



# Organic Farming: Canola Production and Marketing

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*The information provided in this Agnote is applicable to organic mixed farming enterprises that grow crops in rotation.*

## Introduction

Canola is an oilseed crop that fits readily into a crop/pasture rotation in northern Victorian farming systems. Whilst it is a nutrient hungry crop to grow and attention to soil fertility is essential for successful production, canola can provide benefits within an organic system, such as bio-fumigation of the soil prior to cereal production. Canola, once established, is also an effective competitor with many weeds because of its broad leaves. Organic canola production requires a high level of management by the producer to ensure adequate soil fertility and weed and pest control. Close attention to harvest procedure and processing to ensure product quality and marketability is also required. The export and domestic demand for organic canola is small and volatile so careful attention to marketing prior to crop production is essential.



*Figure 1. Canola (a member of the Brassica family) is a distinctive winter crop with bright yellow flowers and a pungent cabbage smell.*

## Production requirements

### Region and rainfall

Canola is generally grown in the 450-550 mm rainfall zone in northern Victoria. Currently there is only isolated production of organic canola in north central and north east Victoria.

## Soil management

Soil management for organic farming relies on building a healthy soil through enhancing biological systems, improving soil structure, fertility and the capacity for nutrient cycling. For further information on soil management in organic farming systems consult the reference list on the back page.

Canola does not tolerate waterlogging and requires effective drainage. Canola has a higher requirement for phosphorus, nitrogen and sulphur compared to wheat, as these elements are removed in significant quantities with the grain (Table 1). All these elements need to be monitored by soil sampling and additional fertiliser inputs can only be supplied to the crop based on a demonstrated requirement.

Phosphorus can be supplied through sources such as reactive phosphate rock or avian deposits such as Guano™. In organic farming systems nitrogen supply is provided through the legume/*rhizobia* symbiosis where atmospheric nitrogen is captured by legumes through the nitrogen fixation process. Sulphur can be supplied as gypsum or elemental sulphur.

**Table 1. Nutrient removal (kg) per tonne of grain produced.**

	Phosphorus	Nitrogen	Sulphur
Canola	7.5	35	9.0
Wheat	3.0	22	2.0

## Rotation

Canola is suited for production in rotations with wheat and pasture/legume phases. It should be grown directly after a pasture phase when soil fertility has been maximised. Canola provides a “disease cleaning” phase in the rotation, having a bio-fumigation effect on cereal diseases as the canola plants decay after harvest.

## Agronomy and weed management

Canola is sown as a winter crop, being established after autumn break rainfall which usually occurs during the March-May period. Canola seed is small (1-3 mm) so the surface soil needs to be friable with a relatively small clod size to ensure good seed to soil contact and subsequent

germination and establishment. Seed should be sown at a depth of 5-10 mm and lightly covered to prevent drying out after germination. The conventional seeding rate for canola is 4-5 kg/ha to achieve a plant density of 50-100 plants/m<sup>2</sup>. In an organic farming system where post emergent weed control is generally not feasible, seeding rate should be increased to 8-10 kg/ha. Increased seeding rate has resulted in improved plant density, lower total weed biomass and improved grain yields.

Canola is a small seedling and does not compete well with grass or broad leaf weeds at the early stages of growth. Careful attention to the management of weed seed banks in the two years prior to growing canola can significantly reduce the impact of weeds on the emerging crop. Using a higher crop-seeding rate and sowing on time can also provide canola with an advantage over other plant species.



Figure 2. Canola requires a friable seed bed for optimal establishment.

### **Pest management**

Canola is vulnerable to damage from the red legged earthmite (*Halotydeus destructor*) at the cotyledon stage of growth. Understanding the life cycle of this mite and at what stage of growth the canola plant is most susceptible can assist in mite management.

Earthmites lay their eggs during spring and emerge to feed in the autumn after a significant rainfall event and when the daily maximum temperature drops below 21°C. Management of this ground dwelling mite in an organic farming system requires an integrated approach that ideally begins in the year prior to the cultivation of the canola crop. Strategies that can be used to reduce the population of earthmites through life cycle disruption include:

- green manuring in the spring to disrupt the laying of mite eggs,
- intensive grazing in spring to reduce mite numbers,
- sow canola on time to enable establishment before the emergence of mites,
- sow canola at a higher seeding rate so there is optimal plant density after mite damage,
- encourage predator activity, eg. predatory mites, *Anystis wallacei*



Figure 3. Red legged earth-mite (*Halotydeus destructor*) is a major pest of canola.

### **Harvest**

Canola seed ripens progressively during spring and the pods containing the seed are vulnerable to shattering, mostly through wind damage. To minimise seed loss it is important to wind-row canola approximately 10 days before seed is fully mature. This is a specialist operation and contractors are often engaged to complete this task. Wind-rowing involves the mechanical cutting of canola plants near the base of the stem and laying them on the stalk residue so that drying of the pods can continue without the risk of shattering. After the pods have fully dried a conventional harvester is used to thrash the seed from the pods.

## **Marketing requirements**

### **Quality**

Canola is Australia's most important oilseed crop. The seeds are crushed to obtain oil that is used in margarines, cooking oils and salad dressings. It is considered to be a healthy choice because it is low in saturated fat, high in mono-unsaturated fat, contains a balance of omega fatty acids and is a good source of vitamin E. Oil content is the most important quality feature for canola and markets generally pay a premium for higher oil content. Other quality receival standards include percentage of foreign matter and protein level.

Organic canola seed is processed using a cold pressing technique that includes crushing and filtering. There is no heat or chemical treatment so the oil is essentially unchanged. Yields of oil from this process are lower than for conventional oil extraction.

### **Price**

The price offered for organic canola varies on a seasonal basis and between processors, depending heavily on supply and demand. Although market prices vary throughout the season the prices paid to organic producers are generally more stable than the conventional market. They are usually at a premium of between 20-40% above the conventional price.

Most crops are grown under contract with a fixed price. Many companies are trying to sustain a consistent premium for organic canola over a longer period of time, rather than have seasonal fluctuations.

This is being achieved by producing according to a contract, listing the quality parameters and price offered.

Those involved in the organic canola industry view this as helping the industry become sustainable in the longer term and promote stronger linkages between producer and buyer.

### **Current organic canola purchasers**

- Riverland Oilseed Processors (Vic)
- Four Leaf Milling Pty Ltd (SA)

### **Useful references and contacts**

- Burnett, V., Enshaw, T. and Sutherland, S. (2004) Non-chemical Options for Integrated Weed Management in Grain Production. Victorian Department of Primary Industries, ISBN 1 74146 126 X.
- Halpin, D. (2004) The Australian Organic Industry, Australian Government Department of Agriculture, Fisheries and Forestry, ISBN 0 642 53955 3.
- Madge, David (1995) Organic Agriculture: Getting Started Agmedia ISBN 0730664333.
- Neeson, R. and Banks, H.J. (2000) On-farm storage of organic grain, NSW Agriculture Agfact 102/28. Order No. P3.5.1.
- Organic Federation of Australia (OFA)  
[www.ofa.org.au](http://www.ofa.org.au)
- Victorian Winter Crop Summary (2006) Victorian Department of Primary Industries, ISBN 1741466741.
- [www.australianoilseeds.com](http://www.australianoilseeds.com)

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