



**Monaro Farming Systems
2017 Annual General Meeting
6th September 2017**

Reports and Meeting Papers



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Agenda

Start: Lunch 12.00pm

12.30 – 1.00 pm – March Oostdijk – General Manager Marketing and Sustainability **Rabobank**

1.00 – 2.15 pm - Sandy McEachern – **Holmes & Sackett** – Comparative Analysis Report

- Key profit drivers for the Monaro
- Business focus points
- 5 years of Monaro specific data, for over 15 farms benchmarked

2.15 – 2.45 pm - Afternoon tea

2.45 – 3.30 pm - Georgia Twomey (wool) analyst **Rabobank**

3.30 – 4.30 pm – Spring Seasonal Outlook – Phil Graham, **Graham Advisory**

4.30 – 4.45 pm – Flupropanate resistance on the Monaro? **Jo Powells, LLS**

4.30 – 5.15 pm – **Monaro Farming Systems AGM**

Close: Drinks 5.15pm



Photography – Angus Hobson – Bukalong, Bombala

Chairman's Report 2017 – Richard Taylor

2016/17 has set new highs for farming on the Monaro, with unprecedented strength across our key commodity prices, though seasonal conditions have been more variable across the region. Benchmarking indicates the profit gap between the best and average producers is widening, as stronger commodity prices mean the return on getting management decisions right is higher than ever. The role of MFS is to provide better information to assist with this decision making, and keep developing more profitable and sustainable farm systems.

Our focus remains on the core programs of the soils club, seasonal outlooks, benchmarking and our trainee. To these have been added the worms club and finishing systems projects. While detailed in the pages that follow, a few key points are:

- Nearly 400 soil tests were done in last year's program. Given 80% of soils have tested deficient to sulphur, MFS is very pleased to have successfully obtained a \$50,000 grant from MLA to help answer questions on the best way to address sulphur deficiencies. Richard Simpson and his colleagues will be heading this project, so keeping Richard involved in the soils club is a major bonus.
- Our ability to provide relevant seasonal updates has been enhanced by setting up Grassgro farm models at each of the four soil moisture probe sites, being Delegate, Bombala, and Rhine Falls, as well as the original Bungarby site.
- The worms club will get momentum from a \$25,000 AWI grant to develop a web based data base, and fund 15 worm drench resistance tests, and 10 fluke resistance tests, as well as encourage more worm monitoring. We will be looking for member volunteers for the resistance testing, which will provide valuable information for the farm involved, as well as for the region.
- Doug has produced a paper on the profitability of taking weaner steers through to feedlot or slaughter weights. Like the lamb finishing paper, modelling indicates this can significantly improve farm profit. We will be validating the lamb finishing modelling with a \$56,000 MLA grant enabling us to measure pasture growth and lamb weight gains on a number of finishing pasture options over the next two summers. We will also be looking for opportunities to run a similar on-farm program for cattle finishing systems.

Other achievements include the legume nodulation work done by Jo Powells, which show another area where we can potentially improve farm production.

Four weather stations have been established with Weatherzone at Nimmitabel, Delegate, Rhine Falls, and Bungarby. While these have had teething problems they will provide a more comprehensive forecasting and recording of observations for the Monaro.

The P efficient pastures project has been initiated, and the benchmarking group has continued with strong numbers. MFS is also associated with the Merino sire evaluation site which has been initiated at Cavan Station, Yass.

MFS has delivered four informative field days, all with our characteristic strong attendance.

A major focus over the next twelve months will be establishing a more useful website. With the weather information, soil probe data, and worm club database, as well as the normal project and field day records, we aim to make the MFS website the logical choice as our member's home page.

Membership numbers have increased, but we are always looking for ways to increase our relevance to more farmers on the Monaro, and suggestions as to how we can achieve this are always welcome.

MFS remains in a strong financial position, and this is in no small way due to our sponsors, and especially due to the LLS, which continues to provide both strong financial assistance, and technical input and unwavering support from Luke and Jo.

I would like to thank Nancy for another year of her hard work, which she continues to do with great diligence and cheerfulness. There is no doubt Nancy has made the largest individual contribution to MFS over the years, and makes the Chairman's job an easy one.

Finally, I would also like to thank the board, all of whom put in a great number of hours to continue to improve the value offered by MFS. Special mention must go to Mike Stephens, who is retiring this year after having been the only director to have served on the board for the ten years since MFS's commencement. Mike was central to the establishment of MFS, and his strong governance skills and wise advice has kept the organisation on track over the years.



Financial Report – Jono Forrest

MFS Statement of Profit & Loss – For the Year Ended 30 June 2017

2016		2017	Notes
	Income		
30,809	Government Grants		
57,500	LLS Support	32,500	1
19,849	Membership	21,889	
-4	Non-member registrations	882	2
29,700	Other Industry Grants	18,476	3
13,010	Sponsorship	14,900	4
299	Training Income	-	
-	Wool sales	-	
2,927	Bank Interest	2,352	
18,299	Reimbursed Expenses	21,692	5
<u>172,390</u>	Total Income	<u>112,691</u>	
	Expense		
1,930	Advertising	1,362	
198	Bank Charges	141	
1,824	Board Meetings	-	
3,226	Catering	4,704	
	Charitable Donation		
67,955	Contract Work	94,586	6
586	Depreciation (20%)	375	
9,575	Materials / Capital Items	3,075	7
	Office Operating Costs		
1,151	Phone and internet	873	
752	Postage	807	
563	Stationery	310	
	Other		
<u>2,466</u>	Total Office Operating Costs	<u>1,989</u>	
9,246	Reimbursement 2015 wether trial		
	Office rent		
577	Subscriptions	1,257	8
595	Sundry	548	9
3,015	Training	491	10
3,943	Travel, Accommodation & Meals	4,749	11
46,885	Wages and on-costs	49,723	12
2,198	Insurance	4,427	13
<u>154,219</u>	Total Expense	<u>167,426</u>	
<u>\$ 18,171</u>	Net Income	<u>-\$ 54,736</u>	

MFS Balance Sheet – As at 30 June 2017

2016		2017
	ASSETS	
	Current Assets	
	Bank accounts	
-	Action on Ground Project	-
89,272	Monaro Farming Systems Inc	28,620
30,562	NAB Business Cash Maximiser	26,424
89,939	NAB Term Deposit	91,930
- 410	Accounts Receivable	- 410
<u>209,364</u>	Total Current Assets	<u>146,564</u>
	Fixed Assets	
1,376	Computer	1,376
1,555	Electronic Equipment	1,555
- 1,055	Less: Accumulated depreciation	- 1,430
<u>1,875</u>	Total Fixed Assets	<u>1,500</u>
<u>211,239</u>	TOTAL ASSETS	<u>148,064</u>
	LIABILITIES	
	Current Liabilities	
8,283	GST Payable	- 157
<u>8,283</u>	Total Current Liabilities	<u>- 157</u>
<u>8,283</u>	TOTAL LIABILITIES	<u>- 157</u>
<u>\$ 202,956</u>	NET ASSETS	<u>\$ 148,221</u>
	EQUITY	
<u>184,667</u>	Opening Balance Equity	<u>202,956</u>
18,289	Net Income	- 54,736
<u>\$ 202,956</u>	TOTAL EQUITY	<u>\$ 148,220</u>

Total bank balance's on the 1st September 2017 = \$60,284 (main operating account) + \$26,437 (cash maximiser account) + \$92,168 (term deposit) = \$178,889.

Out of a **total of \$178,889** we have **\$61,781** already committed to specific projects leaving a balance of **\$117,108** in the operating budget to continue delivering our core projects (seasonal outlooks, moisture probe reporting, soils and worm club, traineeship program) as well as new initiatives.

