

Update on Topflor (Flurprimidol) Research: Fall Pansies

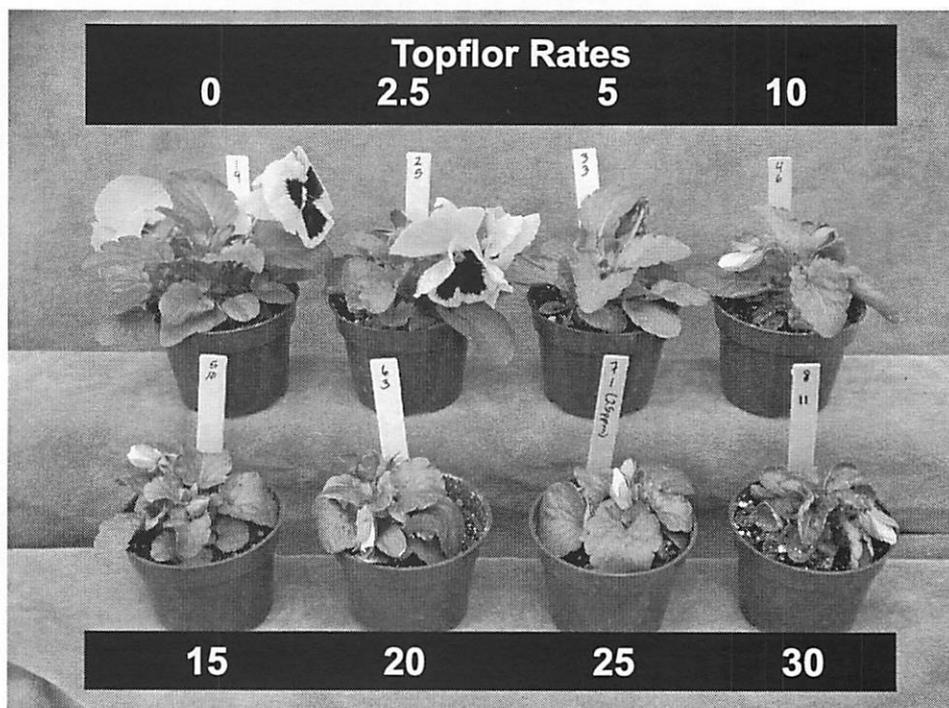
Brian E. Whipker, Ingram McCall, Brian Krug, and James L. Gibson
Department of Horticultural Science

Plant growth retardants (PGRs) are commonly applied to container-grown plants to control stem elongation and produce high quality, compact plants. Flurprimidol (SePRO, Carmel, Ind.) was a molecule discovered over 20 years ago by Eli Lilly and Company. It was experimentally labeled as EL-500 and initial trials were conducted on exacum, poinsettias, and pot chrysanthemums. Flurprimidol is a "Type 2" PGR, similar in its mode of action as A-Rest, Bonzi, and Sumagic. Flurprimidol has been labeled as Cutless for turf use in the U.S. and commercially introduced as Topflor in Europe for greenhouse crops. Cutless has been trailed extensively by Auburn University researchers on a number of nursery crops such as butterfly-bush, holly, and Mexican sage with growth control comparable to Bonzi and Sumagic.

Even though the initial Topflor trials were conducted in the United States, it was not introduced to the U.S. market. In Europe, Topflor has been extensively trailed since the early 1990's on a number of greenhouse plants such as dianthus, pot mum, osteospermum, and streptocarpus. Commercial recommendations for applying Topflor foliar sprays have been developed for over 20 greenhouse crops in Europe, but the label does not include many of the plants commonly grown in the U.S.

There are a number of factors which can influence the efficacy of all plant growth regulators including Topflor. Foremost is the particular species being grown. In addition, rates will need to be adjusted for the cultivar being grown, the concentration of Topflor being applied, and the number of applications made. The optimal concentration (in ppm) of Topflor appears to be similar to Bonzi in most cases, although for a few crops (eg. pansies) optimal rates were similar to Sumagic. Topflor is absorbed by the plant through the leaves, roots and stems. From preliminary experiments conducted at NC State University, Topflor has a significantly greater absorption through the stem than Bonzi.

In Europe, a 1.5% Topflor formulation is used, while the new formulation that will be available in the U.S. is 0.38%. With reformulating Topflor, it has not been



▶ tested under U.S. growing conditions or on cultivars available in North America. In addition, European growers rely upon multiple Topflor applications at low concentrations to control plant growth, while U.S. growers usually prefer a single application. Drench applications of PGRs also are not commonly done in Europe, and research is needed to determine optimal drench rates. The goal has been to determine optimal application rates for U.S. conditions. These rates should be viewed as a starting point and growers will need to determine rates for their particular operation.

Fall Pansies

Each year Southeastern U.S. growers battle plant stretch with fall pansies. German trials indicated that Topflor had a very high efficacy on pansies and we wanted to determine how well Topflor would do under hot and humid conditions. 'Majestic Giants Yellow Blotch' plants were treated with Topflor foliar sprays at: 2.5, 5, 10, 15, 20, 25, or 30 ppm, and compared with the other common PGRs used on fall pansies: Bonzi at 10 ppm, Sumagic at 2.5 ppm, A-Rest at 10 ppm, and Florel at 50 ppm. The PGRs were applied 2 weeks after transplanting the plugs.

Topflor is very active on fall pansies, with rates higher than 20 ppm being excessive. Topflor foliar sprays of 5 ppm provided comparable growth control for fall pansies as Bonzi at 10 ppm, A-Rest at 10 ppm,

or Florel at 50 ppm. Sumagic at 2.5 ppm provided a greater degree of growth control. Rates will have to be adjusted for cultivar vigor and for plants being grown in other seasons.

Registration for Topflor should be complete by the end of 2003/early 2004. Based on the results of our trials, Topflor will be an excellent addition to a grower's PGR toolbox. It offers growers another alternative to Bonzi and Sumagic for the management of plant growth. Through additional trialing, optimal concentrations will be determined and growers will be able to compare each of these PGRs based on its efficacy and price to determine which PGR is the most economical option.

We would like to thank Southern Gem Greenhouse, and Wagners Greenhouse for supplying plant material, Fafard for the root substrate, Scotts for the fertilizer, Dillen Plastics for the pots, and for grant support the North Carolina Commercial Flower Growers' Assoc. and SePRO Chemical Co.

In future NCCFGA Bulletin articles we will include results from other trials.

