



# Recovering From A PGR Overdose

Gibberellic acid can help you overcome the accidental overapplication of plant growth regulators.

By Erik Runkle

Plant growth regulators (PGRs) are routinely used on most greenhouse crops to produce plants that are of a desirable height and form. Selecting and applying PGRs is a science as well as an art. As a science, it requires careful measurement of the chemical and then delivery of a specific amount of active ingredient per pot or flat. The application process — especially for sprays — is more of an art, requiring uniform and consistent coverage of crops. On occasion, growers overapply a PGR by using an excessive rate, excessive volume, or incorrect calculations or mixing procedures.

## Handling PGR Overdoses

With the exception of Florel (ethephon), all of the common PGRs work by inhibiting the biosynthesis of gibberellic acid (GA) within the plant. Gibberellic acid is primarily responsible for stem extension of crops, so limiting the production of GA within the plant limits stem elongation. If GA synthesis is essentially blocked by a PGR, which can happen with an overapplication, stems become excessively short. Fortunately, in many instances you can recover from a PGR overdose with an application of GA.

There are several products containing gibberellins that can be used to overcome a PGR overdose and increase stem elongation. Fascination contains two forms of GA (GA4 and GA7) plus the synthetic cytokinin benzyladenine. Fascination is labeled for use on a wide range of greenhouse crops to promote stem extension. Fresco is a newly released product that is similar to Fascination, but it is currently not labeled for a wide range of crops. Both of these products are usually applied as a spray (2 qt. per 100 sq.ft.) on bedding plants and potted crops at rates ranging from 2 to 5 ppm or 0.4 to 1.1 mL of product per gallon of solution.

There are also other products available that contain a different form of GA — GA3, primarily ProGibb 4% and Florgib 4L. These products are used on a wide range of horticulture crops and are effective at promoting stem elongation. It is important to note ProGibb and Florgib are usually more active than the products containing GA4 and GA7. Therefore, suggested rates for a spray of ProGibb or Florgib to overcome a PGR overdose range from 1 to 2 ppm or 0.1 to 0.2 mL of product per gallon of solution.


## Choosing GA Products

Selecting the appropriate rate for any GA-containing product primarily depends on plant species, magnitude of the response desired and volume applied to the crop.

Unfortunately, there is little research on appropriate rates for many greenhouse crops. For poinsettia, a commonly recommended rate of Fascination is 3-5 ppm, which can add about 1-2 inches to the plant height. Higher rates produce a greater response, but in my experiences, a spray application of 10 ppm produces an excessive response on this crop.

I encourage you to begin with the lower suggested rates of GA on a small sample of your crops to determine the desirable response. Severely stunted crops will likely need a higher rate than crops that are only slightly stunted in growth. In addition, crops that generally need more PGRs for height control will likely need a higher rate of GA to achieve the desired response. Remember, roots can also absorb GA, so a heavy spray will provide a stronger response than a standard spray application.

The GA products can be applied to a crop more than once if needed. If the first application does not provide you with the desired response after seven days, then adjust the rate based on the outcome of your first spray and apply the GA again. Be careful to avoid an excessive GA rate or too many GA applications; unlike a PGR overdose, you cannot counter a GA overdose with more PGRs.

Of course, the goal is to produce a crop without having a PGR overdose in the first place. Oftentimes, the quality of a crop with a PGR overdose followed by a GA application will not be as high as a crop without the height control problems. However, when crops are too short — from a PGR overdose or otherwise — these GA products can turn an unmarketable crop into a marketable one. 

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