B+LNZ Drought Management Regional Case Study - Dargaville, Northland

June 2020 Update

Case Study Farm: Ashgrove Ltd farmed by James and Janine Parsons, Tangowahine, Dargaville

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Background

The combination of adverse weather conditions and Covid-19 restrictions have caused major problems for some farmers. This case study examines the issues, Farmax analysis and management options considered and implemented by Northland sheep and beef farmers James and Janine Parsons and their farm staff.

April 2020 Executive Summary

Ashgrove, a 478ha Kaipara hill country sheep and beef farm, has been severely impacted by the 2020 drought. As the drought extended Ashgrove put several things in place in the autumn to minimise the impact and residual effects on the subsequent 2020-21 financial years' production and profit. This included purchasing and feeding 29t of palm kernel, grazing ewe hoggets off-farm, selling stock early, applying 29t of autumn nitrogen and installing a pump and 25,000L water tank. The result was improved water infrastructure and containing losses within the 2019-20 financial year. Also, beef restocking occurred in late April 2020 rather than November 2020. The subsequent 2020-21 financial year returned a $54,552 higher gross margin through higher production and profit, compared with doing nothing, with little residual effects from the 2020 drought. In addition, Ashgrove is now better placed to handle future droughts with infrastructure and new management practices put in place.

June 2020 Update

Pasture Update

- April rainfall was 37% of average at 51.5 mm and May rainfall 130% of average at 188mm. The rainfall has translated into improved pasture growth rates in April and May but less than expected. Autumn nitrogen was applied on 20th April, as planned, with the net result that pasture growth rate for April was 16.6kgDM/day and May was 11.4kgDM/day; this compared to 15.1kgDM/ha/day for April 2019 and 16.1kgDM/ha/day for last year. Last year no nitrogen was applied in the autumn. The response from nitrogen was somewhat disappointing given the April and May rainfall.
  Steep-land is known to require 2-3 times more rain relative to flat-land to raise soil moisture levels. When soil moisture levels are very low, as was the case in Northland during this 2020 drought, it takes much longer for the soils to reach soil moisture levels which will foster good pasture growth. It has been assumed that low soil moisture levels were the major reason for the relatively poor May pasture growth rates following well above average rainfall for the month.

Rainfall & Pasture Cover at Month End

Month	Dec	Jan	Feb	Mar	April	May
Rainfall (mm)	84	12	3	58	51.5	188
Historical Rainfall (mm)	112	101	149	147	140	145
Pasture Cover (kgDM/ha)	1640	1472	1146	1240	1443	1551

Historic Pasture Growth (December to May)

Year	Dec	Jan	Feb	Mar	Apr	May
2017-18	15.4	16.3	17.3	16.4	14.6	15.7
2018-19	25.4	11.9	7.1	15.8	15.1	16.1
2019-20	30.2	5.3	0.3	16.4	16.7	11.4

Things that have changed since April 2020

- A major departure from the original plan was with the opportunity to purchase an adjacent 120-hectares known as the K Block. This block is 25 ha's flat and rolling with the remaining 95 ha's steep hill country, takeover will take place by 30th June 2020.
- There was also the opportunity to purchase a reputable Northland Angus Stud herd and locate this at Ashgrove. With specialist stud breeding skills within the Ashgrove management team already, this purchase was considered to be a good strategic fit for the business. Whilst the new 120 ha K-Block is challenging terrain the breeding cow opportunity was considered a realistic stocking option.
- 155 MA in-calf breeding cows, 45 in-calf R2-heifers, and 27 R1-heifers plus 6 breeding bulls were purchased. The MA cows have been assigned to the new farm and the younger growing stock to the home farm. The purchase of the Angus Stud has necessitated some changes to stock purchases and liveweight gain profiles for the remaining cattle.
- The overall feed situation on the home farm has remained very tight and for the Farmax file to remain feasible some serious adjustments have been made as follows:
    - The decision to purchase 100 weaner bulls on a depressed market in April was reversed as a consequence of the purchase of the Angus Stud.
    - As planned winter liveweight gains have been reduced on all trading cattle by establishing long slow rotations using sticks and string cell grazing. The exception is a small mob of 40 of the heaviest steers and bulls which were transferred into a fast-track finishing mob in April at 450kg liveweight. This mob will continue to be supplemented with the remaining PKE (5kgDM/head/day) purchased in March with the purpose of finishing by the end of July. While this decision requires some short-term investment in feed these cattle will be sold in July thereby reducing overall feed demand for the rest of winter and early spring.
    - As planned the liveweight gain for R1 cattle was reduced by a greater amount than R2 cattle. The rationale was that with the anticipation of a better season ahead the R1 cattle had time to catchup whereas the R2 cattle were to be killed by Christmas and carcase weight loss would be minimised if liveweight gain was not compromised too much.
    - Because ewes were already in lighter condition than normal their bodyweight will be maintained over winter. Normally the ewes would deliberately have weight taken off them as they are worked over the early winter period to groom pasture, but with lower condition than normal it is important the ewe condition they have is preserved through to lambing. Enabling the ewes to better buffer themselves in the first 2-3 weeks of lactation. This is known to result in better lamb survival and faster lamb growth and therefore bigger lambs at weaning and more of them.

