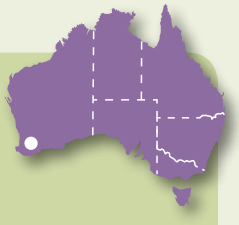
Lucerne proves a perfect fit

After a visit to Kojonup earlier in the year, Catriona Nicholls recently caught up with fourth generation farmers, Nick and Jane Trethowan, to see how the season was progressing and get the latest lowdown on their lucerne.

farm info.



Case study: Nick and Jane Trethowan

Location: Kojonup, Western Australia

Property size: 777 ha plus a further 700 ha leased

Mean annual rainfall: 510 mm (50-year average)

Soils: Heavy sandy loams

Enterprises: Merino sheep, canola, barley and oats

"I remember during the summer of 2001, when the pasture paddocks were all dry feed, looking at the side of the road seeing green perennial weeds like phalaris, paspalum and veldt grass," Nick said.

"This inspired me to look at perennials as a potential source of green feed over summer.

We first tried sorghum after a heavy rainfall event during December 2002. We dived in with a knockdown herbicide and seeded the crop, grazing it twice before winter.

The following year we were ready to try our luck again, but our farm adviser suggested we look at lucerne as an option because of its perenniality. He also felt it would be a better fit with our farming system, which already involved rotational grazing. So we grabbed it from there and ran with it.

Our adviser was right. Lucerne does fit in well with our system, mainly because we don't see rotational grazing as a barrier, like many more traditional livestock producers in our area. We have been rotationally grazing sheep for about 20 years.

Also, we were already growing canola and so were equipped with most of the tools to manage small seeds, including the direct drill technology and the knowledge that bug and weed control is critical — if you can grow canola you can grow lucerne.

Photo: Ben White

Lucerne has proved a perfect fit in Nick and Jane Trethowan's farming system, providing a vital source of green feed during summer for ewes and lambs, controlling rising water tables while fitting in nicely with their cropping rotation.

Exceeding expectations

Originally we didn't expect the lucerne to do much over summer unless we got out-of-season rainfall. We did expect it to extend the season — a few weeks before summer hit and then a few weeks after it finished, but we didn't think it would do much without a rain event. However, it has never gone dormant — we keep rotationally grazing it and it keeps growing back. We have tried some other perennials including an evergreen subtropical perennial mix and found it didn't work in our area — it was too wet and cold during winter.

I think we have learnt a lot through our failures. Even with the lucerne we've made every mistake you can make — from sowing on acid soil, to overgrazing and not controlling insects.

But as a result we know a fair bit about what it can and can't take.

The key management tools are to ensure the soil pH is right (5 or above), get insect control and grazing management in the first and subsequent years. It is critical to allow the pasture to regrow between grazings to allow the stand to persist.

We often have graziers interested in how we manage our lucerne, but most are using set stocking and the rotational grazing is seen as a huge barrier to adoption.

Companion cropping

The other big thing for us now, is companion cropping on top of the lucerne.

We did it for the first time, probably during 2004, putting some oats over lucerne as a fodder crop after hearing of others doing a similar thing.

At that stage, we had a heap of lucerne in and I felt it wouldn't be a drama if we stuffed it. But, it worked beautifully.

We grazed the oats that season, but it would have equalled at least an average crop if we had harvested.

Two years ago we direct-drilled canola into a lucerne stand and that equalled our average yield of 1.3 t/ha.

This year gone, we achieved a 5t/ha oat crop off the same paddock that was under canola last year and we are now seeding barley into the same paddock.

key points

- Lucerne is ideal for graziers who are prepared to rotationally graze their stock
- Weed and insect control is vital for successful lucerne establishment
- Lucerne can fit well with a companion cropping system, having little impact on yield.

Photos: Nick Trethowan INSET: Ben White

Lucerne and chicory planted September 2003, companion cropped with canola in 2006 (1.3 t/ha), oats in 2007 (5.1 t/ha) and planted to Baudin Barley May 2008. INSET: Clover self seeds and regenerates after cropping.

Multiple benefits

The benefits of lucerne are greater than just the inceased pasture production and green feed during summer.

Paddocks we used to get bogged in every year, we haven't been bogged in since putting them under lucerne.

We currently have about 130 ha under lucerne but will hopefully increase that this year along with other perennials such as tall wheatgrass and strawberry clover for our waterlogged saline country where lucerne is not an option.

In terms of lamb production lucerne gives the lambs a huge boost compared with the lambs without access to lucerne. I think the first year we ran lambs on lucerne they cut half a kilogram more wool per head.

We start lambing in early July through to the second week of August and the lucerne gives the lambs a great start after weaning.

We don't try to keep pure stands and I've noticed this year especially, the lucerne paddocks are full of clover, so we'll get a good winter pasture. We use winter active varieties, but they remain fairly dormant, so we want the clover and grass to be there.

When we decide to crop the lucerne we spray top during the previous spring using gramoxone and then rotational crop for two years. We then leave the lucerne out of crop for three years and the clovers regenerate.

The first paddock we put in during 2001 is still going strong except for a sandy seam with a low pH and it is mainly PL90 (winter active). We'll keep it going until it is too thin to use, but it is generally poor management that results in thinning.

We'll still have 10 plants per square metre and I consider that a good pasture. Some research suggests five plants per square metre will maintain a stable water balance."

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science behind the story

By Dr Perry Dolling, DAFWA

- **In the Kojonup environment there is a risk of waterlogging due to the amount of rainfall during winter. This reduces the productivity of pastures and crops and contributes to rising water tables. Nick and Jane have hit on an efficient way to use the excess water by incorporation of lucerne in their farming system. Lucerne can create a much drier soil leading into winter, ready to absorb large rainfall events. The soil deficit in autumn under lucerne is on average 60-90 mm more than the soil deficit under annual crops and pasture for the range of soils in this area.**

Lucerne is sensitive to waterlogging especially in the establishment year. However, Nick and Jane establish their lucerne in spring, after any waterlogging events, and by the next winter the soil is sufficiently dried to prevent any or limited waterlogging.

The Kojonup climate, like most of the agricultural areas in Western Australia, is Mediterranean so most rainfall falls between late autumn and early spring. However, summer and early autumn events do occur and you get a flush of growth from the lucerne. Nick and Jane have also found lucerne extends the growing season. This grazing is valuable during late autumn when there is not much pasture or stubble available and early summer when the annual pasture has died and stubbles are unavailable.

Lucerne requires some rest to maintain stand density and maximise production. It is particularly vulnerable to overgrazing by sheep because its crown can become exposed. This is especially so for the highly winter-active cultivars, as the crown is closer to the soil surface and is more exposed on sandy soils. It also has a limited ability to recruit.

Nick and Jane had been rotationally grazing before trying lucerne and this is one of the reasons it has done so well in their system. This is not to say you have to be a strict rotational grazer to grow lucerne – it needs some rest especially when it is not growing and for a short time in spring to replenish its reserves leading into summer but you can graze for longer periods.

Companion cropping, where a crop is grown over an established stand of lucerne, is relatively new for WA. Research in the low to medium rainfall areas has shown lucerne can reduced crop yield due to the competition for water during spring. We have not done any research in the higher rainfall areas, such as Kojonup, so it is encouraging that Nick andn Jane have been successful, with limited or no reduction in crop yield. Their success is probably due to the lucerne reducing crop waterlogging. A Kojonup winter is quite cold and lucerne has limited growth. This area also receives good spring rainfall to further support the growing crop.

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