

JANUARY 2015

SPRING-SOWN WINTER CANOLA FACT SHEET



GRDC

Grains
Research &
Development
Corporation

Your GRDC working with you

SOUTH-WEST VICTORIA

SPRING-SOWN CANOLA PROVIDES GRAZING WITHOUT LOSING YIELD

Recent trials have shown that spring sowing of winter canola can provide increased returns compared to a summer fallow.



PHOTOS: CORINNE CELESTINA

Spring-sown winter canola at Dunkeld pictured just before grazing in summer 2011 (left) and at flowering in spring 2012 (right)

KEY POINTS

- Summer cropping can increase revenue, reduce risk, provide stock grazing and deliver indirect benefits such as improving the ability of the crop to survive waterlogging or slug infestations.
- Traditional summer crops include sorghum, sunflowers, corn and lucerne. Trials have shown that spring sowing of winter canola can also provide positive results.
- In recent trials, the spring-sown winter canola provided comparable or higher yields than the autumn-sown crop, even when the canola was grazed over summer.
- Options to fit spring-sown canola in a farming system include following an oaten hay or manure crop, into a fallow, or in mixed-farming by incorporating a grain crop into a pasture renovation program.

Planting of summer grain crops has been increasing in recent years in Victoria's Western Districts.

While it is not yet common practice, there are a number of reasons that growers are considering summer crops including:

- Making better use of summer rainfall to increase profits.
- Providing grazing for livestock.
- Delaying potential waterlogging in winter crops.

Common summer crops in south-eastern Australia include sorghum (forage or grain), sunflower, corn and lucerne. Recent trials have shown that spring-sown canola can present a productive summer crop solution.

TABLE 1: Dry matter production and grain yield for spring-sown Taurus canola at Dunkeld in 2012.

GRAZING (no.)	INTENSITY OF GRAZING	GRAZING TIMES	DAYS GRAZED	DM CONSUMED (CUMULATIVE) (kg/ha)	GRAIN YIELD (t/ha)
1	Light	31 Jan – 22 Feb	22	494	2.8
	Heavy	31 Jan – 5 Mar	34	2316	2.5
2	Light	31 Jan – 22 Feb	29	2763	2.9
		29 Mar – 5 Apr			
	Heavy	31 Jan – 5 Mar	46	2944	2.5
		29 Mar – 10 Apr			
3	Light	31 Jan – 22 Feb	36	3488	2.7
		29 Mar – 5 Apr			
		26 Apr – 3 May			
	Heavy	31 Jan – 5 Mar	55	4031	2.4
		29 Mar – 10 Apr			
		26 Apr – 7 May			
		Sown in spring - ungrazed			1.9
		Sown in autumn - ungrazed			2.3

Source: Anniëka Paridaen.

TABLE 2: Dry matter production and grain yield for several winter canola varieties sown in spring 2012 and harvested in December 2013 at Inverleigh.

VARIETY	TIME OF SOWING	GRAZING	SPRING ESTABLISHMENT (plants/m ²)	AUTUMN SURVIVAL (pl/m ²)	REDUCTION IN PLANTS (%)	SUMMER DRY MATTER (t/ha)	GRAIN YIELD (MANUAL HARVEST) (t/ha)
Taurus	Spring	Grazed	47	26	-43%	2.5	4.0
		Ungrazed	42	30	-29%		5.0
	Autumn			8			3.6
Hyola® 971 CL	Spring	Grazed	41	28	-28%	2.4	4.6
		Ungrazed	42	28	-28%		5.2
	Autumn			14			4.4
Hyola® 930	Spring	Grazed	42	26	-38%	2.2	4.9
		Ungrazed	39	36	-4%		5.2
	Autumn			11			4.1
Clifford CL	Spring	Grazed	43	24	-44%	2.3	4.2
		Ungrazed	38	30	-18%		4.5
	Autumn			17			3.9
CB Sherpa	Spring	Grazed	38	24	-35%	2.8	4.7
		Ungrazed	43	27	-36%		5.2
	Autumn			Not sown			-
Winfred	Spring	Grazed	62	31	-49%	2.8	-

Source: Anniëka Paridaen.