Financial Report Notes

- Note 1:** Firming up the Future of Farming Systems Groups (Project Officer Position support)
- Note 2:** Farm Transition Forum Two (2) Registrations - Cooma Alpine Hotel 16th August 2016
- Note 3:** \$7,676 - Establishing new legumes MFS Project 14-12,
\$10,800 - Finishing Systems the Future? MFS Project 16 -16
- Note 4:** Lambpro \$1,000, Landmark \$2,000 (2016 and 2017), NAB \$1,000, Commonwealth Bank \$1,000, Rabobank \$2,000, AWI \$1,000, MLA Event Sponsorship \$2,000, Elders \$1,000, Incitec soil test rebate \$3,900
- Note 5:** \$14,840 MFS Comparative Analysis Group MFS Project 14-13 reimbursement
\$3,602 soil test reimbursements (MFS members)
\$250 VHR worm kits reimbursement
\$3,000 reimbursement from LLS for Nodulation Survey soil tests
- Note 6:**
- | | |
|-----------------|--|
| \$25,740 | MFS Comparative Analysis Group MFS Project 14-13 |
| \$23,261 | Establishing new legumes (inc nodulation survey) MFS Project 14-12 |
| \$17,206 | Annual bulk soil testing, Incitec Pivot MFS Project 10-7 |
| \$11,010 | Soil moisture probes MFS Project 16-15 |
| \$7,913 | Grassgro project, seasonal outlooks MFS Project 08-1 |
| \$6,165 | Finishing systems MFS Project 16-16 |
| \$2,043 | Farm Transition Forum Two (2) |
| \$1,248 | Miscellaneous contract costs |
| \$94,586 | Total |
-
- Note 7:** \$1,687 VHR Worm Test Kits
\$1,025 printing of AGM reports and field day booklets
\$290 inkjet printer for office
\$73 weighing scales
- Note 8:** \$712 Website annual hosting costs & word press, Vimeo subscriptions
\$500 annual hosting fee for moisture probe data
- Note 9:** Gifts for speakers and trainee, interest on overdue Incitec account
- Note 10:** Costs for 2017 MFS trainee to attend Hay Inc and quad bike safety course
- Note 11:** \$1,399 travel & accommodation costs for 2017 MFS trainee to attend training courses, remainder Project Officer travel
- Note 12:** \$3,296 wages for 2017 MFS trainee while attending training, remainder for project officer
- Note 13:** Directors Liability Insurance (2016 and 2017 premiums paid in the 2017 financial year)

Project Reports

MFS Project 08-1 - Grass Gro – Seasonal Outlooks

Project Leader: Richie Taylor

Project Manager: Nancy Spoljaric

Project Collaborators: Doug Alcock (Graz Prophet Consulting), Phil Graham (Graham Advisory)

Project Funders: South East LLS, Sheep Connect NSW, MFS

GrassGro® modeling – Seasonal Outlooks

Grassgro® seasonal outlooks combined with soil moisture information can help producers to assess pasture growth potentials, soil water holding capacities, wilting points of certain pasture species and translate this to feed availability, stock performance, weight gains, lambing/calving and weaning success rates as well as the probability of supplementary feeding demands and the economic impacts on the whole farm system.

In 2017, MFS expanded the number of sites being modelled by including new farm systems for each of the sites for which soil moisture probe information is available. Each farm system uses soil descriptions collected from the site and an improved or native pasture description depending on the type of pasture present at the site.

Current conditions and projections of pasture and livestock conditions are made for each site and on each presentation occasion one of the sites is chosen to explore management options in light of which site faces the greatest seasonal challenges or has the greatest opportunity for increased production.

The four sites now modelled include Bungarby (Idaho), Delegate (Delegate Station), Bombala (Bukalong) and Rhine Falls (Muniong).

Grassgro® seasonal outlooks are delivered at critical decision making times of the year ie. early Spring (Sept 2017) and Autumn (March 2018).

It is hoped by continuing this program it helps our members achieve the following;

- make more proactive decisions versus reactive decisions;
- make more informed decisions regarding stocking pressures on landscapes;
- identification of “land capability” and areas with different management limitations;
- enable more timely destocking and re stocking strategies;
- encourage the setting of ground cover targets and resultant grazing pressures;
- enables producers to capitalize on market opportunities and short term trading strategies.

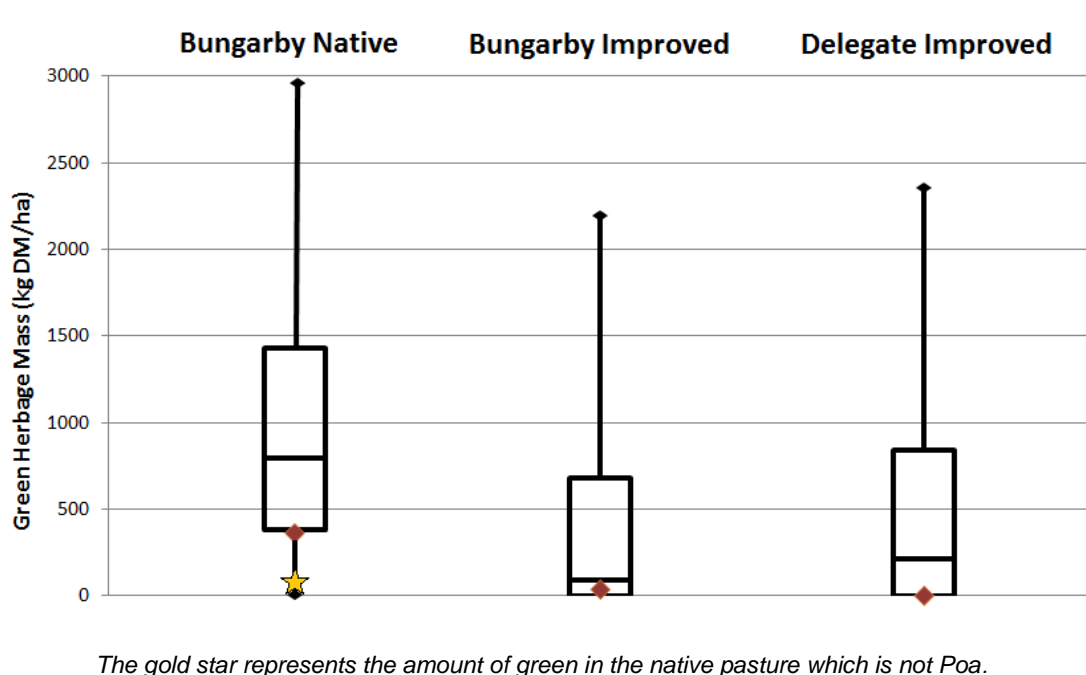
For the 2016 and 2017 financial year, MFS received funding through the South East Local Land Services (SE LLS) to help continue this program.

Example of the 2017 GrassGro® summary report....

Summary

- At the end of February, there is effectively no green herbage or available soil moisture, after a hot and dry summer. While these conditions are below average, it is a situation we find ourselves in on average every three to four years.
- Sheep condition score is also a little below average, and they are experiencing significant weight loss due to the lack of pasture quality.
- Pasture availability will most likely stay below average through to June 30th and there is around a 50% chance ewes will need feeding to stay above condition score 2, but much higher chance if aiming to keep ewes above condition score 2.5.
- However, feed requirements through to June 30th look relatively modest, with only a 30% chance that more than 10 kg of grain per ewe will be required to maintain CS 2.
- On all systems weaner sheep will need at least 5kg/hd of cereal grain and up to 25kg/hd on improved pasture systems between now and June 30th.
- Selling the oldest one or two age groups of ewes was examined. This did not greatly change the probability of feeding, but did reduce the amount of feed required, and marginally improved expected ground cover. However, both strategies reduced combined cash profit over 2017 and 2018 by more than 10%.
- High sheep and wool prices, and low grain costs, make for a strong business case to retain and feed normal ewe numbers. If pasture availability remains well below average as we head into winter, selling some ewes as scanned in lamb would then need to be re-examined.

Figure 3. Green herbage mass on 26th of February 2017 (brown diamond) relative to historical distribution for that date.



MFS Project

MFS Project 16 – 15 – Soil Moisture Probes

Project Leader: Phil Graham (Graham Advisory)

Project Manager: Nancy Spoljaric

Project Collaborators: Cropsol, TFS, South East LLS, Doug Alcock (Graz Prophet Consulting)

Project Funders: South East LLS, TFS, MFS



Moisture probe at Muniong, situated in a permanent improved pasture

The four probes across the Monaro are located in the districts of Rhine Falls (Muniong), Bungarby (Idaho), Bombala (Bukalong) and Delegate (Delegate Station).

The dedicated TFS-LLS-MFS **soil probe website**, which will house a profile of each site location (including soil and pasture descriptions) plus the rainfall and soil moisture graphs, is in the final stages of development and will be available from the 22nd September 2017.

