Fleurieu Farming Systems Inc.

FILLING FEED GAPS PROJECT 2022 - 2024

Challenging seasons have put a spotlight on cost effective and sustainable production of hay and silage. Demonstrating best practice fodder conservation and storage through fodder testing has been an important factor for this 2 year project in helping with drought preparedness.

Fleurieu Farming Systems Inc (FFS), in conjunction with the Mackillop Farm Management Group (MFMG) and AgKI ran several workshops and demonstrations across the Fleurieu Peninsula, Limestone Coast and KI with funding through the Future Drought Fund, SA Drought Hub and The University of Adelaide.

The project findings have helped primary producers look at their management and process decisions based on the effects they have on producing quality fodder. The strong correlation of timing with nutritional quality of fodder production, has seen many producers involved in the project re-think their management around fodder production and the importance of fodder testing.

Fleurieu Farming Systems conducted three workshops with expert guest speakers.

Feed testing was conducted across the Fleurieu Peninsula on both silage and hay.

Silage – various pasture compositions containing mixes of any of the following: ryegrasses, clovers, Phalaris, cocksfoot, various weeds etc. Stored in round bales - both in tubes and individually wrapped and in plastic covered silage pits.

Hay – various pasture compositions containing mixes of any of the following : ryegrasses, clovers, Phalaris, cocksfoot, vetch, lucerne, oaten. Stored as round bales, big square or small square bales, either shedded or open air.

Typical practices for the area are to shut up paddocks around August, anywhere up to the end of September. Silage production generally starts with mowing by the end of September with the season shifting into hay production by the end of October.

Fertiliser application varies widely depending on farm management, weather, costs, availability and paddock accessibility. Generally a higher analysis pasture booster is applied on shutting up paddocks.

Local farmers are traditionally high producers of silage. Silage is seen as a great tool for cleaning up pastures & reducing the spread of grass seeds, it's a good way to still make fodder when the weather is normally unreliable to cure hay and silage is generally of higher feed quality and 'weather proof' when left in the open in places like Parawa. With the increasing costs of production and less options for dealing with the plastic, many farmers have been trying to find a better balance.

Much of the silage and hay production in the area is contractor driven, with various contractors having different theories.

We held 3 workshops over the 2 years with fantastic attendances and a lot of producer interaction and input.

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Workshop 1 – Filling Feed Gaps Breakfast – 18th April 2023.

The main aim of our 1st workshop was to share the importance of fodder testing. To help producers understand that the only way to really know what you're feeding is to test, and talk about how to utilise your tests to improve production.

It was also a really good opportunity to show that feed testing can help us work backwards to see how we can improve processes, including storage.

With the help of Tim Prance and Colin Trengove as our guest speakers, we looked at the importance of timing of processes on test results, hay vs silage and how to interpret and work around poor fodder test results for livestock production.

One of the biggest points was how making hay or silage later in a season has a negative effect on the main things we look for in fodder, being Crude Protein (CP), Metabolisable Energy (ME), Neutral Detergent Fibre (NDF).

Other top points that affected quality were timing between cutting and baling with both silage and hay and rain events/moisture levels at baling.

Workshop 2 – Timing is Key – 20th September 2023. On Farm.

Our presenters on farm were Tim Prance, Mikaela Baker and Ben Noble.

The aim of our 2nd workshop was to look at standing pastures pre-cutting and discuss what to look at as triggers. We discussed target dates and matching to what is actually happening in that paddock at that time, what to consider if rain is on the horizon, when to cut and timing between cutting/baling.

We spoke about processes and the benefits of tedding, conditioning, chopping and additives, and how each of these 'extra' processes can help improve quality.
Talking about how all these things affect feed testing was a great discussion in looking at what we can learn and how we can improve results through also talking to contractors or customers.

Workshop 3 – Turning Tests into Feeding Decisions – 19th March 2024. On Farm.

Our presenters on farm were Tim Prance, Mikaela Baker and Sandy Nott.

Our 3rd and final workshop brought together results from the 2 years of testing. We looked at the comparisons between the seasons and fodder quality based on the seasons and processes followed. Given the 2 seasons were so different, it made for good discussion and learning.

