FUMITORY CONTROL

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BACKGROUND

Common fumitory is becoming a problem weed in certain areas across Victoria. Unlike other weed species, there are seven different types of fumitory in Australia, six of which are present in Victoria. The two most common are *F.bastardii* and *F.densiflora*. Identifying the correct species of fumitory is often difficult due to morphology variation and different growing conditions. Because of this, each species also has variable degrees of susceptibility to herbicides.

Fumitory is usually associated with conventional, as opposed to no-til, farming systems. This because cultivation stimulates germination while stubble can impede emergence. It is very competitive against pulses where there are very few effective herbicide options, and to a lesser extent, cereals and canola. If fumitory is allowed to set seed in canola, it can be very hard to remove. This is because its seed size is very similar. Retaining seed containing fumitory can contribute to its spread.

Historically, herbicide products such as On-duty®, Igran®, Glean®, Logran®, Jaguar®, Tigrex® and even trifluralin, were effective against fumitory. However, today, only Igran is showing acceptable levels of control.

While there has been increased awareness of herbicide resistance in other weed species such as ryegrass and wild radish, reports of resistance in fumitory are not well documented. Subsequently, due to increased grower inquiry and adviser feedback, a replicated trial was established in 2013 in collaboration with AGRIvision Consultants.

Note: some of the herbicides used in this trial are not registered for use in certain crops, and were tested for experimental purposes only. Always read the label and adhere to directions when using herbicides.

AIM

To identify the most effective herbicide brews to control fumitory.

TRIAL DETAILS

Location:	Lalbert (21km north of Quambatook)
Soil type:	Clay without sub-soil constraints
GSR (Apr-Oct):	176mm
Crop type:	Kord CL Plus

TAKE HOME MESSAGES

1. Populations of fumitory are now exhibiting resistance to commonly used broadleaf herbicides, including Clearfield®.
2. Avoid cultivation which promotes the germination of fumitory.
3. In this trial, Precept®, Velocity® + MCPA LVE and Affinity Force® + MCPA Amine, were most effective in controlling fumitory. On-duty® and other Group B herbicides were amongst the worst performers.

Herbicides: See Table 2
Spray application date: 6 August 2013
Weed growth stage: 7 branches (20-25cm long)
Weed population: 100-200 plants/m^2
Assessment date: 5 September 2013 (30 DAA)

Table 1. Spraying conditions at time of application.

Temperature (°C)	10.5	**Water rate (L/ha)**	100
Humidity (%)	67.5	**Nozzle type**	AIXR015
Wind speed (km/h)	1-2	**Pressure**	2 bar
Cloud cover (%)	30	**soil conditions**	moist topsoil, moisture at depth

Table 2. Herbicide treatments used in the trial.

Product/treatment	Herbicide group	Cost ($/ha)
Untreated		
Affinity Force @ 85mL/ha + MCPA Amine 500 @ 500ml/ha	G, I	17.10
Affinity Force @ 65mL/ha + MCPA Amine 500 @ 500ml/ha + Lexone® @ 100g/ha	G, I, C	16.80
Atrazine @ 1.1kg/ha + @ Uptake™ 1%v/v	C	7.40
Bromicide® MA @ 500ml/ha + Ally® @ 5g/ha	C, B	7.10
Conclude™ @ 700mL/ha + Uptake @ 0.5% v/v	B, I	14.00
Diuron® 500 SC @ 500ml/ha + MCPA Amine 500 @ 500ml/ha	C, I	8.60
Ecopar® @ 400mL/ha + MCPA Amine 500 @ 500ml/ha	G, I	16.80
Flight® @ 570ml/ha	F, C, I	18.40
Igran @ 500ml/ha + Ally @ 5g/ha	C, B	11.30
Igran @ 500ml/ha + MCPA Amine 500 @ 500ml/ha	C, I	13.80
Igran @ 850ml/ha + MCPA Amine 500 @ 500ml/ha	C, I	21.50
Jaguar @ 750ml/ha + LVE MCPA 570 @ 400ml/ha	C, F, I	13.80
On Duty @ 40g/ha + Hasten™ @ 1%v/v	B	10.00
Precept @ 750ml/ha + Liase @ 2%v/v	H, I	15.10
Precept @ 1000ml/ha + Liase @ 2%v/v	H, I	19.00
Precept @ 500ml/ha + Lexone @ 100g/ha + Liase @ 2%v/v	H, I, C	14.30
Starane Advanced® @ 300mL/ha + Ally @ 5g/ha + Uptake @ 0.5% v/v	I, B	6.60
Velocity @ 500ml/ha + MCPA LVE 500 @ 500ml/ha + Uptake @ 0.5% v/v	H, C, I	21.50
Velocity @ 500ml/ha + Uptake @ 0.5% v/v	H, C	18.80
Velocity @ 670ml/ha + Uptake @ 0.5% v/v	H, C	24.10

Note: Although the trial was sprayed on to a standing wheat crop, crop safety and subsequent yield loss were not assessed and are therefore unknown. The crop provided the useful commercial issues (of canopy penetration) that pertain to specific herbicides for in-crop situations. The herbicide treatments used in this trial should be assumed to be in the absence of any crop and these herbicides should only be applied to registered crops at their specified timing. **When using herbicides always adhere to label instructions.**

METHOD

The paddock was selected on the basis of the known high populations of fumitory and potential resistance. The trial was sprayed using a complete randomised block design with three replicates.

The trial was sprayed on to a moist soil following 8mm of rain. At the time of application, the crop was at GS31 (first node) and the fumitory weeds already had several branches. Application of many of the herbicides at this stage is off label, therefore crop safety and its effect on yield were not measured as part of this trial. It is also important to note, spraying at this stage and weed size may have a bearing on the performance of some of the herbicides. This would be due to a lack of canopy penetration or coverage, and effectiveness on larger weeds.

