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GRDC GROWNOTES™

GRDC
GRAINS RESEARCH & DEVELOPMENT CORPORATION

LENTIL

SECTION 11

PRE-HARVEST TREATMENTS

KEY POINTS | DESICCATION | CROP-TOPPING | SWATHING

Pre-harvest treatments

Key points

- Crop-topping is a form of desiccation, and is common practice in lentil.
- Timing of crop-topping is based on weed stages of development to prevent weed seedset.
- Crop desiccation is used to aid in uniform ripening of the crop and to kill
- green weeds for harvest.
- Desiccation enables an earlier harvest.
- Do not use glyphosate to desiccate lentil crops if the seed is to be retained for sowing.
- Timing of crop-topping or desiccation is more critical than the rate of application of the desiccant.

FEEDBACK

11.1 Desiccation

Desiccation is the application of herbicide to a virtually mature crop prior to harvest with the aim of halting further growth and development of the plant. Desiccation is used to aid in uniform ripening of the crop and enable an earlier harvest. It can also be used to kill green weeds. Desiccation is becoming a common practice in all pulse crops.

Note the differences between desiccation per se and crop-topping (see Section 11.2 Crop-topping)

Desiccation is a valuable management tool especially under conditions where:

- There is a problem with green weeds at harvest.
- Improved harvest efficiency is required:
  - » desiccation eliminates many of the problems associated with green stems and ‘gum’ build-up causing uneven flow of material through the harvester and 'jamming' problems; and
  - » minimising the risk of harvester blockages which enables drum speeds to be reduced in many cases, with a reduction in cracked or damaged grain.
- Early summer rain causes reshooting and re-flowering of lentil.
- Problems of patchy/delayed crop maturity on heavy clay soils.
- Where ‘early harvest management’ is being adopted.

Desiccation of lentil has been found to improve yields and harvestability.

Table 1: Lentil yield (t/ha) with and without desiccation in Western Australia.

Harvest method	Merredin 1994	Cunderdin 1996	Merredin 1998	Average
Desiccated	0.86	1.48	1.43	1.26
Normal	0.72	1.26	1.32	1.10
Windrowing	0.45	-	-	-

Benefits of crop desiccation are similar to those from swathing and include more uniform maturity, reduced problems associated with late weed growth, and advanced harvest date. Compared with swathing, the crop is not placed on the ground so there is less risk of harvest problems due to wet weather.

Timing is critical and is based on crop stage of growth. Timing is either similar to or later than that for swathing depending on the product used.

Early desiccation should be avoided as it can result in yield and quality losses. The danger of premature desiccation is in causing staining of the seed coat, having excessive green cotyledons in the sample, and/or producing small or wrinkled seed, all of which can create marketing problems.

Crop damage from ground rigs can also be an issue, particularly in tall crops. Tramlining may help and should be considered at seeding if crop desiccation is likely to be used.

Diquat (Reglone®) and glyphosate are registered for desiccation of lentil.

DO NOT use glyphosate to desiccate lentil crops if the seed is to be retained for seeding.

FEEDBACK

Photo 1: *A lentil crop showing different stages of development of pods within the canopy.*

(Photo: M. Raynes, formerly Pulse Australia)

Photo 2: *A lentil crop that has been desiccated for easier harvest due to the presence of broadleaf weeds.*

(Photo: W. Hawthorne formerly Pulse Australia))

FEEDBACK

11.1.1 Seed and pod development

Pod and seed maturation in lentil is very staggered up each podded branch and between branches. Immature seeds are generally in the top third to quarter of the canopy. Due to the effects of higher temperatures and varying degrees of moisture stress on the plant at maturity, this period of time is generally more compressed and of shorter duration than flowering.

An issue requiring careful consideration is how to optimise the timing of desiccation when various stages of seed maturity are present on individual plants, as well as variation across the paddock.

This can be further compounded by soil type variation or irregular land surface with alternating mounds and depressions/hollows (micro-relief), commonly referred to as 'crab hole' country. Wet seasons, creating patches of waterlogging, can cause late maturity of lentil. This can further add to the problem of uneven crop maturity.

