Canola

Windrow on Time, Reap the Reward$

This guide will help determine optimal windrow timing.

Windrowing on time maximises income, avoiding losses due to windrowing canola too early.

Crops should be windrowed when 60–80% of seed sampled from the middle third of main stem and branches has changed colour from green to red, brown or black.

The Essentials

- **All varieties should be assessed and treated the same way**
- **Seed colour change** is when a minimum of two-thirds (approx. 67%) of the surface of an individual seed has changed colour from green to red, brown or black.
- **Region affects the speed of maturity and seed colour change**
  Canola in QLD, northern NSW and northern WA cropping zones will mature much quicker than in southern NSW, VIC, SA and southern WA.
- **Sampling location must be carefully considered**
  Crop maturity within a paddock is affected by many factors such as topography, soil type, crop nutrition and plant population. Both the least mature and most mature parts of the paddock need to be considered and assessed when determining windrow timing. Technology such as satellite and NDVI images can be used when identifying suitable sampling locations.

Sampling protocol

1. Sampling locations

Identify five sampling locations in the paddock

2. Collect pods

Go to sampling **Location 1**

Collect one pod from the **middle third of a main stem** (not top or bottom) and three pods from the **middle third of the branches** of the same plant

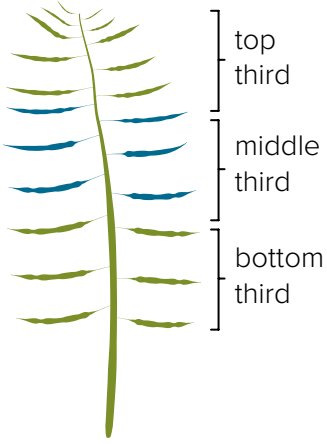
Walk two steps and repeat – one pod from a **main stem** and three from the **branches**

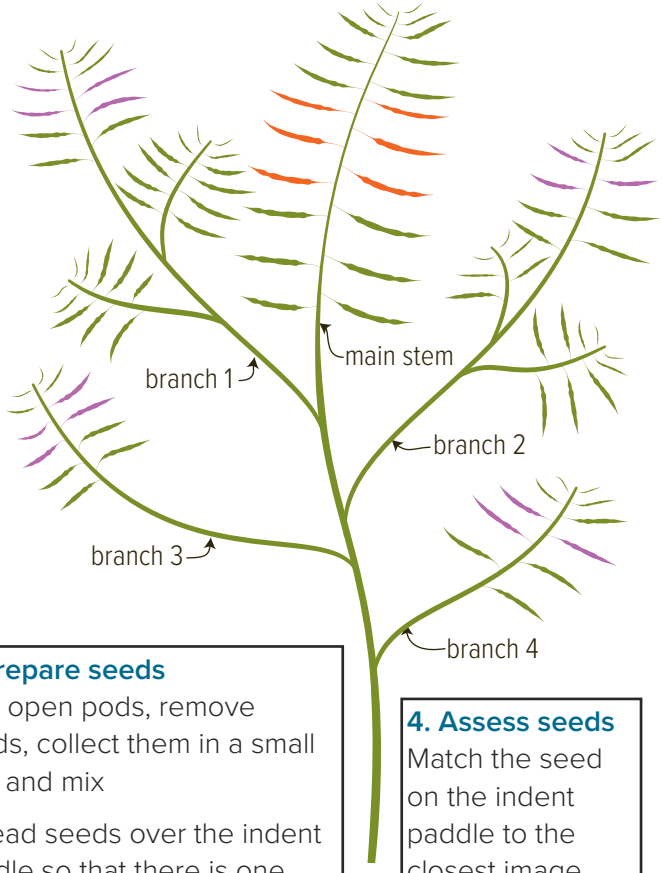
Repeat until you have 20 pods

Move to sampling **Location 2** and collect another 20 pods as above

All pods from each location can be mixed

Repeat at **Location 3, 4 and 5** until you have 100 pods





3. Prepare seeds

Split open pods, remove seeds, collect them in a small dish and mix

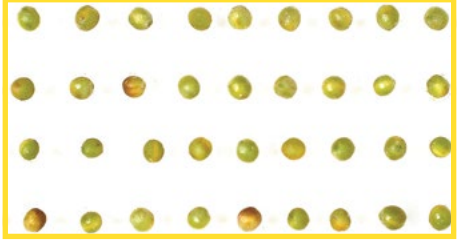
Spread seeds over the indent paddle so that there is one seed in each hole

4. Assess seeds

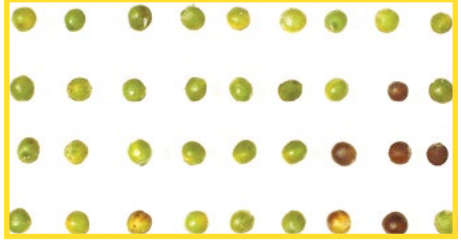
Match the seed on the indent paddle to the closest image (following pages)

TOO EARLY TO WINDROW

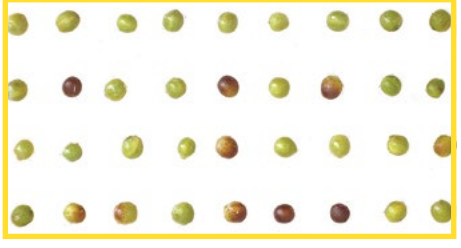
no colour change	
Check again in 4 to 6 days	
Yield	▼ 40–60%
Oil	▼ 6–8 percentage points



