



Nursery Cooperative MANAGEMENT ALERT 2012 - 02

TIMING OF PENDULUM® AQUACAP™ APPLICATION INFLUENCES THE CHANCE OF GALL FORMATION ON SEEDLINGS

Nursery Cooperative members have been cautioned since 2009 about herbicide galls forming on pine seedlings following the use of Pendulum® AquaCap™ (PAC) (pendimethalin) to control prostrate spurge (*Chamaesyce maculate*). It has been speculated that factors such as heat, soil texture, or seedling genetics may contribute to gall formation (Research Reports 09-01; 10-04; 11-05). However, if PAC is applied before seeds germinate, the chance of gall formation decreases significantly compared to applying PAC after seed germination. In PAC Nursery Cooperative trials from 2008 to 2010, 22% (731 of 3,250) of our test seedlings had galls when PAC was applied 14 days after sowing (matchstick stage) on up to 8 weeks post-sowing.

Some nursery managers are currently using PAC in their operational herbicide regime to control prostrate spurge. Therefore, it is important to define the term “at sowing” when it pertains to applying PAC. Depending on seed genetics, length of stratification, nursery cultural practices and weather, the number of days between sowing and when germination begins will vary among nurseries. A seed is considered germinated when the seed coat is broken and the radicle has emerged, even if the seed has not lifted from the soil. Applying PAC one week after sowing could result in an application to germinated seed, thus increasing the chance of gall formation. In one nursery, applying PAC 8 to 13 days after sowing resulted in herbicide injury ranging in severity from slight swellings to more rounded galls with lesions (Photos 1-3). To minimize the chance of galls, applications of PAC should be made within 1-2 days of sowing that production unit.



(1) - Slight swelling



(2) - Intermediate swelling



(3) - Gall with lesion

Stay Alert:

1. Apply Pendulum® AquaCap™ 1-2 days following the day of sowing to reduce the chance of herbicide gall formation.
2. Applying Pendulum® AquaCap™ greater than 7 days following the day of sowing increases the chance of gall formation.
3. Consider applying Pendulum® AquaCap™ to production units as they are sown, instead of waiting until the entire nursery has been sown.
4. Pendulum® AquaCap™ can be applied up to a rate of 68 ounces of product per acre, but research data indicates that as the rate increases, so does the chance for gall formation.