

**TASMANIAN INSTITUTE OF AGRICULTURE**

**Vegetable Centre  
Strategic Plan  
2014 - 2018**

# **TIA Vegetable Centre**

## **Vision**

To improve outcomes for the Tasmanian vegetable industry by being pre-eminent in vegetable research, development and extension and be nationally and internationally renowned.

## Executive Summary

The core business of the TIA vegetable centre is to provide research, development and extension (RD&E) support to the Tasmanian vegetable industry and associated crops including poppies and pyrethrum. This Strategic Plan guides the Centre's RD&E activities for 2014-2018, with primary focus on the needs of the Tasmanian vegetable industry. It includes five programs developed from needs and priorities identified in consultation with industry, advisory stakeholders and staff, and from TIA and Industry contexts, the University's Open to Talent agenda, and specific Industry Strategic Plans.

These programs are:

- Sustainable Production Systems
- Future Farming – Managing Risks and Seizing Opportunities
- Value Chains and Farm Business
- Partnerships, Communications and Services
- Education and Extension

Each of these programs has component strategies, outcomes and measures of success. All Programs contain opportunities to participate collaboratively in Research, Development and Extension projects to deliver outcomes for Industry stakeholders, University and Government. The Plan emphasises collaboration with State, National, International and private providers to maximise leverage, expand funding sources and ensure significance and recognition of RD&E for the vegetable industry and specialist crops including poppies and pyrethrum.

**The roles of the Centre are to:**

- (i) Lead and facilitate research, development and extension in Tasmania to support sustainable processing and fresh vegetable industries, and the extractive poppy, pyrethrum and other high value crops grown in rotation with vegetables; and***
- (ii) Contribute to the growth and development of sustainable vegetable production in Tasmania through projects and programs that address issues such as:***
  - Sustainable land and water management***
  - Efficiency of use of key inputs – nutrients, water, energy***
  - Protection of cropping systems from weeds, pests and diseases***
  - Industry environmental footprint***
  - Production systems and value chains for improved economic performance***
  - Systems that facilitate improved farm competitiveness and profitability***
  - Education and training***
  - Market development and promotion***
  - Industry development priorities of Government.***

# 1 Introduction

The TIA Vegetable Centre Strategic Plan establishes the broad objectives and directions required for the Centre for 2014-2018, and context for future decisions on the activities and resource requirements of the Centre to deliver for University, Government and the Tasmanian vegetable industry stakeholders and the wider Tasmanian community. The Plan will deliver against stakeholder priorities, and is subject to regular review to ensure it meets changing needs and priorities. The Plan relies on publically available data, the integrity of which is assumed. However, the Centre is aware that changes to statistical protocols may result in gaps emerging in the future. The Plan is also informed by priorities of peak industry bodies and related service providers, and by the National Framework for Horticultural RD&E. The National Framework provides substantial opportunities where TIA is a lead or support agency. However, lesser opportunities exist where TIA participation is at link agency level.

In the context of this Strategic Plan, Research, Development and Extension are defined as follows:

**Research** is 'original investigation undertaken to gain knowledge, understanding and insight'. In the context of the Vegetable Centre, it is conceptualised as the research and investigation of ideas in the pursuit of theoretical knowledge and technical improvements relevant to the vegetable and associated industries. Its core purpose is to create new knowledge and understanding that enables improvements in attributes, quality, productivity and sustainability within the primary production, processing operations and delivery mechanisms that comprise the industry value chain.

**Development** relates to the application of research and knowledge from a range of sources, the testing, adaptation, "proof of concept" and market development which facilitates improved technical, operational, environmental, marketing and financial outcomes for the Tasmanian vegetable industry.

**Extension** is the process of "enabling change in individuals, communities and industries involved with primary industries and natural resource management". It relates to the communication and consultation processes with a range of stakeholders, which are designed and implemented to increase the dissemination of intellectual capital that underpin and support change in the industry.

The Centre will undertake strategic, basic and applied research that generates new knowledge and understanding, develops solutions to technological, biological and environmental challenges in the vegetable and associated industries and provides access to income streams through the impact of reputational gain, quality publication and intellectual property. It will participate through collaboration with national and international research providers in 'blue sky' research, where the outcome contributes to understanding that should lead to practical applications in the longer term.

