

Regulation

- 7.1 In addition to the barriers to agricultural innovation discussed in the previous chapters, the Committee also heard evidence about the role of regulation in supporting or inhibiting the adoption of innovative practices and new and emerging agricultural technology.
- 7.2 This chapter presents a brief overview of the existing regulatory framework as it applies to the agricultural sector. Evidence is then presented in relation to the regulation of several key areas of agricultural technology.
- 7.3 This chapter also presents evidence in relation to community acceptance of emerging technology in the agricultural sector.

Overview of existing regulatory framework

- 7.4 In a previous review of government regulation in the agricultural sector, the Productivity Commission identified regulatory requirements at each stage of production.¹
- 7.5 These requirements related to the acquisition and preparation of land; on-farm operations such as cropping, animal husbandry, and processing; transportation; marketing; and the sale of agricultural goods.
- 7.6 The Commission also identified other regulations that apply across the economy but are nevertheless particularly relevant to agricultural production, such as regulations covering chemicals, water use, food, and temporary labour.
- 7.7 The Commission noted that, while state and territory governments are most closely involved with the sector due to their responsibility for land and natural resource management, federal regulation is responsible for

1 Productivity Commission, *Annual Review of Regulatory Burdens on Business: Primary Sector*, Research Report, 2007, pp. 29–32.

supporting the profitability and competitiveness of the sector, in addition to ensuring environmental and biosecurity protections.

7.8 In the current inquiry, a range of evidence was put to the Committee about the appropriateness of the existing regulatory environment.

7.9 However, there was general agreement among stakeholders about the important role of an effective regulatory environment in supporting innovation in the agricultural sector. AusBiotech told the Committee:

The application of good regulation is critical to build confidence and certainty and underpins public investment in agricultural innovation. Ambiguous or absent regulation elevates risk and is a strong barrier to innovation.²

Productivity Commission review into Regulation of Agriculture

7.10 In November 2015, the Australian Government requested that the Productivity Commission undertake a new inquiry into the regulatory burden imposed on farming businesses.³

7.11 The terms of reference of the Commission's inquiry have regard to regulation that has a material impact on domestic and international competitiveness of farm businesses and the productivity of Australian agriculture.

7.12 While the Commission is expected to consider regulatory arrangements affecting access to new technology, the terms of reference of its inquiry also encompass a wide range of regulation affecting investment, land tenure, environmental protection, and animal welfare, among other areas.

7.13 Consistent with the terms of reference of the present inquiry, the Committee will restrict its focus to particular areas of regulation identified in evidence as having the potential to impede the adoption of innovative agricultural practices and emerging agricultural technology.

7.14 As such, evidence presented in this chapter relates to the regulation of the following areas of agricultural activity:

- agricultural and veterinary chemicals;
- gene technology; and
- drones and robotics.

2 AusBiotech, *Submission 33*, p. 2.

3 Productivity Commission, 'Regulation of Agriculture' <www.pc.gov.au/inquiries/current/agriculture> viewed 7 April 2016.

Agricultural and veterinary chemicals

- 7.15 Agricultural and veterinary chemical products in Australia are regulated under an intergovernmental agreement to ensure that products are safe, effective, and labelled and packaged correctly.⁴
- 7.16 The Australian Pesticides and Veterinary Medicines Authority (APVMA) is an independent statutory authority within the Agriculture portfolio responsible for the registration and regulation of agricultural and veterinary chemical products up to the point of retail sale.⁵
- 7.17 State and territory governments regulate and control the use of these products in each jurisdiction.⁶
- 7.18 The Committee heard evidence about the role of agricultural and veterinary chemical products in increasing on-farm productivity. For example, Bayer CropScience submitted:
- ... crop protection and biotechnology solutions can assist farmers in producing high yields with fewer natural resources by reducing water consumption, increasing a crop's nutrient uptake, and reducing the need for other inputs.⁷
- 7.19 However, although there was strong support for the role of the APVMA, the Committee heard that a range of regulatory processes were impeding the timely availability and use of agricultural and veterinary chemical products in the Australian market.
- 7.20 Bayer submitted that excessive regulation increases the pre-market barrier for innovative new products, meaning that fewer products are ultimately registered and approved for use.⁸
- 7.21 Representatives of CropLife Australia outlined the consequences for the competitiveness of the Australian agricultural industry:
- We know from our research that [the unavailability of chemical products] stops [farmers] looking at growing alternative crops or products.

4 DAWR, 'The National Registration Scheme' <www.agriculture.gov.au/ag-farm-food/ag-vet-chemicals/regulation> viewed 8 April 2016.

