

DAFF Science Delivery Audit

Final Report



This internal audit and strategic analysis of the activities of science delivery in Agri-science Queensland and Biosecurity Queensland has been undertaken as part of the Queensland Government's examination of its portfolio programs following the election in March 2012.

The government is committed to using science and innovation for economic success by ensuring that it has access to the best possible scientific advice and that this is directed toward meeting the future policy challenges of Queensland industries and contributes to sound decision-making about environmental, economic, industry and social issues.

This is the second in a series of audits of investment in scientific services performed by Queensland Government departments.

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Acknowledgements

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Data - provided by the Department of Agriculture, Fisheries and Forestry

Biography of Professor Alan Bell, Consultant

Alan Bell grew up on a dairy farm in South Gippsland, Victoria. He was educated at the University of New England (B Rur Sc, Hons, 1969) and the University of Glasgow (PhD, 1976) and has held research and teaching positions at CSIRO; the Hannah Research Institute, Scotland; La Trobe University, Victoria; and Cornell University, USA. At Cornell he was Professor and Chairman of the Department of Animal Science from 1997 to 2007, with major responsibilities for teaching, research and extension in livestock biology and management. From 2007 until his retirement in 2012 he was Chief of CSIRO Livestock Industries with responsibility for research operations in Queensland, New South Wales, Victoria, and Western Australia. In 2009 he was seconded for a year to help create and lead the new CSIRO Division of Food & Nutritional Sciences, returning to Livestock Industries in early 2010.

Biography of Peter Reading, Consultant

Peter Reading was educated at the University of Sydney (B Sc, Hons) and has extensive experience in the public and private sectors of agribusiness including: agricultural chemicals and biotechnology; horticulture; start up agribusinesses; domestic and international grain marketing; and research development and extension. At the Grains Research and Development Corporation, he was Managing Director of one of the world's leading investors in grains research and development and led the development of the highly respected National Grains RD&E strategy which included recommendations for the development of the Australian Export Grains Innovation Centre. As Managing Director of the Grain Pool in Western Australia, Peter was responsible for export sales and marketing of barley, lupins and canola with annual turnover in excess of \$700 million. He played a major role in merging The Grain Pool and Co-operative Bulk Handling Ltd to establish the largest integrated grain marketer and bulk handling company in Australia.

Executive Summary: Key findings and recommendations

The following is a summary of key findings and recommendations selected from a more comprehensive list based on more than 50 interviews with senior managers from the Department of Agriculture, Fisheries and Forestry (DAFF), senior managers from the Department of Science, Information Technology, Innovation and the Arts, external collaborators and partners, including the leadership team from the Queensland Alliance for Agriculture and Food Innovation (QAAFI), and leaders of client industry organisations.

Interviews were mostly face-to-face and conducted over a three week period in October 2012 by Alan Bell and/or Peter Reading, with the support of Alex Cody.

Key findings

1. Current science delivery business model

Model of collaborative co-investment with industry, universities, federal and other state government agencies is appropriate, but presents risk to highly leveraged science programs, for example the grains program relies on industry for more than 70 per cent of its funding.

DAFF research, development and extension (RD&E) is heavily focused on primary production, with relatively little resource devoted to the post-farm gate value chain.

DAFF's outsourcing of most of its sugar RD&E to Sugar Research Australia (SRA) has worked well in the past, but future use of this investment to advance government priorities may be compromised by industry moves to merge BSES and the Sugar Research and Development Corporation (SRDC). We are especially concerned about the potential conflict of interest in creating an organisation that both funds and conducts research.

Secondment of 34 DAFF senior research staff to QAAFI is a favourably regarded work-in-progress with substantial potential benefits, but also significant risks, including the possibility of drifting from DAFF priorities, which must be actively managed by DAFF leaders.

DAFF's reliance on other state agencies (especially DSITIA) for environmental sciences capability reduces the likelihood of duplication within government and increases interdepartmental understanding, but is vulnerable to changing priorities of other departments.

Separation of the management of policy and industry development within the Agriculture & Forestry division from science management in Agri-science Queensland (AQ) and Biosecurity Queensland (BQ) may pose a future risk due to senior staff turnover and loss of existing intra-departmental networks.

