

# GRDC NORTHERN PULSE CHECK



Speaking from experience... a pulse grower case study

## Nitrogen gains and a disease double break from a larger pulse rotation



Sandy and Roy Hamilton in a CBA Captain<sup>®</sup> chickpea crop.

Roy and Sandy Hamilton grow pulses after wheat and followed by canola to achieve a double break. They have observed a nitrogen benefit for the crops that follow.



### SNAPSHOT

Roy and Sandy Hamilton

**Growers:**  
Roy and Sandy Hamilton

**Location:** Rand

**Farm size:** 4400 ha

**Long-term average annual rainfall:**  
450 mm

**Soils:** Highly variable, ranging from red loams to heavier red brown earths.

**Soil pH:** Red loams 4.8 – 5.2 CaCl<sub>2</sub>, heavy soils 5 -5.8 CaCl<sub>2</sub>

**Enterprise:** Broadacre, mixed farm

**Pulse Crops:**  
Faba beans and chickpeas

**Roy Hamilton runs a family mixed farming operation at Rand with his wife Leanne, his son Sandy and daughter-in-law Sara, as well as their full-time employee, Bryce.**

### **What types of pulse crops have you grown?**

We have grown lupins, field peas and faba beans on and off for 20 years. However, in the past eight years, we have expanded our pulse program. Faba beans are now our primary pulse, with lentils grown for the first time in 2018 and chickpeas grown for the first time in 2019.

We will continue to plant some chickpeas to improve our knowledge on how to grow them, and see if we can make them work in this southern environment. In 2020, we grew 300 hectares of faba beans and 140 hectares of chickpeas. In 2021, we will sow 400 hectares to pulses: we will sow the faba beans on the heavy soils and chickpeas on the lighter soils. The breakdown of pulses will also depend on the gross margin of both crops.

### **What are the benefits you have seen with a pulse crop in the rotation for your farming system?**

Gross margins for faba beans on average have been lower than wheat (\$100/ha), and more volatile than canola and wheat. However, they have nitrogen benefits to the following crop and give a double break for weed and disease. The faba beans have surprised us in how they have been able to yield in the dry years (decile 1-2) of 2018 and 2019, when they yielded about 500kg/ha. We thought they would perform well in wetter years (faba beans averaged 3.75t/ha in 2020); we weren't sure how they would go in drier seasons. We are going to further evaluate chickpeas in our program, however the lentils have not performed well over the last two years. A small trial area of chickpeas yielded 0.6 t/ha in 2019 and a larger area averaged 2.6t/ha in 2020.

### **What are the challenges with growing these pulse crops?**

Waterlogging is a problem in wetter years in the flatter Riverina area. For example, in 2016 our faba beans yielded only 1 tonne/ha due to extensive waterlogging during flowering and pod fill.

Disease management can be a big challenge, however there are many resources that are very helpful, such as GRDC publications and the Pulse Australia Fungicide Program.



Chickpeas podding



CBA Captain left vs Neelum right

In dry years, harvesting beans has been problematic with lots of pods falling on the ground because there was not enough material to push beans through the header. When the pulse crops are low to the ground, the cutter bar is shattering the lower pods, causing high losses at harvest. Lentils were also difficult to harvest, being very low to the ground. In 2019, we noticed that if we harvested the beans while damp after rain, the front losses reduced dramatically. We expect that CBA Captain chickpeas will be easier to harvest in a low-rainfall year; their erect habit means that the lower pods should be higher off the ground than other chickpea varieties.

In the favourable season of 2020, the chickpeas and faba beans had a higher amount of material to feed through the header, making them easier to harvest. Also, the lowest pod height was higher compared to low-rainfall years.

### **Did the pulse crops fit well with other crops in the rotation?**

Pulses are usually grown after wheat and followed by canola to achieve a double break. The bean stubble also provides a good food source for the sheep after harvest.

We have observed a nitrogen benefit for the following crops. We have also observed a water legacy: the pulses seem to leave carryover water for the following crop.

### **What is your experience marketing pulses?**

Marketing support is very limited in this area; we use Market Check in Sydney. Regionally specific advice is very limited due to the small amount of pulses produced in the region. We need to have more interaction with the food processors and the intensive animal industry to see where pulses fit.

We think patience is important in marketing pulses, therefore good permanent on-farm storage is an important part of growing pulses.

### **What advice would you have for new or inexperienced pulse growers?**

Disease is an issue in faba beans, but can be controlled if you are proactive and use the knowledge that is there. Over time, the varieties have improved, giving us better options. Paddock selection is important: things to be aware of include sodicity, acidity and soil texture. For example, faba beans seem to prefer soils of a heavier texture, while chickpeas like freely drained soil.



Harvesting Beans



Dan Zinga, New Edge Microbials and farmers discussing nodulating pulses at a Rand pulse check group

## What extra support do you need to keep pulses in your farming system?

It's good to have validation from other growers who are having success with pulses, which we have done in the Riverine Plains Pulse Check crop walks. In the future, something like an association of pulse growers, where pulse growers can ask questions and exchange ideas using one of the social media platforms. This would allow experienced growers to mentor growers who are new to growing pulses.



Chickpeas and beans side by side at a Rand Pulse check meeting

## Has the Pulse Check discussion group helped in dealing with any challenges, and given you a better understanding of pulses?

The Riverine Plains Pulse Check group has been beneficial, because it allows like-minded people to share ideas. For example, we first learnt about dry inoculation from other farmers at a Pulse Check meeting. This gave us the confidence to try it ourselves. We have adopted this system and it works well for us. The Pulse Check group also gave us good information from industry such as Dan Zinga from New Edge Microbials, who spoke about getting inoculation right. Having a well-facilitated event and being able to stand out in the paddock and see how the crop is grown successfully gives you the confidence that it can be done. Growers that are new to pulses can observe the success of others and give it a go on their own farm.

Going forward, the challenge is to actually quantify the long-term farming system benefits of having pulses in the system. For example, it would be good to set up and measure some long-term, paddock demonstrations based on the GRDC farming systems trial at Urana.

The GRDC Northern Pulse Check project supports and develops strong profitable pulse production systems across the GRDC Northern Region. It seeks to engage with grower, researcher and industry stakeholders to encourage greater sharing of information, through a range of pulse-related extension and communications activities.

