

PLANT GROWTH REGULATORS—SUBSTRATE DRENCHES

In general, we're a bigger fans of substrate drench applications of PGRs over foliar sprays. While the process is a little more involved than foliar sprays, the outcomes are often better when it's done correctly.

Foliar sprays tend to have a somewhat localized effect, in the sense that the magnitude of growth suppression they yield tends to be greater relative to where the spray solution was absorbed.

Substrate drenches generally have a more-uniform effect across the whole plant. Active ingredients are absorbed by the roots and translocated throughout the shoots and canopy.

The “high-activity” PGRs are (generally) the most effective active ingredients (a.i.s) in the rootzone. There are several to choose from, but many prefer paclobutrazol over others for substrate drenches—mostly from an ease-of-use standpoint.

Many crops are responsive to ancymidol, flurprimidol, and uniconazole in the rootzone, but you'll find that most crop culture sheets list recommended paclobutrazol rates over other a.i.s.

Having a safe starting point when you decide to PGR a crop that's new to you takes a lot of the guesswork and self-doubt of, “did I over-do it or just waste my time with too low a concentration?” out of the picture.

If you're new to PGR drench applications, do yourself a favor and start with a paclobutrazol-based product!

Much like foliar sprays, the key to effective PGR substrate drench applications is consistency – but in a different sense. You must be able to deliver the same volume of PGR solution to each container AND apply an appropriate volume of solution per pot.

Target drench volume depends entirely upon the size of the container your crops are in. I always refer growers to [Syngenta's Bonzi Drench Guide](#) for info on target drench volumes for different container sizes. Table 3 (on the last page of the PDF) lists different PGR solution volumes and makes it easy to calculate exactly how much solution you need to mix up in total.

You need to deliver the target volume per pot precisely to each container. Running a drench through pressure-compensating drip emitters can ensure each pot gets the same volume for larger containers or hanging baskets fed from the same irrigation line, but you may not always be able to PGR everything that's hooked up to a common irrigation zone.

You can count the number of seconds needed to hold a hose and breaker over each pot to hit the desired PGR drench volume per pot, but this almost always introduces LOTS of human error. I'm a huge fan of tools like [Dramm's ChemDose](#) as an alternative to guesswork, and tools like this allow you to quickly and precisely deliver a desired solution volume pot-by-pot every time. While it's an investment to buy a dedicated piece of equipment for drench applications, it can reduce man-hours associated with

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these applications and greatly improve the consistency of your drenches. Consider purchasing something like this if you frequently apply PGRs (or pesticides) via substrate drench—you won't regret it!