

Fodder for the Future

A collaboration between growers and dairy
farmers focused on producing quality fodder

YEAR 1 – WINTER 2021



Australian Government
Department of Agriculture,
Water and the Environment

AGRICULTURE VICTORIA

BCG
SHARED SOLUTIONS



Irrigated Cropping Council
Promoting irrigated agriculture

Riverine Plains

SOUTHERN
GROWERS



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FODDER FOR THE FUTURE

INTRODUCTION

Murray Dairy is partnering with the grain and fodder industries to deliver forage demonstration sites across the northern Victorian and southern Riverina dairy areas. This 2.5 year, \$1.6 million project has been funded by the Federal Government under the Murray–Darling Basin Economic Development Program.

The project aims to support dairy businesses at a time when increasing numbers of farms have moved away from relying on perennial pastures and are now growing more winter and summer crops.

The project is working directly with 400–500 farmers and service providers to deliver a range of communication and engagement activities. Extension resources, workshops and other activities have been designed to broker new knowledge and leverage existing investment to help communities adapt to a water-limited future.

In the first year of the project, Murray Dairy and its partners have established trial and demonstration sites that showcase a range of winter crops and management strategies to maximise yield, quality, and profitability. The partners are: Agriculture Victoria at Tatura, Birchip Cropping Group at Mitiamo, the Irrigated Cropping Council at Kerang, Melbourne University at Dookie, Southern Growers at Finley and Riverine Plains near Rutherglen.

Crops being investigated include wheat, oats, barley, vetch and faba beans as well as mixtures of oats with vetch, field pea with vetch, oats with canola and vetch with canola. Management strategies include sowing rates, time of sowing, fertiliser use and time of harvest.

The results of these demonstration trials are being shared via regular updates, on-site field days and final results at murraydairy.com.au

PROJECT UPDATES



WHEAT TRIAL UPDATE

Murray Dairy has partnered with Agriculture Victoria to conduct an irrigated wheat demonstration trial at their research site in Tatura.

The aim of this trial is to examine how different sowing rates and nitrogen applications affect both the yield and quality of RGT Cesario wheat grown specifically as fodder for dairy cows. The trial has applied four different nitrogen rates and the final amount of N applied will be determined after soil test results have been analysed.

What are we measuring?

- In addition to yield and quality, the trial is measuring plant stem diameter and tiller density to see if these characteristics influence the final forage quality.
- Two different cutting times are being measured to see what impact an early harvest will have on final yield and quality.

The wheat plots have now all been sown down at the site in Tatura, with excellent germination and establishment. Weed and pest control has been largely successful, but some capeweed has emerged and has been sprayed out with a broadleaf herbicide. The plots were sown dry and irrigated up. Follow-up rains have been welcomed and the start to the season has been favourable.

There is often a compromise between achieving maximum dry matter yield and high quality. The results of these demonstrations will provide valuable information on the impact various strategies have on final yield and quality of wheat. It is hoped this collaborative project will help the dairy, cropping and fodder industries to work more closely in the future and share learnings.

Wheat trial plots at AgVic Tatura



Graeme Phyland, Senior Technician at AgVic Tatura inspects the irrigated wheat plots at Tatura.

Location



Google map reference: -36.4357339372078, 145.25988867706732



WINTER FORAGE TRIAL UPDATE

Murray Dairy has partnered with Birchip Cropping Group to conduct a number of winter forage demonstration trials at Mitiamo.

These trials are designed to demonstrate a range of crop varieties and management strategies that optimise the yield and quality of forages specifically for use in dairy cow diets.

What are we measuring?

- Six oat varieties, two barley varieties, four vetch varieties, and four mixed species (field pea and vetch, vetch and oats, oats and canola, vetch and canola).
- The effect of two different sowing dates on final yield and quality.
- Additional treatments looking at two different sowing rates and three different cutting times.

The crops have now all been sown down at the site in Mitiamo, with excellent germination and establishment. Weed and pest control have been excellent and will continue to be monitored. The season has got off to a great start and soil moisture conditions are ideal. Final yield will ultimately be determined by follow-up rains through winter and spring.

The results of these demonstrations will provide valuable information on the impact various strategies have on final yield and quality of the fodder. By working closely with other industries, Murray Dairy hopes to learn from cropping industry experts and share this information with dairy farmers, while informing crop growers of dairy farmers' requirements for certain quality parameters to properly feed their cows.

Winter forage trial at Mitiamo



James Taylor and Genevieve Clarke from Birchip Cropping Group gather plant establishment data.