Often, inspection of commercial crops nearing potential time for desiccation reveals that while the lower pods have dried to below 15% moisture (seeds detached from pod), the upper 25% of pods on each fruiting branch are still at 30–40% moisture content, and at varying stages approaching physiological maturity.

11.1.2 Timing of desiccation

The optimal stage to desiccate the crop is when the vast majority of seeds have reached physiological maturity. To assess desiccation timing, walk along a transect through a representative paddock section and randomly sample pods from the top third of the canopy. A minimum of 50 pods should be sampled.

Seed should then be shelled from the pod and the representative seed sample assessed as to the proportion of dark green seed (maximum 50%) and yellow-buff colour seed (minimum 50%). If clear green seed (Photo 3) is present in the sample, then the crop is too immature and should be reassessed at a later date.

Photo 3: *Green kernel (right) due to early desiccation of red lentil. A maximum of 1% is allowable in receival and export standards.*

(Photo: W. Hawthorne formerly Pulse Australia)

Timing of desiccation is critical to ensure grain yield and quality are not compromised. Desiccating too early can lead to both significant yield penalties and grain size problems. Research results indicate that desiccation should not occur before 50% of the seeds in the pods present in the top third of the canopy are displaying some

FEEDBACK

colour change (yellow-buff) and the remaining seeds are firm to touch and a deep green colour.[1] (See Table 2 and Figure 1.)

As an indicator this will coincide with 60% of the pods in the top third of the canopy appearing yellow-buff. The rate of desiccant (Reglone® 1.5 L/ha and 1 L/ha) did not have a significant effect on yield or grain quality in this trial. Timing is more critical than the rate, so the rate should be adjusted depending on the target.

Timing of desiccation is more critical than the rate of application of the desiccant.

Whilst it did not happen in this trial, grain colour (seed coat discolouration and/or and green kernel) can be compromised if desiccation is conducted too early. This can be especially so if rain falls during the dry period before harvest.

Table 2: Desiccation* timing with diquat (Reglone®) and its effect on lentil grain yield and quality.

Timing	Visual symptoms in top third of canopy at desiccation			Grain yield (t/ha)	Grain quality	
	Crop	Pod	Seed		Poor colour (%)	Screenings (% under 2mm slotted screen)
Untreated control	100% ripe brown	100% colour change	100% colour change	1.8	<0.1%	2.0
T1	90% green 10% mottled yellow	No colour change	10% immature (not formed properly) 10% clear green & soft 80% green & firm	1.2	<0.1%	4.0
T2	40% green 60% mottled yellow	20% colour change	5% green & soft 85% green & firm 10% colour change	1.4	<0.1%	2.2
T3	5% green 90% mottled yellow 5% ripe brown	60% colour change	55% green & firm 45% colour change	1.7	<0.1%	1.9
T4	<1% green 60% mottled yellow 40% ripe brown	85% colour change	25% green & firm 75% colour change	2.1	<0.1%	2.6
T5	5% mottled yellow 95% ripe brown	100% colour change	100% colour change	2.1	<0.1%	2.9
lsd					ns	0.7

*Average of desiccant treatments 1.0 & 1.5L/ha Reglone® + 0.1% wetter
Source: Lentil desiccation – optimum timing and rates, (2003), The Lentil Company, http://www.jsaindependent.com.au/publications/lentil_desiccation_report.pdf

1 L Lenaghan, T McCann (2003) Lentil desiccation – optimum timing and rates. The Lentil Company, http://www.jsaindependent.com.au/publications/lentil_desiccation_report.pdf