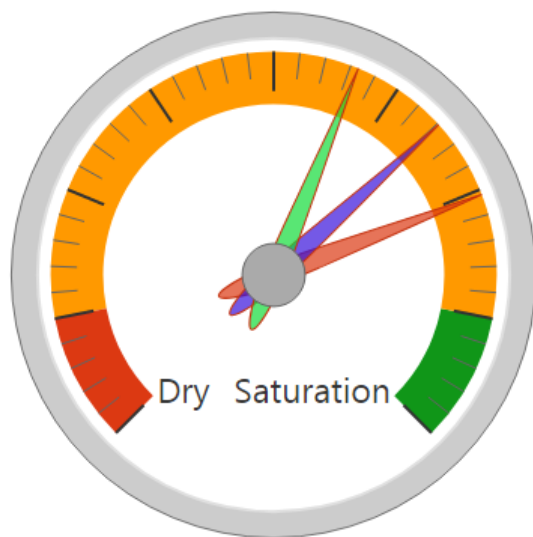
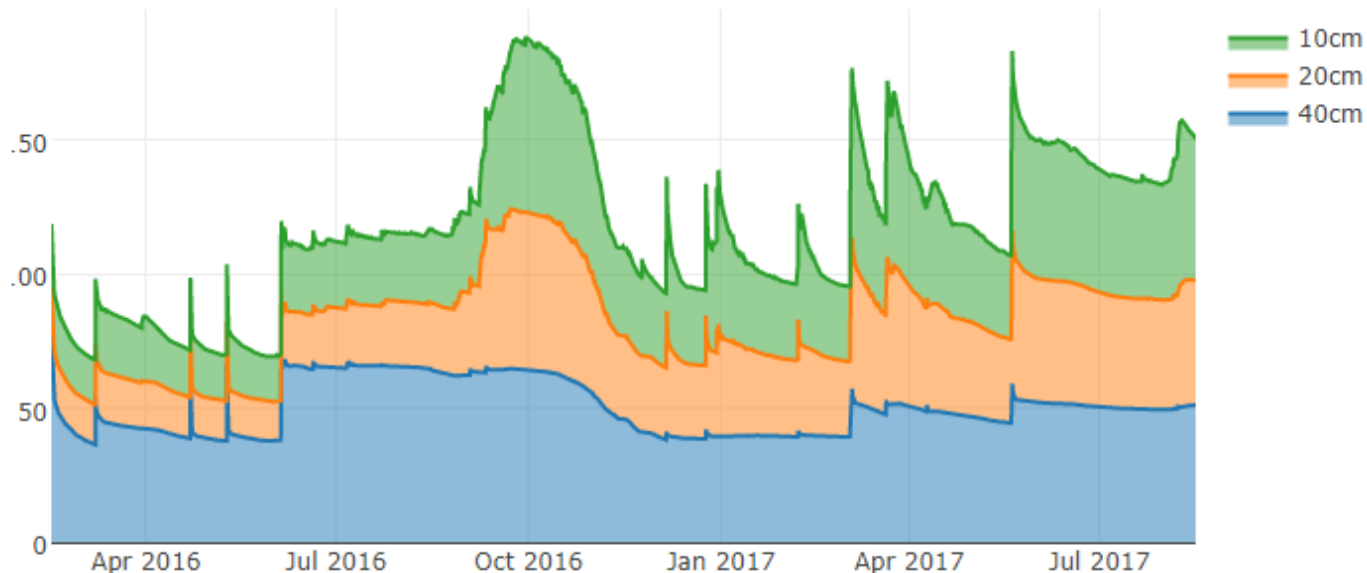
Members will be able to log-in at any time to look at soil moisture profiles and plant water availability. MFS will be incorporating the soil moisture data at each of the four Monaro probe locations into a Grassgro® farm system to use in our seasonal outlooks.

Bi-annual reports will be delivered by LLS giving outlooks at each site at strategic times of the year.

Examples of some of the **graphics** which will be available on-line at each probe site from the TFS-LLS-MFS **soil probe website** are below.

Snowy Mountains Highway Cooma ▾

SOIL MOISTURE (CUMULATIVE)



■ Current
■ Last Month
■ This Time Last Year

The aim of the fuel gauge is to provide a quick snap shot of current soil moisture and how it compares to 'this time last month' and 'this time last year'.

"The first 12 months is a base period which gives us an indication of the range in soil moisture at the sites. From now we can be more confident in using the data for decisions." Phil Graham

MFS Project 10-7**Soil Club – whole farm soil fertility management**

Project Leader: Angus Hobson

Project Manager: Nancy Spoljaric

Project Funder: South East LLS / MFS

Project Collaborators: Dr Richard Simpson (CSIRO), Luke Pope (SE LLS), TFS, HLN

Background

The MFS Soils Club was initiated in 2010 and now involves 83 farm businesses, has tested a total of 1216 paddocks and has a data set of 1970 tests representing the three main soil types on the Monaro (basalt, granite and shale). As a result of this soils club, MFS members now have a much better understanding of their soil fertility and landscape variability. Many have adopted regular soil testing programs to map paddock fertility trends over time and target fertiliser investments to meet strategic fertility goals on each of their soil types and production systems.

The work done by the soils club has improved the skill level, understanding and capacity of producers to manage their soil fertility and improve their productivity as well as achieved practice change and greater efficiency in terms of fertiliser investments.

However information gained has led to a number of key questions and focus areas which the group would like to address. The soil test data base has highlighted inherent soil type deficiencies and limitations which also gives opportunities for further efficiency gains in fertiliser inputs and production systems.

Questions we are looking to answer...

- The practical implementation of a fertiliser program on Sulphur (S) deficient soils (where P is adequate, many of these basalt soils having Colwell P's of around 100).
- Given current KCL 40 soil test levels on a paddock (which most now have), we would love to know: ***what product, how much, and how often***, to most cost effectively get the yield response.
- Better understanding of the cycle of S in the soil profile and the most efficient and effective way to apply S directly to the system (ie. shift towards more elemental forms?) to address current limitations to pasture growth.
- Improved understanding of responses to P in different soil types therefore correcting / validating the current MLA "P Tool" calculation to give producers greater confidence in its use and fast-tracking adoption rates.
- Much better understanding of the issue of K deficiency, how to correct and impacts on pasture response rates.
- Significant savings in fertiliser investment and higher production outputs per ha.
- Improved understanding around the economics of correcting soil deficiencies.
- Opportunity to work with leading technical professionals in the field of soil science and pasture production like Dr Richard Simpson and local agronomist Stuart Burge.
- Ability to take the MFS Soils Club to the next level and value add onto existing local information.
- Potentially MFS could offer our data base tool to other producer groups wanting to initiate a Soils Club model to store and analyse data (this could translate to an in-kind monetary value of > \$50,000).

Information still required....

- What is a S response curve in relation to KCL 40 test. How many units of S are required to correct and then maintain a (say) 95% yield response?
- Conventional thinking has been 125 kg/ha gypsum every three years (ie 5-6 kg S/ha/yr) is about maintenance. Our testing suggests we may need 7-8 kg/ha/yr on more productive pastures?
- Frequency of application for both maintenance and capital applications.
- Consistency and uniformity of re-cycled gyp board may be questionable? What is the most cost effective means of addressing S deficiencies in soils i.e. using elemental S or alternate products?
- How big an issue is leaching?
- Last year, our S test results were low after a wet winter. There was a suggestion it may just be below the 0-10 cm level we are testing. Do we need to do deeper testing to build a better picture of the plant available S?
- Is there a role for P, especially on higher performance pastures such as Lucerne?
- Are Ca:Mg ratios limiting pasture performance? What is the most economic/effective means of addressing this issue?

The 2016 Annual bulk soil submission

In 2016, MFS continued to coordinate an annual bulk soil sample submission to Incitec to build on seven (7) years' worth of soil test data. Approximately 390 soil tests were submitted representing 55 producers.

This program offered a **soil testing credit of \$300 per membership** as well as extended this offer to the wider community via the private local agronomists. MFS has four (4) customised testing options with Incitec to give producers more targeted and cost effective options. Individual property paddock "reports" for critical nutrients to map fertility trends over time were distributed to all members who participated in 2016.

A district wide analysis session open to all producers on the Monaro was conducted in November 2016.

MFS has secured funding through SE LLS and Department of Agriculture (DoA) to continue this program for 2017.



Richard Hayes (NSW DPI) collects soil samples to select suitable sites for the P Efficient Pastures project

MFS Project 11-10**MFS Agricultural Traineeships Initiative (on-going)**

Project Leaders: Craig and Susan Mitchell

Project Collaborators: Tabma, MFS Host Producers, Hay Inc, Nancy Spoljaric

Project Funder: MFS, AWI, NSW Farmers (Cooma Branch), RB Sellars



Georgie Constance was selected for the 2017 traineeship program out of a total of 8 applicants. Having recently completed Year 12 at Yanco High School, Georgie is the third generation, born and bred on her family's sheep and cattle property South of Bombala.

“Farming has been my passion since I can remember and I wish to follow in my fathers and grandfathers footsteps and eventually take over the family farm after University.”
Georgie

The MFS Agricultural Traineeships Program was initiated in 2012 to address the growing concern of retaining and attracting local young people to choose a career in the agricultural industry as well as the increasing age of the average farmer.

MFS believes investing in the traineeship will provide young people with invaluable experience during a gap year between school and work or further education, as well as promote the profile of agriculture as an attractive, prosperous and long-term career option.

AWI has supported the MFS traineeship program for four years by contributing to the cost of trainees attending a shearing and woolhandling school at Coolringdon.

This year for the first time, MFS funded their trainee to attend the Hay Inc Rural Education Program as part of the MFS traineeship. Georgie joined 14 other agricultural focused youths on rural properties in the Hay district, learning skills in sheep handling and yard work, pregnancy scanning, fence construction, livestock water repairs, motor bike maintenance and many other areas.

