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by Tina Smith

## Managing weeds in the greenhouse

**W**hether your greenhouses are empty until next year, or they're temporarily empty until your next crops arrive, you have the opportunity to thoroughly eliminate weeds to reduce problems for the next crop cycle.

Weeds are a persistent problem, needing constant attention. Weeds create a poor impression to customers and employees and are a primary source for pests such as whiteflies, aphids, thrips, mites, slugs and diseases. Common weeds in greenhouses such as chickweed (*Stellaria media*), creeping woodsorrel (*Oxalis corniculata*), bittercress (*Cardamine hirsuta*) and others can become infected with impatiens necrotic spot virus (INSV) and tomato spotted wilt virus (TSWV) and serve as a disease source. Weeds infested with thrips then vector the viruses onto susceptible greenhouse crops.

### Preventing weeds

Prevention and sanitation are the first steps to managing weeds. Keep weed seeds and rhizomes out of greenhouses by using clean growing media, clean plant material and controlling weeds outside of the greenhouse. Keep growing media covered and control weeds around the media storage area.

Regular mowing around the greenhouse keeps the majority of the vegetation from flowering and producing seed. If weeds do get in, they should never be allowed to flower and produce seed.

### Weed block fabric

The use of a physical barrier such as weed block fabric helps to prevent weeds from establishing on greenhouse floors. It is best to leave the fabric uncovered so it can be easily swept. Fabric that is covered with crushed stone or other material collects fallen growing media, creating a favorable environment for weed seedlings to germinate.

### Controlling existing weeds

Existing weeds can be controlled by hand or by using herbicides. There are currently no preemergence herbicides labeled for greenhouse use. Surflan (oryzalin) is no longer registered for use in enclosed greenhouses.

Several postemergence herbicides can be used under greenhouse benches and on the floors. Contact herbicides are best applied to small seedlings. Large weeds will be burned but not killed.

### Natural-based herbicides

In addition to chemical herbicides, there are a few bioherbicides, natural-based herbicides that can be used by organic growers. Specific natural-based herbicides include acetic acid, citric acid, citrus oil and clove oil (eugenol).

These materials are postemergence, non-selective, contact herbicides that work in various ways, but basically disrupt cell membranes and cause plants to desiccate. They work best on young plants and multiple applications are usually needed to control reemerging or perennial weeds.

### Chemical herbicides

Injury can occur from spray drift if fans are operating at the time of application. Injury can also occur from herbicides that are volatile (change from liquid to gas). Auxin-type herbicides such as turf herbicides containing 2,4D dicamba, and MCPP are very volatile and vapors can easily buildup within an enclosed greenhouse and injure desirable plants. These herbicides can cause very distinguishable injury symptoms that include cupping and strapping of plant foliage.

Use a dedicated sprayer that is clearly labeled for herbicide use only. If using herbicides outside, around a greenhouse, avoid using volatile herbicides that can easily enter the greenhouse ventilation system.

## Herbicide injury

Symptoms of herbicide injury include discolored, thickened or stunted leaves. Sometimes the growing point of young seedlings is injured. Some herbicides may cause foliage to turn white, while others cause leaves to become distorted, cupped or strapped.

## Herbicides for use in an empty greenhouse

- Glyphosate non-selective, systemic, postemergence herbicides do not have residual control or pre-emergence activity. (Roundup ProDry, Roundup Pro, Roundup Pro Concentrate, Touch-down Pro).

## Herbicides for use when crops are present

- Selective, postemergence herbicides, for the control of grasses only, work by contact. No residual activity. Clethodim (Envoy, Envoy Plus).
- Non-selective, postemergence, systemic herbicide. Glufosinate-ammonium (Finale).
- Selective, postemergence, systemic herbicide, for the control of grasses only. Fluzifop-P-butyl (Fusilade II).
- Non-selective contact herbicide. Diquat dibromide (Reward).
- Non-selective, postemergence, contact herbicide. Pelargonic acid (Scythe).

## Outside weed control

In addition to mowing, herbicides may also be used outside of greenhouses. Before spraying weeds around the greenhouse with any herbicide, close windows and vents to prevent spray drift from entering the greenhouse.

Avoid using auxin-type herbicides, such as those labeled for broadleaf weed control in turf or brushkillers, or herbicides with high volatility near greenhouses. Effective preemergence herbicides with low volatility include oryzalin (Surflan), flumiozazin (SureGuard), proflaminate (Barricade) and pendimethalin (Pendulum). They can be tank-mixed with post-emergence herbicides listed above.

Prior to mowing or using an herbicide

around greenhouses, use a knockdown insecticide such as horticulture oil on the weeds to kill insects and prevent them from leaving the weeds and entering the greenhouse through vents. Then use a post-emergence, non-selective herbicide to kill existing vegetation. 🌿

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