

## Farmers' experiences with biserrula

### *Nitrogen*

John and Gordon look at biserrula as growing their own nitrogen with the recent fertiliser prices. They decided to do this before the price hike when three years ago they were able to grow a canola crop on 30 kg of Agstar per hectare. 'We decided that it was a cheap option to use the biserrula before canola and then afterwards to replenish the soil and felt that subclover wasn't able to produce enough nitrogen in comparison to biserrula'.<sup>16</sup>



**'We are controlling the resistant ryegrass by grazing biserrula' <sup>16</sup>**

Interview by Natalie Hogg on 16<sup>th</sup> October 2008

## Farmers' experiences with biserrula

### 'Biserrula proves to be a winner for intensive cropping'

Stokes

#### Key messages

- During the dry years the biserrula set seed, whereas our subclover hasn't set seed for four years.
- Biserrula is another tool to control weeds without having to use chemicals so we will have it for many years to come.
- To an extent we are growing our own nitrogen, we haven't decreased our fertiliser inputs but we are getting better yields.

#### Background

Twelve years ago the Stokes family introduced biserrula onto their farm Mt Erin. It began with a small trial and was followed with a 40 ha paddock. Biserrula was introduced primarily for cropping benefits: weed control and rotation, as their cropping rotations were too intensive for subclover. Other benefits are now being realised with biserrula being an excellent substitute for subclover which has not set seed for four years due to the dry years.

#### Farm statistics

Location: Chapman Valley

Farm size: 3800 ha

Rainfall: 450 mm

Enterprise: crop 60 %, pasture 40 %

Stock: usually 5000 but due to the dry years 2000 sheep

Area to biserrula: 260 ha. This year 120 ha regenerating, 100 ha under crop and 40 ha being sown

Soil type: sandy loam

#### That first year

Preparation	Weeds controlled with a knockdown
Sowing rate	3–5 kg/ha
Technique	Air-seeder with knife points and rotary harrows
Fertiliser	Nil
Stock	Let pasture grow a little and then grazed it to late winter

## Farmers' experiences with biserrula

### Management

#### *Rotation*

Pastures are being improved on Mt Erin, mainly for benefits in the cropping rotation. 'Our rotation is too short for subclover so we have gone with biserrula'.<sup>27</sup> Jason is finding that biserrula is working on the unproductive paddocks. Jason believes that if they didn't have sheep they would still grow biserrula, they would just green manure it.

#### *Grazing*

Photosensitivity is easy to manage with rotational grazing:

- Biserrula can be grazed earlier than other legumes.
- Early in the season graze rotationally two weeks in two weeks out.
- During winter graze rotationally five weeks in seven weeks out.
- At flowering remove stock and put them back when pods have formed.
- Have a volunteer pasture or standing out crop for stock to move too.

#### *Pest/disease*

Jason says that aphids need to be controlled; otherwise seed set can be limited, which means less regeneration in following years. 'The impact aphids have depends on when they attack'.<sup>27</sup>

### Benefits

#### *Livestock*

Biserrula has helped to improve pasture quality and as a result Jason is increasing stocking rates. Biserrula can be grazed earlier than other legumes in autumn which is seen as an enormous advantage by the Stokes family.

#### *Weed control*

Grazing pressure for radish control is achieved in smaller paddocks however in larger paddocks it is not that easy. Jason says 'the sheep eat the radish pods and leave the biserrula' and believes that it is really a useful non-chemical control for radish and other weeds, which saves on herbicides.

'It is best to aim to control the broad-leafed weeds with stock'.<sup>27</sup>

#### *Nitrogen*

The Stokes family think that the production of nitrogen has been a bonus 'we haven't decreased the amount of fertiliser we are buying but we are getting much better yields'.<sup>27</sup> Looking at past soil tests with recent ones Jason has seen that soil nitrates have gone up which allows them to slowly begin reducing nitrogen inputs and to begin addressing trace elements which will help soil fertility.

## Farmers' experiences with biserrula



'Biserrula helps to restore unproductive paddocks'<sup>27</sup>

### Difficulties

Extra monitoring of stock and rotational grazing is required. As the Stokes have a laneway the need to move stock more frequently is not a problem but Jason says that he can see how it may be an issue on other farms without a laneway. 'If other growers don't have a laneway they can have volunteer pasture paddocks adjacent to the biserrula paddocks, so stock doesn't have to be moved far'.<sup>27</sup>

### Economics

'... is difficult to put a monetary value on the biserrula as it provides long-term farming system benefits. We feel that we are producing 'spare' nitrogen which is reducing the amount of nitrogen that needs to be added to the paddocks'.<sup>27</sup>

'How do you put a dollar value on the extended life of chemicals?'<sup>27</sup>

Interview by Natalie Hogg on 15<sup>th</sup> October 2008

## Farmers' experiences with biserrula

### 'Biserrula helps to control resistant ryegrass'

Chambers

#### Key messages

- A three-year non-cereal phase helps control group B-resistant ryegrass.
- The biserrula pasture tolerates more stresses than a volunteer pasture, it is able to set seed through most circumstances: dry years and heavy stocking.
- Biserrula provides some good quality early feed.

