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PART ONE

By Karen Kackley
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Time for a spring makeover

Get ready for your spring crop with an extreme makeover of your water and growing media.

Now is a good time to do a thorough checkup of your water, growing media and fertility program to avoid problems that can result in poor-quality plants. In Part 1, we'll focus on:

1. A complete water analysis.
2. Soil testing.
3. Crop organization.

1. A complete water analysis.

A water test is one of the best alternatives to actual crop insurance. The money and time spent to analyze your water's nutritional quality is far less than the money and labor it would take to fix a mistake later in production. Test every water source (i.e., well, pond, municipal source) used to irrigate plants separately.

To collect a representative sample for analysis:

- Flush out water lines or hoses for several minutes with fresh water. To help minimize the effect of injector surges, collect the water in a large, clean container such as a bucket.
- Submerge a laboratory sample bottle or other clean, unbreakable, leak-proof container in the bucket. Fill and cap the bottle while submerged to eliminate air bubbles. Even a half-inch of air space can affect results, so make certain there is no air in the container.
- Label the sample clearly and send it to an analytical lab as soon as possible. Proper analysis requires at least 8 ounces (1 cup) of water.
- Conduct your own electrical conductivity and pH tests on the remaining water to compare with the laboratory results and for future reference.

2. Soil testing.

One to two weeks after planting, send a growing medium sample to a testing lab for complete analysis. By this time, the lime and other medium additives will have had time to react so a truer picture of the root-zone chemistry will be available. Sampling of unused medium is not generally recommended and should he done only if subsequent samples are taken one to two weeks later to note the initial changes that occurred.

Take a composite medium sample to best represent the entire test crop. Collect samples (technically called subsamples) of medium within the root zone from multiple locations within the species and cultivars designated for sampling. Collect samples from a variety of locations on a bench and from different benches. Sample problem plants separately.

Consistency in sampling is key to understanding and interpreting analysis results. Decide on a technique and be consistent.

When collecting samples for a laboratory, perform your in-house analysis of the medium pH and electrical conductivity. Maintain careful records and place data points on graphs to compare with lab-generated data of the same samples. Although in-house and lab data rarely match exactly, the trends should be consistent.

When sampling plugs and flats, it is best to collect medium from at least five different trays, each located in a different area of the crop. The equivalent of one row of plants should be sampled on each date.

Discard the top 1/8-1/4 inch of medium where salts tend to accumulate. Mix the subsamples and send 1.5-2 cups of medium for each test.

To avoid depleting plants from a finished crop, set up testing trays in five different locations. These same trays can be tested on each sampling date.

To sample medium from containers, scrape away the surface 1/2 to 1 inch of medium where salts tend to accu-

Since zonal geraniums grow best at a pH that is higher than most other greenhouse crops, segregate these plants.

In Part 2 in May GMPRO, we'll help you do a fertility checkup with:

2.A review of your fertilizer program.

Your fertilizer injector.

mulate before taking a sample. This practice is especially critical for sub-irrigated plants. Take core samples or pie-shaped wedges cut from the side of the root ball. Collect medium from the entire depth of the root zone from at least eight to 10 pots.

Sampling medium from only the bottom of the pots may not yield an accurate assessment of nutrition around the plant roots. Mix subsamples and send 1½ to 2 cups of medium for each test. For growers who use drip irrigation, take samples from just below the emitters for consistency.

3. Crop organization.

Your growing conditions, partially determined by water quality, can dictate which plants you have success growing. Segregate plants according to the medium pH that each plant prefers. Plants can be separated into three groups: low-, moderate- and high-pH loving plants:

Plants in the low-pH or petunia group grow best in a growing medium with a pH of 5.4-6.0. They are prone to iron, boron and other micronutrient deficiencies. Examples are: bacopa, brachyscome, bracteantha, calibrachoa, diascia, nemesia, osteospermum, pansy, petunia, scaevola, snapdragon, verbena and vinca.

Plants in the **moderate-pH** group grow best in a growing medium pH of 5.8-6.4. They are not particularly prone to micronutrient deficiencies or toxicities. Examples are: angelonia, argyranthemum, begonia, coleus, gerbera and impatiens.

Plants in the high-pH or geranium group grow best in a growing medium with a pH of 6.0-6.8. They are prone to iron, manganese and other micronutrient toxicities. Examples are: calendula, celosia, geranium (zonal, seed and vegetative), lisianthus, marigold, New Guinea impatiens and pentas.

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