- Due to the major change in land area, and the change in associated stock policy, it is now difficult to calculate the financial difference between the drought intervention measures reported in April versus no drought intervention. However, with a review of what was previously planned and what has actually happened, up to this point in time, suggests the financial advantage of proactive drought intervention would have been at least as advantageous as that predicted. In fact, with the anticipated uplift in beef price it is expected that cattle margins and profits would have increased. For example, had the purchase of the 100 weaner bulls progressed it is likely there would have been a gross-margin profit of $500 per head or $50,000 in total. That margin alone would have more than paid for the 30-tonne of PKE and the 29t of Sustain (96kg/ha) applied in April. However, the cost of feed is now represented in increased pasture cover and feeding the remaining livestock. Supplementary feed represented 8.7% and 12.5% of feed demand in March, April for the PKE and the nitrogen application provided 342kgdm/ha of additional pasture cover by the end of May – without the Nitrogen application 30th May average farm pasture covers would have been an estimated 1211kgdm/ha rather than the measured 1551kgdm/ha.
- Livestock numbers on the home farm have been preserved meaning that income has also been preserved as the works schedule has lifted from drought and covid-19 affected prices through to the 2020-21 year.

- In reality, while the cattle trade was not implemented with the 100 weaner bulls, the increase in value from cattle retained and supplementary feed purcased will prove to have been a wise decision even though late summer, autumn and winter liveweight gains will have been much less than usual.
  The per kilogram value of 17-19 month cattle in March and April was around $2.20/kgLW and it is anticipated that these same cattle, to either purchase or sell in October and November, will be close to or exceed $3.00/kgLW.
- The investment in the Angus Beef Stud has a much longer investment return profile but the quality of the cattle purchased, the popularity of the stud and the associated forecast budgets would suggest that returns will be worthwhile. The stud breeding cows, which are planned to be farmed under commercial conditions, are well suited to type of pasture and land class of the new farm.

Winter and Spring Plan – The Next Steps

The focus now is to realise the financial and production goals for the next year. As pasture recovers across the farm with the late autumn rains it is vital that a long slow grazing rotation to build and preserve pasture cover is put in place.

Apart from a forward mob of steers and bulls to be supplemented with palm kernel and slaughtered in July, all other bulls and steers have been set-up behind 'sticks and string' with single hot-wires for the winter, involving two long rotations of 80 then 60 days. Winter live weight gains will deliberately not exceed 0.5kglwg/d. Come September, aided by an August application of DAP and Ammo, a shorter 30-day spring rotation begins on well-groomed quality feed with target live weight gains of >1.0kg/day. As pasture growth rates improve in October and November so does the rotation length shorten, and cattle growth rates improve. November and December are when the bulk of the bulls will be marketed to the works. Importantly the older bulls and steers are always the priority over younger R1 bulls. If any mob needs to suffer a lower live weight gain due to winter and spring pasture growth rates not meeting expectations, it will be the animals furthest from slaughter. This ensures the bigger finishing animals can be grown at optimum and marketed at their set time to relieve pressure on the farm going into summer.

All ewes including the stud ewes have been mobbed as from early May and placed on a 100-day rotation for winter, with leader and follower mobs. Leader mobs rotating ahead of the main mob of ewes will comprise 2ths, and light mixed age ewes identified through regular condition scoring. After pregnancy scanning triplet ewes will be put ahead in the leader mob also. The target is to maintain a minimum condition score of 3 for lambing starting 28th August. Whilst the Suftex ewe hoggets will be flushed on grain and tupped the Coopworth ewe hoggets will not be put to the ram this autumn. This will reduce winter feed demand and increases the likelihood of achieving their target 2 tooth mating weight in 2021.

Pasture covers will be regularly measured and modelled on Farmax and should target spring pasture covers look at risk, additional nitrogen will be applied through winter on the bull cell systems. And the annual pre lamb DAP/Ammo application will be boosted with higher amounts of Ammo (nitrogen mixed with sulphur).

