

Grazing crops lifts whole farm performance

Written for Grain & Graze 3 by Mike Roberts Communications, Research and Consulting

Mid- North SA farmer Tom Hawker says, “Flexibility is what grazing crops gives you. When you have flexibility you have options. The last thing you need when you have got lambing sheep is lack of feed and no options!”

Anama, the property that has been in the Hawker family since the 1800s, is run by Tom Hawker, his wife Anna and his father Ryves. For the past seven years, carefully managed grazing of crops, mainly barley, has enabled the family to lift farm profitability and improve risk management strategies when dry years occur.

The main 1800ha block is located 15km north of Clare in the Yacka-Moorundie Ranges. Their blue gum country indicates 450-500mm rainfall while the remainder of the property is the natural home to peppermint gums, indicating 400-450mm annual rainfall. Soils range from a mixture of black self-mulching Bay of Biscay to Red-Brown Earth and some sandier gravels. There are shallow skeletal soils on the north-south aligned ridges.

Enterprises

In ‘normal’ years cropping comprises about 70% of farm income with 30% contributed mainly by sheep and some cattle. However, Tom says, “it all intertwines. In a dry year livestock could make up 45% with cropping at about 55%.”

Crops

Rotation on the black soils is usually faba beans followed by two years of wheat. Red soils would normally see either canola or lupins as a break crop followed by two years of wheat. Sometimes the second wheat crop is either replaced or followed by barley before a return to the break crop. Control of ryegrass and other weeds is more effective in legumes as opposed to canola so weed burden can dictate the choice of break crop. Direct seeding is done with a Horwood seeding bar and box with presswheels on 10.5” (262.5mm) spacing.

Livestock

Historically, Anama has been a significant South Australian Merino stud but that formally wound up in 2007. They now run a first cross Border Leicester/Merino ewe flock, which is mated to White Suffolk rams to lamb in July. Another flock of Merino ewes purchased every second year are mated with Border Leicester rams to lamb in either April or July to produce females for the first cross flock.

A Red Angus cattle stud runs in conjunction with the sheep enterprise.

Why graze crops?

Seven or eight years ago, in response to 'changing seasons' the Hawkers began grazing their crops. Opening rains occurring earlier meant seeding was early too, especially barley. Tom says that the prolific growth of the early sown barley crops has made it essential to graze them. "It just gets too lush, too much growth, risk of lodging and increased fungal diseases, matures too early, too much vegetation. When barley is sown early it just gets out of control."

Wheat is also sown earlier now but doesn't exhibit as much lush foliage as barley so grazing hasn't been as important. Increasing the percentage of barley in the crop rotation has meant more available sheep feed with little loss of crop yield. Having said that, Tom points out that they did graze some Beaufort winter wheat this year that was sown in mid-April. It was grazed at the end of May for 10 days at 15 pregnant ewes per ha.

Compass and Scope barley are favoured varieties for grazing because they exhibit more early growth and compete well with weeds. A variety like Keel, with less growth of foliage is avoided. "If we are going to plant something to graze, we want a barley which produces good early dry matter. A lush variety will normally fall down when sown early but grazing controls it so it can't do that."

Grazing to delay flowering time for frost in barley?

There's no doubt that grazing crops can delay flowering time but Tom says it's not a practical way to avoid problems with frost in spring. "It's a bonus if it happens. We can probably delay it a week or ten days but in the end our frost risk can be up to the first week in November and the barley is nearly full by then."

"If we tried to flower after the frost period ends we would experience hot and dry conditions in most years with lower yields. Frost is an unpredictable chance event but we can guarantee heat and dry so we aim to avoid those losses"

How do you do it?

Barley is now sown at the end of April, three weeks earlier than usual. It's important to take advantage of barley's competitiveness by not waiting for the annual ryegrass to germinate. "Delaying sowing to control ryegrass hasn't worked for us. It's better to sow when moisture is there and the barley is competitive. Once we have some ground coverage we don't get many more germinations of the ryegrass and good competitive crops will outcompete a newly emerged ryegrass anyway."

Tom understands that grazing can open up the canopy again and give grass weeds another opportunity so it is important to have control options in place or have the crop recover more quickly than the weeds. This is one of the main reasons early sown barley has been a successful option.

The crop is first grazed about six weeks after sowing when it is no longer easily pulled out of the ground by the roots. The sheep grazed for 5-10 days at 20 pregnant ewes per ha. "After grazing nitrogen is applied as 50 kg/ha of urea to help the crop recover. Applying after grazing reduces the risk of sheep eating urea granules while they are in the paddock. As the season has progressed this year, the barley has been grazed about every four to six weeks."

