

GOA Site Report

Comparison of products to improve dry down in canola, Coolah 2014

Year/Date/Season; Winter 2015
Location; "Kurrajong Park", Coolah NSW
Collaborators; Paspaley Rural
Project Code: GOHM00414-2

Background

When comes to harvest options for canola it basically comes down to two choices - to windrow or to direct head.

Previous trial work by GOA has demonstrated that direct heading is a comparable option to a well-timed windrow in terms of yield performance but with potential for cost and labour savings amongst other potential benefits. The GOA region is seeing an increasing rate of adoption of direct heading but there could be a number of limitations against an even wider adoption.

One of those is the potential delays to direct heading with crops of uneven maturity. One of the key advantages to windrowing is that it brings the whole crop to an even maturity to allow harvest to start rather than having to wait for greener patches to ripen for direct heading to commence. Growers in the GOA region are now questioning what role a desiccant might have in this scenario?

Reglone™ has label claims for this purpose; to desiccate green material in a crop ahead of harvest to facilitate earlier harvesting. However, its high cost both in purchase and application and many anecdotes of ineffectiveness is a major deterrent to use by many growers.

Now with the impending registration of Nufarm's Roundup® DST for pre-harvest weed control in canola, many growers are speculating its potential value as an alternate to Reglone. Lower purchasing cost and easier application are obvious benefits but many have a perception of increased reliability over that of Reglone®.

The following trial was designed to assess both Reglone® and Roundup® DST for their ability to speed up of crop dry down compared to nil treatment to facilitate earlier harvesting of the crop.

DISCLAIMER

Following is a report on a scientific experiment. It may contain some herbicide treatments that are not registered for the situation, manner or rate at which they are used in this trial. This document or anything else resulting from, construed or taken from this or by GOA or its representatives should not be taken as a suggestion, recommendation or endorsement of any unregistered herbicide uses.

Aim

Compare the use of Reglone® against Roundup® DST against Nil treatment for the rate seed moisture content declines in canola following application.

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Methods

This trial used a randomized complete block design with sown small plots (10m * 1.8m).

Table 1 Trial site details

Crop and Variety	Canola – 44Y84	Seeding rate	2.5 kg/ha
Sowing date	8 th May 2014	Harvest Date	Listed below
Seedling equipment	Tined cone seeder	Row Spacing	32cm
Crop Nutrition (kg/ha)	Seeding Granulock Z™ @ 87, top-dressed urea @ 150	Soil type	Grey vertisol
Previous Crop	Barley	Pre Sowing Stubble Management	Full stubble retention

Roundup® DST was applied at three timings according to seed colour change (SCC) in the middle third of the main stem or pod colour change in the case of the Reglone® treatment. The Reglone® treatment was applied the same day as the final Roundup® DST timing. Details of the applications are listed in **Table 2**. Four harvest timings were proposed to be undertaken with an aim that the earlier harvest timings commenced well before the grain had dried down to 8% grain moisture content (GMC). Subsequent timings were spaced aiming to achieve 8% GMC in all samples by the final harvest timing.

All herbicide applications were applied by and ATV motor bike fitted with a high boom at least 50cm above the top of the crop canopy and fitted with AIXR015 nozzles spaced at 50cm and operating at 3 bar pressure. Products were applied with rain water at 100L/ha of spray solution and applied early morning in all cases to avoid drift onto adjacent plots.

Samples were taken from the harvested grain from each plot immediately after harvest and put into airtight plastic bags that were then refrigerated to avoid samples spoiling. These samples were then assessed for moisture content by NIR after the final harvest timing.

Grain yields were not assessed in this trial.

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Table 2- Herbicide treatment, crop stage, application dates and harvest timings, Coolah 2014

Herbicide	Crop Stage	Application Date	Harvest Time	Harvest date
Untreated Control	NA		H1	7/11/2014
			H2	9/11/2014
			H3	11/11/2014
			H4	13/11/2014
Round Up DST @ 4.1L/ha	T1 ~45% Seed colour change	27/10/2014	H1	As above
			H2	
			H3	
			H4	
Round Up DST @ 4.1L/ha	T2 ~60% Seed colour change	29/10/2014	H1	As above
			H2	
			H3	
			H4	
Round Up DST @ 4.1L/ha	T3 ~70% Seed colour change	31/10/2014	H1	As above
			H2	
			H3	
			H4	
Reglone @ 3L/ha	T3 ~ 70% pod colour changing	31/10/2014	H1	As above
			H2	
			H3	
			H4	

Results

At H1 only Reglone applied at T3 resulted in lower grain moisture content (GMC) compared to the UTC but it was still slightly above the deliverable 8% GMC. At H2, DST applied at T1 and T2 and Reglone applied at T3 were all below 8% GMC, the UTC and the latest application of DST (T3) where all still above 8% GMC.

At H3 and H4 all treatments were no different to each other or the UTC and were below 8% GMC.

