

**CHECKLIST  
WEED MANAGEMENT**

- ✓ Scout all areas of the nursery (nursery fields, container yards, hoopouses, greenhouses, potting and propagation areas, holding areas, and areas adjacent to these locations) for the presence of weeds on a regular basis.
- ✓ Correctly identify and record all weeds.
- ✓ Develop a weed management program before planting.
- ✓ Prevent weeds from going to seed in all areas of the nursery. Control measures include mowing, hand-pulling, and herbicides.
- ✓ Optimize the production cycle and minimize the duration in which container and field nursery stock remains in the nursery.
- ✓ Control weeds in nursery fields before planting.
- ✓ Maintain a weed-free ground cover in field nurseries.
- ✓ Maintain a weed-free area around the base of nursery stock.
- ✓ Maintain cover crops in fields that are not being used.
- ✓ Maintain weed-free areas around and between greenhouses and hoopouses.
- ✓ Maintain potted and propagated areas of the nursery in a manner that keeps them weed-free.
- ✓ Use nursery fabrics in container areas to prevent weed growth. Clean container media that has spilled or has fallen from nursery container drain holes and all plant debris from container area.
- ✓ Use container growing media that is weed-free.
- ✓ Use nursery liners and transplants that are weed-free. Inspect purchased liners and transplants for weed growth.
- ✓ Thoroughly wash nursery containers that are going to be reused. Washing should be done in a manner that removes all leftover growing media and weed seeds.
- ✓ Routinely scout and monitor newly potted plants. Recently planted nursery containers can be very prone to weed growth.
- ✓ Use container surface covers or weed-mulch materials as container surface covers to reduce weed growth in nursery containers.

**Herbicides and Herbicide Applications**

- ✓ Consider all characteristics of a particular herbicide when selecting an herbicide.
- ✓ Read and understand the product labels of all herbicide products before application.
- ✓ Rotate herbicides based on mode of action and weed spectrum controlled.
- ✓ Combine herbicides to increase the spectrum of weeds controlled.
- ✓ Calibrate all herbicide application equipment on a regular basis.
- ✓ Apply herbicides based on the germination period and growth stage of the specific weeds.
- ✓ Keep accurate records of all herbicide applications on file.
- ✓ Avoid over-watering container and field nursery stock. Over-watering can increase weed germination and establishment.
- ✓ Clean herbicide application equipment after application.

## **WEED MANAGEMENT IN FIELD AND CONTAINER NURSERIES**

Weeds are a nursery manager's most common pest problem. Weeds can occur in all areas of a nursery operation and at all times of the year. In an attempt to defeat these formidable foes it is wise for nurserymen to adopt Best Management Practices (BMPs) as part of their overall nursery management system. The BMPs presented in this section can reduce or prevent weed problems as well as increase the effectiveness of common nursery weed management strategies.

### **Weed Scouting**

All areas of the nursery (nursery fields, container yards, hoopouses, greenhouses, potting and propagation areas, holding areas, and areas adjacent to these locations) should be scouted for the presence of weeds on a regular basis. Give special attention to those weeds that might be new to a nursery. Correctly identify and record all weeds. Determine and record the life cycle of the each weed. Regular scouting enables a nursery manager to plan and implement appropriate management strategies and evaluate the long-term effectiveness of those strategies.

### **Planning**

Develop a weed management program before planting. This should be one of the first steps in the production process. A complete weed management program outlines all strategies to be implemented.

### **Preventative strategies and sanitation**

Weeds should be prevented from going to seed in all areas of the nursery. Control measures include mowing, hand-pulling, and herbicides. Weeds should be controlled before they produce viable seed. Special attention should be given to weeds with unique seed dispersal mechanisms. Seeds can be moved by wind (dandelion, horseweed, groundsel, hawksbeard), splashing irrigation water (chickweed, pealwort) and force seedpod dehiscence (woodsorrel, bittercress).

Optimize the production cycle and minimize the duration in which container and field nursery stock remains in the nursery. Weed problems increase over time and nursery stock that is held for long periods of time can be problematic. In nursery fields, a short production cycle allows for effective perennial weed control.

Control weeds in nursery fields before planting. This is especially true for difficult-to-control perennial weeds such as mugwort, quackgrass, yellow toadflax,



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bindweed, and Canada thistle. Once the nursery is planted, it becomes increasingly more difficult to control these weeds. Pre-plant applications of a non-selective, translocated herbicide will effectively control many perennial weed species. Cultivation, unless it is done multiple times over a period of time, may spread perennial weeds. The potential for erosion should be assessed before cultivation is used in a specific nursery field. Cultivation also can result in the loss of soil structure and organic matter. If weed populations are considerably different among nursery fields within a particular nursery, cultivation equipment should be washed to remove soil and weed seeds.

Maintain a weed-free ground cover in field nurseries. The maintenance of weed-free ground will over time reduce weed populations and the likelihood of weed problems. Depending on the type of nursery stock being grown, fields can be maintained either vegetation-free or in a system in which the weed-free areas are maintained in the rows and a persistent sod grassway is established and maintained in the alleys. Weed control in the rows can be achieved with programs that include residual preemergence herbicides and both selective and non-selective postemergence herbicides. These areas can also be mulched. If cultivation is used to control weeds in the row, pay special attention to the movement of soil over time. Cultivators control weeds near the base of nursery stock by burying them with soil. Newly established nursery stock may die from being buried too deep. Over time, a substantial ridge of soil may develop at the base of nursery stock and be detrimental. Cultivation may also result in damage associated with root pruning and should not be done on large, well-established trees. Sod grassways will support equipment and allow field access for digging, spraying, mowing, and other practices to continue when soils are muddy and snow covered. Sod grassways can reduce water and wind erosion. Additionally, sod grassways can effectively compete with weeds and prevent their spread. These areas are traditionally managed by mowing; however, plant growth regulators can also be used.

