

“The great thing about Sulla is how well it grows. The vegetative growth is fantastic! I expect this paddock behind me could yield 10 tonnes per hectare and trials have yielded up to twice that. It’s relatively easy to grow once you’ve got it established. How much better can you get than that?”

Sold on Sulla!

Written for Grain & Graze 2 by
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Yorke Peninsula farmer Trevor Polkinghorne is pretty excited about a relatively new forage legume he has been working with for nearly eight years on his farm near Ardrossan.

According to seed producer Wrightsons, Sulla is a legume that grows for two years from seeding and is described as biennial. Best suited to neutral through alkaline soils,

it is ideal for short pasture rotations in both mixed farming and livestock production systems. Sulla has a high yield potential and is highly palatable with excellent forage and fodder quality plus outstanding animal performance. It also has the added advantage of potentially fixing high levels of nitrogen. Unlike lucerne, Sulla is non-bloating and has reputed anthelmintic qualities, which may reduce worm burdens.

With a bent for all things mechanical, Trevor responded to a friend who asked if he could help him design a machine capable of extracting the Sulla seed from its leathery seedpod. “We were able to use an existing prototype and from there I have been able to develop a commercially viable machine to do that.”

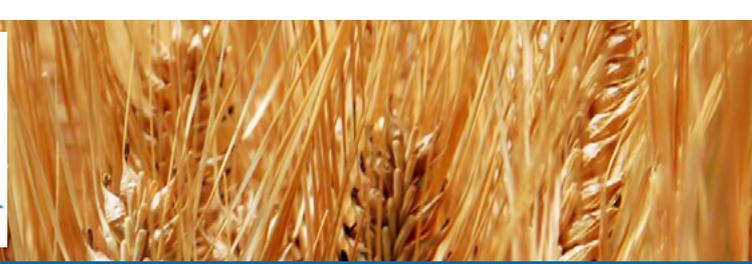
The Polkinghornes farm in 400mm rainfall country at Petersville with grey mallee to heavy clay soils. They also have some higher rainfall, heavier country at Arthurton. No-till continuous cropping has been practiced since 1994.

“We have been growing certified medic and lentil seed as one of our main farm operations.” Producing Sulla seed seemed like a logical next step.

Trevor says that Sulla is not high yielding in terms of seed production. “We get a lot flowers but not a lot of seed, maybe 200 kg per/ha. In a really good year we might get closer to 350kg/ha as a seed crop.”

That can make it expensive to provide seed but once it’s up and going all that changes. “Most of the fodder production here is for hay. I don’t have stock so it’s not my focus but the seed breeding that has been done is for livestock to eat in a pasture situation. Around the world it is mainly grown as a fodder crop.”





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Benefits of the crop

Trevor says Sulla has one of the best conversions of rainfall into vegetative growth he has seen. “This crop produces more biomass than I’ve ever seen any other crop produce; it is amazing! It will work well in a long term pasture situation.”

Plant growth

The plant grows for 2-3 years so once you have it established it is ready to go in the following season. “The deep rooted plants produce a rosette in March which just starts to grow. If there is any rainfall during that period it just encourages it to keep going, If you have the ability to irrigate or are in an area that gets that early rain, Sulla will just grow on from there. You don’t have to wait for the plant to start from seed again, it’s already got the rosette.”

Trevor’s advisor, Bill Long from Ag Consulting Co sees that as a real strength for the crop. “For a livestock producer Sulla will provide good growth early on in the season compared to a medic or other plant which doesn’t produce much until spring.”

“I have one stand that I have left from the original sowing. It’s into its 9th year and I see no reason why it will stop now. Most years I have harvested the seed or cut it for hay. The individual plants last for 2 - 3 years so as the generations cross over there are always both ‘juvenile’ and mature plants in the stand.”



“Ten tonnes/hectare is fairly easy for Sulla to produce and it just makes excellent quality legume hay”.

things we learned as part of the development of the crop. Initial recommended rates of rhizobium inoculant were far too low. The rates that you get with the seed now are adequate.”

Feed value for livestock

Trevor has seen hard grazed Sulla and says that it comes back from the crown rather than from the leaves. “Those farmers grazing it around Keith this year have put 300 lambs on 15 hectares for six weeks and were getting 480g production per day out of the lambs. They were just weaners, straight in. In the grower’s opinion it has been performing well.”

How do you grow it?

Inoculation

One of the important things to know about Sulla is that it doesn’t use any of the natural rhizobia in our soils. The first time an area is sown it is vital that good solid rates of Sulla specific inoculant is used.

