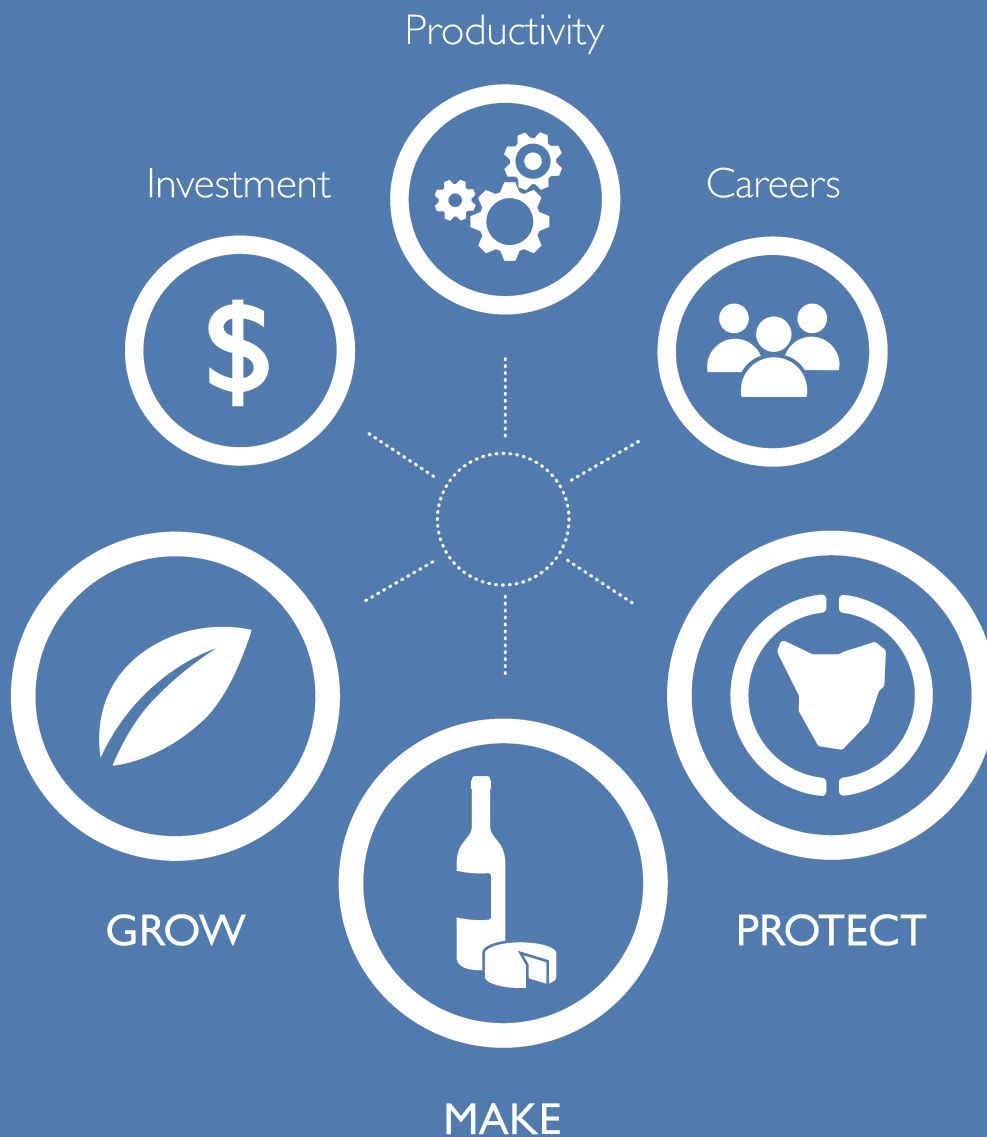


# AGRICULTURAL RESEARCH DEVELOPMENT & EXTENSION

Principles and Investment Strategy

2018-19 to 2022-23





# Growing Tasmanian Agriculture

## Agricultural Research, Development and Extension Principles and Investment Strategy



### Minister's Foreword

The Tasmanian Government has an ambitious goal to increase the annual value of the agricultural sector to \$10 billion by 2050. To achieve this, the sector will need to grow at more than double the growth rate experienced over the 20 years to 2013 and so far we are well on track to reach \$10 billion by 2050. Effective investment in agricultural research, development and extension (RD&E) is crucial to maintaining the growth rate necessary to reach that goal.