“I’ve loved the Hay Inc program; the different trainers and mentors have been amazing. I have learnt a broad range of practical skills in areas such as water infrastructure maintenance that I haven’t been exposed to before. I’ll be able to use these skills in the MFS traineeship program and later in my career.” **Georgie**

In 2017, MFS contributed \$5,500 to training activities for Georgie which included a quad bike safety course, an AI training course in Deniliquin, the Coolringdon shearing school and the Hay Inc Program (3 weeks).

For future years, the Board has decided the traineeship will offer four (4) full-time weeks of paid training;

- 3 weeks at Hay Inc school (compulsory)
- 2 days at MFS field days (compulsory)
- 3 days training of their choice (MFS pre-approval)

Thankyou once again to all those that make this program a success. They include; our interview panel for 2017 **John Murdoch, Malcolm Pearce and Karen McGufficke; Boyce** for again allowing us to use their meeting rooms and facilities for interviews and inductions and the **MFS host producers** that train and mentor our trainees on their properties.

Thankyou once again to **AWI** who donated \$1000 to help fund the Hay Inc training.



Georgie and a fellow participant learn the art of crutching at the shearing school at Coolringdon, May 2017



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MFS
MONARO FARMING SYSTEMS

MFS Project 14-12**Establishing persistent and productive new legumes**

MLA Participatory Research Legume Project

Project Leaders: Oliver Cay, MFS**Project Manager** Nancy Spoljaric**Project Collaborators:** Doug Alcock (Graz Prophet consulting), Luke Pope (SE LLS), Jo Powells (SE LLS), Belinda Hackney (NSW DPI), MFS members**Project Funder:** Meat and Livestock Australia – Participatory R & D**Project Background**

This project finished in July 2017 and the draft final report has been submitted to MLA. A summary of the results is outlined below.

This project aimed to identify the value of alternative legumes (based on their establishment success, persistence and production) compared with the traditional legumes that are used in the Monaro region of NSW. It also evaluated the role of sowing time on legume performance and persistence.

In addition this project aimed to document nodulation status and occupancy of subterranean clovers in the Monaro region to understand the current level of ryzobium performance and associated factors that may be limiting this performance.

Due to weed invasions and existing pasture dominance at two of the sowing sites, many of the sowing treatments could not be statistically analysed. However these trial sites served to re-inforce several key messages around legume establishment in permanent pastures which has applicability and benefits to all Monaro graziers.

These included the paramount importance of paddock preparation, weed control and managing competition to give legumes continual space, light, adequate soil moisture and seed soil contact to establish successfully and persist. Chemical treatments such as glyphosate and gramoxone used to “set-back” existing pasture to allow legumes to establish proved totally ineffective and sowing legumes directly into an existing perennial pasture proved unsuccessful and resulted in no long term legume establishment.

Significant weeds inhibiting the successful establishment of permanent pasture on the Monaro include bent grass, vulpia, and sorrel and a minimum of three years absolute weed control is recommended when considering sowing a new pasture.

At the *Gaerloch* site **French serradella** and **white clover** proved the most successful species in terms of establishment and regeneration but both were not able to persist long term. Balansa and biserrula also did have some establishment success at this site.

For the statistically analysed data at the *Kyleston* site, the following key messages resulted.

In terms of germination, there was a significant effect of species ($p < 0.001$), sowing time ($p < 0.001$) and species by sowing time ($p = 0.02$) on germination. Overall, balansa clover sown in autumn had significantly higher germination than all other species (357 plants / m²). Summer sowing generally resulted in less than 10 plants / m² germinating. Within species, sowing time did not have a significant effect on germination except for biserrula where germination was significantly higher in spring than in autumn.

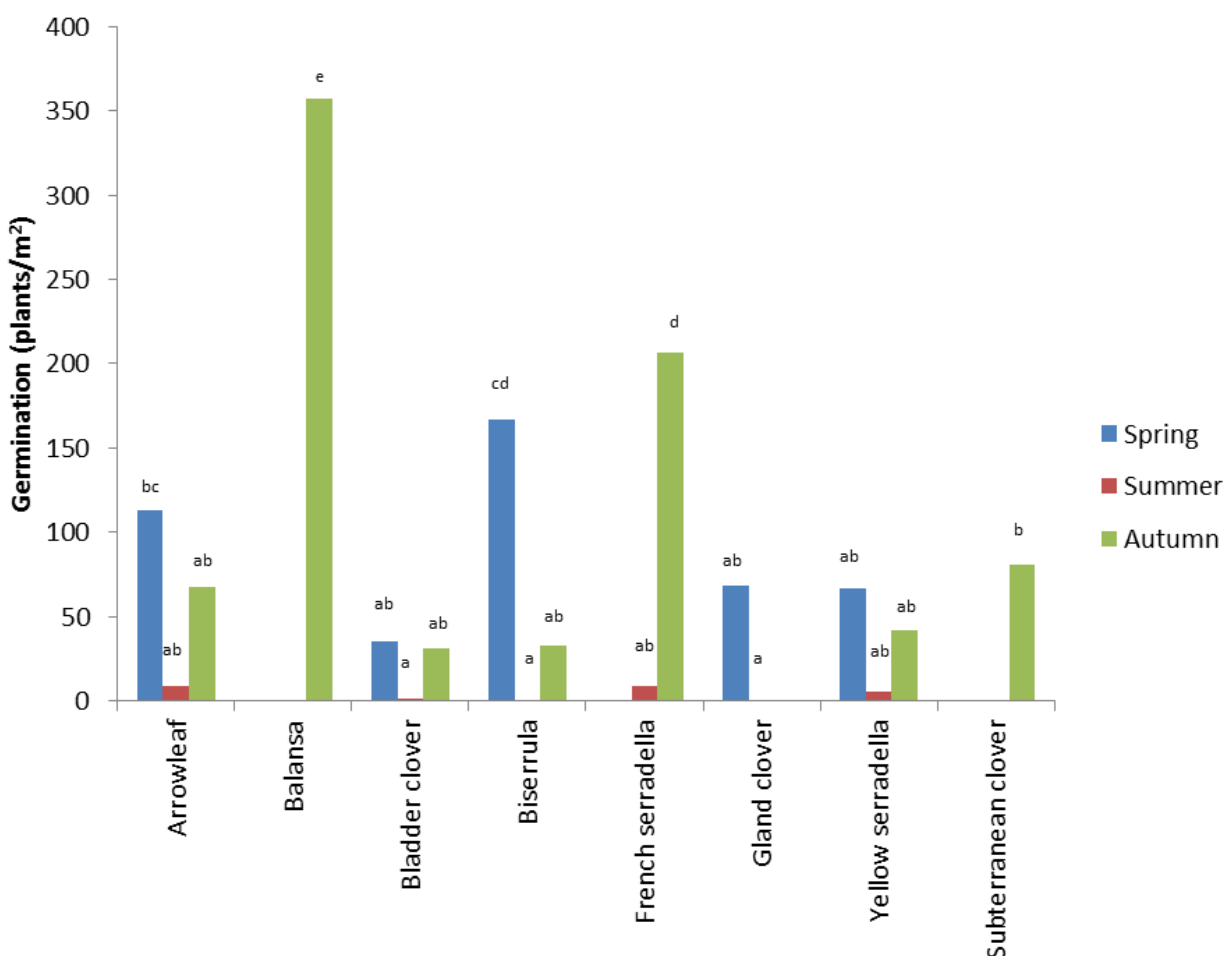


Figure 1. Germination (plants/m²) for a range of annual legumes either sown as scarified seed in spring and autumn or as unscarified/in-pod seed in summer at Kyleston

In terms of herbage production, there was a significant effect of species ($p < 0.001$) and species by sowing time ($p = 0.02$) but not of sowing time alone ($p = 0.11$). **Arrowleaf clover** and **French serradella** (summer and autumn sown), **balansa clover** and **subterranean clover** (autumn sown) were the best performing species, all producing more than 1500 kg DM/ha.

The autumn sown **sub clover** showed the strongest regeneration compared to all the other species (124 plants / m²) adding evidence to the common belief that this legume remains the best adapted legume on the Monaro in terms of persistence. The spring sown **arrowleaf** was the second best performer in terms of regeneration with 31 plants / m².

In terms of the seed production data for the spring sown plots, the **Santorini yellow serradella** and **Casbah biserrula** showed the highest numbers of seeds / m² (487 and 1002 respectively) and kg seed / ha (105 and 70 respectively).

Regeneration plant counts from April 2017 showed the autumn sown **sub clover** achieved good regeneration compared to all the other species (124 plants / m²) with relatively uniform results across the reps. Sub clover still appears to be the best adapted legume with regard to persistence based on the Kyleston data and it was a compelling factor behind re-directing resources to the legume nodulation survey.

At the time of the regeneration counts in April 2017, of the summer sown trials, **Avila yellow serradella** showed the highest regeneration with 24 plants/m² and for the spring sown plots, the **arrowleaf** had the highest regeneration counts of 31 plants/m² followed by **Santorini yellow serradella** and **Casbah biserrula** at 20 plants/m².