5 Ms Kareena Arthy, Chief Executive Officer, APVMA, *Committee Hansard*, Canberra, 17 March 2016, p. 7.

6 Ms Kareena Arthy, Chief Executive Officer, APVMA, *Committee Hansard*, Canberra, 17 March 2016, p. 7.

7 Bayer CropScience, *Submission 78*, p. 3.

8 Bayer CropScience, *Submission 78*, p. 15.

It restricts Australian farmers from being able to make the same decisions about their businesses as American, European, or Brazilian farmers.⁹

- 7.22 Stakeholders emphasised that reducing inefficiencies and regulatory burdens was particularly important given the relatively small size of the Australian market for certain speciality products.¹⁰

Product registration

- 7.23 The Committee heard evidence about the length, cost, and complexity of the process for registering agricultural and veterinary chemical products in Australia.
- 7.24 Bayer submitted that the APVMA regularly missed prescribed deadlines for deciding upon applications for new crop protection products.¹¹ Bayer also noted that the Department of Health currently reviews the poison scheduling of products at the end of the APVMA registration process, rather than in parallel, adding a minimum of eight months to the process.¹²
- 7.25 CropLife submitted that the costs imposed by the regulation of chemical products in Australia were equal to the United States but relatively high compared with other countries, and high relative to the size of the Australian market.¹³ CropLife suggested that the cost of registration under the current system restricts the availability of products for specialty and minor uses, as the expected volume of sales of these products does not offset the cost of registration or of extending labels to include new uses for existing products.¹⁴
- 7.26 Other issues raised in evidence included a lack of flexibility to submit data during the review process, inconsistency in state and territory regulation of off-label uses of chemical products, and burdens imposed by other

9 Mr Matthew Cossey, Chief Executive Officer, CropLife Australia, *Committee Hansard*, Canberra, 22 February 2016, p. 14.

10 Adjunct Professor John Hamblin, *Submission 3*, p. 7; CCA-SCA-ALFA, *Submission 84*, p. 15; Mr Matthew Cossey, Chief Executive Officer, CropLife Australia, *Committee Hansard*, Canberra, 22 February 2016, pp. 12–13; Mr Richard Dickmann, Head, New Business Development, Bayer CropScience, *Committee Hansard*, Canberra, 29 February 2016, p. 19.

11 Bayer CropScience, *Submission 78*, p. 15.

12 Mr Richard Dickmann, Head, New Business Development, Bayer CropScience, *Committee Hansard*, Canberra, 29 February 2016, p. 19.

13 Mr Matthew Cossey, Chief Executive Officer, CropLife Australia, *Committee Hansard*, Canberra, 22 February 2016, p. 14.

14 CropLife Australia, *Submission 50*, p. 14.

- government entities requesting data above and beyond what is requested by the APVMA.¹⁵
- 7.27 Several stakeholders recommended that the APVMA recognise assessments already undertaken by trusted international organisations in order to streamline the process of registering chemicals and pesticides for use in the Australian market.¹⁶
- 7.28 CropLife suggested that, while duplication between the APVMA and overseas regulators could be reduced, recognition of overseas decisions would not necessarily be automatic:
- Farming practices are different and the environmental circumstances are different. That is where an Australia-specific assessment is required. But ... adopting the things that are common and not replicating that work is crucial to delivering efficiency.¹⁷
- 7.29 At a public hearing of the inquiry, representatives of the APVMA acknowledged that alternative or minor uses of products are potentially beneficial to farmers, but that these uses are often unavailable in Australia due to the cost of registration:
- ... sometimes we are in a situation where they are very close to access, but that final research and development that might be required locally to get it across the line, or the business case for the company, does not stack up.¹⁸
- 7.30 The representatives told the Committee that the APVMA was investigating options to streamline the product registration process:
- We are currently doing a lot to work around how we can speed up the time it takes for registration – in particular, how we can use international assessments and reduce the time it takes for products of low regulatory risk.¹⁹

15 Larkman Nurseries Pty Ltd, *Submission 51*, p. 2; Bayer CropScience, *Submission 78*, p. 17; Council of Rural RDCs, *Submission 90*, p. 10; Mr Richard Dickmann, Head, New Business Development, Bayer CropScience, *Committee Hansard*, Canberra, 29 February 2016, p. 19.

16 Pastoralists and Graziers Association of WA Inc., *Submission 16*, p. 2; CCA-SCA-ALFA, *Submission 84*, p. 15.

17 Mr Matthew Cossey, Chief Executive Officer, CropLife Australia, *Committee Hansard*, Canberra, 22 February 2016, pp. 12–13.

18 Ms Kareena Arthy, Chief Executive Officer, APVMA, *Committee Hansard*, Canberra, 17 March 2016, p. 8; Mr Alan Norden, Executive Director, Registration Management and Evaluation Program, APVMA, *Committee Hansard*, Canberra, 17 March 2016, p. 8.

19 Ms Kareena Arthy, Chief Executive Officer, APVMA, *Committee Hansard*, Canberra, 17 March 2016, p. 7.

- 7.31 The representatives also referred to work underway to identify and use data from a representative commodity across an entire group, thereby minimising the amount of data required in an application.²⁰
- 7.32 However, the Committee heard that there is often a mismatch between the studies undertaken by research companies and the requirements of registration, or that existing data that may be available to support product registration is not provided to the regulator.²¹

Product labelling

- 7.33 Concerns were also raised about the introduction of additional regulation relating to the labelling of agricultural chemicals.²²
- 7.34 From 1 January 2017, work health and safety legislation requires that labels on agricultural chemicals used principally in workplaces include information relating to the intrinsic hazards of the product, based on the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), in addition to information already required by the APVMA.²³
- 7.35 Bayer submitted that generic hazard-based labelling is not appropriate given that hazards and risks are appropriately managed by the APVMA. Bayer also told the Committee that GHS information would not result in any improvements in work health and safety and may undermine measures already in place.²⁴
- 7.36 Bayer noted that pharmaceutical chemicals regulated by the Therapeutic Goods Administration were exempt from the requirement to include GHS information, and argued that APVMA-approved labels should similarly be recognised as being compliant with work health and safety laws.²⁵

Committee comment

- 7.37 Best-practice regulation of agricultural and veterinary chemical products is essential for ensuring Australia's biosecurity, protecting health and the environment, and maintaining the international reputation of Australia's agricultural industry.

