broilers. It has argued extensively in relation to cage rearing of layers that these systems have undesirable welfare aspects. Studies of cage-rearing systems in the United States have confirmed this. In studies of cage-reared and floor-reared broilers, researchers have found a greater incidence of breast blisters and weak or deformed legs and bone breakage in caged-reared birds.[20]

9.29 Meat chickens are also reared on free-range in Australia but only on a small scale to meet a specialised niche in the market. The NSW Department of Agriculture and Fisheries argued that because of the areas of land involved and the need to regulate the environment of the chicken during its first three or four weeks of life, it is not feasible to rear large numbers of meat chickens on free range.

9.30 The current market demand for free-range chickens is also very small (less than 0.1 per cent) although the demand is increasing. Some small grower/processors are able to fill this niche in the market and obtain a premium sufficient to cover their extra production costs of between 50 cents to $1.00 per chicken.[21]

9.31 As the meat chicken industry is almost totally dependent on large scale, specialised, intensive methods of production the NSW Department of Agriculture and Fisheries argued that there was no viable alternative to the deep litter system except cage rearing.[22]

Handling and Transportation

9.32 Concern was also raised during the inquiry at the processes involved in the handling or 'picking up' of chickens and their transportation from the farm to the processing plant.

9.33 This operation needs to be done quickly and gently as rough handling of the birds is not only detrimental to their welfare and may cause considerable stress, but can also result in bruising. Bruised birds mean a downgrading of the product at the plant and can result in considerable financial loss for the processor.

Picking up Chickens

9.34 'Picking-up' of chickens usually takes place at night when the birds are relatively inactive and the temperatures cooler. This also helps reduce any stress on the birds. The birds are picked up by the legs and placed into crates which vary in size and material of construction. Although wire crates are still relatively common in Queensland, the majority of crates in use in Australia are a standard plastic crate specially produced in Australia for the local industry.

9.35 The Australian crates were designed so that they could be easily cleaned, ensure an adequate airflow and minimise any physical damage to the bird. Recently, the traditional coops have been replaced by crate modules handled by forklift trucks, resulting in considerable labour saving with less handling of the birds. Dr Fairbrother, however, acknowledged that there have been some problems with the crates recently with the birds' toes and feet being severed in some instances and abraded in other cases, although he said that the industry was now addressing the problem.[23]

9.36 Alternative catching systems have also been examined by the industry. One system uses large plastic or metal crates which can hold about 25 chickens.

9.37 The latest in catching and pick-up equipment is the Tamdev 2000 automatic bird catcher from Northern Ireland. The machine resembles a combine harvester and operates by gathering the chickens from the shed floor and conveying them into transport modules.[24]

9.38 The equipment has been shown to reduce downgrading to almost zero because chickens are not physically handled until they reach the processing plant. The equipment won a special welfare award in the United Kingdom in 1986.

9.39 Trials have been conducted in Australia since 1986 using this unit, and although the unit is performing satisfactorily in some situations, it is not used extensively by the industry. The company (Australian Poultry Ltd. in Queensland) that purchased the original machine has not purchased another.[25] One reason is that the equipment entails a large capital expense - each machine costing between $250 000 and $300 000. There are variations being developed on this machine in Europe and the United Kingdom and the industry is monitoring these developments.[26]

9.40 NSW Department of Agriculture and Fisheries argued that the trend towards automatic or semi-automatic systems of harvesting chickens was desirable.[27] The Committee believes that such systems have many welfare benefits and encourages their further development.

Transportation

9.41 Unlike some other livestock industries, broiler chickens are not transported extremely long distances. Processing plants and farms have generally been located to keep the maximum distance birds have to be transported to between 50-100 kilometres from the processing plants.[28]

9.42 The APIA argued that when transporting poultry every effort is made to protect the birds from excessively hot or cold conditions. This is achieved by the use of tarpaulins and a solid 'windbreak' at the rear of the truck's cabin. Birds are not transported when the temperature exceeds 40 degrees celsius.[29]

9.43 However, the Committee received some evidence that there have been cases where broilers being transported to the processing plants have travelled in open trucks and sometimes are not adequately protected from the elements. Mr Miller of the Victorian Department of Agriculture and Rural Affairs told the Committee that where this had been brought to the Department's notice:

> ... appropriate veterinary officers have spoken to the companies that have been concerned. Also, I think there has been a program particularly to the major chicken meat companies, to make sure that their drivers are aware that when external temperature conditions are adverse they should properly tarp the vehicles. Going back a couple of years, I think the Department's attention was drawn to the fact that there were birds escaping from processing crates - this is broiler chickens and not laying hens - going to the processing works. Veterinary officers went and spoke to the companies at that time. Now I think the practice is to net vehicles to ensure that escapes do not occur.[30]

9.44 The Committee was concerned with the problem of trucks breaking down on the way to processing plants. Dr Best of APIA, however, told the Committee that there were few instances of breakdowns.[31] The Committee was also advised by Dr Kite that the larger companies, and many smaller companies, have the use of two-way radios when this occurs.[32]

Processing of Broilers

9.45 When poultry are unloaded from crates used for their transportation, they are hung on shackles which convey them to an electrical stunner - a water bath through which passes an electrical current. The stunned birds then pass through an automatic killing machine that cuts the bird's jugular vein. Between the automatic killing machine and the scalding tank there is a worker stationed as a back-up killer to bleed-out any bird that may not have passed through the automatic system.

9.46 Welfare considerations are important in all these procedures. The birds must be handled carefully during uncrating and shackling. The stunning equipment and settings must be regularly checked and correctly operated to ensure that all birds are unconscious before slaughter. The Committee observed these operations at a processing plant in Sydney and was impressed by the efficient handling of the birds prior to slaughter and the manner in which the stunning and slaughtering operations were performed.

9.47 The Committee questioned the industry representatives as to most effective methods of slaughter. The APIA told the Committee that the electric stunner and automatic killer were the most humane method yet devised for the slaughter of poultry and that this method was both quick and efficient.[33] The Committee was told that in plants operated by integrated companies, commercial broiler chickens were all stunned before being killed.[34] Mr Miller, of the Victorian Department of Agriculture and Rural Affairs, told the Committee that on the basis of his experience broilers were correctly stunned before death. He stated that:

> Certainly with the most modern plants it is virtually impossible for the birds not to be stunned before they have their throats cut.[35]

9.48 While the Committee, during its inspection of the processing plant in Sydney, did not observe any birds that had missed the stunner, it did receive evidence from Mr Bell of the AVA that this did occur from time to time.[36] As the Model Code of Practice for Livestock and Poultry at Slaughtering Establishments notes, ineffective stunning may occur for a number of reasons, such as:

- the voltage of the stunner is set too low;
- incorrect immersion of the bird in the water bath so that the current does not pass through the brain;
- failure of the stunner to operate at full efficiency or inefficient earthing of the shackle line;
- variations in the current;
- failure to adjust the height of the water bath to the size of bird being stunned;
- variation in the susceptibility of birds to electric shock;
- low frequency pulses;
- movement of the bird when entering the stunner so that it escapes contact with the water or does not make proper contact with it.[37]

9.49 ANZFAS and others argued that the voltage of the stunner should be raised to a level where all the birds are killed to relieve any pain involved as raising the voltage in the water to a level that will kill some birds ensures the effective stunning of all birds. Dr Best of APIA however, explained to the Committee that research carried out on the practice of stunning birds to ensure they are killed indicated that they do not bleed as well. It was important in the final product that the birds, in a stunned state, bleed-out before they die.[38]

9.50 Dr Gilchrist of the AVA also told the Committee that a number of smaller plants do not stun birds prior to slaughter. In some of these plants the birds are decapitated.[39] The Code of Practice notes that stunning is not necessary if poultry are killed by this method.[40]

9.51 The Committee was concerned about the length of time it takes before death occurs after slaughter without stunning. Although it is difficult to determine when an animal becomes unconscious (that is, insensible to pain or other external stimuli), a number of studies have examined this question.

9.52 One study by Mr Carter of the CSIRO Division of Animal Health has examined slaughtering techniques in a number of animal species. His studies reveal that, immediately following slaughter of a conscious animal (by severing blood vessels in the neck or by decapitation), the animal remains aware of its surroundings and sensible to pain for at least 15 seconds.[41]

9.53 Dr Griffiths of the Animal Health Laboratory, Western Australian Department of Agriculture, has also conducted several studies on the effects of different stunning and slaughter procedures on chickens. From his observations, chickens remain conscious for 30-45 seconds after slaughter without stunning. Thereafter, cardiac arrythmias start to occur and unconsciousness ensues due to loss of blood pressure to the brain. Death occurs due to circulatory collapse and cardiac arrest within 45-90 seconds.[42]

9.54 The Australian Veterinary Poultry Association advised the Committee that on the basis of current research:

> ... following slaughter without stunning, chickens probably remain conscious for a variable period of up to one minute. In contrast, stunning results in a sharp and immediate decrease in brain activity, heart rate, respiratory rate and response to painful stimuli consistent with unconsciousness.[43]

9.55 The Association noted that stunning prior to slaughter was clearly a more humane practice and endorsed effective stunning to render birds unconscious prior to slaughter.[44] The Committee concurs with these sentiments. The Committee considered whether the guidelines on the slaughter of poultry contained in the Code of Practice were satisfactory. On the basis of the evidence received, the Committee believes that they are, and that they should be followed by all poultry processors.

9.56 The Committee believes that all slaughtering practices should ensure a humane death and that as to the methods of slaughter, other than by decapitation, the Committee **recommends** that in all instances broiler chickens be stunned prior to slaughter in accordance with the guidelines laid down in the Codes of Practice for poultry at slaughtering establishments. The Committee further **recommends** that research be conducted into effective means of stunning in an effort to overcome the problems associated with the current methods.

Health Problems

9.57 A number of health problems associated with broiler chickens were identified during the course of the inquiry. These related to leg weakness and skeletal developmental problems, respiratory disease and various skin problems.

Leg Weakness

9.58 Leg weakness and related deformities of the skeletal structure was cited by a number of organisations and individuals who gave evidence to the Committee, including ANZFAS and Mr Roth of the NSW Department of Agriculture and Fisheries as a serious health problem in meat chickens. Mr Roth argued that it was a 'significant' problem and that 'every shed loses some birds from leg weakness'.[45]

9.59 ANZFAS cited evidence that indicated that leg weakness and other deformities of the skeletal system were major causes of culling among meat chickens in Australia.[46] ANZFAS reported a study of 64 000 chickens in Western Australia which showed that 24 per cent of all deaths/culls were due to such problems.[47] A major cause of leg abnormalities has been identified as genetic and another cause has been recognised as the unnaturally fast rate of growth of broiler chickens which effect leg strength and formation.

9.60 ANZFAS cited several studies showing that few leg abnormalities occur when the growth rate of chickens is significantly slowed.[48] A number of studies have also investigated the effects of lighting on the activity of chickens and the incidence of leg abnormalities. Under intermittent lighting, chickens were found to be more active and had few leg abnormalities than chickens kept under continuous lighting. This pointed to the fact that lack of exercise has an important bearing on the problem.

9.61 However, not all the evidence received by the Committee supported the view that leg weakness and related problems were a serious problem. Dr Sheldon of the CSIRO argued that while leg weakness and other deformities were very common in the early days of the meat chicken industry there was a much lower incidence now due to genetic selection against the tendency.[49]

9.62 The Committee notes that the APIA is conducting a research project into the problem of leg weakness at the University of Sydney and is sponsoring a project in Victoria with the Department of Agriculture and Rural Affairs.[50] The Committee supports these projects and encourages further research into the problem of leg weakness which it believes poses a significant health problem.

Respiratory Disease

9.63 Respiratory disease in broiler chickens has also been identified by ANZFAS and other welfare groups as a major problem. With large numbers of birds in an enclosed shed standing on the same litter for seven weeks, the quality of the air becomes a major problem especially with the decomposition of litter and a build up of faeces. This results in high levels of ammonia, dust and micro-organisms in the air.[51]

9.64 ANZFAS cited several studies that showed that both a build-up of ammonia and dust can have a damaging effect on the lungs of chickens. Although affected chickens may not show obvious signs of ill-health, they are likely to have increased susceptibility to disease and signs of lesions and infection on examination of the lungs.[52] While improved insulation and ventilation design, plus better monitoring of moisture and ammonia levels, has improved the situation to some extent, respiratory disease still remains a problem for the industry.

Skin Damage

9.65 Skin damage was also cited as a significant health problem by ANZFAS. Given that litter in sheds deteriorates during the life of the chickens due to the accumulation and decomposition of faeces, broilers in contact with this litter may suffer various forms of skin damage. Initially, the foot pads may show signs of lesions or even ulceration and since chickens tend to spend more time sitting on the litter as they grow older, other parts of the body in contact with the litter, such as the breasts and the hocks, can develop blisters or burns.

9.66 Studies have indicated that the incidence of breast blisters in broilers is affected by age and body weight, stocking density, litter condition and sex - males, which have a slower rate of feathering are more frequently affected than females.[53]

ANZFAS cited several studies to show that because the quality of litter in sheds is difficult to maintain, the feet, hocks and breasts of broilers are vulnerable to injury by contact with the litter, especially as the birds become less active.[54]

9.67 In conclusion, the Committee notes with concern that broiler chickens are subject to several health and disease problems. The Committee notes that almost half of the research expenditure of the Chicken Meat Research Council in 1988-89 was devoted to research into improving the health status of broiler chickens.[55] The Committee encourages this research and believes further research should be undertaken into the health problems associated with broiler chicken production.

ENDNOTES

1. Evidence, Australian Poultry Industries Association, p. 8737.

2. National Farmers' Federation, Australian Agriculture, Vol. 2: 1989-90, NFF, 1989, p. 159.

3. Evidence, NSW Department of Agriculture and Fisheries, p. S8175.

4. Evidence, Australian Poultry Industries Association, pp. S8161-2.

5. ibid., p. 8748.

6. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8884.

7. ibid., p. S8883.

8. Evidence, Australian Poultry Industries Association, p. 8748.

9. Evidence, Mr Bell, Australian Veterinary Association, p. 9365.

10. Evidence, Dr Fairbrother, Australian Poultry Industries Association, p. 8735.

11. One study reported the results of raising broilers at stocking densities of 929, 743, 557 and 372 square centimetres of floorspace per bird, respectively. The study found a significant linear reduction in body weight and an adverse effect on carcass quality at the higher stocking densities. See M.W. Fox, Farm Animals, University Park Press, Baltimore, 1984, p. 32.

12. ibid., p. 33.

13. Evidence, Dr Murphy, p. 9556.

14. Fox, op. cit., p. 33.

15. Evidence, Dr Fairbrother, Australian Poultry Industries Association, p. 8754.

16. Evidence, Dr Ryan, Australian Poultry Industries Association, p. 8754.

17. NSW Department of Agriculture, Alternative Litter Materials for Poultry, Agfact A5.1.9, 1987.

18. ibid., p. 3.

19. Evidence, NSW Department of Agriculture and Fisheries, p. S8176.

20. Fox, op. cit., p. 32.

21. Evidence, NSW Department of Agriculture and Fisheries, p. S8175; and Australian Poultry Industries Association, p. 8739.

22. Evidence, NSW Department of Agriculture and Fisheries, p. S8176.

23. Evidence, Dr Fairbrother, Australian Poultry Industries Association, p. 8757.

24. Evidence, Australian Poultry Industries Association, p. S8165.

25. ibid., p. 8735.

26. ibid., p. 8756.

27. Evidence, NSW Department of Agriculture and Fisheries, p. 8767.

28. Evidence, Australian Poultry Industries Association, p. S8166; and NSW Department of Agriculture and Fisheries, p. 8769.

29. Evidence, Australian Poultry Industries Association, p. S8166.

30. Evidence, Mr Miller, Victorian Department of Agriculture and Rural Affairs, pp. 9411-9412.

31. Evidence, Dr Best, Australian Poultry Industries Association, p. 8758.

32. Information provided to the Committee by Dr Kite, Australian Poultry Industries Association, 7 June 1990.

33. Evidence, Australian Poultry Industries Association, pp. S8166-7.

34. Evidence, Mr Bell, Australian Veterinary Association, p. 9371.

35. Evidence, Mr Miller, Victorian Department of Agriculture and Rural Affairs, p. 9411.

36. Evidence, Mr Bell, Australian Veterinary Association, p. 9372.

37. Australian Agricultural Council, Sub-Committee on Animal Welfare, *Model Code of Practice for the Welfare of Animals, No. 6 - Livestock and Poultry at Slaughtering Establishments*, February 1987, pp. 14-15.

38. Evidence, Dr Best, Australian Poultry Industries Association, pp. 8759-61.

39. Evidence, Dr Gilchrist, Australian Veterinary Association, p. 9372.

40. Model Code of Practice, No. 6 (see footnote 37), p. 15.

41. Letter to the Committee from the Australian Veterinary Poultry Association, dated 27 September 1989, p. 2.

42. ibid.

43. ibid., p. 2.

44. ibid., p. 3.

45. Evidence, Mr Roth, NSW Department of Agriculture and Fisheries, p. 8791.

46. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8892.

47. ibid., pp. S8893-8894.

48. ibid., p. S8895.

49. Evidence, Dr Sheldon, Australian Federation for the Welfare of Animals, p. 9530.

50. Evidence, Australian Poultry Industries Association, p. 8751.

51. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8889. The Committee notes that ANZFAS recommends that layers have access to litter and therefore would presumably be subject to the same health problems identified by ANZFAS as detrimental to broiler chickens. See evidence, ANZFAS, p. S8834.

52. ibid., p. S8891.

53. Fox, op. cit., p. 32.

54. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8892.

55. Chicken Meat Research Council, <u>Annual Report 1988-89</u>, AGPS, Canberra, 1989, p. 7.

PART THREE

PIGS

CHAPTER 10

PIGS AND THE AUSTRALIAN PIG INDUSTRY

Introduction

10.1 The pig is a monogastric omnivorous mammal which resembles man in its nutritional requirements, there being many similarities between the anatomy and physiology of the digestive systems of the two species. To satisfy both the nutritional needs of the animal and the desire of the producer to offer feeds of acceptable cost in relation to the level of production demanded requires the manipulation of a range of feedstuffs.[1]

10.2 In the wild pigs feed on a wide range of plants, small animals and insects. Rations fed to domestic and especially intensively housed pigs are usually a mixture of feedstuffs, combined to provide the pig's requirements of energy, fibre (roughage), protein, vitamins and minerals. Cereals usually provide most of the energy, and about half the protein, while additional protein must be supplied from high-protein sources such as meat or fish products, or legumes.[2]

10.3 Pigs have poor eyesight, but highly developed senses of smell, taste and touch. The tactile, highly sensitive snout is essential for rooting behaviour. Outdoor pigs maintain this habit, and it is common practice to ring the upper edge of the snout so as to limit the damage done by rooting. The pattern is maintained in intensively housed pigs, which will persist in nosing the surface of concrete pens. Outdoor pigs can spend many hours per day exploring their environment, food-seeking and eating. Unchecked they will despoil crops and grass paddocks in their soil-turning search for food. Indoor pigs spend a relatively short time eating and have little opportunity for exploratory behaviour.[3]

10.4 The argument advanced by those opposing intensive housing of pigs is that pigs have a complex repetoire of behaviour much of which is prevented by intensive farming. They refute the claim that the modern pig no longer has the same instincts as its ancestors due to domestication and genetic changes.[4]

10.5 The Australian Federation for the Welfare of Animals (AFWA) contends that all forms of life adapt to their environment. This happens because each individual animal changes its behaviour to avoid noxious stimuli. If this is insufficient, physiological changes (e.g. altered hormone levels and other coping mechanisms) come into play. All such changes impose some metabolic cost on the animal, yet it may cope successfully with the environment. To the extent that coping is unsuccessful, the animal's health and production characters such as growth and particularly reproduction will suffer. This means that farmers have a commercial interest in keeping animals in environments in which they cope well. Furthermore, in those environments in which animals cannot cope some will die while others have low reproduction. This triggers the process of genetic adaptation which is the basis of evolution. In every environment, in time, the animals that predominate will be those whose genes allow them to cope best, expressed by giving these animals the highest overall reproduction (the technical term is <u>reproductive fitness</u>) possible in the environment.[5]

10.6 AFWA argues that it follows that animals that do not show evidence of impaired health such as wounds, or other clinical signs, and which are reproducing well, are unlikely to be suffering, even if their environment is different from what our prejudices suggest that it should be. Small spaces are not a problem if animals are well adapted to small spaces. (Our internal parasites do not suffer by being confined inside us). Welfare problems typically arise where animals adapted to one kind of environment are displaced to a different kind of environment as is likely to be the case for animals captured in the wild and brought to old-fashioned accommodation in zoos. Animals may find it difficult to adapt to a continually changing environment, and thus their welfare cannot be guaranteed.[6]

Pig Breeds in Australia

10.7 The efficient production of lean meat is a major objective of pig breeders and producers. Both production traits can influence 'meatiness'. Production traits include growth rate, feed conversion efficiency and carcass quality. Reproduction traits are conception rate, litter size, piglet survival and piglet growth.[7]

10.8 Pigs of an unspecified breed were brought to Australia by the First Fleet. In the 1820s pedigreed pigs were imported from England, but it was not until 1911 that the first Australian Stud Pig Herd Book was published. Their names reflect the English origin of most Australian breeds of pigs: Berkshire, Tamworth, Wessex Saddleback, and Large White. Landrace, a Danish breed, is a more recent introduction. This breed, white like the Large White, quickly gained popularity because bacon factories prefer white-haired pig carcasses and also because of the breed's superior efficiency in converting feed to meat. These two breeds are now the most numerous.

10.9 Commercial pig-raisers generally cross the breeds to obtain hybrid vigour for quicker growth. From the early 1980s, with quarantine clearances being given for the import of boars and pig semen from Northern Ireland, New Zealand, and Canada, the Hampshire, Yorkshire, and Duroc breeds have been imported, and can be expected to play an increasing role in cross-breeding programmes.[8]

10.10 Black skinned pigs such as the Berkshire thrived under Australian conditions when pigs were run extensively. However with the introduction of intensive housing the Berkshire declined in importance because of its inability to grow more quickly under these conditions. With the advent of the intensive housing system in Australia the Landrace, a white skinned pig first introduced into Australia in 1958, became very popular in cross breeding programs with the large white breed.[9]

10.11 The Large White and Landrace breeds are now the most popular breeds in Australia with most intensively housed herds containing a large proportion of Large White blood. The most popular cross is that between a Large White and a Landrace, (both white skinned pigs) as the maternal line in commercial herds. A third breed such as a Duroc or Hampshire - a red skinned pig is used as the terminal sire.[10]

Adaptation to Modern Husbandry Systems

10.12 The general view in the industry is that pigs have adapted to modern methods. Over the 30 year period that intensive production has been operating culling and selective breeding have removed those not able to adapt and do well. Pigs have virtually adapted to the situation.[11] Summarising this point, and production advances, Dr Blackshaw representing the Australian Pig Industry Policy Council, stated in evidence:

> There are various ways we have done this. First of all, there is our nutrition requirement. There has been a lot of research in the past years on pig nutrition. We have raised our levels of requirements. We know exactly what pigs need at each of their stages, whether they are a lactating sow, a growing pig or even a little piglet. We know the sorts of things they need so our responses in the nutritional area have improved greatly. Secondly, we have very good breeding programs, and we have selected over the last 20 years domestic pigs which do extremely well in our situations. We have chosen pigs - and you noticed them yesterday - that look healthy and

> do very well in the situations we now have for them. That has been extremely important in the Australian industry. We are continually looking at bringing in new genetic material to improve our pig production. Probably a very important thing we have done is to look at the areas of animal behaviour. This has become an important area of research. It is very integrally mixed with the physiology of the animal. We have been looking at the physiology of the animal and the animal behaviour measures of our animals and we understand more and more their behavioural needs so that we can design piggeries to fit in with those needs.[12]

10.13 Pigs are considered to be highly intelligent animals with a capacity, as humans do, to adapt to situations that might otherwise be called stressful in terms of human assessment.[13] They are social animals and, like other animals, have complex behavioural repetoire to meet the demands of their environment. In their natural conditions their responses are complex, variable and goal corrected.[14]

The Behaviour of Free Ranging Pigs

10.14 The arguments for close confinement in intensive systems are largely based on the natural behaviour of pigs - that is aggression and bullying causing unacceptable stress to the animals.

