

Case Study - Kim Norris, Esperance

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Summary

Name: Kim & Pam Norris

Location: Esperance

Farm Size: 3,500 ha

Species Sown: Lucerne, canola, cereals

Enterprises: Pasture Cropping

Soil Type: Shallow duplex

Average Rainfall: 500 mm



This paddock was established to lucerne in 2007 and over sown with canola in 2008.

Background

Esperance farmers Kim and Pam Norris have embraced lucerne with gusto, planting over 1,000 hectares in the last 3 years. But what's most interesting is that they don't have a sheep enterprise. That's right, they are planting large areas of lucerne but have no plans for sheep to eat it. Sounds crazy!

The main reason the Norris's are using lucerne is to control a large herbicide resistant ryegrass population. The deep roots and summer activity of lucerne will dry out the country, alleviating the waterlogging which so favours ryegrass.

They are also looking forward to some of the other benefits of lucerne including the suppression of summer weeds such as fleabane, the free nitrogen fixation, and the ability of its deep root system to recycle leached nutrients back to the soil surface. As well as the reduction in salinity that will come from a lower water table.

And rather than keep lucerne paddocks out of the cropping rotation for an extended period, they are cropping over the lucerne without killing it. This is similar to the "pasture cropping" technique practiced in NSW where annual crops are sown in to native perennial grasses.

No Sheep

The Norris's farm 2,400 arable hectares interspersed with 1,100 hectares of salt lakes, sand dunes and remnant vegetation. Average rainfall is 500 mm per year, with 30% in summer. They have had no sheep on the farm since 2000 and some paddocks have been continuously cropped since the 1980's.

Kim says he got out of sheep for a number of reasons. Firstly, for lifestyle reasons, so they could spend time away from the farm over summer and autumn. Secondly, to assist with timeliness in the cropping enterprise. And thirdly, to maximize profit, given the low returns from sheep in recent years.

Now that lucerne has been added to the program, some paddocks will be taken out of the crop rotation for a year to help clean up ryegrass. But rather than using sheep, a combination of oaten hay crops, mechanical topping and spraytopping will be used to control ryegrass seed set. Sheep will not be used due to a lack of internal fencing and the difficulty in agisting sheep on and off in a timely fashion. Sheep may be used occasionally however over summer and autumn to chew down the lucerne. The lack of internal fencing is less of an issue at this time of year.

One of the strengths of lucerne is its ability to handle desiccant herbicides such as Gramoxone, which Kim uses to control ryegrass seed set. The lucerne is burnt off by the Gramoxone but it quickly recovers. One trick that Kim uses is a double knock at crop establishment. But rather than SpraySeed following Glyphosate, he will use Glyphosate following SpraySeed. This will still give a good kill of annual weeds, but has little effect on the lucerne as there is almost no leaf area left after the Sprayseed application to absorb the Glyphosate. The lucerne needs to be robust and at least 12 months old with a deep root system to withstand this.

Establishment

Kim has established lucerne both on its own and under crops. His preferred method of establishment is under a Clearfield (IT) canola crop due to the lower opportunity cost. A sowing rate of 2 kg/ha is used for both lucerne and canola, with the seeds mixed and sown together. An air seeder fitted with discs and press wheels provides accurate seeding depth and minimal soil disturbance.

Continued



This paddock was established to lucerne in 2007 and over sown with an oaten hay crop in 2008.

The lucerne sowing rate is purposely kept on the low side. Kim says he only requires a moderate lucerne plant density to mop up excess water. A high plant density would negatively impact on crop yields when it is cropped in to in future years.

Even though establishing under a crop is the favoured method, Kim has still sown over 500 hectares of lucerne on its own.

In 2007, the 360 hectares that was planned for barley was pulled from the cropping program due to the very wet start. It was instead sown to lucerne in July following two knockdown sprays for weed control. But the large ryegrass seed bank means ryegrass just keep coming, so a grass selective spray, some mechanical topping, and a spray top with Gramoxone was needed in spring to control seed set of the later germinations. One area was sown with a 50 kg/ha cereal cover crop, which did not seem to compromise lucerne establishment.

In 2008, the very dry start caused Kim to pull a few more paddocks out of the cropping program. These were sown to lucerne in July when the rains finally arrived. But most of the lucerne established in 2008 was sown underneath a Clearfield (IT) canola crop. This was sown dry in May but Kim reckons the vast majority of lucerne and canola didn't germinate until July. Early germinating weeds were controlled in crop with a grass selective herbicide mixed with Raptor (for radish and broadleaf weed control), while later ryegrass germinations were controlled with Gramoxone applied at swathing. The only problem with the under-swath spraytop, is that tall ryegrass plants close to maturity will end up setting viable seed in the windrow. Kim is considering capturing the ryegrass



Lucerne is used to control salinity and waterlogging which cause these bare scalds lower in the landscape.

seeds in the header sample, and then grading them out, to remove these from the paddock.

Pasture Cropping

In a sign of what's to come, much of Kim's 2008 canola crop was sown into lucerne that was established in 2007. Prior to the canola going in the ground, the lucerne was mechanically topped before receiving a knockdown of SpraySeed. The canola varieties were mainly Triazine Tolerant (TT), so the knockdown also contained 1 L/ha of both Simazine and Atrazine. In-crop herbicides included an Atrazine top-up, a grass selective and some Lontrel, the latter causing some damage to the lucerne. Kim says there is a fine line between suppressing the lucerne and doing serious damage to the lucerne with Lontrel, so care must be taken. At swathing, Gramoxone was used to clean up late germinations of ryegrass.

In the future Kim also sees a time when every paddock will have been sown to lucerne at some stage. He realises that not every part of every paddock will grow lucerne successfully, but he will need to sow whole paddocks to achieve the impact on waterlogging and the other benefits he desires.

Kim says he is open to the use of other perennial species in his cropping system, saying that he was initially interested in growing a subtropical perennial legume but couldn't find one suitable for his conditions. This led him to lucerne, which in his mind is a bit too winter active for cropping in to without sacrificing some crop yield. But it is the best available option. He is considering the use of a subtropical perennial grass instead of lucerne, and will trial a small area in coming years.