

QA AND ASK THE EXPERTS



Q: Do I need to use a surfactant when using plant growth regulators?

A: All of the currently used plant growth regulators (PGRs) on the market contain wetting agents and provide for good surface wetting of the material. Sometimes an indication of this is a foaming action observed during the mixing and loading of the product to be used. Some plants such as kale, gardenia, succulents etc. will have a very waxy leaf cuticle and may benefit from the addition of a surfactant.

Before using any surfactant growers are advised to test a few plants first for phytotoxicity before committing to their entire crop. Products like B-Nine or Cycocel have excellent wetting ability. If certain plants are hard to wet and you suspect poor PGR uptake from the foliar spray, you might consider the drench application method using a triazole based PGR such as Paczol. These drench applications are often used at 1/10th of a foliar spray rate and the results are very uniform and very active.

Q: We wish to apply Marathon 60WP using our floor ebb and flood irrigation system. How can we determine the rates? Each floor contains either 16,500 6-inch pots or 5500 8-inch pots.

A: Marathon applied via flood irrigation is actually an efficient way to get the active ingredient into plants, but it can be a bit confusing determining just how to do this.

To start, we need to determine the number of Marathon 60WP packets to use. One packet will treat 1000 6-inch pots with 1 or 2 herbaceous plants per pot. If there are 3 or more plants per pot, 1 packet will treat 650 pots. To treat 16500 6-inch pots with 1 or 2 herbaceous plants per pot will require 16.5 packets (round down to 16). If there are 3 or more plants per pot, then 25 packets will be needed.

For 8-inch pots, one packet will treat 750 pots containing 1 or 2 herbaceous plants and 500 pots with 3 or more herbaceous plants. To treat 5500 8-inch pots with 1 or 2 plants per pot will require 7.3 (round down to 7) packets. With 3 or more herbaceous plants per pot, 11 packets will be needed.

How much water will you need? Here's where you need to do some preliminary work, unless you already know approximately how much water will be taken up by the plants during irrigation. The most efficient way to apply Marathon is to estimate how much water each pot will take up, multiply this by the number of pots to be treated, add a little more to ensure that the entire area will be flooded so there won't be much water returning to the tank. Any excess water can be re-used in future irrigations.

You can estimate the water uptake per pot by taking about 10

plants that have just been irrigated, allowing them to dry until the next irrigation, and measuring the average amount taken up by each pot at the next irrigation. A tray that holds water is fine for this. Just be sure to measure the original amount and the remaining amount after irrigation. It's best to have different pot sizes on separate flood floors to ensure that the correct dosage will be applied.

Q: How many Nematodes are necessary to damage ornamental plants? I know that some nematodes (predators) have teeth. Can they damage roots?

A: This is an excellent question and not an easy one to answer. Nematodes are extremely small, numerous and can severely damage plants if populations get out of control. Some years back we began screening a new nematicide for efficacy against root knot nematode (*Meloidogyne spp*) and a turf stem gall nematode (*Anguina pacificae*). The researchers utilized soil and tissue testing to determine the infestation levels throughout the trial. The results were not what one would expect, that being either a decline, steady or increase in populations. What was observed were very erratic and fluctuating population levels. As I understand, nematode infestations are ever changing and can be inconsistent, thus the need to look at the "big picture."

Research has shown that just a few nematodes are not enough to induce plant damage but rather hundreds to even thousands. Another factor to consider is plant quality. Even though a crop may be infested, the plants can still look very good, a result of plant vigor and ability to put on new growth. This brings to mind the term control, there are a few true nematicides (i.e. methyl bromide) but most other materials are more likely nematostats, whereby they repel nematodes. Clean soil mix, clean stock and clean growing conditions are your best bet to controlling nematodes.

As to beneficial nematodes damaging roots, I would suspect not because they are pursuing other pests such as fungus gnat larvae. These good nematodes would be found in damaged tissue area do to their hunting for hosts. They work by penetrating these pests, lay eggs and multiple within, giving rise to exponential amounts of new predaceous nematodes.

Economic thresholds are based on initial soil population levels that will multiply over the growing season and cause economic damage to the crop. The economic threshold is expressed as the number of nematodes in a kilogram of soil and is often different for each crop and each nematode species. Threshold levels from as high as 1,000 root lesion nematodes/kg soil for most vegetables to as few as 500 / kg of soil in strawberry can significantly reduce yields. If the nematode soil analysis report indicates populations higher than the threshold, an integrated nematode management strategy should be implemented.



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