2. *Resources and capabilities*

- Recent funding cuts have damaged staff morale, especially in BQ which had sustained steady growth since its formation in 2007.
- Recent and pending losses of experienced, industry-savvy senior staff have raised widespread industry concerns.
- Lack of capability in key areas (for example, in field crop agronomy, and plant pathology) is jeopardising substantial industry funding.
- The change from regional to central management of research infrastructure with direct responsibility to the Managing Director of ASQ has enabled appropriate consolidation of infrastructure and improved linkage of resource management to science delivery needs.
- Reduction of library staffing to four full time equivalents (FTEs) is sufficient to provide vital services to DAFF scientists - providing the responsibilities of this group are confined to advanced information technologies, management of electronic subscriptions and curation of valuable holdings of unique historical and other documents.



Executive Summary: Key findings and recommendations

3. Alignment with state and federal priorities

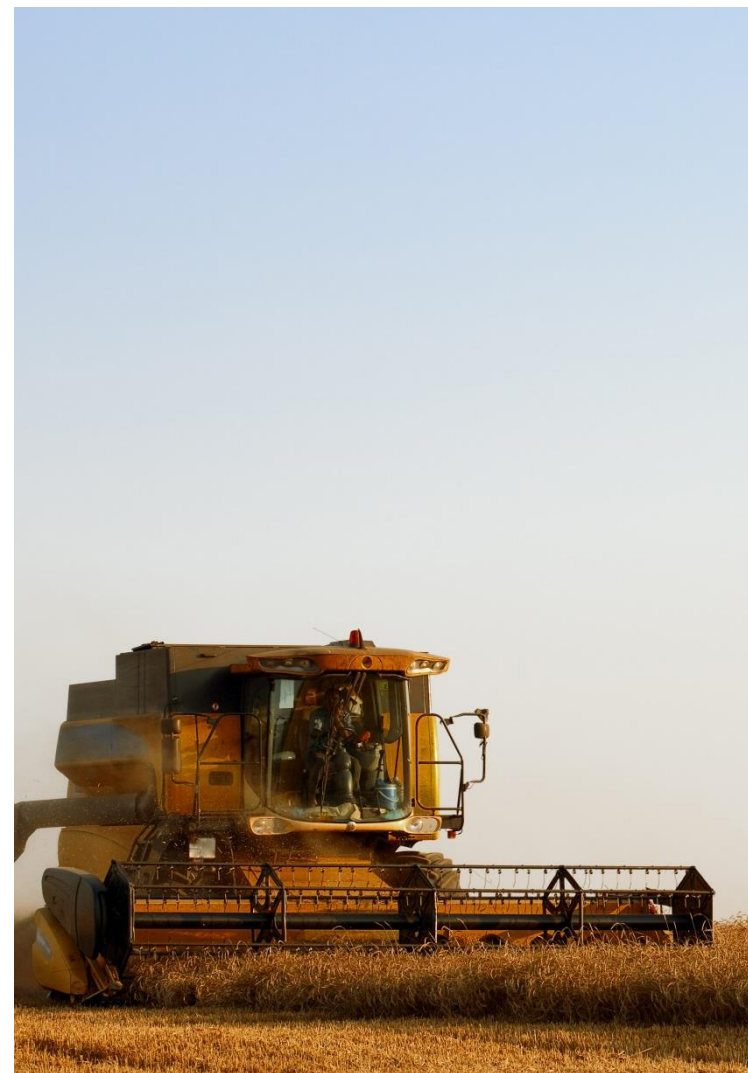
- DAFF's science delivery focus on agricultural productivity and biosecurity is well-aligned with the Queensland Government's policy of growing a four pillar economy, including agriculture, and its target to double Queensland's food and fibre production by 2040.
- Commitment to and alignment with the National Primary Industries RD&E Framework is uneven across industry sectors, with greatest progress towards implementation in beef and horticulture where DAFF staff have positions of national leadership. Industry leaders have questioned DAFF's commitment to the grains strategy while progress towards final agreement on strategies for sugar, forestry, and plant and animal biosecurity has been slow.
- The Government's recent allocation of \$4.8 million for research and development (R&D) on pulses seems to be at odds with the Grains Industry National Research, Development and Extension Strategy.
- Recent cuts in RD&E programs are aligned with the national framework, for example intensive livestock production, Wormbuster (sheep) program.

4. Performance

- DAFF is fortunate in having a corps of high-performing, nationally prominent senior managers and science leaders. However, some stakeholders are concerned about a number of key roles filled by acting managers, with perceptions of inaction.
- Major stakeholders are generally satisfied with responsiveness and industry relevance of DAFF science delivery and complimentary about science quality, but commented on the need for more rigorous scientific and economic evaluation of project outcomes.
- Motivation and performance of DAFF scientific staff have greatly benefited from the Scientific Progression Scheme for promotion of officers consistently performing to competencies above their grade.