20 Mr Alan Norden, Executive Director, Registration Management and Evaluation Program, APVMA, *Committee Hansard*, Canberra, 17 March 2016, pp. 8–9.

21 Ms Kareena Arthy, Chief Executive Officer, APVMA, *Committee Hansard*, Canberra, 17 March 2016, p. 9.

22 CropLife Australia, *Submission 50*, pp. 12–13; Bayer CropScience, *Submission 78*, pp. 13–14.

23 Safe Work Australia, 'Labelling requirements for agricultural and veterinary chemicals' <www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/labelling-agvet-chemicals> viewed 11 April 2016.

24 Bayer CropScience, *Submission 78*, p. 13.

25 Bayer CropScience, *Submission 78*, p. 14.

- 7.38 However, it is clear from the evidence received by the Committee that there remains scope for the regulation of these products to be more appropriately aligned with risk and more efficiently implemented by the APVMA.
- 7.39 In particular, the Committee acknowledges that the current regulatory framework creates a disincentive for the registration of new products (or for the registration of existing products for new uses), particularly given the relative size of the Australian market for some products.
- 7.40 In turn, this prevents local producers from accessing new chemicals to improve their competitiveness in the international market.
- 7.41 In July 2015, as part of the *Agricultural Competitiveness White Paper*, the Australian Government announced measures to streamline access to agricultural products, including reduced pre-market assessments of low- and medium-risk products and recognition of assessments by accredited third parties and trusted overseas regulators.²⁶
- 7.42 The Committee supports the proposition that, where the risks posed by a product are equivalent between jurisdictions, the APVMA should be empowered to register that product based partly or wholly on the assessment of trusted and comparable international regulators.
- 7.43 The Committee is of the view that this streamlined process should be implemented incrementally by the APVMA so as to ensure the continued integrity of Australia's regulatory system.
- 7.44 Nevertheless, the Committee considers that the necessary legislative and regulatory changes should be pursued as a priority.

Recommendation 12

The Committee recommends that the Department of Agriculture and Water Resources pursue legislative and regulatory changes to enable the Australian Pesticides and Veterinary Medicines Authority to use the decisions of trusted and comparable international regulators as a basis for product registration.

- 7.45 The Committee encourages the APVMA to continue working with industry to achieve further efficiencies in its registration processes. In particular, the Committee supports continued engagement between the APVMA, the Rural Research and Development Corporations, and other

26 Australian Government, *Agricultural Competitiveness White Paper*, 2015, pp. 37–38.

stakeholders to identify and address barriers to the registration of products for minor uses.

- 7.46 Lastly, the Committee notes that the Department has commissioned a review of the impact of chemical product compliance with both work health and safety legislation and agricultural chemical legislation.²⁷
- 7.47 The Committee supports this process and encourages the Australian Government to consider any recommendations of the review that would streamline the regulation of work health and safety in relation to agricultural chemical products.

Gene technology

- 7.48 Throughout the inquiry, the Committee heard evidence about the role of gene technology in increasing agricultural productivity and improving the sustainability of agricultural practices (see Chapter 3).
- 7.49 For example, the Committee was told that the availability of genetically modified (GM) cotton had facilitated changes in farming practices to reduce the use of water and crop protection products while improving productivity and profitability.²⁸
- 7.50 Gene technology is regulated in Australia under the Gene Technology Agreement, an intergovernmental agreement which commenced in 2001.²⁹
- 7.51 The Gene Technology Regulator (GTR) is an independent statutory office holder responsible for administering the Commonwealth gene technology legislation and corresponding state and territory laws.³⁰
- 7.52 The GTR has specific responsibility to protect the health and safety of people and to protect the environment by undertaking risk assessment, risk management, and monitoring of work with GM organisms to ensure compliance with legislation.³¹

27 DAWR, 'Review of duplication between agricultural and veterinary chemical and work health and safety legislation' <www.agriculture.gov.au/ag-farm-food/ag-vet-chemicals/review-of-duplication> viewed 15 April 2016.

28 Ag Institute Australia, *Submission 73*, p. 5; Bayer CropScience, *Submission 78*, p. 8; Mr Matthew Cossey, Chief Executive Officer, CropLife Australia, *Committee Hansard*, Canberra, 22 February 2016, p. 1; Mr Michael Keogh, Executive Director, Australian Farm Institute, *Committee Hansard*, Sydney, 14 April 2016, p. 1.

29 Department of Health, 'The Gene Technology Agreement' <www.health.gov.au/internet/main/publishing.nsf/Content/gene-tech-agreement> viewed 15 April 2016.

