

# SMART FARMS



## EXPRESSION OF INTEREST

Seeking Sponsors,  
Donors, Partners

SuniTAFE SMART Farming  
Training and Innovation Hub







Developing the people of today into the workforce of tomorrow

### A SMART Farming and Innovation Technology Initiative for irrigated horticulture in the Sunraysia Food Bowl.

For 40 years, SuniTAFE has led education and training in the Sunraysia region of Victoria.

We are now seeking partners to assist us in accomplishing a big idea; to fill the huge workforce gaps impacting the horticultural sector and revolutionise the farm training model towards SMART Farming.

As horticulturists and growers face increasing demands to produce more with less, SMART Farming heralds a new era that uses advanced technology, automation and innovative practices.

The SuniTAFE SMART Farming Horticultural Training and Innovation Hub will develop a high-tech, future-ready workforce. It will showcase best practice methods, technology, automation and innovation to support horticulturists in becoming more efficient and productive.

We invite you to join us in shaping the future of horticulture and giving rise to a new generation of tech-savvy growers.

SMART FARMING



# SuniTAFE Capability



A fully functioning 30-hectare training farm in Cardross (Mildura) is being re-purposed to face an innovated, automated and technology driven future. It will be the hub of an initiative to transform horticulture training towards SMART Farming.

Established in 1980, SuniTAFE is a leading provider of vocational education, recognised in 2019 as the Large Training Provider of the Year and in 2020 the Victorian Training Award Winner.



At the core of our success is a relentless commitment to understanding our region. We are determined to deliver relevant skills and training to support industry efficiency and productivity. In doing so, we contribute to regional prosperity, sustainability and well-being. Our achievements can therefore be shared among many.

SuniTAFE enrolls almost 6,000 students annually and employs 272 equivalent full time (EFT) staff.

We are governed by a Board of Directors, who seek advice from local area business leaders through a network of Advisory Committees and other engagement strategies, including a highly successful series of World Café Days that are facilitated to bring issues into action.

SuniTAFE is responsible to the Victorian Minister for Training and Skills and Minister for Higher Education.

We take pride in knowing 'our patch' and our extraordinary growth in market share - from 28.4% in 2018 to 46.4% in 2019\* is proof that 'our patch' also knows us.

Our reach and influence is expanding and deepening, within a geographic footprint that covers a vast area of north west Victoria and accounts for almost 20% of the state.

We have two main campuses located in Mildura and Swan Hill, a smaller campus in Robinvale, and a new campus in Horsham

that opened in 2019 in response to industry demand. A new Skills and Job Centre (SaJC) opened in Swan Hill in 2019, to complement the Mildura SaJC, and a new heavy automotive training facility in Mildura was co-designed by industry and expands upon the Heavy Automotive Department at the Swan Hill Campus.

Commencement of our Reconciliation Action Plan (RAP) in 2019, demonstrates our genuine commitment to Indigenous Australia, while formalising our intent to be truly representative and foster a culturally safe environment. A Stakeholder Engagement Framework provides guidance to enable inclusive and respectful relationships, encourage open dialogue, and drive positive change in the lives of our stakeholders.

\*Victorian Department of Education and Training 2019 Performance and Accountability Framework



# A New Era



## SuniTAFE SMART Farming Vision

To be the leading trainer provider in SMART horticulture farming, combining best practice with cutting edge technology to develop the people of today into the workforce of tomorrow.

## SuniTAFE SMART Farming Mission

- 1.** Train an efficient and skilled SMART farming workforce that can rise to meet current demands and proactively contribute to the future requirements of the horticulture sector.
- 2.** Provide accessible support, trials, networks, information, skills, education and training to horticulture farmers to facilitate a move away from industrial era practices towards a SMART farming model that utilises automation and technology.
- 3.** Deliver skills, training and education to improve the capability of the horticulture industry to manage resource and environmental constraints, while sustainably increasing.

