



Harvestability of grain legumes

Leon and Sarah Clarke, Lake Grace, WA.

Introduction

Situated in Lake Grace, the Clarke farm is 8,000ha and their paddocks span a complex mosaic of soil types, lake bank morel sodic soils, heavy salmon gum clays, gravels, and sand-over-clay profiles.

The Clarke family have been total cropping since 2004 and include 1,000 -1,500ha of break crops annually in their rotation which includes legumes or chemical fallows.

Sowing dates have shifted earlier over the years. **"We used to sow lupins late April, but we found they do better earlier than that. If the soil's warm, they jump out of the ground,"** Clarke explains. **"Frost's always a risk, but most of our lupin country is on the higher ground."**

Growing Legumes

Variety Difference

"Jurien yields well, but it's a nightmare for shatter," Leon said.

"If you get a hot wind after desiccation, you'll see them on the ground. Coyote's better on duplex soils, and we have tried Gunyidi, but Jurien's the best yielder."

Other Legumes

The Clarkes have trialed many legume species including chickpeas, faba beans, field peas and more recently lentils. The thought with the lentils is that they appear to have a longer flowering window so they hope they are less risky to a frost event.

Chemical Fallow

Leon said they have a big focus on sustainability and the inclusion of legumes and chemical fallow help with this - **"it gives the paddock a break from disease and weeds, so it's important to have a legume in the rotation."**

The large chemical fallow system is used to conserve moisture for the following crop and estimates the crops following a fallow yield 20-35 per cent more.

Crop Desiccation

Lupin desiccation is used by the Clarkes where the crop is uneven or weeds are present pre-harvest. The issue Leon finds with desiccation is that there is less flexibility of harvest timing as they will shatter more easily.

Harvesting Legumes

Harvest Machinery

To mitigate loss, Clarke harvests at night when conditions are cooler - **"If it rains before harvest, lupins don't shatter as much,"** he said.

Leon runs two Case IH 9250 headers, both fitted with DI45 MacDon draper fronts.

"They're not perfect for legumes, but they were the best all-rounders at the time we purchased them," he said.

"We're constantly adjusting header settings, mainly ground speed- trying to find the lesser of evils when harvesting lupins."

Flex fronts are on the radar, especially if lentils stay in rotation. Lifters were trialed but shelved.

"They're okay but you are harvesting on the deck and you can bend a lifter up or hit something with the risk of feeding it through the header," Clarke said.

Being vigilant at harvest time with monitoring harvest losses and making adjustments is vital said Leon.



Key Players

This project was conducted with the following partners:

- LIFT- local grower group leading the trial
- Grower Group Alliance (GGA) – project management
- Department of Primary Industries and Regional Development (DPIRD) – technical support and funding partner

"Frost is the biggest issue with growing legumes, next is harvesting them."

Rotation benefits

The inclusion of a lupin in the rotation is to give paddocks a weed and disease break plus improving the soils nitrogen supply.

Nitrogen decision following a legume Post-lupin, Leon favors growing canola.

"It's highly responsive to nitrogen," he explains.

"We do soil tests before the season, use NDVI imagery, and run protein monitors in the headers. Since 2022, we've had CropScan Ag in both machines."

Variable rate nitrogen is now standard practice.

"We're watching and recording everything," Clarke said.

Leon uses CropScan Ag's protein monitors in his headers to create nitrogen prescription maps for the following crop.

Highlights

Mixed soil types: Leon has tried growing a number of different legume species with lentils being the most recent for some of his heavier land.

Protein monitors: The headers are fitted with protein monitors which then enable nitrogen prescription maps to be generated.

Frost: Choosing to grow lupins and early sown crops on higher, less frost prone helps with the risk but admits it's always there.