Spring-sown canola

Sowing winter canola varieties in spring can provide a summer grazing option. These varieties will not flower until after winter due to vernalisation (the plant's requirement for a certain low temperature to initiate flowering).

For a winter variety, this means plants can be sown in spring, grazed during summer and then grow and recover in the lead-up to winter. The cold temperature will cause them to flower and they will continue development as normal for harvest later in the year.

Spring canola varieties do not have this capacity. If sown early, they will attempt to flower early and not develop correctly.

Trial results

Southern Farming Systems trials from 2011 to 2013 involved sowing winter canola during spring at Dunkeld and Inverleigh. The aim was to find out how many times and how heavily canola could be grazed without incurring a yield penalty, and the effect of nitrogen application on recovery.

The trials demonstrated that the grazed canola was able to fully recover. In the 2011 Dunkeld trial, Taurus canola was sown into a fallow, then grazed from the end of January, stocked at 12 DSE/ha. The sites were grazed between one and three times, with heavy and light grazing. The grazing options resulted in yields between 2.4 and 2.9 tonnes per hectare, with between 500 and 3500 kilograms/ha of dry matter grazed.

These results all provided yields higher than the control crop at 2.3t/ha. Areas that were grazed twice gave the best yield results at 2.5-2.9t/ha, with a third graze reducing yields to 2.4-2.7t/ha. However, the dry matter consumed by the animals increased with the third graze by between 700kg/ha and 1000kg/ha.

In the trials, the effect of heavy grazing was comparable to a higher number of grazings – yield was reduced but feed quantity increased. As a result, the decision on grazing frequency and intensity depends on the importance of crop yield compared to livestock feed. Lightly grazed crops may cope with stresses such as waterlogging better than heavily grazed crops, though this has not yet been proven.



This crop of Taurus in Dunkeld was grazed over the very dry summer of 2012, but still managed to yield the same as ungrazed canola (refer to Table 1).

The trial found that applying nitrogen was only of benefit where there were a high number of heavy grazings, which suggests that fertiliser is not necessary in most cases.

In the 2012 Inverleigh trial, a range of varieties were planted in spring and autumn, with grazing tested on the spring plantings. Despite a hot, dry summer, the spring-sown canola reliably provided higher yields than the autumn-sown canola, at 4.0-5.2 t/ha compared to 3.6-4.4 t/ha. In this trial, grazing reduced the yield – ungrazed averaged 5t/ha compared to 4.5t/ha average for grazed.

Weed and pest effects

Canola grown over summer has a similar effect on weed control to traditional summer crops. While it improves competition with the weeds, the disadvantage is that knockdown herbicides cannot be used.

Canola variety selection can improve options for weed control but as with traditional summer crops, the weed history must be considered.

The effects of pests can be reduced by sowing in spring. Common pests, such as slugs, are not active in spring so plants are already established and not at risk when they become active in autumn. However, slugs are present in smaller numbers in spring so should not be ignored altogether.

Fitting spring-sown canola into a farming system

Rotation

A 'spring opening' for canola can naturally come about through a fallow, or a pasture coming back into cropping. However, now that growers are seeing the advantages of spring-sown canola, many are sowing a short-term crop, such as oats for hay or a manure crop.

In areas where a canola crop can be difficult to establish in autumn due to slugs, sowing canola in spring when slugs are far less active can improve crop establishment.

Sowing conditions

As with autumn-sown canola, seedbed conditions are critical to ensuring successful establishment of spring-sown varieties. Good soil-seed contact is required and research has shown rolling the seedbed can help obtain sufficient contact.

Moisture for sowing

Current research has not demonstrated a minimum plant available water requirement for spring-sown canola in the high rainfall zone. Experience has shown that, even when planted dry, there has been sufficient spring rain to establish the canola following seeding in September, October or November.

