TOP 3 WEEDS


FIGURE 1


FIGURE 2

Top Three Problematic Weeds of Christmas Tree

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Weed management is an important aspect for a successful Christmas tree production. Weeds can compete with Christmas trees for space, nutrients, water, air, and can even harbor pests and pathogens that can result in reduced growth and quality of Christmas trees and even interfere with the production practices such as pruning and spraying. In order to control weeds throughout the year, growers can include hand weeding, mowing, application of preemergent and postemergent herbicides with different modes of action. Christmas tree species, age, growth stage, size, time of the year, and soil types are other important factors to consider for developing a successful herbicide program. Weeds in Christmas tree plantations may vary from broadleaf species to grass families and some of them can be even poisonous such as poison ivy. Broadleaf weed species may include Canada thistle, horseweed, pokeweed, and common ragweed. Yellow and purple nutsedges are other two difficult weed species to control. In this article, I discuss the three of the most common problematic weed species for Christmas tree growers in Great Lakes region.

Crabgrass:

Crabgrass (Figure 1) is one of the most common and troublesome weeds in Christmas tree plantations. Large crabgrass is a summer annual and a member of the grass family. Once established, crabgrass can tolerate both high temperatures and dry weather conditions because of its physiological makeup (C4 plant). Crabgrass reproduces by seeds and it has a prolific tillering or branching habit. A single plant is capable of producing 150 to 700 tillers and 150,000 seeds. Their seeds remain dormant for a short period of time after they are shed from plants. Germination of crabgrass seeds depends on soil temperature. When the soil temperature at the surface reaches 55°F for four to five consecutive days, crabgrass begins to germinate. Seeds germinate best from early spring to late summer and the crabgrass continues to grow until midsummer when days become shorter. Plants that emerge early in the season and have a long period of vegetative growth are much larger and more competitive than plants that germinate late in the season.

Controlling crabgrass can be difficult and so growers need to select the right herbicides, right application rate and timing to ensure crop safety for their Christmas tree production. Some of the recommended pre and postemergent herbicides for controlling crabgrass in Christmas tree production are as follows:

Preemergent herbicides. Tower 6 EC and Pennant magnum 7.62 EC provides excellent control over crabgrass. Westar 75 DG, Surflan 4 AS, Sureguard 51 WDG, Marengo 0.622 SC, and Pendulum aqua Cap 3.8 CS have also shown good results in controlling crabgrass.

Postemergent herbicides. Roundup ultra 4 L is an excellent option for postemergence control. Also, Envoy plus 0.97 EC and Fusilade DX 2 L can provide good control.

Common Ragweed:

Common ragweed is a native summer annual and mostly prevalent in northern latitudes of the eastern United states. Often times Christmas tree growers complain about common ragweed and it has also been listed as one of the major problematic weed species in Christmas tree plantation. Common ragweed is a broadleaved

Figure 1: Crabgrass, with prolific tillering and branching habit.

Figure 2: Common ragweed at its natural habitat in Christmas tree plantation (Location: Korson Tree Farm, Michigan).

Figure 3: Horseweed or marestail, at its natural habitat in Christmas tree plantation (Location: Korson Tree Farm, Michigan).

Figure 4: An example of excellent weed control after postemergent application of herbicides without causing any injury to the established Christmas trees at Korson Tree Farm, Michigan.

Plantations in Great Lake Regions

weed with compound leaves that deeply cut into a number of lobes and usually much wider at the base than the tip (Figure 2). Stems are hairy and color varies from green to light pinkish red. Plants that emerge mid-April through May can produce up to three times the seeds and biomass as plants that germinate in mid - to late June. Common ragweed plants allowed to grow for the entire growing season can produce 32,000 to 62,000 seeds per plant. Seeds generally go through a dormant period - late fall through winter – before germinating in late April through May the following year. Rising temperatures promote germination, but hot conditions, like those that prevail in July, can halt the germination process. Research has shown that a combination of light and temperature are involved in the germination process.

Applying the correct herbicide at their labelled rate and timing can help reducing ragweed problem at Christmas tree production sites. Common ragweed is resistant to ALS-inhibitor (Group 2), PPO inhibitor (Group 14) and glyphosate (Group 9) herbicides. Following are some of the recommended pre and postemergent herbicide products.

Preemergent herbicides. Princep 4 L and Aatrex 4 L can be good options as preemergent herbicides. Marengo 0.622 SC can provide fair control of common ragweed in established Christmas tree production.

Postemergent herbicides. Garlon 3 A and 2,4-D (Group 4 herbicides) can be used as postemergent herbicide for controlling ragweed. However, a Christmas tree grower at the Montcalm county of Michigan has reported common ragweed resistance to the synthetic auxin herbicide, clopyralid (Stinger). This is the first report of resistance to Group 4 herbicide in common ragweed worldwide. Research is going on at Michigan State University and the results will be published soon in peer-reviewed journal and extension newsletter.

Horseweed/ Marestail:

Horseweed, also known as marestail is a broadleaf weed species which is native to North America and can follow a winter or summer annual life cycle. After emergence in the fall, horseweed forms a basal rosette for winter survival. Whereas, in a winter annual life cycle, the rosette bolts in the spring, growing to a height of 1.5 to 6 feet. Horseweed leaves are alternate, linear, and simple with entirely or slightly toothed margins. Mature plants have leaves with no petioles. Leaves get progressively smaller in size toward the top of the plant (Figure 3). Stems are erect and tend to be unbranched at the base of the plant unless damaged by herbicides. Horseweed is often misidentified as mouse ear chickweed, annual fleabane, or Persian speedwell. Horseweed seed generally germinate in the fall or spring, but they can also germinate in midsummer if growing conditions are adequate. The seeds germinate readily as soon as they fall off a mature plant and generally does not enter any dormancy period. Each plant can produce up to 200,000 seeds and approximately 80 percent of these seeds germinate right after they are shed off from the plant.

In Michigan, horseweed has shown resistance to ALS-inhibitor (Group 2), triazines (Group 5), and glyphosate (Group 9) herbicides. Some of the recommended pre- and post-emergent herbicides that can be used for controlling Horseweed in Christmas tree plantations are as follows:

Preemergent herbicides. Gallery 75 DF and Sureguard 51 WDG are good options for controlling horseweed. Aatrex 4 L and Velpar 2 L are not recommendable as horseweed have shown resistance to triazines (Group 5) herbicides.

Postemergent herbicides. Garlon 3 A and Stinger 3 L have shown very good control of horseweed as postemergent herbicides.

Christmas tree species may have different levels of herbicide tolerance. Herbicides should be applied at less sensitive growth stages, such as before budbreak in spring and after new growth has hardened in the fall. Also, directing the herbicide spray to tree contact should be avoided in order to minimize tree injury. In general, it is recommended to avoid broadcasting herbicides over the tops of trees between bud break and first week of September. During summertime while making postemergence applications, it is suggested to select herbicides that have good foliar activity and that are safe on the trees. Preemergent herbicides should be applied soon after transplanting the young Christmas tree seedling to avoid weed seed germination and competition. Young trees at the year of planting in the field can be sensitive to some of the preemergence herbicides. However, when the roots become established and the soil is packed surrounding the seedling, there is less chance of injury. Small trees may be also sensitive to some of the postemergence herbicides and so it is important to follow label instructions regarding tree age, size and herbicide application timing. To develop a successful weed control/ herbicide program, it is always important to consider Christmas tree safety and rotate herbicides with different modes of action (Figure 4).

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