Situation at 18th April 2020

Ashgrove has experienced very low rainfall since December 2019 with 12mm for January, 3mm for February with some showers bringing 58mm for March. Up to 18th April 30mm of rain had fallen. Corresponding pasture growth rates were very low as a result, the worst months being 4.1kgdm/ha/d for Jan, 0.2kgdm Feb. With some patchy rain in March, growth rates started improving to 11.8kgdm/d for March arresting the decline but not breaking the drought. Consequently, pasture covers have steadily declined over the summer with a small improvement in March.

Month	Rainfall (mm)	Historical Rainfall (mm) Avg	Past' Growth (kgdm/ha)	Past' Cover month end (kgdm/ha)
Dec	84	112	15	1640
Jan	12	101	4.1	1472
Feb	3	149	0.2	1146
Mar	58	147	11.8	1240
Apr		140		

In December 2019, as part of a planned development programme to reticulate water across the farm, the spring fed reticulated water system was expanded. However, the springs previously considered reliable could not keep up through the drought

creating significant issues. This was compounded by a concurrent subdivision programme reducing paddock sizes and fencing off access to streams for stock water. Significant time was expended keeping water to stock creating real stress on the team.

The combination of low pasture covers and at times stock water shortages caused ewe condition to decline, replacement ewe lamb and ram lamb growth rates were minimal at 30g/day apart from some finishing lambs on chicory. Bull and steer growth rates started to drop away to 0.1kgLWG/day through February and early March.

Other Decisions Made:

1. Under sowed annual ryegrass into chicory in mid-March rather than spraying out chicory given the autumn feed shortage.
2. Delayed tupping of ewes by 1 week to 31st March to try and build condition, the alternative was considered to bring tupping forward but flushing with maize grain would not have been an option as was started too late. The team backed themselves rightly or wrongly that autumn rains would come also to assist in flushing ewes. Rams also to be left out for three cycles to pick up any late cycling ewes.
3. Organised sale of surplus ewe hoggets that would normally carry through till November
4. Identified forward mob of steers and bulls and fed palm kernel to finish by July. Rest of cattle put on a long slow winter rotation.
5. To alleviate the stock water concerns a high-pressure water pump was purchased plus a 25000L holding tank and pipe at $8,000 total investment. This supplemented the spring fed reticulated water system by pumping from the stream. This eased significant stress on the team and the more reliable water improved stock performance by being able to graze paddocks more effectively. Because this was a capital expenditure item it has not been included in the gross margin analysis.

Practical Considerations:

- Feeding out PKE was a new management practice at Ashgrove. Cattle were not used to eating PKE but after a week caught-on quickly. PKE was not fed to sheep over concern with the high copper levels. Storage was in the tractor shed, which fortunately had a block wall 1 metre high on 3 sides and the tractor was parked outside. Feeding out became a daily routine with a tractor bucket load of PKE carted to each 70-head mob of cattle, steers and bulls were mixed to achieve bigger mob sizes. Once cattle were trained the PKE was left in piles on the ground and utilisation was very high given there is no mud in a drought. 350kg bulls were receiving 4kg to 5kg per day and growing at 0.5kgLW/day.
- Application of Urea with a plane or helicopter is at risk of not providing the full benefit as relies on rain for a response. Once it rains it is hard to get a plane or helicopter as they are in high demand, so the decision was made to go early. While it is better to apply N as a growth multiplier to rapidly growing pasture, the showers of rain through March and April had greened the farm up, albeit still with low covers.
- Training ewes to eat Whole Maize Grain took time and required them being locked in the yards – some good B+LNZ info on training sheep is available in their Extreme Dry-Management Factsheet. Training needs to be done at least a month before tupping as initially they will lose weight. Post-tupping this strategy can be used to lift a tail in the ewe flock. Be careful introducing grain as easy to kill sheep while their rumen is adjusting.
- Cash was readily available as Ashgrove deliberately maintains some 'headroom' on its' mortgage, so funds can be drawn down quickly rather than having to seek an extension to the bank overdraft. The alternative is going back to get an overdraft extension, but farmers often procrastinate doing this resulting in important decisions being deferred. For some farmers this can be emotionally draining, and seeking approval takes extra time.

Other Points

- Act early – selling stock at a discount is painful at the time but brings peace of mind once done.
- If you must choose, feed stock better at the end of winter not the start. It requires less total feed as you aren't maintaining a heavy animal through winter. You can only do this with long grazing rotations. Long rotations can be achieved by bigger mobs or splitting paddocks up with electric fencing. Generally a combination.
- Investment in water infrastructure and a reliable water source is a high priority for farmers. The traditional approach of stock drinking directly from dams or streams have shown this year to be unreliable.

Most farmers have a shed they could repurpose to store grain or palm kernel. Palm kernel is a cost-effective feed in a drought and usually readily available. Whole maize grain is grown locally in Northland, so a good option.