Location



Google map reference: -36.209108943011984, 144.22467185325164



OATS AND VETCH DEMONSTRATION SITE UPDATE

Murray Dairy has partnered with Riverine Plains Inc. to develop a demonstration site on a cropping farm at Boorhaman North to highlight management strategies for an oats and vetch mix.

Determining the impact of sowing dates and sowing rates on the yield and quality of an oats and vetch mix specifically grown as dairy cow fodder is the impetus behind this demonstration site in NSW.

A mixture of Brusher Oats and Volga Vetch have been sown at 10 and 25 kg/ha for the lower sowing rate, and 37 and 31 kg/ha for the higher sowing rate. Two different sowing dates were also used to see the impact of a later sowing.

What are we measuring?

- Two different cutting times to reflect an early cut for silage and a later cut for hay. These different cutting times will indicate the impact of harvest time on quality and yield for each cut.

The early sown site was sown dry and needed rainfall before germination could occur. The later sown site needed to wait until the earlier site had established before it could be sown. The early and late sowings are now both sown and out of the ground.

Some weeds have emerged with the crop, but site manager Jane McInnes is confident the crop will quickly smother the weeds. Insect pests and future weed invasion will continue to be monitored.

It is well understood that there is often a compromise between achieving maximum dry matter yield and high quality. The results of these demonstrations will provide valuable information on the impact various strategies have on final yield and quality of an oats and vetch mix.

Oat and vetch mix demonstration site



Jane McInnes Project Officer with Riverine Plains inspects the oats and vetch paddock at Boorhaman North.

Location



Google map reference: -36.10542365889752, 146.26537197975776



VETCH TRIAL UPDATE

Murray Dairy has partnered with Southern Growers Inc. to conduct a number of vetch demonstration trials at their research site on the northern edge of Finley NSW.

This trial is designed to demonstrate a range of vetch varieties and management strategies that can optimise the yield and quality of vetch – specifically for use in dairy cow diets.

The trial is looking at four vetch varieties (Rasina, Timok, Morava and RM4) under both irrigation and dryland conditions. To see how yield and quality can be manipulated, two different sowing rates (30 and 60 plants per m²) were applied.

What are we measuring?

- As well as establishment strategies, two different cutting times will be compared to see how these may impact the compromise between quality and quantity.

The recommended cutting time for vetch is at the flatpod stage. The vetch crops have now all been sown down at the site in Finley, with excellent germination and establishment. Weed and pest control has also been excellent and will continue to be monitored. The season has got off to a great start with rapid germination on the irrigated plots and a slightly delayed germination on the dryland plots.

Dryland plots are all up now following good rainfall in the autumn. Final yields on the dryland site will ultimately be determined by follow-up rains through winter and spring. It is well understood that there is often a compromise between achieving maximum dry matter yield and high quality. The results of these demonstrations will provide valuable information on the impact various strategies have on final yield and quality of vetch.

Vetch trial at Finley NSW



Russell Ford from Southern Growers inspecting the vetch plots at Finley NSW.

Location



Google map reference: -35.62326230196162, 145.58554379682036



MIXED TRIAL SITE UPDATE

Murray Dairy has partnered with the Irrigated Cropping Council to conduct demonstration trials investigating management strategies for cereals and faba-beans as fodder for dairy cows.

A collaboration between the dairy, cropping and fodder industries, these two trials are helping all parties better understand the needs of cropping farmers and dairy farmers' requirements for high quality fodder.

What are we measuring?

- The first trial is looking at the impact of sowing dates and seeding rates for wheat (Cesario) and oats (Forrester) crops. Sowing dates were early and late April. Sowing rates were 80, 120, 180 and 270 plants per m².
- Two different cutting times to understand the impact of harvest time on quality and yield for each cut.
- The second trial is looking at two sowing rates and three harvest dates for Faba beans (PBA Bendoc) and how they might fit into a dairy farm fodder strategy.

All plots in the first trial have been sown with successful weed and pest-free establishment. The crops are all growing well, with some plots quite advanced in their growth stage.

Faba beans are a high-yielding and high-quality crop that could potentially provide excellent feed for dairy cows. They are also high in moisture and could create a challenge when harvested for silage.

The Faba bean plots are now all sown and established, with some early weed challenges. Plots will continue to be monitored for weed and insect pests. The results of these trials will provide valuable information on the impact various strategies have on final yield and quality.

Irrigated Cropping Council trial site



Damian Jones, Trials Manager with the Irrigated Cropping Council, inspects the cereal plots at their Research Centre in Kerang.

Location



Google map reference: -35.7444816633343, 143.95209167202003



CEREAL TRIAL UPDATE

Murray Dairy has partnered with the University of Melbourne to conduct a number of cereal species demonstration trials at their Dookie campus research site.

