Weed Notes: *Centaurea maculosa*

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28 June 1999

Mechanical Control: Hot prescribed burns may reduce established stands of knapweed. A follow-up of selective pulling and digging will further reduce populations. Annual burns have reduced populations by 5-90% and may be correlated with burn intensity. Reseeding with a native species is recommended. However, single, low intensity burns may actually worsen the problem since it is not hot enough to prevent resprouting and seed germination. Also, fires may disturb the area promoting colonization.

Chemical Control: Clopyralid (Transline) applied at 0.13-0.19 L/ha (0.66-1.0 pt/acre) or clopyralid + 1.12 kg/ha 2,4-D (Curtail) provide control with little soil residual. Apply during the bolt or bud stage. Less control was achieved when applied to the rosette, flowering and after flowering stages.

Picloram (Tordon) (0.28 kg/ha), as listed in the ESA for *C. maculosa*, can control plants and seedling for 2-3 years. However, as mentioned in the ESA, there is a long residual and it is costly (as is dicamba - listed below). The residual may be shorter on gravel soils, wet areas and areas with high soil organic matter. The optimum time for the application of picloram is during the rosette growth stage in the fall or in the bud to bloom stage in the spring. Picloram can not be used near water or in porous substrata overlying ground water. Picloram does not affect grasses, but long term affects have been observed from it on shrubs and trees, possibly due to it leaching in ground water.

Dicamba (Banvel) will also provide control of plants and shorter residual control of seedlings at a rate of 0.18-0.37 kg/ha (1-2 lbs/acre). A follow-up treatment of 2,4-D at 0.18 kg/ha (1 lb/acre) annually may be needed to prevent reinfestation.

2,4-D is listed in the ESA for control, however, after stem elongation it should not be applied since control is not very effective. There is no residual control and so annual applications are necessary.

Triclopyr (water-soluble formulation) applied at the rate of 3% a.i. can be sprayed on the plant (except the flower) 3-4 times a year for control. Triclopyr does not affect grasses.

For all chemical applications treat the area around *C. maculosa* patches (3-4.5 m). Follow-up treatments are extremely important for the continual control of spotted knapweed.

Biological Control: In addition to the biocontrol agents listed in the ESA, a seedhead weevil, *Bangasternus fausti* (Reitter), that is native to Europe, was released in the US in 1991 for the control of spotted knapweed, diffuse knapweed (*C. diffusa*) and purple star-thistle (*C. calcitrapa*). The weevil has become established in several states: Montana, Nebraska and Oregon. It has not been shown to reduce populations or even significantly slow their spread. While the larvae can destroy 100 percent of the seeds in a seedhead, not all seedheads are affected and so seed production is still high. Many seeds that do develop may not germinate. TNC has not used this biocontrol and gaining approval would be a formidable task.

References:
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