## SuniTAFE SMART Farming Philosophy

We invest in training people in SMART Farming equipment, technologies and best practice processes, preparing a future-ready workforce to enable productivity and efficiency improvements for horticulture farmers, and creating a growing movement of farm workers with skills to transform the sector for social, economic and environmental gain.



# Grown in the Sunraysia Food Bowl

SuniTAFE will partner with growers, government, industry, community, researchers and other education providers to revolutionise the farm training model.

We hope you can join us.

The Sunraysia (Mallee) region, in Victoria's north west, is renowned as Australia's horticultural 'food bowl'. It produces high quality, pollution-free fruit and vegetables for domestic and international markets and is one of Australia's most productive areas. Its \$2.8 billion economy is driven primarily from horticulture and other agriculture. An established manufacturing sector also value-adds the regions food, nuts, wine and beverages.

The success of the regions horticulture industry can be attributed to a combination of factors, and these provide an optimum location for SMART horticultural farming, demonstrations, research, training and trials.

**Percentage of Australia's produce grown in the Mildura, Swan Hill and Wentworth region is approximately:**

**98%** of Dried grapes

**75%** of Table grapes

**68%** of Almonds

**48%** of Pistachios

**24%** of Citrus

**24%** of Carrots

**23%** of Asparagus

**11%** of Melons

**20% of Australia's wine crushed in the Murray Darling and Swan Hill region (2012)**

Source: Grow Mildura; Mildura Regional Development (2016)

## Why locate the SMART Farm in The Sunraysia Food Bowl?

**1** Climate conditions for growth - higher temperatures and longer sunlight hours

**2** Fertile alluvial soils

**3** Access to Murray River irrigation

**4** Culture of innovation and cooperation among horticulturists in the region

**5** Horticulture in the region is forecast to double within 10 years\*

**6** Growth of the regions horticulture sector is reliant on water management, export demand and skilled workforce

**7** SuniTAFE has 40 years experience in the region

**8** The SuniTAFE Cardross SMART Farm is established as a working and training farm that can be transformed into a SMART Farming training and innovation hub

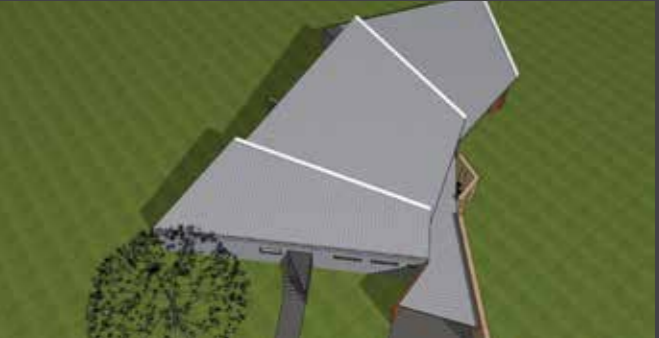
**9** SuniTAFE is the Large Training Provider in Victoria and Australia (2019 Training Awards)