10.15 ANZFAS refutes this, citing research evidence in its discussion of the behaviour of free ranging pigs. ANZFAS cites studies in support of its view that not only do pigs suffer in intensive systems but many of the problems for management of the systems are due to the fact that they are confronted with insoluble or nearly insoluble problems or with situations having unpredictable outcomes.[15]

10.16 Evidence based on a study in Scotland where the behaviour of commercially bred pigs were released into a semi-natural enclosure and observed for several years by researchers at Edinburgh University has been presented to highlight ANZFAS' thesis:

- that there is no significant difference between the behaviour of commercially bred pigs and observations that have been made of wild feral pigs[16];

- the fact that confined animals do not show certain behaviours because the system prevents them from doing so does not mean that they do not have the instincts to perform these behaviours[17]; and

- intensive systems do not allow sufficient space for interactions generally and for the regulation of aggression through avoidance behaviour.[18]

10.17 ANZFAS believes that the scientific evidence provided by Wood-Gush and others refutes the genetic evolution and animal adaptive arguments presented by proponents of intensive farming and argues that any consideration of welfare of pigs in confinement systems must acknowledge that:

1) Free ranging pigs are active animals. They spend a lot of time rooting, they collect material for the communal nest, and they move from nesting and feeding sites for dunging.

2) Pigs are social animals. They live in small, stable groups with strong bonds between individuals. In such groups sequences of behaviour have evolved to limit aggressive encounters.

3) Pregnant sows have a strong nesting instinct. They become extremely active prior to farrowing, when they seek an isolated and sheltered nesting site and collect material for a nest.[19]

10.18 Dr Judith Blackshaw stated in evidence that aggression occurs in any group of pigs whether they are in or out of a shed. A lot of aggression occurs during feeding time. Feeding stalls cuts this down although unless they are individual or isolated they will still bite each other, especially on the vulvas.

10.19 She argued that:

> ... if pigs are in an intensive piggery, properly husbanded, someone looking after them properly, you have much more chance of making sure their welfare is optimum than if you have them running out in a paddock. Inside the shed you can keep an eye on them; you can keep an eye on their aggressive tendencies towards each other. You do not have the problem of worms - external and internal parasites - that you have in a paddock, and you can individually feed them to their requirements, which you cannot do in a paddock. If you have a sow that for some reason is slightly thin you can give her a little more food if she is in her individual little area. You can examine them every morning and every evening more easily - by just walking behind them you can check that their vulvas are clean and that they are not up to parturition, not up to having their young. In a paddock it is extremely difficult to check the animals individually.[20]

Trend to Specialisation

10.20 All schemes for growing pigs aim to produce a lean carcass as efficiently as possible. Although the methods used depend on the resources available, they now usually involve housing with some level of environmental control, together with the opportunity to manipulate feed intake.

10.21 There are currently some 8,000 commercial pig producers operating in Australia. In March 1988 there were some 2.7 million pigs of which approximately 350,000 were breeding sows. It is estimated that of these production units less than 1 per cent produce approximately 45 per cent of all pigs.[21]

10.22 Table 10.1 provides details of pig numbers by State over a six year period to 1987.

Table 10.1: Pig Numbers
('000)

31 March	NSW	Vic	QLD	SA	WA	Tas	Aust. (incl. NT ACT)
1983	794	387	551	405	300	51	2,490
1984	799	404	556	417	300	48	2,527
1985	814	410	563	402	274	47	2,512
1986	798	432	585	414	278	45	2,553
1987	830	432	579	422	295	46	2,611
1988	853	437	617	441	307	48	2,706
1989	855	423	611	450	285	45	2,671

SOURCE: ABS Year Book Australia 1989, p.424.

10.23 In 1949, when pig raising was primarily a secondary consideration for dairy farmers, there were some 59,500 holdings producing pigs. Over 65 per cent of these ran 20 pigs or less and there were only 60 holdings with over 500 pigs.[22]

10.24 The Australian pig industry prior to 1960, developed as a sideline to the primary dairy and cereal growing industries. The enterprises were small (dairy herds were small), and where there was dependence on availability of spoiled grain, production fluctuated wildly, both as to quantity and quality.[23]

10.25 1960 was a watershed year for the industry. The technology necessary for commercial viability of intensive production was available. The rapidly expanding Australian population with increasing diversity of ethnic origins, meant that demand for pork increased rapidly. The dairy industry was evolving away from butter production (with available separated milk) to whole milk, so that pig production had to be based on cereal diets.[24]

10.26 Systematic production technology was pioneered by workers such as D.M. Smith, D.P. Henry, and J.M. Holder and large-scale production units began to be established from 1962-63 onwards. Economies of scale were established in units of at least 300 sows and progeny. Further, corporate enterprises, who wished to integrate either their commercial stock feed or meat processing units with pig production units to stabilise both quantity and quality of supply, entered the business. These forces ensured that:

- the numbers of farms (farmers) producing pigs declined;
- the units producing pigs became larger.[25]

10.27 There are no official statistics available for the proportion of pigs produced annually in Australia from intensive, semi-extensive or extensive production systems.[26] The Australian Veterinary Association has estimated that there are probably less than 2 per cent of herds operated extensively, 15 - 20 per cent of herds kept semi-extensively (pregnant sow paddocks) and the balance, some 80 per cent of herds totally intensive.[27]

10.28 The Australian Pig Industry Policy Council explains the growth of intensive pig production as follows. Since the 1950s, major changes have taken place in the way the dairy industry in Australia is structured and operates. There has been a dramatic decline in the production of manufacturing milk and a relative growth in whole milk production. This, combined with a growth in demand for skim milk for human consumption has left little skim milk available at economic prices for pig production.[28]

10.29 This trend also coincided with changed consumer demands and the development of economic pressures for pig producers to improve productivity and quality of production. At the same time, there have been major changes in the health, housing and husbandry of pigs. For instance, improved housing, nutrition and husbandry practices, coupled with more sophisticated production techniques and changes in consumer demands have led to major changes in the way pigs are produced in Australia - changes resulting in substantial improvement in the welfare of individual animals.[29]

10.30 According to the Australian Pig Industry Policy Council there has been a steady decline in the number of piggeries and a significant growth in the size of commercial piggeries.

> In short, the industry has become more intensive. It has become more technologically advanced, more productive and considerably more efficient and responsive to consumer needs.[30]

10.31 Animal Liberation (NSW Branch) submitted to this Committee that when pig farming became more than a sideline to the dairy industry and became established as an industry in its own right, there were seemingly compelling arguments for adopting intensive production methods, and many farmers took their lead from the example by the already flourishing poultry industry.[31]

> Substantial capital investments seemed justified by the promise of closer animal and environmental control, by opportunities for increased profits through greater 'efficiency' of production, and by allowing an increased scale of production.[32]

10.32 Expressing concern about the physical and behavioural deprivations suffered by pigs housed in "highly mechanised total-confinement systems",[33] Animal Liberation (NSW Branch) argued that "if it could suddenly be proven that the most humane methods of animal husbandry also happened to be the most profitable ones, the change-over would be immediate.[34]

10.33 The following figures give an indication of changes which have occurred in the industry over the past thirty years.[35]

Table 10.2: Pigs and Holdings with Pigs

Year Ending 31 March	Pigs ('000)	Holdings	Average per holding
1960	1,424	49,537	29
1970	2,398	39,498	61
1980	2,518	19,279	131
1985	2,512	11,159	225
1986*	2,550	9,087	276
1987	2,640	8,523	306
1988	2,697	7,966	339

Care needs to be taken in analysing trends over time in respect of "holdings" and "average per holdings", in the light of the decision by the Australian Bureau of Statistics in 1986/87 to exclude from the census collection, pig establishments with an "estimated value of agricultural operations" of less than $20,000 (cf $2,500 previously).

SOURCE: Australian Pig Industry Policy Council Submission, Evidence, p. S8793.

10.34 Bill Kirsop, New South Wales Department of Agriculture and Fisheries stated in evidence that 30 years ago most pigs were running outside or were in semi-intensive shed situations. Now 95 per cent of growers would house their animals in intensive sheds. The usual history of participation in the industry is that producers start with 30 sows, and they then decide to increase to 100 or 150 sows. To do that they just multiply the number of sheds in which they keep the sows or the growers.[36]

10.35 According to the Department of Agriculuture and Fisheries' Agfacts (1987) profitability still has the greatest influence on housing design and dictates whether the pigs are raised intensively in sheds, or less intensively in sheds and paddocks.[37]

Pig Terminology

10.36 The terms used to describe pigs at their various development stages are as follows:

- **Gilt:** a female pig after puberty and before farrowing;
- **Sow:** a female pig after farrowing;
- **Farrowing sow:** a sow between the perinatal period and weaning the piglets;
- **Dry sow:** a sow between weaning her piglets and the perinatal period;
- **Boar:** a male pig after puberty, intended for breeding purposes;
- **Barrow:** a castrated male;
- **Piglet:** a pig from birth to weaning;
- **Weaner:** a pig from weaning to the age of 10 weeks;
- **Rearing pig:** a pig from ten weeks to slaughter or service;
  - Growers (10 - 16 weeks)
  - Porkers (16 weeks - approx. 50 - 55 kilograms)
  - Finishers (17 - 24 weeks)
  - Baconers (24 weeks - approx. 85 - 95 kilograms)

Marketing

10.37 Most pigs were once auctioned in saleyards to butchers or processors who sold the meat as pork, bacon, or smallgoods, but from about the mid-1970s, with the wide-spread adoption of carcass classification, pigs have been increasingly sold directly to abattoirs or processors on the basis of prices related to grading systems nominated by processors. In 1983, Australia's first computer pig sales by description were held, with buyers in country centres and Sydney bidding on sale lots by pressing a button on a handset - a form of auction selling.[38]

10.38 Pigs were traditionally sold as porkers (weighting 25 to 40 kilograms dead-weight) or baconers (45 to 80 kilograms), or heavy pigs (more than 80 kilograms). However, the last decade has seen a steady rise in slaughter weights, because of the trend to bigger carcasses for the fresh-pork trade, and the increasing quantities of pigmeat used for canning or curing. Many butchers have adopted newer cutting techniques that provide a larger range of more interesting cuts from larger carcasses (up to 70 kilograms) than the traditional porker. These cuts are usually referred to as "new value pork". In the early 1980s, the industry, through the pork promotion committee, was spending about $2 million a year on promotion of pigmeats, using money raised by a slaughter levy.[39]

Government Support Services

10.39 As outlined in Chapter 2 primary industry/agriculture departments around Australia provide assistance to pig producers in a variety of ways. Departmental advisory programs encapsulate many of the management and breeding practices which have an effect on the productivity of the farmer and the well-being of the animals. They cover most aspects of nutrition, environment, reproductive management, growth rate monitoring and genetic improvement. Direct support to the industry is provided through district livestock officers located at strategic places through the areas where pigs are farmed. They undertake typical advisory services like on-farm demonstrations, liaison with service industries, the conduct of field days and meetings and a considerable amount of face to face interaction with producers.[40]

10.40 District officers also provide economic marketing and classification of stock for sale advice and keep producers abreast of research and technological advances in the industry.[41]

10.41 The NSW Department of Agriculture and Fisheries advised in evidence that in New South Wales most producers are owner operators. A small number of piggeries are very large (something like 1 to 3 per cent of herds have more than 200 sows) and produce 40 per cent of the product. A large group of producers are in the median field of 50 to 200 sows. The Department support for the industry is with the median group; the large producers tending to employ their own support staff either through employment or consultation. As the small producers tend to move in and out of the industry there is little opportunity to influence this group.[42]

Economic Pressures

10.42 Economic constraints on the pig farmer were highlighted in evidence given by representatives of the New South Wales Department of Agriculture and Fisheries. Providing some 'ballpark' figures as examples Mr Badham stated that:

> A 65 kilo baconer at the moment is worth something around $140. Of that $140, there would probably be about $75 worth of feed, $20 worth of labour, $15 worth of other things like electricity, veterinary costs: giving a total of $110. That means you have a margin of about $30. That $30 then has to provide you with the return on your investment, or the money with which you are going to pay interest on the capital that you have borrowed. If you are looking at an initial cost of around $3,000 per sow, and you have borrowed that money at, for ease of figures, let us say 20 per cent, you are paying $600 per annum in interest on that. That therefore means that the interest bill has to be defrayed across the product of that sow. The number of piglets surviving to market then becomes quite important in terms of profitability or lack thereof. If you have a good manager who can, say, produce 20 piglets per sow per year, then on these sorts of ballpark figures, he will make a profit. But if you have a relatively lower level of management, where you only net 15 piglets per annum, on these sorts of figures you are making a loss.
>
> On that basis, there would be a number of people out there at the moment who are still in pigs only because they either have high equity in their property, or they are using buildings that are now very old and have been totally depreciated. In terms of the survival of a new piggery coming into the industry now, survival of piglets born is an integral component of the profitability of the industry. On that basis, if you are going to put up a new shed that would increase the cost per sow by using the management technique that was going to allow more space, then you have to be very careful about how you did your figures on your expected returns.[43]

10.43 In response to a question about industry interest in welfare and whether it is due to pressure from animal welfare pressure outside the industry, Mr Brechin, Pig Industry Policy Council representative expressed the view that it is a combination of both:

> ... The reason that a number of people have left the industry - and it has been a significant number in the last 10 or 15 years - is because of the competition within the industry, and the investment that has to go on to achieve the level of return that is required to make a living. The second point is that there is a heavy welfare consciousness that you have to respond to, to sustain that sort of level; so it is an interaction of things that has brought us to this present point.[44]

10.44 In discussing the climatic impact on pigs Dr Cutler highlighted the comparative difference in growth rate between intensive and extensively raised pigs and the economic implication for growers. He put the view that if an animal was grown outside, then in wintertime there would probably be minimal differences in growth rate, but feed consumption would be substantially higher, in excess of 20 per cent higher, to maintain the same growth, just because the animal would be eating to keep warm. In summertime though, there would be as much as a 25 per cent growth penalty, simply because of the impact of high temperatures on the animal.[45]

10.45 The industry is concerned about the cost implications of reform of the present system and also of negative welfare implications. Outlawing systems which confine pigs to sheds for the whole of their lives would result in higher cost to the consumer for the end product. DARA's view is that this would have an effect on the size of the industry and have a negative welfare impact.

> ... Assuming that consumers want cheap, high quality meat, it becomes more expensive to competitors for pig meat and that has implications for the industry as a whole.[46]

> ... we have come from a mud bath, into clean, decent ways of housing the animals. We cannot go back to what we have come from, simply from a welfare point of view ...[47]

Community Concerns

10.46 The majority of community concerns and public criticism of pig husbandry practices in Australia can be classified under the following headings:

- **Housing** (including stall, flooring, bedding, tethering, stocking densities, climate, facility for 'social interaction', general environment).

- **Care and attention** (including individual treatment and capacity to 'observe' individual animal needs, personal involvement, frequency and/or intensity of attention).

- **Drugs, feed additives and 'unnatural' foods** (including chemical contamination, force feeding, 'unnatural' growth promotion, antibiotics, vaccinations, potential for 'poisoning').

- **Husbandry practices** (including teeth clipping, tail docking, castration, branding).

- **Transport and handling** (including trucking/transport conditions, loading and unloading management and procedures, 'prodders', yarding).

- **Slaughtering and handling at abattoirs** (including pre-slaughter treatment, handling and accommodation, stunning, sticking).

- **Corporate ownership** (including over-riding profit motive and total productivity orientation).[48]

Australian Agreed Standards

10.47 The Model Code of Practice for the Welfare of the Pig identifies the basic needs of pigs as:

- readily accessible food and water to maintain health and vigour;

- freedom of movement to stand, stretch and lie down;

- light during the daylight hours;

- visual contact with other pigs;

- accommodation which provides protection from the weather and which neither harms nor causes distress; and

- rapid identification and treatment of vice, injury and diseases.[49]

10.48 Standards for housing (as to allocation of space per pig, ventilation rates, requirements for water, safety precautions etc.) and husbandry practices are outlined to meet these needs.[50] A copy of the Model Code of Practice for the Welfare of Animals - 1. The Pig is at Appendix 8.

10.49 Other Codes of Practice containing provisions of importance to the pig industry include:

- Model Code of Practice for the Welfare of Animals: No. 3 - Road Transport of Livestock;

- Model Code of Practice for the Welfare of Animals: No. 4 - Rail Transport of Livestock;

- Model Code of Practice for the Welfare of Animals: No. 5 - Air Transport of Livestock;

- Model Code of Practice for the Welfare of Animals: No. 6 - Livestock and Poultry at Slaughtering Establishments (Abattoirs, Slaughter Houses and Knackeries);

- Model Code of Practice for the Welfare of Animals: No. 7 - Animals at Saleyards; and

- Model Code of Practice for the Welfare of Animals: No. 8 - Sea Transport of Livestock.

10.50 According to the Australian Veterinary Association the Codes of Practice for the Welfare of the Pig have been criticised by some outside the industry concerned with the pig's welfare on the grounds that the current practices within the industry have been merely legitimised.[51] These issues are discussed in the following chapters.

ENDNOTES

1. I.J. Lean, 'Pigs' in Management and Welfare of Farm Animals. The UFAW Handbook, Third Edition, 1988, UK, p. 148.

2. New South Wales Department of Agriculture, AGFACTS, Agdex 440/60, 1985, p. 1.

3. I.J. Lean, op. cit., p. 147.

4. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8860.

5. Evidence, Australian Federation for the Welfare of Animals, pp. S8933-8934.

6. ibid.

7. New South Wales Department of Agriculture, AGFACTS, Agdex 440/30, 1984, p. 1.

8. The Australian Encyclopaedia, Fourth Edition, 1983, pp. 50-51.

9. New South Wales Department of Agriculture, AGFACTS, Agdex 440/37, 1987, p. A4.3.10.

10. ibid., p. A4.3.8 and 9.

11. Evidence, Dr J. Blackshaw, University of Queensland, pp. 6853-6854.

12. Evidence, Australian Pig Industry Policy Council, p. 9417.

13. Evidence, Australian Veterinary Association, pp. 9562-9563.

14. Stolbar, Baker and Woodgush, 1983, cited in Evidence, Australian and New Zealand Federation of Animal Societies, p. S8860.

15. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8860-1.

16. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8860.

17. ibid., p. S8824.

18. ibid., p. S8860.

19. ibid.

20. Evidence, Dr J. Blackshaw, University of Queensland, pp. 6839-6842.

21. Evidence, Australian Pig Industry Policy Council, p. S8791, Australian Veterinary Association, p. S9020.

22. Evidence, Australian Pig Industry Policy Council, p. S8792. These figures come from a national survey published by the Victorian Department of Agriculture in 1949.

23. Evidence, Australian Veterinary Association, p. S9023.

24. ibid.

25. ibid.

26. ibid., p. S9025.

27. ibid., p. S9026.

28. Evidence, Australian Pig Industry Policy Council, p. S8792.

29. ibid.

30. ibid.

31. Evidence, Animal Liberation (NSW Branch), submission April 1984 p.3

32. ibid.

33. ibid., p.4

34. ibid., p. 3

35. Evidence, Australian Pig Industry Policy Council, p. S8793.

36. Evidence, New South Wales Department of Agriculture, pp. 9231-9232.

37. New South Wales Department of Agriculture, AGFACTS, Agdex 440/720, 1987, p. 1.

38. The Australian Encyclopaedia, Fourth Edition, 1983, pp. 51-52.

39. ibid., p. 52.

40. Evidence, New South Wales Department of Agriculture and Fisheries, p. 9230.

41. ibid.

42. ibid.

43. ibid., pp. 9251-9252.

44. Evidence, Australian Pig Industry Policy Council, p. 9441.

45. Evidence, Victorian Department of Agricultural and Rural Affairs, p. 9402.

46. ibid., p. 9401.

47. ibid.

48. Evidence, Australian Pig Industry Policy Council, p. 8804.

49. Model Code of Practice for the Welfare of Animals. 1. The Pig, Issued by the Australian Bureau of Animal Health, 1983, p. 2.

50. ibid., pp. 3-16.

51. Evidence, Australian Veterinary Association, p. S9027.

CHAPTER 11

INTENSIVE PIG HOUSING

Introduction

11.1 The Australian Pig Industry Policy Council submitted to this inquiry that in contrast to the relatively poor conditions under which many pigs were kept in the past under low cost, extensive and semi-intensive systems, intensive pig husbandry offers many advantages both to producers and their animals. It also has provided significant benefits to consumers in the form of regular supplies of cheaper, better quality products.[1]

11.2 Apart from providing a greater degree of management and financial control over the end product and an improved capacity to meet ever more exacting consumer demands for meat quality and value for money, intensive pig husbandry has made it possible to introduce significant improvements in pigs' environments. Cleanliness, lack of diseases, more stable temperatures and humidity levels and a general lowering of stress on animals have all contributed towards improved conditions for pigs which, in turn have been reflected in better productivity performances.[2]

Industry View of Welfare Criticisms

11.3 The industry claims that most criticism of pig production in Australia is without foundation, that there is little evidence of ill treatment of animals, and that almost all the pigs produced in Australia are produced within the guidelines laid down in the Code of Practice.[3] From a practical point of view, the industry firmly believes in the need to actively promote animal welfare as a means of ensuring high levels of livestock productivity and the profitability of the industry. Animal welfare and sound piggery management are inexorably linked.[4]

Australian and New Zealand Federation of Animal Societies Concerns

11.4 ANZFAS is very aware that its criticisms of intensive systems are often dismissed as ill-informed if well-meaning anthropomorphism and has therefore presented a closely argued scientifically based (physiological and behavioural) presentation of the issues to this Committee. It argues for the importance of objective scientific assessments of suffering and is concerned about those people who think that physiological measures will provide definitive answers in the welfare debate:

> While physiological measures might be welcomed by some because of their supposedly quantifiable nature, they also have limitations and it is easy to overestimate their reliability relative to behavioural data. Two points must be borne in mind:
>
> 1) Physiological parameters such as levels of adrenal hormones can be accurately measured, but so can behaviour ...
>
> 2) The interpretation of behavioural data is difficult, that is, we do not know exactly how particular behaviour reflects the subjective feelings of animals. Exactly the same problem exists with regard to physiological data. As indicated above, even a relatively simple measure such as adrenaline level cannot be interpreted unambiguously.
>
> Certainly physiological evidence can make a useful contribution to the welfare debate. However, it should not be given greater weight than other sources of information. We return to the need to gather converging evidence via many different approaches as the most reliable indicator of suffering.[5]

11.5 ANZFAS is critical of the Model Code of Practice for Pigs for several reasons the overriding criteria being that although the Code claims to recognise that the basic requirement for the welfare of pigs is a husbandry system appropriate to their physiological and behavioural needs the most basic behavioural needs of pigs are not acknowledged.[6] It makes the point in this context that in the light of research findings over recent years and "the undertaking in the preface to the Code that it should be reviewed to take account of advances in our understanding of animal physiology and behaviour" a review is overdue.[7]

11.6 ANZFAS argues that although specifying the basic needs of pigs it:

- nevertheless allows accommodation which causes injury to feet and joints and recommends a grossly inadequate space allowance;

- acknowledges that tethers are detrimental to the welfare of sows, but accepts that sows may be kept in this system;

- acknowledges that "vices" such as tail biting are management problems but accepts surgical "solutions" such as tail docking.[8]

11.7 ANZFAS claims that many of the practices accepted within this Code are being questioned in European countries because close confinement does not meet any reasonable welfare criteria.[9]

11.8 ANZFAS submitted to this inquiry that by several different criteria close confinement causes stress to pigs and recommended that the following be provided by statute:

1) No further construction of dry sow stalls to be permitted.
2) Tethering to be banned immediately.
3) Dry sow stalls to be phased out over a period of 5 years.
4) Wire cages for piglets to be phased out over a period of 5 years.