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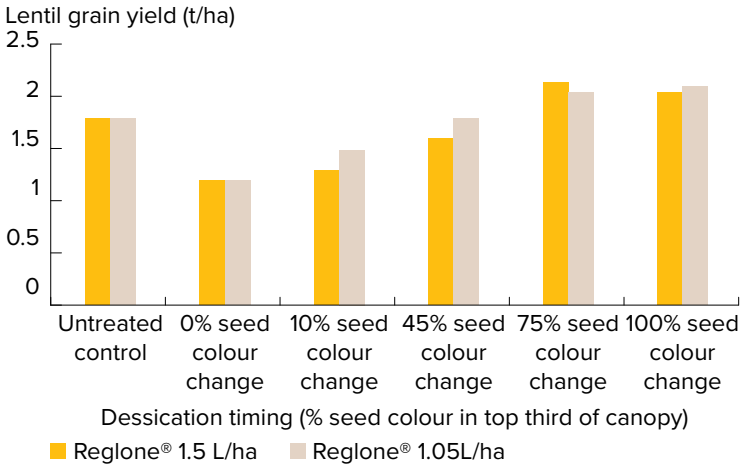

Figure 1: *Desiccation timing and its effect on yield and quality in lentil.**

* Note – More detail of crop stage at desiccation is shown in Table 2. Seed colour changes indicated are from the top third of the canopy only, as these are the most immature grains.

A lentil desiccation trial at Birchip in 2001 showed no yield or quality penalties with early desiccation with Reglone® at 1.5 L/ha plus 0.1% wetter.[2] Four treatments were applied, and all were harvested on the same day.

Treatments (and grain yields) with an lsd ($p<0.05$) of 0.24 t/ha were:

- Control – not desiccated. Harvested normally (1.38 t/ha).
- Desiccated when pods were fully formed but still green (1.26 t./ha).
- Desiccated when pods were fully formed and seed in the bottom pods could be 'rattled' (1.34 t/ha).
- Desiccated when pods were fully formed and seed in the mid pods could be 'rattled' (1.24 t/ha).

This description of the lentil growth stage as "pods were fully formed but still green" is now known to be less precise than those used by Lenaghan & McCann (2003).[3]

Photo 4: *Lentil during pod-fill and before dry-down.*

(Photo: W. Hawthorne, formerly Pulse Australia)

2 Birchip Cropping Group (2001) Desiccation of lentils to improve harvestability. Birchip Cropping Group trial report, http://www.farmtrials.com.au/trial/13600

3 L Lenaghan, T McCann (2003) Lentil desiccation – optimum timing and rates. The Lentil Company, http://www.jsaindependent.com.au/publications/lentil_desiccation_report.pdf

FEEDBACK

Photo 5: *Lentil during pod-fill and starting to dry down.*

(Photo: W. Hawthorne formerly Pulse Australia)

Photo 6: *Lentil starting to dry down.*

(Photo: W. Hawthorne formerly Pulse Australia)

FEEDBACK

Photo 7: *Lentil drying down.*

(Photo: W. Hawthorne formerly Pulse Australia)

Photo 8: *Lentil drying down.*

(Photo: W. Hawthorne formerly Pulse Australia)

FEEDBACK

Photo 9: *Green plants on wheel track edges and also greener parts of a paddock. If desiccated too early, issues with grain quality can occur.*

(Photo: W. Hawthorne formerly Pulse Australia)

Photo 10: *Desiccating lentil. Note the green wheel tracks from previous traffic.*

(Photo: M. Raynes formerly Pulse Australia)

FEEDBACK

11.1.3 Effect of desiccants on green immature seeds

Applying desiccants to seed that is still green and actively filling will result in:

- a reduction in grain size (and yield);
- an increase in a greenish discolouration of the seed coat; (> 1%, green kernels (cotyledons) leads to severe marketing problems); and
- a reduction in seed viability (dead or abnormal seed).

In lentil and all other pulse crops intended for use as seed or for sprouting markets, glyphosate should not be used as it will affect seed germination even when applied after physiological maturity. See a faba bean example in Table 3.

Table 3: Effects of desiccation timing on seed viability in faba bean.

Treatment	Faba bean crop stage	% Normal seed	% Abnormal seed	% Total germinated
Nil pre-harvest treatment		92	2	94
Desiccated – glyphosate	Seed physiological maturity	27	63	90
	Seed physiological maturity plus 6 days	64	29	93
Windrowed	Seed physiological maturity	89	2	91
	Seed physiological maturity plus 6 days	85	7	92

11.1.4 Products registered for the pre-harvest desiccation of lentil

Table 4: The following table comprises extracts from the Reglone® and Roundup Ultra Max® product labels.