\* 2017 Regional Skills Demand Profile, the Mallee

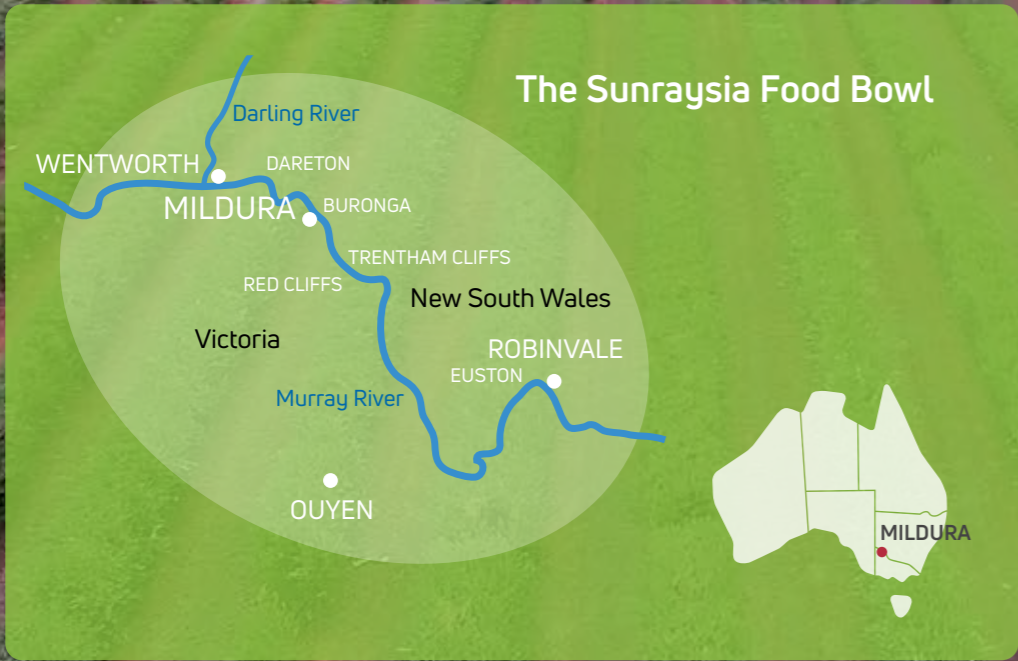


# SMART Farm location and proposed vision

Smart Farm is 30-hectares of prime agricultural land and is located close to Mildura Regional Airport. Map represents 22-hectares.







The re-purposing of the SuniTAFE Cardross Farm into a SMART Farming Horticulture Training and Innovation Hub will provide a state-of-the-art facility for:

- vocational training
- trials and testing
- education linkages
- innovation
- entrepreneurialism
- industry participation
- stakeholder engagement
- shared learning
- new technologies
- automation
- start-ups
- job-ready workforce development

“We still need traditional labour skills in horticulture right now, but the future won’t be all about hard work, like picking fruit. It will be about knowing how to make informed decisions using technology as our new tools of the trade.”

Richard Byllaardt,  
Business Development Officer,  
Falcha Hadash Pty Ltd





# Big Data, the Cloud and the Internet of Things

SMART farming is shaping the future of horticulture and giving rise to a new generation of tech-savvy growers.

SMART farming is also known as precision farming. It's a concept of farm management that leverages broadband services, mobility and a range of measurement, monitoring and management technologies to improve productivity and efficiency.

The Internet of Things (IoT) is the term used for having computers, machines, equipment and devices of all types connected to each other, exchanging data, and communicating in ways that allow them to operate as a SMART system.

Growers can seamlessly control systems from their mobile devices and use data to make decisions more selectively around farm management priorities, like the use of fertilizers, pesticides and water.

SMART farming is growing in profile and importance in response to major impacts affecting growers everywhere :

- increasing global population
- rising demand for improvements in crop nutrition and yield
- need to use water, soil and other natural resources more efficiently
- rapid progress in information and communication technology
- need for climate aware farming practices

The SuniTAFE SMART Farming project will support growers as they transition beyond industrial-era methods, enabling horticulture farming to become more:

- efficient and productive
- proactive and responsive
- data driven

## SMART Farming is influencing the way horticulture farms are managed through:



Automation



Automatic watering and irrigation



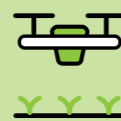
Robotics



Automated harvesting, weeding and crop maintenance



Driverless tractors and autonomous equipment



Drones for informed management decisions and on-farm operations



Precision seeding and planting



Real-time monitoring and analysis



“The next generation of horticulturist and growers will use science, technology and automation. SuniTAFE is already integrating SMART Farming training and education into our courses. We want to develop a workforce that is able to fill the jobs now and support growers as they transition towards a SMART farming model.”