We focused on how to turn fodder tests into a useful production tool. Focusing on analysing tests to improve processes and use for decision making and preparation for coming seasons. We looked at how to utilise in feed assessments, feed budgeting and how to balance nutrition.

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Season 22/23

The season was tough for making fodder, with above average rainfall and wet conditions right through Spring leading to a lack of fertiliser application due to accessibility and very late silage and hay production. Many crops were cut 4-6 weeks later than normal with rainfall between cutting and baling. Most crops had run to head and lost much of their nutrition, palatability and digestibility due to their maturity.

It was shown that quality was adversely affected (lower energy and protein, lower digestibility through higher fibre etc) the later fodder was cut and the longer it was left on the ground. The amount of rain on cut hay also adversely affected the quality, especially if it had to be left even longer on the ground.

The result ranges shown in Table 1and represented in graphs at the end of the report, show quite a lot of variation. It is difficult to compare so many different varieties of hay & silage where the processes are different. A great example is exceptional Vetch hay being produced in the 22/23 season where they managed to miss out on some of the rain, and silage that was cut early in a small window of opportunity. But the message is the same when you look at the reasons behind each result. There is a clear correlation between timing of cutting, time on the ground and moisture damage.

Season 23/24

The season was much better than the 22/23 season, although still not a 'normal year. The quality of the fodder reflected this. Crops were cut much earlier, baled with less time on the ground and less moisture damage.

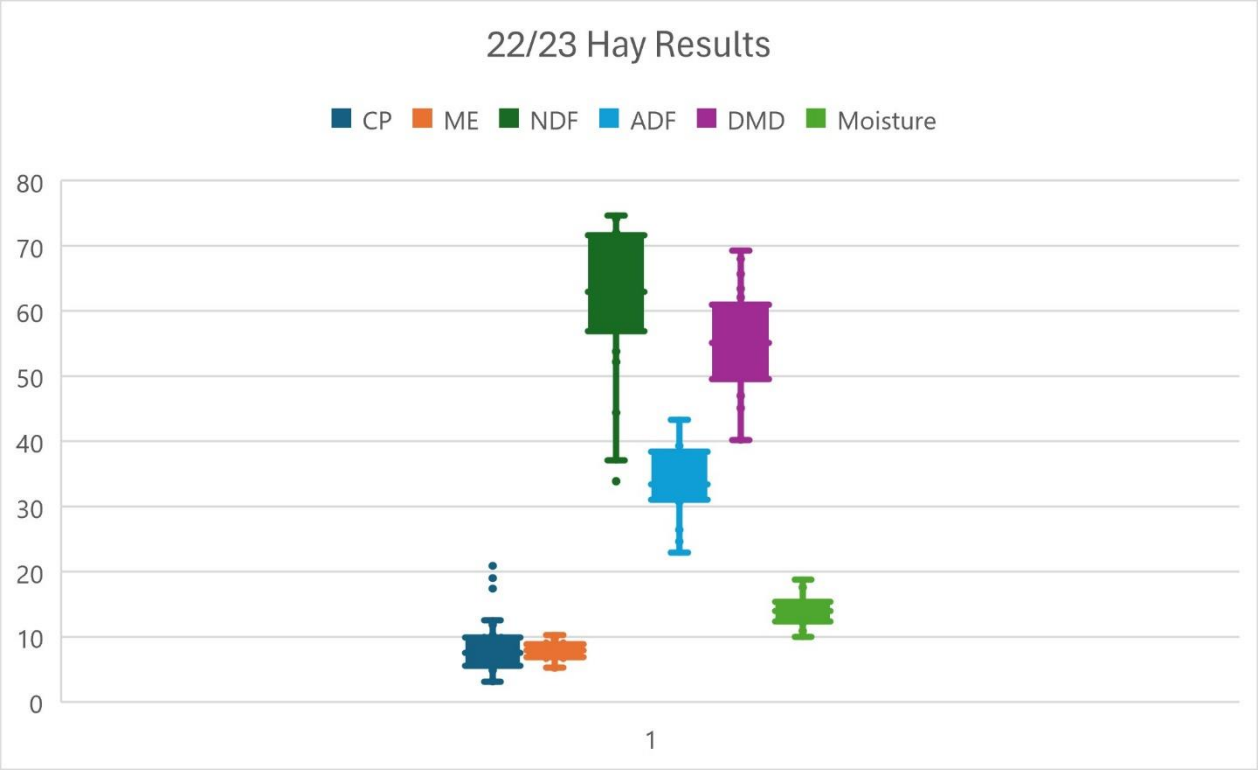
The Fleurieu overall had below average rainfall and higher than average temperatures through Spring, which saw many farmers able to get onto their paddocks to catch up on fertiliser over their hay paddocks and promoted them to cut earlier. The growth of pastures got off to a slow start due to a cold, wet Winter, but moved along as the season progressed. There were still farmers pushing it out to try and get bulk that cut very late, and they are the ones that got caught with poor quality fodder – especially increased NDF and poor CP.