The Government's White Paper, *Growing Tasmanian Agriculture – Research, Development and Extension for 2050* sets out the Government's future direction for publicly funded agricultural RD&E, developed after consulting widely with Tasmanian farmers, agribusinesses and other stakeholders in Tasmania's RD&E system. That consultation and analysis confirmed that Tasmania has a sound framework for RD&E led by the Tasmanian Institute of Agriculture (TIA). The review identified 15 actions to build on that advantage to achieve even better RD&E outcomes. Working with TIA, we have already implemented a number of those actions.

I am excited to release the *Agricultural Research Development and Extension Principles and Investment Strategy*, which delivers against three more of the White Paper actions – to develop principles and a strategy to guide the Tasmanian Government's investment in RD&E, and to establish an Agricultural Innovation Fund to address emerging opportunities and issues that will directly impact Tasmanian agriculture. I acknowledge the contribution of the Tasmanian Institute of Agriculture Advisory Board in the development of the principles and strategy.

The Government is committed to working with TIA, farmers, and agribusiness to deliver world class RD&E that will achieve sustainable growth in the Tasmanian agricultural sector.

A handwritten signature in blue ink, appearing to read 'Guy Barnett'.

Guy Barnett

Minister for Primary Industries and Water

## INTRODUCTION

To ensure that State Government resources are applied to best effect in supporting farmers and the overall Tasmanian agricultural sector to reach its potential, a review of the Tasmanian Government's investment into agricultural research, development and extension (RD&E) was undertaken in 2017. It involved thorough consultation with a range of Tasmanian agricultural stakeholders and analysis of Tasmania's RD&E system.

In November 2017, the Government released the White Paper, *Growing Tasmanian Agriculture – Research, Development and Extension for 2050*, which set out the Government's future direction for agricultural RD&E.

The review confirmed that the Tasmanian Institute of Agriculture (TIA) is the Government's preferred supplier of publicly funded agricultural RD&E services, with opportunities established for working in partnership with the private and non-government organisation sectors. With its Statewide focus and connectivity with the broader University of Tasmania (UTAS) community, TIA offers our agricultural sector unparalleled opportunities for meaningful engagement with the RD&E system, to support adoption of the best available technologies and practices on-farm.

The White Paper set out 15 actions to make the Tasmanian Government's investment in RD&E even more effective and responsive to industry needs (see appendix for the full list).

This document, the Tasmanian Government's *Agricultural Research, Development and Extension Principles and Investment Strategy: 2018-19 to 2022-23* addresses three White Paper actions shown in the box below.

The Principles and Investment Strategy are subject to review every 5 years.

### ACTION

Principles will be developed to prioritise and allocate the Tasmanian Government's investment in RD&E activities to ensure they lead to sustainable productivity improvements and sustainable growth for Tasmanian farmers and agribusinesses. The principles will be reviewed every five years.

### ACTION

A five-year RD&E Investment Strategy will be developed by December 2018 to determine the proportion of State Government investment across the four recognised areas of RD&E being: industry development and sustainable production; capacity building; innovation; and international linkages. Thereafter new investment strategies will be developed every five years.

### ACTION

An Agricultural Innovation Fund will be established to address emerging opportunities and issues, which will directly impact Tasmanian agriculture.

## PRINCIPLES

The objective of investment in agricultural RD&E by the Tasmanian Government is to achieve sustainable productivity growth in the Tasmanian agricultural sector; a key pillar of the State's economy.

The principles set out in this document are designed to ensure that the prioritisation and allocation of the Tasmanian Government's investment in agricultural RD&E directly supports this objective. The Principles are to be applied in concert with the Investment Strategy.

The principles apply to the Tasmanian Government's core funding for TIA as well as funding for specific purposes or projects.