5) Farrowing crates to be phased out within 5 years, and research to be undertaken immediately into humane alternatives.
6) Within a maximum of 5 years, all pigs to have access to an outdoor run adequate to satisfy physical and behavioural needs.
7) Educational material and courses to be provided for farmers to produce the level of stockmanship required for loose housing of animals.
8) All pigs to have access to appropriate rooting materials.
9) All pigs to have sufficient bedding to provide comfort and to protect them from physical injury.
10) All farrowing sows to have access to nesting material.
11) All pigs to live with others of their species in stable social groups in such a manner as to permit continuing physical contact.
12) The lying area available to each adult pig to be no less than 3 sq m, with no less than 1 sq m for each growing pig.
13) Minimum feed requirements for pigs of different body weights should be stipulated, including not only nutrient requirements, but also the bulk to satisfy feeding motivation.
14) Suitable feeding arrangements to be made to limit feed competition.
15) All pigs to be protected from predators, extremes of temperature and the elements.
16) Castration, teeth clipping, ear notching and tail docking of piglets to be prohibited. Tail biting and nibbling of the sow's belly and litter mates, are essentially management problems and should be treated as such.[10]

11.9 These recommendations stem from physical and behavioural considerations based on the belief that the behaviour of the modern pig's ancestor was genetically adapted to survive under extreme conditions. Since it is most unlikely that genetic change in the behavioural needs of the pig in keeping pace with the rapid changes in the environment of the intensive farm many aspects should be phased out.[11]

Confinement Housing

11.10 Intensive housing may cover a wide range of building types but they all seek to provide an insulated living space in which temperature, ventilation, bedding etc. can be wholly or partially controlled by the producer. Most pigs in Australia are now produced under conditions where temperature, humidity and ventilation are all controlled to some degree.[12]

11.11 Various forms of accomodation are used, all of which try to minimise housing costs while maintaining an adequate environment for efficient food use. All pigs, sows, boars, weaned, growing and finishing pigs live in a barren environment. The physical dimensions of their living space, their companions, the stocking rate and the feed type are all tightly controlled. They are commonly put together in groups of the same age, sex and weight. In this situation they have to learn to recognise feed, water and dunging sites and to fit into a social hierarchy. Various behaviours are shown as this hierarchy develops. Newly mixed pigs will fight to establish a linear hierarchy. Fighting may be intense for up to 48 hours after mixing and will continue intermittently thereafter. The social rank which develops as a result of fighting usually reflects the weight of individual pigs within it - the heaviest being most dominant, the smallest least dominant.[13]

11.12 The majority of units in the pig industry are small enough for one or two people to manage. For example in the whole of Australia there are only about 16 per cent of units that have more than 500 sows. Units of this size require three or four people to ensure proper supervision and care.[14]

11.13 The NSW Department of Agriculture submitted the following general recommendations on housing to this inquiry:

> Any system which allows for individual feeding is preferred over group feeding.
>
> Intensive housing is preferred, in that it is easier to provide an optimum environment, in which the pigs grow better.
>
> In general, the more freedom the pig is given, the greater the managerial skills required. Pigs confined in groups outdoors tend to destroy their own environment (including soil erosion) and both indoors and outdoors are subject to bullying and inequities in feed distribution.
>
> Since Departmental officers are not always in a position to assess management skills, they must <u>recommend a system which will give good results in the hands of most people, i.e. individual housing, individual feeding</u>. Stalls are recommended in preference to the tethers, again because a higher degree of managerial skill is required when tethers are used.
>
> These recommendations may be modified depending on the circumstances, and on the assessment of an individual producer.[15]

Pig Welfare Research in Australia

11.14 Community concern has led to some concentration of research effort to quantify, objectively, the alleged stressful effects of confinement housing on pig welfare, and to compare alleged beneficial effects of one system to another. Research sponsored by the industry through the Australian Pig Research Council, in relation to the size of the industry, is quite extensive by world standards. Current (1989/90) funding of research will exceed $3 million, of which approximately seven per cent will be dedicated to projects directly related to pig welfare.[16]

11.15 The Pig Research Council is a Commonwealth advisory body which has the primary function of advising on pig research and development and approving payment of money from the Pig Research Trust Fund (producer levy). The overall mission of the Council is to sponsor the development, dissemination and adoption of innovative research and technology which will improve the viability, efficiency and competitiveness of the Australian pig industry. The following pie chart gives an indication of priorities in 1987-88.

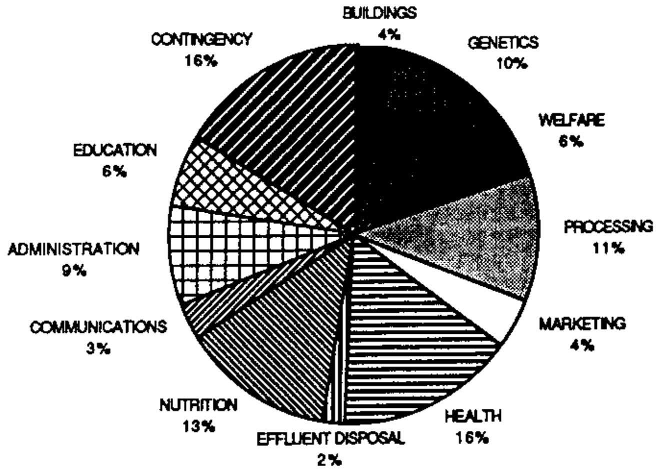

Figure 1

SOURCE: Pig Research Council Annual Report 1987-88 p.3

Research projects specifically related to pig welfare and supported by the Australian Pig Industry Research Committee and the Australian Pig Research Council

Project	Title	Date completed
DAV 24	The effect of intensive and free-range conditions on the physiological and behavioural responses associated with welfare status in the pig.	1982
DAV 39	The influence of intensive housing and stress responsiveness on the welfare status and productivity of breeding sows.	1986
UQ 4	Social stresses in growing pigs.	1983
UQ 8	Commercial piggery design in relation to sow behaviour.	1984
UQ 9	Design of space in pig housing with consideration for behavioural consequences, stocking rates and group sizes.	1986
US 11	Gastric ulceration and digestive function.	1984
UM 19	The effect of different types of "toys" on the social behaviour and growth of weaner pigs.	1983
UM 22	Motivation of pigs to perform behaviour patterns frustrated by an intensive environment.	1985
DAV 48	Behavioural limits to high reproductive efficiency in pigs.	1987
DAV 55	Farrowing accommodation: the effects of design on behavioural patterns related to improving performance and welfare.	1990
UM 25	Ethological needs of farrowing sows.	1988
DAV 61	The welfare of sows: improving the design and utilisation of dry sow accommodation.	1989
UNE 9	Automated electronic feed stations for dry sow management in Australian piggeries.	1989
DAW 16	Preslaughter handling of pigs and its effect on yield and meat quality.	1987
DAV 65	Fear of humans by pigs and its relationship to the attitudinal and behavioural profiles of stockpersons.	1990

Project	Title	Date completed
UWA 15	Water turnover in pigs in the transport/abattoir environment.	1990
UQ 13	Development of a salivary cortisol method for measuring changes in the plasma free cortisol in the pig.	1988
UM 35	Adaptation and the welfare of confined pigs.	1991
UM 36	Freedom of the farrowing sow.	1991
DAV 82	The welfare of sows: methods of mixing to minimise aggression and injury.	1992

Index to project codes:

DAV	Department of Agriculture and Rural Affairs, Victoria
UQ	University of Queensland
US	University of Sydney
UM	University of Melbourne
UNE	University of New England
DAW	West Australian Department of Agriculture
UWA	University of Western Australia

SOURCE: Pig Research Council, tabled document. Public hearing Canberra, 23 October 1989.

11.16 In the main past Australian projects sought to establish objective measurements of "stress" in housed pigs, particularly in systems of confinement. As well there was research on methodology which might be used to "improve" the conditions under which pigs are housed. Future research will seek to establish the elements of management and housing that could further improve pig welfare.[17]

Intensive Housing and Environment

11.17 Indoor pig housing is designed for four distinct phases of production: the period of pregnancy; farrowing and rearing; weaning and feeding.

Sow Housing

11.18 Community concern about confinement housing of pigs has concentrated on the condition (adverse or otherwise) said to pertain for housed sows. The concern stems from the belief that confinement for long periods (the breeding life of a sow in a herd may be as long as four years) will be stressful.[18]

11.19 Under intensive conditions, the sow has little opportunity to exhibit the behaviour patterns which occur in more natural situations before and during parturition. The extreme restlessness commented on by many workers has led to a re-evaluation of the type of accommodation provided for this time, but has not led so far to any changes in common commercial practice. It has been suggested, for example, that an increase in farrowing space might lead, under certain conditions, to a reduction in piglet mortality, but producers are wary of change because of the costs involved in providing efficient and humane farrowing accommodation.[19]

11.20 Confinement systems for sows vary both as to reproductive status (pregnant, lactating, weaned/unmated) and feeding/resting methods.

11.21 There are four main systems for keeping dry sows:

- open range grazing with group-feeding,
- groups run in paddocks with individual feeding (for example, in sow stalls),
- groups run in concrete pens with individual feeding stalls, and
- dry sow stalls.

Farrowing sows -

- individual pen, confined to stall
- individual pen, confined by tether
- individual pen/house, not stalled or tethered.

Gilts -

- group housed
- individually stalled or tethered.[20]

11.22 It is estimated that 15 - 20 per cent of sows spend a proportion of their productive life in extensive (paddock) conditions.[21] The rest are confined continually.

The Open Range System

11.23 Sows grazing green crop or pasture, and supplemented with dry feed, will do well under this system. It is possible to run 12 sows/hectare with electric fencing.[22]

Group Run - Individual Feeding

11.24 The NSW Department of Agriculture suggested in its Agfacts 1982 that ideally, the best system is to group-run sows in concrete pens and feed them individually. (AGDEX 441/720)It is an excellent system, but very expensive to set up. Sows stalls are at the front of the pen. The back area is an open concrete pen with a slope towards the back wall. A mesh covered drain, 0.5 m wide, runs along the back wall. The concrete floor should have 50 to 75 cm fall to the drain. Allow 3 sq m of floor space for each sow in the pen. This is a wash-down system and is labour intensive.[23]

Dry Sow Stalls

11.25 This is probably the most common method of keeping sows intensively. Once sows are mated they are generally housed in stalls which measure 2.15 metres long and 0.60 metres wide. The stalls are constructed of pipe or round steel. Sows enter from the rear and, depending on the construction can exit either from the front or rear. The rear of the stall is slatted most often with concrete or pipe clay slats. Water is provided in a trough at the front and feed is supplied daily. Sows remain in the stall for most of the gestation period. The stalls are located in sheds with natural ventilation being the norm. A water trough is usually placed in front of the sow. She is fed either on the trough or on the floor behind the trough. Concrete keeps the sows' hooves in good shape. Mesh is the next best, followed by hardwood timber. Stalls with mesh floors stay cleaner than stalls with concrete or timber floor. The dry sow stall can have either a chain or gate at the back to keep the sow in.[24]

11.26 By using stalls producers are able to maintain sows in the correct condition for farrowing. Overfeeding can result in difficult farrowings and reduced feed intake during lactation. Reduced feed intake during lactation means sows can wean in poor condition. This creates managerial difficulties in the future gestation periods.[25]

11.27 Stalls permit the animals to be checked daily for any sickness or managerial problems.[26]

11.28 The environment in dry sow sheds does not have the extremes found in extensive systems.[27]

11.29 The NSW Department of Agriculture and Fisheries recommends that dry stalls is the first preference but other systems are acceptable if sows are group run and individually fed or electronic sow feeders are used. Systems other than dry stalls have more managerial inputs, can be costly, and have deleterious effects on the sow's well being. There is less control with most of the alternatives.[28]

Dry Sow Tethers

11.30 Under this system sows are tethered either by the neck or the girth in half stalls. These stalls are 0.6 metres wide. The sows are able to lie close to each other at the rear end. The neck tether consists of light chain with a cover to protect the animal at the top of the neck. Sows are tethered for the full gestation period.[29]

11.31 The NSW Department of Agriculture submitted that less than five per cent of sows are kept in tethers in New South Wales and that in recent years tethers have not been installed.[30]

11.32 The Department considers that provided tethers are checked regularly and are correctly fitted with quick release collars there is no evidence that replacement is necessary or need be recommended. It prefers dry sow stalls due to the ease of management.[31]

Dry Sow Pens

11.33 In some intensive piggeries sows are kept in small groups (6-10 sows) in large pens 8 to 12 sq metres in size. They remain in these pens for the full gestation period. Where possible producers try to keep compatible sows together. Young sows tend to be more compatible.[32]

11.34 The major disadvantage with this system is that bullying of sows can occur. This bullying can lead to the sow aborting her litter.[33]

11.35 It is very difficult to maintain the correct level of feeding according to the sow's condition. The bullies get the most feed. Checking for the health of the animal can be difficult under this system.[34]

11.36 The NSW Department of Agriculture and Fisheries submitted that most intensive alternatives are more expensive, but give greater control over feed intake and eliminate bullying. Where cost of establishing a piggery is a factor the will suggest the practice, but explain its limitations. A high degree of supervision is required.[35]

Farrowing Systems

11.37 A farrowing stalls is a frame approximately 2.1 metres long and 0.6 metres wide in which a sow is placed prior to farrowing and remains in it until her piglets are weaned, usually at between 3 and 4 weeks. Water is available at all times and feed comes from a self feeder or is provided once or twice daily.[36]

11.38 At the rear of the stall there is a small slatted area. The farrowing stall is situated in a pen of approximately 3.5 sq metres. Within this pen provision is made for the suckers to keep warm, dry and free from draughts.[37]

11.39 The purpose of a farrowing stall is to prevent the young pigs from being crushed by the sow.[38]

11.40 Farrowing stalls come with various designs - prong, adjustable bars, hydraulic rails and anti crush rails.[39]

11.41 The NSW Department of Agriculture and Fisheries submitted that stalls have been in operation for over a quarter of a century in New South Wales and that today in excess of 95 per cent of sows would farrow in farrowing stalls.[40]

11.42 The Department reported that prior to the introduction of farrowing stalls losses due to crushing were of the order of 10-15 per cent. Well managed piggeries can reduce their losses due to crushing to below 5 per cent.[41]

11.43 Alternative approaches prior to the introduction of farrowing stalls included the following farrowing systems:

(1) Ruakura Round House
(2) A Frames
(3) Large pens with crush rails
(4) Nests
(5) Sloping Floors

11.44 The NSW Department of Agriculture and Fisheries submitted that all of these systems are considered satisfactory but they require more space, are costly and the survival rates are below those of the farrowing stall.[42] To date alternatives systems have not achieved the same level of efficiency. Mortalities would be higher if farrowing stalls were eliminated. Farrowing stalls have proved to be the most successful method for reducing losses of baby pigs.[43]

Conclusion

11.45 The Australian Pig Industry Policy Council submitted that the majority of sows are kept in groups ranging in size from eight to 40, that bullying can sometimes be a problem with this system as can uneven distribution of feed between sows, and that both stalls and tethers were developed so that sows could be given individual attention, fed individually, and protected from more aggressive sows.[44]

Weaner Pig Accommodation (5 kg - 2.5 kg)

11.46 When young pigs are weaned from the sow, they are placed into weaner cages, or pens with kennels. The area of a pen is usually 2.25 to 3 m^2. The stocking density varies from 0.11 m^2/pig at the lighter weights to 0.2 m heavier weights. The accommodation is provided in specialised weaner sheds or is incorporated in grower or farrowing sheds.[45]

11.47 Cages are usually placed 30 cm above floor level with drains placed in strategic locations, or cages can be placed above (usually about 1 metre) grower pens.[46]

11.48 Pens with kennels are at ground level with a dunging area provided. Water is provided at all times and provision is made for self feeders. Where specialised weaner accommodation is provided, it includes a controlled environment system to maintain temperature between 24^{o} - 28^{o}c.[47]

11.49 The NSW Department of Agriculture and Fisheries submitted that the introduction of special weaner accommodation has resulted in higher survival rates. This is due to the environment being closer to their needs, better hygiene, improved watering and feeding facilities. In New South Wales 95 per cent of all weaners are housed in this form of accommodation. The Department has no preference for either cages or kennels in pens provided the weaners are kept in a near optimum environment.

11.50 Alternative weaner accommodation are grower pens, open fronted sheds and yards, and paddocks.

11.51 The NSW Department of Agriculture and Fisheries submitted that if the industry had to revert back to the alternatives slower growth, higher disease incidence and greater mortalities would be the consequence.[48]

Grower Pig Accommodation

11.52 When removed from weaner pens growing pigs are normally transferred to pens approximately 1.5 to 1.8 metres wide and 3.6 to 4.2 metres long. At the rear of each pen is a 1.2 metre slatted drain. Usual stocking rates are 0.32 m^2/pig at the lighter weights to 0.65 m^2/pig at the heaviest weights. The pens are located in enclosed sheds which vary in size depending on the size of the piggery. The pigs have access to self feeders. The pigs are fed daily when not on self feeders. This feeding is either manual or by means of automatic feeders. The pigs have direct contact with other pigs through open sided or mesh walls. The sheds in most cases are naturally ventilated.[49]

11.53 The NSW Department of Agriculture and Fisheries estimates that in New South Wales 90 per cent of pigs are raised in pens within enclosed or partly enclosed sheds.[50] The Australian Veterinary Association estimated that nationally in excess of 98 per cent of all growing pigs are raised in confinement.[51]

11.54 The NSW Department of Agriculture and Fisheries submitted that experience has shown that pigs raised under these conditions grow much quicker (in excess of 800 grams daily) compared to extensive systems. The method allows for better management and supervision and lower disease incidence. The environment is superior to the extremes of an extensive system.[52]

11.55 Alternative sytems are open range or outside runs in conjunction with open fronted sheds. The NSW Department of Agriculture and Fisheries submits that these systems require a higher level of management, are economically inferior and have a higher disease incidence. 'The price of pigmeat would have to rise considerably to compensate for the higher operational costs of alternative systems'.[53]

11.56 The NSW Department of Agriculture and Fisheries submits that the rearing of grower pigs in intensive sheds is the most viable and practical means of pig production.[54]

Stocking Density

11.57 The model Code of Practice states that it is not possible to relate stocking density to welfare in a simple manner. Adequate welfare involves consideration of group size, pen size, age, breed, temperature, ventilation, lighting and other husbandry factors. The observance of any particular stocking density on its own cannot ensure the welfare of pigs. the suggested minimum space allowances in housed pigs based on contemporary techniques are shown in Table 11.1.[55]

Table 11.1: Maximum Recommended Stocking Densities for Housed Pigs

Systems	Minimum space allowance m^2 per pig	Comments
Growing pigs up to 10 kg in groups.	0.11	Approximately 20 to 30 per cent of space allowance provides for a dunging area.
11 - 20 kg	0.18	
21 - 40 kg	0.32	
41 - 60 kg	0.44	
61 - 80 kg	0.56	
81 - 100 kg	0.65	
Adult pigs in groups	1.4	
Adult pigs in individual stalls	0.6 x 1.8 m	
Boars in pens used for mating	6.25	Minimum length of shortest side 2 m.
Lactating sows and litters:		
- stalls	3.2	With piglets up to 4 weeks of age.
- individual pens	5.6	
- multisuckling groups	5.6	For each sow and litter.

(Conversion factors: $1.0\ m^2 = 10.8\ ft^2$; 1.0 kg = 2.2 lb; 1 m = 39.4 in)

Contentious Issues

11.58 The pig industry view on contentious issues is that:

- Current knowledge of the pigs behavioural and physiological responses to different housing systems does not support the contention that confinement systems are less desirable from a welfare point of view than group housing. There is experimental evidence to show that tethers do not necessarily result in poor welfare and that group housing - even when used in accordance with accepted codes of practice - does not necessarily ensure adequate welfare.

- Experimental evidence also suggests that even if given the opportunity to exercise sows prefer to rest and that the provision of an exercise area for domestic sows does not ensure that they will use it.

- All of these housing systems have their advantages and disadvantages. In all cases management or stockmanship is far more important from a welfare point of view than the choice of a particular system.[56]

11.59 ANZFAS's view on contentious issues can be summarised as follows:

Physical Conditions

11.60 ANZFAS cites evidence to support its view that intensive housing results in considerable wounding and structural damage to pigs. Lack of exercise and hard surfaces combine to produce a variety of foot and joint problems and while the badly damaged ones are culled "... more animals are likely to be affected, not severely enough to be killed, but generally enough to be suffering pain". Hard surfaces also lead to leg and teat wounds, especially among piglets.[57]

11.61 ANZFAS submits that these afflictions are detrimental to the welfare of pigs and could be overcome if more suitable housing, with the following features, was provided:

- sufficient space to allow each pig to walk freely;
- as a minimum, group housing and bedding material to motivate activity;
- where concrete rather than earth surfaces are used, sufficient bedding to prevent skin wounds; and
- sufficient space for a separate dunging area to maintain clean bedding.[58]

Behavioural Aspects

11.62 ANZFAS submitted that:

- there is no doubt that sows in individual stalls develop stereotyped behaviour, which researchers classify as abnormal and indicative of unsatisfactory husbandry practices. Stereotypes may have different causes. One such cause has been identified as inadequate feeding. Even if the concentrated rations are satisfactory from a nutritional and caloric point of view, they are quite alien to the pig's natural diet. Frustration and the resultant stereotypes can be reduced by providing more fibre (such as straw) to give a feeling of satiation and to extend the time actually spent eating, which as Rushen reported, involves many hours in the wild. Even more importantly, the strong oral/nasal exploratory needs of the pig must be satisfied either by providing earth or straw in enclosures. Barren and confined individual stalls do not meet these needs, and this frustration is expressed by limited and repetitive behavioural sequences largely involving the snout.[59]

- 'Both stall and tether systems fail to meet certain welfare criteria to which we attach particular importance. As a result of their design the animals housed in them are prevented from exercising and from displaying most natural behaviour patterns; in the wide range of systems seen by members there was a little scope to reduce the continuing stress which can be caused by confinement in these systems.'[60]

- Although the farrowing crate offers some protection to piglets, it does not prevent a quite significant number still being crushed by the sow. In the confined and barren space of the crate, piglets may learn restlessness which is detrimental to the survival of their own litters later in life. This restlessness is exacerbated by the frustration of the sow's strong nest building instinct. Thus, for several reasons the farrowing crate is not a satisfactory form of accommodation.[61]

- The problem of aggression in grouped housed pigs, therefore is not insoluble. Pigs must have the opportunity from an early stage to freely interact with others to learn appropriate social behaviour. They must have sufficient space to demonstrate the recognition and avoidance behaviours which regulate aggression. Finally, feeding arrangements must be carefully designed to minimise competition.[62]

- From a welfare point of view the family pen is clearly successful. Pigs can move freely and express their instinctive behavioural needs. No abnormal behaviour is observed, and the incidence of aggression, disease and lameness is low. The stress of social disruption is avoided. Piglets can be introduced to solid food gradually and show no signs of the diarrhoea sometimes seen in piglets weaned at three weeks of age (Lawrence, personal communication). The pen is also successful from a productive point of view. Ninety-three per cent of sows conceive while still lactating. They average 2.32 litters per year, with a mean of 11.2 liveborn piglets per litter. The food conversion ratio in these piglets is similar to intensive systems.[63]

- The space allowance in group pens is another factor influencing aggression. Aggressive encounters among growing pigs decreased as space allowance increased in the study by Ewbank and Bryant (1972). Jensen (1984) also shows that inadequate space produces more agonistic interactions among sows. He compared sows in group pens with either 3sq m per pig (deconfined) or 2.25sq m per pig (semi-confined), or individual stalls (confined). Interactions in general declined as space declined, but aggression increased. Ninety per cent of the interactions between the confined sows involved three behaviours. There was no head-head knock, nose-nose and nose-body, the first two of which are threat behaviours. There was no anal/genital nosing (recognition behaviour) or retreat (submissive behaviour). Comparing the group pens, the threat behaviour of head-body knocks was five times more common in semi-confinement than deconfinement. The submissive behaviours of head-tilt and retreat were three times more common in deconfinment. As Jensen (1987, p. 100) concludes, sows must have enough space to be able to carry out recognition and avoidance behaviour, which strengthen the dominance order and regulates aggression.[64]

11.63 These points reflect the debate about intensive housing and the studies which have been undertaken. They highlight the concerns and the complexities.