“If you are doing it yourself there is no gain in skimping, use plenty! That was one of the



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Seed producer Wrightsons report: “the feed quality of Sulla is comparable to that of Lucerne, consistently producing fodder with high digestibility, protein and water soluble carbohydrates. Sulla is usually around 16% dry matter. Feed tests conducted during 2006 of green forage material showed the following:”

NDF	20-30%
ADF	17-25%
Lignin (as % of total NDF)	<20%
Crude protein	19-26%
Rumen degradable protein (% of CP)	70%
Digestibility	79-85%
Metabolisable energy (MJ/kg DM)	10.6-13.1

“The relative feed value is double that of ryegrass, meaning in a balanced ration animal production is anticipated to be increased.”

“Once the crop is established, the root nodules are quite large and the root system is massive. Sulla puts an enormous amount of nitrogen into the soil and through a depth of the soil as well.”

Establishment

“A seeding rate of about 5kg per hectare has been providing reasonable stands in the first year. That first year is very moisture dependent in terms of how early you can sow. The warmer it can be at seeding the better it will grow. Sulla’s development is first and foremost in root development. The top growth is a bit slow as an early plant but it does put roots down deep. That’s pretty good security if there is a bit of a dry patch where it can hang on quite well.”

In spring you’ll get more dry matter produced. But the second year is when Sulla really gets going. The plant becomes dormant over the summer months irrespective of irrigation or rainfall during those months. Sulla tends to store the available moisture so, that once conditions are right in the following autumn, growth rates can increase rapidly.

Pests

Insect pests have not posed much of a problem for Trevor’s Sulla crops. “In a pure stand I have rarely used any insecticides in the growing period. I do use insecticide in spring for heliothis grubs when I’m producing seed. For hay production, I’ve not had to spray unless there are host plants like capeweed that have a lot of red legged earth mite which can slow the Sulla growth down.

Weed Control

It’s always good to start Sulla growing in a clean paddock but Trevor says that most pre-emergent herbicides he has used, like trifluralin and Avadex seem to work well. Because he tends to grow pure stands for seed, broadleaf herbicides also have a place in Sulla production. “Metribuzin is probably the most useful herbicide I have tried. Once the crop is big enough I use 700g/ha of metribuzin over it. That is quite a high rate but it does an amazing job.”

“The Sulla starts off with spade leaves and then starts to change to more firm type leaves. As they develop, that is when the Sulla is safe to put the metribuzin on. We have also used Broadstrike but with high rates there is general shortening of the plants. If you have a pasture situation you need to be careful with that. Bedstraw will get through metribuzin, so a light rate of broadstrike can be useful.”

Varieties

Two Sulla varieties have been developed in South Australia out of Turretfield at this stage. Wilpena is a more erect version that is recommended for producers who are looking at intensive forage operations. “The

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Moonbi we grow here starts off as quite a prostrate version and, as it competes with itself, it lifts and is easy to cut for hay.”

Regrowth



This was cut for hay about 3 weeks ago and the regrowth is already coming from the crown of the Sulla plant. It is generally how it would regenerate in a heavily grazed stock situation; coming right in from the butt of the plant.

Hay production



Trevor Polkinhorne and Bill Long inspect a bale of Sulla hay. Trevor says, “when I first saw Sulla go into a bale I thought – this looks very sticky and quite coarse for stock. However, there is still quite an amount of leaf material in there and weaned lambs will need hardly any introduction and will just clean up the whole lot.”

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Harvesting / Seed production



Sulla seeds and pods

The tricky bit of harvesting the seed has occupied much of Trevor's time working out how to effectively remove the seed from the seed pods.

"The pod is quite leathery. You have to be gentle with it but still be able to get the seed out and that has been the difficulty. Traditional thrashing systems are very harsh, with hammer type action, and we had to develop something to do that completely differently. We have had to develop a new stationary soft thrashing machine for that purpose. We harvest the Sulla pods with a normal harvester, bin it or bag it and then thrash it. You can use this not yet inoculated

seed to regenerate an existing Sulla paddock because you have already got the rhizobium in the soil."

Considering Sulla?

Advisor Bill Long is enthusiastic about Sulla and admires the efforts that Trevor has put into his success thus far. "I see this crop as having fantastic potential. It produces so much dry matter compared to any other legume species. That's its big advantage, quite clearly. It's not only suited as a grazing crop but it could also work well as a hay crop. The potential returns of this crop producing tonnes of high quality hay are sensational for a continuous cropping system. Sulla will tolerate a range of herbicides which means we can manage a lot of those problem weeds."

"If I was a livestock producer I'd be planting Sulla to fill that early feed gap. The early biomass production in that second and third year is sensational and will provide a great opportunity for a livestock producer and for a continuous cropper where hay is an option."

"Sulla is easy to grow. It costs a few bucks to get established but once it's there you've got it for a number of years if you manage it well."

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