10% colour change	
Check again in 3 to 4 days	
Yield	▼ 30–40%
Oil	▼ 4–5 percentage points



20% colour change	
Check again in 3 to 4 days	
Yield	▼ 20–30%
Oil	▼ 3–4 percentage points



TOO EARLY TO WINDROW

30% colour change	
Check again in 3 to 4 days	
Yield	▼ 15–20%
Oil	▼ 2–3 percentage points

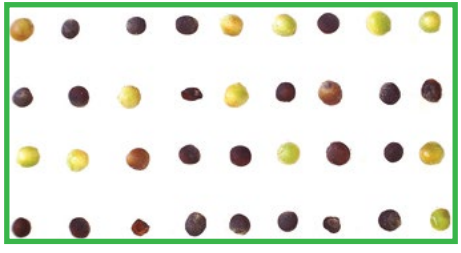
40% colour change	
Check again in 2 to 3 days	
Yield	▼ 10–15%
Oil	▼ 1–2 percentage points

50% colour change	
Check again in 1 to 2 days	
Yield	▼ 5–10%
Oil	▼ ~1 percentage points

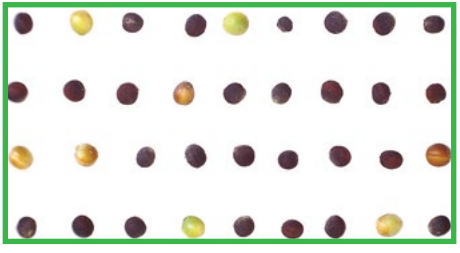
BEST TIME TO WINDROW

60% colour change	
Windrow in 2 to 3 days	
Yield	▼ less than 5%
Oil	▼ less than 1 percent. points

70% colour change	
Windrow in 1 to 2 days	
Yield	optimum
Oil	optimum



80% colour change	
Windrow ASAP	
Yield	optimum
Oil	optimum



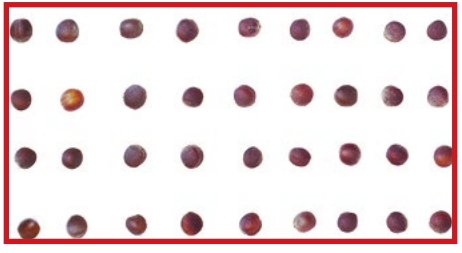
Harvest as soon as seed moisture content reaches 8%

- Seed size declines if harvest is delayed
- Whole pods can break off and be lost if harvest is delayed
- Unharvested mature crops are at risk of yield loss from pod drop and shattering due to wind and hail

TOO LATE TO WINDROW

90% colour change	
Direct head	
Yield	▼ less than 5%
Oil	▼ 0–0.2 percentage points

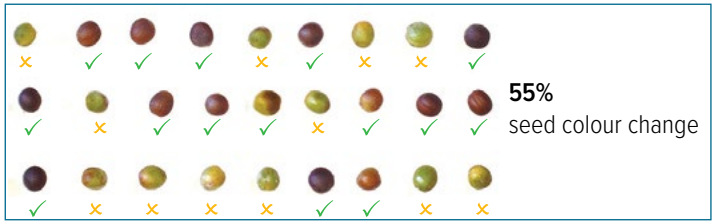
100% colour change	
Direct head	
Yield	▼ less than 10%
Oil	▼ 0–0.5 percentage points



Branches vs main stem

- 75% of grain yield is contributed by branches
- Seed colour change starts later on branches than main stem
- Using the main stem only for windrowing decisions will overestimate seed colour change across the whole plant and indicate to windrow too early
- Windrowing too early results in smaller seed at harvest, lower yield and lower oil concentration

PLACE INDENT PADDLE HERE



Yield, oil concentration and price matrix

Yield	1.0 t/ha*			less 5% yield*			less 10% yield*		
Price ($/t)	450	500	550	450	500	550	450	500	550
Oil (%)	Gross income per tonne ($)								
36	410	455	501	389	432	475	369	410	450
38	423	470	517	402	454	499	387	430	473
40	437	485	534	415	461	507	393	443	488
42	450	500	550	428	475	523	405	450	495
44	464	515	567	440	489	538	417	464	510
46	477	530	583	453	504	554	429	477	525
48	491	545	600	466	518	570	441	491	540

* multiply the price by your estimated yield to obtain $/ha

Example 1:

Yield 2 t/ha, oil 44%, price $550/t

Windrow at 80% seed colour change		
Gross income	$567/t	$1134/ha
Windrow at 50% seed colour change		
Yield reduction	5% (yield 1.9 t/ha)	
Oil reduction	1 percentage point (43%)	
Gross income	$530/t	$1007/ha
Loss of income =	$127/ha	

Example 2:

Yield 2.5 t/ha, oil 42%, price $550/t

Windrow at 70% seed colour change		
Gross income	$550/t	$1375/ha
Windrow at 40% seed colour change		
Yield reduction	10% (yield 2.25 t/ha)	
Oil reduction	2 percentage points (40%)	
Gross income	$488/t	$1098/ha
Loss of income =	$277/ha	

NSW GOVERNMENT Department of Primary Industries

GRDC GRAINS RESEARCH & DEVELOPMENT CORPORATION

CSIRO

Research conducted by NSW DPI in northern NSW at Tamworth, Trangie and Narrabri, as part of the *Optimised Canola Profitability* project (CSP00187; 2014–19); a collaboration between CSIRO, NSW DPI and GRDC.