

BETTER OILSEEDS – FARMER CASE STUDY

Optimal canola establishment to maximise yields

By Quentin Knight and Felicity Pritchard

Successful establishment – the key to good canola

Canola is renowned for its break crop effect, providing a 20 per cent yield boost to subsequent wheat crops on average. And thanks to herbicide tolerant types, growers have found it plays a vital role in integrated weed management.

Western Australian growers, Keith and Emma Green, from Neridup in the state's southeast have seen the weed and disease control benefits of canola in their farming system, but have also been able to lift profits from the crop through ideal establishment.

Successful establishment is critical for canola to achieve its yield potential. Uni-

form establishment is particularly important for seedlings to mature at the same rate. Yields are maximised when at least 90 per cent of plants reach ground cover by the time the first buds appear. Even establishment also leads to plants developing at the same rate.

This makes it much easier for growers to apply post-emergent fertilisers, herbicides and insecticides on time, as well as making it easier to determine the optimal time for windrowing (swathing) and harvest.

Shift to no-till cropping and canola

Keith began growing canola on a permanent basis around the year 2000. Continuous cropping was replacing livestock on a large portion of the farm. At the same time, disc sowing was replaced by a knife point and press wheel system. Crop establishment with discs was resulting in root disease in cereals and increased ryegrass, with noticeable yield losses.

Canola is well suited to the Neridup area in terms of soil type, rainfall and length of growing season. It provides an excellent opportunity for early sowing from early April to late May. It also provides an opportunity to begin harvest early and allows harvest to proceed while other crops have high moisture content, as is often the case on WA's South Coast.

Keith has found that canola is a break crop with reliable yields, is relatively easy to grow and, most importantly, is profit-able.

Triazine tolerant canola was considered the ideal break crop for this environment to control weeds and cereal root diseases as well as providing healthy gross margins. Canola has been ideal for weed control, particularly ryegrass populations which have developed widespread resistance to the 'fop' group (group A) and some of the 'dim' group no longer work effectively. High rates of Select at 500 mL per hectare appear to be working satisfactorily.

In 2008 Clearfield canola was grown for the first time undersown with SARDI 10 lucerne to help reduce rising water tables

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FARMERS
Keith and Emma Green
LOCATION
Neridup, Western Australia
ENTERPRISES
Grain production, cereals, canola, field peas and lupins.
AVERAGE ANNUAL RAINFALL
450–475 mm.
AVERAGE GSR
338 mm.
SOIL TYPES
Gravelly loam to alkaline grey clay.
SOIL PH
pHCa 4.8 to 7.5.
ROTATION
Canola is generally grown one year in four in a canola – barley – legume – wheat rotation. Occasionally this rotation is tightened where canola may be grown every second year.
WHY CANOLA?
Gross margin Canola gross margins are generally 30 to 50 per cent lower than cereals, but they are still profitable. In some years the gross margins equal cereals.
Economic benefit from growing canola Canola is the one break crop that provides a good gross margin in the year of production. The Greens also estimate canola contributes 300–500 kg per hectare in additional cereal yields. Canola has also allowed them to maintain continuous cropping, rather than relying on pasture or chemical fallow to control weeds and root diseases.
Reliability and robustness Canola is becoming more reliable as new varieties are released. The Greens believe their average canola yields are increasing steadily. In the past their production in an average year was 1.6 tonnes per hectare, but ranged from 1.0 tonne in a poor season to 2.0 tonnes per hectare in a very good year. They feel their yields will continue to increase as they adopt short to mid season varieties with indeterminate flowering to capitalise on the seasons with long, cool finishes.
Resistant ryegrass management Canola has been ideal to introduce the chaff cart system. A major benefit of canola is that all ryegrass is swathed (windrowed) before it gets a chance to shed seed. Once contained in the swath it is very easy to collect at harvest with the chaff cart. After harvest all chaff dumps are burnt to ensure no ryegrass and other weed seeds are returned to the seed bank.

<v...MAXIMISING CANOLA YIELDS

and encroaching salinity on one part of the farm.

