



By Erik Runkle



Successful Use of Paclobutrazol

There are several plant growth retardants (PGRs) that contain the active ingredient paclobutrazol, including Bonzi (Syngenta), Downsize (Greenleaf Chemical), Paczol (OHP), Piccolo and Piccolo 10XC (Fine Americas). The concentration of paclobutrazol in each product is 0.4 percent (4,000 ppm), except Piccolo 10XC is ten times stronger (4 percent, or 40,000 ppm). University research has reported similar efficacy among these products when applied at the same concentration and volume. Today, paclobutrazol is probably the most widely used PGR in the production of floriculture crops because of its wide range of efficacy and moderate- to long-lasting response.

Paclobutrazol is absorbed by roots and stems, and to a lesser extent, by leaves. Therefore, it can be applied as a spray, spreng, drench, or bulb or young-plant dip. Sprays are more effective when they penetrate plant canopies so that there is contact with stems. Plants absorb paclobutrazol within 30 minutes, and so crops can be watered relatively soon after PGR application without losing efficacy. Once absorbed, the products have a fairly long residual effect, so they are often used on aggressive bedding plants and herbaceous perennials, as well as potted flowering plants such as poinsettia. In addition, paclobutrazol is used as a spray on some vigorous plug and liner crops, especially during periods of warm weather.

A wide range of paclobutrazol concentrations are used on floriculture crops. Factors that influence appropriate rates include the crop, the magnitude of the response desired, crop maturity, and growing climate (Figure 1). A paclobutrazol spray at 5 to 10 ppm can be appropriate for bedding plants with moderate vigor, whereas at least twice that may be needed for aggressive crops, especially

when grown during the late spring. On aggressive herbaceous perennials, typical spray rates are 60 to 90 ppm. None of the products can legally be applied to vegetable or herb crops.

Paclobutrazol can be used as a spreng or drench when a longer-lasting response is desired. Some growers have success using multiple spreng applications, applied, for example, every few weeks, where the rates are adjusted based on the size and vigor of the crop. Another approach is to apply a drench at a high rate once the crop reaches a desirable size. However, late drenches are usually not recommended because the growth-inhibiting effect can continue after plants are planted into the landscape. A late drench may be appropriate for crops that are meant to remain in their containers, such as hanging baskets and potted flowering plants.

For aggressive crops, early paclobutrazol applications are desirable once roots have reached the pot edges, typically seven to 10 days after transplant. Late applications of paclobutrazol, particularly when delivered as a spray, can delay flower development and reduce flower size. Therefore, early and proactive applications are strongly recommended, and late applications should generally be used as a last resort.

Growers are encouraged to perform their own trials to determine appropriate rates for their growing conditions and specific crops. The product labels contain a lot of useful information, and extension educators and product technical managers can be consulted for application recommendations. To view photos of paclobutrazol applied to a range of bedding plants and herbaceous perennials, visit www.hrt.msu.edu/flora/oe/pgrinfo. 

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Figure 1. A list of some factors that influence the choice of rates for an application of paclobutrazol.

