

More growth regulators with the same active ingredient are available. Read these 5 considerations to help choose which one will best meet your needs.

By Matthew Blanchard, Roberto Lopez and Erik Runkle

Choosing growth regulators doesn't need to be a chore

DURING THE PAST SEVERAL years, many new plant growth retardants have become available. Several products contain the same active ingredient. Growers often ask what factors should be considered when making a decision on which growth regulators to use. Here are five important considerations when choosing a growth regulator.

1. Product labels. A good label should be easy to understand and include enough information so that a grower can use the product effectively. For example, does the label provide suggested application rates for the crops you produce?

Additional label information to look for includes dilution and mixing instructions, details on application methods, potential tank mixes and crops that may show symptoms of a phytotoxic response or adverse flowering characteristics. This information makes using the product easier and less risky.

2. Company support. Does the company provide a phone number

or e-mail address for customer support? Does the company have technically educated representatives who know their products? Several chemical companies offer online resources to obtain product information, detailed guidelines and articles.

3. Research and development investment. Chemical companies with a strong focus on improving product availability, quality, product labels and grower support will often make research and development a key component of their business. Research and development includes to improve existing products or to introduce new ones, to enhance or to evaluate application techniques, to develop new uses on different crops or to refine application rates. Chemical companies may invest in research programs at universities to perform trials to provide unbiased conclusions.

4. Product cost. You may consider cost when choosing between growth regulators with the same active ingredient. The cost difference is small for individual containers, but

when multiplied by the number of containers purchased, the difference can be substantial.

5. Plant response. Products that contain the same active ingredient are not identical. Products contain different inactive ingredients including the "carrier" of the active ingredient, which could potentially impact plant response. However, in our experiences, plants respond similarly to chemicals that contain the same active ingredients at the same concentration and volume.

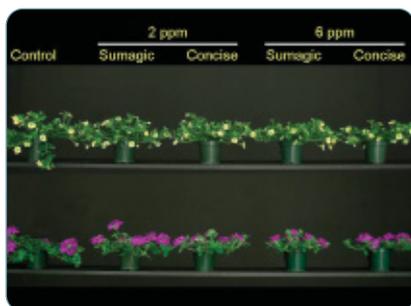
Matthew Blanchard is a graduate assistant and Erik Runkle is associate professor and floriculture extension specialist, Michigan State University, Department of Horticulture; (517) 355-5191; mgblanch@msu.edu; runkleer@msu.edu. Roberto Lopez is assistant professor and floriculture extension specialist, Purdue University, Department of Horticulture and Landscape Architecture; (765) 496-3425; rglopez@purdue.edu.

The authors thank research technician Mike Olich for his greenhouse assistance; Fine Americas Inc., the Metropolitan Detroit Flower Growers Association and the Western Michigan Greenhouse Association for their financial support; C. Raker & Sons, Michigan Grower Products and Blackmore Co. for plant material, growing media and fertilizer.

Trials compare plant, growth regulator response

To address the issue of plant response to growth regulators with the same active ingredient, researchers at Michigan State University performed a study to compare the response of a foliar spray application on annuals ('Callie Yellow' calibrachoa and 'Lanai Blue' verbena) and perennials ('Walker's Low' nepeta and 'Summer Blues' delphinium). Concise and Sumagic, which contain the active ingredient uniconazole, were compared at two rates.

Calibrachoa. At two weeks after treatment, plants treated with Concise and Sumagic at 2 or 6 parts per million were on average 1 to



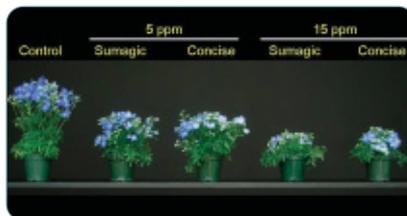
Effects of a single foliar spray of Concise or Sumagic at 2 or 6 ppm on stem elongation in 'Callie Yellow' calibrachoa (top) and 'Lanai Blue' verbena (bottom). Photograph was taken four weeks after treatment.

1½ inches shorter than untreated plants. At four weeks after application, Concise and Sumagic at 6 ppm continued to inhibit stem elongation and plants were on average 18 percent shorter than untreated plants.

There were no differences in height control between plants sprayed with Concise and Sumagic at the same application rate. Time to flower and the number of flower buds were also not different.

Verbena. At two weeks after application, stems of plants treated with Concise or Sumagic at 2 or 6 ppm were on average 2 inches (55 percent) shorter than untreated plants. There were no differences between application rates of each chemical. At four weeks after application, all treatments except Sumagic at 2 ppm continued to inhibit stem extension. Time to flower and the number of flower buds were not different.

Delphinium. Concise and Sumagic were both effective at suppressing stem elongation two weeks after application and at flowering on 'Summer Blues' delphinium. At flowering, plants treated with Concise or Sumagic at 5 ppm were on average 5 inches (53 percent) shorter than untreated plants. Sumagic at 5 or 15 ppm delayed flowering by an average of three days



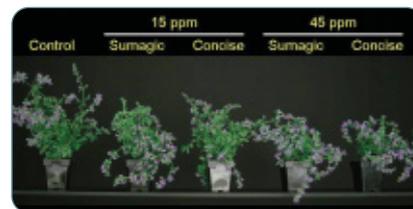
Effects of a single foliar spray of Concise or Sumagic at 5 or 15 ppm on stem elongation of 'Walker's Low' nepeta. Photograph was taken four weeks after treatment.

compared to untreated plants.

Both chemicals applied at 15 ppm caused excessive inhibition of stem elongation, so this rate is not recommended for this plant under Michigan growing conditions.

Nepeta. Nepeta is very vigorous and controlling stem elongation often requires a high application rate and/or multiple applications of a growth regulator. At two weeks after applica-

tion, Concise or Sumagic at 15 or 45 ppm effectively inhibited stem elongation by 2½ to



Effects of a single foliar spray of Concise or Sumagic at 5 or 15 ppm on stem elongation of 'Summer Blues' delphinium. Photograph was taken four weeks after treatment.

5 inches. Concise at 45 ppm was the only treatment that continued to inhibit stem elongation four weeks after application. There were no differences in time to flower and the number of flower buds in any treatments.

Overview: Trial results

The results of the MSU study comparing Concise and Sumagic indicate they are similarly effective at controlling stem elongation in the crops evaluated. In all species except nepeta, there were no differences in suppression of growth between application rates of either chemical.

Additional studies at MSU and at other universities indicate that there is generally little or no difference in the efficacy of growth regulators with the same active ingredient. With this in mind, the choice between growth regulators with the same active ingredient should be based on other considerations.

Before growers use any new growth regulator or application method, they should perform trials on a small scale to determine rates for their growing conditions and crops. 🌱