Canola is definitely the most profitable break crop in the Greens' rotation as it performs well over all their soil types. Although they match other break crops to their best soil type to maximise yields (such as lupins on sandy gravels and field peas on alkaline loams) the gross margins of these crops cannot compete with canola.

Stubble management

For paddocks to be sown with canola, the previous year's cereal stubble is usually cut high during harvest to minimise the amount of stubble to obtain more capacity from the header and to speed up the harvest process. When harvest is complete the remaining cereal stubble is usually mulched to a height of 10 to 15 cm.

Keith uses guidance with 10 cm accuracy to sow canola in an 'up and back' pattern. This system does not provide the required accuracy for inter-row sowing.

While not in a strict tramline system, all spraying traffic maintains the same run lines after sowing.

Sowing system

The Greens use a no-till system as their soils are very fragile in a very windy environment. No-till allows them to conserve moisture by sowing directly into mulched cereal stubbles for protection from wind erosion. The furrow formed with their system is excellent at water harvesting – even small rainfall events of five mm or less run into the furrow and allow for good germination on minimal rain.

Seed dressings

No seed dressings are used. Impact In-Furrow is used to control blackleg. This is applied via a Doseatron into Flexi N at sowing where it is banded two cm below the seed.

Pre-sowing and PSPE weed control

Summer weeds are sprayed early after any substantial summer rainfall event to conserve stored soil moisture and nutrients. All previous cereal stubbles are mulched during the summer months. Lime and gypsum are applied where required on the basis of soil test results.

Weed control normally involves at least one summer knockdown comprising Roundup, LV Ester and Garlon. Prior to sowing there is another Roundup knockdown followed by Spray.seed plus atrazine. Immediately after sowing, top up atrazine is applied with a bare earth insecticide.

Early post-emergent a high rate of Select is applied with a small spike of Targa. Spray topping occurs with knockdown herbicide at swathing (windrowing).

Sowing

Canola is sown on 25 cm spacings using a 12.4 metre John Deere 737 bar with knife points and press wheels coupled with a John Deere two bin air cart and a Burando Hill liquid cart.

Sowing of canola commences at the earliest sowing opportunity from mid April to late May depending on the season and variety, at 3.5 kg per hectare.

Fertiliser strategies

On the gravel loams MacroPro Plus is drilled with the seed at 100 kg per hectare plus Flexi N at 60 L per hectare banded

two cm below the seed at sowing. The heavier alkaline clays receive exactly the same treatment except Agstar Extra is used instead of Macro Plus.

At the eight to 10 leaf stage a top-up of Flexi NS at 100 L per hectare is applied by boomspray using streaming nozzles. This supplies the crop with 70 kg per hectare nitrogen, 14 kg per hectare phosphorus, 8.4 kg per hectare potassium and 15 kg per hectare of sulphur. But potassium is not added on the heavier soils.

Early pest and disease control

Canola receives an application of alpha-cypermethrin with the last knockdown for vegetable weevil, redlegged earthmite and Balautium mite control. Talstar is applied immediately after sowing for improved redlegged earthmite control.

Blackleg is managed by variety selection and Impact In-Furrow.

Crop establishment

The success of the Greens' technique is measured by a consistent plant establishment of 40 to 60 plants per m².

Keith says canola is a very robust crop once past the early establishment stage – after this it is as tough as barley and possibly tolerates periodic waterlogging better. Canola is very forgiving with an amazing ability to compensate for low plant populations. ■

better OILSEEDS

This canola case study has been compiled as part of the national Better Oilseeds project, an exciting initiative funded by the Grains Research and Development Corporation and the Australian Oilseeds Federation.

The Better Oilseeds project is addressing the urgent and critical need to lift the productivity of oilseed crops within Australia to ensure critical mass and consistency of production and to improve the quality of grain produced. The project began in 2006 and aims to increase the value of the Australian oilseeds industry through enhancing productivity and value. It initially covered canola, sunflower and soybeans and more recently safflower.

Watch for a booklet which will include technical information and case studies of safflower growers from around Australia to be released this spring.

For further information contact Sue Knights,
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Keith Green believes that if you get your early crop establishment right with canola, it is as tough as barley and has a remarkable ability to compensate for low plant populations.