Imprelis Implicated in Damage of Norway Spruce and White Pines

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Imprelis is a new herbicide from DuPont that is registered for broadleaf weed control in cool- and warm-season turfgrasses. Aminocyclopyrachlor, the active ingredient in Imprelis, is in a new subclass of herbicide chemistry called the pyrimidine carboxylic acids. Members of this herbicide subclass are thought to accumulate in meristematic regions of plants (i.e., the growing points of the plant) and have a strong, extended impact on plant growth that is regulated by the natural plant growth hormone auxin. Since this product interferes with auxin, damage from Imprelis is distinctive. Typically, broadleaf weeds exhibit bending and twisting of stems and leaves. More advanced symptoms include stem thickening, stunting, leaf cupping, enlarged roots and severe necrosis (i.e., tissue death). It typically takes four to six weeks for the treated weeds to die. Imprelis has performed exceptionally well in research trials conducted at many major land grant Universities including the University of Wisconsin-Madison. As a result, many turfgrass professionals decided to use Imprelis this spring for pre-emergent broadleaf weed control.

Unfortunately, there have been reports of conifer species showing growth distortion and necrosis symptoms on properties treated with Imprelis. In particular, Norway spruce and white pines have exhibited the most severe damage and are involved in the majority of reports. Specific symptoms exhibited by affected white pine trees include twisting and curling of young tissue (i.e., this year's needles, Figure 1). For spruce trees, browning of individual needles at the needle tips, chlorosis (yellowing) of needles at the base of the needles and chlorosis of the newly forming branch has been observed (Figure 2). The damage to individual trees

wvaries from minor to fairly extreme and trees immediately adjacent to affected trees may not show symptoms.

Figure 1 (left). Twisting and curling symptoms possibly induced by Imprelis observed on new growth of white pines. **Figure 2 (right).** Necrosis and chlorosis of young tissue of a spruce where Imprelis damage is suspected (Image courtesy of Jake Renner).

DuPont is actively trying to gather as much information about this situation as possible, to determine what variables may be responsible for the symptoms observed on Norway spruce and white pines. The exact cause of these symptoms is still unclear. Currently, we are suggesting avoiding applications of Imprelis to properties with or near Norway spruces or white pines. Trees exhibiting symptoms should be treated to minimize any moisture stress and it is not recommended to prune or fertilize at this time.

Dupont is currently in the process of contracting a team of outside scientists to investigate each situation. If damage from Imprelis is suspected, please contact your lawn care operator, the Plant Disease Diagnostic Clinic at UW-Madison (pddc.wisc.edu), or the Turfgrass Diagnostic Lab (http://www.tdl.wisc.edu).

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