Table 3 Harvested grain moisture content at four harvest timings in response to various desiccation treatments

Days after T3	Harvest timing	Desiccant treatment and resultant grain moisture content %									
		UTC		Round Up DST @ T1		Round Up DST @ T2		Round Up DST @ T3		Reglone @ T3	
7	H1	14.523	AB	14.071	AB	12.667	B	15.8	A	8.827	CD
9	H2	9.792	C	7.861	CDEF	6.989	DEF	8.541	CDE	6.353	DEF
11	H3	6.93	DEF	5.683	F	5.823	F	6.343	DEF	5.49	F
13	H4	6.094	EF	6.092	EF	5.854	F	6.163	EF	5.899	F

Means followed denotes no significant difference, means can be compared across treatments or harvest timings, lsd = 2.49, p = 0.05

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Discussion

This trial demonstrated that Reglone was able to reduce GMC in the harvested grain faster than a situation where the crop is let mature naturally (UTC) but only by a relatively small margin. Comparing the time when GMC fell below 8%, as illustrated in Figure 1, for the two treatments suggests that treatment with Reglone would see harvest being able to commence only around 2 days earlier.

Round Up DST applied at the first two timings reduced GMC below the 8% threshold by H2 but the delayed application at T3 was still above it. However, all three timings showed a trend for lower GMC than the UTC at H2 but not all were statistically different.

By H3 all treatments were below the deliverable GMC of 8% with any earlier differences much less apparent.

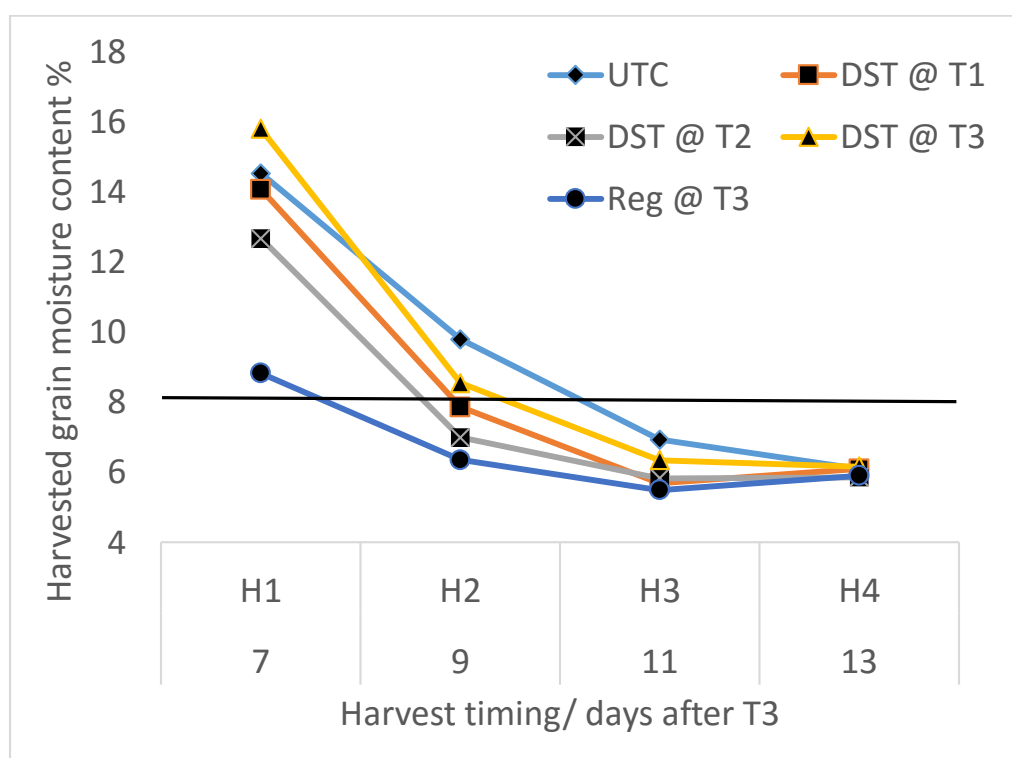


Figure 1- Harvested grain moisture content at four harvest timings in response to various desiccation treatments

In this trial the use of Round Up DST did at the two earliest application timings would have allowed harvest to commence earlier however similar to the case with the Reglone above, any advantage was lost quite quickly as even the UTC had achieved the 8% GMC only two days later than achieved by the Round Up DST.

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More recent information regarding the pending registration of Roundup® DST suggests that it could be applied as early as 20% SCC, somewhat earlier than the first application timing in this trial. This also could have some impact on the outcomes.

Any interesting point to observe also is the rate of ripening even in the untreated crop with relevance to the choice to windrow or direct head. Seed colour change was measured to be ~70% as of the 31st of October and could be an ideal time to windrow the crop. If the UTC were the crop was left to mature naturally it achieved a harvestable 8% GMC in 11 days. If assuming many windrows in this district are left to cure for 7-10 days before harvest it could be suggested that the advantage to windrow a similar crop in terms of bringing forward harvest could be as little as 1-2 days.

Conclusion

From this trial it was shown that desiccation can reduce GMC quicker than achieved naturally. Reglone proved in this case to be marginally superior to the use of Round Up DST but in the case of both products the benefit was very short term amounting to only a couple of days earlier harvesting.

Earlier application of the Round Up DST as the proposed label will allow, may see some improvement in the rate of dry down and harvest able to start earlier again, but on consideration of these results one could speculate the improvement could not amount to any long lasting advantage.

The other question raised from these trials is the common notion that windrowing can also bring harvest forward significantly. If a crop similar to this trial if it was windrowed and left for a typical curing period before harvesting, there may be as little as a couple of days' advantage to leaving to direct head. Alternatively, an application of Reglone or Round Up DST early would see harvest at a similar time.

Acknowledgements

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