Nitrogen application

A nitrogen program that has proved successful for spring-sown canola is:

- ▶ 80kg/ha mono-ammonium phosphate at sowing.
- ▶ Ammonium sulphate following the last grazing in autumn.
- ▶ Urea application as usual at stem elongation.

Grazing in heat

The summers of 2012 and 2013 were both dry and hot in the trial regions, yet the plants survived. This demonstrated successful grazing is possible even during a very hot summer.

In deciding whether or not to graze canola, growers should consider that pests like cabbage moth and diamondback moth are active in hot weather. If they attack crops, then the dry matter will be lost and not available for stock grazing anyway.

Grazing and animal health

Canola is lower in glucosinolates than some other forage brassicas, which results in good palatability. However, it is a brassica and growers should allow time for the digestive systems of stock to adjust. Normal grazing techniques, including slow introduction of the sheep to the crop, should be used when grazing canola.

FREQUENTLY ASKED QUESTIONS

Will canola survive the summer?

This will depend on the season and effects of disease, pests and weeds. Canola sown in the Inverleigh trial in spring 2012 experienced a hot, dry summer with almost no rain from November 2012 to May 2013. The crop survived and outyielded canola sown in autumn 2013.

What varieties of canola can be used for spring sowing?

Any winter canola can be sown in spring, though the susceptibility to pests, diseases and suitability for particular soil must be considered to get the best results.

Spring canolas are not suitable for spring sowing as they do not have a vernalisation (cold) requirement and so will attempt to flower at the wrong time of year.

What are the economics of tying up a paddock for an entire year?

While the paddock is planted for the entire year, spring-sown canola can still be grazed in summer, meaning it can be considered similarly to growing a forage crop followed by a spring-maturing canola.

Can a normal seeder be used?

Yes, normal seeding equipment is suitable. Unlike some summer crops, precision planters are not required for spring-sown canola.

How can problem weeds be controlled?

While control of ryegrass and other problem weeds can be difficult without the ability to use an autumn knockdown, performing a spring knockdown, along with summer grazing, can have significant benefits. Researchers are currently investigating ways to further improve weed control on spring-sown crops.

USEFUL RESOURCES

Summer crops – Spring and summer crops in review?

GRDC Research Report
www.grdc.com.au/2012-WatsonEtAl-SummerCrops

Novel summer crop options in the southern HRZ – thinking outside the square with summer cover crops and pushing the limits with spring-sown winter canola in 2013

GRDC 2014 Update Paper – Ballarat
www.grdc.com.au/2014-Paridaen-SummerCropOptions

MORE INFORMATION

Annieka Paridaen

Projects Coordinator – Trials and Agronomy
Southern Farming Systems
03 5265 1666
aparidaen@sfs.org.au

Simon Falkiner

Falkiner Ag
0407 319 967
falkinerag@bemail.com.au

Tim Brown

AGF Seeds
03 5345 6262
tim.brown@agfseeds.com.au

GRDC PROJECT CODE

SFS00020

Acknowledgements: Annieka Paridaen, Simon Falkiner, Tim Brown, Gina Kreeck, Aaron Vague.

DISCLAIMER

Any recommendations, suggestions or opinions contained in this publication do not necessarily represent the policy or views of the Grains Research and Development Corporation. No person should act on the basis of the contents of this publication without first obtaining specific, independent, professional advice.

The Corporation and contributors to this Fact Sheet may identify products by proprietary or trade names to help readers identify particular types of products.

We do not endorse or recommend the products of any manufacturer referred to. Other products may perform as well as or better than those specifically referred to.

The GRDC will not be liable for any loss, damage, cost or expense incurred or arising by reason of any person using or relying on the information in this publication.

CAUTION: Research on Unregistered Agricultural Chemical Use

Any research with unregistered agricultural chemicals or of unregistered products reported in this document does not constitute a recommendation for that particular use by the authors or the authors; organisations.

All agricultural chemical applications must accord with the currently registered label for that particular pesticide, crop, pest and region.

Copyright © All material published in this Fact Sheet is copyright protected and may not be reproduced in any form without written permission from the GRDC.

PRODUCED BY AGCOMMUNICATORS