Comparative Analysis of Dry Sow Housing in the United Kingdom

11.64 There is an obvious need for a comparative look in this country at the systems for keeping pigs and the effects of the differing environments. The following tables are from an article written by M.R. Muirhead, BVM and S, FRVCS, DPM on pig housing and environment published in the United Kingdom's The Veterinary Record in December 1983.[65]

11.65 Climatic differences aside these provide a useful commentary on pig welfare issues.

Table 2: Advantages and disadvantages of commonly used systems for keeping dry sows and their effect on the animal, the pig keeper, the environment and on production costs

	A Paddock systems	B Individual pens	C Yards
Housing	Grouped outdoors with varying degrees of shelter and no bedding	Indoors in confined pens or tethers Types of housing: Insulated with controlled ventilation Stalls on slats Stalls on solid floors Cubicles on slats Cubicles on solid floors with straw Tethered on slats Tethered on straw	Partial or totally indoors May have straw bedding No supplementary heat
Management	Working conditions poor Observation difficult and little can be provided No control over the individual Treatment difficult Pregnancy diagnosis impossible	Working conditions good Observation good High level required Individual attention easily given Treatment easy Pregnancy diagnosis easily carried out	Usually good conditions Observation fair Moderate level required Difficult to supervise the individual Treatment reasonable Pregnancy diagnosis difficult
Management requirements	Little required Little expertise required	Good management required Considerable expertise required	Moderate management required Moderate expertise required
Welfare considerations	Severe competition Severe fighting problem Parasite problems Lameness rare Pressure sores rare Abscesses common Some nutritional deprivation Exercise unlimited Comfort poor Disease control poor Vices moderate. eg. stone eating	No competition No fighting Parasites uncommon Lameness common Pressure sores common Abscesses uncommon Nutrition – good availability Exercise restricted Comfort variable Disease control good Vices moderate. eg. bar biting	Environment competitive Severe fighting problems Parasite problems Lameness not uncommon Pressure sores not uncommon Abscesses may occur Some deprivation Exercise unlimited Comfort good Disease control good Vices moderate
Environment Temperature	Dependent on weather Often cold and wet Animals can huddle Unsheltered, lying area often wet	Generally regulated Warm and dry No ability to huddle Sheltered	Rarely drops below zero inside Dry areas available Huddling possible Sheltered
Air speed	Dependent on weather	Regulated and negligible	Usually low, but can be draughty
Hygiene	Food usually eaten off the floor subject to soiling and wastage High dung intake	Generally hygienic Little wastage No dung intake	Hygiene poor Eating straw encourages ingestion of faeces
Nutrition	Competition leads to bullying and variable feed intake levels Very difficult to feed in winter in muddy fields Extra nutrition is provided by the soil and grass eaten Increased feed levels are required the system results in thin sows	Feed intake readily supervised and controlled Total nutrition is supplied, formulated and regulated by man	Competition leads to variable feed intake requires provision of individual feeders Straw used for bedding will be ingested and have a nutritional value

Table 2: continued

	A Paddock systems	B Individual pens	C Yards
Water supply	Variable availability Difficult to check Subject to freezing Generally dirty	Normally good Shortage easily noted Usually clean	Normally good Difficult to check Subject to freezing outside Usually clean
Waste disposal	No problems but can be messy Well drained land required	Slurry conveniently handled Sows tethered on straw produce solid muck High risk of pollution if poor facilities	Solid manure Labour intensive to handle
Exercise	No restriction Exercise said to be beneficial to health	Restricted No evidence to show lack of exercise is detrimental	Limited May combine benefits of other two systems
Trauma	Frequent fighting Damage from fencing, machinery etc.	No fighting Lameness can occur if surfaces unsuitable Bed sores in thin sows, sores from bars or tethers	Fighting common Little mechanical damage Vulval biting prevalent
Infection Cross infection	Readily occurs. eg. worms, swine dysentery	Ready-controlled Extra vaccination may be required	Readily occurs in groups eg. worms, swine dysentery, salmonella
New infection	Easily become established Easily spread in herd Dirty water Dung intake Animals cold and wet in winter	Subject to considerable control Less easily spread Clean water No dung intake Animals warm and dry	Subject to considerable control Easily spread in group Dung intake from straw bedding Animals may lie in wet
Productivity	Feed utilisation lowered Fertility reduced	Good feed utilisation Good fertility	Reasonable feed conversion efficiency Fertility very good
Cost	Building costs inexpensive Land costs expensive Good fencing needed Land not available for other crops but soil fertility improved Poor inaccessible land can be used	Building costs substantial Land cost minimal Land does not compete with other crops and provides manure Manure handling more expensive	Building costs moderate – often converted old building Low land cost Land does not compete with other crops and provides rich manure
Other	Fire risk low No mechanical failure No smell	Fire risk high Subject to mechanical failure Electrocution risk Considerable smell	Fire risk moderate Possible mechanical failure Some smell

Source: M.R. Muirhead, 'Pig Housing and Environment', Veterinary Record, 1983, Vol. 113, UK pp. 587-593

Conclusion

11.66 All pig production systems have advantages and disadvantages from the welfare point of view. It is this Committee's view that an intensive system is proper if the health of the animals is not affected, if their behaviour is not disturbed, and if their adaptability is not overcharged.

11.67 The Committee inspected a number of different intensive systems from a several thousand sow corporate establishment to owner-operated farms with a few hundred sows and saw the various accommodation options described above in operation.

11.68 The Committee notes that while controversy has stimulated some welfare specific research in Australia on the impact of different intensive systems there has been virtually no study of the economic implications of the different approaches.

11.69 The Brambell Committee commented in its discussion on pig housing that the living space available in intensive systems have tended to decline to a level at or near that at which the saving in capital costs of the buildings becomes offset by loss of production.[66]

11.70 This is the difficult point in the debate on pig densities generally and on sow confinement in particular. The Committee **recommends** therefore that the Pig Research Council actively encourage research to address the cost equation associated with capital costs of pig housing and loss of production with a view to clarifying some welfare stress issues.

11.71 The Committee **recommends** that the maximum recommended stocking densities for growing and adult pigs in groups be reviewed to take account of the advances in understanding of physiology and behaviour and the welfare consequences of pen space, stocking rates and group sizes.

11.72 The Committee has considered the dry sow housing question and noting the advantages of stalls and tethers (protection from bullying, close monitoring and control of food intake), believes both to be undesirable means of restraint. The Committee is of the view that those systems providing sow cubicles with access to exercise areas are more conducive to sow welfare. The Committee **recommends** that future trends in housing the dry sow should be away from individually-confined stall systems and that this be reflected in the Codes of Practice for the welfare of the pig. The Committee **recommends** that tethering of sows be banned.

11.73 The Committee, noting that sow size has increased over the years, **recommends** that immediate attention be given to ensure that stalls and farrowing crates currently in use do not cause suffering due to cramping. The Committee **recommends** that the Codes of Practice for the pig be revised to ensure stalls and crates reflect the body dimensions of large sows.

11.74 On the issue of farrowing crates, noting that piglet mortality due to sow overlay is a major welfare consideration, the Committee **recommends** the encouragement of some producer pilot systems to test the viability of designs which will allow sows more freedom of movement and access to a separate exercise area at least some time each day.

11.75 The Committee **recommends** that governments and the industry encourage the adoption of alternative approaches to accommodating sows through their various stages and the improvement in husbandry skills needed to avoid welfare problems.

11.76 The use of prostaglandins to induce farrowing in pigs is a potential welfare issue. Obviously there are times when veterinary use is valid and in the best interests of the sow and her piglets. It is not clear how widespread the practice is but the Committee is aware that prostaglandins are administered to ensure that sows give birth during working hours. The Committee questions the management practice of birth induction and **recommends** that the welfare implications of prostaglandin use be investigated.

11.77 More broadly the Committee **recommends** that the Commonwealth Government fund a research project in Australia to examine and evaluate housing systems that may be suitable to Australian conditions and that this review:

(a) examine overseas research findings into alternative housing systems;

(b) assess the welfare benefits and any welfare disadvantages of such systems;

(c) evaluate the economic viability of alternative systems; and

(d) take account of the views of producers, industry service providers, design engineers and specialist ethologists.

11.78 The Committee **recommends** that the Commonwealth Government provide tax incentives to encourage producers to upgrade their systems to incorporate improved design features to improve pig welfare.

11.79 Finally the Committee **recommends** that the appropriate authorities ensure that regular inspections of intensive pig production units be undertaken to monitor husbandry practices generally and to ensure that stocking densities do not exceed those specified in the Codes of Practice for the welfare of the pig.

ENDNOTES

1. Evidence, Australian Pig Industry Policy Council, p. S8793.

2. ibid.

3. ibid., p. S8804.

4. ibid., p. S8788.

5. Evidence, ANZFAS, p. S8826.

6. <u>Model Code of Practice for the Welfare of Animals</u>, 1. The Pig, Australian Bureau of Animal Health, 1983, p. 2.

7. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8853-S8854.

8. ibid., p. S8854-8855.

9. ibid., p. S8855.

10. ibid., p. S8852.

11. ibid., p. S8822, p. S8855.

12. Evidence, Australian Pig Industry Policy Council, p. S8806.

13. I.J. Lean, 'Pigs', in Management and Welfare of Farm Animals, The UFAW Handbook, Third Edition, UK 1988, p. 147.

14. Evidence, Dr J. Blackshaw, University of Queensland, p. 6830.

15. Evidence, NSW Department of Agriculture and Fisheries, p. S8697.

16. Evidence, Australian Veterinary Association, p. S9026.

17. ibid.

18. ibid, p. S9031.

19. I.J. Lean, op. cit., p. 148.

20. Evidence, Australian Veterinary Association, p. S9031.

21. Evidence, Australian Veterinary Association, p. S9031.

22. NSW Department of Agriculture and Fisheries, AGFACTS, Agdex 441/720, 1982, p. 1.

23. ibid.

24. ibid., and Evidence, NSW Department of Agriculture and Fisheries, p. S8691-2.

25. Evidence, NSW Department of Agriculture and Fisheries, p. S8691.

26. ibid.

27. ibid.

28. ibid., p. S8692.

29. ibid.

30. ibid.

31. ibid.

32. ibid.

33. ibid.

34. ibid.

35. ibid.

36. ibid.

37. ibid., p. S8694.

38. ibid.

39. ibid.

40. ibid.

41. ibid.

42. ibid.

43. ibid.

44. Evidence, Australian Pig Industry Policy Council, p. S8804.

45. Evidence, NSW Department of Agriculture and Fisheries, p. S8695.

46. ibid.

47. ibid.

48. ibid., pp. S8695-S8696.

49. ibid., p. S9030.

50. ibid.

51. Evidence, Australian Veterinary Association, p. S9030.

52. Evidence, NSW Department of Agriculture and Fisheries, p. S8696.

53. ibid.

54. ibid.

55. Model Code of Practice ..The Pig, op. cit., p. 11.

56. Evidence, Australian Pig Industry Policy Council, pp. S8804-8805.

57. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8856.

58. ibid., p. S8859.

59. ibid., p. S8864.

60. ibid., p. 8877 quoting from the United Kingdom's Farm Animal Welfare Council Report 1988, p. 6.

61. ibid., p. S8866.

62. ibid., p. S8876.

63. ibid.

64. ibid., p. S8875-8876.

66. M.R. Muirhead, 'Pig Housing and Environment', Veterinary Record, 1983, Vol. 113, UK, pp. 587-593.

66. F.R.W Brambell, op. cit., p. 13.

CHAPTER 12

MANAGEMENT PRACTICES

Surgical Procedures in the Industry

12.1 The pig industry utilises a number of husbandry practices which involve surgical procedures. The debate in this area involve the risks to the welfare of all of those treated weighted against potential benefits to the proportion which avoid suffering from injury. The main areas of contention are the clipping of piglets 'milk teeth' and tail docking. Husbandry procedures in the industry involve:

- castration;
- tail docking;
- clipping of 'needle' teeth;
- nose ringing;
- animal identification;
- tusk trimming; and
- restraint of large stock.

12.2 The Model Code of Practice (Appendix 8) outlines procedures to be followed when undertaking surgical procedures.[1]

12.3 The general view of ANZFAS and RSPCA Australia is that those surgical animal husbandry techniques that only benefit the human handler of the animals concerned, or that are performed only to overcome the deleterious effects upon animals of severe animal husbandry regimes, should not be performed.[2]

12.4 ANZFAS argues that until the last few years there has been little objective information available regarding the level of pain and stress imposed on animals by the various mutilations currently in use. Millions of animals are mutilated annually in

Australia under the euphemism of 'animal husbandry' yet little evidence is available to show which procedure or combination of procedures currently in use is the most humane; and whether the best available techniques inflict a level of pain and/or stress which is acceptably low.[3]

Castration

12.5 Castration was a common practice but is rarely undertaken now. This is because most pigs are now sold before boar taint develops. Where pigs are slow growing (occasionally in extensive systems) it may still be undertaken. The NSW Department of Agriculture and Fisheries submitted that in New South Wales fewer than one per cent of pigs are now castrated and there are legal restrictions associated with the castration of boars more than two months of age.[4]

12.6 Castration of male pigs intended for slaughter is generally unnecessary under present day production and marketing conditions because animals can achieve marketable size before any problems of undesirable sexual behaviour or 'boar taint' in the meat are met.[5]

12.7 The Code of Practice recommends that castration should be avoided whenever possible.[6]

12.8 Mr Kirsop representing the NSW Department of Agriculture and Fisheries explained in evidence that the trend away from castration is due to the growth of intensive production and the move to selling pigs by fat depth. When pigs were mostly grown extensively in paddocks they were sexually mature before they reached market weight. The problem of boar taint becoming apparent in the meat after eight months was an issue at that time.[7] A barrow is fatter than a gilt or a boar. When the industry moved to carcass classification it saw the benefit of not castrating.

12.9 The vast majority of pigs are now being sold at five and a half to six months before they are sexually mature. Mr Treacey from the Victorian Department of Agriculture and Rural Affairs commented in evidence that industry practice changed very quickly once an assessment was made that the absence of castration was not going to affect the quality of the product.[8]

12.10 The RSPCA and ANZFAS view is that should castration of mature animals be considered necessary in some instances they should be given the same consideration as is given to companion animals. Castration should be performed only by a specially trained person using local anaesthetic and appropriate analgesia.[9]

Tail Docking

12.11 The practice of tail docking is used to prevent or treat the problem of tail biting and cannibalism in young and adult pigs. The causes of the problem are poorly understood as it can occur in a range of intensive and extensive husbandry situations.[10]

12.12 ANZFAS is totally opposed to taildocking arguing that the issue is intimately connected with the general conditions under which pigs are kept. It argues that tail biting is essentially a management problem and should be treated as such. ANZFAS considers that implementation of its recommended reforms would obviate any need for tail docking.[11]

12.13 The RSPCA Australia is generally opposed to the docking of the tails of any species of animal with the exception of sheep or in the cases of irreparable injury or disease to the tail. However it adopts the position that as a minimum requirement routine tail docking of pigs should be humanely performed by trained operators.[12]

12.14 The Code of Practice states that where tail biting is a problem, all aspects of the environment, feeding and management should be investigated to identify the contributing factors so that remedial action can be taken. The Code specifies that the procedure should be carried out before pigs are seven days of age where it is being performed as a routine preventive measure.[13] AFWA submitted that no detailed investigation of the response of the piglets to the procedure appear to have been made but general observation strongly suggests that piglets less than seven days old suffer only minor trauma from the procedure. This body argued that tail docking usually provides an effective insurance against the outbreak of tail biting and that given our lack of understanding of the causal factors the continued use of the procedure within the provisions of the Code of Practice is warranted.[14]

12.15 No-one contributing to this inquiry disputed that an outbreak of tail biting is a serious welfare situation. It is unpredictable, frightening and horrible to see. Dr Hutson, confirming that it is not possible to reproduce an outbreak experimentally because there seems to be so many factors contributing to an outbreak stated in evidence that:

> ... There seem to be two sorts of general phases. What happens is that you have growing pigs and general redirected exploratory behaviour or, if you like, just random munching - they start randomly chewing on things in the immediate environment which might be, say, the tail or the ear of another pig. If you chew on an ear you are likely to get some sort of retaliation; if you chew on a tail you find that is probably a safer sort of target. At that stage there is no danger of an outbreak of tail biting but as soon as a wound appears and there is blood, and the pig starts squealing and then waves its tail around, that is a very attractive, powerful stimulus to other pigs to seize and bite, and suddenly you have an explosion of tail biting behaviour.[15]

12.16 Discussing the causes Dr Hutson said that at the random munching stage it might be boredom, crowding, and so on. Once the tail is bitten and the pig waves it about there could be other causes such as diet. Attraction to blood on the bitten tail could be a cause in leading to a massive outbreak.[16]

12.17 Dr Cutler (DARA) expressed the view that tail biting is a consequence of keeping animals together in pens and that it probably does not matter whether they are inside or outside. What matters is that an outbreak included results in 'great gaping holes in the rear of the animal' developing.[17]

12.18 Dr Blackshaw confirmed the cannibalism horror; pigs eating right into the hindquarters, and expressed the view that clipping off the end bit of the tail, "the bit that swings around" removes the temptation to bite. She argued that this end bit has few nerve endings and pigs are not always aware it is being bitten while blood is drawn. A bite on the tail further up is felt immediately and evasive action taken.[18]

12.19 In taildocking part of the tail (one to two thirds of length) is removed when piglets are less than one week of age, to reduce the incidence of tailbiting. More than 85 per cent of producers dock the tails of their pigs. It is considered to be a routine preventive measure. The NSW Department of Agriculture and Fisheries submitted that it has been shown that the incidence of tailbiting is considerably reduced by docking, and therefore painful injury to the tail and often serious secondary infections (which can travel up the spinal cord and affect the whole pig) are avoided.[19]

<u>Teeth Clipping</u>

12.20 Clipping of 'needle' teeth involves the sharp premolar teeth of piglets being clipped at the gumline within the first 2 days of life, to reduce injury to piglets and to the sow's udder, as piglets fight for the best teats. More than 90 per cent of producers perform this practice as a routine preventive measure. The NSW Department of Agriculture and Fisheries submitted that this practice results in less facial injury and general infection in suckers and less damage to sow's udders which can result from severe laceration and infections.[20]

12.21 AFWA submitted that when conducted properly clipping of needle teeth injures no soft tissue and general observation strongly suggests that such use of the procedures causes little more distress than that involved in restraining piglets. The submission stressed that work by Wilkinson and Blackshaw (1987) showed that the growth rate and nursing behaviour were not affected by teeth clipping and that continued use of the procedure within the guidelines of the Code of Practice is warranted.[21]

12.22 Discussing the Wilkinson and Blackshaw study ANZFAS submitted that teeth clipping is a procedure which has become rapidly entrenched without good scientific data. ANZFAS quotes from one of the study findings of 16 sows and their litters:

> As nursing behaviour, damage scores of the sows and litters and growth rates were not affected by the teeth clipping regime, it appears that the decision to clip teeth does not cause undue stress.[22]

12.23 ANZFAS argues that this finding could be paraphrased 'since clipping doesn't make any difference, go ahead and clip'. It is then up to the animal protectionists to prove that something is bad to have it stopped.[23]

12.24 ANZFAS highlights the fact that the study cites a Bundaberg farmer who left piglets unclipped for a trial period and experienced more teat damage. The farmer concerned was apparently not convinced that not clipping was the cause of the increased damage and speculated that seasonal environmental factors may have been responsible.[24]

12.25 ANZFAS considers the issue of teeth clipping is tightly tied to the general conditions under which pigs are kept.

12.26 Mr Hassab from the NSW Department of Agriculture stated in evidence that teeth clipping is essential for a number of reasons.

> ... It reduces the scarring and infection that would occur on piglets' faces when they are competing for a teat. These teeth are razor sharp and when a sow has a big litter obviously the competition for teating, for milking and for sucking is extremely high. Also these teeth quite often damage the udder of the sow. So it can cause infection on the udder and that can cause a reduction of milk flow. In terms of the animals being infected from hitting each other on the face with these sharp eyeteeth, the losses from this can be quite dramatic. I have seen quite a number of piglets die as a result of this infection because it has not been picked up quickly enough ... this situation occurs not only in intensive situations but also in sows that farrow in a paddock situation as well.[25]

12.27 Industry representatives argue that damage incurred is the same in feral pigs. The battles for teat order occur in the wild in just the same way with just the same damage.[26] All pigs scrap initially as they settle into their hierarchy and then whenever that hierarchy is challenged.[27]

12.28 Industry representatives and government extension officers stated in evidence that the greatest stress involved in teeth clipping is handling. The actual clipping, done with a small pair of nail or bolt cutters is a quick and simple process.

<u>Other Practices</u>

12.29 The practice of nose ringing is performed in some extensive piggeries to prevent rooting and undermining of sheds and fences. A ring is placed either through the nasal septum in front of the cartilage (as with a bull ring) or vertically, through the top of the cartilage on the snout. Effect on the pig welfare is discomfort if the pig engages in rooting activity.

12.30 Identification practices are described below:

a) slap branding (tattooing) is a mandatory practice for all pigs sold for slaughter, to identify origin of pigs should disease or pesticide residues be discovered;

b) ear tattooing is a mandatory practice for stud breeders to identify pigs individually;

c) ear tags may be used to identify adult stock for ease of management;

d) body tattooing is sometimes performed as a backup, in case of loss of ear tags;

e) piglets may be ear notched or punched within the first 7 days of life, to identify their genetic bloodlines.[28]

12.31 Identification is necessary for rapid tracing of the source, essential for disease control (particularly exotic diseases), and for tracing chemical residues. Property identification (slap brand) is mandatory for marketing. Pigs can be left without individual identification, but this makes management more difficult, and may slow genetic progress.[29]

12.32 Tusk trimming is considered to be responsible management practice. Tusks of boars are cut at the gum line to avoid damage to sows, other boars and handlers.[30]

12.33 It is occasionally necessary to restrain large stock to perform minor surgery. The practice generally is to place a noose around the upper jaw, and tie the rope to a raised immovable object. The pig will pull back and usually stand immobile. This procedure is considered to produce less stress than other methods in both the pig and the handler.[31]

Conclusion

12.34 The Australian Veterinary Association's view is that while all of these 'minor' surgical procedures involve some pain and thus stress, veterinarians believe that the stress will be transient if procedural capacity is high, and that the results enhance welfare of the pig. The procedures rely on the skill of the operator. There is a requirement for experience and dexterity, for instruments to be in a high state of readiness and of clean sanitary methods.[32]

12.35 Dr Johnston, representing the Australian Veterinary Association, stated in evidence that veterinarians are happy with stock persons carrying out the procedures as long as they have been shown the correct way and as long as they are confined to the early period of the pigs life. His view was that if such procedures were confined to veterinary surgeons they would not be done because of the cost involved.

> If that were the case, an awful lot of suffering would be caused to the pig population because those minor procedures had not been carried out.[33]

12.36 The Australian Federation for the Welfare of Animals supports this view arguing that each husbandry practice involving mutilations to animals must be considered individually, and the risks to the welfare of all of those treated weighted against potential benefits to the proportion which avoid suffering from injury.[34]

12.37 The debate on this issue was summed up in the submission to this inquiry from Professor Egan and Dr Hutson from the Animal Production Section of the School of Agriculture and Forestry at the University of Melbourne. They argued that in the main, apart from actions taken to prevent disease, the manipulation of individual and group behaviour of animals is at the base of practices involving methods of confinement and procedures such as castration, tail docking and tooth trimming. The practices are aimed against what is seen as causes or consequences of aggressiveness, curiosity, and boredom, as preventive measures.