5. *Alternative science delivery models*

- QAAFI is considering expansion to strengthen some areas (for example, horticulture and plant breeding) and add new capability in others (for example, entomology, animal nutrition and biosecurity).
- Models adopted elsewhere for delivering state-supported agricultural RD&E include outsourcing of all functions to another institution (as done in Tasmania), co-funding of R&D positions with universities and CSIRO and partial outsourcing of extension to industry (seen in Victoria), and reliance on knowledge-based e-extension (as has been done in Western Australia, South Australia).
- “Train-the-trainer” approaches have largely replaced traditional extension models in some United States Land Grant Universities, for example the Cornell University Pro-Dairy program. Key elements of this approach are:
 - fewer, well-paid, highly-trained extension specialists with high industry credibility
 - ability to work in interdisciplinary teams to address regional or state-wide issues
 - the inclusion of strong capability in business and whole-farm systems management
 - enablement of translation and delivery of R&D outcomes by continuing education and advanced training of consultants, agribusiness personnel and producers, often on a fee-for-service basis
 - that it does not provide service to individual producers except to demonstrate and evaluate changed practices for a wider audience.



Executive Summary: Key findings and recommendations

Key recommendations

1. Retain the current core strategy of collaborative co-investment in the science delivery programs of ASQ and BQ within the available funding envelope.
2. Review the state's commitment to and alignment with the National Primary Industries RD&E strategies for beef, grains, horticulture, sugarcane, and plant and animal biosecurity, and meet with leaders of relevant research and development corporations (RDCs), Plant Health Australia and Animal Health Australia to review and confirm priorities and directions.
3. Immediately seek high-level engagement with the Grains Research Development Corporation to address the following concerns:
 - exposure of highly leveraged grains RD&E programs
 - inadequate capacity to deliver on high-priority projects because of lack of capability in key areas
 - need for decisive and responsive program leadership
 - DAFF's commitment to implementation of the National Primary Industries Grains RD&E Strategy (see above).
4. Actively participate in discussions of the industry-sponsored proposal to merge SRA and SRDC to ensure that DAFF's investment in science delivery to support the sugarcane industry continues to be aligned with Queensland Government priorities; provide leadership in revision of the national RD&E strategy for sugar.
5. Retain the current model of centralised management of infrastructure with direct responsibility to the Managing Director of ASQ and continue the consolidation of research infrastructure, including disposal of underutilised assets and co-location with other science agencies.
6. Develop succession plans for replacement of key science capabilities and leadership in ASQ and BQ.
7. Closely monitor the new science management structure within BQ to ensure that resources and priorities for R&D programs are not diluted by pressures of the non-R&D functions of BQ.
8. Strongly encourage BQ science leaders to explore collaborative opportunities with the new CSIRO Biosecurity Flagship (for example, marine biosecurity) and University of Queensland School of Veterinary Science (for example, diagnostic services).
9. Endorse the plan to retain a reduced (four FTEs) library services capacity focussed on advanced information technologies, management of electronic subscriptions and curation of valuable holdings of unique historical and other documents.
10. Reinstate the Scientific Progression Scheme to enable retention of high-performing officers and boost staff morale, motivation and productivity.

Executive Summary: Key findings and recommendations

11. With regard to QAAFI:

- quickly negotiate a more flexible funding agreement that will enable extension of the current program of work and eligibility for external funding into the future
- delay any decisions about increasing DAFF investment until after the three year review in 2013
- as part of the three year review, benchmark with the Tasmanian Institute of Agriculture
- develop and implement robust governance mechanisms to ensure that QAAFI's work plans reflect Queensland Government strategic priorities for agri-food R&D, and that QAAFI research outcomes are linked to DAFF's science delivery platforms.

12. Transition the current mixed model for extension to a leaner, more highly skilled “train-the-trainer” model which:

- is focused on productivity, profitability and resilience of Queensland's major agricultural industries
- has credibility with researchers as well as industry
- gives priority to the advanced training and continuing education of private consultants, agribusiness professionals and producer groups, using e-extension as part of its delivery mechanisms
- facilitates producer-led discussion groups to share and promote best practices
- has strong capability in farm business and systems management
- will form the link between R&D outcomes and conversion of these outcomes into formats and communication packages to maximise delivery to producers - either directly or through industry consultants
- will be trialled and evaluated in the priority sectors of beef, grains and horticulture before implementation, beginning with grains which already relies significantly on privatised services.