Maintain a weed-free area around the base of nursery stock. Nursery stock that is surrounded by weeds is prone to rodent damage. Weeds around the base of nursery stock can compete for water and nutrients.

Maintain cover crops in fields that are not being used. Cover crops will not only improve soil but also reduce weed growth. Winter rye and oats can be used as cool-season cover crops. Buckwheat and sudangrass can be used as cover crops for the summer months.

Maintain weed-free areas around and between greenhouses and hoopouses. These areas can be a source of weed seed that can infest container nursery stock. An early season preemergence herbicide or a postemergence non-selective and preemergence herbicide tank-mix can be used.

Potting and propagation areas of the nursery should be maintained in a manner that keeps them weed-free. Ground or floor coverings that are not conducive to weed germination and establishment are preferable. Container media that has spilled or has fallen from nursery container drain holes and all plant debris should be cleaned from potting and propagation areas.

All weeds should be controlled in container areas. Nursery fabrics can be used in container areas to prevent weed growth. Container media that has spilled or has fallen from nursery container drain holes and all plant debris should be cleaned from container areas.

Use container growing media that is weed-free. While initially weed-free, growing media that is stored improperly or in an open area can quickly become contaminated with weed seeds. Covering the pile or storage indoors should be considered as strategies to keep weed seeds from entering the media. If soil or compost is a component of a container media the weed levels should be determined.

Nursery liners and transplants should be weed-free. Inspect purchased liners and transplants for weed growth. If weeds are present, remove as many as possible, especially those near the surface, before planting. Ask the supplier questions about their production process weed management programs and weed levels before purchase.

Nursery containers that are going to be reused should be washed thoroughly. Washing should be done in a manner that removes all leftover growing media and weed seeds. Many weeds are very small and can easily be missed when containers are inspected visually so washing is necessary.

Routinely scout and monitor newly potted plants. Recently planted nursery containers can be very prone to weed growth. If weeds do appear examine the nursery container closely and determine if the weeds are germinating from the liner or from the growing media. Take the appropriate action based on the location of the weeds.

Implement management strategies that are targeted toward preventing weed growth in container nursery stock. Several container surface covers can be used to reduce weed growth in nursery containers, including geodiscs, plastic lids, and fiber disks. Clean weed-free bark mulch, cocoa hulls, or buckwheat hulls can be used as a container topping to prevent weed growth.

### **Herbicides and Herbicide Applications**

All characteristics of a particular herbicide should be considered when selecting an herbicide, including weed species controlled and longevity of effective control, weed growth stage at time of application, crop tolerance to herbicide and potential for injury, herbicide rate and activation requirement including rainfall/irrigation free period, application timing, herbicide formulation, herbicide mode of action, herbicide persistence and speed of degradation, potential for leaching and runoff, potential for injury from spray drift and volatility, selective vs. non-selective, contact vs. systemic/translocated, and cost.

The product labels of all herbicide products should be read and understood before application. Make applications according to label directions.

Combine herbicides to increase the spectrum of weeds controlled. Most herbicides used singly do not control all the weeds at a specific site. A particular preemergence herbicide is generally stronger on “grassy weeds” or “broadleaf weeds” and therefore a tank-mix of “grass” and “broadleaf” herbicides will increase the spectrum of weeds controlled. Apply preemergence herbicides at frequent enough intervals to maintain effective weed control.

Rotate herbicides based on mode of action and weed spectrum controlled. Using the same herbicide or herbicides with the same mode of action at a specific site can result in a shift in

weed populations as well as increase the potential for herbicide resistance. If weeds that had previously been controlled with a specific herbicide are not currently being controlled, herbicide resistant weed populations may be developing. Steps should be taken to prevent suspected weeds from producing seed and spreading.

All herbicide application equipment should be calibrated on a regular basis. Check delivery rate and application pattern on all sprayers and spreaders and adjust accordingly. Replace worn or damaged spray tips.

Apply herbicides based on the germination period and growth stage of the specific weeds.

Postemergence herbicide applications should be made only to weeds that are actively growing and not under moisture stress. Weeds should not be mowed for 2 weeks prior to and 1 to 2 weeks after application.

An accurate record of all herbicide applications should be kept on file. Information recorded should include application date, herbicide used and formulation, herbicide rate and spray volume output, weeds present and their growth stage, crops and their growth stage, location and amount of area treated, weather (air temperature, dewpoint temperature, wind speed and direction, post application rainfall), soil moisture, application problems, and other information that might be helpful.

Avoid over-watering container and field nursery stock. Over-watering can increase weed germination and establishment. The effectiveness of preemergence herbicides can be significantly decreased as a result of herbicide degradation as a result of over-watering.

Thoroughly clean herbicide application equipment after application.

Evaluate herbicide applications for effectiveness. Use the information collected to make appropriate adjustments to the herbicide program.

