Successful adoption of change in a wool enterprise

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"Dropmore", Seymour, Vic

Background

"Dropmore" is a 1000ha property situated at Ruffy, 30km from Seymour in the granite hills of Central Victoria. The soils are granitic loam with a pH_{Ca} of 4.2. Topography is undulating to hilly, similar to the granite country between Nangus and Wagga.

"Dropmore" has a winter dominant, average annual rainfall of 800mm. Growing season rainfall (April to November) is 640mm. 86 years of historical records show there is only a 50% chance of a break during April. The stocking rate is based on the amount of pasture produced during this April to November period.

The soil, terrain and climate limit the property to grazing as the most suitable enterprise, therefore it was within this enterprise that changes were made to increase profitability. "Dropmore" is stocked with 5000 Merino sheep and 200 Hereford breeders. Up to 300 dairy heifers are also agisted depending on pasture growth. The average stocking rate in 1991 was 8 DSE/ha.

Bracken was a major problem on the farm, but with the use of herbicides such as Brush-off and glyphosate, most of it is now a thing of the past. As a result, an extra 5% (50ha) of the farm is now back in full production, carrying an additional 12 DSE. This earns $8.66/DSE, or $103/ha/annum - a good return for an outlay of $70 for bracken control! Where can you buy land for that price?

Labour

Labour has been reduced from one worker a few days a week, to now myself, a couple of dogs and my wife during school holidays. Contractors are used for jobs that require extra manpower, as well as crutching, shearing and marking.

Pastures

The improved pastures include a mixture of Porto cocksfoot, Australian phalaris and Trikkala, Leura, Goulburn and Denmark sub clovers. Pastures are autumn sown after the break by direct drill, following a lupin crop. I have been direct drilling since 1976 and believe it is important for preserving soil structure in these fragile granite soils.

Unimproved pastures are a mixture of annual and native species. Species include ryegrass, sub clover, capeweed, vulpia, erodium and vernal grass. Native grasses include microlaena and wallaby grass. Vulpia is the major pasture weed, as it seems to defy even strong perennial pasture competition. Control methods include winter cleaning with herbicides (simazine and gramoxone) during June/July, plus spray topping with glyphosate in spring. Capeweed is controlled through strategic grazing management and spray grazing in autumn.

Fertilizer history

The general rule of thumb pre-1992 was to apply 125 kg/ha of single super except when conditions got tough. Lime was never applied and potash only on the lower reaches of certain paddocks. Molybdenum was applied every 6 to 7 years after soil testing.

Following an involvement with fertiliser trials, the improved pastures have now been receiving 120kg/ha of double super (20kg of P/ha) since 1992. 50kg/ha of double super is applied to the unimproved annual pastures. Soil tests are carried out every 3 to 4 years to monitor progress and plan paddock treatments.

Nutrient transfer was occurring from the lower areas of the paddocks to higher ground. Therefore through the use of soil testing, fertiliser is now targeted to match the slope and nutrient values. For example, the upper slopes will contain double the phosphorus and potassium values of the lower areas, therefore lower areas are fertilised and the upper areas left. I am hoping to correct the imbalance and also lessen the growth of weeds that come with the excess fertility in parts of the property. Stock can already be seen grazing the lower areas, as the preferred species become more dominant in response to fertiliser. Lime is applied to all new pastures, with the aim of treating all but the least productive areas of the farm.

Catalyst for change

Following the collapse of the wool market in the 80's and the need to remain viable during this time, I felt I had to do something different if I was to survive. I realised I was unable to purchase more land, but stock numbers had to increase. Adding more fertiliser, sowing improved pasture and increasing stocking rates do not always guarantee greater profit. The extra feed that was being produced had to be utilised.

The Grasslands Society of Victoria proved to be the catalyst for change in my farming practices. In 1991 I took part in a bus trip to the Pastoral & Veterinary Institute at Hamilton, Victoria, where research results presented from the long-term phosphorus trial were inspected. It was then during a Grasslands trip to New Zealand that the benefits of rotational grazing systems became obvious. I realised that our paddocks were too large, leading to inefficient utilisation of pasture and large camping areas. With the encouragement of consultant Jim Shovelton, 3 other North-East Victorian producers and I decided to take the long-term phosphorus trial results to the paddock stage. This research eventually led to the successful Grassland Productivity Program (GPP) and its recent successor, the Triple P program.

SGS project

In 1996, we also began monitoring local catchments on the farm through a Sustainable Grazing Systems (SGS) project that was reviewing pasture water use in relation to salinity. The productivity of three "paddocks" carrying 3 different stocking rates and 2 fertiliser applications was compared. The 'control' paddock, which is mixed annual and perennial native grasses, receives an annual application of 9 kg/ha phosphorous and carries the N.E. Victoria "district average" of 7 DSE/hectare. The 'low' stocking rate paddock also receives 9 kg/ha phosphorous and carries 10 DSE/ha. The high stocking rate paddock receives 25 kg/ha phosphorus, enabling it to carry 16 to 17 DSE/ha. This paddock has the potential to be stocked harder, although lambing losses due to its exposed position has meant a more conservative stocking rate is used. Regardless, you can see there are significant stocking rate gains in the high input paddock.

