

Purdue Plant & Pest Diagnostic Laboratory

A Turf Professional's Guide to Suspected Imprelis® Herbicide Injury in the Landscape



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Aaron Patton, PhD,
Department of Agronomy

Tom Creswell, PhD and
Gail Ruhl, MS,
Department of Botany and
Plant Pathology

Steve Weller, PhD,
Department of Horticulture &
Landscape Architecture

Adapted from a document by Bert Cregg,
PhD, and Kevin Frank, PhD, Michigan
State University, used by permission.

Many Indiana turf professionals who used the herbicide Imprelis® in the fall of 2010 or spring of 2011 and now are reporting off-target damage to trees and ornamentals in the landscape. Here are some answers to frequently asked questions about this product, recommendations on how to respond to customer inquiries, and additional information on this issue.

What is Imprelis®?

Imprelis® (aminocyclopyrachlor) is a new selective herbicide that was first sold in October 2010 and is currently available only to turf professionals. It is a selective auxinic herbicide designed to control broadleaf weeds in turf.

Why was Imprelis® used by so many turf professionals?

Imprelis® was developed and marketed to provide control of several difficult to control turf weeds including ground ivy (creeping Charlie) and wild violet. Imprelis® is labeled for use at rates of 3.0 to 4.5 fluid ounces per acre (≤ 0.07 lbs a.e./acre) and it has a low toxicity to mammals which also made it a desirable choice for turf professionals.

How does Imprelis® work?

The herbicide has both foliar and soil activity and is absorbed by the

target plant's leaves, stems, and roots. Since Imprelis® remains active in the soil, it can provide residual control of weeds.

What type of injury symptoms have been observed on landscape plants after Imprelis® applications?

Although Imprelis® was registered for control of broadleaf weeds in turf, some homeowners, lawn care operators, and golf course superintendents started observing injury on trees and some ornamentals in their landscapes this spring (late May and early June) in the turf areas where it had been applied last fall or this spring. Symptoms observed include dieback; brown and twisted shoots, leaves and needles; especially near tree tops (photos 1-3). Symptoms are most severe on the current year's growth — the outermost or topmost



Photo 1. Twisting of white pine growing tips

growth (photo 3). Unlike conifer insect and disease problems, suspected Imprelis® injury occurs rapidly — usually within two to four weeks of application. The most commonly affected trees to date have been Norway spruce, Colorado blue spruce, and eastern white pine. Firs, yews, arborvitae and some deciduous trees and shrubs have also been affected (photo 4).

Is damage a result of a misapplication?

Initially, it does not appear that this damage is from misapplications. After tree damage was reported, DuPont issued a statement on June 17, 2011, that cautioned applicators: “do not apply Imprelis® where Norway spruce or white pine are present on, or in close proximity to, the property to be treated.” However, the original product label did not specify this caution to applicators.



Photo 2. Brown needles on a Norway spruce

How widespread is the problem?

To date, university Extension services in 22 states from Kansas to Pennsylvania have reported injury to conifers associated with Imprelis® application to turf and lawns. Although damage is widespread, injury to trees is inconsistent (photo 5) at many locations as some trees are damaged more than others and researchers are still trying to learn more.

Will trees recover from Imprelis® injury?

Based on experience with synthetic auxin herbicide injury and other types of environmental damage, trees that have minor browning (less than 1/3 of crown affected) on new growth will likely recover. However, recovery may be slow and occur over one or two growing seasons. Trees with distorted top growth may resume growth, but will likely require corrective



Photo 3. Injury is most severe on the outermost or topmost growth.

pruning to maintain desirable form and symmetry. Severely distorted and damaged trees and those with extensive death of new growing tips may die. Norway spruce appears to be the most susceptible species. Initial observations on trees with extensive injury suggest that many Norway spruce may die as a result of herbicide exposure, while other species may recover.

Can anything be done to help trees recover?