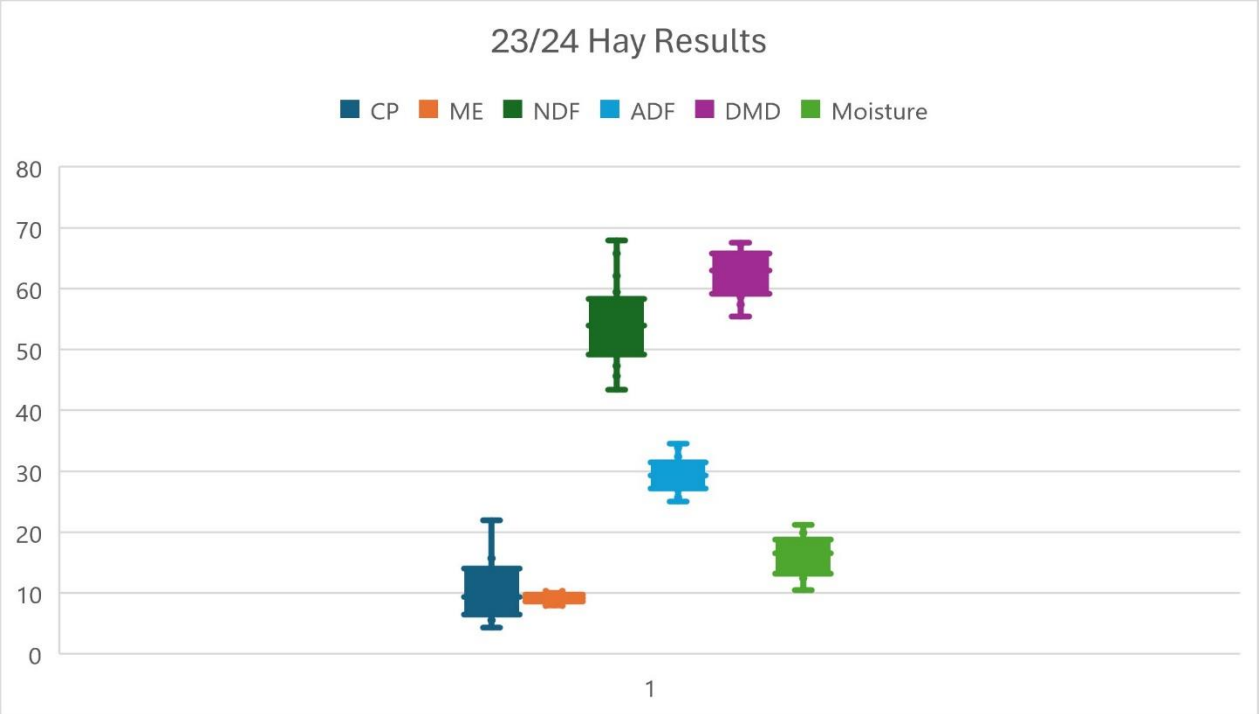
Many farmers got caught out with poor livestock prices, so backed off on fert or treatments, or held onto stock they would normally sell, so couldn't shut as many Ha up for hay.