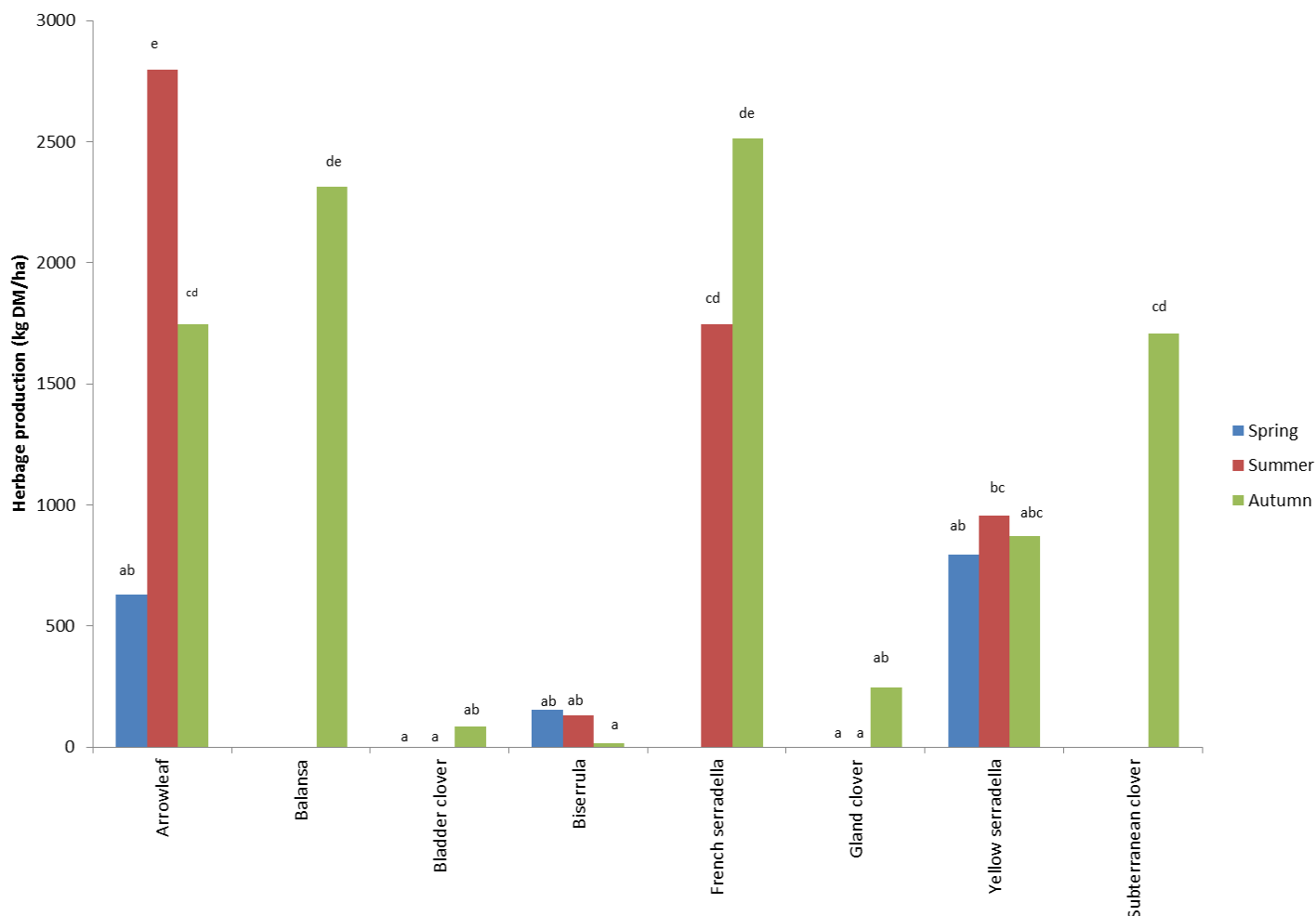


Figure 2. Herbage production (kg DM/ha) for a range of annual legumes sown as scarified seed (spring and autumn) or as unscarified /in-pod seed sown in summer at Kyleston.

Overall the results suggest that **arrowleaf clover**, **balansa clover** and **French serradella** may have a role in pasture systems on the Monaro with comparable results to sub clover.

However, producers should be aware of the high cost of dehulled seed of serradella required for autumn sowing and alternatively, the high sowing rates (20-30 kg pod/ha) needed for summer sowing using the much cheaper “pod” establishment option.

The on-going trial work at two more Monaro sites (as part of the RnD4P MLA Program) comparing the performance of the serradellas with sub clovers in a grass pasture mix will continue to add data to support the case for this species.

No spring sown treatment exceeded 800 kg DM/ha and for bladder clover, gland clover and biserrula, this was less than 160 kg DM/ha and as such, spring sowing of legumes of Mediterranean origin should not be attempted.

Caution should be exercised when drawing too many conclusions from a trial with only one years’ sowing time data due to the highly variable effects of season on results. Ideally further replicated trials with a full three to five year data set would add much needed validation to back up these preliminary findings.

The **nodulation survey** highlighted the sub-optimal levels of legume nodulation and N-fixation present across the Monaro with the survey establishing a **benchmark of 2.6 average paddock nodule score** (from 54 sites) out of a possible score of 8.

The most current strains of legume rhizobia were found in just over 80% of the legumes plants tested and older strains of rhizobia were found in the remaining 19% of samples.

There are many different characteristics influencing the nodulation and N-fixation capacity of the legume plants studied. These characteristics vary within paddocks and include available soil nutrients such as phosphorus and sulphur, soil pH, waterlogging and previous herbicide use.

Further research and evaluation work is needed into the areas of re-inoculation of old pasture paddocks with more efficient and productive rhizobia, correction of key soil constraints and residual herbicide impacts to evaluate the most effective strategies to manipulate nodulation and N-fixation which underpin and drive increases in pasture productivity.



Serradella legume in cocksfoot pasture 10th Dec 2014



Luke Pope(SE LLS) and Peter Tyndall (NSW DPI) sowing



Jo Powells (SE LLS) and Nancy Spoljaric (MFS) collecting legume plants to wash and score

MFS Project 14 – 13

MFS Comparative Analysis Group

Project Leader: John Murdoch (formerly Oliver Cay)

Project Collaborators: Holmes & Sackett, Nancy Spoljaric, MFS Producers

Project Funder: Rabobank, MFS, MFS producer members

Objectives and Activities

The MFS Benchmarking Group (BMG) has started up again for the fourth year running. For this year we have **16 farm businesses** in the group including two new members.

The program for 2016 / 2017 will be run similar to the previous year and will be delivered for **\$880** (exc GST) per farm business with sponsorship from Rabobank / MFS and will include the following;

- Individual farm report and Ag Insights (Aug 2017)
- Open forum group information presented by Sandy McEachern - H&S (Sept 2017) - afternoon
- Closed forum group information presented by Sandy McEachern - H&S (Sept 2017) - morning
- Group member case study and analysis with Sandy (BMG only) (Nov 2017)
- Group member case study and analysis with farm consultant of MFS choice. Open to all members (March 2018)



The program run over the last year (analyzing 2015/16 year) included a case study performed at the Smiths property “Glenfinnan” (opposite) as well as a benchmarking day at Oli Cays property “Pineleigh” with consultant Basil Doonan from Macquarie Franklin presenting (opposite, bottom).

Basil helped interpret the Monaro data by discussing clear trends and the characteristics of the top performing businesses at an enterprise and a whole farm level.

