

Creating landscape-scale change through drought resilient pasture systems



KEY POINTS

- ▶ A pasture variety trial has been established at TAIC.
- ▶ The trial includes clovers, medics, lucerne, phalaris, cocksfoot, tall fescue and mixes.
- ▶ Biomass production has started to be recorded and will continue over multiple seasons.
- ▶ A demonstration site is also being established in 2023 to highlight techniques needed to maintain a persistent pasture.

Project title	Creating landscape-scale change through drought resilient pasture systems
Funding partner	Future Drought Fund
Trial Site Locations	TAIC, Murringo NSW
Report author	Hayden Thompson

Project partners

Holbrook Landcare, Central West Farming Systems, Riverine Plains, Monaro Farming Systems, Local Land Services, NSW DPI, Charles Sturt University

INTRODUCTION

Perennial pastures are essential in any mixed farming operation. A high performing pasture will provide stability and less reliance on other feed sources.

This theme is part of a new project that is funded by the Future Drought Fund through the Southern NSW Drought and Innovation hub. The project is called creating landscape-scale change through drought resilient pasture systems. Its objective is to establish demonstration sites through Southern NSW that will highlight the techniques needed to maintain a resilient pasture through variable seasonal conditions.

FarmLink is a part of a consortia of farming systems groups included in the project and will be establishing two sites out of ten that are developed throughout the region. The first focusing on species and varietal choice, and the second on other management techniques. The variety trial has been sown in 2022 to include many different species and varieties that can be grown in the region. The management trial is being setup in 2023 and will look at how to best utilise pasture with stocking rate, paddock size and the length of grazing periods. An overview of the first year of establishment of the variety trial is summarised in this report. Ongoing results from further years from both trial sites will be included in subsequent reports.

METHODOLOGY

In 2022, a pasture variety trial was sown at the Temora Agricultural Innovation Centre (TAIC). The paddock chosen to contain the trial, also has pasture newly established, therefore the paddock was limed and incorporated in 2021 to increase the surface soil pH to above 5.5.

A vetch/cereal hay crop was also grown in 2021 to try and minimise weed seed set and store soil moisture over a summer fallow period. The trial was sown in May 2022 with a range of species and varieties shown in Table 1 and provided by seed companies including Barenbrug, DLF Seeds, Seedforce, S&W Seed Co, and Upper Murray Seeds.

To ensure good establishment, the site was scarified and rolled to create a firm seedbed to sow into. The trial was sown as a small plot trial using knife point press wheels. No pre-emergent herbicides were used because of the variability between varieties and species in susceptibility, however, post-emergence applications were made to relevant species where needed. Insecticides were also used to protect seedlings.

No.	Species	Variety	Company
1	Sub Clover	Mawson	Barenbrug
2	Sub Clover	Mintaro	Barenbrug
3	Sub Clover	Campeda	Barenbrug
4	Sub Clover	Monti	Barenbrug
5	Sub Clover	Forbes	Seedforce
6	Sub Clover	Narrikup	Seedforce
7	Sub Clover	Yanco	Seedforce
8	Balansa	Enduromax	S&W Seeds
9	Balansa	Border	S&W Seeds
10	Arrowleaf	Zulumax	S&W Seeds
11	Rose	SARDI	S&W Seeds
12	Persion	SARDI	S&W Seeds
13	Bladder	Bartolo	S&W Seeds
14	Medic	Penfield	S&W Seeds
15	Medic	Emperor	S&W Seeds
16	Medic	Cavalier	S&W Seeds
17	Medic	Seraph	S&W Seeds
18	Lucerne	Titan 5	DLF Seeds
19	Lucerne	SilverLand GT 5	Upper Murray
20	Lucerne	Warrego GT6	DLF Seeds