In intensive systems, surgical action is undertaken on very young animals by skilled, trained personnel to minimize the effects on the growth of the animal. The trauma is real, although transient and alternative ways to address the problems are actively sought. Understanding the behavioural basis and identifying the means to modify the behaviour form the best approach. They stressed that there is a need to ensure that research in this area is given every recognition and encouragement.[35]

12.38 The Committee has inspected a range of confinement systems and observed surgical procedures and agrees with this comment and perspective.

12.39 Accepting that the causes of tail biting are poorly understood the Committee's view is that the problem clearly is a consequence of keeping pigs closely penned whether in or out of doors. While tail biting may be a sign of poor welfare the welfare implications of an outbreak are such that there seems to be little choice in the matter. The Committee agrees that the continued use of the tail docking procedure within the provision of the Code of Practice is warranted. The Committee, noting that taildocking involves some pain and stress, **recommends** that stockpersons are properly trained in the procedure, so that the task is undertaken with dexterity and with as little trauma to the pig as possible. The Committee **recommends** that further research into the causal factors of tailbiting be undertaken as the issue is so closely linked to overall aspects of pig welfare in close confinement production.

12.40 On the issue of teeth clipping the Committee believes that due to the potential for milk and piglet loss which can result from infections of needle teeth lacerations the continued use of the teeth clipping procedure within the provision of the Code of Practice is warranted. However the Committee is surprised at the high susceptibility to infection which apparently occurs in intensive systems and noting the emphasis placed on the health benefits of intensive production, **recommends** that further research be conducted into the underlying reasons for infection that necessitates teeth clipping.

ENDNOTES

1. _Model Code of Practice for The Pig_, p. 9-10. See Appendix 8.

2. Evidence, Royal Society for the Prevention of Cruelty to Animals, p. S9090.

3. Evidence, Australian and New Zealand Federation of Animal Societies, p. S8854-5 and S8904-S8921.

4. Evidence, NSW Department of Agriculture and Fisheries, p. S8698.

5. Evidence, Australian Federation for the Welfare of Animals, p.S 8941

6. _Model Code of Practice_, op. cit., p. 9.

7. Evidence, NSW Department of Agriculture and Fisheries, p. 9256.

8. Evidence, Victorian Department of Agriculture and Rural Affairs, p. 9407.

9. Evidence, Royal Society for the Prevention of Cruelty to Animals, p.S9094, Australian and New Zealand Federation of Animal Societies, p.S 8916

10. Evidence, Australian Federation for the Welfare of Animals, p. 8940.

11. Evidence, Australian and New Zealand Federation of Animal Societies, p. 8852, p. 8917.

12. Evidence, Royal Society for the Prevention of Cruelty to Animals Australia, p. S9096, S9102.

13. *Model Code of Practice*, op. cit., p. 9.

14. Evidence, Australian Federation for the Welfare of Animals, pp. 8940-8941.

15. Evidence, Dr Hutson, University of Melbourne, pp. 9499-9500.

16. ibid., p. 9500.

17. Evidence, Victorian Department of Agricultural and Rural Affairs, pp. 9399-9400.

18. Evidence, Dr J. Blackshaw, University of Queensland, p. 6855-6.

19. Evidence, NSW Department of Agriculture and Fisheries, p. 8699.

20. ibid.

21. Evidence, Australian Federation for the Welfare of Animals, p. S8941.

22. Evidence, Australian and New Zealand Federation of Animal Societies, p. 8916.

23. ibid.

24. ibid.

25. Evidence, NSW Department of Agriculture and Fisheries, p. 9249.

26. Evidence, Australian Pig Industry Policy Council, pp. 9425-9426.

27. Evidence, Mr Brian Healy, NSW Department of Agriculture and Fisheries, p. 9253.

28. Evidence, NSW Department of Agriculture, p. S8700.

29. ibid., p. S8701.

30. ibid.

31. ibid., p. S8702.

32. Evidence, Australian Veterinary Association, p. S9029.

33. ibid., p. 9581.

34. Evidence, Australian Federation for the Welfare of Animals, p. 8940.

35. Evidence, p. S8928.

CHAPTER 13

OFF-FARM HANDLING

Transport and Handling Stresses

13.1 Aspects of the welfare of the pig from farm gate to slaughter were discussed during this inquiry. The Australian Veterinary Association submitted that during this period the pig can be subject to great stress and that many transporters and abattoir workers are unaware of the effects of their practices on pigs.

13.2 Specific recommendations made by the Australian Veterinary Association are:

(i) that welfare of the pig would be improved, both in transport to and in handling at an abattoir, if workers involved were made more aware of the effects of stress on the pig;

(ii) that handling would be greatly improved and thus stress reduced, by capital expenditure on suitable truck crate design and on loading/unloading facilities and abattoir race designs;

(iii) that improved killing facilities are required in some abattoirs;

(iv) that electrical stunning is considered to be the best and most humane form of rendering the pig unconscious prior to the actual slaughter process, but there is need for continuous vigilance by abattoir management to ensure that equipment is used correctly by operators.1

13.3 Animals being transported by road are subjected to a number of stresses which may have cumulative effects. Stressful influences may include:

- yarding and handling;
- deprivation of food and water;

- changes in climatic conditions;

- overcrowding or isolation, unfamiliar surroundings, noises and sensations;

- insufficient care during road transportation; and

- physiological responses associated with pregnancy.[2]

Australian Agreed Standards

13.4 The Model Code of Practice makes the following observations and recommendations concerning loading, stocking densities, waiting periods during loading, transit, rest periods and unloading at the point of destination.

> Loading of pigs for transport presents special problems, particularly if they are not accustomed to being herded. Patience is essential and proper design of yards, loading ramp and other associated services will facilitate loading with minimum distress and bruising.
>
> A canvas slapper is the best tool for moving pigs. Electric prods should be used sparingly.
>
> It is recommended that the following classes be transported or penned separately:
>
> - young piglets;
> - sows with piglets;
> - adult boars;
> - unfamiliar groups with pigs (where possible); and
> - sows in advanced pregnancy.
>
> Packing of animals either too loosely or too tightly in stock crates predisposes them to injury; partitions should be used to reduce the likelihood of injury.

The density of loading of animals in stock crates should be determined by the need to minimise injury but allow cast animals to rise with assistance.

The driver is responsible for ensuring that the loading density and penning arrangements are compatible with the welfare of the animals and the capacity of the vehicle.

Recommended Loading Density During Road Transport

Use the following table when the temperature is below 25°C. Pigs need about 10 per cent more floor area in a truck when the temperature is over 25°C.

Average Weight (kg)	Floor Area (m^2/head)	Number of Head Per 12.2 m (40 ft) Deck
50	0.22	132
75	0.29	100
100	0.35	83
125	0.42	69
150	0.48	60
175	0.55	53
200	0.61	48

(Conversion factor: $1.0\ m^2 = 10.8\ ft^2$)

Pigs are susceptible to extremes of heat and cold. In very hot weather (38°C or more) it is undesirable to transport pigs. If transport is undertaken during hot weather, shade should be provided and the vehicle should be well ventilated. When the vehicle is stationary shade should be provided or pigs should be unloaded promptly as heat will build up rapidly within an enclosed stock crate.

Consideration should be given to the need for, and effectiveness of, roofing or shadecloth over vehicles operating in tropical areas to reduce heat stress in animals. In cold weather straw or other dry bedding is desirable, and pigs should be protected from wind and rain.

Pigs should be unloaded as soon as possible after arrival at the destination. All pigs should be given access to water when unloaded including those consigned directly for slaughter. Pigs to be held in yards for 24 hours or longer should also be provided with feed.[3]

Discussion of Issues

13.5 The AVA contends that stresses likely to be involved during the handling of pigs at abattoirs, may be exacerbated because the pigs are likely to be in the control of workers even more remote from the concepts of good husbandry practice and animal welfare than are truck drivers. Lairage, that is, the practice of holding pigs prior to slaughter for up to 24 hours, is an extremely stressful period for pigs and should be reduced to as short a time as is practicable.[4]

13.6 All participants to this inquiry agree that because of the inevitable suffering associated with the transport of pigs the slaughter of these food animals should be as near as possible to the point of production and that handling and slaughtering at abattoirs should be carried out in a humane and considerate manner.

13.7 The Australian Pig Industry Policy Council submitted that the pig industry has been concerned to improve transport and handling of pigs and in both NSW and Queensland producers have initiated action to produce recommendations for improved transport and handling of pigs. Codes of Practice for abattoirs and sale yards are currently being finalised. The Pig Research Council has sponsored:

- research into the pre-slaughter treatment of pigs;
- visits to Australia by acknowledged experts in the design of animal handling and lairage facilities; and
- a session of the 'World Meat Science Congress' in Brisbane in late 1988 dealing specifically with the stunning of pigs.[5]

13.8 Mr Hassab, NSW Department of Agriculture and Fisheries, reported in evidence that most transport carriers and most farmers who cart their own pigs are very aware of providing pigs with good transport because they realise the problems that can occur, such as deaths in transport. Deaths during transport of pigs can occur if they are not handled correctly. Most farmers and most stock transporters carry pigs carefully and efficiently because they realise that there is an economic involvement in that the correct handling procedures will give a better dressing-out percentage. He reported that pigs are generally loaded and transported during the very early morning, at night or late evening because of the adverse effects that extreme summer temperatures can have on pigs in transit. In terms of the lairage pens in abattoirs, there has been a concerted effort by most abattoirs throughout New South Wales to improve the lairage conditions. These improvements have been provided by better unloading facilities, better movement lanes, better drainage and better flooring within the lairage pens.[6]

13.9 Mr Hassab stated that bruising does not appear to be a serious problem in the pig industry. Providing the transport - the trucks that the pigs are carried on - and the laneways and the unloading races and the holding lairage pens are sound and do not have any protrusions, it is generally rare to find pigs being bruised. Most abattoirs throughout New South Wales are very conscious of providing very good lairage pens and holding facilities.[7]

13.10 The Committee sought to clarify whether intensively housed pigs exhibit greater signs of stress during mixing and loading for transport to sale yards or abattoirs. Dr Blackshaw stated that the view that pigs are stressed due to being moved from a dimly lit environment is not applicable in Australia. Australian piggeries are in full daylight and many of them have natural ventilation. Transference to the outside is not significantly different:

> ... Certainly pigs are stressed when you mix them. Usually, you load a group of pigs which have lived together as growers in groups of 12 or maybe 16 - they go on the truck together. If you do load them like that you tend not to get as much fighting as you would if they were just taken at random from different parts of the piggery, which does not usually happen in the pig industry.[8]

13.11 She referred to the code of practice for the movement of domestic animals which recommends that animals are mixed several days before transport.[9]

13.12 Doctors Johnston and Holder representing AVA expressed the view in evidence that the arrangements and the Acts governing transport of pigs are probably adequate. They argued that the problem in the area really relates to people who do not have an understanding of how to handle the animals and are probably not really trained suitably in what they are doing. In most cases transport is adequate but it gets back to the individual. There are very good individual transport drivers who have a very great concern for the animals they are transporting, and there are others who do not. Many of the transporters of livestock are self-employed people. They know that their livelihood depends on delivering stock to their destination in good condition.[10]

13.13 Dr Holder underlined this point and highlighted AVA's general view of handling of pigs off-farm:

> ... Certainly any clients of mine who knew that the transport person was not looking after their animals after they, the owners, had put six months into looking after them very adequately would very quickly show that particular transporter the door. I think, however, that there is a very small proportion of transporters who are not directly relating to owners and who may convey stock under less than adequate conditions. This is why the point is made in our submission that, firstly, there should be a greater awareness of the requirements being more generally known - and this can only be by education - and, secondly, I believe there is a case to be made for, say, a disinterested party like a government veterinarian at the receiving point, the abattoir, to be given greater rights and responsibilities in terms of directing what

> should be done with animals rather than just advising on what should be done with animals.[11]

13.14 The Australian Veterinary Association believes that deficiencies in the transport of pigs to abattoirs and their handling at abattoirs impact directly on the pigs, placing them very often under undue stress. AVA stresses the need for better education of transporters and abattoir workers so that stress levels might be reduced. Handling facilities, both on transports and at abattoirs, often are less than adequate. Government veterinarians employed at abattoirs should be given more power to direct that handling methods and facilities be improved when found to be deficient.[12]

Conclusion

13.15 The Committee did not investigate off-farm handling of pigs in detail nor undertake inspections of loading, transport, lairage, and abattoir arrangements and facilities. Obviously many sectors of the industry have an interest in the proper marketing of pigs and there are economic as well as welfare advantages to minimising stress during all of these stages.

13.16 The Committee, noting the importance of a multi-sector approach to strategies to minimise stress, deaths, and decrease yield and quality losses during post-farm handling of pigs, **recommends** a State and Territory wide multi-sectoral review of off-farm handling of pigs with a view to upgrading existing codes of practice and disseminating information to service providers, producers, transporters, abattoirs and other interested parties. The review process should take account of the views of animal welfare organisations and specialist ethologists.

13.17 The Committee **recommends** that in addition to ensuring that information is widely disseminated on the proper handling of pigs from farm loading to slaughter, adequate monitoring should also be undertaken to ensure compliance with the provisions of the Codes of Practice associated with the transport and slaughter of livestock.

ENDNOTES

1. Evidence, Australian Veterinary Association, pp. S9028-9029.

2. Standing Committee on Agriculture, Model Code of Practice for the Welfare of Animals No. 3 Road Transport of Livestock, 1983, p. 16.

3. ibid., pp. 10-11, p. 16.

4. Evidence, Australian Veterinary Association, p. S9028.

5. Evidence, Australian Pig Industry Policy Council, p. S8809.

6. Evidence, NSW Department of Agriculture and Fisheries, pp. 9263-9264.

7. ibid., p. 9264.

8. Evidence, Dr J. Blackshaw, University of Queensland, p. 6859.

9. ibid.

10. Evidence, Australian Veterinary Association, pp. 9567-9568.

11. ibid., p. 9568.

12. ibid., p. 9561.

PART FOUR

THE WAY FORWARD

CHAPTER 14

STOCKMANSHIP, EDUCATION AND TRAINING

Introduction

14.1 One of the important processes of animal domestication is adaptation to man. The progress achieved in this process can be judged from the substantial difference that exists between domestic stocks of animals and their wild counterparts in their flight distance to humans. With the development to intensification of production systems a higher level of contact with humans has been imposed on the animal than that which normally occurs in the traditional extensive system of production. In the modern systems there are considerable opportunities for periods of intense interaction between stockpersons and their stock.[1]

14.2 Although little is known of the human factors which may influence this interaction there is evidence that the relationship can affect productivity and physiology and hence the welfare of farm animals.[2] As Werribee researchers have noted some of the behavioural patterns of humans involved in routine husbandry may be threatening and when regularly imposed may produce a chronic stress response. Whenever a sustained elevation of free corticosteriods occur both the productivity and welfare of the animal may be compromised.[3]

14.3 Evidence received by the Committee from all sources suggest that high standards of stockmanship are essential to the welfare of animals in intensive systems. Dr Wirth, President of the Royal Society for the Prevention of Cruelty to Animals Australia, among others, argued that stockmen play the "key role" in any production system.[4] The RSPCA also noted that the influence of poor stockmanship on the welfare of animals in an intensive production system is well recognised and is more damaging than in an extensive system because of the greater number of animals involved. Alternatively, a good stockman will dramatically improve the welfare of animals even where there are poor facilities.[5]

14.4 Dr Cutler from the Department of Agriculture and Rural Affairs also argued that a good stockman can make a terrible system work effectively for the welfare of the animal and a poor stockman can make the best system in the world work appallingly for the animal. He and other Departmental representatives emphasised the importance of 'stock sense'.[6]

14.5 The Codes of Practice for the welfare of the pig and the domestic fowl refer in their respective introductions to the need for responsible management and day-to-day care and note that:

> The importance of competent stockmanship in animal welfare cannot be over-emphasised and those responsible should seek expert opinion when fowls [pigs] are in ill-health. Managers are encouraged to treat their animals efficiently and with consideration.[7]

14.6 Given its importance in intensive systems there should be more than just introductory emphasis in the Codes of Practice.

14.7 Stockmanship involves stock sense (a knowledge of, rapport with and ability to observe animals) and skill in stock tasks (the practical aspects of handling, care and manipulation of animals). A good stockperson should be observant, patient, informed about animals and their needs, skilful in stock tasks, able to recognise health and disease states, and be knowledgeable about the workings of mechanised feed and water systems and environmental control equipment and the measures to take when they fail.[8]

Poultry

14.8 The Australian Veterinary Association emphasised that good stockmanship was essential to poultry welfare. The Association argued that people responsible for the care of poultry must be well-trained, experienced and dedicated. They must know and understand the normal appearance and behaviour of their flocks and the physical needs of the birds. Ignorance, inexperience or indifference can result in management practices detrimental to the welfare of poultry.[9]

14.9 Poultry researcher Dr Linda Murphy submitted that:

> The human operator - the stock person - is without doubt the single most important factor in the birds' environment influencing their welfare. People design, construct, maintain and operate (or fail to maintain and operate) the building, equipment and any outside areas where the birds live. People control the conditions of temperature, humidity, light, noise, dust and ammonia that birds are exposed to and determine the quantity and quality of feed and water they receive. People physically handle birds and have to recognise ill-health or injury. They decide whether or not to treat the birds and in what way.[10]

14.10 Some evidence received by the Committee suggested there were deficiencies in the standards of poultry stockmanship in Australia.

14.11 Dr Murphy argued that in Australia people with no practical experience or formal training in either animal or technical skills may start up a livestock production unit.[11] She suggested this was particularly serious in the layer industry because:

> ... it is up to the individual farmer. In the layer industry there is no competition. There is a wide range of levels of efficiency and management in the layer industry, and some people are content not to do so well. There is no pressure on them at the moment whatsoever to do any better.[12]

14.12 Dr Murphy noted that improvements to the standards of stockmanship could be made by having people assessed for their knowledge of birds' basic physiology, anatomy, and behaviour as well as their suitability for working with stock assessed.[13] In some European countries attention is being given to improving the skills of stockmanship. For instance, in Denmark, a potential poultry farm buyer must have certain educational qualifications.[14]

14.13 Dr Murphy also suggested that many of the alternative housing systems for poultry (e.g. aviary systems) currently being developed have tended to give inadequate attention to the needs of those who work in these systems. This may be potentially a serious problem for if the people find the environment unpleasant or awkward to work in they are unlikely to perform as efficiently and conscientiously as they otherwise might.[15]

14.14 There are many opportunities for people to learn the theoretical and practical skills which are necessary to look after poultry properly. Commercial poultry companies generally employ well-trained and experienced supervisors, provide in-house training for their own staff, and demand competence and dedication from their staff and contractors. Hatcheries and feed mills offer professional advisory and backup services for their clients. State Departments of Agriculture and Primary Industries provide advisory extension and veterinary services, husbandry courses and seminars, and technical bulletins. Several magazines covering local and overseas trends and techniques in poultry production are available by subscription to poultry farmers.

14.15 Some who gave evidence to the Committee suggested the training and support services for poultry operators was adequate.

14.16 Dr Sheldon representing Australian Federation for the Welfare of Animals told the Committee that he believed the training systems were adequate and that there were good courses available at the University of Western Sydney's Hawkesbury campus, at Gatton College in Queensland and at a variety of other agricultural colleges around Australia.[16]

14.17 Other evidence, however, suggested there was a need for improvement in some areas. The Australian Veterinary Association argued that some poultry producers, particularly those involved in smaller commercial operations were not aware of or did not take advantage of the opportunities that currently existed to improve their stockmanship.[17]

14.18 Dr Murphy suggested that the courses currently existing in poultry husbandry do not put any emphasis on stockmanship and there are no traineeships in the poultry industry. Citing the example of beak trimming she noted that the people teaching others to become beak trimmers were:

> Presumably the people already doing it. That is a good case in point: that is a procedure which can be done well and it can be done badly, and it does happen both ways. There is no-one looking over it to see how well it is done.[18]

Pigs

14.19 Evidence and research on intensive pig production stressed that as pigs are intelligent and responsive a good attitude in the stockperson is important. Industry studies of the human factors responsible for increasing the level of fear have found very strong relationships between the attitude of the stockperson towards pigs and the behaviour of the stockperson towards pigs. It is the attitude towards the pig that predominantly determines how the stockperson will behave.[19]

14.20 Research has shown that if pigs react in an adverse way to stockpersons caring for them their reproductive performance will fall.[20] Stereotypic behaviour increases when there is poor stockmanship.[21]

14.21 AFWA submitted that research in this area has been extended to the commercial situation to examine the practical implications of high levels of fear of humans by commercial pigs.

> ... In a recent study of 19 commercial farms in Australia (Hemsworth, Barnett, Coleman & Hansen, 1989) the relationships between behaviour of the stockperson towards female pigs around the time of mating, the level of fear of humans and productivity of pigs were examined. The level of fear of humans by pigs at some commercial farms was similar to the level resulting from aversive handling in controlled experiments, and this finding has serious implications for the productivity and welfare of pigs in the industry. In fact, as in a previous study (Hemsworth, Brand & Willems, 1981b), it was found that highly significant negative correlations between the level of fear of humans by sows and the reproductive performance of the farm: Sows displayed a decreased approach to the experimenter (i.e. higher fear) at farms where reproductive performance was low. These findings indicate there may be considerable potential to improve productivity and perhaps welfare in the industry by reducing the pig's level of fear of humans.[22]

14.22 Clearly there are two important components in good pig stockmanship. The first is technical skills and knowledge of the stockperson and the second aspect is stock-sense or empathy concerning the animals being managed.[23]

14.23 The Australian Pig Industry Policy Council advised in evidence that people employed in the industry received on the job training and that this was seen by everyone as an important aspect of employment. It was agreed that some people are naturally gifted in terms of stock-sense but through education most people can improve their awareness and competency in handling pigs.

Conclusion

14.24 The Committee is convinced that humane stockmanship is a key ingredient in intensive production systems and that better education and training of stockpersons are likely methods that could be employed in the future to avoid risks to welfare. There is an obvious need to continue research in this area and to develop training programs based on a deeper understanding of animal behaviour.

The Committee therefore **recommends:**

(a) that the subject of animal behaviour be recognised as an integral component of the curriculum in agricultural and veterinary colleges in Australia, especially as a component of welfare;

(b) the development of certificate training courses for stockpersons in the pig and poultry industries by Technical and Further Education and agricultural college courses;

(c) funding initiatives be developed to support skills training of stockpersons unable to gain access to formal training courses; and

(d) the Pig Industry Research Council, the Chicken Meat Research Council and the Egg Industry Research Council give greater priority to welfare-related stockmanship research.

14.25 The Committee also **recommends** that the Codes of Practice be revised to take account of advances in the understanding of the importance of stockmanship in the welfare of animals in intensive systems.

ENDNOTES

1. P.H. Hemsworth and J.L. Barnett, 'The Human-Animal Relationship and Its Importance in Pig Production', Pig News and Information, 1987, Vol. 8, No. 2, p. 133.

2. P.H. Hemsworth, J.L. Barnett and C. Hausen, 'The Influence of Handling by Humans on the Behaviour, Reproduction and Corticosteroids of Male and Female Pigs', in Applied Animal Behaviour Science, Vol. 15, 1986, p. 303.

3. ibid., p. 312.

4. Evidence, Royal Society for the Prevention of Cruelty to Animals Australia, p. 9592.

5. ibid., p. S9100.

6. Evidence, Victorian Department of Agricultural and Rural Affairs, p. 9406.

7. Australian Bureau of Animal Health, 1983, Model Code of Practice for the Welfare of Animals 1. The Pig, p. 2 and 2. Domestic Fowl, p. 2.

