

Crop desiccation/spray out

Key messages

- Vetch is suited to crop-topping due to its early maturity. Desiccation is not recommended in vetch.
- Do not desiccate crops intended for seed.
- Timing of crop-topping is important to ensure good weed control and to limit yield losses to the crop.
- Check labels before application and adhere to necessary withholding periods.

Crop-topping and desiccation are well established techniques to improve the rotational fit, benefits and profitability of the pulse crop. While they are essentially the same physical operation of applying a desiccant herbicide close to final maturity of the pulse, they do achieve different objectives and must be applied with care.

Desiccation is not recommended in vetch, however, due to its early maturity, vetch can be crop-topped.

Crop-topping (for weed control) or desiccation can ensure a quicker and more uniform ripening of the crop. Plants growing in wheel tracks may ripen later and usually need to be desiccated for harvest. Timing of desiccation or crop-topping is critical for grain quality because premature desiccation of wheel tracks or later maturing areas in a paddock can lead to grain quality issues in the harvested sample (e.g. green kernel or stained seed coats).¹

There are three reasons to apply non-selective herbicides late in the season:

1. just prior to harvest to manage late season weeds;
2. in-crop spray topping of annual ryegrass and other weed species to prevent seed set; and
3. for pre-harvest desiccation of the crop to accelerate or even up ripening to assist with harvest.

Pulse species differ in their time to maturity, making some unsuitable for crop-topping. Crop-topping is conducted before the target weed species mature, later maturing pulse species will be adversely affected.

The application of herbicides late in the season to prevent weeds setting seed or to desiccate crops must be carried out with caution and in line with herbicide label recommendations. It is essential to check if these practices are acceptable to buyers, as in some situations markets have extremely low or even zero tolerance to some pesticide and herbicide residues.

In-crop spray topping with paraquat or glyphosate in pulse crops and pastures is an effective strategy for controlling a range of annual grasses. It should be used as a tool with other integrated weed management (IWM) techniques such as cutting crops for hay, breakcrops and green and brown manuring. Timing of application and rates of product are crucial to maintaining crop yield while reducing ryegrass seeds.

The yield of most pulse crops is not reduced if crop topping is delayed until seeds in the top pods are 75% of their full size. However, given the goal of in-crop spray topping is to achieve effective ryegrass control, growers need to strike a balance between optimal timing for ryegrass control (which is often earlier) and yield loss. Of all legumes, early maturing peas are most suited to in-crop spray topping.²

MORE INFORMATION

[Late season herbicide use factsheet.](#)

¹ Pulse Australia. (2015). Lentil production: Southern region. <http://pulseaus.com.au/growing-pulses/bmp/lentil/southern-guide>

² GRDC (2010) Late season herbicide use Factsheet. http://www.goodfoodworld.com/wp-content/uploads/2017/09/GRDC_LateSeasonHerbicideUse_FS.pdf

11.1 Application

Timing is critical. If the crop is desiccated too early, seed size may be reduced and the sample quality impaired by the presence of green cotyledons.

The ideal timing for crop-topping occurs when the vetch seeds have reached 30% moisture, or when the lower 75% of pods are brown with firm seeds and leathery pods. It is also important to consider the maturity of weeds.

Spray the crop when the ryegrass is at the optimum stage, that is when the last ryegrass seed heads at the bottom of the plant have emerged and the majority are at or just past flowering (with anthers present or glumes open) but before haying off is evident (Photo 1).



Photo 1: Preventing seed set on all ryegrass escapes is the aim when croptopping pulses.

Source: [Pulse Australia](#)

Paraquat 360 g/L (Gramoxone®360 Pro) is registered for harvest aid or salvage spraying in vetch. A high water rate of 100Litres/ha or higher is essential for an effective spray out job.

Paraquat

Optimum timing for ryegrass control is approximately 10 days after flowering. Spray when as many pods as possible have fully developed seeds although pods may still be green. The higher rate of paraquat can give more reliable control of ryegrass, but can cause yield loss.³

Table 1: Crop-topping to reduce the seed set of annual ryegrass. product registrations for pre-harvest weed control and desiccation Vary by crop type. always check product labels. Withholding period: DO NOT harvest for 7 days after application, DO NOT graze or cut for stock food for 1 day (7 days for horses).

Paraquat (e.g. Gramoxone)		
Active ingredient	250 g/L	200 g/L
Rate/ha	400–800 mL	0.5–1 L

³ Day, T., Day, H., Hawthorne, W., Mayfield, A., McMurray, L., Rethus, G., & Turner, C. (2008). Grain legume handbook. GRDC: Canberra, ACT.

Withholding period	Harvest	Grazing
	14 days	1 day (7 days for horses)

Source: [Grain Legume Handbook](#)

When spraying, use extreme caution and carefully consider the possibility of spray drift onto susceptible plants – e.g. cotton, canola, lucerne, grapevines, horticultural crops, belah and kurrajong trees.

11.2 Vetch termination timing

The optimum time to terminate vetch to achieve the greatest benefit for the following wheat crop is an important management decision. Finding the balance between early termination for soil water conservation as opposed to later termination for greater biomass production and nitrogen fixation for the benefit of the next crop is not always simple.

Seasonal conditions, crop growth, weed spectrum and livestock feed requirements are all factors that can influence the decision of when to terminate vetch growth.

Trials from 2012–2014 in southern Australia found that early termination of vetch resulted in higher soil N and soil water at sowing the following year compared with later termination timings of vetch. When vetch is established in March and is terminated 'early' (three to four months later, in June, July), soil water will be conserved for the subsequent wheat crop; the risk of haying off due to high nitrogen will be lower than if the vetch were terminated 'later' (August, September).

Wheat yield in the year following vetch was highest for the earlier termination timings of the vetch. Brown manure vetch had higher soil N and soil water compared to vetch taken through to harvest. Regardless of sowing time, approximate vetch biomass production of 2 t/ha (up to 120 kg N/ha of total plant N produced if no losses occur) may be a good target if a wheat crop is to follow and a dry season is forecast (Decile 3 or less). However, variation in seasonal conditions, soil type and livestock need to be considered. In dry seasons, residual mineral nitrogen from vetch brown manure can influence cereal crop growth in the following two years. However, this trial demonstrates that soil water is more critical than nitrogen in Decile 1 and 2 rainfall years.⁴

MORE INFORMATION

[Vetch termination 2012–2014 end use treatment](#)

[Vetch termination: finding a compromise](#)

⁴ D Ferrier, L Goward, M Peoples (2014) Vetch termination. Birchip Cropping Group. Online Farm Trials. <http://www.farmtrials.com.au/trial/17638>