Nursery Cooperative MANAGEMENT ALERT 2010 - 03

HERBICIDES THAT PRODUCE GALLS NEAR THE GROUNDLINE

There are several herbicides that, under the right conditions, can produce galls on pine seedlings. A few hardwood seedlings can be affected as well. Some of these "dinitroaniline" herbicides are listed below.

TRADE NAME	COMMON NAME
Barricade, Endurance, Prodiamine	prodiamine
Prowl H2O	pendimethalin
Pendimax	pendimethalin
Pendulum Aquacap	pendimethalin
Pendulum	pendimethalin
Surflan AS Turf & Ornamental	oryzalin
Oryzalin 4 Pro	oryzalin
Freehand	pendimethalin + dimethenamid

Herbicide galls have been observed on loblolly pine, slash pine, Monterey pine, Douglas-fir, Frazier fir and hemlocks. In general, large seeded hardwoods appear to be tolerant of the herbicides and both prodiamine and pendimethalin are used to control weeds in hardwood nurseries. However, not all hardwoods are tolerant and herbicide galls have been observed on sugarberry and maple. Stems of sugarberry and maple can become weak and may break at the groundline. The following illustrate herbicide galls on loblolly pine, sugarberry and Frazier fir.

Hardwood nursery managers who control weeds with prodiamine and/or pendimethalin should be aware that species like sugarberry and maple are not as tolerant as the oaks, pecan and walnut. Managers who fumigate with methyl bromide and then sow conifers might have low weed populations and therefore avoid the need to use dinitroanalin herbicides. Customers who purchase gall-free seedlings from fumigated nurseries will not have to worry about the potential for stem galls to reduce outplanting survival. However, spurge and other weeds will likely increase if regulators prohibit the use of effective soil fumigation. When managers are also not allowed to use effective herbicides (e.g. ones only labeled for use on food crops), some managers may decide to use gall-producing herbicides. If so, they should first test a small area to see how sensitive their seedlings are to these herbicides. If a proposed "herbicide-by-heat interaction" does exist, then applications at time of sowing (in April) will likely produce fewer galls than applications during the hot months of June and July. Also, managers should always leave untreated check plots to detect treatment effects.

For more information, see the paper: South, D.B. and T.E. Hill. 2009. Results from six Pinus taeda nursery trials with the herbicide pendimethalin in the USA. Southern Forests 71(3):179-185.

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