Active ingredient	Example trade name	Rate	Critical comments
Diquat	Reglone® (200 g/L)	2–3 L/ha	Spray as soon as the crop has reached full maturity. Helps overcome slow and uneven ripening and weed problems at harvest. Add Agral® 200 mL/100 L or BS1000® 160 mL/100 L prepared spray. **DO NOT harvest for 2 days after application.**
Glyphosate*	Roundup Ultra Max® (570 g/L)	0.645–1.7 L/ha	**Apply when physiologically mature and less than 15% green pods.** Use higher rates where crops or weeds are dense and where faster desiccation is required. **DO NOT harvest within 7 days of application.**

Note: Always read the label supplied with the product before each use.

*** WARNING DO NOT use glyphosate to desiccate lentil, field pea, faba bean or chickpea that are to be used for seed or sprouting as germination is affected.**

FEEDBACK

MORE INFORMATION

For more information on desiccation go to:

Desiccation and Crop-topping: Risks in Pulse and Canola Crops: http://pulseaus.com.au/storage/app/media/crops/pulses/20161005_PA-AOF-desiccant.pdf

Pulse Australia released an 'Alert' on desiccation and crop-topping in October 2016.

Click on the link for the most current information including herbicides and desiccants approved for use in lentil. http://pulseaus.com.au/blog/post/broadleaf-crop-desiccation

(Please note: This alert was from an international marketing perspective)

11.1.5 Practicalities of desiccation

Desiccants work more efficiently when sprayed slightly later than optimal time for swathing; when the crop is reasonably ripe across the entire paddock. It is important to ensure that good coverage of the desiccant is achieved to ensure that the stems dry down. Desiccants applied by aircraft, due to wet paddock conditions, do not dry down the plant matter as effectively as ground application due to the lower water rate required.

11.2 Crop-topping

Crop-topping is a form of desiccation; however, its timing is based on weed stages of development rather than those of lentil. It is timed to prevent weed seedset, meaning the lentil crop can be compromised if crop-topping is implemented too early.

Crop-topping aimed at ryegrass using paraquat should target the firm dough stage of rygrass seed development.

The herbicide paraquat 250 g/L is registered for crop-topping in lentil. There are many commercial brands of paraquat 250 g/L.

Table 5: Summary of lentil varietal response to grain yield effects of crop-topping with paraquat at the mid timing (optimum) stage for ryegrass crop-topping in South Australia.

Variety	Maturity of the variety	Yield loss* (no. of years) at mid-crop-top timing**	Yield loss range (%) at mid-crop-top timing**
Boomer	Mid/late	2/3	0-24%
Nugget	Mid/late	2/3*	0-22%
Nipper$^{\Phi}$	Mid	1/3	0-20%
PBA Flash$^{\Phi}$	Early/mid	1/3	0-14%
PBA Blitz$^{\Phi}$	Early	1/3	0-10%
PBA Jumbo$^{\Phi}$	Mid	0/3	0

* Number of years significant yield loss occurred out of the total years tested (x/3)
** The percentage yield loss range compared with nil treatments.

Source: Grain yield implications of crop-topping pulses for late weed control in south-eastern Australia. "Capturing Opportunities and Overcoming Obstacles in Australian Agronomy", (2012), Proceedings of 16th Australian Agronomy Conference 2012, http://www.regional.org.au/au/asa/2012/weeds/8099_linesml.htm

Timing of crop-topping is critical from both a weed and crop perspective.

Timing of crop-topping in lentil works very well in early maturing varieties like PBA Blitz$^{\Phi}$, PBA Bolt$^{\Phi}$ and PBA Flash$^{\Phi}$. However, timing can be marginal in some years in other lentil varieties that are later maturing (Nugget). Crop-topping is generally not always possible in later varieties due to the crops' maturity being late relative to ryegrass maturity in a lengthy growing season.