#### Background

Andrew Chambers and his wife Jennifer wanted to grow something on their property Yoorooga that would not require to be sown each year and would help with grazing the weeds out. Biserrula was the answer. In 2000 Andrew first tried to address the group B-resistant ryegrass with biserrula targeting the worst paddocks. He has increased to 1000 ha by sowing a new paddock each year. Rotations have varied but to get good ryegrass control Andrew suggests to withhold growing a cereal crop for two to three years.

#### Farm statistics

Location: Ravensthorpe

Farm size: 5000 ha

Rainfall: 400 mm

Enterprise: crop 85 %, pasture 15 %

Stock: usually 2000

Area to biserrula: 1000 ha

Soil type: duplex sand over clay, sandy gravel over clay and grey clay

#### That first year

Preparation	Knockdown
Sowing rate	Scarified biserrula @ 5 kg/ha and Cadiz @ 3 kg/ha (to get bulk)
Technique	Air-seeder
Fertiliser	MAP or superphosphate @ 50 kg/ha (starter P application)
Stock	Stocked by September

## Farmers' experiences with biserrula

### Management

#### *Grazing*

Andrew has two adjacent biserrula paddocks and rotates sheep from one to the other. Weeds are available when stock is moved to the rested paddock, which lowers the chances of photosensitivity developing.

### Benefits

#### *Livestock*

At one stage Andrew had 1800 lambs on 150 ha and believes that biserrula tolerates more pressure than a volunteer pasture.

#### *Rotation*

'With a pasture you want to be able to do up to five years crop and still have it come back'.<sup>8</sup> Andrew says that he has seen biserrula do this well, whereas subclover is declining under heavy cropping. Andrew would still grow biserrula even without sheep, he would green manure it.

#### *Weed control*

Andrew is finding that weed control with biserrula is successful as his ryegrass numbers are down. He has tried different rotations but feels the need to stick to three years of non-cereal in order to do a better job of controlling the resistant ryegrass (group B).



**'Biserrula is a persistent legume that I use to control resistant weeds in my intensive cropping rotation'**<sup>8</sup>

#### *Nitrogen*

In 2007 Andrew had a mix of serradella and biserrula, which was followed by a 1.9-ton canola crop. Andrew was impressed with this as he normally has to apply more fertiliser.

### Difficulties

'I have had some great stands of biserrula however some have had heaps of turnip through it. To clean it up though we put the weed-wiper through it which is working well'.<sup>8</sup>

Interview by Natalie Hogg on 11<sup>th</sup> February 2009

## Farmers' experiences with biserrula

### 'Improving the stocking enterprise and increasing profits'

Niven

#### Key messages

- One year of biserrula produced enough nitrogen for a barley and wheat crop.
- Biserrula allows easy weed control with stock, controlling up to 90 per cent of the weeds.
- It is important to monitor biserrula, not just for photosensitivity but for aphids too.

#### Background

Biserrula was first sown by Alf Niven and his wife Maria in 1998 with the hope of finding a suitable alternative to Dalkeith subclover. Since its first year the 40 ha paddock has been biserrula, except for 1999 and 2000 when Alf grew barley and then a wheat crop maintaining yields without applying additional nitrogen fertiliser.

#### Farm statistics

Location: Carnamah

Rainfall: 375 mm

Enterprise: Crop 60 %, Pasture 40 %

Area to biserrula: 40 ha

Soil type: grey clay to grey coarse sand loam with some gravel

#### That first year

Preparation	Knockdown prior to sowing
Sowing rate	3 kg/ha
Technique	Spread seed and lime then tickled it in with combine and harrows
Fertiliser	Lime @ 1 ton/ha
Stock	5 sheep/acre 2 weeks after sowing, with stock struggling to keep up

## Farmers' experiences with biserrula

### Management

#### *Grazing*

Alf believes that it is valuable to have green feed available from biserrula for an extended period at the end of the season, in comparison to subclover. He also said that he '... has been able to increase stock numbers, as it does not struggle with stock on it like subclover does'.<sup>18</sup>

In his experience, biserrula produces more biomass than subclover.