Supplements

Cereals are generally low in calcium and magnesium so Tom provides a mineral mix for the sheep to eat while they are grazing either wheat or barley. "All the mobs are getting bigger in general. During lambing it is harder to graze crops because we like to split the ewes up into smaller groups with a maximum of 100. About a month after they have lambed, we start boxing those mobs back up together. We generally put the lambing mobs in more timbered country to help protect the sheep from the weather." The crossbreds exhibit lambing rates of 120-170%.

For those lambs eventually going on to the bean or lupin stubble post harvest, there could be a feed gap of 3-4 weeks or longer. As that feed reduces in value the lambs will be supplementary fed with lick feeders, to control grain intake, until stubbles are available.

"We can start at 100g/day and as the feed deteriorates we change the barley percentage in the feeder and start adding the legumes."

What paddocks best suit grazing?

Tom Hawker says smaller paddocks in low lying frost prone areas which also have good natural growth are ideal for grazing, especially those with red alluvial soils. Stock usually prefers bare areas such as a roadway or scrub when not grazing. He tries to set up the paddocks so they have areas sheep can go and not have to sit in the crop all day, where it is wetter underfoot and boggy.

"Those sort of paddocks are generally between 10-16ha and they are that size because of geography such as creeks or rocky ridges. These areas, which aren't best suited for cropping, have more natural timber and are closer to our yards and access points are our most convenient paddocks." If paddocks are too big sheep spend more time in them, which isn't always ideal because they tend to graze some areas much more heavily than others.

How do you know how hard to graze it?

"The later we graze and the harder we graze the more damage we are going to do to a crop. It is better to graze earlier before we pass Growth Stage 31." Tom doesn't use a caged, ungrazed area to monitor this but says, "We can just tell by running our fingers along the sheath to feel for the head that is forming to help determine how low to graze it."

Grazing provides flexibility to keep options open

Depending on the feed requirements, grazing can provide a few different options. "Generally in September or October we remove the stock if we have

enough feed and the crop will recover with some added nitrogen and we will just set it up for grain. Being earlier sown, the roots have penetrated deeper enabling the crop to take advantage of water down the profile as upper soil layers dry.”

“If we still need the feed later into the season there are a few options. Because we have reduced the biomass by grazing, the transpiration of the plant is going to be less so it should be more efficient at using the available moisture. Depending on the needs of the sheep, they could come out and allow the crop to recover. That will line up with weaning. We will apply some urea and give the crop another three week break then wean lambs into that paddock.”

According to Tom, that can even happen at head emergence. “Once we get head emergence we have found that the sheep will chew the leaf off but not the heads. So even then choosing to lock a paddock up, applying nitrogen and being lucky enough to have a good season can still result in yield close to 100% of ungrazed yield.”

After last year’s very dry finish, lambs were weaned onto the heading barley crop. After they were removed, it was sprayed with glyphosate to kill the ryegrass and harvested for on farm use. Even though sheep were grazing it during head emergence, it still yielded 2t/ha.

How much does it affect yield?

If crops are grazed early and feed is not required later in the season then the paddock just returns to the cropping system with little or no loss of yield. With the good conditions this year, Tom thinks there will be minimal loss of yield even with sheep grazing up until a few weeks prior to harvest. “An ungrazed barley crop might yield 4.5t/ha and this year I think we could still get 3.5-4t/ha after four grazings!”

Cattle can also be used to graze crops but not once heads emerge. They tend to eat the heads off and get awns stuck in their mouths, causing problems.

So what are the benefits?

For Anama, probably the biggest benefit has been the ability to run 15-20% more sheep than before. With the traditional model, farmers often had a wether flock that took the brunt of the lack of feed by being relegated to poorer feed paddocks or simply losing condition.

“Now, not having any wethers, grazing crops gives us that bit of flexibility to provide good feed for ewes and lambs. Everyone has the same problem when it’s wet, cold, winter feed value is low and grasses are mainly water. We always hope for a good spring to get most of the growth and most of the weight on the lambs but the problem is that you can have too much feed in spring and not enough in winter. We need to be able to carry more sheep than we really should in the winter to enable us to have enough sheep for the spring. Grazing crops enables us to do that.”

“We have choices. We can supplementary feed during that winter period or graze the crops or do a combination of both, which is what we do. In a good season grazing of crops in spring isn’t needed so then we can harvest those crops. Otherwise we would have to run 20% less stock and then in the spring we have too much feed and it would be harder to keep the weeds under control.”

Weed control

Tom Hawker has found the most effective broadleaf weed control method in crop is spray grazing using a half rate of MCPA to sweeten up the weeds, encouraging the sheep to selectively clean them up.

