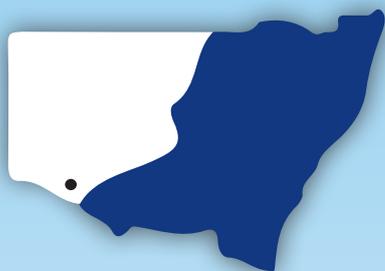


# Summer fallow management

## Bennington Station

### CASE STUDY



#### Location

Euston

#### Property name

Bennington

#### Owners

Luke and Teneille Follet

#### Enterprise mix

Wheat, barley, vetch and sheep

#### Property size

16,000 ha

#### Average annual rainfall

320 mm



Figure 1

*Bennington has been in the Follet family since 1927. Luke and Teneille are fourth generation farmers in the area.*

#### Reason for changing management practices over the summer period

Luke and Teneille noticed that in farming systems where there were multiple cultivation events in each season, the level of erosion over the summer period was very high. This resulted in valuable topsoil being lost, reducing the productivity of their property.

Luke and Teneille have also changed their cropping rotation to better manage the fallow period.

This was due to Luke observing a large weed burden resulting from the traditional two year rotation where a crop was grown in the first year and then the second year was a fallow.

To better utilise moisture and nutrients, he explored additional ways to manage the rotation.



## The problem

Due to the highly variable rainfall in the region, risk is a major factor in cropping enterprises. This risk is driven by moisture levels. In traditional tillage systems, production is largely reliant on rainfall received. To improve production at Bennington, Luke and Teneille were looking for a way to better manage subsoil moisture over the summer period.

In addition to this, large areas of bare soil that result from a cultivation event are predisposed to a high erosion risk. When wind erosion occurs it removes the top soil taking a large proportion of the nutrients required by plants with it.

## The solution

To reduce erosion risk over the summer fallow and maintain ground cover at Bennington, Luke and Teneille have changed to a complete minimum tillage production system. This means there are no cultivation events in the production cycle.

Weeds are controlled using chemicals, and each year a crop is directly sown into the previous crop's stubble.

An additional component of this management strategy has been the introduction of a new crop rotation cycle:

- year one - vetch
- year two - wheat
- year three - wheat
- year four - barley, then return to year one.

This has removed the year-long fallow period from the rotation to maximise productivity.

Luke believes that in a fallow year the paddock will only grow weeds, which takes valuable moisture and nutrients that could be used by a growing crop.

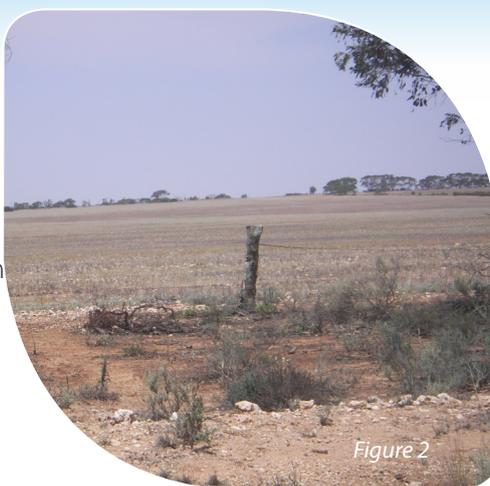


Figure 2



Figure 3

## Benefits

At Bennington there has been a noticeable increase in subsoil moisture retained through the summer period. This increases the chance of a successful germination early in the growing season.

Increasing the variety in the rotation has allowed for a wider sowing window, which assists in managing the risk of frost.

By retaining stubble and ground cover over the summer fallow period, valuable topsoil nutrients are retained which reduces the input costs in subsequent seasons. In addition, it maintains the soil structure, which is particularly vital in this variable climate. It allows Luke to plan his sowing period ahead of time which means rather than waiting for a rain event, they can sow according to the date on the calendar.

## Barriers

The nature of the management change implemented at Bennington meant that generational change was a major factor in implementation.

Cost was also a barrier due to the machinery upgrades that were required to implement a minimum tillage system. This requires specialised seeding equipment and tractors with more power capability. Weeds also need to be controlled by chemicals, which can be expensive and require specialised equipment to use.

## Overcoming barriers

The initial cost barrier was overcome through the assistance of conservation incentive grants to support the transition of machinery from traditional tillage to conservation tillage.

This allowed Luke and Teneille to compare the two different types of management over a three year period.

They discovered that on average over the three years, the minimum tillage system was achieving a 0.3 to 0.4 tonne per hectare benefit in yield over the traditional tillage system. The increase in productivity justified the need for change, along with the benefits to summer ground cover management.

## Next steps

In the future Luke and Teneille are looking to optimise the nutrition of their crops. This is particularly important in this traditionally low input system to manage the risk associated with rainfall.

Luke and Teneille are always looking to improve their variety selection and trial new options, for example using long season wheat to manage the autumn feed gap in their sheep enterprise.

## Figures:

Figure 1: Example of a crop sown directly into the previous year's stubble.

Figure 2 and 3: Example of stubble cover retained to protect the soil surface from January (Figure 2) through to April (Figure 3).

## For more information contact:

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