

Tasmanian Crop and Pasture *Seed Industry Plan 2020-23*

Vegetable and pasture seed production is a growing industry in Tasmania. With a farm gate value of over \$37 million, this industry produces many of the varieties that underpin the broader Australian crop and pasture-based livestock industries.

The *Tasmanian Crop and Pasture Seed Industry Plan 2020-23* (the Plan) has been developed as a collaboration between industry, the Tasmanian Institute of Agriculture and the Tasmanian Government to identify opportunities to support the continued growth of the seed production industry. It identifies three priority areas of industry development: profitable production and sustainable farming systems; seed quality and purity; and promoting industry communication and connection.



A plan for the Tasmanian seed production industry, jointly developed by the Tasmanian Seed Industry Group, the Tasmanian Institute of Agriculture and the Tasmanian Government.



Industry Profile

Seed production in Tasmania has increased significantly over the past ten years, both in terms of area under production and value. The industry is estimated to directly generate up to 50 full time jobs and a further 100 jobs indirectly. The state's seed production industry has an established base of skilled growers, and also provides employment in areas such as supply, marketing, production management, agronomy and consulting, harvesting, seed cleaning, certification, Quality Assurance (QA) and Research, Development and Extension (RD&E).

The total farm gate value of the seed production industry is estimated to be over \$37 million, which is comparable to the value of some cash crops grown in Tasmania such as carrots (\$29 million) and onions (\$34 million).

Pasture Seed

The pasture seed component of the industry has an estimated farm gate value of \$15-20 million grown over approximately 5,000 hectares, with a major centre of production in the Northern Midlands. Annual ryegrass, Italian ryegrass, perennial ryegrass and white clover are the dominant species grown in Tasmania.

Most pasture seed varieties are protected by Plant Breeder Rights (PBR) with proprietary owners aiming to capture value from the Intellectual Property (IP). A large proportion of pasture seed produced in the state is certified by either Tasmanian Seed Services or Dairy Technology Services, while other seed is sold as 'commercial grade' seed. The majority of pasture seed is sold into interstate markets.

Vegetable Seed

Vegetable seed has an estimated farm gate value of around \$17 million and is grown over an area of approximately 1,300 hectares located mainly in the Coal River Valley and the Northern Midlands. Carrot and brassica seed are the largest vegetable seed crops by area and value, with smaller crops including onion, beetroot, fennel, lettuce and parsley.

The majority of vegetable seed production in the state centres on the operations of a major European plant breeding company and an Australian seed company that produces seed on a contract multiplication basis for a wide range of overseas seed companies. These companies either undertake their own seed production on leased land, or use the services of contract seed growers.

Nearly all of the vegetable seed produced by these companies is exported for sale in international markets. In addition to its favourable climate, land suitability and relative freedom from many pests and diseases, Tasmania's location in the southern hemisphere makes it a key site for off-season production, enabling breeders to ensure continuity of supply and to spread their production risk over multiple growing locations.

Other Seed Crops

Other crops used to produce seed for sowing include canola, linseed, cereals, pulses, hemp and poppies. The value of these crops is conservatively estimated to be in excess of \$5 million.

Seed Research, Development and Extension

In Tasmania, most vegetable seed production RD&E is conducted by individual seed companies, using their internal resources or through the engagement of private advisors, agronomists and specialised seed research organisations.

TIA has previously worked with major vegetable seed industry partners to attract significant linkage funding from the Australian Research Council, Hort Innovation and AgriFutures Australia. Private vegetable seed research businesses with strong industry connections also make a significant contribution to the vegetable seed industry's RD&E program, and at least one such company is currently undertaking significant research trials in Tasmania with funding from Hort Innovation.

In the pasture seed area, several private pasture seed companies are undertaking R&D on local farms and applying national and international research outcomes in a Tasmanian context. The Tasmanian Seed Industry Group (TSIG) also contracts research into pasture seed production through a research provider, funded through a voluntary levy system paid by TSIG members. Agricultural advisors and private consultants provide the majority of extension services in pasture seed production.

TIA conducts research into pasture seed production including recent projects undertaken as part of the AgriFutures Pasture Seeds R&D program. Research farms including the University Farm in Cambridge, the Dairy Research Facility in Elliott, the Forthside Vegetable Research Facility and the Cressy Research Facility provide key locations for research into both pasture and vegetable seed production.

Government Working with Industry

Over the past decade, the Australian Government, Tasmanian Government and farmers have worked together to develop the state's irrigation capacity. Irrigation developments have provided an enabling environment for the growth of the Tasmanian seed production industry, providing access to reliable water that has enabled seed production businesses to invest with greater certainty in their enterprises. Commencing with the opening of the Greater Meander Valley Irrigation Scheme in 2008, fifteen new irrigation schemes have been established. A sixteenth scheme is due to commence operations in 2020 and will provide a combined capacity to deliver over 130,000 megalitres of water to Tasmanian farms each year.

