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**A** complete weed control program includes both preemergence and postemergence herbicides, as well as cultural practices.

The primary preemergence herbicides for grassy and broadleaf weeds in cool-season turf are benefin, bensulide, DCPA, pendamethalin, oxadiazon, and siduron.

Siduron is the only preemergence herbicide that can be applied near time of seeding. Bensulide and DCPA can be applied in the spring

increased effectiveness on hard-to-control species. Turflon-D (triclopyr plus 2,4-D) is effective on some of the more difficult to control broadleaf weeds, such as knotweed and yellow wood sorrel.

These herbicides should not be applied until a new lawn has been mowed at least three times. The target weeds should be actively growing for best results. The temperature at applications should be at least 60 degrees F. Applications during extreme heat or drought can cause severe damage to desirable turf.

Two treatments of postemergence herbicides are generally necessary to control broadleaf weeds. See labels for the proper interval between applications.

Winter annuals can be sprayed early in the year, followed by summer annuals and perennials. Fall treatment for perennials is possible.

Postemergence herbicides are often combined to achieve improved control and reduce application time.

Occasionally, a landscape manager or sod producer chooses to fumigate a seedbed prior to planting to reduce

# Cool-Season Turf

by Robert Shearman, University of Nebraska, NE

following a fall seeding.

Benefin and oxadiazon should be applied to established turf. Bensulide can affect rooting of existing bermudagrass and caution is advised for use of most preemergence herbicides on bermudagrass greens. Thinning of fine fescue stands from preemergence herbicides has also been reported.

Preemergence herbicides should be watered in to get the chemical to the seed prior to germination. The resulting chemical barrier in the soil should not be disturbed during key weed germination periods.

The herbicides should be applied two weeks prior to the expected germination period. Second applications may be necessary to provide control for the full germination period. Contact your local turf extension specialist for germination times for primary weeds. Also, see the germination map for crabgrass and annual bluegrass in this guide.

The primary postemergence herbicides for grassy weeds in turf are the arsonates; MSMA, DSMA, CMA, and MAMA. Treated areas should not be reseeded for a month or more after application. See labels for delay periods.

Bentgrass and fescue are more sensitive to arsonates than other cool-season grasses. CMA is the safest for bentgrass.

Weed foliage should be sprayed while still young (two or three leaf stage) if possible. The effectiveness of arsonates improves with temperature and rates need to be increased for temperatures below 80 degrees F.

The primary postemergence herbicides for broadleaf weeds are 2,4-D, 2,4-DP, dicamba (Banvel), and MCP. Formulations of these products, such as Trimec and Weedone DPC, provide

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**Progress is being made in selectively killing annual bluegrass in perennial ryegrass, Kentucky bluegrass, and bentgrass fairways.**

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weed seed, control insects and disease, and eliminate off-type grasses. Methyl bromide (Dowfume), metham (Vapam), dazomet (Mylone), and Vorlex are used for preplant fumigation. See labels for delay period following treatment and before seeding.

Renovation of turf stands is gaining acceptance, especially since the development of glyphosate (Roundup). During renovation all existing vegetation is killed and the area is reseeded in a matter of weeks without major cultivation. Glyphosate is deactivated within a few days following application, but a delay of two weeks is recommended. Amitrole, cacodylic acid, and dalapon can also be used, but the delay period is longer.

Progress is being made in selectively killing annual bluegrass in perennial ryegrass, bentgrass, or Kentucky bluegrass fairways.

*continued on page 56*





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# Ornamental Weed Control

by Elton Smith, Ph.D., Ohio State University, Columbus, OH.

**R**ising labor costs and increased use of ornamentals in commercial and residential landscapes are causing an increase in use of both preemergence and postemergence herbicides in landscape maintenance.

The landscape manager has to control weeds around a variety of desirable plant material, including deciduous and evergreen shrubs, trees, groundcovers, annual and perennial flowers, bulbs, and ornamental grasses. These plants are located in a wide variety of locations, such as plant beds, containers, greenhouses, atria, and even in sand traps.

Attention to the label is especially important in ornamental weed control due to the varying sensitivity of plants to herbicides. Manufacturers attempt to provide products safe to the largest possible number of species.

### Before planting

The most successful approach to a weed-free landscape is to control per-

ennial grasses and broadleaf weeds prior to planting.

Spraying the weeds in the planting area with postemergence systemic herbicides will kill the root system as well as the topgrowth. Such herbicides include 2,4-D and related products for broadleaf weed control, dalapon for grass control, and amitrole for general weed control. These may have to be applied more than once for complete kill. Each has a specific waiting period prior to planting. Glyphosate is very effective and has no soil residue.

Fumigation of plant beds is another alternative. Vapam is one of the simplest fumigants to use. It is applied and watered into the soil. The water seals the surface, but plastic can also be used to cover the bed after the fumigant is applied and watered in. The fumigant will also kill insects and some fungi detrimental to plants. Planting can take place within days following treatment.



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## Broadleaf Weeds

Even though selective controls exist to remove broadleaf weeds from grass they exhibit amazing tenacity often requiring multiple treatments.



**Buckhorn**



**Mouse-eared Chickweed**



**Common Chickweed**



**Dandelion**



**Ground Ivy**



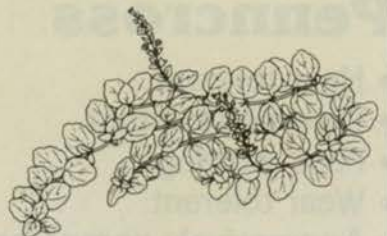
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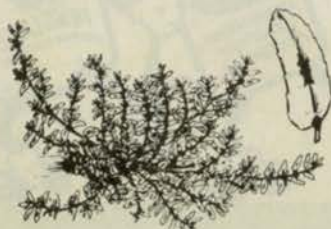
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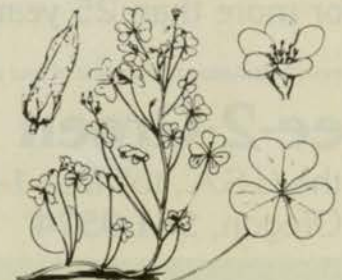
**Speedwell**



**Spurge**



**White Clover**



**Yellow Wood Sorrel**

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