The University of Tasmania has set a priority on undertaking research of the highest quality as part of its 'Open to Talent' agenda, and aims to optimise outcomes through the ERA funding system. The Centre intends to meet this priority by emphasising research for Tasmanian needs within a national and international context. The Centre aims to attract high quality research higher degree students, staff and visiting

scientists, and enable enhanced outcomes through basic research funding providers such as the ARC. It also aims to broaden sources of funding to enhance the financial stability of the Centre, and to meet specific Tasmanian needs that may not be accommodated in the increasingly prevalent large national research programs or projects developed, for instance under the National Framework for Horticultural R&D.

The Centre will seek support for Research Higher Degree candidates to generate new knowledge and publish in high impact scholarly journals to meet the requirements of the University Strategic Plan and Research Quality measures to enhance the Centre's and University's reputations. It will also publish information in development and extension formats for use by stakeholders.

Development and Extension activity will focus on efficiency in and growth of vegetable and associated industries and will include appropriate and relevant social, value chain and marketing research.

The Centre will also provide advice on policy formulation by Government and information to Government on industry trends and developments.

The role of the Centre is to:

***Lead and facilitate RD&E to support sustainable processing and fresh vegetable industries, as well as the extractive poppy, pyrethrum and other high value industries grown in rotation with vegetables.***

***Contribute to the growth and development of sustainable agricultural production in Tasmania through a range of projects and programs addressing issues such as:***

***Sustainable land and water management***

***Efficiency of use of key inputs – nutrients, water, energy***

***Protection of cropping systems from weeds, pests and diseases***

***Industry environmental footprint***

***Production systems and value chains for improved economic performance***

***Systems that facilitate improved farm competitiveness and profitability***

***Education and training***

***Market development and promotion***

***Industry development priorities of Government.***

In undertaking these roles, the Vegetable Centre will implement strategies for the vegetable and associated industries in alignment with the relevant Tasmanian and National vegetable industry strategic plans, State and Federal initiatives, NHRN Framework for Horticultural R&D, and the University's strategic plan.

Consistent with these general principles, the Centre will be of National and International significance in innovative, strategic, basic and applied RD&E projects applicable to the Tasmania vegetable and associated industries and cropping systems. Collaboration with local, national and international R, D & E will be fostered.

Outcomes of the Centre's R, D & E activities will be communicated to all stakeholders. Governance and monitoring will be facilitated through regular reports to the TIA Board and joint venture partners.

## **2 TIA Vegetable Centre Programs**

Activities and projects will be conducted under the following RD&E Programs:

1. Sustainable production systems
2. Future Farming – Managing Risks and Seizing Opportunities
3. Value Chains and Farm Business
4. Partnerships, Communications and Services
5. Education and Extension

RD&E goals for each Program will be achieved through a series of strategies that will be assessed by their achievement of outcomes and associated measures of success (performance indicators). These will guide activities and projects which are undertaken in the Vegetable Centre and have been designed to assist prioritising activities and allocation of scarce resources for maximum benefit to stakeholders.. It is emphasised that these programs are complementary, and research outcomes need to be interpreted in a systems (holistic) context for greatest impact. Also, it is to be noted that when risks are being considered and/or quantified, these risks may include production, financial and operational risks (perturbations from the expected), and again a holistic approach to interpretation is imperative.

## 2.1 Program: Sustainable Production Systems

All three elements of sustainability (production, environmental and socio - economic) must be addressed. A sustainable industry will implement production practices that enhance soil health, minimise off-site impacts of farming operations and maximise the return on inputs within business structures that enhance social capital and provide financial returns in line with the risks associated with the business.

**Goal: To develop production practices and systems that sustain vegetable production, and improve resource use efficiency, and environmental performance within a changing environment.**

Strategy	Outcomes	Measures of Success
Enhance the development and knowledge of sustainable production practices	<p>Improved soil management practices for control of erosion, limiting soil structural degradation, enhancement of soil organic matter and soil health</p> <p>Improved irrigation management practices for production</p> <p>Published results in scientific literature</p>	<ol style="list-style-type: none"> <li>1. Number and value of R, D and E projects</li> <li>2. Uptake of research findings by industry and/or business expressed through productivity gains, and environmental and socioeconomic outcomes</li> <li>3. Number of publications and other public outputs</li> <li>4. Level of international recognition of TIA's outputs</li> <li>5. Number and quality of journal publications</li> </ol>
Enhance the development and knowledge of sustainable pest management and biosecurity practices	<p>Understanding of pest and pathogen biology and ecology, pest and pathogen interaction with host plants, host genetics, and epidemiology</p> <p>Improved pest and disease management practices for current and future climates</p> <p>Published results in scientific literature</p>	<ol style="list-style-type: none"> <li>1. Number of projects with appropriate knowledge transfer plans to increase the level of understanding of pest and disease biology, ecology, genetics and epidemiology</li> <li>2. Uptake of research findings by industry and/or business expressed through practice change, productivity gains, and environmental and socioeconomic outcomes</li> <li>3. Number and value of RD &amp; E projects</li> <li>4. Level of international recognition of TIA's outputs</li> <li>5. Number and quality of journal publications</li> </ol>

