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Don't Let Your Plant Go Hungry in Retail

It is easy to forget about plant nutrition once your plants move to the retail area. Be sure you have your plant nutrition first-aid kit prepared



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Attention to plant nutrition does not cease once the plants have moved from the production greenhouses into the retail space. To keep plants looking at their prime we need to continue to provide them with adequate nutrition. There are a number of common plant nutrition dis-

orders that can occur in the retail garden center. Knowing what these are, anticipating them, and having the correct treatments on hand is critical; nothing is more frustrating than to take a high quality crop from production to retail only to have the plant suffer and decline.

Our hope is to always turn over the retail space quickly, in a couple of days or so, in this case we really don't have to worry about plant nutrition in a retail setting; the plant will be purchased and planted into beds before any nutrient deficiencies appear. However, mainly due to weather, this



Figure 1. Nitrogen deficiency shows up on the lower (oldest) leaves of the plant. Symptoms most commonly show up as chlorosis or yellowing

e-GRO Alert

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Figure 2. These New Guinea impatiens appear to be deficient in phosphorus; however, the actual cause of the symptoms are exposure to low air temperatures.

may not always be the case and we need to respond appropriately.

There are a few common things that can cause crop quality to decline quickly. Let's take a look at a few of them.

Nitrogen Deficiency

Nitrogen deficiency is one of the first nutrient deficiency to appear on a plant in the retail setting. Typical nitrogen deficiency shows up as lower leaf yellowing (Figure 1a and 1b). In most cases nitrogen deficiency appears because the plant is not being fertilized enough or even not at all. This is not uncommon in the retail setting. Our goal in retail is to maintain plants not

to encourage fast growth, as in production, therefore not all retailers are set up to inject fertilizer. Simply installing a fertilizer injector in your retail area can help you avoid nitrogen deficiency. Keep in mind that fertilizer rates can be reduced in retail, as compared to production, target 50 to 100 ppm nitrogen.

Phosphorus Deficiency

The second common disorder seen in the garden center is phosphorus deficiency. The typical symptoms of phosphorus deficiency are red or purpling of the leaves on the bottom of the plant (Figure 2). In many cases, including this example, the phosphorus deficiency symptoms are not caused by a lack of avail-

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able phosphorus, but a lack of uptake of phosphorus. This problem most commonly occurs early in the retail season when outside temperatures are cool but not freezing and plants are kept outside. In cool temperatures plants often exhibit phosphorus deficiency. Adding phosphorus will not fix this problem. Moving the plants into a heated space or, if possible, waiting for the outdoor temperatures to warm up will solve this problem.

If extra phosphorus is added to plants that are suffering from cool temperatures rather than actual phosphorus deficiency you can still run the risk of reducing crop quality. Figure 3 is an example of such. This grower used a fertilizer with excessive amounts of phosphorus which made these tomato plants stretch.

pH problems

We all know that elements are more or less available based on the substrate pH. Most notably iron. Growers

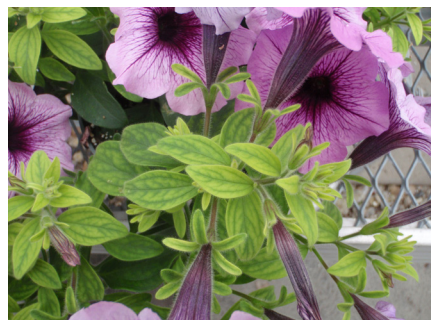


Figure 4. Iron deficiency due to high substrate pH



Figure 3. Tomato plants with excessive stretch.

constantly are dealing with iron deficiency in petunia or calibrachos (Figure 4), iron inefficient crops, and/or iron toxicity in geraniums (Figure 5) iron efficient crops. This problem is usually easily managed using potentially acidic or basic fertilizers on petunias and geraniums, respectively, in production where crops can be fertilized separately. This separation is difficult in the retail setting and using a fertilizer suited for one crop will be at the expense of the other crop. Using a fertilizer that is neither potentially acidic nor basic but neutral is recommended for a retail set-



Figure 5. Iron toxicity due to low substrate pH

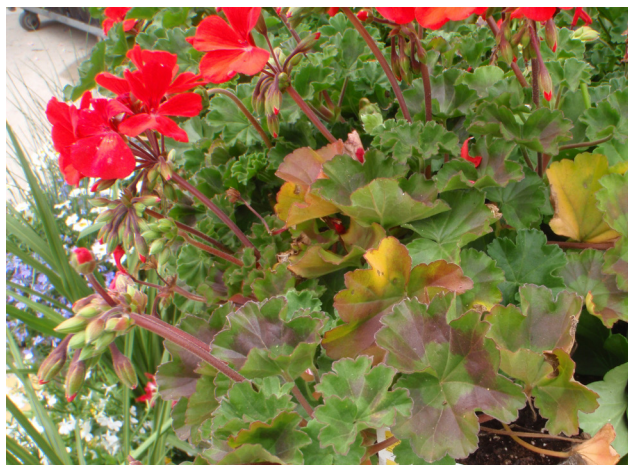


Figure 6. A geranium with multiple nutrient deficiency symptoms.

ting (fertilizers with less than 75 calcium carbonate equivalents will usually be suitable).

If you do get into trouble with high or low substrate pH there are a couple of things that you can do to quickly fix the problem. To quickly raise the pH on geraniums use a flowable lime as a drench at a rate of 1 to 2 quarts per 100 gallons, be sure to rinse of the foliage after application. To remedy iron deficiency consider a foliar application of a chelated iron, although this will not fix the problem (usually high substrate pH) it will green up plants quickly in order to sell the plants, in most cases one these plants are planted in the landscape adequate amounts of iron will be available. When using a foliar application of chelated iron be sure to rinse off the foliage after applying (see e-GRO Alert 3.21).

Proper Watering

If plants are not properly watered they can show signs of nutrient disorders. The geranium in Figure 6 appears to be suffering from a nutrient deficiency. Upon closer inspection

the plant was being under watered (Figure 7). Plants in retail are typically large and have extensive root systems; this means they will take a lot of water. Be sure that the substrate is getting fully saturated when being watered. Watch the weather forecast too, if cloudy rainy weather is coming over watering can be as problematic. Over watered plants can be prone to root rot diseases that mimic nutrient deficiencies as well (see e-GRO Alert 3.25).

Controlled Release Fertilizers

The use of controlled release fertilizers is often a good choice because they don't require an injector in the retail center and they continue to feed well after the plants leave production. They are

especially helpful in products that might stay in retail longer than the typical six-pack or 4 inch annual, like a hanging basket or combination planter. There is also the added benefit of fertilizing after the consumer takes the plant home.

Have a First-Aid Kit for Your Plants

As you transition from growing to selling it is always a good idea. The following items are good things to have readily available to react to common nutrient problems in a retail setting:

- A portable injector
- Neutral fertilizer
- Chelated iron
- Flowable lime



Figure 7. Upon closer inspection of the plant in Figure 6, it is clear that it has not been properly watered