## PRINCIPLES

The prioritisation and allocation of Tasmanian Government funding to RD&E activities will be based on the following characteristics:

1. Focus on **sustainable productivity growth** for Tasmanian farmers and agribusinesses.
2. High quality agricultural RD&E likely to deliver a **net social benefit** that otherwise would not be undertaken.
3. **Alignment with Tasmanian Government policy.**
4. **Clear impact pathway** articulating a plausible and feasible connection from RD&E investment to farm-level impact, including provision for extension and evaluation.
5. **Partnership approach** for industry engagement along the value-chain, appropriate levels of co-investment and maximisation of adoption and impact.
6. **Transparent reporting** that enables assessment of outcomes and impacts against the Government's RD&E investment.

## Sustainable Productivity Growth

The primary objective of investment in Agricultural RD&E by the Tasmanian Government is to sustainably increase the productivity and competitiveness of the Tasmanian agricultural sector.

To that end, investment in agricultural RD&E should directly and demonstrably lead to productivity improvements and sustainable growth for Tasmanian farmers and agribusinesses. Application of this principle is supported by clear impact pathways and transparent reporting.

### PRINCIPLE

1. Focus on sustainable productivity growth for Tasmanian farmers and agribusinesses

## Net Social Benefit

Investment in agricultural RD&E usually generates private benefits which, in the case of a business making that investment for example, accrue to that business. In many cases, RD&E also generates 'spillover' benefits to other people and businesses, such as other people within the industry or the broader community. The combined private benefit and spillover benefit is the total social benefit.

A project has a net social benefit if the total social benefit exceeds the cost of the investment. Any RD&E project that delivers a net social benefit will make the community better off overall if it goes ahead. Such projects may go ahead without public funding because the private benefits provide sufficient incentive for the private sector to invest in socially beneficial RD&E without government intervention.

However, market failure can result in RD&E with an expected net social benefit not being undertaken. Public funding of agricultural RD&E should be limited to projects that are likely to yield a net social benefit, which could not otherwise be undertaken without public funding.

It is important that where RD&E yields industry benefits, there are appropriate levels of co investment by the private sector. In assessing the projected benefits and costs of the project, the technical feasibility of the project should also be considered.

Judgment is required in the application of this principle, supported by clear impact pathways, transparent reporting and partnerships.

### PRINCIPLE

2. The Tasmanian Government will invest in high quality agricultural RD&E likely to deliver a net social benefit that otherwise would not be undertaken

## Alignment with Government Policy

RD&E activities should align with Tasmanian Government policy, which includes the target to grow the annual farm gate value of the agricultural sector to \$10 billion by 2050. The level of alignment with any particular policy will vary depending on the relevance of the policy to the activity. As a minimum, publicly funded RD&E should not conflict with Government policy.

Funding allocation should prioritise and support RD&E activities that more closely align with and support key relevant policies. These include:

- the Tasmanian Government's Agricultural RD&E Strategy,
- the Tasmanian Government's Agriculture Policy, and
- National and State RD&E Priorities, as each of these is expressed from time to time.

### PRINCIPLE

3. Alignment with Tasmanian Government policy

## Clear Impact Pathway

To deliver on the principle that RD&E should directly lead to productivity improvements for Tasmanian farmers and agribusinesses, project design and selection are critical.