One of the key points to come out of Basils talk was ***“that management capability is what allows good resource utilisation regardless of the “quality” of the resource”***

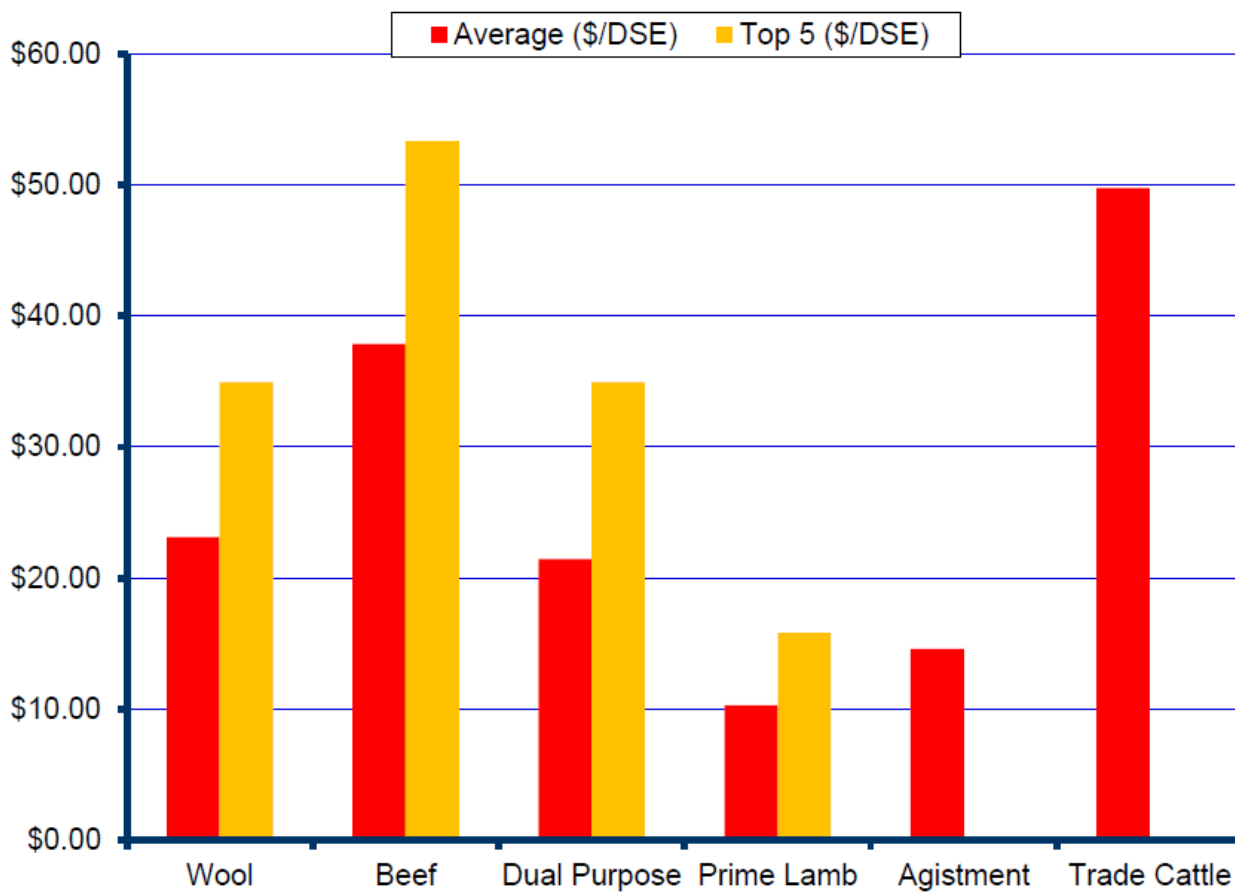
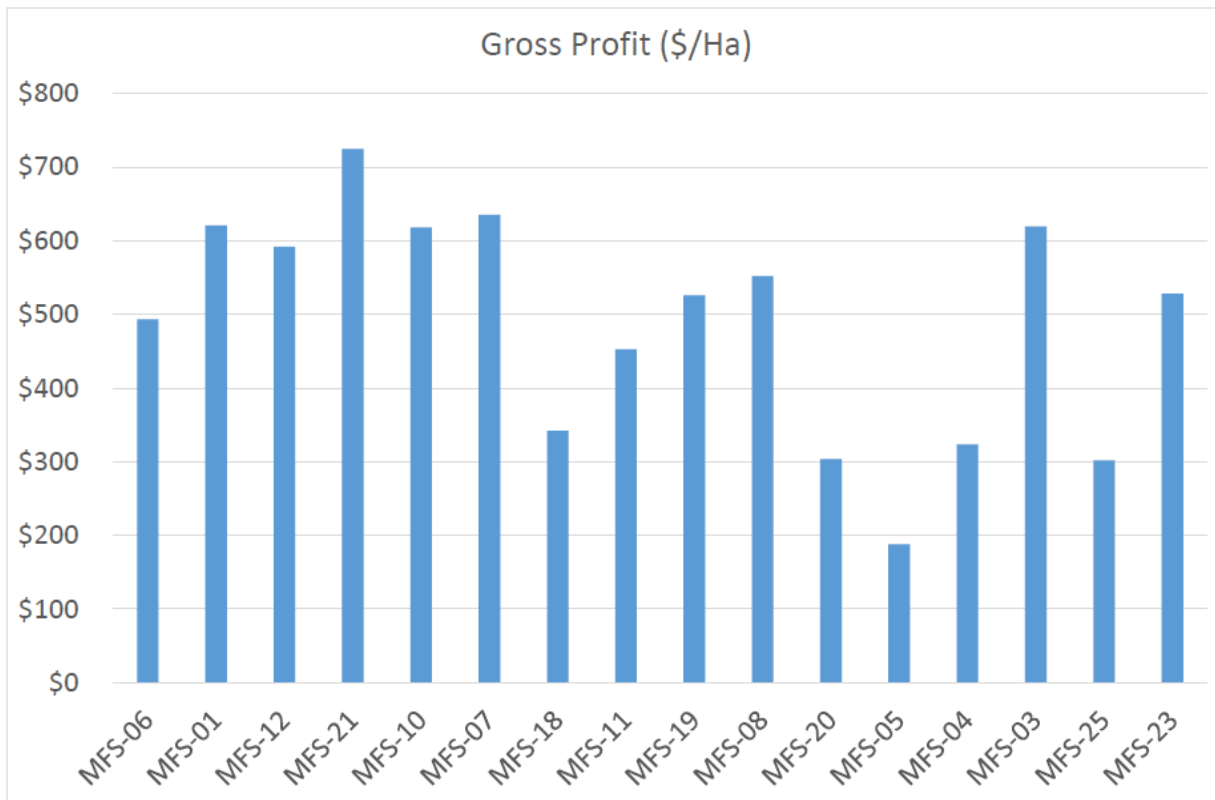


The KPI's come as no surprise and remain;

- Stocking Rate (Production/ha)
- Labour Use Efficiency
- Cost Of Production/kg (Wool/beef/lamb)

With 3 years of data now collected, participating businesses can have more confidence in the data collection, see more clearly the consistent performers between years and start building a picture of opportunities for their individual businesses.

2015/16 Monaro Benchmarking Group Comparisons



What do the results tell me and you?

- At a whole farm level
 - The best are 200-300% more profitable
 - They have higher stocking rates
 - They gear positively with debt and leases (I guessed that one)
 - More crops
 - More improved pasture
 - They're smaller!!!!
 - Its all about income and variable costs!
 - Margin

Comments from Project Leader - John Murdoch

The 2015/16 benchmarking project entered its third year, with our largest group of 16 MFS members participating. The year consisted of three major group events, the initial group day held in September 2016, which gave an insight into how the Monaro group performed as a whole in relation to cumulative results across the entire Holmes and Sackett database; a farm focused field-day at Owen Smith's property at Adaminaby, and final group session led by Basil Doonan at Oli and Jane Cay's property at 'Pineleigh'.

The Monaro has continued to perform exceptionally well, led both in turn by continued favourable seasonal conditions, buoyant trends in all key Monaro commodities wool, beef and lamb, as well as progressive and innovative management styles seen within the group.

As the group has matured into its third year, the analytical discussion and openness of the group goes from strength to strength. This continues to offer huge benefits to myself and to all participants, providing the core tools to assess farm enterprises as well as supportive and open group in which to discuss issues, ideas, successes and failures leading to positive outcomes for whole farm profitability.



Project Leader: Richard Taylor

Project Collaborators: Invetus Pty Ltd (formerly VHR), MFS Producers, Nancy Spoljaric

Project Funder: MFS, AWI

The challenge

Monaro Farming Systems initiated a Worm Club in April 2016 in response to growing worm burdens adversely affecting weaner survival and animal performance as well as anecdotal evidence suggesting reduced effectiveness of some chemical drench groups ie. mectins and triclabendazoles. The impact of post weaning death rates in a self-replacing Merino flock on the Monaro (based on a Bungarby Grassgro® farm system) equates to a percentage drop in farm profit per hectare ranging from between 4.5 and 11% as a direct result of loss of sale animals and wool.

Drench resistance testing results (5 tests) done by local client groups (CRT Cooma) demonstrated chemical efficacy % ranging from 69% to 94% for the mectins and 38% to 79% efficacies for the closantel based drenches. Data from 15 **drench checks** have been collected as part of the MFS worms club for the following chemical groups (BZ, levamisole, mectins) showing several failures and emerging resistance issues, especially to Barbers Pole.

The conclusions indicated barbers pole worm is an increasing concern on the Southern Tablelands likely due to a combination of good seasons (milder, wetter winters), resistance to mectins and adaptation of the worm to this environment.