#### *Pest/disease*

Alf believes that it is necessary to spray for aphids early when they are first observed otherwise 'you can see your whole stand disappear'.<sup>18</sup> Alf learnt the hard way in 2008 'we had a magnificent stand of biserrula, looked to be the best we have ever had. We had a long dry period in July–August. It looked as if the biserrula was beginning to turn so I just waited for rain. I went and checked it and realised that it was aphids, but it was too late to spray and the aphids did a lot of damage'.<sup>18</sup>

### Benefits

#### *Persistence*

With recent dry years, false breaks and increased summer rainfall, Alf believes that it is the hard seeds that are saving the biserrula and why it is working for his system.

Alf thinks that '...you don't seem to need a lot of seeds for the biserrula to persist'.<sup>18</sup> Some years we have only had around four seeds per pod, which is a disaster for harvesting reasons but it seems to hold itself for regeneration. Due to its very hard seeded nature and seeds not germinating until the second year, biserrula is able to persist well after years when there has been limited seed production.

#### *Livestock*

'I have been able to increase stock numbers and I have the ability to 'load it up' with sheep when it starts to go off, so that they can get the feed'.<sup>18</sup>

'It doesn't struggle with stock on it like subclover does. I have had more success with biserrula in regards to biomass production in comparison to subclover, which has resulted in fatter sheep where I can make some extra money'.<sup>18</sup> He doesn't doubt that Dalkeith has good biomass but when biserrula is eaten back it goes back to how it was, which is good to extend the feed available.

## Farmers' experiences with biserrula

### *Weed control*

In Alf's biserrula paddock the weeds are controlled with the stock, which has resulted in a change in pasture composition, with biserrula becoming dominant. However this does vary from year to year, depending on the season. Alf has seen 'the sheep clean up 95 per cent of the weeds; they eat the cape weed down to the roots'.<sup>18</sup>

### *Nitrogen*

Biserrula in the first year produced enough nitrogen for the following two cropping years. 'We didn't add any extra nitrogen and they did well. It is not unusual to get a 3–4 ton crop after the biserrula if we get the rain. The nitrogen from the biserrula is worth a lot, especially with the fertiliser prices of late (early 2008)'.<sup>18</sup>

### **Difficulties**

The only problem Alf has had has been with aphids. 'On the first sighting of aphids you need to get out and spray them, as they can reduce your seed set and green biomass considerably'.<sup>18</sup>

Interview by Natalie Hogg on 10<sup>th</sup> September 2008

## Farmers' experiences with biserrula

### 'Using biserrula to control barley grass'

Munckton

#### Key messages

- Pasture composition has changed, with barley grass disappearing.
- Biserrula is producing nitrogen and the money saved from nitrogen is being used for potash which is making the whole farming system more viable.
- Biserrula is helping with the control of resistant ryegrass.

#### Background

John Munckton and his wife Joan farm a 560 ha property, Woodlands, near York. John started growing biserrula in 2004, sowing only 12 ha due to the late break to the season. The following year though John chose three dirty (weedy) paddocks and established biserrula in a mix with serradella. In the future John hopes to use the biserrula paddocks in a 'year in year out' rotation, which he has wanted to do from the beginning but because the pasture has been so good he has been reluctant too.

#### Farm statistics

Location: York  
Farm size: 560 ha  
Rainfall: 450 mm  
Enterprise: crop 60 %, pasture 40 %  
Stock: 1000 sheep  
Area to biserrula: 85 ha  
Soil type: gravelly sand

#### That first year

Preparation	Heavily grazed out all of the weeds, grass-selective herbicide
Sowing rate	Scarified seed sown in late June
Technique	Combine, scratched it in with DBS modules and followed with press wheels
Fertiliser	Potash on the light country
Stock	Grazed lightly removing stock at flowering

## Farmers' experiences with biserrula

### Management

#### *Grazing*

Grazing is the main use that John has for the biserrula paddocks. He feels that he has better quality grazing due to the biserrula. To avoid photosensitivity John has an adjacent paddock where he can move stock to.

#### *Pest/disease*

John says that you need to look out for aphids and control them if they are present.

### Benefits

#### *Livestock*

'I have been able to increase stocking numbers substantially. I have doubled my flock'.<sup>17</sup> John thinks this is due to better pasture management. 'We now have 500 ewes and 500 lambs on 82 ha. I also feel that the fertility has improved; they seem to be healthier overall. Wool micron has also come back a bit, which I was surprised about'.<sup>17</sup>

#### *Weed control*

John's pasture composition has changed; the barley grass, which was a problem, has disappeared. The biserrula is also helping to control the resistant ryegrass, which is a huge plus'.<sup>17</sup>

#### *Nitrogen*

'The money that I am saving on nitrogen I am using for potash for my pastures which overall is making the farming system more viable'.<sup>17</sup>

### Difficulties

The only difficulty that John has had is the control of capeweed. 'It is the only weed that I have to be worried about'.<sup>17</sup>

Interview by Natalie Hogg on 30<sup>th</sup> September 2008

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