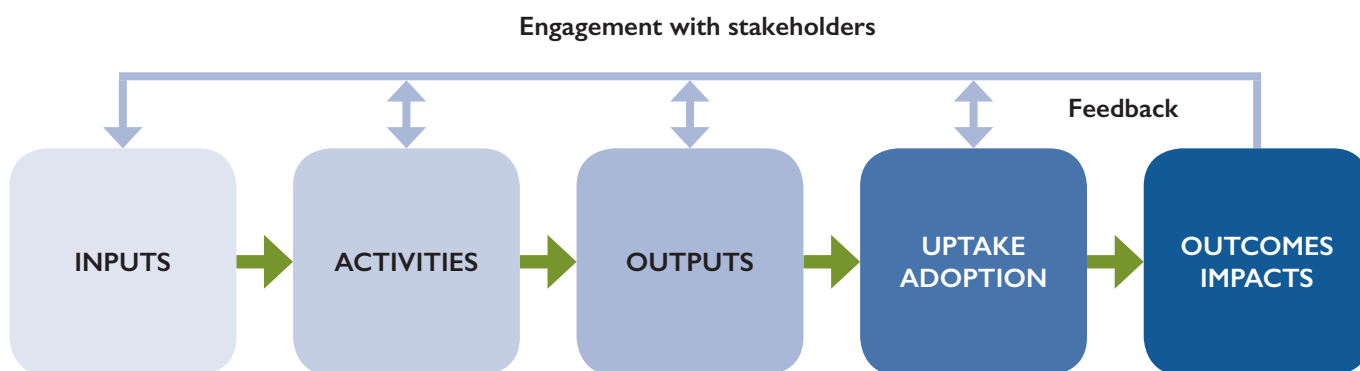
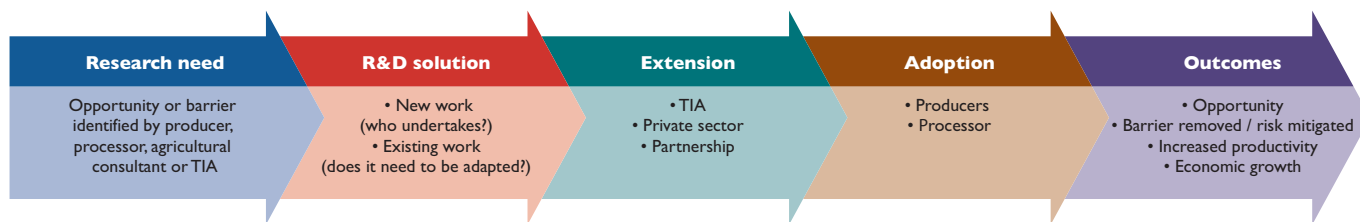
To support this, project proposals will explicitly focus on the expected farm-level impacts, in addition to the academic outcomes (such as publications), that are likely to result from their work. Researchers will describe plausible links between the resources used in RD&E activities, and assumptions they make about the economic, environmental and social outcomes of that work for Tasmanian farmers and agribusinesses both now and in the future.

The impact pathway should provide a clear narrative about the target population for the technology, the rate and extent of adoption, and the resources that will be needed to achieve that adoption. Based on this narrative, the project will include appropriate best practice extension activities and reporting to allow assessment of the effectiveness of the use of the research funds and demonstration of the benefits from the investment.

This approach, which has already been adopted by a number of leading RD&E organisations across Australia, is outlined in Figure 1.

### PRINCIPLE

4. Clear impact pathway articulating a plausible and feasible connection from RD&E investment to farm-level impact, including provision for extension and evaluation



Planned work			Intended results	
CAN BE CONTROLLED			DIRECT INFLUENCE	INDIRECT INFLUENCE
<ul style="list-style-type: none"> <li>• Staff FTE</li> <li>• Non-staff FTE</li> </ul> Dollar value estimates using: <ul style="list-style-type: none"> <li>• appropriation funding</li> <li>• external funding grants</li> <li>• in-kind contributions</li> <li>• equipment/facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Research/technology development</li> <li>• Education</li> <li>• Industry engagement</li> </ul>	<ul style="list-style-type: none"> <li>• Extension</li> <li>• Publications</li> <li>• Prototypes</li> <li>• Patents granted</li> <li>• New services</li> <li>• New/updated standards</li> <li>• Report</li> </ul>	<ul style="list-style-type: none"> <li>• Training accessed by users</li> <li>• Adoption of new research protocols and techniques</li> <li>• Industry, government &amp;/or community usage</li> <li>• Process changes implemented</li> <li>• Behavioural change</li> <li>• Licenses/IP sold</li> </ul>	Economic impacts from: <ul style="list-style-type: none"> <li>• Increased commodity yield</li> <li>• Decreased costs of production</li> <li>• Increased product value</li> <li>• Increased value or production potential of resource base</li> <li>• Risk mitigation</li> </ul>

Figure 1. Schematic of an Impact Pathway Framework for agricultural productivity growth <sup>1</sup>

<sup>1</sup> Adapted from CSIRO's *Impact Evaluation Guide*, November 2015 and DPIPW's *Growing Tasmanian Agriculture: Research Development and Extension for 2050*, November 2017.

