

CASE STUDY – PURCHASING A MIXER WAGON AND CONCRETE TROUGHS

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WHAT HAS CHANGED – 12 MONTHS LATER (MARCH 2021)**

After making a large change last year to the feedbase and how cows were fed, the Gardiners have continued to refine what they do and reassess their plans.

At this stage, the Gardiners have not invested in any further machinery or feeding infrastructure (e.g. feed troughs or feed pad). They have instead focused on growing the feed base (growing more crops and securing more land) and investing in feed and water inventory to provide a buffer against future droughts.

Management changes and learnings

The 2020 season has been a good season and a far cry from the tough 2018 and 2019 years. Water and feed prices have eased. This has allowed the Gardiners to move from trying to get through a tough period to trying to capitalise on the opportunities 2020 and early 2021 have provided.

Managing the risk of poor seasons has always been a key focus of the Gardiner's operation. The Gardiners have the view that profit should be measured long term and not just over 12 months, meaning that you may be better off sacrificing some profit in good years by doing things such as purchasing additional water and feed; allowing you to manage the poor years more profitably. The addition of the concrete feed troughs and the mixer wagon has provided the Gardiners with more options to do this.



The Gardiners.

The change of system now allows them to;

Carry over fodder in pit silage form (they couldn't previously handle pit silage). Pit silage is both cheaper per tonne to conserve and generally stores better long term.

Be able to grow crops that are more suitable to be stored as pit silage (cereals, maize & sorghum) and store them for several years.

Able to buy standing crops to make pit silage.

Grow more from water when it is limited.
For example grow maize for silage.

The Gardiners have grown around 50ha of maize and grain sorghum to make pit silage over the 2020/21 summer. This feed will be surplus to their needs this year but has been grown to secure future years feed requirements.

Over the summer of 2020/21 the Gardiners have irrigated 60 ha of perennial ryegrass all the way through. The Gardiners are still running two herds. Herd 1 has been grazing the perennial ryegrass while herd 2 are living in the sacrifice paddock with concrete feed troughs. In addition to providing feed for the cows, the perennial ryegrass also provides more solid ground for cows to be placed on if it becomes too wet in the sacrifice paddocks.

The new system also allows the Gardiners to milk more cows. The amount of area available to be grazed by milking cows is fixed on the Gardiner's farm and can only support a certain number of cows before issues start occurring. Issues such as the pastures suffering damage from too much cow traffic and not enough grass being available to each cow to meet their needs. Being able to make pit silage and feed it back with minimal wastage has increased the amount of feed the Gardiners are growing by allowing more area (outblocks) to be harvested for milking cow feed and a greater crop choice therefore enabling more cows to be profitably milked in reasonable years.

With the Gardiners being able to milk more cows and the individual cows producing more milk again this year compared to under the previous grazing system has allowed them to capitalise on the higher milk price to a greater extent than they could previously.

Results

On the 15th March 2021 the Gardiners were milking around 800 cows as some of the autumn calvers were dried off. The ration being fed was;

Table 1 Daily feed offered per cow

Product	Kg Dry Matter	Price per Kg (DM)	Total Cost (\$)
Wheat grain - in dairy	6.3	0.31	1.98
Canola meal - in dairy	1.8	0.41	0.73
Wheat grain - mixer wagon	2.7	0.31	0.85
Canola meal - mixer wagon	0.9	0.41	0.37
Vetch Hay	3.6	0.18	0.65
Canola Hay	3.6	0.22	0.79
Cereal Silage	7	0.19	1.30
Minerals	0.1	4.40	0.44
Total (DM)	26.0	0.27	7.10

The following table is a breakdown of the estimated extra costs relating to running the mixer wagon system and income;

Table 2 Based on milking 800 cows – March 2021

Income - per cow per day	
Milk Production Kg MS per Cow	2.10
Milk Income	\$15.88
Costs - per cow per day	
Feed costs	7.10
Mixer wagon interest (4%)	0.04
Mixer wagon depreciation (half value after 5 years)	0.09
Tractor interest (4%)	0.01
Tractor depreciation (half value after 10 years)	0.01
Interest on extra infrastructure (4%)	0.02
Depreciation on other infrastructure (half value after 10 years)	0.03
Extra fuel (\$153 per day)	0.19
Extra labour (3 hours x \$33 hour per day)	0.12
R&M	0.17
Total feed and feeding out cost \$ per cow per day	7.78
Income over feed related costs per cow per day	8.10

Where to in the future

The Gardiners are in the process of purchasing more nearby land to help secure their feedbase by being able to grow a larger proportion of the feed the cows need. It will also have the added benefit of being an appreciating asset to help build wealth.

The change from most of the conserved fodder from hay to pit silage, is meaning that the Gardiners are going to need to feed some of the silage out over winter. Previously over winter when the cows are grazing but need some extra fodder, they were supplied hay in "Waste Not" hay feeders as they exit the dairy. The Gardiners don't think that this will work very well with pit silage.

The Gardiners are trying to get away with the bare minimum of feeding infrastructure. However they are looking at the economics of improving the feeding infrastructure. They are considering building a gravel feed pad with concrete troughs as well as a gravel base silage pad (where the silage is stored) to facilitate feeding the silage out over winter.

The Gardiners are also considering adding in another sacrifice area complete with more concrete feed troughs to allow more flexibility when the feed mixes can be fed out. Currently the mixes are having to be fed while the cows are being milked. This means the person mixing the mornings mix needs to start at 5am and that there is no room for error when completing the mixes.

Key Learnings

Some of the key learnings the Gardiners have now after using the current system for nearly 2 years are;

- Need to keep the feed troughs clean to avoid excess waste and maximise cow intake
- The sacrifice paddocks need to be scarified every day to keep them dry and help break down bugs
- Maize is challenging to finish off during the late summer/autumn. Working out irrigation frequencies on flood irrigation is challenging when evaporations become more variable and the crop is nearly complete.
- The peaks in workloads have become bigger. This is due to having more crops/pasture areas to sow each autumn and more areas to harvest.
 - March has become particularly busy with calving, summer crops being harvested, sowing pastures/crops, irrigating pastures/crops.

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