30 Office of the Gene Technology Regulator, *Submission 71*, p. 1.

31 Office of the Gene Technology Regulator, *Submission 71*, pp. 1-2.

- 7.53 The GTR assesses and regulates the development, trial, and commercial release of GM plants and animals that can be used in agriculture, among other sectors.³² Before a GM plant or animal is released for commercial use, the GTR must make a determination that it is safe and has no impact on the environment.³³
- 7.54 To avoid duplication, other regulators are responsible for the assessment of products derived from GM plants or animals. For example, Food Standards Australia New Zealand is responsible for the assessment and approval of GM food products.³⁴
- 7.55 Appearing at a public hearing, Dr Jane Cook, the Acting GTR, explained to the Committee that GM canola and cotton had been approved by the regulator for commercial-scale release, and that GM cotton accounts for 95 per cent of the Australian cotton crop.³⁵
- 7.56 The Committee also heard that research and development was underway on a range of other GM plants, including wheat, barley, sugar cane, and ryegrass, in addition to live GM veterinary vaccines and GM animals.³⁶
- 7.57 The Acting GTR noted the emergence of increasingly sophisticated uses of gene technology in the agricultural sector:
- What has also been noticed is that there is an expansion of the types of GM traits that are being trialled. Initially, they were about relatively simple herbicide tolerance. Now we are seeing efforts to enhance more complex environmental stress responses such as drought and salinity tolerance.³⁷
- 7.58 However, the Committee heard that, although Australian scientists have been at the forefront of researching and developing GM traits across a range of crops, the adoption of gene technology in Australian agriculture has been slow and uneven.³⁸
- 7.59 The Committee heard that the significant cost of developing a new GM trait necessitated a transparent and workable regulatory framework, but that aspects of the current framework present a significant barrier to the

32 Office of the Gene Technology Regulator, *Submission 71*, p. 3.

33 Dr Jane Cook, Acting Gene Technology Regulator, Office of the Gene Technology Regulator, *Committee Hansard*, Canberra, 3 March 2016, p. 2.

34 Office of the Gene Technology Regulator, *Submission 71*, p. 2.

35 Dr Jane Cook, Acting Gene Technology Regulator, Office of the Gene Technology Regulator, *Committee Hansard*, Canberra, 3 March 2016, p. 2.

36 Office of the Gene Technology Regulator, *Submission 71*, p. 3.

37 Dr Jane Cook, Acting Gene Technology Regulator, Office of the Gene Technology Regulator, *Committee Hansard*, Canberra, 3 March 2016, p. 2.

38 AusBiotech, *Submission 33*, pp. 13, 15; Australian Academy of Technological Sciences and Engineering, *Submission 56*, p. 8.

adoption of gene technology. This evidence is discussed throughout the remainder of this section.

Lack of national regulatory consistency

- 7.60 Evidence to the inquiry indicated that the principal impediment to the more widespread adoption of gene technology in Australia was the lack of a nationally consistent regulatory approach.
- 7.61 In particular, stakeholders expressed strong concern that state-based moratoria on the commercial cultivation of GM crops had discouraged private investment and inhibited research and development in the sector.³⁹
- 7.62 AusBiotech explained:
- It is unlikely that any single factor has a greater impact on public investment in agricultural biotechnology in Australia than the uncertainty created by indecisive state moratoria against GM crops.⁴⁰
- 7.63 Under the intergovernmental Gene Technology Agreement, the Recognition of Designated Areas Principle allows states and territories to designate geographical areas under state and territory law to preserve the identity of GM crops or non-GM crops for marketing purposes.⁴¹
- 7.64 The GTR submitted the principle was established in recognition of the fact that, at the inception of the intergovernmental agreement, some jurisdictions were concerned that the introduction of GM products might affect the marketing of agricultural products in those jurisdictions.⁴²
- 7.65 At the time of this inquiry, the cultivation of GM food crops is prohibited in South Australia until at least September 2019.⁴³ Similarly, the commercial release of GM organisms is prohibited in Tasmania until November 2019.⁴⁴

39 AusBiotech, *Submission 33*, pp. 10–11, 14; CropLife Australia, *Submission 50*, pp. 21–23; Ag Institute Australia, *Submission 73*, p. 8; Bayer CropScience, *Submission 78*, pp. 23–25; Grain Growers Limited, *Submission 82*, p. 9; Mr Adam Kay, Chief Executive Officer, Cotton Australia, *Committee Hansard*, Canberra, 29 February 2016, p. 9; Mr Shaun Coffey, Editor, *Journal of Agricultural Science*, Australian Institute of Agricultural Science and Technology, *Committee Hansard*, Sydney, 14 April 2016, p. 9.

40 AusBiotech, *Submission 33*, p. 11.

41 Office of the Gene Technology Regulator, *Submission 71*, p. 2.

42 Office of the Gene Technology Regulator, *Submission 71*, p. 2.

43 Primary Industries and Regions SA, 'Genetically modified crops', <www.pir.sa.gov.au/primary_industry/genetically_modified_gm_crops> viewed 16 April 2016.