## Partnerships for Engagement, Co-Investment and Impact

It is critical that knowledge and developments in agricultural science are adopted in such a way to increase the productivity and sustainability of the Tasmanian farming sector. It is also important that, where RD&E outcomes deliver significant private benefits, there is appropriate co-investment by industry.

Appropriate levels of engagement with industry, end-users, influencers and value chain partners along the impact pathway are crucial (as shown in Figure 1) to ensure that:

- End-users are involved in defining the problem or opportunity to be addressed by RD&E investment
- There are appropriate levels of co-investment from the private and public sector determined by the expected distribution of private and public benefits
- RD&E is delivered efficiently and without unnecessary duplication
- The mode of extension delivery optimises benefits for industry and extends beyond the farm-gate and along the supply chain
- A partnership approach is adopted with private sector providers to facilitate and broker information and extension services
- Extension services are provided by the private sector where market opportunities exist, with investment directly in extension where market failure is evident
- Evaluation and reporting of outcomes is facilitated

Appropriate partnerships with the private sector and public funding bodies to achieve these outcomes are a key requirement for Government investment in agricultural RD&E.

### PRINCIPLE

5. Partnership approach for industry engagement along the value chain, appropriate levels of co-investment, and maximisation of adoption and impact

## Transparent Reporting

The Tasmanian Government is accountable for public money invested in agricultural RD&E and transparent reporting demonstrates the effectiveness of the use of these funds and the alignment of outcomes with the priorities and objectives of the Government.

For funds invested in projects, reporting of outputs and outcomes will be against the impact pathway methodology. In relation to core funding, reporting will be against agreed standard performance and impact metrics.

### PRINCIPLE

6. Transparent reporting against agreed metrics that enables assessment of outcomes and impacts against the Government's RD&E investment

## INVESTMENT STRATEGY: 2018-19 TO 2022-23

The Tasmanian Government's agricultural RD&E investment strategy is structured to provide certainty for TIA as well as flexibility to respond to emerging opportunities and threats. It also aims to ensure that the Government's investment portfolio is balanced and focussed on sustainable productivity growth for Tasmanian farmers and agribusinesses.

The significant core funding that the Tasmanian Government and UTAS each commit annually to TIA (as an ongoing joint venture) allows TIA to grow and develop with certainty, and to invest in its people and assets for the long-term. The strategy continues to provide core funding to TIA and funding for specific projects.

A key feature of this first five-year investment strategy is the introduction of the Agricultural Innovation Fund to increase flexibility in RD&E funding and enable response to emerging opportunities and issues that will directly impact Tasmanian agriculture.

The strategy does not include the Government's additional \$7 million capital investment to modernise the Crown and TIA research farm assets, making them centres of excellence for practical research and demonstration.

It is acknowledged that, as part of the University, TIA will have other objectives that will be addressed under its broader Strategic Plan. This strategy is a guide to application of the Tasmanian Government's investment in RD&E through TIA.

### Tasmanian Agriculture – reaching the 2050 target

In 2017-18, the gross value of agriculture was \$1.60 billion.

Dairy, grains and grazing account for approximately 70% of gross value and horticulture accounts for 30%. Food agriculture contributes over 80% of gross value and has accounted for virtually all of the growth in agricultural value over the past decade.

