

## New Herbicides for Ornamentals

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During the past few years several new herbicide products have been registered for use with landscape species. Changes have been made in the labelling of some of the older products. This manuscript includes an update of several of these changes.

Pendulum WDG (pendimethalin) is a recent registration from American Cyanamid Company. Pendulum WDG herbicide is recommended for preemergence control of annual grasses and small-seeded broadleaved weeds, including henbit, Florida pusley, prostrate spurge, and yellow woodsorrel. The area to be treated should be weed free at the time of treatment. Normal use rate is 2 to 4 lb ai/A, and weed control is most effective when application is followed with one-half inch of rainfall, or its equivalent, in sprinkler irrigation. This product is toxic to fish, and caution should be used in areas around water. Southern Weed Grass Control (pendimethalin) is a similar product in the granular formulation.

Pennant 5G (metolachlor) has undergone extensive expansion of the label by Ciba-Geigy. In addition to the broad listing of woody plants on the label there are about 55 annuals and perennials. Recommended use rate is 2 to 4 lb ai/A Pennant. Pennant provides control of many annual grasses, certain broadleaved weeds, and yellow nutsedge. Rainfall or irrigation equivalent to  $\frac{1}{4}$  to  $\frac{1}{2}$  in. should be applied within one week of treatment. The Pennant Liquid Herbicide label and the Pennant 5G label now have parallel listings.

Derby 5G (metolachlor 4% + simazine 1%) is manufactured by Ciba-Geigy and has a broad label for nurseries and for landscape plantings. The recommended use rate for Derby is 2 to 4 lb ai/A and provides control of many annual grasses, certain broadleaf weeds, and yellow nutsedge. A second application may be needed to provide grass and yellow nutsedge control for an extended period.

Dow-Elanco has registered three herbicides in the past few years. Gallery 75 DF (isoxaben) was the first product registered. Gallery is a preemergence herbicide for control of certain broadleaf weeds in landscape ornamentals and nurseries. Gallery is best used in combination with another herbicide that provides good control of annual grasses (Surflan, Pendulum, Pennant). Gallery is stable on the soil surface for up to 22 days but does require rainfall or irrigation for activation ( $\frac{1}{2}$  in.). The normal use rate is 1.0 to 1.33 lb of product per acre (0.75 to 1.0 lb ai/A). In a test at Auburn University, Gallery has provided similar weed control to other broadleaf herbicides on the market with greater ornamental safety.

The second product registered for ornamentals by Dow-Elanco was Snapshot 80 DF (oryzalin 60% + isoxaben 20%). This preemergence herbicide provides excellent control of many grass and broadleaved weed species when used at the recommended rate of 2.5 to 5.0 lb of product per acre (2 to 4 lb ai/A). Optimum weed control is obtained when Snapshot 80 DF is activated within 21 days of application with rainfall or irrigation. Snapshot 2.5 TG (trifluralin 2% + isoxaben 0.5%) was the third product registered for ornamentals by Dow-Elanco. This preemergence herbicide provides broad spectrum weed control for container-grown ornamentals, landscape ornamentals, ground covers, non-bearing fruit, and nut trees when

applied at the recommended rate of 100 to 200 lb product/A (2.5 to 5.0 lb ai/A). Application of Snapshot 2.5 TG to the wet foliage of certain container-grown species has not caused injury in several instances. Snapshot 2.5 TG has one of the broadest ornamental labels of current products on the market.

Sandoz Crop Protection Corporation has two new herbicides registered for ornamentals. Barricade 65 WDG (prodiamine) is a selective preemergence herbicide that provides residual control of many grasses and broadleaved weeds. For best results Barricade 65 WDG must be incorporated by rainfall, irrigation, or shallow cultivation. In our test this herbicide has shown excellent weed control and a wide range of safety to ornamental plants. Because of its formulation, use of Barricade 65 WDG is primarily limited to field use.

A second herbicide introduced by Sandoz is Predict (norflurazon). Predict is a soil-active preemergence herbicide for control of broadleaved weeds in field-grown nursery stock and non-croplands. For best results, activation of the herbicide is required within four weeks of application. When applied at the recommended use rate of 3 lb per acre (2.4 lb ai/A), Predict controls 24 broadleaved weeds and suppresses several others including nutsedge species. Predict has a limited label for ornamentals with 32 on the label. Predict should not be applied until the fall following the first full season of field growth after transplanting. In some of our tests, Predict has caused slight injury to some ornamentals (bleaching of older foliage at time of application) but has not resulted in reduced growth. Plants have grown past injury within 60 days after treatment.

BASF introduced Vantage (sethoxydim) for postemergence grass control in ornamentals. Vantage is a combination of Poast herbicide and a crop oil concentrate. This product greatly simplifies use by reducing the mixing process previously required. Vantage has a broad label for ornamentals including trees, shrubs, bedding plants, ground covers, and wildflowers. Vantage rapidly enters grass through the foliage and translocates throughout the plant. Control symptoms exhibited by the grass plant progress from a slowing of growth (generally within two days) to reddening of the foliage to leaf-tip burn. Subsequent burn back of the foliage occurs. This entire process may take up to three weeks. It is important to apply Vantage to actively growing grasses at the proper growth stage.

Another product recently registered for ornamentals by American Cyanamid Company is Image (imazaquin). It has a limited ornamental label but will provide control for some difficult-to-control weeds, especially the sedges. Image may be tank mixed with Surflan or pendimethalin to control weeds not controlled by Image alone. Image will effectively control susceptible weeds when applied during the recommended application times (pre- and post-emergence). Post-emergence control may require several weeks. Image applications should only be made to established plantings of the labeled ornamental. Temporary growth suppression may be observed on some treated plants. The label indicates severe injury occurs when Image is applied to azalea, viburnum, pieris, abelia, and ligustrum. In tests at Auburn University severe injury has occurred on dogwood, japanese holly, crapemyrtle, and juniper. Furthermore, growth suppression has occurred up to one year after the time of application. This herbicide provides excellent weed control but extreme caution is required to prevent or reduce injury to the ornamental.

With all pesticides used in and around nursery and landscape planting, it is important to use the product in a manner consistent with the label. Some labels



leave the door open for individual testing and use of the product. For example, the Snapshot 80 DF label contains the following: "Users who wish to use Snapshot 80 Dry Flowable on ornamental species of nonbearing fruit trees not listed on this label may determine the suitability for such uses by making trial applications of Snapshot 80 Dry Flowable on a small number of plants. The treatment should be observed for 3 to 6 months to determine if the treatment is safe to the target plant species." The user assumes the responsibility for any crop damage or other liability in this case. By reading the label closely, the user may avoid many problems both from a production and legal standpoint.