The trees that appear to be most sensitive to and commonly affected by Imprelis® injury typically have a vigorous growth habit, which makes them good candidates to recover from minor injury. If you suspect trees are injured from Imprelis®, reduce drought stress by watering them during dry periods. Avoid overwatering, which causes water-logging. Fertilization during this growing season is not recommended, unless a nutrient deficiency exists.

Why does the type of injury vary so much?

Suspected Imprelis®-related injuries are most severe in the current-year's



Photo 4. Injury on some deciduous trees has been reported.

growth. That means the greatest degree of injury can be seen in young trees and the tops of older trees, which have a relatively high proportion of new growth (photo 6). Trees growing in landscape beds or other buffers typically show less damage than trees that are completely surrounded by turf.

What should I do if I suspect Imprelis® has caused injury to trees on a property I maintain?

If you or your clients want the Office of the Indiana State Chemist (OISC) to investigate injury to trees and ornamentals that you suspect may have been caused by an Imprelis® application, contact George Saxton at (765) 494-1582 or saxtong@purdue.edu. As with any OISC investigation, lawn care operators (LCO) will routinely be asked for information regarding their applications.

Lawn care operators may ask clients who suspect damage to contact OISC on their own or the LCO may

contact OISC on their behalf. If an LCO decides to contact OISC for his or her clients, please be aware that the OISC will need access to the client's property.

If you have questions or require more information on this issue, visit the OISC website (<http://www.isco.purdue.edu>) or contact the OISC pesticide section at (765) 494-1492.



Photo 5. Injury among adjacent trees is inconsistent at many locations.

Keep in mind that due to the widespread nature of this problem the OISC may not be able to provide immediate help on this issue, but they are actively working to investigate these injury reports and provide additional information.

To help document suspected injuries, the LCO or client should collect and organize herbicide application records regarding these locations and photograph symptoms and changes in symptoms over time with a digital camera. If you have not already started collecting this information, it would be prudent to begin this process immediately. A complete record of when symptoms began and how quickly they progressed is important since herbicide injury to trees and ornamentals can progress rapidly, especially in the summer heat, and without records, a firm diagnosis is much more difficult.

What is the response of the OISC on this issue?

On July 22, 2011, the OISC issued a news release that addresses the following questions (read the full news release at <http://www.isco.purdue.edu>)

- What is Imprelis® herbicide?
- Will Imprelis® herbicide harm me, my children, or my pets?
- How is the OISC responding to these plant injury complaints?
- When will the results of the investigation be available?

- How will I be notified of OISC's investigation findings?
- What should I do while I am waiting on the investigation results?
- What if I have additional questions about the investigation?

Should I keep using Imprelis®?

At this point, Purdue Extension Specialists recommend that applicators do not use Imprelis® on residential properties or other properties that have trees, shrubs, or other ornamentals until we can learn more about how to safely use this herbicide. However, sod farms, athletic fields, and large commercial properties without trees and ornamentals should be able to safely use this product for effective weed control in the meantime.

What kind of information is available to give to homeowners with injured trees?

Purdue faculty and staff have developed a publication that answers the commonly asked questions from homeowners about Imprelis®. The publication is available at <http://www.ppd.purdue.edu/ppdl/pubs/briefs/ImprelisFAQ.pdf> . We are encouraging homeowners to continue to work with and seek information from their lawn care professionals. Additionally, information about other tree and shrub maladies (stress, diseases, and insect damage) is available from the Plant and Pest Diagnostic Laboratory website: <http://www.ppd.purdue.edu>

Where can I get more information?

New information about the degree and extent of this problem will be posted as it becomes available for interested parties at the following locations:

- Plant and Pest Diagnostic Laboratory, <http://www.ppd.purdue.edu>
- Purdue Turfgrass Program website, <http://www.agry.purdue.edu/turf> and Turf Tips blog <http://purdueturftips.blogspot.com/>
- Office of the Indiana State Chemist, <http://www.isco.purdue.edu>