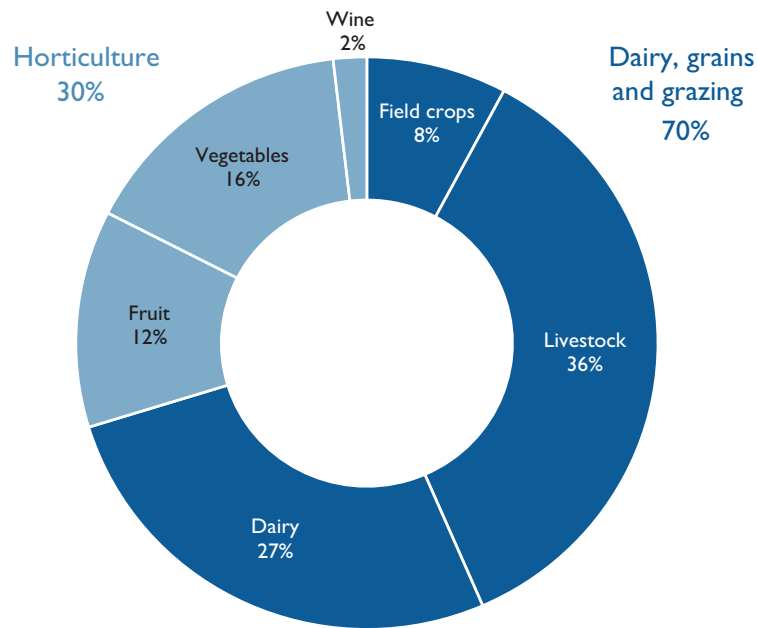
Seasonal and market fluctuations mean that growth toward the AgriVision target of \$10 billion in 2050 will not be smooth. However, to be on track to achieve this goal, at the end of this five year strategy in 2022-23 the target gross value is \$2.12 billion.

Attaining the AgriVision 2050 target will require industry-led growth from sectors that currently contribute to the State's gross value of agriculture as well as new and emerging industries in which Tasmania has a competitive advantage.

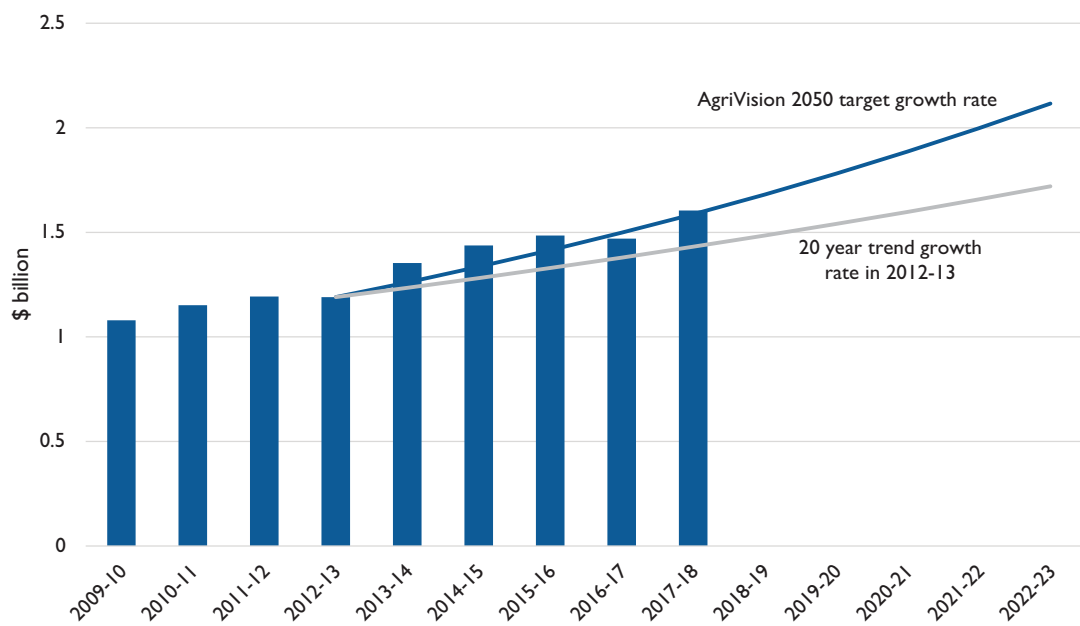
The Government, through TIA, will partner with the private sector to invest in RD&E that grows productivity by increasing yields, decreasing input costs, increasing the market value of products, transitioning to higher value products, improving marketing efficiency and sustaining the productive natural resource base.