44 Tasmanian Government, *Submission 58*, p. 3.

- 7.66 The Tasmanian Government submitted that the adoption of gene technology requires careful consideration to ensure there are no negative impacts on markets or on the State's brand.⁴⁵
- 7.67 However, other stakeholders gave evidence of the impact of inconsistent state and territory regulation, including state-based moratoria, on the adoption of gene technology.
- 7.68 AusBiotech explained that, although GM herbicide-tolerant canola was approved by federal regulators in 2004, it was not commercially released until 2008 in Victoria and New South Wales and until 2010 in Western Australia, and remains unavailable in South Australia and Tasmania.⁴⁶
- 7.69 Bayer CropScience submitted that, in some cases, state legislation is written such that a licence for the commercial production of a GM crop may not be granted even if the required conditions are met:
- ... there remains a very real possibility that a company would invest significantly in bringing a technology to market in Australia with data to address all the federal and state regulations and still be unable to sell its product commercially.⁴⁷
- 7.70 The Committee also heard that state-based moratoria have caused agronomic and on-farm financial losses, and that environmental benefits have been forgone.⁴⁸
- 7.71 An independent review of the implementation and effectiveness of the Gene Technology Agreement undertaken in 2011 identified scope to improve national consistency in order to fully achieve the aims of the agreement.⁴⁹
- 7.72 In particular, the review stated that:
- The moratoria create uncertainty leading to:
- a poor path-to-market for GM products, which acts as a disincentive for private investment; and
 - a potential to fall behind in developments and adoption of biotechnology innovations in its export competitor countries.⁵⁰
- 7.73 The review recommended that jurisdictions with GM moratoria that had not been reviewed in the last three years commit to reviewing them by the

45 Tasmanian Government, *Submission 58*, p. 3.

46 AusBiotech, *Submission 33*, p. 13.

47 Bayer CropScience, *Submission 78*, p. 24.

48 Mr Matthew Cossey, Chief Executive Officer, CropLife Australia, *Committee Hansard*, Canberra, 22 February 2016, pp. 14–15.

49 Department of Health and Ageing, *Review of the Gene Technology Act 2000*, 2011.

50 Department of Health and Ageing, *Review of the Gene Technology Act 2000*, 2011, p. 23.

end of 2014. However, in the all governments' response to the review, this recommendation was deemed to be outside the scope of review.⁵¹

Regulation of low-level presence

- 7.74 Lack of regulatory alignment in relation to the low-level presence of GM material was also raised as a concern, particularly due to the potential impact on international trade and national standards.
- 7.75 The Committee heard that, due to the practical limitations of supply chains, and as the global trade in GM crops increases, incidents of the unintended low-level presence of GM plant material in non-GM commodities will become more common.⁵²
- 7.76 Several stakeholders suggested that inconsistent and asynchronous approaches to the approval of GM products across different countries – including the diversity of policies in relation to the low-level presence of GM material – have the potential to negatively impact the international trade in GM products.⁵³
- 7.77 For example, Bayer CropScience submitted that grain shipments may be at risk of being turned back if importing countries have zero-tolerance import policies or do not have processes in place to manage occurrences of the low-level presence of GM material.⁵⁴
- 7.78 Stakeholders also submitted that the Australian National Standard for Organic and Bio-Dynamic Produce (the national organic standard) is inconsistent with other Australian Government policies and does not align with equivalent international standards.⁵⁵
- 7.79 AusBiotech explained that the national Food Standard Code allows for up to a one per cent threshold for the accidental presence of an approved GM ingredient, whereas the national organic standard states that GM products are not compatible with organic and bio-dynamic management practices and are not permitted under a parallel production system.⁵⁶
- 7.80 Bayer CropScience submitted that organic standards in Europe permit up to 0.9 per cent of approved GM material in organic food products, and

51 Department of Health, '2011 Review of the Gene Technology Act 2000', <www.health.gov.au/internet/main/publishing.nsf/Content/gene-techact-review> viewed 16 April 2016.

52 AusBiotech, *Submission 33*, p. 12; CropLife Australia, *Submission 50*, pp. 26–27.

53 Grain Trade Australia, *Submission 21*, p. 4; AusBiotech, *Submission 33*, pp. 11–12; CropLife Australia, *Submission 50*, p. 26.

54 Bayer CropScience, *Submission 78*, p. 28.

55 AusBiotech, *Submission 33*, pp. 12–13; CropLife Australia, *Submission 50*, pp. 24–25.

56 AusBiotech, *Submission 33*, pp. 12–13.

that products approved under these standards can be imported into Australia as organic products.⁵⁷

- 7.81 Stakeholders submitted that inconsistent standards disadvantage both organic and GM farmers and undermine confidence in the adoption of gene technology.⁵⁸

Public perception of gene technology

- 7.82 Lastly, the Committee heard evidence about the relationship between the perception of gene technology among the community and its adoption in the agricultural sector.
- 7.83 Research commissioned by the Office of the Gene Technology Regulator found that awareness in and support for gene technology had fallen between 2012 and 2015.⁵⁹
- 7.84 The research accorded with previous research that found that people with less knowledge of gene technologies were less likely to support the application of gene technologies.⁶⁰
- 7.85 The Acting GTR noted that the research indicated that people are more likely to support therapeutic or industrial applications of gene technology than the use of gene technology in food crops.⁶¹
- 7.86 However, the research also found that support for GM food products was likely to increase based on growing understanding of regulation and scientific evidence of safety.⁶²
- 7.87 The Committee heard that efforts to address public and consumer acceptance were an important element in the more widespread implementation of gene technology.⁶³
- 7.88 For example, the Australian Academy of Technological Sciences and Engineering submitted:

