

Break crops in medium rainfall locations: Case study 3

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Trevor Syme moved from East Coorow to Bolgart in 1994 with his father John to establish a farm on what was considered by many in the district as one of the most difficult to manage. The property has highly variable soil types ranging from seams of gutless sand to red

loams and gravels across the undulating landscape. The shift also meant a change in rotations, and more recently, a total removal of sheep from the farm.

Trevor had noticed how sheep camped on the bare areas each summer which exacerbated wind blow outs. He reduced sheep numbers in the interest of better time management, less soil compaction and erosion and improving the overall farm budget.

A no till farmer since the late 1990s, Trevor is interested in finding ways to improve the organic content of their soils. He believes rotations will play an equally important role as tillage practices and conservation measures across their farm.

Changing systems

At first they stuck to a wheat-lupin system that had served them well at Coorow. But by the late nineties lupin yields began to decline, herbicide resistance was building up and diseases had become more of a problem.

The introduction of oaten-hay into the system was the first step to extend the break between lupin crops to two years. Hay was also very effective at reducing weeds and providing an alternative in frost prone paddocks.

The Syme's rotation on the better soils is currently lupin-wheat-oaten-hay-wheat and now canola has been introduced back into this system.

The recent high price for canola has attracted Trevor back into the crop in 2008 and the new varieties hold promise for him to stick with a limited area in coming years.

On the lighter land, barley or oats for

grain replace the hay and brown manuring will have a bigger role with the sheep gone. Trevor is also experimenting with a lupin-oat mix this year to be brown manured and he is interested in seeing what benefits it brings to the system on lighter ground.

Break crop choice

The key factors that influence crop choice for the following year are:

- Previous history;
- Weed issues;
- Disease levels; and,
- Gross margins.

Trevor believes oats are a good break for wheat and estimates the yield benefit could be as much as half a tonne per hectare. He attributes this to weeds and disease effects



Trevor Syme believes the right rotations and tillage practices will help to improve the organic content of their soils.

(Photo: Peter Maloney)

THE CASE STUDY FARM

FARMERS

Trevor and Renae Syme, Bolgart (about 250 km north-west of Perth).

ENTERPRISES

Grain (cereals, lupins canola and hay).

AVERAGE ANNUAL RAINFALL

400 mm.

AVERAGE GSR

320 mm.

SOIL TYPE

Highly variable, sand plain with some deep grey sands, limited gravel and red loamy pockets.

SOIL pH

Now 4.5 – 6.5 average 5.4 (CaCl₂).

FARM SIZE

2700 hectares.

DYNAMIC CROP SEQUENCES

The Department of Agriculture and Food Western Australia (DAFWA) in partnership with farmers, grower groups and the GRDC has been very successful in developing the lupin, pulse, oilseed and oat industries. Through applied agronomy projects focused on each of these commodities, robust management packages have been developed and a rigorous understanding of the factors driving their adoption has been gained.

The principles providing the foundation for these management packages apply to farming systems throughout southern Australia. In conjunction with *Australian Grain*, DAFWA presents a series of farm case studies outlining the practical and profitable inclusion of break crops into various southern Australian farming systems.

Dr Peter White, Project Manager, DAFWA

TABLE 1: Typical crop mix at Syme's farm as a percentage of arable land

Wheat	Barley	Canola	Lupins	Oaten-hay	Pasture
40	15	10	20	10	5

TABLE 2: Various break crop benefits

Lupins	Oaten-hay	Canola
Nitrogen residual	Frost risk management	Weed bank reduction
	Disease reduction	Disease break for cereals
	Effective weed control	

WA grain freight review

Parliamentary Secretary for Western and Northern Australia, Gary Gray, recently released the independent review undertaken to determine ways to improve the effectiveness of the Western Australian grain rail network.

The review analysed the findings from the WA Grain Infrastructure Group (GIG) Report – commissioned by the WA state government in 2004 – to determine if its investment strategies were still valid for the medium to long term.

The key findings of the review are:

- The GIG report does not provide a reliable basis on which to make major investment decisions;
- The overall costs of the GIG’s proposed investment package are likely to significantly exceed the benefits; and,
- There is a need for further analysis of alternative investment options in light of current market circumstances.

The review has been provided to the Strategic Grain Network Committee – established by the WA Government – which has representatives from industry as well as all layers of government.

“The Strategic Grain Network Committee will ensure the grain industry as a whole has a voice in determining the most appropriate investment strategies for the WA grain rail network,” Gary said.

“The WA grain industry is critical to the national economy and the Rudd Government is working with the Western Australian Government to ensure the state has a sustainable and efficient freight network.”

The review can be found at: www.nationbuildingprogram.gov.au/publications/reports/index.aspx



Gary Gray.



Introducing oaten-hay into the rotation extended the break between lupin crops to two years. (Photo: Peter Maloney)

– “when we have ryegrass problems wheat yields can drop by as much as a tonne per hectare”.

Break crops are aimed at improving the soils and complementing a claying program. The Symes began claying in 2002 with up to 250 tonnes per hectare at a cost of \$600 to \$700 per hectare. This is cheaper than buying new land in the district which has been selling for \$3200 to \$3750 per hectare.

As a committee member of WANTFA, Trevor has an interest in cover crops – which he agrees are ‘non-harvested’ break crops. They tried serradella in 2005 to replace some lupins in the system but found no yield improvement in the following crops. It remains a mystery as to why this has happened and a potential topic for future research.

Rotation drivers

What are the drivers for the rotations on the Syme’s farm? While Trevor doesn’t classify himself as a true ‘wheat grower’ – more as a grain grower – he sees crop yields as the primary objective to drive profitability (Table 3). This underpins his

Gross margins (five year average)	Long term average yield
Barley \$397/ha	2.73 t/ha
Lupins \$143/ha	1.51 t/ha
Oaten hay \$547/ha	5.50 t/ha
Wheat \$348/ha	2.61 t/ha

rotation choice and what he looks for from each of the break crops he currently grows.

Future system

Trevor plans to have a fully integrated tramline system and variable rate technology adopted across his farm. This will include real time nitrogen application using Greensseeker technology and EM38 surveys. Cover crops will become increasingly important – sustaining their rotations and landscape. ■



Improved prices have seen the return of canola to the Syme’s rotation. (Photo: Peter Maloney)