The portfolio of investment in agricultural RD&E will be appropriately balanced across existing industries and new and emerging industries, taking into account their potential to contribute to growth.

### Contribution to Farm Gate Gross Value of Agriculture<sup>2</sup>



### Gross Value of Tasmanian Agriculture



<sup>2</sup> Contributions may not sum to totals due to rounding

## Investment across the Four Areas of Research

Without being project specific, the investment strategy provides funding targets across the four recognised key areas of research as outlined below:

### 1. Industry development and sustainable production

Between 60% and 80% of RD&E investment targeted at initiatives that focus on: productivity and adding value; supply chains and markets; biosecurity; natural resource management; and climate variability.

### 2. Capacity building

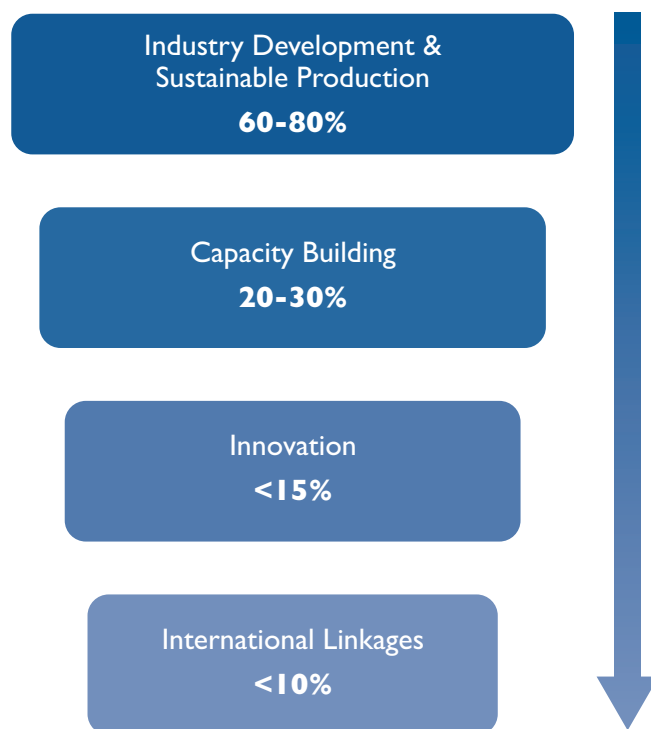
Between 15% and 30% of investment allocated to initiatives to increase the Tasmanian rural sector's utilisation of technical knowledge, better equipping it for global competitiveness, productivity, adaptability and sustainable development.

### 3. Innovative or 'blue sky' RD&E

Up to 15% of investment allocated to research driven by ideas that stand a reasonable chance of radically changing the understanding of an important existing scientific concept or leading to the creation of a new paradigm or field of science and technology.

### 4. International linkages

Less than 10% of investment allocated to international research collaborations. These research projects provide access to skills, knowledge and expertise overseas; can provide counter-seasonal research opportunities; and may also support global development initiatives.



The State Government's clear focus on sustainable productivity growth, means that the majority of its investment is targeted to industry development and sustainable production, and capacity building. Funding is tapered toward research in the categories of innovation and international linkages, which less directly support the investment objectives.

## Agricultural Innovation Fund

The Government also needs a capacity to procure RD&E services when an opportunity emerges to enter a strategic partnership in an area of importance to Tasmanian agribusiness or to respond to take advantage of a unique opportunity. Equally, when confronted with a situation that could materially impact one or more of our agricultural sectors, the capacity to respond quickly is critical.

The Agricultural Innovation Fund has been established to provide that capacity.

Allocation of these funds will rest with the Minister for Primary Industries and Water. It allows for a rolling annual program of innovative projects identified by industry, capitalising on strategic opportunities for growth and development. At the same time, the fund ensures that capacity is retained to respond rapidly to material threats and minimise adverse impacts to the Tasmanian agricultural sector. Like other investments in agricultural RD&E, funding of activities from the Agricultural Innovation Fund will be subject to the RD&E investment principles.