Table 1. Ranges of testing results.

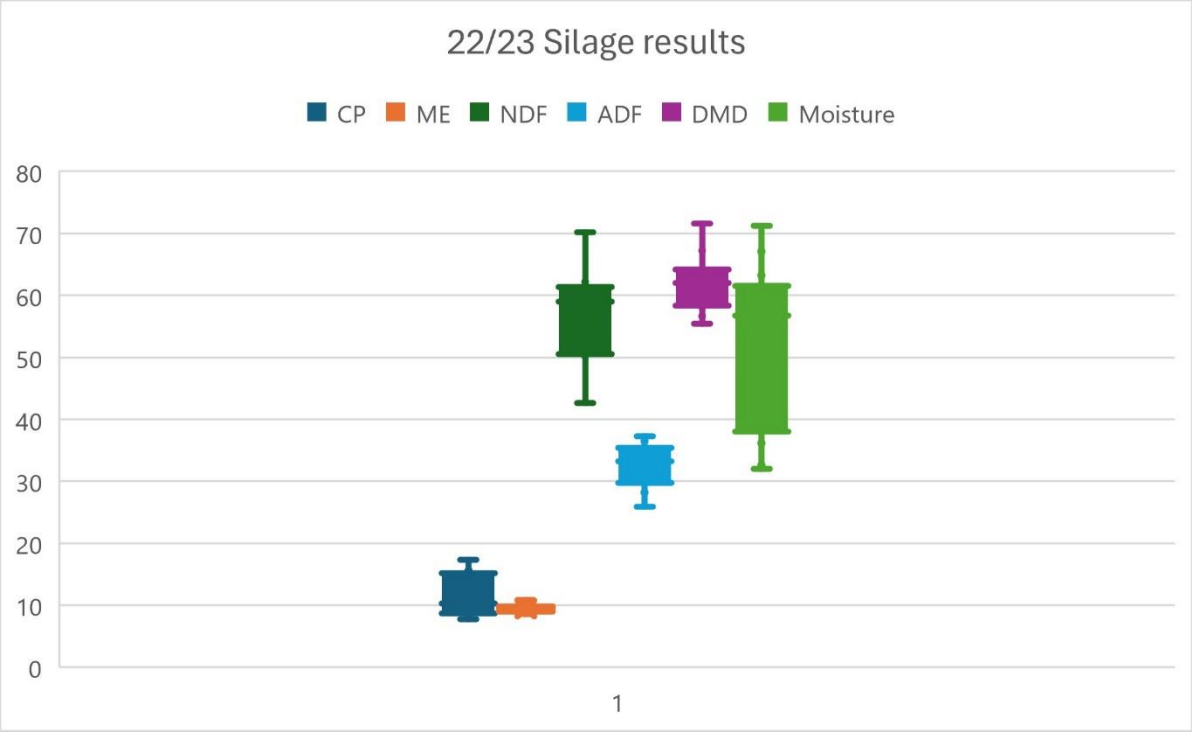
	22/23 Hay	23/24 Hay	22/23 Silage	23/24 Silage
CP	3.1 - 20.9	4.3 - 16.4	7.7 – 17.3	8 - 19.5
ME	5.3 - 10.3	7.9 - 10	8.6 - 10.8	8.5 - 10.8
NDF	33.9 - 74.7	45.6 - 67.9	42.6 - 70.2	46.1 - 65.1
ADF	22.9 - 43.3	25 - 34.5	25.9 - 37.3	27.2 - 65.1
DMD	40.2 - 68	55.4 - 67.5	55.4 - 71.6	54.4 - 71.5
Moisture	10 – 18.8	10.5 - 21.2	32 - 71.2	30.5 - 59.7