The concerns of some parts of the public in regards to the use of [gene technologies] must be reconciled, if Australia is to truly

57 Bayer CropScience, *Submission 78*, p. 26.

58 AusBiotech, *Submission 33*, p. 13; Bayer CropScience, *Submission 78*, pp. 26–27.

59 Office of the Gene Technology Regulator, *Community attitudes to gene technology*, 2015, p. 4.

60 Office of the Gene Technology Regulator, *Community attitudes to gene technology*, 2015, p. 4.

61 Dr Jane Cook, Acting Gene Technology Regulator, Office of the Gene Technology Regulator, *Committee Hansard*, Canberra, 3 March 2016, p. 4.

62 Office of the Gene Technology Regulator, *Community attitudes to gene technology*, 2015, p. 4.

63 ADF-DA, *Submission 65*, p. 8; Growcom, *Submission 67*, p. 3; Professor Stewart Lockie, *Submission 100*, p. 2.

benefit from the enormous potential benefits to our agriculture and food industries.⁶⁴

- 7.89 The Acting GTR advised that risk assessments, regulatory processes, and information on all GM approvals by and notified to the regulator are available to the public.⁶⁵
- 7.90 However, speaking to the Committee, the Acting GTR suggested that providing plain-language information about gene technology and GM organisms might lead to greater public awareness and acceptance of gene technology.⁶⁶

Committee comment

- 7.91 The Committee accepts that effective regulation has a critical role in supporting the adoption of gene technology in the agricultural sector and underpinning confidence at all levels of the supply chain.
- 7.92 However, the Committee has identified scope to address inconsistencies in the existing regulatory framework that are preventing the widespread adoption of gene technology.
- 7.93 While the Committee acknowledges that states and territories are operating within the scope of the national Gene Technology Agreement, the Committee considers that moratoria on the commercial cultivation of GM products undermine the purpose of the agreement.
- 7.94 The result of the moratoria is that, in practice, the regulation of gene technology is fragmented and inconsistent.
- 7.95 The Committee accepts the evidence that this inconsistency discourages private-sector investment in the development of gene technology suited to Australian conditions. In turn, this limits the ability of Australian producers to compete in the international market.
- 7.96 The Committee acknowledges that there are competing interests within the industry, which, to some extent, reflect the range of views in the community about gene technology.
- 7.97 However, the Committee considers that the industry as a whole would be best served by a harmonised regulatory environment across all states and territories to encourage further adoption of gene technology.

64 Australian Academy of Technological Sciences and Engineering, *Submission 56*, p. 8.

65 Office of the Gene Technology Regulator, *Submission 71*, p. 2; Office of the Gene Technology Regulator, 'Record of GMO Dealings', <www.ogtr.gov.au/internet/ogtr/publishing.nsf/content/gmorec-index-1> viewed 16 April 2016.

66 Dr Jane Cook, Acting Gene Technology Regulator, Office of the Gene Technology Regulator, *Committee Hansard*, Canberra, 3 March 2016, pp. 4–5.

- 7.98 As such, the Committee strongly urges the Australian Government to pursue all available options to achieve a nationally consistent approach to the approval for commercial use of gene technology, including the phase out of state-based moratoria of the cultivation of GM products.

Recommendation 13

The Committee recommends that the Australian Government, through the Council of Australian Governments, pursue reform options to ensure national consistency in the regulation of gene technology.

- 7.99 Further to this recommendation, the Committee notes that an independent five-yearly review of the Gene Technology Agreement is required to be undertaken this year.
- 7.100 In commissioning the review, the Committee recommends that the Australian Government, through the Gene Technology Ministerial Council, seek terms of reference that empower the review to fully consider the impact of moratoria invoked by state and territory governments under the Recognition of Designated Areas Principle.
- 7.101 If this is considered to be outside the scope of the existing process, the Committee recommends that the Australian Government commission a separate, yet still independent, review to consider the issue.

Recommendation 14

The Committee recommends that the Australian Government commission an independent review of the implementation and effectiveness of the Gene Technology Agreement with particular reference to the impact of moratoria invoked by state and territory governments under the Recognition of Designated Areas Principle.

- 7.102 In addition to efforts to achieve consistency in the regulation of gene technology, the Committee encourages the Australian Government to resolve other inconsistencies in national and international approaches to the treatment of GM material.
- 7.103 In particular, the Committee supports an update to the National Standard for Organic and Bio-Dynamic Produce to accommodate the unintended

presence of approved GM material at low levels, in line with other national standards and international practice.

Recommendation 15

The Committee recommends that the Department of Agriculture and Water Resources, in cooperation with Standards Australia, update the National Standard for Organic and Bio-Dynamic Produce to introduce a threshold for approved genetically-modified material consistent with comparable international standards.

