Dairy Research and Development Corporation

Response to the

House of Representatives Standing Committee on Primary Industries and Regional Services

Inquiry into

Primary Producer Access to Gene Technology

Contents

1. Summary 1
2. Industry situation statement 1
3. The future value and importance of genetically modified organisms 2
4. The ability for producers to compete using traditionally available varieties 3
5. The commercialisation and marketing of agricultural and livestock production varieties 4
6. The cost to producers of new varieties 5
7. Other impediments to the utilisation of new varieties 5
8. Assistance to small producers to develop new varieties and the protection of the rights of independent breeders, in relation to genetically modified organisms 6
9. The appropriateness of current variety protection rights, administrative arrangements and legislation, in relation to genetically modified organisms 6
10. Opportunities to educate the community of the benefits of gene technology 7

Inquiry into Primary Producer Access to Gene Technology

1. Summary

DRDC recognises the importance of gene technology in securing the competitive position of Australian dairy farmers in local and global markets. DRDC has actively funded R&D using gene technology to improve the performance of fodder plants for dairy cattle consumption. The Corporation is aware of the complementarity and interdependence of gene technology and conventional breeding in achieving greater production from dairy pastures and has approached and supported the use of gene technology in a measured and strategic fashion. DRDC is confident that its constituents are aware of the significant inherent worth of gene technology and supportive of its use but at the same time cognisant of the real and emotional barriers to the adoption and acceptance by consumers of its products. The adoption of genetically enhanced material is expected to mirror that of new cultivars developed through conventional breeding programs under current Plant Breeders Rights arrangements.

2. Industry situation statement

In line with the Terms of Reference of the Inquiry this submission focuses on gene technology used in plant improvement. Reference to animal breeding has been made only where appropriate.

DRDC's goals

The DRDC's mission is to deliver to its stakeholders "an innovative, globally competitive and sustainable dairy industry". DRDC seeks to increase industry competitiveness and profitability, improved social and environmental sustainability of dairying, and improved dairy industry resources capability. On behalf of the industry DRDC has commissioned research using gene technology in both its Farm and Manufacturing portfolios to achieve the following outputs:

1. lower farm and manufacturing unit costs of production
2. improve efficiency, quality and productivity - from farm through to market
3. improve product and market opportunities and the demand for dairy products
4. achieve sustainable milk production and dairy product manufacturing
5. fund targeted research which maximises industry benefits from R&D funds invested
6. facilitate commercialisation and adoption by stakeholders and clients.

Impact of gene technology

Gene technology is perceived as facilitating quantum leaps in productivity and production of leading edge consumer products and ultimately creating an increased level of competitiveness and export demands for Australian dairy products. Gene technology is the most recently developed tool available to the plant breeder for pasture plant improvement. It effectively releases the breeder from two major constraints, first the limits posed by inter-specific barriers and secondly the general lack of precision inherent in traditional breeding methods.

Where a trait is amenable to manipulation by gene technology plant breeders can also shortcut the production and commercial release of improved pasture cultivars by as much as 30% or 3 - 4 years.

The full benefit of gene technology for the dairy and other pasture or crop based rural industries will only occur through close collaboration between gene technologists and traditional plant breeders. DRDC recognises the need for this alliance and this is reflected in its concurrent support for conventional and biotechnology enhanced breeding programs over the past decade.

Impediments to adoption
DRDC is aware of and actively working towards the resolution of the major impediments to the adoption of gene technology within the industry and more generally, *viz.*

- Intellectual Property attached to genes and enabling process methodologies,
- the need for access and freedom to operate with the latest technological advances,
- the need for maintaining a scientific critical mass and understanding of gene technology to ensure a competitive position in this scientific arena
- viable commercialisation through strategic commercial partnerships.

Sections 3-10 address the specific Terms of Reference.

3. The future value and importance of genetically modified organisms

DRDC is determined that access to and use of gene technology for the enhancement of performance and productivity of fodder plants and dairy cows is essential for maintaining (improving) the competitiveness of the Australian dairy industry in local and global markets. The ability to further tailor manufactured milk products to cater for market needs will also be enhanced by gene technology.

Issues

- Australia's dairy industry's competitive advantage relies on a low-cost, pasture-based system of dairying. This comparative advantage will be under threat if the local industry does not embrace the productivity and efficiency gains which gene technology offers in plant and animal improvement.

Considerations

- Gene technology has the ability to deliver quantum gains in pasture productivity rather than the incremental change traditionally attained through conventional plant breeding. Furthermore, these gains can be achieved at an accelerated rate - where desired traits are amenable to genetic manipulation the development cycle to commercialisation may be shortened by as much as 30% or 3 - 4 years. As the genomes of pasture grasses and legumes are better defined and biotechnological techniques improve, the rate of delivery of new products onto the market will be

defined more by regulatory requirements and the time to bulk-up commercial quantities of seed.