11.2.1 Implications of crop-topping too early

Growers must be aware of grain quality defects that may occur if crop-topping occurs earlier than the optimal time. These grain quality defects can result in either rejection at delivery or severe downgrading.

Crop-topping of lentil too early can cause discoloured seed coat or cotyledons (kernel). Also some of the smaller pods near the top of the plant are more exposed to direct contact by the desiccant spray. Seeds in these less mature pods are not physiologically mature when they dry down and will produce a green kernel. Grain quality issues due to early crop-topping are exacerbated if crop-topping occurs just prior to a significant rainfall event.

The rate of desiccant product and/or product used can also influence speed of dry-down and can raise the risk of the potential for more grains that are immature.

FEEDBACK

Photo 11: *Lentil crop with ryegrass at its optimum stage for crop-topping (2011).*

(Photo: L. McMurray, SARDI)

Photo 12: *Lentil crop with ryegrass at its optimum stage for crop-topping (2010).*

(Photo: L. McMurray, SARDI)

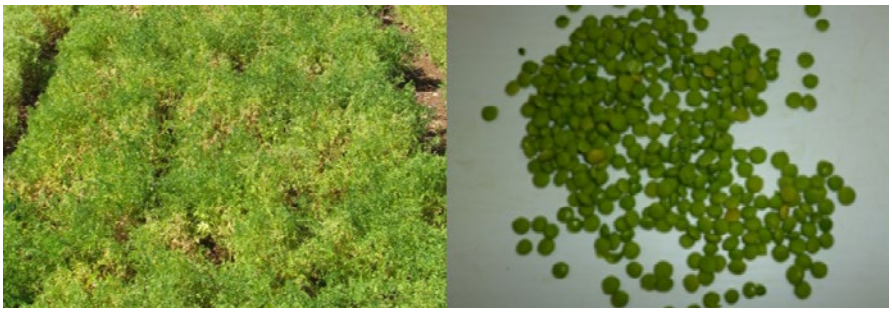

Photo 13: *Lentil crop with ryegrass at its optimum stage for crop-topping (2011).*

(Photo: L. McMurray, SARDI)

Photo 14: *Lentil crop with ryegrass at its optimum stage for crop-topping (2010).*

(Photo: L. McMurray, SARDI)

FEEDBACK

MORE INFORMATION

For more information on 'Desiccation and crop-topping of pulses' see Pulse Australia bulletin at: http://pulseaus.com.au/growing-pulses/publications/desiccation-and-croptopping

MORE INFORMATION

For more information on crop-topping go to:
Desiccation and Crop-topping: Risks in Pulse and Canola Crops: http://pulseaus.com.au/storage/app/media/crops/pulses/20161005_PA-AOF-desiccant.pdf

Trials on crop-topping

A crop-topping trial was conducted at Arthurton/Melton, South Australia in 2011.[4] Key findings were:

- reductions in grain yield can occur with early crop-topping (2 weeks prior to recommended timing);
- grain yield is unaffected by late crop-topping (2 weeks after recommended timing);
- grain weight is affected by crop-topping similarly to grain yield; and
- crop-topping does not have an effect on the occurrence of mould in lentil grain.

For further information on this trial go to:
http://www.regional.org.au/au/asa/2012/weeds/8099_linesml.htm

Photo 15: *Varying stages of maturity of seeds in pods of PBA Blitz$^{\phi}$ at the stage of crop-topping.*

(Photo: M. Raynes, formerly Pulse Australia)

Photo 16: *Varying stages of maturity of pods of PBA Hurricane$^{\phi}$ at the stage of crop-topping.*

(Photo: M. Raynes formerly Pulse Australia)

4 M Lines, L McMurray, J Brand (2012) Grain yield implications of crop-topping pulses for late weed control in south-eastern Australia. In "Capturing Opportunities and Overcoming Obstacles in Australian Agronomy". Edited by I. Yunusa. Proceedings of 16th Australian Agronomy Conference 2012, 14-18 October 2012, Armidale, NSW, http://www.regional.org.au/au/asa/2012/weeds/8099_linesml.htm

FEEDBACK

11.3 Swathing

Swathing (or windrowing) is when a standing crop is cut and then left on the ground for the grain to be harvested at a later date. It is primarily used to bring the harvest date forward, uniformly ripen the crop, protect the crop from weather events (shattering) where harvest is to be delayed, or as part of general management to reduce seedset of weeds present.