- 7.104 Lastly, in addition to overcoming the regulatory impediments outlined in this chapter, the Committee considers that efforts to increase public awareness in gene technology have an important role in increasing its adoption, particularly in the agricultural sector.
- 7.105 The Committee therefore encourages the Office of the Gene Technology Regulator to develop and publish educational resources on the process of assessment of gene technology and the role of the regulator in ensuring the safety of human health and the environment.
- 7.106 The Committee anticipates that such an initiative would contribute to increased awareness of gene technology and greater public trust in Australia's regulatory framework.

Drones

- 7.107 The development and increasing use of unmanned aerial vehicles (UAVs) – or drones – were raised in the digital science section of Chapter 3. UAVs, drones and other surveillance technologies offer agricultural producers the ability to monitor and track stock location, pasture conditions, and crop growth.⁶⁷
- 7.108 The submission from the Plant Biosecurity Cooperative Research Centre (CRC) stated that the use of small UAVs for biosecurity surveillance in wheat fields, vineyards and orchards is another example of technological advancement and potential.⁶⁸

⁶⁷ DAWR, *Submission 88*, p. 7.

⁶⁸ Plant Biosecurity Cooperative Research Centre, *Submission 36*, p. 6.

- 7.109 The Plant Biosecurity CRC submission explained the benefits of UAV use for agricultural surveillance:
- Drones generally provide increased operational flexibility and visibility over land-based detection methods. They can provide coverage over large areas and monitor remote, dangerous or difficult to access locations. They offer a non-invasive monitoring approach that can target site-specific threats, which in turn allows for directed treatment and management. By combining mature drone technology and advanced sensing systems, important disease and pest specific data can be collected in novel ways.⁶⁹
- 7.110 The submission from the Australian Centre for Field Robotics outlined some of its recent collaborative project work on UAVs, which includes capturing multi-spectral data of large-scale areas at high precision for detecting and classifying individual weed species.⁷⁰
- 7.111 The Department of Primary Industries and Regions South Australia (PIRSA) explained that drones with advanced sensor, web-based and wireless technologies are among the options being considered for early detection of crop pests and diseases in a new collaborative research project underway in South Australia.⁷¹
- 7.112 PIRSA stated that the research will look at UAVs fitted with near-infrared, laser, acoustic and biosensor detectors for grain and other crops, and also for fisheries and environmental management.⁷²
- 7.113 The PIRSA submission added that the research aims to significantly reduce crop losses and safeguard the biosecurity status of grains destined for export markets.⁷³
- 7.114 A Grains Research and Development Corporation (GRDC) news item, published in August 2015, discussed some of the uses of UAVs for agricultural monitoring. The news item examined data capture and uses, and discussed user experiences.⁷⁴ The item suggested that:
- uses for UAVs will evolve with experience and as sensors become cheaper and more robust; and

69 Plant Biosecurity Cooperative Research Centre, *Submission 36*, p. 6.

70 Australian Centre for Field Robotics, *Submission 94*, p. 2.

71 Department of Primary Industries and Regions South Australia, *Submission 19*, p. 7.

72 Department of Primary Industries and Regions South Australia, *Submission 19*, p. 7.

73 Department of Primary Industries and Regions South Australia, *Submission 19*, p. 7.

74 Grains Research and Development Corporation, 'Farming's new eyes in the sky' <grdc.com.au/Media-Centre/Ground-Cover/Ground-Cover-Issue-118-Sep-Oct-2015/Farmings-new-eyes-in-the-sky> viewed 15 April 2016.

- while there is plenty of enthusiasm for UAVs in broadacre agriculture their economic role in day-to-day or even season-to-season agronomy has yet to be established.⁷⁵

Regulatory issues

- 7.115 Several submissions to the inquiry pointed out that the use of UAVs has privacy and air safety implications. Some submissions suggested that farmers may not always be aware of the legal and regulatory issues associated with the use of UAVs.
- 7.116 Further, the University of Melbourne suggested that government policies, laws and regulations may not account well enough for the wider ramifications of the use of new technologies such as UAVs.⁷⁶
- 7.117 The Tasmanian Institute of Agriculture also suggested that challenges exist with the operation of UAV technology, particularly with respect to licencing and operation within the rules of the Civil Aviation Safety Authority (CASA).⁷⁷
- 7.118 Some evidence to the inquiry suggested that the technology is perhaps evolving faster than the regulations that govern its use.
- 7.119 Mr Bill Magee, from the Plant Biosecurity CRC, stated that the use of UAVs has regulatory implications, which has been presenting some problems:
- My only comment on that is that seems to be very much in its infancy. Because of the pace at which the technology is moving, the regulatory framework has not quite kept up with that, and it is not surprising.⁷⁸
- 7.120 A recent inquiry into the use of drones, conducted by the House of Representatives Standing Committee on Social Policy and Legal Affairs, identified a need for sustained attention on the privacy implications of the use of UAV technologies.⁷⁹

75 Grains Research and Development Corporation, 'Farming's new eyes in the sky' <grdc.com.au/Media-Centre/Ground-Cover/Ground-Cover-Issue-118-Sep-Oct-2015/Farmings-new-eyes-in-the-sky> viewed 15 April 2016.

76 University of Melbourne, *Submission 4*, p. 4.

77 Tasmanian Institute of Agriculture, *Submission 44*, p. 2.

78 Mr Bill Magee, Project Leader, Plant Biosecurity Cooperative Research Centre, *Committee Hansard*, Canberra, 22 February 2016, p. 19.