8. R. Ewbank, 'Animal Welfare', in Management and Welfare of Animals: The UFAW Handbook, Balliere Tindall, London, 1988, p. 8.

9. Evidence, Australian Veterinary Association, p. S8768.

10. Evidence, Dr L. Murphy, Poultry Researcher, p. S8960.

11. ibid., p. S8966.

12. ibid., p. 9548.

13. ibid.

14. ibid., p. S8966.

15. ibid.

16. Evidence, Australian Federation for the Welfare of Animals, p. 9531.

17. Evidence, Australian Veterinary Association, p. 8769.

18. Evidence, Dr L. Murphy, Poultry Researcher, p. 9549.

19. Evidence, Australian Pig Industry Policy Council, p. 9449.

20. Evidence, Australian Veterinary Association, p. 9566.

21. Evidence, Australian Pig Industry Policy Council, p. 9424.

22. Evidence, Australian Federation for the Welfare of Animals, pp. S8939-S8940.

23. Evidence, Australian Pig Industry Policy Council, p. 9448.

24. ibid., p. 9447.

25. ibid., p. 9448.

CHAPTER 15

LEGISLATION AND REGULATION

Codes of Practice and Self Regulation

15.1 All Australian States and Territories have legislation for the prevention of cruelty to animals. In addition, and in recent years, they have adopted codes of practice for the welfare of animals some of which are enshrined in law. The Police and specified officers of the RSPCA are empowered under these Acts to take action in cases of cruelty.

15.2 Strong views were expressed in this inquiry about law enforcement and self-regulation in this area. The industries believe that codes of practice as they currently exist are adequate and that self-regulation works in these industries.[1] Animal welfare organisations argue that codes should have the force of law;[2] ANZFAS arguing that the least violation be made the prima facie evidence of an offence and the onus should then be on the person who has violated it to indicate that there was no suffering caused by that violation.[3]

15.3 The existing formal codes of practice, developed in the early 1980s based on Model Codes of Practice for the Welfare of Animals, were developed after considerable discussion within the industries.

15.4 These Model Codes of Practice for the Welfare of Animals were prepared by the Sub-Committee on Animal Welfare of the Animal Health Committee within the Australian Agricultural Council system and issued by the Commonwealth Department of Primary Industry in 1983. Membership of the Sub-Committee comprised representatives from each of the State Departments with responsibility for agriculture, CSIRO, Commonwealth Department of

Health, Australian Bureau of Animal Health and other committees within the Australian Agricultural Council. The Codes were intended as models to enable the States to develop codes of practice to meet their individual needs.

15.5 These welfare codes are accepted in the industries as being the standards by which pig and poultry husbandry and post farm gate handling should be measured. The States have developed codes based on the Models. Input to the Codes was given by veterinarians working directly in these industries, government veterinarians and by other proponents working close to the industry.

Regular Review of Codes of Practice

15.6 The preface to the Codes state that recommendations are based on the knowledge and technology available at the time of publication and may need to be reviewed in the light of advances in the understanding of animal physiology and behaviour, technological changes in animal husbandry and their relationships to the welfare of animals.

15.7 The Committee **recommends** that to ensure that Codes of Practice remain relevant there should be continuing revision as appropriate and major reviews every five years to take account of technological changes in husbandry practices, include advances in the understanding of domestic fowl and pig physiology and behaviour, and to reflect prevailing community attitudes. Codes should include statements on the importance of suitable education and training in avoiding risks to welfare in intensive systems. The review process should take account of the views of the industries, industry service providers, consumer and animal welfare organisations, and specialist ethologists.

Codes of Practice and Legislation

15.8 The Committee has considered the question of enshrining all codes in law and the need for a uniform approach throughout Australia. The Committee believes that it is important to have a situation where codes may be quickly modified or upgraded and favours a situation which allows ease of amendment but which provides a legal context. The Committee believes that legislation should specify that codes must be followed.

15.9 Noting that each State and Territory Government has the responsibility to implement policies and enact and upgrade existing legislation which it thinks will best enhance animal welfare within its jurisdiction the Committee **recommends:**

(a) legislation for the prevention of cruelty to animals and other relevant Acts specify that Codes of Practice for the welfare of animals must be followed; and

(b) that State and Territory Governments around Australia develop a complementary legislative and regulatory approach to animal welfare.

ENDNOTES

1. Evidence, Australian Federation for the Welfare of Animals, pp. 9531-3 and Australian Pig Industry Policy Council p. 8799, Australian Council of Egg Production p. S8145-6, 8714, Australian Poultry Industries Association, p. 8743.

2. Evidence, Royal Society for the Prevention of Cruelty to Animals, p. 9590-1.

3. Evidence, Australian and New Zealand Federation of Animal Societies, p. 9490-1.

CHAPTER 16

CONCLUSION

Introduction

16.1 Animal welfare is of increasing relevance to the farming industry. It is vital both for the health and well-being of the animals involved, and for the financial future of the farming industry that an increasing and critical interest be taken in that mixture of economic, scientific, ethical, aesthetic and practical concepts which make up the complex subject of animal welfare, and that action be taken on the new knowledge and ideas thus gained.[1]

16.2 Animal health, well-being and productivity in intensive industries begins with the appropriateness of the constructed environment. Housing systems, fittings and appliances need to meet not only the specifications to accommodate the physiological capabilities of animals but also the specifications drawn up to recognise the effects of environmental stimuli on behavioural patterns of individual animals and groups.[2]

16.3 Economic conditions and social standards change and production systems must evolve to meet new needs. Science can be made to work as much for the benefit of the animals as for their production. High technology applied in animal husbandry need not entail negative effects. Computer controlled detection systems can assist welfare by the monitoring of animals as well as providing personalised feeding regimes; in the case of sows enabling groups as opposed to individual stalls.[3]

Standards for Husbandry Systems

16.4 However, concern about the possible impact of technological advances on farm animal well-being is valid and raises the question of standards being set for systems in commercial use. Cage systems are an obvious area requiring some sort of standards test before market release. Noting that standards are set for a range of commodities which are released onto the market the Committee **recommends** that governments with responsibility in this area develop standards for new and modified animal husbandry systems.

Activists and Ethologists

16.5 It has been very apparent during this inquiry that it is not only animal welfare activists who have been at the forefront of the concern for food animals. The animal welfare lobby has assisted the focus on the physiological and behavioural needs of farm animals but the concerns have also been agriculturally based. As Professor Egan stated in evidence:

> ... The animal welfare lobby has had a very positive and beneficial effect. It has forced along things that were drifting or that were not happening at all, and I take my hat off to it. I also take my hat off to the ethologists who, long before the animal welfare lobby existed, were saying that there is another part of animal productions systems that really has not been looked at ... These people have been the leaders of the true basis of behaviour studies and what welfare is about for 40 years and more - long before it became popular to make assumptions about what is good and what is bad. What I worry about is that animal welfare is led by people who make assumptions. One good thing that comes out of that is that it draw's people's attention to the fact that here is an assumption that needs to be addressed and laid to rest or, alternatively, taken apart so that you can analyse it for the components of it that are real as opposed to the components of it that are misguided opinions.[4]

Perceptions and Reactions

16.6 This is a very complex subject and the average person could not be expected to be well-informed on all aspects involved. As Professor C. Spedding from the Department of Agriculture, University of Reading in the United Kingdom has pointed out, in a civilised democracy we are all expected to hold views on a host of subjects about which we know very little. We are therefore open to propaganda and, in consequence, have to be suspicious of what we are told - including what we are told by scientists and, especially, about what we are told by interested parties.[5]

16.7 In these circumstances, he argues, it is easier to be certain that you are against something than that you are in favour of it. Thus members of the public may be against battery cages for hens because they perceive attributes that they dislike, disapprove of, find unacceptable or will not tolerate. "The same would be true of any one of us faced with a mistreated baby or dog. We may know nothing about either and may not know what <u>should</u> be done, but we have no doubt that what we see is wrong or unacceptable."[6]

16.8 Nor would our attitudes be affected in the slightest by any claims that we cannot <u>know</u> that anything is suffering unless some objective scientific test has been applied or some research carried out. Indeed we would be affronted most by any suggestion that we should suspend judgement until more research had been done to devise an objective test.

> ... It is because a citizen ought to have views over the whole range of activities in society, that he cannot possibly be well-informed about them all. It is thus no use expecting him to propose what is better; that is the inescapable responsibility of those concerned with production, and especially of those who benefit from it directly. Indeed, the recognition of this responsibility and its ready and recognised acceptance are almost certainly the main basis on which public trust can be built.[7]

16.9 The Committee was constantly reminded during this inquiry of the complexity of the issues and of the implications of over or under reaction. It was warned on the one hand of the dangers of the emotional response, for example, if something looks bad then it must be and it should be changed. As Dr Blackshaw warned "the trouble is if you do things on emotional grounds you may end up with something worse than what you think you have".[8]

16.10 On the other hand, the Committee was urged to recognise that on ethical grounds the current intensive confinement systems for farm animals have gone too far. As Dr Wirth, President, RSPCA Australia, warned:

> ... the issue of cruelty to animals is a matter of ethics ... The scientific people would say that unless you can prove conclusively and scientifically using various tests or procedures that a system is cruel, it is ipso facto not cruel and therefore should be allowed to continue.[9]

16.11 The problem is that all animal production systems contain elements of stress. Some of those who are concerned about welfare express the opinion that the only adequate conditions are those which exist in the wild. This argument often leads people to assume that extensive conditions are good and intensive conditions are bad for welfare. Extensive systems, and indeed the conditions in the wild, can lead to major welfare problems, for example, predation, extreme physical conditions or disease.[10] The welfare of housed animals can be good, and it is important to try to devise conditions for animals which are based on their welfare rather than on preconceived ideas about the surroundings in which they will look right.

Community Education

16.12 The Committee believes that the community should be made more aware of the problematical issues associated with welfare and intensive livestock production. It considers that the National Consultative Committee on Animal Welfare and the State and Territory Animal Welfare Advisory Committees have a role in this area.

16.13 The National Consultative Committee on Animal Welfare has an important national role to play at the Commonwealth level. Its major functions are to assess and advise on the national implications of welfare issues, the effectiveness and appropriateness of national codes of practice, and policies, guidelines and legislation to safeguard or further the welfare of animals.

National Consultative Committee on Animal Welfare

16.14 The Committee commends the Commonwealth Government for establishing the National Consultative Committee on Animal Welfare and expresses the hope that its staffing and budget resources will be sufficient for it to perform its functions effectively.

Conclusion

16.15 Animal welfare is part of the growing community concern for the environment and for the quality of life of both humans and animals. As the Commonwealth Government noted in its response to this Committee's Sheep Husbandry report:

> ... changes in our approach to the utilisation of animals are inevitable and ... it is vital for Commonwealth and State Governments, producers, scientists, animal welfare and conservation groups to work together to ensure

> that animal production remains sustainable in the face of mounting community concerns about animal welfare and conservation and protection of the environment.[11]

16.16 The Committee endorses this view and hopes that this report assists in turning what has become a polarised debate into a harmonised approach to the welfare problems in intensive livestock production.

A.R. Devlin

Senator A.R. Devlin
Chairman

ENDNOTES

1. R. Ewbank, 'Animal Welfare', Management and Welfare of Farm Animals, The UFAW Handbook, Bailliere Tindall, London, 1988, p. 11.

2. Evidence, Professor A.R. Egan and Dr G.D. Hutson,p. S8928.

3. Dr G. van Putten, 'Technical Developments, Ethical Considerations and Behavioural Problems' in Farm Animal Protection - The Practical Way Forward, Proceedings of the Fourth European Conference on the Protection of Farm Animals, 1988, pp. 20-21.

4. Evidence, Professor Egan, University of Melbourne, p. 9512.

5. Professor C. Spedding, Department of Agriculture, University of Reading, 'Marketing the Welfare Label: Meeting Needs and Demand', in Farm Animal Welfare - The Practical Way Forward, op. cit., p. 37.

6. ibid.

7. ibid.

8. Evidence, Dr Blackshaw, University of Queensland, p. 6863.

9. Evidence, Royal Society for the Prevention of Cruelty to Animals Australia, p. 9599.

10. D.M. Broom, 'The Scientific Assessment of Animal Welfare', in Applied Animal Behaviour Science, 20 (1988) Amsterdam, p. 15.

11. 'Government's Response to the Report of the Senate Select Committee on Animal Welfare on Sheep Husbandry', tabled in the Senate 10 May 1990, p. 2.

APPENDIX 1.

LIST OF WITNESSES WHO APPEARED BEFORE THE COMMITTEE
(Intensive Livestock Production)

Animal Liberation Tasmania Inc.
Represented by: Mrs Pamela Clarke, President

Australian and New Zealand Federation of Animal Societies Inc.
Represented by: Professor P.A.D. Singer, Vice-President
Dr J.H. Auty, Honorary Technical Adviser

Australian Bureau of Animal Health
Represented by: Mr R.W. Gee, Director
Dr H.R.C. Meischke, Acting Principal Veterinary Officer, Special Projects
Mr J.H. Auty, Acting Assisstant Director
Mr B.L. Moore, Acting Senior Veterinary Officer, Animal Welfare

Australian Council of Egg Producers
Represented by: Mr G.D. Stewart, Councillor
Dr V.G. Kite, Executive Officer, Egg Producers Section, New South Wales Farmers Association
Mr N. Holland, Chairman
Mr H. McMaster, Executive Officer

Australian Federation for the Welfare of Animals
Represented by: Dr G. Alexander, Convener
Dr B.L. Sheldon, President of Member Group

Australian Pig Industry Policy Council
Represented by: Mr G.T. Hope, Chairman, Pig Research Council
Dr J.L. Barnett, Scientific Adviser
Dr J.K. Blackshaw, Scientific Adviser
Mr P.M. Brechin, Spokesperson on Animal Welfare
Dr P.H. Hemsworth, Scientific Adviser
Mr C.G. Winfield, Scientific Adviser

Australian Poultry Industries Association
Represented by: Dr E.E. Best, Committee Member
Dr J.G. Fairbrother, Executive Director
Dr R.K. Ryan, Committee Member

Australian Veterinary Association Ltd.
Represented by: Dr J.B. Smith, Honorary Secretary
Mr I.G. Bell
Mrs R. Cobb
Dr P.T. Gilchrist
Dr J.M. Holder, Member
Dr R.E. Johnston, Member

CSIRO Division of Animal Production, New South Wales
Represented by: Dr B.L. Sheldon, Chief Research Scientist

Department of Agriculture and Rural Affairs (Victoria)
Represented by: Dr P.J. Penson, Acting Director, Bureau of Animal Welfare
Dr T.R. Thomas, Senior Veterinary Officer, Bureau of Animal Welfare
Dr R.S. Cutler, Senior Veterinary Officer (Pigs)
Mr D.A. Treacy, Statewide Industry Officer (Pigs)
Mr L.A. Miller, Statewide Industry Officer (Poultry)
Mr S.B. Field, Principal Policy Analyst (Intensive Livestock)

Murphy, Dr L.B., Poultry Researcher, Camp Hill, Queensland

National Farmers Federation
Represented by: Mr J.R. MacNamara, Director, Public Relations
Dr A. Bos, Research Officer
Mr N.L. Holland, Producer Representative

New South Wales Agriculture and Fisheries
Represented by: Mr B.P. Healy, Acting Principal Veterinary Officer
Mr R.N. Macindoe, Assistant Principal Livestock Officer, Poultry
Mr G.I. Poole, District Poultry Adviser
Mr I.J. Roth, Special Veterinary Officer, Poultry
Mr F.V. Badham, Principal Livestock Officer (Intensive Livestock)
Mr P. Hassab, District Livestock Officer (Pigs)
Mr W.T. Kirsop, Assistant Principal Livestock Officer (Pigs)
Miss S.B. Walker, Acting Special Veterinary Officer (Pig Health)

Pig Research Council
Represented by: Dr J.M. Holder

Royal Society for the Prevention of Cruelty to Animals (Australia)
Represented by: Dr H.J. Wirth, President
Mr C. Wright, Executive Director

Royal Society for the Prevention of Cruelty to Animals (Tasmania)
Represented by: Mr. A.H. Stacey, State President
Mr W.L. Jones, Inspector
Mrs J.K. Trent, Executive Officer, Northern Tasmania Division

Royal Society for the Prevention of Cruelty to Animals (Victoria)
Represented by: Dr H.J. Wirth, President
Mr P.J. Barber, State Director

South Australian Department of Agriculture
Represented by: Dr K.J. Dobson, Principal Veterinary Officer, Epidemiology and Preventative Medicine
Mr R.C. Woolford, Senior Livestock Officer, Poultry Production
Dr P. Glatz, Senior Research Officer, Poultry Production

Tasmanian Department of Agriculture
Represented by: Dr A.N. Smith, Director
Mr A.L. Jones, Agricultural Officer
Mr J.T. Bruce, Agricultural Officer
Mr F.B. Ryan, Chief Veterinary Officer
Mr P. Banks, Agricultural Officer for Intensive Animal Industries (Pigs and Poultry)

Tasmanian Poultry Producers Association
Represented by: Mr H.M. Houston, Member
Mr G. Wilson, Member
Mr J. Groenewold, Vice-President

University of Melbourne
Represented by: Professor A.R. Egan, Professor of Agriculture in Animal Science, School of Agriculture and Forestry
Dr G.D. Hutson, Senior Research Fellow, School of Agriculture and Forestry

University of Queensland

Represented by: Dr J.K. Blackshaw, Lecturer in Animal Behaviour, Department of Animal Sciences and Production

Western Australian Department of Agriculture

Represented by: Dr R.J. Lightfoot, Chief, Division of Animal Production

Dr N. Monzu, Entomologist

Dr G.J. Sawyer, Research Officer, Cattle Branch

Mr P. Smetana, Principal Officer, Intensive Industries Branch

ESTABLISHMENTS AND PROPERTIES FORMALLY INSPECTED

Egg production

G. Tscharke, Greenock, South Australia
- caged layers

C. Grieger, Sedan, South Australia
- free-range egg production

R.Macalister, Evanston, South Australia
- semi-intensive deep litter

A.& P. Schembri, Vineyard, New South Wales
- free range egg production

P.& M. Gely, Quaker's Hill, New Wouth Wales
- caged layers

R. Weiner and R.& B. Woods, Badgery's Creek, New South Wales
- caged layers and beak trimming

N.& R. Kolovos, Rossmore, New South Wales
- caged layers

Parkwood Eggs Pty Ltd, Australian Capital Territory
- caged layers

Chicken meat production

K. Watson, The Oaks, New South Wales
- broiler chicken production

Eurunderee Processing Plant, Castle Hill, New South Wales
- meat chicken processing

Pig Production

Commercial Pig Company, Huntly Farms, Huntly, Victoria
- intensive

Mr Tom Smith, Yarrawalla, Yarrawalla, Victoria
- intensive

Mr Glen Miles, Yarrawalla, Victoria
- semi-extensive

C. Barnett, Narromine, New South Wales
- intensive

J. Knaggs, Dubbo, New South Wales
- intensive

Australian and New Zealand Federation of Animal Societies
Recommendations on Intensive Egg, Chicken Meat
and Pig Production

Cage Layers

1 Recommendations

This submission demonstrates by several different criteria that cages cause stress to hens. In light of this conclusion, it is recommended that the following be provided by statute:

1) All cages and debeaking to be phased out over a 5 year period.

2) All hens to have access to an outside run within 10 years. In the interim hens may be housed indoors on litter.

3) Breeding to be commenced immediately for a quieter hen to reverse the trend towards greater aggressiveness which has resulted from breeding purely for productivity.

4) In the interim period until free range farming is introduced, the stocking density for hens housed permanently indoors not to exceed 3 birds per square metre.

   - All hens to have access to litter, whether straw, sawdust earth, or other suitable material.
   - Sheds must be adequately ventilated to prevent high levels of dust and ammonia.
   - Sheds must have adequate insulation to prevent heat stress in pens.

5) Once free range farming is introduced, all hens to have a space allowance of at least 10 square metres per bird. This allowance can be subdivided for the purposes of rotating the usage of the land, so that a hen does not need to have constant access to the full 10 square metres.

   - hens runs must be protected by adequate measures from predators at all times.
   - the run must include an area providing shelter from the elements and extremes of temperatures.

6) Outdoor space must be managed so that growing, palatable green feed is available, climatic conditions permitting.

7) In both the interim indoor housing and outdoor runs:

   - All hens to have access to laying boxes.
   - All hens to have access to perches for roosting and escaping from aggressors. Perches to be constructed to prevent birds from being soiled with excrement, especially in the interim indoor housing.

8) All hens must have a minimum of 8 hours darkness.

9) No force moulting is to be conducted, although moulting may be induced by a method which can be shown not to be detrimental to the hens.

10) Research into alternative systems must be undertaken, in a way which promotes both their commercial viability and the welfare of hens.

11) Agricultural colleges must institute courses in free range and non-caged indoor systems, emphasizing the husbandry skills necessary to ensure the welfare of the hens under these conditions.

12) During the 10 year period until free range farming is universally adopted, all eggs must be labelled to indicate their production method so that consumers have a clear choice.

Broiler Chickens

1 Recommendations

This submission will demonstrate that current husbandry practices result in widespread physical and behavioural problems among broiler chickens. In light of this conclusion, it is recommended that the following be provided by statute:

1) The stocking density in sheds to be immediately reduced to 0.28 sq.m/2 kg, that is, no more than 4 birds/sq. m at market weight.

2) While birds are kept in sheds, lighting to be intermittent with a minimum intensity of 50 lux to encourage activity and allow adequate inspections.

3) Within 5 years all chickens beyond brooding age to have constant access to an outside run, allowing at least 10 sq.m/3 birds at market weight. Runs to be capable of supplying continuous palatable green feed, climatic conditions permitting, and to have adequate surface drainage.

4) All chickens to have adequate shelter from the elements and to be protected from predators at all times.

5) Breeding stock to be selected to produce a physiologically and structurally sound bird, rather than one primarily selected to produce a maximum growth rate.

6) No medicated feed to be used, unless under veterinary supervision and for the purpose of controlling an outbreak of disease.

7) Chickens to be fed a varied diet, including green feed, to produce weight increases capable of being supported by the skeletal system.

Pigs

1 Recommendations

This submission will demonstrate that by several different criteria close confinement causes stress to pigs. In light of this conclusion, it is recommended that the following be provided by statute:

1) No further construction of dry sow stalls to be permitted.
2) Tethering to be banned immediately.
3) Dry sows stalls to be phased out over a period of 5 years.
4) Wire cages for piglets to be phased out over a period of 5 years.
5) Farrowing crates to be phased out within 5 years, and research to be undertaken immediately into humane alternatives.
6) Within a maximum of 5 years, all pigs to have access to an outdoor run adequate to satisfy physical and behavioural needs.
7) Educational material and courses to be provided for farmers to produce the level of stockmanship required for loose housing of animals.
8) All pigs to have access to appropriate rooting materials.
9) All pigs to have sufficient bedding to provide comfort and to protect them from physical injury.
10) All farrowing sows to have access to nesting material.
11) All pigs to live with others of their species in stable social groups in such a manner as to permit continuing physical contact.
12) The lying area available to each adult pig to be no less than 3sq m, with no less than 1sq m for each growing pig.
13) Minimum feed requirements for pigs of different body weights should be stipulated, including not only nutrient requirements, but also the bulk to satisfy feeding motivation.
14) Suitable feeding arrangements to be made to limit food competition.
15) All pigs to be protected from predators, extremes of temperature and the elements.
16) Castration, teeth clipping, ear notching and tail docking of piglets to be prohibited. Tail biting and nibbling of the sow's belly and litter mates, are essentially management problems and should be treated as such. (See the ANZFAS submission on *Livestock Mutilations* for further discussion).