Greg Hutchison,  
Horticulturist and SuniTAFE Board member



# Jobs for the Future

The SuniTAFE SMART Farm will bring people, technology and machinery together to create a clever 'win win' situation for growers and the horticultural workforce.

Considering that farming generally has a reputation of being hard work and labour intensive, less people are signing up for jobs in the sector and skilled workforce shortages are becoming the norm.

For those still working on horticulture farms, there is a real possibility of disruption in their workforce capability as technology and automation is introduced.

These factors combine to create a huge problem for growers, employees and the regions that rely on horticulture for economic prosperity.

The SuniTAFE SMART Farming initiative will encourage new thinking about jobs in horticulture. It will facilitate a re-evaluation of career options and create a benefit for all involved, presenting an opportunity to fill workforce gaps both now and in the future while changing the reputation of jobs in the sector and future-readying the workforce.

With the horticulture industry standing at the cross-roads of industrial-era practices and a high-tech farming model, SuniTAFE is undertaking steps to revolutionise the farm training model by changing perceptions around the opportunities for careers in horticulture. While being able to meet the current skill requirements of the sector, SuniTAFE will prepare a workforce for the future, where the typical work day will be spent on decision making through data analysis, machinery maintenance, or even robot coding - all with the touch of a hand held device.

"A wide range of skills and tasks will be needed to bridge the divide between what farms need now and to enable the transition into SMART Farming. SuniTAFE are already thinking ahead, with high-tech skills and training being integrated into courses ready for delivery as early as 2021."

Anne Mansell,  
Chief Executive Officer,  
Dried Fruits Australia.





## An average day on the SuniTAFE SMART Farm



As the sun rises on the SuniTAFE SMART Farm, a robotic tractor goes along rows of table grapes snipping at the weeds, while a drone soars above looking for signs of disease. Back in the office, a farm worker checks on the data coming in. The information provides detail right down to the level of the soil for the individual vines and what they need.

Later in the day, students are learning skills that can improve the efficiency and productivity of the farms they will one day work on. They are shown the traditional requirements of farm work, but also learn about machinery, technical instruments, data, coding, plants and soil. This is the new generation of farmworkers, preparing for the current jobs they will fill, while transitioning to be capable of becoming the workforce of tomorrow.



“Forecast growth will be underpinned by a shift to larger corporate farms, with new roles and greater utilisation of modern technology (in contrast to the traditional family-owned model). Hence, the supply of workers skilled for the changed farming business model will be the primary enabler of growth for the sector.”

Victorian Skills Commissioner  
2017 Regional Skills Demand Profile, the Mallee



# Networks

Creating a new horticultural workforce means engaging with stakeholders, to learn from the experiences of others and create a network of support for the project.

The horticulture sector is important to communities in the Sunraysia region and in other irrigated farming regions in Australia and around the world.

Maintaining the legacy of productive land while producing more nutritious food is critical in order to feed the growing world population.

At SuniTAFE, we believe we need to think differently about how we engage - with growers, communities and our stakeholders - to encourage widespread change in the way careers are viewed in horticulture. This entails real-life interaction to assist them in visualising how innovative management methods, automation and technology can integrate to enable new careers to transpire across the sector.

A whole program of engagement with stakeholders has been crucial in the development of our approach to the SMART Farming concept so far. During 2017, consultations, forums and meetings with around 70 stakeholders (employers, growers, peak bodies, groups, agricultural consultants, government, education and training) identified a recurring theme around the lack of a quality labour pool to draw upon.

A Horticultural Industry Advisory Group (HIAG), consisting of growers and other stakeholders has been established by SuniTAFE as part of the governance model for the project.

A Stakeholder Engagement Framework is guiding our approach. We have various mechanisms to reach industry, students, community, and other education facilities as well as strong in-roads to government.