79 House of Representatives Standing Committee on Social Policy and Legal Affairs (2014) *Eyes in the Sky – Inquiry into drones and the regulation of air safety and privacy*.

- 7.121 Mr Magee called for the resolution of any regulatory impediments so that the benefit of new surveillance technologies can be realised.⁸⁰
- 7.122 Some submissions to the inquiry discussed the need for new and ongoing education regarding new surveillance technologies for agricultural producers. The ACFR submission stated that the organisation has:
- ... engaged with various government agencies and growers in undertaking the research and in conducting workshops/field days for demonstrating the technology, and in educating the agencies about the potential and limitations of the technology.⁸¹

Line of sight

- 7.123 Some submissions called for the extension of, or changes to, particular regulations to allow producers to use UAVs beyond line of sight.
- 7.124 Falcon UAV submitted that being able to fly beyond line of sight over a farmer's own property is essential, especially in vast rural areas. The submission added that the technology exists for this to be done easily and safely.⁸²
- 7.125 The submission from the Cattle Council of Australia, Sheepmeat Council of Australia and Australian Lot Feeders Association stated that remote monitoring applications can be limited by current legislative restrictions, which require UAVs to only be used within the line of sight of the operator.⁸³ The submission recommended that the Australian Government review relevant legislation regarding the use of UAVs and remove restrictions to better enable them to be used as tools for producers on-farm.⁸⁴
- 7.126 At the end of March 2016, CASA announced an easing of regulations that apply to UAVs.⁸⁵ The regulatory amendments are further detailed on the CASA website and will come into effect on 29 September 2016.⁸⁶ Although certain restrictions have been eased or lifted, the line of sight requirement is still in place.

80 Mr Bill Magee, Project Leader, Plant Biosecurity Cooperative Research Centre, *Committee Hansard*, Canberra, 22 February 2016, p. 19.

81 Australian Centre for Field Robotics, *Submission 94*, p. 2.

82 Falcon UAV, *Submission 103*, p. 1.

83 CCA-SCA-ALFA, *Submission 84*, p. 3.

84 CCA-SCA-ALFA, *Submission 84*, p. 3.

85 Civil Aviation Safety Authority, 'Red tape cut for remotely piloted aircraft' <www.casa.gov.au/publications-and-resources/media-release/red-tape-cut-remotely-piloted-aircraft> viewed 15 April 2016.

86 Civil Aviation Safety Authority, 'Part 101 Amendments - Cutting red tape for remotely piloted aircraft' <www.casa.gov.au/aircraft/standard-page/part-101-amendments-cutting-red-tape-remotely-piloted-aircraft> viewed 15 April 2016.

- 7.127 The CASA website states that autonomous flight is currently prohibited, however, suitable regulations are being developed. The website also states that there is scope for CASA to approve autonomous flight on a case-by-case basis.⁸⁷

Committee comment

- 7.128 The Committee notes evidence to the inquiry suggesting that UAV technology will become an extremely useful tool for agricultural producers. The Committee recognises the monitoring and surveillance potential of this technology for farm businesses.
- 7.129 The Committee considers that there is value in producers being made aware of the potential uses and limitations of UAV technology. Further, the Committee sees a need for regulations and restrictions pertaining to UAV technology being communicated to agricultural producers in an efficient and targeted manner.
- 7.130 The Committee is of the view that responsible use of UAVs is a matter for consideration by agencies involved in the agricultural research, development and extension process. This would include the Department of Agriculture and Water Resources, state and territory agriculture departments, Research and Development Corporations, and private and public extension services.
- 7.131 While acknowledging that UAVs are used beyond the agricultural industry, the Committee considers that there could be some benefit in having tailored educational material made available to stakeholders in the agricultural sector. Such materials might cover possible uses of UAVs and current regulatory implications of UAV use.

Recommendation 16

The Committee recommends that the Department of Agriculture and Water Resources and the Civil Aviation Safety Authority develop appropriate extension materials promoting the appropriate use of unmanned aerial vehicles in the Australian agricultural sector.

87 Civil Aviation Safety Authority, 'Part 101 Amendments - Cutting red tape for remotely piloted aircraft' <www.casa.gov.au/aircraft/standard-page/part-101-amendments-cutting-red-tape-remotely-piloted-aircraft> viewed 15 April 2016.

- 7.132 The Committee is mindful of the existing restrictions on the use of UAVs, however the easing of some of those restrictions in September 2016 will be of benefit to users of this new technology.
- 7.133 The Committee is of the view that there would be benefit in the line of sight issue being further examined by CASA. The Committee considers that CASA should investigate the safety implications of adjusting the regulation affecting line of sight, enabling landholders to use UAVs beyond line of sight, provided that it is still on or over their own property. The Committee recognises that this will be extremely useful for producers with very large and remote properties.

Recommendation 17

The Committee recommends that the Civil Aviation Safety Authority investigate regulations requiring unmanned aerial vehicles to be flown within visual line of sight, with a view to amending the regulations to enable agricultural producers to use such vehicles for monitoring purposes beyond line of sight on or over their own properties.

Rowan Ramsey MP

Chair

2 May 2016