This trial is designed to demonstrate the performance of three cereal species (Wheat, Barley and Oats) with two cultivars of each species (Illabo and Kittyhawk Wheat, Planet and Laperouse Barley, and Yallara and Eurabbie Oats), and management strategies that can optimise the yield and quality of these crops for use in dairy cow diets.

What are we measuring?

- Two different sowing rates - a typical sowing rate that would be adopted in the region, and a higher sowing rate to see what impact that will have on final yield and quality.
- Stem diameter to determine if higher sowing rates lead to thinner stem diameter and if a thinner stem diameter leads to higher quality.

The cereal crops have now all been sown down at the Dookie campus site and the season has got off to a great start with excellent germination and establishment. Weed and pest control has been successful and will continue to be monitored. The final yield will also be dictated by follow-up rains through winter and spring.

The results of these demonstrations will provide valuable information on the impact various strategies have on final yield and quality of these six cereals. Murray Dairy also hopes to raise awareness among crop growers of dairy farmers' requirements for high quality hay and silage to feed their cows.

Cereal trial at University of Melbourne Dookie Campus



Research Scientist Sineka Munidasa inspecting the cereal establishment at the Dookie campus research site.

Location



Google map reference: -36.38315977084683, 145.72307351378987



PARTNERS



Murray Dairy is a not-for-profit regional development program (RDP) led by dairy farmers from the Murray Dairy region. Murray Dairy is funded by Dairy Australia via the dairy service levy, with matching investment from the Australian Government as well as attracting funding from other dairy and agricultural bodies and regional partners.



Australian Government
**Department of Agriculture,
Water and the Environment**

The project received \$1.6M in funding from the Australian Government through the Murray–Darling Basin Economic Development Program.

The Murray–Darling Basin Economic Development Program is supporting economic development projects in identified communities impacted by water recovery under the Basin Plan.



Agriculture Victoria works to grow and protect profitable, sustainable farms in thriving regional and rural communities across Victoria. Agriculture Victoria Research delivers transformational impact on productivity in Victoria's key agricultural industries and protects industries and access to markets through genetic, biosecurity, farm systems and resource use research and innovation.

Research and innovation in major industries, including dairy, grains and horticulture, as well as in emerging bioindustries, is delivered through multi-disciplinary research collaborations with industry that accelerate and enhance productivity impacts. Innovations in biosecurity protect Victoria's thriving agriculture sector through advanced diagnostics and the maintenance of specialised insect and plant pathogen reference collections.



Birchip Cropping Group Inc. (BCG) is a not-for-profit agricultural research and extension organisation led by farmers from the Wimmera and Mallee regions of Victoria. Aiming to improve the prosperity of farmers and agricultural communities through farmer-driven innovation, research and extension.

BCG has been integral in the adoption of new agronomic technologies and farming practices; and continues to help farmers make decisions, develop risk management strategies, increase profits and operate sustainable farming operations.



Irrigated Cropping Council
Promoting irrigated agriculture

The Irrigated Cropping Council (ICC) is a farmer-driven, not-for-profit, independent research organisation, committed to providing the latest research in irrigated grain production and connecting growers with local, state and national research and extension.

Collaborating with key research/extension organisations and funding bodies ensures growers across the region have access to the latest information in irrigated grain production systems to enable them to make informed decisions about best practice and drive profitable, sustainable farm systems.



University of Melbourne Faculty of Veterinary and Agricultural Sciences is a research-intensive faculty dedicated to the advancement of societal, animal and environmental wellbeing through cross-disciplinary and collaborative research spanning agricultural, food, veterinary and biomedical sciences.

The University of Melbourne Sustainable Agricultural Production research group including the Dookie campus offers expertise in areas of agronomy, plant physiology, plant genetics, crop and forage growth, livestock nutrition and production, integrated farming systems and new technologies to simultaneously enhance productivity and ecosystem health.



Riverine Plains Inc is an independent farming systems group dedicated to improving the productivity of broadacre farming systems in north-east Victoria and southern New South Wales. The group was established during 1999, and its membership is drawn from the eastern NSW–Victoria border region, known as the Riverine Plain.

Riverine Plains Inc specialises in farmer-driven research and extension that delivers on-the-ground benefits to members.



Southern Growers is a not-for-profit grower group servicing the Southern Murray Valley in New South Wales. The group was developed in 2008 in an attempt to respond to the lack of Government agronomic services in the area. As the community recovered from drought Southern Growers has slowly built momentum and today helps local growers access information and research in irrigated farming systems.

The group aims to drive innovation in the region to improve the profitability, efficiency and performance of agriculture in irrigated farming systems. As a result of this growers will be able to achieve greater water use efficiencies and more security for long term viability of their business.



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