Swathing has become common in pulses like faba bean in some areas as growers try to reduce problems associated with direct harvesting, uneven crop maturity, or weed seed management. Swathing lentil crops is not a common practice in Australia. However, it is possible if done correctly.

11.3.1 Benefits

Swathing a pulse crop, including lentil, can provide a number of benefits:

- Uniform maturity of the crop.
- Problems caused by late maturing weeds are avoided. These include delayed harvest which increases the risk of staining caused by the weather and disease, and storage problems from green weed contamination.
- Can advance the harvest date when done as soon as the crop is mature, avoiding clashes with other crops, such as cereals.
- Weed seed is moved into a swath before shedding occurs and can be burnt after harvest.
- Lower pods are harvested rather than being left behind, due to the lower cutting height possible with a swather.
- Excessively tall crops can be better handled at harvest. When direct harvesting tall crops the reel can be in the way: pushing plants forward and causing problems with feeding material into the harvester and losses on the cutter bar. Direct harvesting very tall and lodged crops is also very slow. Swathing can dramatically increase harvester efficiency.
- Swathing reduces damage to harvesters. Harvesters working in 'rougher' country can damage knife fingers and sections, retractable fingers and other components on sticks and stones. Pick-up fronts leave most of these 'undesirables' on the ground.
- Harvest speed may be increased, particularly if a light crop is made into paired swaths; therefore, increasing the width covered by the harvester pass.[5]

In Canada, swathing of lentil is used as much as direct harvesting. A key reason is that growers believe the lentil maintains its grain colour with this practice. Improved colour is a key parameter that assists growers in achieving greater quality.

11.3.2 Risks

There are several risks to swathing crops:

- Swathing too early (prior to crop maturity) can cause significant yield and quality losses. Small and shrivelled seed will result from drying down of immature seed.
- Swathing too late can cause shatter losses as the cutter bar hits the crop.
- The seed coat can discolour if left too long in the swath, especially in wet conditions when mould growth and seed staining can occur.
- Light swaths can be blown.
- Soil erosion is possible if there is very little root system and plant biomass left.

While windowing lentil maintains better colour, it has not necessarily been found to be enough of an advantage for Australian growers compared to the overall time savings in the harvest program with crop-topping, desiccation and direct harvesting.

5 Pulse Australia (2016) Southern Lentil: Best Management Practices Training Course. Pulse Australia

FEEDBACK

Swathing of lentil crops for uniform ripening and earlier harvest was once considered impractical because lentil swaths often lack bulk, are difficult to pick up from the bare ground, and tend to be blown around in strong winds when left to dry down. However, there has been some success in placing wide swaths doubled into a bulkier swath and using a 'cotton wheel roller' to compact the swath. Risk is reduced and harvesting efficiency improved because of the larger, compact swath and wide areas covered in the harvesting pass.

A swathing trial was attempted in 1994 at Merredin in WA in a very dry season with low lentil crop height. Issues with picking up the lentil swath with crop lifters led to a yield reduction of 37%.[6] Even so, swathing may be an option in medium rainfall areas where growth and biomass production are generally large and good harvest weather is difficult to achieve. A self-propelled swather is required to cut across the lay of the crop and a pick-up front is recommended.

11.3.3 Timing

The most critical step in swathing is timing. Swathing at the correct maturity time reduces the time the lentil plant spends in the swath. Assessment for timing of swathing should be based on seed maturity. Lentil seed is considered physiologically mature when the seed is filled to its maximum size, and has changed colour.

The ideal time to swath is when the seeds in the top third of the lentil plant are at full physiological maturity.