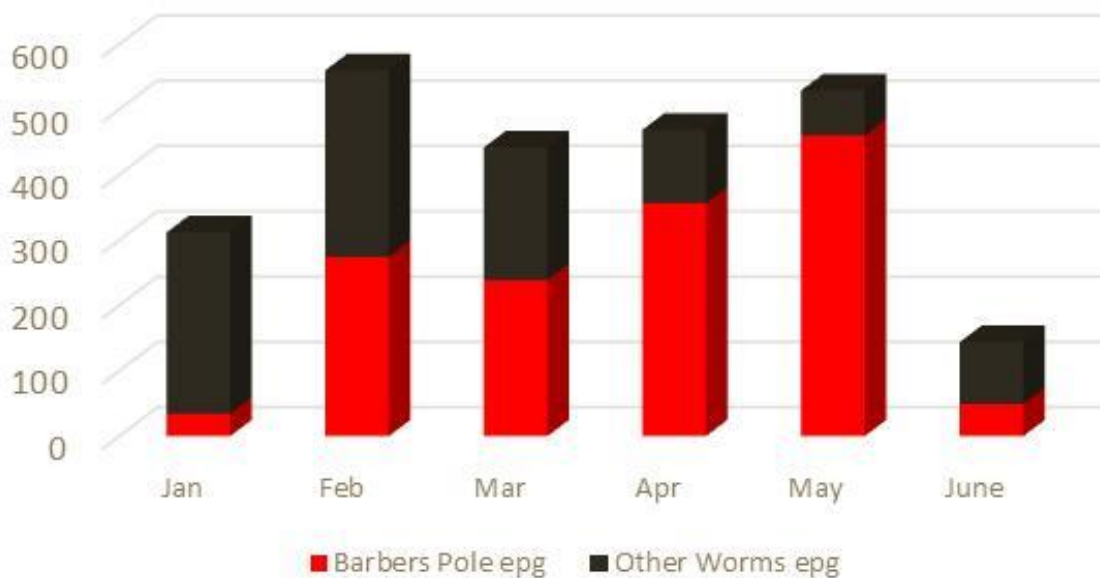
The key aim of the MFS worms club is to increase the effectiveness and reduce the cost of worm and fluke control in sheep grazing enterprises on the Monaro.

MFS encouraged a worm testing drive by offering two free worm testing kits to each membership as well as arranging a competitive pricing arrangement with VHR for worm test analysis. As a result the MFS group now has a total of **333 worm test results** and engages **34 farm businesses** with an expenditure of \$4,917 to date.

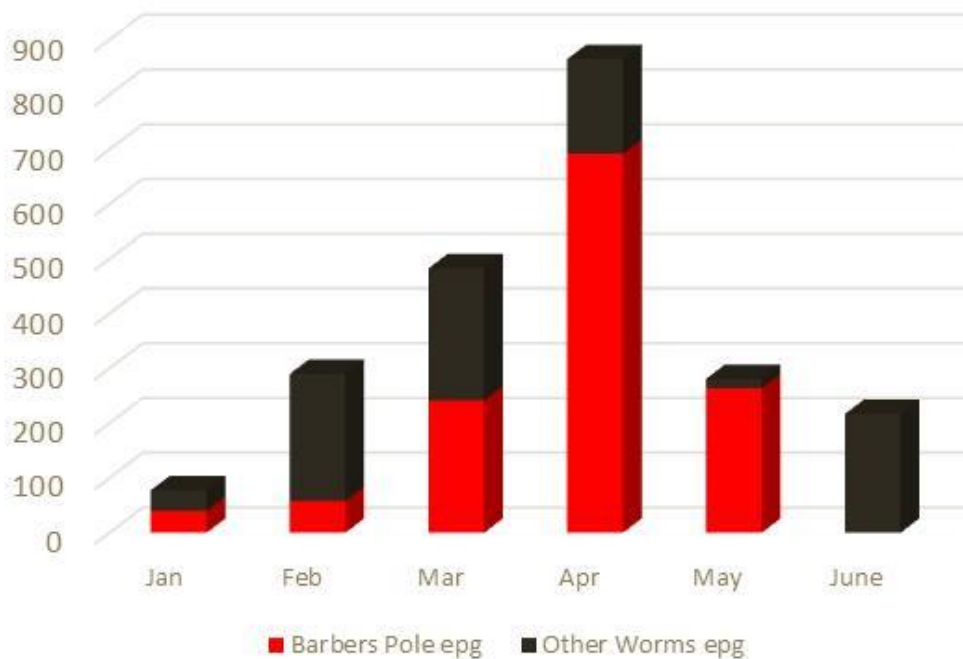
An additional **investment of \$24,710** has just been secured from AWI allowing MFS to implement the following activities over the next couple of years.

1. Design, develop and maintain a **live database** to improve the recording of worm test results ie. property locations, WEC, class of sheep, drench history and worm type with individual log-ins.
2. Document / quantify the status of worm resistance (specifically barbers pole and black scour) on the Monaro in weaner and adult sheep to the **mectins, levamisole, closantel, monepantel and BZ** chemical groups by conducting **15 drench resistance trials** with a good representation of the Monaro district climate, soil and pasture types.
3. Document / quantify the status of **liver fluke resistance** in sheep to triclabendazole in the Monaro district by conducting **10 drench resistance trials**.
4. Increase the number of farm businesses on the Monaro undertaking regular worm test monitoring.
5. Assist in the validation of the **sensitive worm egg reduction test** to provide a cheaper and more practical way of testing drench resistance in sheep.

Worm tests Jan to June 2016



Worm tests Jan to June 2017



Project Leader: Richard Taylor**Project Collaborators:** Doug Alcock (GrazProphet), MFS Producers, Nancy Spoljaric**Project Funder:** MFS, South East LLS, MLA**Background Summary*****Lamb finishing***

The Monaro is traditionally a wool growing and breeding region, albeit MFS member surveys indicate meat production enterprises have increased from 20% to 50% of farm enterprise over the last six years. Cold winter temperatures and limited area of high quality pastures, has meant many producers sell crossbred lambs as stores rather than reaching slaughter weights and fat scores. MFS has recently invested in GrassGro modelling work which has quantified the relative profitability (\$/ha) of retaining store cross bred lambs on three pasture systems (phalaris/subclover, lucerne, brassica) and in all cases retaining lambs appreciably increased farm profitability.

Table 1: The impact on gross margin per hectare over the whole enterprise (breeding plus finishing)

System	Average Lamb Sale Weight	Total Enterprise Gross Margin	Gross Margin Increase v Store Lamb Production	Percentage of farm area required for finishing
Base – sell as stores 31st Dec.	29 kg	\$161/ha		
Pasture based finishing (existing phalaris/subclover)	37 kg	\$236/ha	47%	Reduced ewe numbers from 3.4 to 3.3 ewes/ha (3%)
Lucerne	42 kg	\$266/ha	65%	17.5%
Brassica Forage Crop	48 kg	\$495/ha	207%	10%

Further work is required to measure dry matter production, digestibility, and lamb weight gains on various finishing pastures, to increase confidence around the profitability of the different systems.

To achieve this **MFS was successful in securing \$56,454 from MLA** to run a producer demonstration site (PDS) over three years to validate the modelling results.

The project will deliver the following objectives;

By June 2019, in the Monaro region of Southern NSW:

1. Nine (9) producer demonstration sites will validate / ground truth the modelling projections demonstrating the relative profitability of the following nine (9) finishing pasture systems in sheep meat enterprises;
 - (a) Improved grass pasture (hummer fescue) (Bibbenluke)
 - (b) Phalarais / lucerne (Bombala)
 - (c) Plantain / chickory / clover (Bombala)
 - (d) Chickory / clover (Delegate)
 - (e) Lucerne (Nimmitabel)
 - (f) High performance pasture (Cathcart)
 - (g) Brassica (rape) (Cathcart)
 - (h) Brassica (rape) (Mila)
 - (i) Brassica (rape) (Delegate)
 - (j) Control / baseline (permanent pasture) – already documented in Grassgro® modelling paper
2. Validate on-farm the following metrics for each of the six (6) demonstration systems;
 - (a) Dry Matter Production (kg DM/ha/year)
 - (b) Feed quality (DMD, ME)
 - (c) Lamb live-weight gains (g/hd/day)
 - (d) Condition scores
 - (e) Percentage (%) of farm area (ha) required for finishing lambs to target weights
 - (f) Soil fertility (phosphorus, sulphur, PBI, K, Ca, Na, Mg, Al, CEC, EC, pH)
** **Nitrogen** (N) will be monitored at depth (0-40cm) for the brassica systems
3. A cost benefit analysis will be conducted to determine the overall profitability of each system in context of whole farm profit compared to the traditional base selling system (turn-off store lambs).
4. The value of EID sheep tags will be demonstrated to monitor performance of one of the lamb treatment groups.



Doug Alcock taking pasture cuts to measure pasture biomass to establish a baseline for the perennial systems. August 2017.



Plantain, chickory, clover pasture system, August 2017 - Bombala

Steer finishing

MFS also recently invested in Grassgro modelling work to quantify the relative profitability of retaining steer weaners through a second spring, either on pasture or winter forage crop compared to a system of selling at weaning (based on the Grassgro model site at Bungarby).

