Radish control in lentils

SUMMARY
Post-sowing pre-emergent treatments were not active enough to reduce a large radish population to a commercially acceptable level. Early post emergent treatments were more effective in reducing radish populations to a manageable level but did not eliminate the radish problem. Product mixes containing Brodal were the most effective in controlling to low levels quite a dense radish population.

Wild radish is becoming an extremely common and difficult weed to control. Lentils are not competitive with weeds and weed control options are limited. This trial investigates which herbicides have good activity on radish whilst minimising damage to lentils.

METHOD
Thirteen herbicide mixes were investigated on lentils sown on May 17. All treatments were replicated three times in randomised blocks.   Post-sowing pre-emergent applications were applied within ten days of sowing on a moist soil. Early post emergent applications were applied six weeks after emergence (radish 2-12 cm across). A second application for some treatments was applied five weeks later. Rainfall in late May was excellent but June and July rainfall was patchy and below average.

Each treatment was located adjacent to a control (no herbicide). The controls were used for assessing crop effect of the herbicide. The controls were not harvested due to a very high radish population. The level of radish control and herbicide crop effect were assessed six weeks after application.

RESULTS
Table 2.8 Post-sowing pre-emergent treatments

Product	Reg. Status	Cost $/ha	Radish plants/m2	Crop effect[#]	Yield t/ha
Control			50	1	n/a
Simazine 1.5L	NR	9.50	30	1.3	0.57
Simazine 1L + Diuron 0.8L	NR	12.50	28	1.3	0.70
Simazine 1L + Lexone 150g	NR	21.00	14	1.4	0.54
Diuron 1L + Lexone 150g	NR	22.50	12	1.3	0.62
Brodal 0.15L	NR	22.50	27	2.1	0.68
Significant difference			**P<0.05** **LSD = 22**	**NS**	**P<0.05** **LSD = 0.15**

1 = no effect, 5 = severe damage, 9 = dead

Table 2.9 Early post-emergent treatments

Product	Reg Status	Cost $/ha	Radish plants/m2	Crop effect#	Yield t/ha
Control			50	1	n/a
Brodal 0.15L	NR	22.50	3	3.3	0.42
Brodal 0.15L two applications	NR	45.00	13	3.2	0.30
Brodal 0.1L + Lexone 100g	NR	25.00	3	3.6	0.28
Brodal 0.1L + Igran 0.2L	NR	18.00	1	3.8	0.46
Brodal 0.09L + Simazine 0.9L	NR	19.00	2	2.9	0.53
Broadstrike 25g (no wetter)	R	16.00	28	2.0	0.38
Broadstrike 25g plus wetter 0.1%	NR	17.00	17	2.3	0.39
Brodal 0.15L followed by Broadstrike 25g (no wetter)	NR	39.00	18	3.1	0.42
Significant difference			P<0.001 LSD=14	P<0.001 LSD=1.1	NS

INTERPRETATION
The post-sowing pre-emergent treatments all reduced the radish populations but not by enough to reach commercially acceptable levels.   Simazine plus Lexone and Diuron plus Lexone were the best product mixes in reducing the populations. These product mixes reduced the radish population from 50 to less than 15 plants per square metre, which is still too many.   Lentil yields with the post-sowing pre-emergent treatments was variable and no clear trends were seen. Early competition from radish resulted in lower yields compared to the post-emergent applications.

The early post emergent treatments generally reduced radish populations to a greater extent compared to the post-sowing pre-emergent treatments. The best treatments for radish control contained Brodal. However, Brodal had a significant crop effect, even though the yield outcomes were similar to those treatments that did not contain Brodal.   The mix with Igran appeared to be too damaging to lentils.

COMMERCIAL PRACTICE
Brodal is not registered, but it is commonly used in lentils for weed control in early post emergent situations.   Brodal needs to be used early in the season when the weeds are small. It does result in quite a marked visual effect on the lentils, in some cases severe discolouring of the leaves and shortening of the stems. In most cases, the crop grows out of the effect of the chemical and recovers quite well. Brodal and Lexone mixes have been tried in situations where medic or radish populations are hampering lentil production, but only as a last resort. It can severely set back the lentil crop to the extent that it may not recover fully.

Broadstrike is registered for use on lentils (application no later than seven weeks after emergence) without the addition of a wetting agent. Broadstrike with a wetting agent can result in yellowing of the crop; this is not necessarily associated with a reduction in yield except in a short season. Broadstrike, especially if used with a wetter, can delay flowering by about two weeks.   Broadstrike is most active on weeds when used on days that are clear with plenty of sunshine.