Our connection to peak bodies is also very robust, particularly with many of the peak industry representative organisations being located in the Sunraysia region, including:

- Dried Fruits Australia
- Almonds Australia
- Citrus Australia
- Murray Valley Winegrowers Inc
- Mildura Hemp Association
- Australian Table Grapes Association



"We need to develop new thinking about how careers in horticulture could be done and we envision a 'pipeline', including secondary schools and universities, providing training for different levels of ability and attainment."

Brett Millington,  
Chief Executive Officer,  
Mildura Regional Development.





# Runs on the Board



## **Trials**

### **Dwarf Almonds and Olives**

An arrangement with multinational plant nursery Agromillora (among the largest nurseries in the world with the largest tissue culture laboratory in Australia) has seen trials of high-density almond and olive plantings. These have attracted widespread interest, including visits by well

over 200 international horticultural representatives making this a high profile international concept. The trial yielded its first almond harvest in early 2019 (3 years ahead of initial projections) and has delivered innovative opportunities, like the development of an automated harvesting solution for the crop.

### **Virtual Reality**

A Proof of Concept Virtual Reality safety training solution, in conjunction with multinational agriculture corporation OLAM, was developed and has been showcased at the Victorian TAFE Association Conference, the TAFE Directors Australia Conference and was also demonstrated at OLAM's global Human Resource Summit.

### **Hemp**

A collaboration between Australian Primary Hemp and SuniTAFE will see land at the SuniTAFE SMART Farm set aside for hemp plantings, to collect data on low-THC (tetrahydrocannabinol) hemp varieties. These varieties would be used for the purposes of food, fibre and building material products over the next 2 to 3 years.



# Collaborations

## Mallee Regional Innovation Centre (MRIC)

### Mallee Regional Partnership (MRP)

SuniTAFE worked closely with the MRP in advocating for the MRIC. SuniTAFE, with the University of Melbourne and La Trobe University, are partners in the MRIC. The MRIC partners acknowledge the support from the Victorian State Government through their contribution of \$1.7 million funding to establish the Centre. The 4 focal areas of the MRIC are horticulture, water, energy and the environment in irrigated production and natural resource management.

## Higher Education

SuniTAFE has strong connections with other Higher Education partners.

- With La Trobe University, a number of Advanced Standing arrangements are in place, including links to La Trobe's agri-bio facility at Bundoora.
- There is a collaboration in place with RMIT University for a digital excellence project, exploring SMART technologies and applied research to create 'just in time, expert workforce training' delivered in the workplace.

## Regional Food and Fibre Collaboration (RFFC)

SuniTAFE is associated with the RFFC, led by the Bendigo Kangan Institute, which is exploring how partnerships can be improved to support Food and Fibre industries and progress the Victorian Government Food and Fibre Sector Strategy.

"With a long track record in horticultural innovation, the Sunraysia region is logically well-positioned to be the hub that develops the future of farming. There is an existing culture of collaboration between the horticulture sector and SuniTAFE, and we can bring along a very diverse range of other stakeholders to support the project. What we can achieve by working together will benefit industry, communities and even the consumers of our food produce on a world scale."

Geoff Dea,  
SuniTAFE Chief Executive Officer.





# Join us from the ground up

We invite you to join us in influencing the horticulture farms of the future.

SuniTAFE is looking to partner with inaugural donors, corporations, businesses and foundations – together we will contribute towards this bold vision for horticultural SMART Farming to develop the people of today into the workforce of tomorrow.

Your early support of the initiative will place you on the ground as we develop the project. Your support will be showcased to our many stakeholders. Your contribution will assist us in achieving the following outcomes:

**1.** Transform the existing production horticulture training facility at Cardross Farm into a SMART Farming Horticultural Training and Innovation Hub. This facility will be purpose-built for vocational training. It will have sites suitable for trials and testing and provide access to cutting edge technology, automation, innovations and data.