Retaining steers on pasture increased farm profit in all but the driest years, with an average increase in farm gross margin of 20%. Running these steers on an oats crop over winter at 2.5 steers/ha increased farm profit by an additional 38 percentage points. The benefit of the oats crop was a 32 kg/head increase in sale weight, but more importantly a decrease in area needed to run the steers, allowing greater cow numbers to be run.

The **key outputs** of the three 1000ha systems are tabled below.

System	Average Steer Sale Weight	Total Enterprise Gross Margin	Gross Margin Increase v Weaner Production	Total Live weight Sold	Number of Calves weaned
Weaners -sell in weaner sales 1 st April.	261 kg	\$166/ha	N/A	110 tonnes	386
Pasture based Yearling system	442 kg	\$199/ha	+ 20%	116 tonnes	310
Oats based Yearling system (Winter Forage)	474 kg	\$262/ha	+ 58%	142 tonnes	356

Key messages

The winter forage system required around 7% of the cattle enterprise area to be sown to fodder crop. Perennial pastures with high winter growth potential may be an alternative, and is an area for further MFS work. However, the summer fallow period for the oats crop does increase the reliability of winter growth relative to perennial systems.

Providing pastures are capable of reasonable weight gains, retaining steers increases profitability and flexibility for Monaro producers.

Further work is needed to measure dry matter production, digestibility, and steer weight gains on various winter pasture options, as the area of fodder crop required to keep all steers will be an impediment for some farms.

MFS plans to wait for a funding opportunity and then use the modelling work to apply for funding to validate these results on-farm.

MFS has secured **funding** through South East LLS and MLA to support this work.



Doug Alcock presents his steer finishing paper at an MFS Field day in Nimmitabel – June 2017

MFS Successful Project Submissions – 2016 / 2017

Productive Projects in Partnership – SE LLS Community, Industry & Landscapes Fund

Amount: **\$25,000**
Project Term: May 2017 to May 2018
Allocation: \$10,000 - Soil Club (soil tests & fertilizer strip trials)
\$5,000 – Seasonal Forecasts
\$5,000 – Finishing systems
\$5,000 – Weed case studies

Productive Projects in Partnership – SE LLS Community, Industry & Landscapes Fund

Amount: **\$25,000**
Project Term: May 2016 to May 2017
Allocation: \$10,000 - Soil moisture probes
\$5,000 – Seasonal Forecasts
\$5,000 – Finishing systems
\$5,000 – Soil Club (soil tests)

Firming up the Future of Farming Systems Groups – SE LLS Community, Industry & Landscapes Fund

Amount: **\$105,000**
Project Term: Jan 2016 to June 2018
Allocation: Financial support for the MFS project officer position

Soils for Life – Department of Agriculture & National Landcare Program

Amount: **\$28,100**
Project Term: June 2016 to Jan 2018
Allocation: Soil Club activities (annual soil testing, soil kits, data base paddock reports, field day)

Finishing Systems for the Future? – Meat and Livestock Australia (MLA)

Amount: **\$56,454**
Project Term: Jan 2017 to Nov 2019
Allocation: Demonstrate profitability of nine (9) finishing pasture systems on the Monaro to validate modelling projections

Waging the War on Worms – Australian Wool Innovation (AWI)

Amount: **\$24,710**
Project Term: Sept 2017 to Dec 2019
Allocation: Document worm and fluke drench resistance on the Monaro, develop a live data base of district results & trends, provide alerts and encourage regular worm monitoring

MLA Event Sponsorship

Amount: **\$2,000**
Project Term: March 2017
Allocation: Support for MFS Field Day March 9th 2017 (benchmarking & seasonal outlook)

Sheep Connect NSW – Event Sponsorship

Amount: **\$2,500**
Project Term: June 2017
Allocation: Support for MFS Field Day June 28th 2017 (seasonal outlook baseline modelling)

Solving the Sulphur Story – MLA Donor Company (MDC) - Producer Fast Track Program

Amount: **\$50,884**
Project Term: Jan 2018 to Dec 2018
Allocation: Soil profiling and S response plot trials (15 sites)
Project Partners: CSIRO – Dr Richard Simson and Dr Rebecca Haling

Collaborating Projects

Phosphorus Efficient Pastures (CSIRO, MLA, NSW DPI) – RnD4 Profit

Amount: **\$28,000 (MFS allocation only)**
Project Term: Sept 2016 to May 2020
Allocation: 2 sites (RedCliff & Glenfinnan), plot trials comparing performance of pasture mixes containing a perennial grass and either a sub clover, a pink or a yellow serradella in a P deficient environment

2017 MerinoLink / Monaro Farming Systems Sire Evaluation at Cavan (Yass)

Amount: **\$2,500 - \$3,000 per sire (entry fee)**
Project Term: Jan 2017 to Dec 2021
Allocation: 16 sires (includes 6 Monaro sires & 3 linked sires), two assessments (10 months and 22 months). Wethers measured for a further 2 shearing's in line with the Lifetime Productivity project.



MFS Events Summary 2016/17

- **1st Dec 2016** – MFS Soils Club Annual presentation and Xmas Lunch – Nimmitabel Country Club
 - 2016 Monaro soil sampling results and district profile – Phil Graham, NSW DPI
 - How to access the Monaro soil moisture probe network and interpret - Phil Graham, NSW DPI
 - How to address the Monaro sulphur deficiency issue – Jim Laycock (Incitec)
 - Results from the legume nodulation survey sampling 55 sites across the region – Jo Powells (SE LLS)
 - MFS Worm Club update – Richie Taylor
 - Results from local gibberellic acid trials – David Noble (Landmark)
- **9th March 2017** — MFS Autumn Field Day

The Business of Benchmarking - why should I do it?

 - Farming businesses on the Monaro? What is the last three years of data telling us?
 - Key Performance Indicators of Monaro farm businesses
 - Linking business performance to skill development..."HOW are the top producers doing it"
 - Prioritise skills with the greatest impact on your business performance
 - Getting the most out of a group benchmarking process
 - Oli Cay describes the benefits he has gained for his business

Seasonal Outlook for Autumn and Winter

 - What's ahead in terms of soil moisture, feed on offer, predicted pasture growth?
- **20th March 2017** – Knowing your Nodules – Nimmitabel Country Club
 - Jo Powells South East LLS
 - Dr Sofie De Meyer –Murdoch University, W.A.
 - Dr Belinda Hackney Graham Centre for Agricultural Innovation
 - Dr Susan Orgill –NSW DPI
- **28th June 2017 – Winter Field Day**
 - The Economics of retaining steers through winter? – Doug Alcock - GrazProphet
 - 10 things you need to know about worms in livestock – Matt Playford – Dawbuts
 - Cattle Genomics - Lachlan Ayoub – Zoetis
 - Update – MFS Worm Club – what's happening at the local level
 - Latest requirements for BJD – Biosecurity Plans – Dr Petrea Wait - LLS
 - Comparison of long term production and seasonal risk at moisture probe sites – Doug Alcock - GrazProphet
- **6th September 2017** – MFS / Rabo Field Day and AGM
 - Phil Graham, Graham Advisory - Seasonal Outlook for spring
 - Georgia Twomey & Marc Oostdijk, Rabo Bank – wool & global market sustainability analysis
 - Sandy McEachern, Holmes & Sackett – MFS Benchmarking Group Analysis Presentation
 - Jo Powells, SE LLS – Flupropanate Resistance Trial update
 - MFS AGM
- **Nov 2017** - Group member case study and analysis with Sandy (BMG only)
- **Nov 2017** - MFS Soils Club Annual presentation and Xmas Lunch



MFS Supporters – THANKYOU

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Holbrook Landcare Network
CSIRO

Project Funders

South East Local Land Services
Department of Agriculture
National Landcare Program
NSW DPI
Meat & Livestock Australia
Australian Wool Innovation
Sheep Connect NSW

Special Mentions...

Chairman Richard Taylor for his generous, volunteer time and efforts to lead the organization, progress projects within MFS, drive initiatives and chair meetings.

MFS Board Members (Mike, Phil, Jono, Georgie, John and Gus) for all their countless volunteer hours spent progressing MFS initiatives, decision making and help to drive projects.

South East LLS, especially Jo Powells and Luke Pope for their unwavering support for MFS, both financially and volunteer support with projects such as the legume nodulation survey and MFS soils club.

Boyce for consistently providing meeting rooms and administrative support for the last 10 years.

Lachy Ingram for consistently providing technical support and time to MFS projects.

Dr Richard Simpson for his mentoring and advice with the MFS Soils Club for the last seven years.

And last but not least...Mike Stephens (Meridian Agriculture) who is retiring from the MFS Board this year after 10 years of volunteer service. Thankyou Mike for your integrity, professionalism, corporate governance advice, Industry knowledge, poetry, sense of humour and friendship over the past 10 years. Mike was instrumental in the formation of MFS and has been a major contributor to its success.





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