<p>Integrate information into extension packages and assess impact</p>	<p>User friendly extension material accessible to farmers, agribusiness, consultants and similar.</p> <p>Improved Decision Support Systems, whether or not computer based</p> <p>Publication in extension journals</p>	<ol style="list-style-type: none"> <li>1. Number of publications and public outputs communicating new or improved sustainable vegetable production practices</li> <li>2. Demand by agricultural consultants (and similar) for information and reports</li> <li>3. Number of new or improved decision support systems developed</li> <li>4. Number of publications on impact of extension activities.</li> </ol>
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### 3.2 Program: Future Farming – managing risks and seizing opportunities

Predicting the nature and impact of climate change and climate change adaptation is inexact, but the Tasmanian vegetable industry will be affected. There could be opportunities for expansion but the industry will not be immune from expected increases in the cost of fossil fuel based inputs. Additional cost increases due to Government policy changes on carbon pollution are adding to cost increases. These factors will drive the need for sustainability and efficiency in production systems. Response to climate change is expected to be through improvements in plant adaptation, cultivar selection, new and novel crops and modified production systems for product supply reliability and income diversification for stability.

**Goal: To develop production systems and crops that provide resilience under future climates and changing economic and regulatory conditions**

Strategy	Outcomes	Measures of Success
Assess performance of cultivars of new and existing vegetable and allied crops developed using technologies permitted by prevailing regulatory environment	Recommendations for crops and crop cultivars	<ol style="list-style-type: none"> <li>1. Number of requests from and contracts with seed companies and the like for assessment of new crops or cultivars.</li> <li>2. Amount and frequency of return business for this activity</li> <li>3. Production of cultivars of new and existing crops by commercial companies and farmers</li> </ol>
Assess adaptation, yield and quality of new vegetable and allied crops identified as having market potential	<p>Production potential of new crops identified and their likelihood of success quantified.</p> <p>Knowledge of adaptation, development, yield and quality of new crops available to industry</p> <p>Desktop studies of potential adoption of crops leading to completion of a situation analysis and discussion papers for industry</p>	<ol style="list-style-type: none"> <li>1. Reports on potential areas of production of new crops</li> <li>2. Agronomic packages for new crops developed</li> <li>3. Production of new crops and/or cultivars of new and existing crops by commercial companies and farmers.</li> </ol>

<p>Investigate future production variability and risk of crop failure using modelling approaches</p>	<p>Analysis of potential scenarios to guide decision making by farmers and policy makers</p> <p>Risk profiles for specific crops in individual years for use in tactical management and over longer terms for strategic planning</p>	<ol style="list-style-type: none"> <li>1. Reports available for industry and Government</li> <li>2. Extension and decision support packages available to farmers and agribusiness</li> <li>3. Number of hits on Web based materials hosted on TIA website</li> <li>4. Number of scholarly and other publications</li> </ol>
<p>Develop and undertake RD&amp;E projects relevant to climate change mitigation and adaptation</p>	<p>Strategies and technologies for improved land management, water, energy, and nutrient use efficiency, pest and disease management and environmental performance</p> <p>Information on impact of and adaptation to climate change communicated to farmers.</p> <p>Scholarly publications, development and extension materials.</p>	<ol style="list-style-type: none"> <li>1. Availability of extension packages to support adaptation of farming systems to climate change</li> <li>2. Demand from stakeholders for information on climate change adaptation and mitigation</li> <li>3. Number of hits on Web based materials hosted on TIA website</li> <li>4. Number of scholarly and other publications</li> </ol>
<p>Reassess production system design for improved climate performance</p>	<p>Recommended farming system design and practice for reduced carbon footprint</p> <p>Quantification of carbon footprint of major vegetable industries</p> <p>Information on impact of and adaptation to climate change communicated to farmers.</p> <p>Scholarly publications, development and extension materials.</p>	<ol style="list-style-type: none"> <li>1. Number of RD&amp;E project</li> <li>2. Extension packages to support adaptation of farming systems to climate change available</li> <li>3. Demand from stakeholders for information on climate change adaptation and mitigation</li> <li>4. Number of hits on Web based materials hosted on TIA Website</li> <li>5. Number of scholarly and other publications</li> </ol>

