

WEED CONTROL IN ORNAMENTAL BEDS

Rob Richardson

Michigan State University

Controlling weeds in ornamental plantings can be very difficult. Several factors contribute to this, but the most important is that in most ornamental beds a large number of desirable species are planted close together. This limits many herbicidal options, and the fact that most beds are maintained for several years limits a number of cultural control methods. In addition, most ornamental beds do not form a canopy, allowing for sunlight to reach weed seeds and stimulate year-round germination. For maximum benefit, herbicidal and non-herbicidal control methods should be integrated.

There are several non-herbicidal options for weed control. These include soil sterilization, ground covers, preventative methods, cultural methods, and mechanical methods. Preventative methods should be included with every weed management program. These include the use of quality mulches and plant stock to prevent the introduction of weeds. Likewise, the proper disposal of weeds and trash matter and quick action against problem weeds can prevent or reduce the establishment and spread of weeds. All equipment should be cleaned regularly to prevent accidental spread of weeds. Scouting for weed problems on a regular basis can allow for early detection and management.

Mechanical methods of weed control include hand-weeding, hoeing, mowing, and tilling, while cultural methods will include fertilization, pH maintenance, and irrigation. Mechanical methods may effectively control annual weeds and suppress perennial weeds. Cultural methods can provide optimum conditions for crop growth and limit the growth of weeds. Over-irrigation and improper pH are frequent problems that promote the growth of weeds over crops. Many ornamental weeds grow best in very moist soils, so limiting moisture to needs of desirable plants may ease many weed problems.

Ground covers can be divided into natural covers, such as mulches, and synthetic covers like plastics. Black plastic or synthetic fabrics called geotextiles may be effective methods to improve weed control. While black plastic tends to be very cheap, geotextiles are generally recommended for several reasons. Black plastic may tear easily, it does not let air or water penetrate, and it will not hold mulch on a slope. Geotextiles are porous to allow movement of air and water, have more surface friction to hold mulch, and are generally stronger. Depending on the fabric design, however, some geotextiles will allow more root or weed penetration through the fabric.

Mulches may also help to control weeds from seed, although they are generally not effective against perennial weeds. Mulches may be used alone, placed on top of plastics or geotextiles, or used in conjunction with herbicides. Combining mulches with geotextiles may effectively control annual and perennial weeds, although wind-disseminated seeds will eventually land and germinate on top of the mulch.

The two predominant methods of soil sterilization are the use of fumigants and steam sterilization of soil. These methods are only useful before beds are planted, but if used correctly

may kill many weeds, pathogens, and pests. Fumigants have largely been represented by methyl bromide in the past, however, it is currently being phased out and eventually will not be available for use. Other fumigants tend to be safer than methyl bromide, but may cost more and be less effective. Steam sterilization is generally only feasible on a small-scale basis. Soil must be moist and heated to 180 F for at least 30 minutes. Neither fumigation, nor steam sterilization will kill all weed seeds and both will only kill seeds or plant matter present at time of application.

Proper use of herbicides may effectively control many weed problems and reduce the time and labor required for weed management. Herbicides may be divided into classes based on the type of application. Preemergence (PRE) herbicides should be applied before weed emergence through soil and can be effective against many weeds from seed. Postemergence (POST) herbicides are applied after weed emergence and may control many annual and perennial weeds. Always read the herbicide label before application and follow all instructions. Labels may change quickly and frequently become outdated. As labels are a binding legal document, it is important that the herbicide use, crop, and weed all appear on the label and that all label directions are followed.

PRE herbicides that can be used in ornamentals include Betasan, Casoron, Devrinol, Dimension, Eptam, Factor, Gallery, Goal, Image, Kerb, Lasso, OH2, Pendulum, Pennant Magnum, Predict, Pre-Pair, Princep, Regal O, Ronstar G, Rout, Snapshot TG, Surflan, trifluralin formulations, XL, and others. Some of these, such as Pendulum and trifluralin should be incorporated into soil with irrigation for maximum efficacy. Other herbicides, such as Kerb and Ronstar, should not be mechanically incorporated into the soil or excessive crop injury may result.

POST herbicides that may be used in ornamentals include Acclaim Extra, Basagran TO, Casoron, Envoy, Finale, Fusilade II, Garlon, glyphosate formulations, Goal, Gramoxone, Image, Kerb, Lontrel, Manage, Plateau, Reward, Scythe, Vantage, and others. Some of these may be sprayed over-the-top of specific crops, while others will kill desirable foliage that they contact. Adjuvants may also be required with some POST herbicides and not with others. POST herbicides should be applied to actively growing weeds under the proper environmental conditions as listed on the label.

Specific Weed Problems

Canada thistle. This is a perennial, prickly plant in the aster family that can spread by seed and by roots. Canada thistle prefers moist soils that are not regularly cultivated and the species will thrive in mulch. Lontrel is very effective for controlling this weed. Other herbicidal controls include Basagran T/O, Casoron 4G, Finale, glyphosate products, and Plateau.

Horsetail. The members of the Equisetum genus appear as green or brown stems with no leaves. These plants prefer moist sandy soil with neutral or slightly basic sandy soils. Most herbicides are not effective on horsetail, although Casoron and Finale are labeled for controlling this weed.

Inula britannica. Inula is a recently imported weed with bright yellow flowers. It is perennial and can spread by wind-disseminated seed or roots. No herbicides are currently labeled for controlling this weed.

Mugwort. This is a perennial weed with fern-like, aromatic leaves. Mugwort usually reproduces by rhizomes that can be transported with nursery stock or cultivation equipment. Mugwort is tolerant of most herbicides, but Finale may control or suppress this weed.

Quackgrass. A perennial in the grass family, quackgrass may spread by seed or rhizomes. It will grow best in moist soils that are neutral to slightly alkaline. It can tolerate mowing, but will be more sensitive to cultivation. Herbicidal controls include Casoron 4G, Envoy, Finale, Fusilade II, glyphosate products, Kerb, Princep Liquid, and Vantage. Multiple herbicide applications may be required for complete control.

Yellow nutsedge. This a perennial weed with grass-like stems. Yellow nutsedge may spread by rhizomes, tubers, and occasionally seed. Nutsedge thrives in moist areas and can penetrate some plastics and synthetic fabrics. Herbicidal controls include Basagran T/O, Finale, glyphosate products, Manage, Pennant Magnum, and Plateau. Nutsedge tolerance to postemergence herbicides will increase when plants are under stress such as drought.