- Gene technology, through effective and far reaching patent claims is a global technology. It is substantially coming under the control of a select group of powerful multinational companies keen to see the profitable commercialisation of their endeavours. The benefits to be derived via gene technology are readily available and are being adopted by other nations competing against the Australian dairy industry.
- The use of genetically enhanced pasture plants has the capacity to deliver broader community benefits through improved resource management (soil, water and nutrients) and reduced pollution all the way along the dairy industry value chain, from farm to milk product manufacturing.
- Through a series workshops over the last decade, attended by industry and scientific representatives, DRDC has systematically identified those pasture plant improvement problems which have the best prospect of being resolved using gene technology. This disciplined approach, which includes a comprehensive business plan, has ensured an industry focus and support of outcome driven research and development.
- The dairy industry must actively support the use of gene technology for the benefit of the industry. DRDC is concerned that the propaganda war levelled at this plant breeding tool could be successful in scaring the community into rejecting the application of this science.
- If those opposed to the use of genetic technology are successful in their ill-founded quest to require compulsory labelling of all food stuffs containing genetically modified material, the quality certification process associated with this initiative will significantly impact on dairy farmers and reduce potential profit.

4. The ability for producers to compete using traditionally available varieties

DRDC is confident that traditionally available varieties will continue to be available to producers for at least the foreseeable future. The limited availability, and rate and extent of adoption of varieties derived from gene technology will buffer any short-term disadvantages incurred by those farmers who wish to continue to use public domain and/or traditionally available pasture varieties. DRDC does not foresee any overall threat to genetic diversity of pastures and crop species as a result of the application of gene technology.

Issues

Small and medium sized dairying enterprises would access traditionally available, public varieties at a likely discount to genetically enhanced varieties.

New varieties covered by Plant Breeders Rights (PBR), but bred conventionally, would compete in the market place with genetically enhanced varieties on the basis of relative perceived advantage. The sale price will be market determined.

Genetic diversity is under greater threat through loss of environment, and access issues, in countries of origin for species of agricultural importance to Australia.

Considerations

- Australian dairy farmers are amongst the most efficient in the world and are currently able to operate productively using traditionally available varieties. Even so, typically, there are potential increases in profitability that can be derived through better general farm management. Improving farm efficiency through better management therefore provides an opportunity for non-users of genetically enhanced varieties to increase their competitiveness.
- New plant species are likely to come into commercial agricultural use as their growing requirements and management are documented and major limiting factors are overcome. Access and availability to novel species will help cap the premium charged for commonly used legumes or grasses that have been genetically enhanced.
- The production and supply of seed of public varieties or varieties covered by PBR will be subject to market forces and will continue to be available as long as it is profitable to grow them. There never has been, and it is not likely that there ever will be, guaranteed supply of these traditional varieties, regardless of the performance of genetically enhanced material in the market place.
- The rate of resowing dairy pastures is only about 6% per annum.
- Genetic resources of key agricultural species are maintained within existing genetic resource centres in Australia and NZ.

5. The commercialisation and marketing of agricultural and livestock production varieties

DRDC is concerned about freedom to operate and the maintenance and enhancement of export markets for pasture seeds.

Issues

Gene technology, through effective and far reaching patent application and claims is global and is substantially coming under the control of a select group of powerful multi-national companies.

Australian companies continue to develop export opportunities for pasture seeds.

Considerations

- The Australian pasture seed industry is small by world seed industry standards and consequently can offer only limited royalty income and/or licence fees in comparison with, for example, the grain industry. As a consequence problems in securing freedom to operate with a particular technology have occurred where the owners of intellectual property have wished to reserve the technology for far larger, more lucrative markets.
- It is important that Australia develops a position of market strength in intellectual property ownership to facilitate trading its, and accessing others, intellectual property .

- A rejection of genetically enhanced material in some European countries has restricted the export opportunities for Australian innovation further constraining the attractiveness of licence agreements with Australian industry.
- Australian dairy farmers rely heavily on perennial pastures and consequently use only a fraction of the seed used by, for example, a sheep/wheat grazing enterprise.
- The development of new plant varieties in Australia offers opportunities for import replacement.

6. The cost to producers of new varieties

Farmers currently pay a premium for new cultivars and varieties under current Plant Breeders Rights arrangements in Australia. The amount of the premium is typically commensurate with the perceived productivity gains or agronomic performance which will accrue to the grower of these varieties. DRDC is confident that similar market place dynamics will come into play with the introduction of genetically enhanced varieties

Issues

Any premium able to be charged will reflect the perceived value in the market place.

Considerations

- The pasture seed market in Australia is highly competitive. Dairy farmers will only pay a premium for a product which offers tangible advantages.
- The perceived value of a genetically enhanced variety will be compared with new varieties developed through conventional methods, genetically enhanced varieties from alternative suppliers offering other advantages, and alternative species which display attractive agronomic performance.

7. Other impediments to the utilisation of new varieties

DRDC expects a moderate rate of uptake of the genetically enhanced varieties given the rate of resowing and competition from varieties developed through conventional breeding programs.

Issues

The average rate of resowing of dairy pastures is about 6% per annum and the success of resowing and subsequent management can often limit the potential for increased productivity.