AUSTRALIAN FEDERATION FOR THE WELFARE OF ANIMALS

Membership Groups to Council Meeting 13 April, 1989

1 **Primary Producers**

1 Australian Association of Stud Merino Breeders
1 Australian Bloodhorse Breeders' Association Ltd
1 Australian Bond Sheep Breeders' Association Ltd
1 Australian Brahman Breeders' Association Ltd
1 Australian Brangus Cattle Association
1 Australian Cashmere Grower Association Region 24
1 Australian Chicken-Growers Council
1 Australian Deer Breeders Federation
1 Australian Meat & Livestock Research & Development Corporation
1 Australian Merino Society Inc.
1 Australian Milking Zebu Breed Society
1 Australian Perendale Association Inc.
1 Australian Pig Breeders Society
1 Australian Poll Dorset Association Inc.
1 Australian Society of Breeders of British Sheep Ltd
1 Bombala Pastures Protection Board
1 Bowna-Wymah Progress Association
1 Braidwood Pastures Protection Board
1 British White Cattle Society of Australia
1 Carcoar Pastures Protection Board
1 Cattlemen's Union of Australia
1 Corowa Pastures Protection Board
1 D.S. Stevens & Associates Pty Ltd
1 Dairy Goat Society Of Australia (NSW Branch)
1 Denman Singleton Pastures Protection Board
1 Droughtmaster Stud Breeders' Society Ltd
1 Galloway Cattle Society of Australia (Northern Branch)
1 Gunningrah Pastoral Company
1 Hume Pastures Protection Board
1 Mt Fyans Partnership
1 NSW Dairy Farmers Association
1 NSW Farmers Association (Dalgety Branch)
1 NSW Jersey Herd Society
1 National Farmers Federation
1 Northern Territory Cattlemen's Association Inc.
1 South Australian Stud Beef Cattle Breeders Association
1 Victorian Farmers Federation (Horsham South Branch)

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2. Research Scientists

2 Agropraisals Pty Ltd
2 Australasian Society for the Study of Animal Behaviour Inc.
2 Australian Koala Foundation Inc.
2 Australian Nulclear Science & Technology Organisation
2 Australian Society for Reproductive Biology
2 Australian Wool Corporation
2 Biotechnology Australia Pty Ltd
2 CSIRO Officers Association
2 Garvan Institute of Medical Research
2 La Trobe University Dept Zoology
2 Monoclonal Australia Ltd
2 Nutrition Society of Australia
2 Prospect Animal Production Research Group
2 Royal Children's Hospital
2 University of Adelaide Dept of Physiology

3 Educationists

3 Capricornia Institute of Advanced Education Dept Biology
3 Darling Downs Institute of Advanced Education School Applied Science
3 Monash University Dept Physiology
3 Queensland Agricultural College
3 Riverina Murray Institute of Higher Education
3 University of Queensland
3 University of Queensland Veterinary Student's Association

4 Commercial Support Groups

4 Agricultural Technologists of Australasia
4 Bayer Australia Ltd
4 Ciba Geigy Australia Ltd Research Centre
4 Coopers Animal Health Australia Ltd
4 Elanco Products Co.
4 Elders Pastoral (A Division of Elders IXL Ltd)
4 Pet Industry Joint Advisory Council
4 Pfizer Agricare Pty Ltd
4 Smithkline Animal Health Products
4 Syntex Animal Health

5 Processors & Retailers

5 Fur Council of Australia
5 Kangaroo Industries Association of Australia
5 NSW Meat Industry Authority

AUSTRALIAN FEDERATION FOR THE WELFARE OF ANIMALS

Associate member groups to Council Meeting 13 April, 1989

1 Country Women's Association of NSW
1 Yass Pastures Protection Board
2 Centre for Early Human Development
2 Clinical Oncological Society of Australia
6 Australian Bowhunters Association
6 Australian Deer Association
6 Circus Federation of Australia

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AUSTRALIAN VETERINARY ASSOCIATION

Welfare Aspects of the Australian Poultry Industry

1. SUMMARY AND GENERAL RECOMMENDATIONS

1.1 Poultry are kept principally for food production. Advances in farming practices and technology have resulted in poultry meat and eggs becoming regular, affordable and nutritious components of the diet of most Australians.

1.2 People working with commercial poultry have a duty to produce quality, economical food for our community. They also have an obligation to care for the welfare of poultry in line with our society's attitudes. **Animal welfare and human needs must be considered at the same time, and policies on each must be complementary, not detrimental, to the other.** We believe that this balanced approach is practical and achievable.

1.3 **The commercial poultry industry has made substantial contributions to improving bird welfare over recent decades, particularly in the areas of husbandry, health, housing and nutrition. However, further improvements are warranted.** Certain management practices (disposal of day-old chicks, stocking densities, cage housing, moulting, beak-trimming, transport) require critical re-assessment and improvement where necessary. The overall standard of husbandry and facilities on some poultry farms needs upgrading.

1.4 **More research is needed to define specific welfare needs of poultry in the above mentioned areas.** Until more facts on the welfare aspects of these issues are available, purely anthropomorphic, aesthetic or economic judgements should be avoided.

1.5 **Before being introduced, new technology, equipment and management practices should be carefully and critically examined from a welfare viewpoint and if necessary modified or rejected.** Responsibility for these matters should be assumed by both poultry producers and State governments. The veterinary profession has played and can continue to play an important role in improving poultry welfare.

1.6 **Good stockmanship is the key element in poultry welfare.** People looking after poultry must be well-trained, experienced and dedicated. Poultry management and husbandry performed expedientially, perfunctorily or in ignorance can result in practices detrimental to welfare.

1.7 **Health and welfare are closely linked.** Any bird which is sick is suffering, and many infectious diseases can cause illness and death amongst poultry. Therefore, in the welfare interests of the birds, every endeavour must be made to maintain good health. Good standards of hygiene and quarantine should be routinely practised; all-in, all-out housing systems should be encouraged; appropriate safe and effective vaccines and medications should be used. Impending disease outbreaks must be quickly recognised and promptly rectified. Individual sick or injured birds which cannot be successfully treated should be humanely euthanased. Research efforts into disease control should be maintained. Veterinary advice on disease control must always be sought and followed.

1.8 Different housing systems provide welfare advantages and disadvantages. There is no one ideal system. However, **well-designed and correctly used intensive systems which house birds on the floor satisfactorily cater to the overall welfare needs of poultry. The welfare concerns associated with cages must be carefully assessed and addressed. Satisfactory improvements to or alternatives to current cage systems should be sought and promoted.**

1.9 **We recognise that procedures such as beak-trimming cause temporary pain, but are often essential in order to minimise prolonged suffering due to cannibalism.** Such procedures should only be carried out if they serve the long-term welfare interests of the birds. They must be performed by competent people.

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1.10 We believe that moult inducement is an acceptable management tool *provided* causes minimal stress. **Moulting practices which deprive birds of food or water for excessive periods cannot be justified on welfare grounds and must not be practised.**

1.11 **Methods of slaughter and culling of poultry must not cause pain and must ensure death.**

1.12 **The poultry welfare Codes of Practice must be regularly reviewed and updated**, to ensure that they are relevant to current industry practices, include new knowledge, and reflect prevailing community attitudes. The review process should include representations from governments, the poultry industry, consumer and animal welfare organisations, and specialist ethologists. The Codes should be extended to include domestic game birds and waterfowl. All matters relating to poultry welfare should be combined into one document.

1.13 **The principles and procedures contained in the Codes of Practice must be adopted by *everyone* who keeps poultry.** To achieve this, the Codes should be widely publicised so they are brought to the attention of and are well understood by the commercial poultry industry, hobby farmers and the general public alike. This promotion is best performed by Government extension services in conjunction with poultry companies and private veterinarians.

1.14 **Self-regulation is desirable.** However, as some poultry owners may fail to comply with certain recommendations, **legislative backup to provide for enforcement of welfare codes may be warranted.**

1.15 **Poultry companies must ensure that their research and development practices comply with the provisions of Animal Research Acts.**

1.16 **Current egg production and marketing policies and practices in all States and Territories should be reviewed to ensure that producers are not encouraged to engage in management practices which are detrimental to the welfare of their birds.**

1.17 We believe that **bird performance parameters (such as egg production and livability) correlate closely with welfare, and at present are the best available indicators of how well the *overall* welfare needs of poultry are being met.** On the other hand, least-cost production parameters (such as cents per egg or per kilogram) may be in opposition to good welfare practice. **Welfare must not be compromised for cost saving.**

1.18 How we use animals for the benefit of our community involves ethical decisions which should be made by an enlightened society, not by one or other small sectors which have special or personal interests. **Proposed changes to current farming practices should reflect the attitude of a well-informed general public. Such changes should be embraced by the poultry industry with good grace; the industry should not isolate itself from public opinion.** The industry should be able to pass on to the consumer any reasonable increase in production costs which may result, and the public should equally accept this.

1.19 **The Australian Veterinary Poultry Association**, a special interest group of the Australian Veterinary Association comprising veterinarians, scientists, microbiologists, agriculturalists, educators, pathologists, geneticists and nutritionists in public and private employment and with a special interest and expertise in poultry, **is in a unique position to advise on poultry welfare.** Our academic training and professional ethics allow us to understand poultry welfare; our industry contact and experience assist us to marry this in a practical way with the production and economic aims of the poultry industry; as members of society, we can perceive and appreciate the needs of the consuming public. **We are able to present an ethical, scientific, practical and balanced view which contributes positively towards poultry welfare.**

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WELFARE ASPECTS OF THE AUSTRALIAN PIG INDUSTRY

Statement of position by the Australian Veterinary Association (AVA)

Summary

1. Veterinarians have been involved with the Australian pig industry for well over 100 years, first in regulatory matters related to control of disease outbreaks, now currently in day-to-day contact with piggeries in matters of production, disease prevention and treatment. It is estimated that over 50% of all pigs produced come from piggeries with direct veterinary involvement.

2. There are approximately 8,500 units in Australia producing pigs but it is estimated that less than 1% of these produce approx. 45% of all pigs.

3. Codes of Practice developed for the housing and husbandry of pigs are accepted as being the standards by which pig husbandry should be measured. Similar codes for transport of pigs and their handling at abattoirs are generally acceptable to veterinarians but it is recommended that more emphasis should be placed on educating transport operators and abattoir workers in their handling of pigs.

4. Minor surgical procedures used within the pig industry are necessary and justified. Veterinarians believe that stress involved in such procedures is transient but there is an obligation for operators to be skilled in their methods.

5. Matters related to the welfare of the housed pig and particularly the breeding sow are extensively addressed. Veterinarians consider that confinement systems of housing pigs are likely to be more conducive to good pig welfare than rearing in outside systems.

6. Within confinement systems the balance of evidence appears to be that housing of sows in groups, provided individual feeding stalls are also available, may slightly improve welfare relative to that of sows housed in stalls or stalls with neck tethers. The evidence that tethering of pregnant sows is harmful to their welfare relative to those in complete stalls in seen as equivocal.

   Whatever the system of housing imposed it is the skill of the stockpersons using the system which ensures the welfare of the animal. Neck tethering of sows requires a high standard of stock management.

7. The use of antimicrobial substances in the pig industry has great potential for maintaining the welfare of pigs but the abuse of product can adversely affect welfare. Wherever possible veterinarians should be involved in all decisions on the use of antimicrobial substances.

   It is stressed that veterinarians, particularly those directly involved with the industry, have particular skills which can and should be used to the benefit of the industry and the welfare of the animals in its control.

Royal Society for the Prevention of Cruelty to Animals Australia - Policy Statement

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FACTORS INFLUENCING THE WELFARE OF ANIMALS SUBJECTED TO INTENSIVE ANIMAL SYSTEMS

Preamble

1. For the purpose of this paper, an Intensive Animal Husbandry System is defined as one where the animals involved are housed for all, or a substantial part, of their rearing and/or productive lives.

2. RSPCA Australia believes that there is no single animal husbandry index which can forecast or judge a particular production system as meeting all the welfare needs of the animals subjected to it. This paper attempts to identify all those husbandry factors which, if collectively implemented at a high standard, should ensure that all animal welfare requirements for an intensive system are met. Good animal husbandry procedures (in the broadest definition) usually mean good animal welfare standards.

3. No attempt is made here to define or qualify the various animal husbandry requirements mentioned in the paper. The various National Codes of Accepted Farming Practice should be consulted for this purpose.

4. It should be observed that RSPCA Australia is fundamentally concerned about the welfare of animals and not their productivity. In some cases animal welfare will complement productivity whilst in others improved productivity will lead to the deterioration in proper animal welfare standards.

Housing and Associated Facilities

1. There are three factors influencing the welfare of animals which would justify housing them for part or whole of the year:

RSPCA Australia can accept that housing of some animals may be necessary under certain conditions, but is opposed to the intensive farming of any species simply on the basis of increased productivity. Where housing is not indicated for any of the animal welfare reasons mentioned above, it should not be permitted except in the cases of provision of temporary protection from the elements at particular times of the year, such as winter lambing, where shelter from the wind may be necessary.

APPENDIX 7.

MODEL CODE OF PRACTICE FOR THE WELFARE OF ANIMALS

2. THE DOMESTIC FOWL

Issued by the Australian Bureau of Animal Health

1983

CONTENTS

PREFACE

This Model Code of Practice for the Welfare of Animals has been prepared by the Sub-Committee on Animal Welfare (SCAW) of the Animal Health Committee within the Australian Agricultural Council (AAC) system.

Membership of SCAW comprises representatives from each of the State Departments with responsibility for agriculture, CSIRO, Commonwealth Department of Health, Australian Bureau of Animal Health and other committees within the AAC.

The Code is intended as a model to enable the States to develop codes of practice to meet their individual needs.

This Model Code was endorsed by Australian Agricultural Council at its 116th meeting (Sydney, February 1983) for consideration by States in consultation with their industries.

The Model Code may be revised to take account of advances in the understanding of animal physiology and behaviour, technological changes in animal husbandry and their relationship to the welfare of animals.

This Model Code has been issued by:

Australian Bureau of Animal Health
Department of Primary Industry
CANBERRA ACT 2600

INTRODUCTION

This Code of Practice is intended as a guide for people responsible for the welfare and husbandry of the domestic fowl (Gallus gallus). It recognises that the basic requirement for welfare of poultry is a husbandry system appropriate to their physiological and behavioural needs. The basic needs of fowls are:

- readily accessible food and water to maintain health and vigour;
- freedom of movement to stand, stretch and lie down;
- visual contact with other fowls;
- accommodation which provides protection from the weather and which neither harms nor causes distress;
- rapid identification and treatment of vice, injury and disease.

The Code emphasises that, whatever the form of husbandry, managers and others responsible for the day-to-day needs of domestic fowls have a responsibility to care for animals under their control.

The importance of competent stockmanship in animal welfare cannot be over-emphasised and those responsible should seek expert opinion when fowls are in ill-health. Managers are encouraged to treat their animals efficiently and with consideration.

Assistance with the establishment of poultry farms and advice on the management of fowls can be obtained from qualified advisers in private or government employment.

This Code is based on the knowledge and technology available at the time of publication and may need to be varied in the light of future knowledge. It does not replace the need for experience and commonsense in the husbandry of the domestic fowl.

ACCOMMODATION

1. Floors and Other Surfaces

Floors and other surfaces should be designed, constructed and maintained so as to minimise the risk of injury and disease, and adequately support fowls so that they can stand and move freely.

Deep litter floors should be checked frequently for dryness and friability. When litter is caked, wet, or excessively dusty the problem should be rectified.

2. Housing

Advice on welfare aspects should be sought when new buildings are to be constructed or existing buildings modified. Such advice is available from qualified advisers in private practice or Government employment.

Nest boxes and roosting areas should be easily accessible and should not be so high above the floor level that birds can be injured when ascending or descending.

In cages, fowls should be able to stand at normal height. Layer cages should be at least 40 cm high if the fowls cannot extend their heads through the top.

Cage doors should be of sufficient size to allow fowls to be placed in cages or removed without injury.

Multi-deck cages should be arranged so that fowls in the lower tiers are protected from excreta from above.

Nest litter should be changed regularly so as to be clean, dry, friable and moisture absorbent.

3. Space

It is recommended that stocking density be periodically reviewed and adjusted, having regard to age, breed, strain and type of fowl, colony size, temperature, ventilation, lighting, quality of housing and occurrence of disease and cannibalism.

Maximum stocking densities for fowls are presented in Appendix 1.

4. Equipment

All equipment to which fowls have access should be designed and maintained so as to avoid either injury or pain.

Feeders and waterers should be checked for efficient operation at least once each day.

Automated hatchery equipment should have adequate back-up systems.

5. Lighting

Young chicks reared away from the hen require a light intensity of about 40 lux on the food and water for the first three days after hatching in order to learn to find food and water. It may then be reduced to as low as 2 lux during rearing.

During inspection of fowls a light intensity of at least 10 lux at bird level is required.

Where young fowls are housed in enclosed sheds using continuous light, a "blackout" training period of one hour in total in each 24 hours is recommended to prevent panic should lighting fail.

Where fowls do not have access to daylight they should be given lighting over a period of at least 8 hours per day. Photoperiods in excess of 20 hours per day may be detrimental to the laying fowl and should be discouraged.

6. Ventilation

Ventilation is required at all times to provide fresh air and prevent accumulation of water vapour, heat, ammonia, hydrogen sulphide, carbon dioxide, carbon monoxide and dust particles. Consideration should be given to the use of dust filters where air is recirculated in poultry houses.

The presence of ammonia is usually a reliable indicator of the build-up of noxious gases; it should not be allowed to exceed 20 parts per million (ppm) of air measured at bird level in enclosed buildings without immediate corrective action being taken. (A level of 10 to 15 ppm of ammonia in the air can be detected by smell. An ammonia level of from 25 to 35 ppm will cause eye and nasal irritation in man).

If stocking density on deep litter exceeds 28 kg/m^2 in summer months and 32 kg/m^2 in winter months mechanical air movement is essential. In force-ventilated sheds assisted ventilation should be capable of moving up to 4.6 m^3 air/hour/kg liveweight during summer months with an optimum velocity of air movement past the bird of 0.25 to 1.0 m/second.

Force-ventilated sheds should have automatic alarm systems to warn of power failure. A back-up alarm system to warn of temperature increase in such sheds is also essential and should operate through an alternative circuit to the power failure alarm system. In fan-ventilated sheds emergency ventilation provisions should be available.

7. Temperature

(a) Young Chickens (day-old to five weeks)

Newly-hatched chicks have a poor ability to control body temperature and so they require supplementary heat to bring their environmental temperature up to the comfort temperature range of 28^{o} - $32^{o}C$ as evidenced by alert and active behaviour.

Supplementary heat may be required for up to 5 weeks of age. Chick behaviour is the best indicator of comfort and whether insufficient or excessive heating is being provided.

(b) Growing and Adult Fowls

Fowls should be protected from draughts during cold weather and from direct sunlight during hot weather.

Adequate precautions should be taken to relieve stress produced by temperatures high enough to cause prolonged panting, particularly when a high temperature is accompanied by high humidity. Under such conditions fowls find it difficult to maintain normal body temperature. In hot weather provision of adequate cool water and ventilation is essential. Where high temperatures are causing distress foggers, roof sprinklers, fans or other systems should be used to control heat build-up within buildings.

It is essential that no stocking density or other constraining practice be allowed to prevent fowls adopting behaviour to facilitate body heat loss in hot weather, such as panting, vibrating the floor of the mouth cavity ("gular flutter") standing erect with wings held away from the body and raising of the scapular feathers.

The construction and positioning of nest boxes should be such that they do not become heat traps.

8. Protection

Fowls should be protected from predators and, if necessary, other fowls.

Poultry accommodation should be sited so as to be safe from the effects of fires and floods.

Fire-fighting equipment should be available to all fowl houses, e.g. fire hoses should be capable of delivering water of sufficient volume and pressure to control a fire in any building or part of any building.

When planning new buildings, consideration should be given to the use of construction materials with a high fire resistance, and all electrical and fuel installations should be planned and fitted so as to minimise the fire risk.

New buildings in which birds are housed should incorporate sufficient exits to allow for emergency evacuation of the building.

FOOD AND WATER

1. Food

Fowls, other than newly-hatched chicks, should have access to food at least once each 24 hours with the exception of induced moulting and feeding regimes to control obesity (see Appendix 2). The period for newly-hatched chicks may be extended to not more than 72 hours.

Fowls should receive a diet containing adequate nutrients to meet their requirements for good health and vitality. Fowls should not be provided with food that is deleterious to their health.

Medicated food should only be used on competent professional advice as the overuse or mixing of medicaments, or the medicament itself, may cause toxic injury.

When using mechanical systems for delivery of food alternative methods of feeding should be available. There should be enough food on hand, or ready means of obtaining food, in the event of failure of supply.

A trough length of at least 10 cm per adult bird should be provided to enable each bird in a cage to feed at the same time.

2. Water

Fowls should be provided with sufficient drinkable water to meet their physiological requirements. Water should be cool in summer. Newly-hatched chicks require water within 72 hours otherwise dehydration may become irreversible.

Under no circumstances should fowls other than newly-hatched chicks be deprived of water for more than 24 hours. Newly-hatched chickens require water within 72 hours.

Water which is stale, contaminated or deleterious to health should not be provided.

Medicated water should only be used on competent professional advice as the overuse or mixing of medicaments, or the medicament itself, may cause toxic injury.

A minimum of one day's calculated water requirements should be available in storage or auxiliary supply in case of breaks, repairs or failure of pumping equipment.

When a poultry enterprise is first established, or when a new water source is obtained, the water should be tested for salt content and microbiological contamination and advice obtained on its suitability for poultry. As the composition of water from bores, dams or water holes may change with changes in flow or evaporation, the water may require more frequent monitoring for suitability for fowls. Information on water testing can be obtained from the local office of the Department of Agriculture.

A water channel of at least 10 cm per adult bird or not less than two nipple drinkers or drinking cups should be provided within reach of each cage.

HEALTH

Those responsible for the care of domestic fowls should be aware of the signs of ill-health. Signs of ill-health in fowls include reduced food and water intake, reduced production, changes in the nature and level of their activity, abnormal condition of the feathers or droppings, or other physical features. If the person in charge is not able to identify the causes and correct them, he should seek advice from those having training and experience in such matters. Such persons may be specialist poultry veterinarians or other qualified advisers in private or Government employment.

Poultry producers should also operate an effective programme to prevent infectious disease and internal and external parasitism. Vaccinations and other treatments applied to poultry should be undertaken by people skilled in the procedures.

When an outbreak of feather picking or cannibalism occurs, or an outbreak appears imminent, environmental factors that may aggravate it should be examined and appropriate adjustments made, such as reducing the stocking density, light intensity, temperature, humidity or disturbances to the pecking order; removing birds with traumatic injuries; removing fowls observed to be instigating pecking, or eliminating shafts of bright sunlight.

Dead birds should be removed and disposed of promptly and hygienically. Records of mortalities, treatment given and response to treatment should be maintained to assist disease investigations.

Fowls with an incurable sickness or a painful deformity should be removed from the flock and humanely destroyed as soon as possible.

Premises and equipment should be thoroughly cleaned and, where required, disinfected at suitable times, (e.g. before restocking) to control the carry-over of disease-causing organisms to incoming batches.

INSPECTIONS

The frequency and level of inspection should be related to the likelihood of risk to the welfare of fowls, but should be at least once each day. Inspections are best made at feeding times. Under certain circumstances more frequent inspections may be required, such as during hot weather or during outbreaks of disease or cannibalism. Checks should also be made of the effectiveness of any automated feeding or watering systems where these have been installed.

Where cages are installed in multiple tiers it should be possible to easily and routinely inspect birds in all tiers.

Fowls should be checked regularly for evidence of internal and external parasites and effective treatment should be instituted according to the manufacturer's directions.

HATCHERY MANAGEMENT

Culled or surplus chicks awaiting disposal should be treated as humanely as those intended for retention or sale. They should be removed and humanely destroyed as soon as possible.

Hatchery waste, including unhatched embryos, should be treated quickly and effectively to ensure their rapid destruction.

Chicks should be brooded within 72 hours of hatching. Weak, deformed and unthrifty chickens should be culled and destroyed humanely.

