# Herbicide use with shields

By John Rochecouste, Conservation Farmers Inc.

The whole idea of a shield is to prevent herbicides coming into contact with the crop. But given that most shields will have some small leakage depending upon condition we need to consider what herbicides we can safely use.

To begin with only two actives (various formulations of glyphosate and paraquat) specifically mention use with shields. The other non-grass herbicides registered in cotton post-emergent include Diuron, Fluometuron, prometryn and combinations for use with a lay-by option, applied as a directed spray. They could be used in shields but do not specifically require it.

## OTHER HERBICIDES

The main issue is that there are many other herbicides (registered for fallow weed control) that are sometime used through shields inter-row. The use of such herbicides as Goal, Starane, Ally, 24–D amine (yes its true), atrazine and Lontrel are sometimes added as a 'spike' to control certain problem weeds.

These herbicides do not have shield use on their labels. So their use is not supported by the agricultural chemical companies.

Can the inter-row be considered a type of fallow for these types of herbicides? And what are the crop safety aspects of a small amount of drift?

The answers to those questions are not clear. They are issues for growers, and major issues for advisers.

We could not answer the first question but we could begin to test the second issue of crop safety with the use of herbicide 'spikes'. We did two trials with various chemical mixes, but only one gave us clear results. Funds are being sought to continue this work and further extend our understanding.

The primary aim was to test if some of these mixes had any crop safety issues. We conducted a replicated trial in Moree and measured effects on fruit load at harvest from one application. Boll numbers will vary considerably with variety, so the results from these trials can only be considered as preliminary.

What we were looking for was whether or not these

30 ▷

◁ 29...HERBICIDE USE WITH SHIELDS

mixes caused any major differences in fruit load. We were sure that they had an effect on cotton directly but could they be used like glyphosate and paraquat or did any amount of drift pose too great a risk?

To be safe we started in 50 cm cotton and the results are listed in Table 1. Essentially the shield worked very well and the drift that eventuated was no more damaging then using glyphosate at 1.8 litres per hectare.

What we did not see in the trial results was any dramatic impact from using these products. We cannot be certain that any more drift would not cause major problems, but it gives us a bit more confidence to experiment further.

The weed control part of the trial compared peachvine or cowvine (*Ipomea lonchophylla*) which does not have a control claim on the glyphosate label. The other weeds — noogoora burr and bladder ketmia — were 100 per cent controlled by all treatments.

When we applied these products in test strips directly on cotton, they caused fairly significant crop damage, so careful shield application would be important. Given the ambiguous legal status of such mixes, we need to consider how much we really want to have them for future weed control, before we embark on further trials.

**For more information, contact: John Rochecouste 07 4635 0824 or Mike Burgis 07 4638 5356.**

**TABLE 1: Fruit load measurements pre-defoliation, comparing the effect of different herbicide mixes**

| Treatments* | % control of Peachvine 17 DAT | Plant mapping details | | | | | |
|---|---|---|---|---|---|---|---|
| | | Veg nodes | Position 1 retention | Position 2 retention | Position 3 retention | Total bolls | Plant height |
| Roundup CT 1.8L | 76.3 | 8.3 | 4.0 | 1.7 | 0.1 | 12.0 | 83.7 |
| Roundup CT 1.8L + Ally 5g | 81.9 | 8.0 | 3.9 | 1.9 | 0.3 | 12.5 | 81.4 |
| Roundup CT 1.8L + PL956# 120g | 99.8 | 7.8 | 4.0 | 1.7 | 0.4 | 13.1 | 84.9 |
| Roundup CT 1.8L + Starane 300ml | 87.0 | 8.2 | 4.1 | 1.6 | 0.3 | 12.1 | 81.2 |
| Roundup CT 1.8L + Hammer 75g | 91.5 | 7.8 | 3.9 | 2.0 | 0.3 | 13.2 | 86.0 |
| Liberty 3L (not yet registered) | 91.6 | 8.2 | 4.2 | 2.0 | 0.3 | 13.6 | 81.2 |
| | | NS | NS | NS | NS | NS | NS |

*Using DG9502 x 2 giving 86L/ha, #Experimental herbicide, NS = not significant statistically