Along with this irrigation investment, the Government is focused on delivering Tasmanian businesses the lowest regulated electricity prices in the nation, and is on track to be 100 per cent self-sufficient in renewables by 2022. The Government is also rolling out a suite of 265 infrastructure projects over the next 10 years including road, rail, energy, port, airport and communication projects that will bring benefits to seed businesses and the wider agricultural sector.

The Tasmanian Government has set a target of growing the farm gate value of Tasmanian agriculture to \$10 billion per annum by 2050. It has set out its strategy to reach this target in Tasmania's *Sustainable Agri-Food Plan 2019-23*, which includes policy initiatives, industry development commitments, biosecurity improvements, branding support, RD&E delivery and support for agricultural education and training. Collectively, these initiatives provide a foundation for the Tasmanian seed production industry to develop and grow.



Development of the Plan

In 2014, the Tasmanian Pasture Seed Conference was convened through a partnership approach between members of the seed industry, the Tasmanian Institute of Agriculture (TIA) and the Department of Primary Industries, Parks, Water and Environment (DPIPWE). This conference hosted leading international seed research scientists and attracted participants from across the seed industry including growers, seed cleaners, marketers, consultants, agronomists and government agencies.

A key output from the conference was the 2015 Tasmanian Pasture Seed Industry Development Plan, prepared by TIA. This plan was based on the discussions, presentations and findings of the conference, and set out the challenges and opportunities facing the Tasmanian pasture seed production industry. Another output of the conference was the establishment of the Tasmanian Seed Industry Group, which was tasked with overseeing implementation of the Tasmanian Pasture Seed Industry Plan.

Following further consultation between TIA, farmers and agribusinesses, including key members of the vegetable seed industry, the *Tasmanian Crop and Pasture Seed Industry Plan 2020-23* has been developed with industry to build on the content of the original Tasmanian Pasture Seed Industry Development Plan, extending its scope to include vegetable seed production. Priority areas for industry development are identified, along with approaches for implementation and resourcing.

Scope

The Plan identifies possible areas of development identified by industry, without seeking to list specific activities and projects to meet these goals. It is envisioned that the TSIG will drive the coordination and implementation of strategies and activities to meet the broad industry development priorities set out in this Plan.

The plan is restricted to crops where the seed produced is intended for subsequent sowing rather than crops where the seed or grain is used for consumption or further processing. In addition, the Plan focuses on 'true' seed crops where the seed produced is the result of a fertilisation event, and does not extend to vegetative 'seed' crops such as seed potato.

Priority Areas of Development

Profitable Production and Sustainable Farming Systems

Improving the profitability of seed crop production and developing strategies for sustainable farming systems will support the ongoing growth and development of the Tasmanian seed industry.

- **Improved crop management:** Identifying effective agronomic practices and refining crop management for Tasmanian conditions will help producers maximise quality and yield of seed crops, and respond to increasingly variable seasons. Some pasture and vegetable seed crops have particularly challenging production characteristics, making it difficult to reliably achieve profitable yields. For these high-value, but challenging crops, industry has identified a need for RD&E to refine the timing, rate and application method of crop inputs such as fertilisers, pesticides, irrigation and plant growth regulators (PGRs) under Tasmanian conditions.

Industry has also identified the need for better understanding of plant growth stages to inform the timing of agronomic management. One example of where this would be helpful is in hybrid vegetable seed crops, where low yields may be caused by poor synchronicity of flowering between parent lines. RD&E that results in better recognition of crop phenology, improved awareness of the impact of seasonal factors on crop development, and tools to manage flowering time would be helpful for growers.

Recognising how seed crops fit within sustainable farming systems is another important area. Increasing grower understanding of the soil health benefits of seed cropping, appreciating the break crop benefits of pasture seed crops, and developing strategies for successfully integrating dual-purpose pasture seed crops into Tasmanian grazing systems will provide additional incentives and support for growers to incorporate seed crops into their cropping systems.

Effective extension to ensure crop management research is adopted in Tasmania and that knowledge gained through national seed RD&E projects such as the AgriFutures Pastures Seeds Program is transferred to Tasmanian seed producers and agronomists is essential for the long term success of the industry.

Strategy: Industry will work with TIA and other providers of applied seed research to develop improved agronomic management practices for seed crops; raise awareness of the benefits of seed cropping; and develop strategies for communicating this advice through demonstrations, field days, extension training, or written material.

