Pest control in professional turf and amenity trees

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Flower tree pesticide application by hand. Photo: Shutterstock

Healthy turfgrass at golf courses is aesthetically pleasing and makes for scenic landscapes. However, professionally maintained golf turf can be impacted by a wide variety of pests and weeds. Controlling these pests and weeds typically involves a combination of cultural practices, biological controls, and chemical pesticide treatments for integrated pest management. Regular monitoring and maintenance are key to keeping golf turf healthy.

Amenity trees are planted primarily for their aesthetic, environmental, and social benefits rather than for commercial purposes like timber or fruit production. Like turf, amenity trees also need to be protected from weeds and pests. Both chemical and biological pesticides and herbicides are used and here we review the common pests and some of the products used in their control.

An integrated pest management programme can be a valuable tool to help prevent and control insects, weeds and diseases. These programmes can offer both environmental and financial benefits by reducing the amount of pesticides and labour needed to maintain turf. In this article we examine some common pests in the United States and products that can be used to control them.

Turf

Some common pests and weeds that need to be controlled on turf include:

Pests

- **White grubs**: These are larvae of beetles and can cause significant damage to turf by feeding on the roots.
- **Armyworms**: These caterpillars can quickly defoliate large areas of turf.
- Cutworms: These pests cut down young plants at the soil level.
- **Chinch bugs**: They suck the sap from grass, causing it to turn yellow and die.
- **Aphids**: These small insects can infest trees and shrubs, sucking sap and excreting honeydew, which can lead to sooty mould.
- **Scale insects**: These pests attach themselves to trees and shrubs, feeding on sap and weakening the plants.

Weeds

- **Crabgrass**: This annual weed can quickly take over turf areas if not controlled.
- **Dandelions**: These perennial weeds are common in lawns and can be difficult to eradicate.
- **Clover**: While sometimes considered beneficial, clover can be a nuisance in golf course turf.
- **Nutsedge**: This weed has a grass-like appearance but grows much faster than turfgrass.
- **Broadleaf plantain**: This perennial weed can thrive in compacted soil and is difficult to remove.

Two of the most destructive pests on turfgrass include the annual bluegrass weevil (ABW) and pathogenic nematodes such as root-knot, lance, stubby root, and lesion nematodes. While pesticides and nematicides can be used to control these invasive pests they adapt quickly, making the risk of damage to turfgrass more likely.

These pests are prevalent and can cause damage to annual bluegrass and bentgrass golf turf across most of the United States and recently have been found in Canada. Consistent rotation of insecticides is considered to be a best-practice for controlling both overwintering adults and all stages of larvae to protect turfgrass. Nematodes can also be a serious issue for golf course superintendents. Pathogenic nematodes can wreak havoc on turfgrass and can cause severe damage year-round to turfgrasses. Symptoms of nematode damage can be yellowing turf, followed by wilting, and eventual thinning. Additional symptoms might include fungal issues like summer patch and Pythium root rot. Also, if turfgrass is unresponsive to fertiliser applications it could be a symptom of nematode damage.

Amenity trees

Amenity trees are trees planted primarily for their aesthetic, environmental, and social benefits rather than for commercial purposes like timber or fruit production. They are often found in public and private spaces such as parks, golf courses, streets, and residential areas. These trees

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offer a wide array of benefits including improving air quality, providing habitats for wildlife, reducing noise pollution, offering shade, and increased property values. Examples of amenity trees include maple trees which are known for vibrant fall foliage colours, cherry trees are famous for picturesque springtime pink blossoms, and pine trees or other conifers that provide greenery all year long.

Pesticides

Several pesticides are commonly used to manage pests on amenity trees. These include insecticides, and fungicides. Here are some examples:

Insecticides

1. **Imidacloprid**: A systemic insecticide used to control a variety of pests, including aphids, whiteflies, and beetles.
2. **Bifenthrin**: A broad-spectrum insecticide effective against a wide range of insects, including ants, spiders, and termites.
3. **Carbaryl**: Used to control pests like caterpillars, beetles, and aphids.
4. **Neem oil**: A natural insecticide that works against a variety of pests, including aphids, mites, and whiteflies.

Fungicides

1. **Chlorothalonil**: Used to control fungal diseases such as leaf spots, blights, and mildews.
2. **Mancozeb**: Effective against a wide range of fungal diseases, including rusts, blights, and leaf spots.
3. **Copper-based fungicides**: Used to control bacterial and fungal diseases, including fire blight and powdery mildew.

Fungicides are commonly used to control cankers and blight. Insects commonly treated include beetles, moths, and leafminers. In addition to chemical pesticides, biopesticides are also used for pest control.

Leaf damaged by pests. Photo: Shutterstock

Industrial farm worker spraying insecticide. Photo: Shutterstock

Bioinsecticides with bacterial ingredients such Bacillus thuringiensis are highly used on trees. Strong growth is projected for biopesticides used for both turf and amenity tree pest control over the next few years.

Market trends for fertiliser and pesticides use

Online suppliers of pesticides and fertilisers have multiplied, making delivery commonplace. This shift has improved access for small- and mid-sized operators, allowing them to compare prices and order a wider range of products online.

Large home improvement stores in the USA, such as Home Depot, Menards, and Lowe's, have made it easier for small and medium-sized operators to purchase substantial quantities of fertilisers and pesticides at reasonable prices. Additionally, major manufacturers like Lesco are now offering their products through these retailers.

In the past decade the market has seen a significant increase in the availability of generic products. House brands from distributors, generic producers, and specialist manufacturers have expanded the variety and competitiveness of products available.

These trends have diminished the dominance of large agricultural distributors and boosted the use of consumer brands by professional lawn care operators.

The emergence of significant new pests has altered pest pressures. Regional pests like the emerald ash borer, oak wilt and spotted lanternfly have heightened the demand for lawn and landscape professionals to manage these threats. ■