Allocation of the Agricultural Innovation Fund over the life of the Investment Strategy is to be determined in response to emerging opportunities and issues.

## Investment

The Government has committed \$28 million over 5 years from 2018-19 to core funding for TIA and the Agricultural Innovation Fund. The government is complementing this investment with a \$7 million capital investment into Crown and TIA Research Farms to create centres of excellence in agriculture RD&E.

The Government also contributes to a number of ongoing TIA projects that will be completed during the 5 year period covered by the strategy. These include initiatives:

- helping Tasmanian farmers maximise their return on investment in irrigation
- trialling biofumigation for soil health in potato production
- developing of a risk management system for poppy systemic downy mildew
- improving the productivity of Tasmanian vineyards

Investment in RD&E is complemented by other non-RD&E initiatives to address obstacles to growth and support industry development. The Government is committed to a strong research and innovation agenda to drive growth in the value of the Tasmanian agricultural sector toward the goal of \$10 billion by 2050.

## APPENDIX – White Paper Actions

The White Paper, [Growing Tasmanian Agriculture – Research, Development and Extension for 2050](#), identified the following 15 actions to focus agricultural RD&E on increasing the sustainable growth and productivity of Tasmanian agriculture:

1. Principles will be developed to prioritise and allocate the Tasmanian Government's investment in RD&E activities to ensure they lead to sustainable productivity improvements and sustainable growth for Tasmanian farmers and agribusinesses. The principles will be reviewed every five years.
2. A five-year RD&E Investment Strategy will be developed by December 2018 to determine the proportion of State Government investment across the four recognised areas of RD&E being: industry development and sustainable production; capacity building; innovation; and international linkages. Thereafter new investment strategies will be developed every five years.
3. Research project proposals and assessments will explicitly focus on the expected farm-level impacts of a proposed RD&E project and include extension and outreach activities.
4. A range of standard performance and impact metrics on the effectiveness of RD&E activities in supporting Tasmanian agriculture and food producers will be developed and subsequently reported on an annual basis. Specific metrics will be developed by June 2018 to guide and assess extension efforts.
5. An Agricultural Innovation Fund will be established to address emerging opportunities and issues, which will directly impact Tasmanian agriculture.
6. The State Government will work with TIA to increase the State's RD&E capacity in biosecurity risk mitigation, across all relevant sectors of Tasmanian agriculture to maintain and build our comparative advantage in relative pest and disease freedom and support the Tasmanian Brand.
7. An Extension Outreach Program will be developed in partnership with key stakeholders to support the on farm adoption of R&D by farmers.
8. A new pilot Agricultural Graduate (or Internship) Partnership Program will be established operating within the Agricultural Systems Centre in TIA and with a specific focus on extension. This Program will provide Agricultural and Agricultural Science Graduates with practical experience through placements within TIA and the commercial agriculture sector.
9. New 'Industry Advisory Groups' will be formalised for Centres within TIA connected to the overarching Advisory Board to provide consistent and transparent pathways for industry input.
10. TIA will consider how to better engage with Tasmanian farmers, food and fibre producers and introduce new performance targets by December 2018 to further build engagement and partnerships with the private sector across its RD&E agenda.
11. The Government will continue to seek both public and private partnerships to maximise the use of our research farm capacity, including providing access to land and associated infrastructure.
12. The Government and TIA will jointly commission a Research Farm Portfolio Plan to determine how to most strategically utilise research farm assets to support RD&E including the potential to establish "Centres of Excellence". The Plan is to be finalised by March 2019.
13. The Government will also work through TasTAFE to further develop the role of Freer Farm in delivering agricultural education, skills and training.
14. The Government with TIA will consider any industry led proposals received for establishing commercially focused demonstration farms on Crown assets.
15. A review of the effectiveness of TIA RD&E in supporting productivity improvements for Tasmanian farmers and agribusinesses will be undertaken in three years (by December 2020), and every five years thereafter.





Tasmanian  
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