- **Industry-wide access to pesticide permits:** Easier access to non-label pesticide permits would be of great value to industry. Currently, pesticide options are limited for seed production in Tasmania because chemical manufacturers are reluctant to register suitable products due to the costs involved for such a small market. The Australian Pesticides and Veterinary Medicines Authority (APVMA) allows the non-label use of pesticides through minor use permits. However, applying for permits and ensuring compliance can be costly and time-consuming for small seed companies and individual growers.

Strategy: Industry will coordinate joint applications for pesticide permits that all the seed industry could use, rather than multiple individual applications.

- **Ensuring adequate pollination:** The peak time for vegetable and legume seed pollination is November through to late January. This is also the peak time for Leatherwood honey production, creating competition for pollination services and presenting a challenge for seed producers. To address this issue, at least one major vegetable seed production company has already established its own apiary to ensure adequate pollination. There is a need to increase pollination service provision and to ensure that growers are properly informed about how to host hives in a way that does not harm colony health through misapplication of insecticides or irrigation.

The *Bee Industry Futures Report 2019* identifies actions industry and government are collaborating on to support a viable pollination industry in Tasmania. In addition, through its Hort Frontiers Pollination Fund, Hort Innovation is currently implementing a project to enhance crop production and resilience through improved pollination. This includes research components being undertaken in Tasmania by a local seed research business in conjunction with industry partners.

Factors influencing pollination efficiency in perennial horticulture are currently being investigated by TIA and the CSIRO, presenting opportunities to extend this area of research to seed crops.

Strategy: Industry will work with beekeepers and the Tasmanian Crop Pollination Association to produce a Best Management Practice Guide for hosting pollination services; industry will connect with key members of the Hort Frontiers Pollination Fund to ensure that key findings are communicated to Tasmanian seed producers; TIA will extend current research on pollination to seed crops.

Seed Quality and Purity

Maintaining and improving the purity and quality of seed products is a key aspect of improving seed crop profitability. As the industry continues to grow, it will be important for industry to keep pace with growing demand for certification and seed cleaning services. There are several opportunities for improvement in the area of seed quality and purity.

- **Increased storage and cleaning capacity:** One of the main factors restricting the expansion of the seed industry is Tasmania's limited storage and cleaning capacity. TSIG have been working with cleaners to expand their capacity and have been encouraging farmers to build more on-farm storage.

Strategy: TSIG will continue to work with cleaners to increase cleaning capacity. TSIG will run a one-day conference or workshop looking at on-farm storage options.

- **Maintaining isolation zones:** Isolation of seed crops is important to maintain their purity. Vegetable seed companies have developed digital systems through private companies to help maintain the necessary isolation distances between cross-pollinating crops. At present producers of other seed crops such as pasture and hemp lack such a facility, and this represents an area for future development. The presence of bee hives between cross-pollinating crops also poses a contamination threat, and the development of a system for tracking the location of registered hives would help to overcome this issue.



Strategy: Industry will consult with vegetable seed companies that have already established systems for maintaining isolation distances while maintaining confidentiality to explore the potential for extending these systems across the wider industry so as to minimise cross-pollination contamination.

- **Managing volunteer and roadside weeds:** Volunteer plants from previous crops and vegetable weeds present another source of pollen contamination. Currently, seed company employees undertake some spotting and clean-up but it is not an adequate solution, and the industry would benefit from a new management program that involves collaboration with seed companies, contractors, transport companies, local councils, Natural Resource Management (NRM) groups and State Government. The use of digital systems to record and check paddock history to identify the risk of cross-pollinating volunteers would be helpful in this area.

Strategy: In consultation with seed companies, contractors, transport companies, local councils, NRM groups and government, industry will develop a plan for managing volunteer plants and weeds.

- **Evaluation of crop performance:** Accurate assessment of the performance of crops across the industry provides producers with a gauge of their production methods compared to others within the industry. Having a range of outputs from multiple producers in various regions benchmarked will provide a valuable tool for producers to identify key profit drivers and assess the effectiveness of their processes and management.

Strategy: In conjunction with independent consultants, industry will develop a program for evaluating crop performance in the seed production industry.

Promoting Industry Communication and Connection

The seed production industry has identified the need for a more collaborative approach and the need for improved communication both within industry and with the wider community.

- **A broadened TSIG:** To create a whole-of-industry advisory group, the existing TSIG could be broadened to include representatives from the vegetable seed industry and members from across the entire seed value chain. With appropriate resourcing and ongoing capability building, this group would drive implementation of the Plan, identify future opportunities, leverage funding on behalf of the industry, raise industry-wide issues with Government and convey messages to growers and consumers as a united group.

Strategy: TSIG will continue to facilitate development of a whole-of-industry peak body that represents the interest of all seed producers and the associated production chain.