No.	Species	Variety	Company
21	Lucerne	RD17NPK92	S&W Seeds
22	Lucerne	SW6330	S&W Seeds
23	Lucerne	SF614QL	Seedforce
24	Lucerne	SW18SPD303	S&W Seeds
25	Lucerne	L71	S&W Seeds
26	Lucerne	Sardi 7	Barenbrug
27	Lucerne	Silverosa GT 7	Upper Murray
28	Lucerne	SF714QL	Seedforce
29	Lucerne	Sardi Grazer	Barenbrug
30	Lucerne	Torrens GT8	DLF Seeds
31	Lucerne	Silverado 9	Upper Murray
32	Lucerne	SW9720	S&W Seeds
33	Lucerne	SW18IPD304	S&W Seeds
34	Lucerne	SF914QL	Seedforce
35	Lucerne	SW18NPD305	S&W Seeds
36	Lucerne	SW18NPS306	S&W Seeds
37	Cocksfoot	Drover	Upper Murray
38	Cocksfoot	Summadorm	Barenbrug
39	Cocksfoot	Lazuly	Seedforce
40	Phalaris	Holdfast GT	Barenbrug
41	Phalaris	Horizon	Barenbrug
42	Phalaris	Stockman	Upper Murray
43	Phalaris	Grazier	Upper Murray
44	Phalaris	Mate	Seedforce
45	Tall Fescue	Prosper	Barenbrug
46	Tall Fescue	Charlam WA	Upper Murray
47	Tall Fescue	Medallion	Seedforce
48	Mixed	Meatmaster 500	Barenbrug
49	Mixed	Meatmaster GT	Barenbrug
50	Mixed	GT07 Phalaris YM038 Sub Clover	DLF Seeds
51	Mixed	Temora Med Fescue Urana SubClover Titan5 Lucerne	DLF Seeds
52	Mixed	Hispanica Cocksfoot Titan 5 Lucerne	DLF Seeds
53	Mixed	Hardy Phalaris Blend	Seedforce
54	Mixed	Tablelands and Slopes	Seedforce

RESULTS

The pasture variety trial was successfully established in the 2022 season with all species having a satisfactory level of plant numbers per square metre. This establishment is shown in Figure 1.



Figure 1 - Different treatments shortly after emergence including (left to right) clover and two different mixes.

Although plant growth may have been limited due to very wet conditions during 2022, a first cut was able to be taken during November on the lucerne, grasses and mixes. The clovers and medics were left ungrazed to ensure that they could achieve maximum seed set in the first year of establishment. A comparison between the different species and their dry matter production from this first cut is shown in Figure 2. These results show that the grasses and mixes (also containing grass species) had

a higher production than lucerne, however, this cut was taken during spring. After this cut and during the summer months, it was noted that lucerne remained active whereas the grasses became more dormant. A second cut was taken during January, however only lucerne had sufficient biomass to perform the biomass cut. These results and further trial results will be published in subsequent reports.

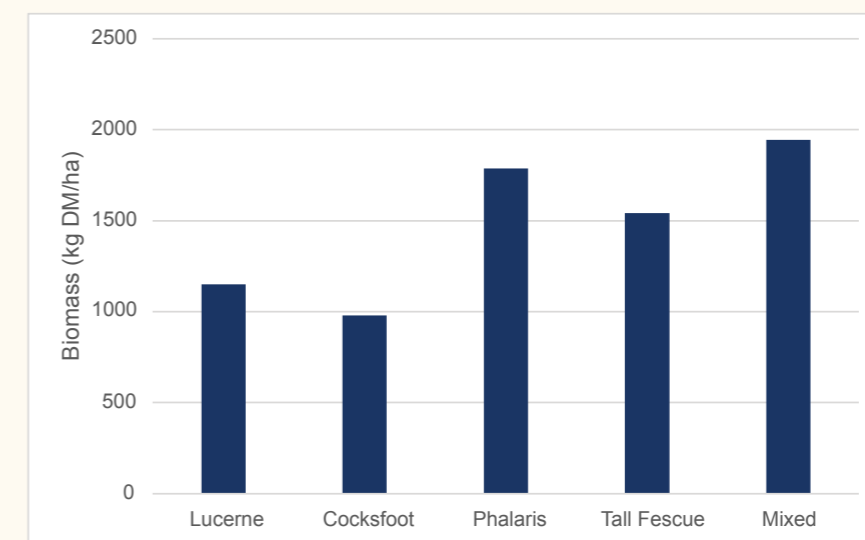


Figure 2 - Dry matter production of different species from a biomass cut taken on 15th November, 2022.

RESULTS



Figure 3 - Lucerne at the time of the first biomass cut on 15th November, 2022.

CONCLUSION

A pasture variety trial has been successfully established at TAIC. This will continue to run over multiple seasons so that the level of dry matter production as well as pasture persistence can be measured for the different species included in the trial. This will provide important information about which species and varieties are best suited to a range of seasonal conditions that may be experienced at Temora, NSW. The management demonstration site will also be setup in 2023 to also provide information on how to maintain a persistent pasture through varying seasonal conditions.