The trial was sprayed perpendicular to the crop row due to the dimensions of the patch of weeds. To compensate for this, a high water rate of 100L/ha was applied to achieve best coverage possible. Estimated per cent weed reduction and control was visually scored 30 days after spraying.

RESULTS AND INTERPRETATION

The results of this trial found no product or mix that completely controlled fumitory. Precept, which contains pyrasulfotole and MCPA, was one of the more consistent performers, achieving 80-85% control. Increasing the rate of Precept from 750ml/ha to 1L/ha application did not improve control.

Although Velocity, which also contains pyrasulfatole, was expected to have better control of the fumitory when applied by itself, the addition of MCPA LVE to the brew improved control by 15%. This may be due to coverage issues, as Velocity needs very good coverage to achieve a good kill. The addition of MCPA allows for some systemic action and helps suppress weeds that may have escaped control due to coverage or shading issues.

Precept contains more pyrasulfatole (grams per active) than Velocity which could explain the greater control achieved by Precept.

Affinity Force improved fumitory control when applied at the higher rate of 85ml/ha. The addition of Lexone to the lower rate of 65ml/ha did not appear to deliver any extra control. Similarly, the addition to Lexone to Precept improved control by only four per cent and was not significant. Lexone works best with rainfall following application. The trial was sprayed following 8mm of rainfall, and the site did receive subsequent 3-4mm three days later. These conditions should have been ideal for Lexone to work, but this was not the case.

Igran, as previous results have suggested, achieved over 70 per cent fumitory control when added to a MCPA Amine and Ally mix. The higher rate of 850ml/ha improved control by 8-10%.

The Jaguar + MCPA LVE, Flight and Bromicide MA + Ally treatments achieved less control than commercially acceptable (70%). The bromoxynil component of these herbicides did not seem to be sufficiently strong to gain a good level of control. On the other hand, the addition of pyrasulfatole (in Precept and Velocity) did improve control.

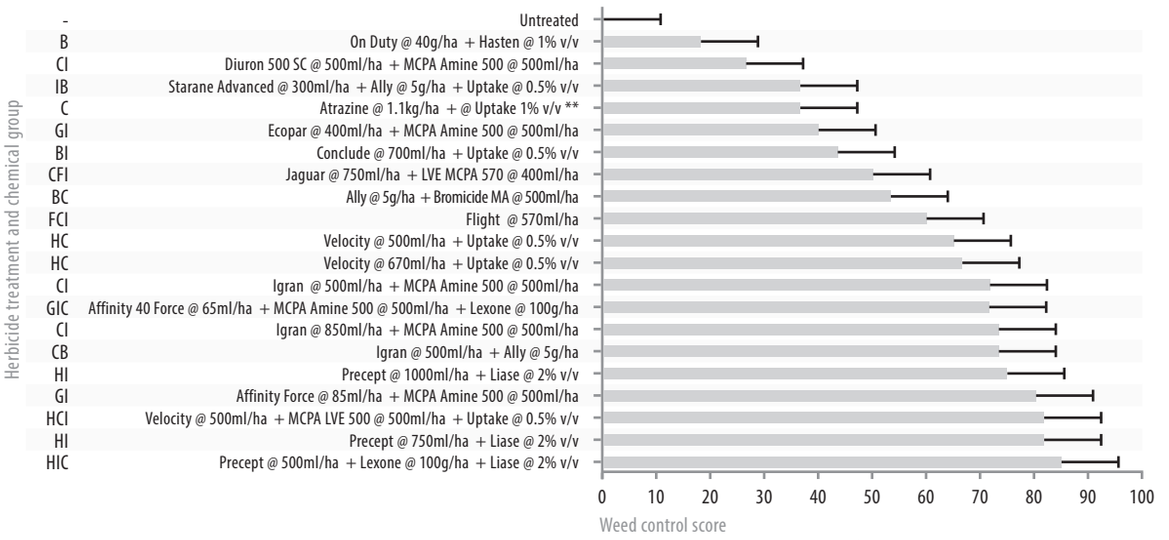

Figure 1. Fumitory control expressed as a visual per cent reduction (%) from the untreated for each of the herbicide treatments at 30 days after application. (not registered in wheat).**

COMMERCIAL PRACTICE

This trial has highlighted a weed that poses an emerging threat to some farms.

While it was evident in this trial that the herbicides recommended no more than six years ago now no longer work, there are other herbicide mixes that are effective at similar prices. For example, the best treatment Precept + Lexone costs $14/ha compared with Igran treatments ranging between $13-21/ha. It is another case of understanding your enemy, which in this instance is fumitory, and ensuring the herbicide that will best control it is used.

Due to the nature of the weed being very low to the ground, other non-chemical control methods such as grazing, burning, and spray topping pastures have been found to be ineffective at reducing numbers. While hay, if cut low, can be an effective option, timing is the key. Machinery hygiene is extremely important for all crops, and avoid keeping any seed from paddocks with fumitory will prevent its spread.

It is important to note that this is one trial in one season alone. BCG and AGRIvision will repeat the trial in 2015.

ON-FARM PROFITABILITY

In southern NSW, yield losses of up to 30% have been recorded as a result of high densities of fumitory in pulses such as field peas, vetch, lentils and chickpeas. The value of break crops on whole farm profitability has been well documented in recent years. If fumitory is an issue, keeping numbers down during the cereal phase and avoiding cultivation will keep pulses an option into the future.

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KEY WORDS

fumitory, herbicide, weeds, emerging weeds