- **Increased public education:** The relationship between the industry and its neighbours would benefit from a public education program around the value of the seed industry to the Tasmanian economy, issues associated with maintaining seed purity, and advice on how to prevent pollen contamination from nearby properties. This could be delivered by the TSIG, possibly by linking with the Living Next Door to a Farmer campaign being run by the Tasmanian Farmers and Graziers Association (TFGA).

Inclusion of the seed production industry in the *Tasmanian Agri-Food ScoreCard* (Scorecard) will also ensure that the contribution of the industry to the Tasmanian agricultural sector is recognised.

Strategy: Industry will connect with the TFGA to ensure that issues relevant to the seed industry are represented in the *Living Next Door to a Farmer* campaign; industry will encourage the provision of data and support for the ScoreCard.

- **Regular opportunities for industry collaboration:** Supporting industry events such as training and field days, as well as written communication with industry updates, would provide a platform for more open communication and collaboration across the industry, which is critical to further expansion of the industry.

Strategy: Industry and TIA will take an active role in coordinating and linking in with industry events and will commit to providing updates, opportunities and information to members of the industry on a regular basis.



Operational Plan

Implementation and Funding

Implementation of this Plan would be a key role for the TSIG – which will include representatives from pasture, vegetable and other seed crop industries including growers, agronomists, seed cleaners and seed marketers – in collaboration with the TFGA seeds and cereals committee, TIA and the Tasmanian Government. TSIG will be responsible for developing the approach to implementing the priorities identified in this plan. Depending on the action items identified by the TSIG, sub-groups might be created as required to implement certain projects and actions.

Delivering the priorities and associated activities outlined in this plan will require ongoing financial inputs (cash and in-kind). Industry would therefore need to create a self-funding, sustainable model to provide funding for a range of projects. In particular, implementing an executive officer role within the TSIG would strengthen the momentum of the group and its outputs.

Additional funding to supplement industry's contribution could be sourced from a number of areas including (but not limited to):

- Seed Marketers
- Levy funded organisations including AgriFutures Australia, vegetable research and development levy and Meat and Livestock Australia
- State and Federal Government programs including the Tasmanian Government's Strategic Industry Partnerships Program (SIPP)
- Private enterprise
- Agronomy service providers.

Next Steps

The first priority of the broadened TSIG will be to develop detail around implementation of the plan. In 2020, the TSIG will prioritise the activities set out in this plan, agree upon a funding model, set out a strategy for implementing these activities, and agree on a monitoring, evaluation and review approach, including a time period over which the plan will be delivered.

Summary of Priority Areas of Development

Profitable Production and Sustainable Farming Systems

Objective	Strategy
Improved crop management	Industry will work with TIA and other providers of applied seed research to develop improved agronomic management practices for seed crops; raise awareness of the benefits of seed cropping; and develop strategies for communicating this advice through demonstrations, field days, extension training, or written material.
Industry-wide access to pesticide permits	Industry will coordinate joint applications for pesticide permits that all the seed industry could use, rather than multiple individual applications.
Ensuring adequate pollination	Industry will work with beekeepers and the Tasmanian Crop Pollination Association to produce a Best Management Practice Guide for hosting pollination services; industry will connect with key members of the Hort Frontiers Pollination Fund to ensure that key findings are communicated to Tasmanian seed producers; TIA will extend current research on pollination to seed crops.

Seed Quality and Purity

Objective	Strategy
Increased storage and cleaning capacity	TSIG will continue to work with cleaners to increase cleaning capacity. TSIG will run a one-day conference or workshop looking at on-farm storage options.
Maintaining isolation zones	Industry will consult with vegetable seed companies that have already established systems for maintaining isolation distances while maintaining confidentiality to explore the potential for extending these systems across the wider industry so as to minimise cross-pollination contamination.
Managing volunteer and roadside weeds	In consultation with seed companies, contractors, transport companies, local councils, NRM groups and government, industry will develop a plan for managing volunteer plants and weeds.
Evaluation of crop performance	In conjunction with independent consultants, industry will develop a program for evaluating crop performance in the seed production industry.

Promoting Industry Communication and Connection

Objective	Strategy
A broadened TSIG	TSIG will continue to facilitate development of a whole-of-industry peak body that represents the interest of all seed producers and the associated production chain.
Increased public education	Industry will connect with the TFGA to ensure that issues relevant to the seed industry are represented in the <i>Living Next Door to a Farmer</i> campaign; industry will encourage the provision of data and support for the ScoreCard.
Regular opportunities for industry collaboration	Industry and TIA will take an active role in coordinating and linking in with industry events and will commit to providing updates, opportunities and information to members of the industry on a regular basis.

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