



Alternative species trial in Bombala

Can alternative perennial pasture species match or outperform the persistence of traditional species in the Monaro region?

The ability of both legume and non-legume perennial pasture species to persist long-term and maintain a satisfactory level of productivity and feed quality in the Monaro region can be harshly impacted by the highly variable climatic and seasonal conditions present in the area.

Aim

Assess the long-term persistence capabilities of various grass, herb, and legume pasture species, and compare their productivity and resilience with five benchmark species already commonly used in pasture systems in the Monaro region.

Site

This trial, located at the Jeffreys' property, near Bombala, NSW was established in March 2019 by Dr. Richard Culvenor and his team from CSIRO and was later joined by Monaro Farming Systems (MFS) in January 2023 as part of the NSW Innovation Hub's Resilient Pastures project funded through the Future Drought Fund.

The chosen site demonstrated reasonable soil fertility (Colwell P 24 mg/kg and lifted to 44 mg/kg by 2021 through annual single super application) with an acidic profile (pH CaCl₂ of 4.5). Low aluminium levels (5% of total CEC) ensured toxicity was not an issue.



Farm Snapshot

Owners: John and Jen Jeffreys

Location: Bombala, New South Wales

Farm size: 1,620 hectares

Average annual rainfall: 600 to 650 mm

Soil type: brown dermosol

Topography: gently undulating hills formed on both Ordovician metasediments and Tertiary basalt

Enterprise: self-replacing composite ewe flock

Pastures: Lucerne, Phalaris, Sub, Arrow leaf

DSE: 16 DSE (Annies Paddock)



Figure 1: Trial plots at 'Burando' as part of the Resilient Pastures Project
(Source: Nancy Spoljaric, MFS, 2024).

Table 1: Treatments used in the Bombala species trial

(Source: Nancy Spoljaric, MFS, 2024, & Dr. Richard Culvenor, et al., 2022).

Species	Cultivar	Sowing Rate (kg/ha)
Tall Fescue	Quantum II Max P	15
	Hummer Max P	15
	Finesse Q	15
Cocksfoot*	Porto	5
	Savvy	5
Perennial Ryegrass	Base AR37	20
	Excess AR37	20
	Kidman	20
Prairie Grass	Atom	30
Phalaris*	Holdfast	4
Grazing Brome	Gala	25
Pasture Brome	Bareno	25
Coloured Brome	Exceltas	25
Mountain Rye	Family 10	10
Perennial Veldt Grass	Mission	3
Digit Grass**	Premier	2
Chicory	Puna	5
	Commander	5
Plantain	Tonic	8
White Clover*	Haifa	2
	Nomad	2
	Trophy	2
Red Clover	Astred	5
	Rubitas	5
Talish Clover	Permatas	4
Caucasian Clover	Kuratas	6
Caucasian x White Clover	Aberlasting	2
Strawberry Clover	Palestine	4
Subterranean Clover*	Leura	10
Lucerne*	SARDI Grazer	8
	Titan 9	8

*Benchmark

**Did not establish

Treatments

The trial consisted of 31 cultivars from 21 perennial grass, herb & legume species, sown at various rates (Table 1). The 'benchmark' species (commonly grown by producers in the district) were cocksfoot, phalaris, white clover, subterranean clover & lucerne.

Each treatment was sown with Calciprill® and received a maintenance application of muriate of potash in 2020. In addition, legumes were sown with Mo-super, while non-legumes were sown with Croplift® and received annual urea applications to maintain high soil fertility..

Trial plots were 6 m x 1.8 m and replicated four times.

Plant density, herbage mass, and feed quality were recorded as measures of persistence, productivity, and quality, respectively. Soil samples were taken annually.



Figure 2: Trial site in November 2022 (Source: Nancy Spoljaric, MFS).

“Six years of robust, scientific persistence and production data for a range of temperate pasture perennial grasses & legumes can help producers evaluate their potential to persist and perform to underpin meat production enterprises in the Monaro region.”

– Nancy Spoljaric, MFS

What will this tell us?

This trial will provide Monaro livestock producers with specific key production and persistence data on how a wide range of perennial pasture species tolerate the variable climatic conditions that characterise the region. It will offer a clear idea of how currently used species perform compared directly to other less commonly used species and could also give producers more confidence to select different cultivars of species that are currently in use or try alternative species, hence providing a wider variety of options when selecting species for sowing or renovating pasture systems.

Over the six years of data collection (CSIRO and MFS), the site experienced severe drought and intense rainfall periods, making the persistence data more applicable to real-world scenarios, and adding another valuable dimension to the trial.

Growing species as monocultures, rather than a perennial pasture mix (traditional practice) a limitation of the trial that will need to be considered by producers when making decisions based on results. Future research is required to understand how each tested species would persist when grown in a multi-species mix — closer to a true pasture system.

Results

This trials' analysis as part of the Resilient Pasture Project ended June 2024. A full set of results were presented at the MFS Winter Field Day held in Bombala on 3rd July 2024 and are available from the Monaro Farming Systems group.

“Having more data will make me feel more confident to choose a pasture species that I may not have considered in the past or will reaffirm that our existing species continue to be best practice.”

— John Jeffrey, Owner of ‘Burando’

The author would like to thank John Jeffrey for allowing this trial to take place on his property, Dr. Richard Culvenor and his team from CSIRO for setting up and maintaining the trial, Doug Alcock from Graz Prophet Consultancy for conducting trial work and collating data, and the project lead Nancy Spoljaric from MFS for taking part in this trial and assisting with the preparation of this document.

For more information

Nancy Spoljaric, Monaro Farming Systems
Mobile: 0438 066 322 Email: projects@monarofs.com.au
monarofarmingsystems.com.au



Acknowledgements: Creating Landscape-scale Change through Drought Resilient Pasture Systems, otherwise known as ‘FDF Resilient Pastures’ is a project funded by the Australian Government’s Future Drought Fund Drought Resilient Soils and Landscapes Grants Program, secured by Southern NSW Drought Resilience Adoption and Innovation Hub. The project is led by Holbrook Landcare Network and partners include Central West farming Systems, Monaro Farming Systems, Riverine Plains, FarmLink, Local Land Services, NSW DPI, CSU and The Southern NSW Resilience, Adoption and Innovation Hub, with a project period of June 2022 – June 2024.