Considerations

- The use of genetically enhanced pasture varieties will not obviate the need for careful pasture and farm management. As with traditional varieties the performance of genetically enhanced cultivars is dependent on good management.
- The rate of resowing pastures is sufficient to support a local seed industry, however, companies also look for export opportunities.

8. Assistance to small producers to develop new varieties and the protection of the rights of independent breeders, in relation to genetically modified organisms

DRDC considers it increasingly unrealistic that small producers will be able to grow and supply new varieties of pasture seed (traditional or genetically enhanced) given the extent of investment in technology and infrastructure necessary to achieve a critical mass for a financially viable enterprise.

Issues

Irrespective of the size of their operations, seed producers will be confined in their freedom to operate with genetically enhanced cultivars and in their access to markets as dictated by license agreements with patent holders.

Variety protection through PBR will remain in place.

Considerations

- There has been a consolidation of seed producing companies in Australia in response to the need to achieve the critical mass required to support sophisticated cultivar selection and performance trials.
- Plant Breeders Rights do not conflict with the rights bestowed on breeders of genetically enhanced cultivars through patents and will continue to offer protection to seed producers of conventional or traditional cultivars.
- Small farming operations, not necessarily dairy farmers, may continue to grow seed under contract to seed companies. This activity provides an additional income stream for many farmers and much of what they produce is exported.
- Existing cooperatives provide market strength for many Australian seed growers.
- For small producers, access to an exclusive license for genetically enhanced material will most likely to be prohibitively expensive. This is due primarily to the limited financial leverage of small seed producers.
- DRDC is concerned with supporting R&D that provides a competitive benefit for Australian dairy farmers; it does not currently support R&D for the principal reason of making a profit for itself.

9. The appropriateness of current variety protection rights, administrative arrangements and legislation, in relation to genetically modified organisms

DRDC considers that current Plant Breeders Rights legislation and its administration operates well to provide protection for seed growers. In addition, DRDC is supportive of the operation of Genetic Manipulation Advisory Committee (GMAC), its terms of reference, and performance record to date. The proposed Gene Technology Office (GTO) as a successor to GMAC has the support of the Corporation.

Issues

DRDC has actively supported plant research where it has been applied to the resolution of particular problems impacting the dairy industry and consequently has a

vested interest in ensuring all due process is followed in the commercialisation of both traditional and genetically enhanced cultivars.

Considerations

- Plant Breeders Rights in Australia have provided rational and adequate guidelines for the protection of breeders of novel plant cultivars and enabled them to operate profitably.
- GMAC, a non-statutory organisation has overseen the development and testing of genetically modified organisms in Australia. The Committee's objectivity is a function of its membership that includes scientists, specialists in risk analysis and members of the public with relevant skills.
- GMAC will be succeeded by the GTO which will serve to coordinate the development and implementation of current and proposed legislation designed to accommodate an increasingly regulatory environment (Australian and global) for genetically modified organisms.
- The operation of GMAC or its successor is not antagonistic to the application of Plant Breeders Rights as they are currently defined.
- DRDC and other groups directly and indirectly involved in the development and commercialisation of genetically modified organisms have a vested interest in the rigour and transparency of the operation of the regulatory environment in which this activity occurs. Unless the regulatory environment is perceived to be potently objective it will be very difficult to convince the general public and ultimately the consumers of this technology to embrace the advantages it offers.

10. Opportunities to educate the community of the benefits of gene technology

DRDC supports the concept of widespread community education programs directed at promoting the benefits, analysing the risks, and dispelling the myths about gene technology, particularly where programs present a balanced perspective.

Issues

DRDC is aware of a well-orchestrated misinformation and propaganda campaign against gene technology being waged in the community. DRDC is concerned that this campaign based on fear and uncertainty could significantly impact the adoption of the benefits of gene technology and consequently risk domestic and export markets of Australian dairy products.

DRDC recognises that risk does exist with the introduction of gene technologies. It supports appropriate regulatory mechanisms and will work with all sect5ors to minimise risk.

DRDC regards it as important that the community be given the opportunity to develop a balanced perspective.

Considerations

- DRDC is not alone in needing to promote the benefits of gene technology to Australian agriculture and the Australian community. There is a significant

opportunity to work in concert with other rural industry funding bodies and the Australian government to ensure industry has access to the best gene technology available and to provide the community with accurate information.

- DRDC is conscious of the use of emotive arguments in the guise of ethical considerations being used in an attempt to discredit gene technology and the Australian government's ability to regulate its application in agriculture.
- If the use of genetically modified organisms is restricted in Australia it will be very difficult for this country to maintains its infrastructure and scientific critical mass in this important area of scientific endeavour.
- There is a need to promote the improved characteristics of genetically enhanced organisms rather than the methods by which they were derived.
- The issue of acceptance of gene technology is so important to the dairy industry that it may warrant the establishment of an industry advisory board (including representatives of plant and animal breeders, dairy farmers, dairy industry bodies, and dairy processors). Such an advisory group could ensure that the views of industry are fairly heard in the increasingly political debate associated with this technology. DRDC will discuss this idea with key industry organisations.