### 3.3 Program: Value Chains and Farm Businesses

The business challenges facing the Tasmanian vegetable industry are influenced by currency exchange rates, global market conditions and opportunities in both the domestic and export markets. Businesses in supply and value chains must be sustainable to take advantage of opportunities, and may mean, for example, new business structures for economies of scale and pooling of resources. The use of Value Chain Analysis (VCA) will provide information leading to diversification of production, increase the sustainability and better manage of production and economic risks in the vegetable industry. VCA will primarily be used to provide guidance on diversification of products using existing crops, expansion into new production areas: e.g. new irrigation areas or new products from crops not previously grown.

**Goal: To use Business Analysis and VCA as tools to provide sound evidence on which to develop new on farm business structures and post-farm-gate activities relevant to markets and marketability of Tasmanian vegetable products, improved economic outcomes and long term industry performance, sustainability and resilience.**

Strategy	Outcome	Measures of Success
Assess options for enhanced farm business scale, improved productivity and efficiency of input including capital utilisation	New business models analysed Strategies for business restructuring to enable enhanced sustainability Economic analysis of vegetable production Factors contributing to farm and industry competitiveness identified and communicated	<ol style="list-style-type: none"> <li>1. Completion of report(s)</li> <li>2. Demand from growers and agribusiness for advice</li> <li>3. Presentations to farmer groups and peak bodies</li> <li>4. Number and quality of scholarly and other publications</li> </ol>

<b>Strategy</b>	<b>Outcome</b>	<b>Measures of Success</b>
Support farm business adaptation to changing economic conditions	More robust farm businesses More robust and adaptable industries	<ol style="list-style-type: none"> <li>1. Demand from growers and agribusiness for advice</li> <li>2. Presentations to farmer groups, peak bodies, agribusiness, consultants</li> <li>3. Number and quality of development, extension and industry publications</li> </ol>
Identify and develop additional products from existing crops and new crops	VCA completed to identify potential new crops and products New products meeting specific consumer needs	<ol style="list-style-type: none"> <li>1. Engagement with post-farm gate participants in the value chain, using marketing and value chain research</li> <li>2. Guidance provided to Sustainable Farming Systems Program for crop adaptation and agronomic research</li> <li>3. Engagement with Centre for Food Innovation</li> <li>4. Marketing activities to support new and innovative products and processes</li> </ol>
Conduct research on quality nutrition and health promoting characteristics of vegetable products	Enhanced viability and sustainability of the vegetable industry. Understanding of nutritional value, health attributes and health functionality of major vegetables. Knowledge of quality, taste and texture of vegetables entering the value chain Value chain and marketing activities featuring desirable characteristics of Tasmanian vegetables.	<ol style="list-style-type: none"> <li>1. Engagement with post-farm gate participants in the value chain,</li> <li>2. Engagement with Centre for Food Innovation</li> <li>3. Number of publications and public outputs communicating new or improved vegetable products</li> <li>4. Demand by agricultural consultants (and similar) for information and reports from them of uses of it</li> <li>5. Value chain and consumer acceptance of new products</li> </ol>

<b>Strategy</b>	<b>Outcome</b>	<b>Measures of Success</b>
Engage with supply, value and cool chains	Supply, value and cool chains analysed Opportunities for improved participation by stakeholders identified Engagement with Centre for Food Innovation Market opportunities identified	<ol style="list-style-type: none"> <li>1. Reports on analysis of high priority supply, value and cool chains</li> <li>2. Number of RD&amp;E partnerships established</li> <li>3. Number of scholarly and other publications</li> <li>4. Marketing activities to support industries access new markets</li> </ol>

### 3.4 Program: Partnerships, Communications and Services

With the industry reliant on many sectors including primary production, processing, agribusiness support and marketing, open communication and ongoing relationships are essential. Understanding the supply and value chains is critical to establishing and enhancing relationships and communication among University, Government and Industry stakeholders in the Vegetable Centre, and other national and international institutions and industry participants to meet challenges facing the industry.