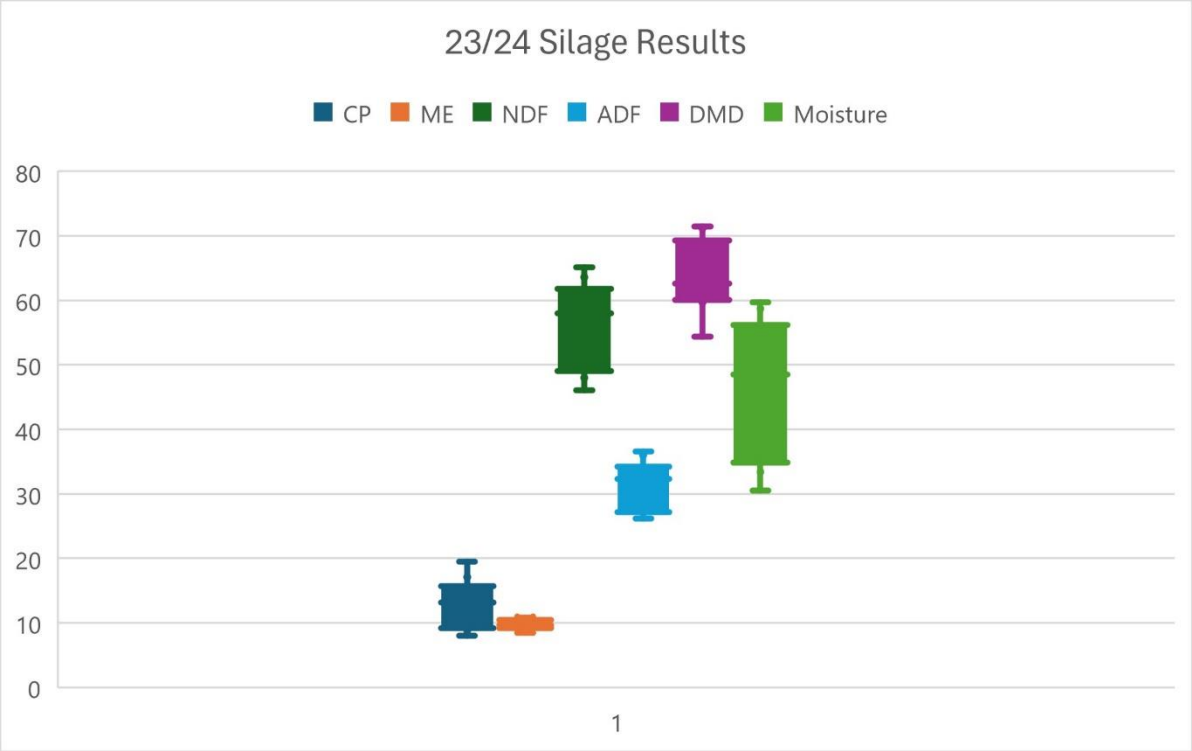
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Take home messages

- Cut pasture early.
    - The more mature, the more lignin, more NDF, less intake, less energy, less protein. Quality declines largely after flowering.
- Wilt as fast as you can.
    - Tedding immediately behind the mower and/or before raking if needed makes a big difference.
- The impact of tedding is even better if a mower/conditioner is used and the swathe is left as wide as possible.
- If rain is expected and hay is nearly dry, it is better to bale a little wetter than normal and use a hay preservative (if within moisture parameters) than risk it getting wetter and leaving on the ground even longer.
    - A hay preservative helps to decrease air levels in bales, helping minimise mould, yeast and bacterial growth, accumulation of these can lead to heating of bales. There are other benefits associated with utilising preservatives and inoculants, but these were not tested in this project.
    - Alternatively, putting hay into windrows may help.
- Consider silage if the season is looking tricky for hay. The shorter curing time for silage can help reduce the risk of weather damage, allowing for earlier cutting.
- Look at sowing later maturing pasture species, giving the ability to cut later with less risk of the plants maturing early.
- Testing, testing, testing. You can not balance a diet if you don't know what you are feeding. Testing what you produce or buy is the only reliable way to match your fodder to different classes of livestock.
- Consider testing cut pasture prior to baling if concerned. It may not be economical to follow through on the process if the quality is not there and it takes livestock more energy to digest it than they're gaining.

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