Visual measurements such as leaf colour and drop, or pod colour should not be considered for timing of swathing as these parameters can be misleading; leaves can be prematurely lost and pods blemished by disease.

If the lentil crop is not at the required level of maturity, then swathing becomes problematic. Alternatively, swathing on the later side of required maturity increases grain losses due to shattering. Determining the most appropriate time can be difficult considering maturity variation across the paddock. If a swathing contractor is to be used, timing may be further compromised because of the availability of the contractor.

Snails

Swathing of some pulses has also been successful when it is done only hours in front of the harvester, and done during the early morning whilst the crop is wet with dew to avoid grain loss. This timing is principally to help reduce snail contamination in the grain sample harvested later that day. Such a late timing does not assist in obtaining uniform and early crop ripening.

11.3.4 How to swath

The cutting height for swathing should be just below the bottom pods with the reel following the top of the crop. The reel speed should be quite slow. The delivery opening in the swather should be large enough to prevent blockages or there will be lumps in the swath. Swaths should be dense and tightly knit for best results.

Pick-up fronts are the most common type used for harvesting swaths. However, crop lifters used close together on open fronts have been used with some success.

Curing should take about 10–12 hot days. However, heavy infestations of radish, weeds and other green matter could delay drying.

11.3.5 Should lentil be swathed or direct headed?

In Canada, the practices of swathing lentil and direct harvesting (straight cut) lentil are both commonplace. There is no clear indication as to which method is best.[7]

6 G Riethmuller, K Siddique, I Pritchard (2005 revised) Successful Lentil Harvesting. Agriculture Western Australia Farmnote 99/99

7 B Bratrud (2011) To Swath or Not — Harvest Management of Lentils. Grainews 6 June 2011, http://www.agcanada.com/grainews/2011/06/06/to-swath-or-not-harvest-management-of-lentils/

FEEDBACK

The key element in choosing between swathing and direct harvesting lentil is the level of urgency in harvesting the crop and transferring of grain into storage. Lentil must be prioritised at harvest over other grain crops. This has been highlighted in seasons in both Canada and Australia where wet, uncooperative weather or extreme heat and winds made the management of lentil harvest much more difficult than usual.

Timing and logistics are a consideration as the area that can be direct harvested in one day is less than what can be achieved with harvesting swaths. Swathing green (not fully mature) lentil results in a larger window of time with which to harvest all crops.

Another consideration for choosing swathing over direct harvesting is the cost of operation. The cost of operating a harvester versus a swather is significantly higher. Additionally, swathing and subsequent harvesting can be done at a speed of around 9–10 km/h, whereas direct harvesting is usually slower at around 6.5km/h; a key advantage when timeliness of harvest is critical.

There may sometimes be a time conflict issue around the swathing of both lentil and canola. In these circumstances the decision needs to be made whether to use desiccation and straight harvesting rather than swathing.

11.3.6 Direct harvesting

Most Australian and some Canadian lentil growers tend to prefer direct harvesting (straight cutting) of lentil after desiccation (or crop-topping). Growers attribute much of their success in harvesting lentil to having the correct harvesting equipment.

Using a flex harvester front with air reels can result in limited shatter on the knife front, provided the speed of the harvester is maintained. If the crop is shorter or thinner, it can be difficult to keep the crop feeding well and the harvester moving at the desired speed. More losses occur in a thin, poor stand crop compared to a thick and bulky crop. Harvest efficiency is improved if lentil has been rolled and/or sown inter-row into standing stubble, especially in a thinner or shorter crop.

A key benefit of direct harvesting lentil for many growers is time management of the entire harvest program (taking into account all crop types). For some, the time taken for lentil swathing can be too long and can overlap with when canola and faba bean crops needs swathing. Desiccating lentil can be completed in significantly less time than swathing, thus allowing time needed for swathing canola. The costs per hectare of swathing versus desiccation may be similar enough to the point where the logistics of the operation are far more important.

Some growers employ additional contract harvesters to take off their lentil crops rapidly, given the dire yield and market consequences of delayed harvest.