**Goal: To maintain existing and establish new effective RD&E partnerships with industry, government, national and international RD&E providers, and to ensure a high level of communication, respect and engagement between the Vegetable Centre and its stakeholders**

Strategy	Outcomes	Measures of success
Engage with stakeholders in industry, government, government agencies and the community	<p>Effective communication and partnerships established with stakeholders</p> <p>Publication of outcomes of RD&amp;E and activities through electronic media, industry journals and popular press</p>	<ol style="list-style-type: none"> <li>1. Effective implementation of VCAG communications strategy</li> <li>2. Participation by invitation and/or membership in Industry Peak Bodies such as TFGA, Tasmanian Poppy Growers Association, Government and University bodies relevant to agriculture and Community Groups eg NRM groups</li> <li>3. Regular meetings and liaison with industry partners</li> <li>4. Number of publications in the popular and industry press.</li> <li>5. Quality of submissions to Government</li> </ol>
Engage with national and international RD& E providers, corporations and service providers	<p>Effective collaborative partnerships for strategic, basic and applied research projects and in development and extension established</p> <p>Scientific publications</p>	<ol style="list-style-type: none"> <li>1. Number of RD&amp;E projects involving national and international providers, corporations and service providers</li> <li>2. Number and duration of visits by high profile national and international R D&amp; E personnel.</li> <li>3. Number and quality of scientific publications</li> </ol>

<b>Strategy</b>	<b>Outcomes</b>	<b>Measures of success</b>
Work with Government, industry and the University to benefit of industry	<p>Quality information and advice provided to Government, industry and University stakeholders.</p> <p>Assessment of impact of policy settings and changes to economic conditions on the vegetable and allied industries</p> <p>Biosecurity awareness and capacity for response to actual or potential breaches</p>	<ol style="list-style-type: none"> <li>1. Response to requests by Industry and Industry Groups for advice.</li> <li>2. Quality, well supported advice to Government on specific issues/development initiatives.</li> <li>3. Timely provision and quality of Ministerial briefings and Question Time Briefs</li> <li>4. Quality, well supported submissions to State and Federal Government inquiries relevant to the vegetable industry</li> <li>5. Effective participation in Government and University Committees, Boards, Task Force</li> <li>6. Effective membership of industry and professional bodies, institutes and the like</li> <li>7. Preparedness to meet biosecurity threats</li> </ol>
Ensure assessment of effectiveness of projects/programs	Knowledge of effectiveness and impact of RD&E projects/programs	<ol style="list-style-type: none"> <li>1. Evaluation component included in project proposals</li> <li>2. Completion of assessments using recognised instruments of evaluation of effectiveness of RD&amp;E</li> </ol>

### 3.5 Program: Education and Extension

The Tasmanian vegetable industry will respond to advancing technology, globalised markets, instant communication, climate change and environmental pressures by embracing change and having appropriately qualified personnel.

**Goal: To provide effective and efficient education and training programs and development and extension services to support long term sustainability of the vegetable industry**

Strategy	Outcomes	Measures of Success
Provide information in client relevant and useable formats	<p>Effective development and extension materials and programs</p> <p>Community and industry education.</p>	<ol style="list-style-type: none"> <li>1. Number and quality of extension materials prepared</li> <li>2. Number and quality of presentations to and participation in industry seminars</li> <li>3. Demand from stakeholders for extension materials</li> <li>4. Data on hits on Web based materials.</li> </ol>
Be a leader in undergraduate and postgraduate teaching, and supervision of post-doctoral fellows as pertains to vegetable and allied crop production	<p>Effective undergraduate and post graduate education</p> <p>Research Higher Degree students submit theses in timely manner</p> <p>Attract post-doctoral fellows</p> <p>Scholarly publications by research higher degree students and post-doctoral fellows.</p>	<ol style="list-style-type: none"> <li>1. Effectiveness of delivery of undergraduate teaching assessed by SETL process</li> <li>2. Number of Research Higher Degree students supervised</li> <li>3. New knowledge generated by Research Higher Degree students</li> <li>4. Number of post-doctoral fellows attracted and supervised</li> <li>5. Number of joint supervision arrangements for Research Higher Degree students in UTAS and other Universities.</li> </ol>
Gain recognition and funding through Intellectual Property	<p>Appropriate recognition of Intellectual Property</p> <p>Agreement with partners and funding bodies on Intellectual Property rights and sharing</p>	<ol style="list-style-type: none"> <li>1. Intellectual property quantified</li> <li>2. Sharing of Intellectual Property agreed at inception of projects</li> <li>3. Amount of funding achieved through Intellectual Property</li> </ol>