**This includes:**

- IoT (LoRaWan Internet of Things architecture);
- Sensor network and systems for:
  - Water management
  - Fertigation management
  - Individually captured drainage for research and analysis purposes
  - Full diagnostic and sensor monitoring for any application required
- SMART class rooms
- SMART laboratory
- Virtual Reality (VR) training simulations
- Plant and tissue stock
- State-of-the-art SMART Green and Glass House with associated technologies
- Conference facility to host international and domestic trade events
- Information Centre and Partners Pavilion

**2.** Revolutionise the TAFE Farm training model and create new educational programs in SMART Horticulture Farming.

These programs will include changes to the way we attract students, support the existing farming workforce and conduct new training, in areas like:

- Farm Hand, Supervisor and Management
- Food Safety
- Irrigation Management and Water Broker
- Tractor Operator
- Packing Shed Roles
- Quality Control
- Agronomist
- Heavy Automotive
- Robotics
- Information Technology (IT)
- Data Analyst
- Business Management and Accounting
- Water/Land Conservation and Management
- New Energies (solar, wind etc.)

**3.** Attract the best and brightest from the region and beyond to partner with us, teach, experience, trial, network, research, show, tell and learn. The SuniTAFE SMART Farm will provide farmers, students, communities and our partners with a growing network of support and opportunity. A series of events, workshops, activations, newsletters and on-site demonstrations will showcase innovation.

The stakeholder reach will include:

- Farmers, Enterprises and Suppliers
- Students
- Community
- Government
- Universities and Research Institutes
- Indigenous Groups
- Industry Leaders
- Schools and Colleges

"SuniTAFE is open to partnerships with donors and sponsors who can join us now as we commence this exciting initiative. We want to develop and grow with the right relationships up-front. It's about more than project funding and in-kind technology or equipment, we want true relationships we can build upon."



Kay Martin,  
SuniTAFE Board Chair





# Partner with us

## Principal Partner

The Principal partner gains naming rights of the SuniTAFE SMART Farm.

Principal partnership values are open to discussion, and may be via financial contribution and/or in-kind.

We aim for a contracted term of 5+ years in line with our aspiration to forge long-term partnerships.

Principal partner contribution is per annum.

## Major Partners

As a Major partner, the funding range is \$50,000-\$100,000 per annum in financial contribution and/or in-kind.

We aim for a contracted term of 2+ years in line with our aspiration to invest time into our relationships and to have a suitable turnover on any donated machinery or equipment.

## Supporting Partners

Supporting partners are valued up to \$50,000 per annum in financial contribution and/or in-kind.

We aim for a contracted term of 2+ years in line with our desire to invest time into our relationships and to have a suitable turnover on any donated machinery or equipment.

## Recognition

Partner recognition can be packaged according to the partnership level to include such mechanisms as:

- Naming rights (entire site, events, programs)
- Signage on-site and at events
- Presence and presentations at events (trade displays, talks, signage, attendance)
- Recognition on SMART Farm pages on SuniTAFE website and in social media
- Advertising recognition for SMART Farm (e.g. in press, radio, cinema, TV)
- Printed materials/flyers/brochures
- E-newsletter content targeting business, farmers, community etc.
- Reports and presentations to Government /SuniTAFE Board
- Representation at meetings with stakeholders (government, industry, educators, suppliers, growers etc.)
- Media releases, interviews and appearances
- Participation in working groups and forums
- Acknowledgement in an on-site sponsors pavilion/recognition board
- Recognition/presentations at SMART Farm events

## Governance

A governance framework will assure agreements and/or Memorandum of Understanding (MOU) are in place.

A 'key' SuniTAFE contact will ensure partner involvement in the project and milestone reports will be provided.

We seek to develop a relationship defined by regular communication and engagement to enable adaptations and agility across the program.

**SuniTAFE has tax deductible gift status**





FEB 2021 CRICOS Provider Code: 01985A RTO Code: 4693



We openly invite further discussion as well as the opportunity to present additional information and host a SMART Farm Site tour to assist in outlining our vision.

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SMART FARM



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