“If you leave them in for that last month when the crop is actually maturing they will selectively graze and delay the flowering of ryegrass. We then spray with glyphosate, which is a good way to clean up the paddock for the following year.”

In pastures, weeds such as capeweed are also controlled with half rates of MCPA or Agryne (plus dimethoate for insect control) and grazing rather than the use of more selective herbicides. In paddocks with 40% or more clover, this method works well as the heavy grazing pressure keeps barley grass under control.

In pasture paddocks without a good clover base Tom has been sowing barley and a tetraploid annual ryegrass. He sprays the paddocks at the end of the normal seeding program, which has allowed the barley grass time to germinate and be controlled. The ryegrass is then sown at 10-15kg/ha and the barley at 50kg/ha. They are cross-sown relative to each other on 10.5” (262.5mm) spacing.

The barley provides good winter feed and the ryegrass provides late winter and spring feed. The ryegrass’ season is six weeks longer than the barley. This remains pasture and is not harvested.

Whole farm profitability with sheep as base

For Anama, sheep provide the base income which doesn’t vary much from year to year. “In a dry year we aim to get the same sheep income as we would in a good year so we can’t afford to reduce condition if we hope to finish lambs and still have enough feed to put more condition on the ewes prior to mating.”

Grazing crops means the sheep income can be increased by 15-20% and then maintained. The seasonal variable becomes the cropping program. That is the opposite of how the farm used to run.

“To maintain our sheep income, we need to have high lambing percentages by maintaining ewe condition and then be able to finish the lambs. We have to be able to get enough growth on lambs by weaning and then they are finished on the bean, lupin or barley stubbles. So from weaning in mid-October for the July lambs, if there is not enough feed some of them will go back onto barley crops and others will go back onto the best grass seed-free pastures.”

In the dry years there is obviously less crop yield but the sheep are getting the benefits of the cropping to maintain condition. The sheep income doesn't actually go up (from 30 to 45%), it's the crop income going down (from 70 to 55%) that changes the percentage.

How did you learn how to do it?

Crops were first grazed out of necessity in years when feed was short. Tom admits to being pretty nervous the first time they tried grazing wheat. "We were surprised to find that crops recover so quickly. Seven to ten days after grazing you can hardly tell. We have also found less disease after grazing barley because the sheep are eating the leaves with the disease on them. They just clean it up."

Tom Hawker's advisor is Mick Faulkner of Agrilink who has been very encouraging of his efforts to enhance whole farm profitability by working out how to effectively graze crops.

"Mick Faulkner has always had an open mind. He advises on the whole farm, not just crops. He realizes that everyone's interests in farms are different. We've been brought up with sheep; we have some non-arable country so we are always going to need them. He's always been open to that view."

Critical success factors and pitfalls

Problem paddocks, which are identified as having factors that can affect crop yield, are ideal starting points for grazing crops. Frost prone paddocks or those early sown paddocks with too much biomass are ones to look at. Early crop sowing programs are bound to throw up some paddocks where grazing can help keep the crop under control otherwise it would be too rank.

Paddocks with weeds are also good targets. Anama's busy time for livestock is when everyone else is making hay. They choose to produce minimal hay so use spray grazing instead to keep sheep fed and weeds under control.

Introducing crop grazing is a great way to be able to increase stock numbers on the same holding. It provides another option for times when feed is scarce or overabundant.

About 15ha is the ideal paddock size for grazing. If you want to do it over 100 ha you need to break it up, probably by electric or some other sort of temporary fencing. Once you get much over 30ha you get very uneven grazing. You can alleviate that with bigger mob sizes but it is going to be difficult.

Bigger mobs are all right on that first graze but once crops get higher they will find areas of the paddock they like and mow that down, leaving other areas untouched.

Tom says be aware that barley stands up to grazing much better than wheat. "For most wheat varieties, once you get into August it's too late to graze. With barley we just keep going depending on the requirements and the season."

Impact of grazing crops:

- Ability to increase and maintain higher sheep numbers
- Improved condition on the ewes for lambing and mating
- Higher growth rate of lambs
- Improved weed management
- Improved profitability of problem paddocks through weed control and better use of resources.
- Increased whole of farm profitability even when crop yields are reduced. Sheep more than make up for that on a long-term basis.
- Early grazing has minimal effect on yield

“In a normal season the crop area on which we will have an effect on yield is only a small percentage of the total crop area. We probably graze 10-15% of the crops in a normal year. Only 5% of that area would experience a detrimental effect on yield. In a dry year maybe up to 20% would be grazed, with 10% of the area having a significant effect on yield. For us there is no golden rule of thumb on how to do it. Flexibility is the key. Every year can be slightly different.”