I have seed a marked change in all paddocks since 1997, varying from spring calving cows during GPP to spring lambing merino ewes in the current SGS trial. There is now greater sub clover content in what was a cocksfoot dominant pasture. The extra grazing pressure from set stocking has seen the cocksfoot all but disappear in the extreme autumn conditions experienced during the years of this trial.

The high fertility areas (eg. sheep camps) of all three catchments have developed large areas of bare ground during the late summer and autumn. These areas are then invaded by capeweed following the opening autumn rains. The sheep also have avoided grazing the lower, less fertile banks of the 'control' and 'low' paddocks, leading to residual rotting dry matter and limiting the clover persistence due to an allelopathic effect. The protocols of the trial mean I have been limited in my ability to control these problems, but they are common in our grazing systems. My observation though, is that sheep camps, and therefore nutrient transfer, is difficult to control in set stocked paddocks.

Environmental concerns

Many farmers and environmentalists are concerned about phosphorus and nitrogen run off under high input pasture systems, and the impact this is having on our waterways. This was the major reason I am participating in the SGS program. My colleagues from the earlier project and I felt we needed to show that a

farming system we were promoting could have high returns without negatively impacting on our soils and community. Here was the perfect vehicle.

The project is showing that phosphorus losses are low on these granite soils. More phosphorus can potentially be lost down the kitchen sink and toilet than from well-managed pastures with correct phosphorus application. I have found that spreading super in summer rather than after the autumn break minimised phosphorus loss. P applied to wet soil, such as after the autumn break, has a much greater chance of loss through runoff. Research conducted in Gippsland by David Nash, DNRE Ellinbank, has indicated that the phosphorus and nitrogen in a fertiliser capsule is leached into the soil within 5 days, even in apparently dry soil. Earlier spreading also means the fertiliser is available at a cheaper price.

Nitrate loss through the subsoil is also being observed in the trial area. A move to deeper-rooted perennials, eg. phalaris, is needed to address this problem.

Pasture Concerns

One area of concern regarding the set stocked pasture was clover dominance, which is exacerbating the problems of soil acidification. It could reach the stage where aluminium, which can be toxic to plants because of the damage it does to fine roots, is released in solution. To minimise this and other concerns, I now have a lime program that is the result of the trials. One of the most satisfying things I have gained in participating in trials, is not just the benefit to my farming operations, but working with so many outstanding experts in their fields.

Rotational grazing

I also have moved to a simple 4 to 5 paddock rotational grazing system, where possible. Paddock size varies between 12 and 20ha. Stock are moved on a 'dry matter left' basis, generally when pasture is grazed down to 800kg DM/ha. This usually takes a week with stocking rates at 17 DSE/ha. The paddock is then left to recover for 4 or 5 weeks. After looking at Lisa Warne's '3-leaf recovery' work, I think I will now go down that track.

Many farmers see rotational grazing as an increased workload through more frequent stock movement. However, I have found that stock become very well trained and moving stock often only means opening a gate so that they can move into the next paddock. 50 cows and 1100 ewes can be moved in the time it takes to ride the motor bike from one end of the paddock to the gate. The cows often beat you there and the sheep are not far behind!

The cost of fencing and water are also seen as negatives. However a 3-wire electric fence can be installed for as little as $0.70/m including labour. I use a 4-foot steel post every 21 metres with a 107cm poly dropper cut in half and spaced 7 metres apart. A fence gate is situated in the most convenient position to allow fastest access for stock movement. Water can be more of a problem, but I am fortunate in that we have permanent running creeks and springs, allowing smaller paddocks.

I believe there is a place for both set stocking and rotational grazing, but as a result of observations made in both trials I now have 270 hectares of the most productive parts of the farm under rotational grazing systems. A seasonal 'leader-follower' grazing system has been developed with weaner stock grazing fresh pasture ahead of mature sheep and cattle. Where cows or young cattle are in the rotation with sheep, the cattle are generally moved two days earlier.

The rotations are comfortably averaging 15 DSE/ha. Due to our erratic rainfall I'm not sure of the maximum carrying capacity. Even during poor seasons I have still been able to use rotational grazing – it is a matter of matching the rotation speed to the conditions.

To sum up the benefits of rotational grazing:

i) reduced nutrient transfer

ii) reduced negative impact of sheep camps
iii) less clover dominance, and
iv) improved pasture utilisation through smaller paddocks, when combined with spring lambing and calving, reduces the need to feed heavily pregnant sheep and cattle through autumn
v) greater versatility and profit

Conclusion

If you want to change to a rotational grazing system, start slowly as there is definitely a lot more planning required. However farming is all about change, being versatile, observant and willing to have a go. This is not a dress rehearsal – we as farmers have one go at doing it well. I find farming a very satisfying life, but also a challenging one. If we don't accept challenges and learn to adapt, we will stagnate.