

## Controlling Large or Tolerant/Resistant Thistles

Nodding, variegated, winged and scotch thistles are problem weeds in many pastures in NZ, but can be effectively controlled using phenoxy herbicides.

Sensitivity to phenoxy herbicides is influenced both by species and growth stage. Nodding thistles are the hardest to kill, followed by winged and variegated, while scotch thistles are the easiest. Young thistles are usually well controlled, but most thistles at the large rosette stage, those that are multi-crowned, or those with flower stalks are poorly controlled.

### Tolerant/resistant thistles

In some regions, usually where there has been a long history of phenoxy herbicide use, some thistles show tolerance/resistance to all phenoxy herbicides. Resistant/tolerant nodding thistles or nodding/plumeless thistle hybrids are becoming increasingly common in many regions in NZ. Tolerance/resistance is not evident in variegated or scotch thistles and it is unclear whether it has begun to develop in winged thistles.

If present, tolerance/resistance will only be evident from the small rosette stage onwards. From germination to about one month after germination, all thistles

appear susceptible to normal application rates of phenoxy herbicides.

### Which herbicides to use

For the control of large thistles (except scotch thistles), or tolerant/resistant thistles, apply Archer™ at 100-200ml/ha in combination with a phenoxy herbicide. Archer (300g/L clopyralid) is a new product from Nufarm.

Agritone™ 720, Baton® or Relay® are the phenoxy herbicides of choice to apply with Archer. Agritone (MCPA) is more effective than Baton or Relay (both 2,4D) and should be used when targeting mostly thistles, especially nodding thistles. If ragwort or other weeds also need to be controlled, then Baton or Relay are better options. Agritone 720 and Relay are rainfast after 2 hours, Baton is rainfast after 6 hours.

### Effect on clovers

Archer is very harmful to clovers and can cause severe clover suppression. To reduce clover damage, graze before spraying to reduce clover leaf area (also exposes the thistles). Avoid grazing for 2 weeks after spraying to allow herbicide absorption and translocation to the growing points. Brassicas, cereals and grasses may be sown at any time after applying Archer. Do not sow clovers within 12 weeks of application.

### Herbicide Application Rates

Thistle	Size	Agritone	Baton	Relay
Nodding and hybrids of, Winged, Variegated	Large rosettes to flower stalk or resistant/tolerant	3L/ha	3kg/ha	3L/ha
Add Archer at 100-200ml/ha				
Scotch	Large rosettes to flower stalk	2L/ha	2kg/ha	2L/ha

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