Chicks in brooders should be inspected at least twice every 24 hours and action taken to correct deficiencies in husbandry as they occur.

APPENDIX 1

MAXIMUM RECOMMENDED STOCKING DENSITIES FOR DOMESTIC FOWLS ACCORDING TO HOUSING TYPE UNDER GOOD MANAGEMENT CONDITIONS

System	Density (live-weight per unit of floor area)	Qualifications
1. Deep Litter (where greater than 50 percent of the floor is litter)		
Rearing of fowls for laying and rearing of layer and meat chicken breeders	30 kg/m^2 (applies to terminal live-weight at 16-22 weeks)	Floor area to include any slatted or metal mesh area and any area occupied by feeding and watering equipment.
Laying and breeding fowls	25 kg/m^2	Floor area to include any slatted or metal mesh area and any area occupied by feeding and watering equipment and nest boxes. In the case of birds kept for breeding, liveweight to include weight of cockerels.
Meat chickens	40 kg/m^2	Includes area occupied by feeding and watering equipment.
2. Cages		
Rearing of fowls for laying or breeding	40 kg/m^2	Relates to cage floor area.
Laying or breeding fowls (includes cockerels) 3 or more fowls per cage	52 kg/m^2	Density relates to cage floor area.
2 fowls per cage	40 kg/m^2	Irrespective of the number of birds per cage, each bird should have a minimum trough space of 10 cm.
Single fowl cages	26 kg/m^2	
3. Free Range Arks		
Arks with slatted floors	40 kg/m^2	
Solid floor houses	20 kg/m^2.	

APPENDIX 2

MANAGEMENT PRACTICES

1. Artificial Insemination

Artificial insemination is a highly skilled procedure which should be carried out only by competent, trained personnel maintaining a high standard of hygiene and taking care to avoid unnecessary disturbance or injury to the fowls.

2. Beak Trimming

When performed as a preventive measure beak trimming should be performed by a competent operator soon after hatching. The operator may remove not more than half of the upper beak and one-third of the lower beak.

Further trimming of the beaks of pullets may be necessary to prevent vice during the laying period.

3. Dubbing

If dubbing is necessary it should be carried out by a competent operator within two weeks of hatching.

4. Toe Trimming

To avoid injury to hens during mating, the last joint of the two inside toes of male breeding birds may be removed within 72 hours of hatching.

For all other classes of fowls, trimming, if necessary, should be limited to the nail of the toe only.

5. Blinkers ("Spectacles")

Blinkers should only be used to control outbreaks of cannibalism where beak trimming has not been previously performed.

Blinkers should be applied by a competent operator and those which cause mutilation of the nasal septum should not be used.

Blinkers which may injure the fowl if they become entangled should not be used.

Blinkers should be applied to poultry only when nest boxes are situated at ground level.

6. Castration ("Surgical Caponising")

This operation requires entry into the abdominal cavity and therefore is an act of veterinary surgery requiring anaesthesia and surgical training appropriate only to a registered veterinary surgeon.

7. Decrowing

This is an unacceptable practice and should not be undertaken.

8. Flight Restriction

De-winging, pinioning, notching or tendon severing to restrict flight in fowls are unwarranted practices and should not be performed.

If flight restriction is required, the flight feathers of one wing may be trimmed with scissors.

9. Moult Inducement and Controlled Feeding

Methods of moult inducement and controlled feeding which deprive fowls of water for more than 24 hours or feed for more than 48 hours should not be used.

Both practices should only be carried out on healthy fowls under close management supervision and under conditions that will not cause cold stress.

10. Wing and Leg Bands

Wing and leg bands for bird identification should be checked regularly and where necessary loosened or removed to avoid injury to the fowl.

11. "Pick-up" and Crating of Fowls

Fowls should be herded for pick-up only under the supervision of an experienced person to avoid suffocation and bruising. Fowls should be handled and crated gently to avoid joint dislocation and bone breaks. At all times care should take precedence over speed and labour cost.

Sick fowls should not be crated and should be treated or humanely destroyed.

If the operation of a poultry processing plant is disrupted, and the holding period of crated fowls exceeds 24 hours, crated fowls should be released into a shed where they have access to feed and water.

APPENDIX 3

ADDITIONAL RECOMMENDATIONS FOR FREE RANGE FOWLS

1. Management

Range fowls should not be kept on land which has become contaminated with poisonous plants or organisms which cause or carry disease to an extent which could seriously prejudice the health of poultry. The time taken for land to become so contaminated depends upon the type of land and the stocking density. Flocks should be moved before this stage is reached. Portable houses should be moved regularly to avoid continuously muddy conditions which may lead to the discomfort of the fowls.

Precautions should be taken to protect fowls against foxes, cats, dogs and other predators.

Shelter from sun and rain should always be available. Windbreaks should be provided in exposed areas.

2. Housing

The maximum recommended density for housing fowls on free range systems is presented in Appendix 1.

When fowls are transferred to range houses, precautions should be taken to avoid crowding and suffocation, particularly during the first few nights. Cannibalism is a danger under this system. Fowls should not be confined for too long during hours of daylight or subjected to direct sunlight during confinement.

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APPENDIX 8.

MODEL CODE OF PRACTICE FOR THE WELFARE OF ANIMALS

1. THE PIG

Issued by the Australian Bureau of Animal Health

1983

CONTENTS

PREFACE

This Model Code of Practice for the Welfare of Animals has been prepared by the Sub-Committee on Animal Welfare (SCAW) of the Animal Health Committee within the Australian Agricultural Council (AAC) system.

Membership of SCAW comprises representatives from each of the State Departments with responsibility for agriculture, CSIRO, Commonwealth Department of Health, Australian Bureau of Animal Health and other committees within the AAC.

The Code is intended as a model to enable the States to develop codes of practice to meet their individual needs.

This Model Code was endorsed by Australian Agricultural Council at its 116th meeting (Sydney, February 1983) for consideration by States in consultation with their industries.

The Model Code may be revised to take account of advances in the understanding of animal physiology and behaviour, technological changes in animal husbandry and their relationship to the welfare of animals.

This Model Code has been issued by:

Australian Bureau of Animal Health
Department of Primary Industry
CANBERRA ACT 2600

INTRODUCTION

This Code of Practice is intended as a guide for all people responsible for the welfare and husbandry of pigs. It recognises that the basic requirement for the welfare of pigs is a husbandry system appropriate to their physiological and behavioural needs. The basic needs of pigs are:

- readily accessible food and water to maintain health and vigour;
- freedom of movement to stand, stretch and lie down;
- light during the daylight hours;
- visual contact with other pigs;
- accommodation which provides protection from the weather and which neither harms nor causes distress;
- rapid identification and treatment of vice, injury and disease.

The Code emphasises that, whatever the form of husbandry, managers and others responsible for the day-to-day needs of pigs have a responsibility to care for animals under their control.

The importance of competent stockmanship in animal welfare cannot be over-emphasised and those responsible should seek expert opinion when pigs are in ill-health. Managers are encouraged to treat their animals efficiently and with consideration.

Assistance with the establishment of piggeries and advice on the management of and disease control in pigs can be obtained from qualified advisers in private or government employment.

This Code of Animal Welfare Practice is based on the knowledge and technology available at the time of publication and may need to be varied in the light of future knowledge. It does not replace the need for experience and commonsense in the husbandry of animals.

ACCOMMODATION

Anyone who intends to erect new housing or redesign old housing should seek advice from Government agricultural authorities and others with expert knowledge in this field. Well designed and constructed buildings can provide an ideal environment for pigs and are often more economic to operate and less expensive to maintain.

1. Space

Accommodation for pigs should be designed and constructed so that it does not cause injury or predispose to disease and to provide a clean dry place on which to lie.

Pigs kept in groups require sufficient space for each to sleep and feed. They should have a clean dry place on which to lie (see Appendix 2).

Pigs accommodated individually in pens, stalls or tethers should be able to stand normally, lie with limbs extended and to stretch. They should have sufficient space in which to feed and sleep and a clean dry place on which to lie (see Appendix 2).

The space allowance and facilities provided for suckling sows should aim to avoid overlaying of piglets.

Floors should be constructed and maintained so as to minimise the risk of injury or disease and to allow pigs to stand normally.

All surfaces and fittings to which pigs have access should be made of materials that can be cleaned and disinfected.

2. Equipment

All equipment to which pigs have access should be designed and maintained so as to avoid either injury or pain.

Mechanical equipment essential to meeting the basic requirements of pigs should be inspected regularly and kept in good working order.

In case of breakdown of mechanical equipment, alternative ways of providing feed and water and of maintaining a satisfactory environment should be available.

An alarm system should be installed to warn the stock-keeper of failures of any automated ventilation equipment.

All electrical installations at mains voltage should be inaccessible to pigs and properly earthed.

3. Environment

Shivering and cold-stress in new-born piglets should be avoided through the provision of bedding and/or supplementary heating.

In intensive housing systems wide or abrupt temperature fluctuations within any 24 hour period should be avoided. Extremes of air temperature or of humidity, particularly those liable to cause heat stress, should not be deliberately maintained.

In enclosed houses, the level of air exchanges should provide fresh air for respiration, remove excess heat and waste gases, and minimise the effects of dust and excess moisture. Efficient ventilation is particularly important when fermentation pits are associated with slatted floor systems.

Sufficient lighting should be available when required to enable the proper inspection of all pigs. As a guide, 110 lux is sufficient for general purposes.

4. Protection

Pigs should be protected from predators and, where injury from bullying or fighting may occur, from other pigs. Where unfamiliar pigs must be mixed, this should be done in a manner that minimises aggression, such as, use of a new pen, provision of feed on the floor, or use of a pen with room for escape.

Action should be taken to prevent bullying or deprivation of food in groups of dry sows and gilts. Stalls in which dry sows and gilts can feed individually are strongly recommended.

When individual quarters or tethers are provided for dry sows and gilts they should be able to feed and lie down normally. Partitions should prevent aggressive behaviour but enable them to see each other.

Fire-fighting equipment should be available to all pig houses, e.g. fire hoses should be capable of delivering sufficient water volume and pressure to control a fire in any building or part of any building.

When planning new buildings, consideration should be given to the use of construction materials with a high fire resistance, and all electrical and fuel installations should be planned and fitted so as to minimise the fire risk.

New buildings should incorporate sufficient exits to facilitate the quick evacuation of pigs in emergencies.

Pig housing should be sited so as to be safe from the effects of fires and floods.

5. Waste Control

The frequency of cleaning of pig accommodation will depend on the system of housing used, the type of flooring and stocking density. As a guide, pens with solid floors should be cleaned daily. Faeces and urine should not be permitted to accumulate to the stage where they pose a threat to the health and well-being of pigs, or disrupt the normal instinct of pigs to have separate dunging and sleeping areas.

FOOD AND WATER

1. Food

Pigs should be fed at least once each day and the diet should be nutritionally adequate to maintain health and vitality and take account of the requirements of growth, pregnancy and lactation.

Medicated food should only be used on competent professional advice as the overuse or mixing of medicaments, or the medicament itself, may cause toxic injury.

There should be enough food on hand, or ready means of obtaining food, in case supply fails or is delayed.

2. Water

Drinkable water or other wholesome liquid should be available in sufficient quantities to meet the physiological needs of the pigs.

Medicated water should only be used on competent professional advice as the overuse or mixing of medicaments, or the medicament itself, may cause toxic injury.

When a piggery is first established, or a new water source obtained, the water should be tested for salt content and microbiological contamination, and advice obtained on its suitability for pigs. As the composition of water from bores, dams or water holes may change with changes in flow or evaporation, the water may require more frequent monitoring for suitability for pigs. Information on water testing can be obtained from the local office of the Department of Agriculture.

The daily consumption of water by a pig can vary according to environmental temperature and liveweight. The table below shows the range of daily water consumption by various classes of pigs.

WATER REQUIREMENTS PER PIG

	Average Water Consumption (Litres/day)
Boar or dry sow	12-15
Sow and litter	25-45
Grower pig: 25 kg	3-5
45 kg	5-7
65 kg	7-9
90 kg	9-12

(Conversion factor: 1.0 litre = 0.22 gal)

The piggery should be serviced by an adequate reserve water supply in case of breaks, repairs or failure of pumping equipment.

SPECIAL REQUIREMENTS

1. Inspections

The frequency and level of inspection should be related to the likelihood of risk to the welfare of pigs, but should be at least once each day. Inspections are best made at feeding times. Under certain circumstances more frequent inspections may be required, such as during hot weather, during outbreaks of disease or vice, when farrowing is expected, when groups of pigs have been mixed, or where sows are tethered. Checks should also be made of the effectiveness of any automated feeding or watering systems where these have been installed.

2. Health

Those responsible for the care of pigs should be aware of the signs of ill-health. These include separation from other pigs, refusal to eat, changes in faeces or urine, reduced production or fertility, vomiting, skin discolouration, shivering, sneezing, coughing, panting, lameness, and swellings on the body. If the person in charge is not able to identify the causes and correct them, he should seek advice from those having training and experience in such matters. Such persons may be specialist pig veterinarians or other qualified advisers in private practice or Government employment.

Pig producers should also operate an effective programme to prevent infectious disease, and internal and external parasitism. Vaccinations and other treatments applied to pigs should be undertaken by people skilled in the procedures and in accordance with the manufacturer's directions.

Sick and injured pigs should be treated as soon as possible. They should be isolated if necessary.

Dead pigs should be removed promptly and, if not required for post-mortem examination, should be disposed of in a hygienic manner such as incineration or deep burial.

Records of sick animals, deaths, treatment given and response to treatment should be maintained to assist disease investigations.

Pigs with either incurable sickness or painful deformity should be humanely slaughtered as soon as possible. The recommended method of destruction is described in Appendix 3.

3. Farrowing

Sows should be placed in farrowing quarters before the litter is due to allow them to become accustomed to their surroundings.

4. Boars

The floor of the serving area should be well maintained and should not be slippery.

5. Additional Requirements for Pig Keeping Under Extensive Conditions

The same welfare standards as are applicable to housed pigs should be observed where pigs are kept outdoors.

Huts for farrowing and rearing should be warm and draught-free.

Adequate shelter in winter and shade in summer should be available to all pigs.

Pigs should not be raised on land which is grossly contaminated with poisonous plants or organisms that may either cause or transmit disease to such an extent that the health of pigs is affected. Consideration should be given to methods of reducing the buildup of such pathogens by the use of herd health programmes, such as routine vaccinations, parasite control and regular pasture rotation and spelling.

Fire breaks should be established around pasture or open range systems where the risk of fires is high.

Where large groups are kept outdoors adequate feeding space and watering points are essential. Operators should ensure that younger or more timid pigs which may be subject to bullying have access to feed, or are confined with more evenly matched groups of pigs.

If grazing pigs are tethered to a long length of rope or chain, the design and length of the tether should not allow them to become entangled with housing, trees or with each other. The tether should also permit access to water at all times. The harness should be checked regularly to ensure that there is no discomfort or injury to the animal. (see Appendix 2).

APPENDIX 1

MINOR SURGICAL PROCEDURES

1. General

Managers or employees should not carry out minor surgical operations unless they are competent in such procedures. If necessary, advice should be sought on how minor surgical procedures should be performed. They should understand that minor surgery causes little distress if carried out efficiently and with minimal restraint. Strict attention should be paid to:

- suitability of the area in which the operation is to be performed;
- the catching facilities;
- the type and amount of restraint;
- the selection and maintenance of instruments;
- hygiene;
- after-care of the animals.

Restraint used on pigs should be the minimum necessary to complete the procedures. The use of goading devices for moving and handling pigs should be minimised to avoid distress.

2. Castration

Castration should be avoided wherever possible.

If, however, castration is considered necessary, it should be performed by a competent operator as early as managment practices will allow. Castration using a knife is recommended provided the animal is adequately restrained. Good post-operative drainage is essential.

Castration of boars older than 8 weeks should be performed by a veterinarian using either local or general anaesthetic.

3. Tail-Docking

Where tail-biting is a problem, all aspects of the environment, feeding and management should be investigated to identify the contributing factors so that remedial action can be taken.

Tail-docking should be carried out before pigs are 7 days of age where it is being performed as a routine preventive measure.

Tail-docking of pigs over 7 days of age should be performed only in an emergency.

4. Clipping of "Needle" Teeth

When performed, this procedure should be done within two days of birth to protect littermates and to prevent damage to the sow's udder.

5. Nose Ringing

This may need to be practised when pigs are kept on pasture. Rings should be placed through the cartilage of the top of the snout or the tissues separating the nostrils.

6. Identification

Where it is necessary to mark pigs for permanent identification the ear may be tattooed, tagged, notched or punched, or the body may be tattooed.

7. Backfat Measurement

The preferred method uses ultrasonic equipment. The use of mechanical probes should be discouraged.

8. Tusk Trimming

Tusk trimming of boars is advisable where injury to man or animals is likely to occur.

Acceptable methods of tusk trimming are bolt cutters, hack saw or embryotomy wire. The boar should be appropriately restrained, preferably aided by the administration of a sedative. No anaesthetic is required as the tusk lacks nerves for sensory innervation. Tusks should be severed cleanly and skilfully above the level of the gums without causing damage to other tissues.

APPENDIX 2

ACCOMMODATION

1. Stocking Density

It is not possible to relate stocking density to welfare in a simple manner. Adequate welfare involves consideration of group size, pen size, age, breed, temperature, ventilation, lighting and other husbandry factors. The observance of any particular stocking density on its own cannot ensure the welfare of pigs. The suggested minimum space allowances in housed pigs based on contemporary techniques are shown in Table 1.

TABLE 1

MAXIMUM RECOMMENDED STOCKING DENSITIES FOR HOUSED PIGS

System	Minimum Space Allowance (m^2 per Pig)	Comments
Growing pigs up to 10 kg in groups.	0.11	Approximately 20 to 30 per cent of space allowance provides for a dunging area.
11 - 20 kg.	0.18	
21 - 40 kg.	0.32	
41 - 60 kg.	0.44	
61 - 80 kg.	0.56	
81 - 100 kg.	0.65	
Adult pigs in groups	1.4	
Adult pigs in individual stalls	0.6 x 1.8 m	
Boars in pens used for mating	6.25	Minimum length of shortest side 2 m.
Lactating sows and litters:		
- stalls	3.2	With piglets up to 4 weeks of age.
- individual pens	5.6	
- multisuckling groups	5.6	For each sow and litter.

(Conversion factors: 1.0 m^2 = 10.8 ft^2; 1.0 kg = 2.2 lb; 1 m = 39.4 in)

2. Temperature

Pigs, except the very young, are able to tolerate a wide range of temperatures without detriment to their well being provided temperature changes do not occur abruptly.

The ranges of temperature that afford optimum comfort for different classes of pigs are:

Piglets - newborn	27 - 35°C	
Piglets - 3 weeks of age	24 - 30°C	(reducing to 21°C at 5 weeks of age)
Farrowing house	20 - 30°C	
Weaners	20 - 30°C	
Growers	15 - 30°C	
Finishers	15 - 30°C	
Sows and boars	15 - 30°C	

During very hot weather (38°C or more) adult pigs are very susceptible to heat stress and steps should be taken to alleviate distress and avoid deaths. Pigs may die if transported in very hot weather.

3. Ventilation

It is necessary to strike a balance between the need to provide fresh air and prevent the build-up of noxious gases, and the need to protect pigs from draughts.

In general, if the level of irritant or toxic gases within a building is uncomfortable to man, it is also uncomfortable to pigs and may predispose them to respiratory disease.

The presence of ammonia is usually a reliable indicator of the build-up of noxious gases; it should not be allowed to exceed 20 parts per million (ppm) of air in an enclosed pig house without immediate corrective action being taken. (A level of 10-15 ppm ammonia in the air can be detected by smell. An ammonia level of from 25 to 35 ppm will cause eye and nasal irritation in man).

It is important to maintain an adequate airflow during hot weather to ensure housed pigs do not become overheated.

4. Tethering

Tethering is an undesirable means of restraint and should not be used unless there is careful and continuous attention and a high level of expertise in the management of animals and equipment. Tethering can lead to problems in the welfare of sows and producers are encouraged to consider alternative systems of management in the establishment of piggeries.

Tethers, if used, should be capable of being adjusted for size, and fitted and maintained so that pigs are not subjected to injury and pain. The animals and tethers should be regularly inspected and the tethers should have a quick release mechanism.

APPENDIX 3

HUMANE DESTRUCTION OF PIGS

Previous sections of this code have drawn attention to those circumstances when, for humane reasons, pigs may need to be humanely destroyed, e.g. injury or disease.

Whilst this task is aesthetically unpleasant to most people, the method of slaughter should be effective and cause sudden and painless death for the animal. It is equally important that the animal be handled quietly beforehand to ensure it is not unnecessarily distressed or alarmed.

The methods recommended hereunder are those which are considered the most suitable for a farm situation.

1. USE OF THE FIREARM

This is the preferred method of humanely destroying older pigs on the farm or following emergencies. Use of firearms on public property, e.g. roads, or in built-up areas may be illegal, and under those circumstances assistance should be sought from veterinary practitioners, the RSPCA or the Police.

The effectiveness of shooting is dependent upon the destruction of major centres at the back of the brain near the spinal cord. A common mistake is to direct the bullet too low, damaging frontal areas. Partial recovery may then occur.

a) Safety

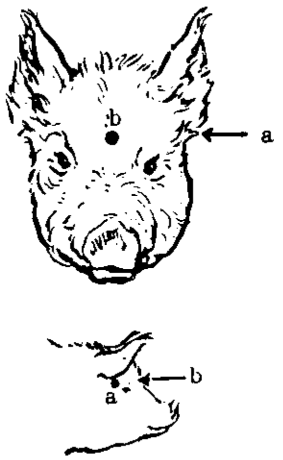
The following aspects of firearms safety should be borne in mind:

- A .22 calibre rifle or .32 calibre humane killer pistol are adequate for humane destruction of most pigs. Where old, large boars are to be destroyed, the .32 calibre pistol is preferred.
- Any use of firearms is hazardous;
- Persons other than the marksman and a handler for the animal should be cleared from the area or should stand well behind the marksman;
- Never fire while the animal is moving its head; wait patiently for a quiet interval before firing;
- To provide maximum impact and the least possibility of misdirection the range should be as short as circumstances permit;
- Whilst the humane killer pistol and captive-bolt pistol are designed to be pressed firmly on the head prior to being discharged, it is not safe to do this with a standard rifle or pistol.

b) Methods

Temporal method: The pig is shot from the side of the head so that the bullet enters the skull at a point midway between the eyes and the base of the ear on the same side. The bullet should be directed horizontally into the skull. This method is preferred for adult pigs due to the heavier bone structure of the front of the skull.

Frontal method: The firearm should be aimed at a point midway across the forehead and (for adult pigs) about 2 cm above the level of the eyes, aiming horizontally into the skull.



Humane destruction of pigs:

"a" indicates recommended position for temporal method. (Suitable for firearms only).

"b" indicates recommended position for frontal method. (Suitable for firearm or captive-bolt pistol).

2. USE OF THE CAPTIVE-BOLT PISTOL

An alternative to the firearm is a captive-bolt pistol which is safer since a blank cartridge is used. The operator does not have to be a marksman as the instrument's muzzle is firmly pressed against the skull before firing. It must be, however, be assumed that the animal has only been stunned and a follow-up method of ensuring death, such as bleeding-out, is required.

Blank cartridges for the captive-bolt pistol are colour-coded according to the amount of charge they contain. For best results, the manufacturer's directions should be followed on the most appropriate blank cartridge for pigs. Regular maintenance of the captive-bolt pistol is essential for efficient stunning.

(a) Method

When using the frontal method, the captive-bolt pistol can be used in the same position as that recommended for the firearm. To ensure death, pigs should be bled out as soon as possible after collapse.

3. STUNNING BY CLUBBING

A hammer or other blunt, but heavy, object may be used to make a blow to the skull to render unconscious small, easily controlled piglets. The blow should be aimed at the centre of the forehead in the position indicated for shooting in the diagram above. The unconscious piglet should be immediately bled out to ensure death.

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