Tools of the Trade

By Roger C. Styer

A good grower is like any other craftsperson — they should know how to use the tools available to them. I find myself reminding growers around the country that they have a toolbox available to them, and they should always be looking to add tools to the box and to better understand them. Growers without the right tools for the job and those who do not understand how to use them will fail miserably at times.

TOOLS AVAILABLE TO USE

To deal with the art and science of growing flowering plants, growers have a number of tools already available to them. Some of these tools have been around for quite some time, whereas others are new. Growers can acquire these tools by attending conferences and seminars, reading trade magazines, visiting other growers and staying in contact with suppliers.

Here's what I think growers should already have in their toolboxes:

Graphical tracking. If you grow poinsettias or Easter lilies it is a must that you use this tool. You can record growth regulator or fungicide applications and have a crop history when finished. Graphical tracking is a road map to success for the above crops.

DIF/ADT. I think most growers understand DIF and how to use it for controlling height. When night temperature is higher than day temperature DIF will keep plant internodes shorter. The easiest way to use this method is to drop the temperature a certain amount half an hour before sunrise and hold it for 3-4 hours, after which you let temperature come up to normal day temperature. ADT, average daily temperature, is a little less understood. Those growers who dropped their growing temperatures this past year understand ADT one way or another. ADT controls leaf unfolding rate, the other component of height. A lower ADT due to conserving fuel will result in slower growth and flowering. Different crops respond at different rates to the same ADT.

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Environmental control computers. This equipment is needed to control conditions in the greenhouse and record them for further usage. More uses are being designed for these computers, including irrigation and fertilization.

Lights. Using HID lights for day length extension or incandescent lights for night-interruption is becoming increasingly common for plug producers around the country. Many of the crops we grow are long-day plants, requiring 12 hours or more of light to flower. By lighting the plug, we can get the finished crop into flower faster. Day length extension also provides more total light for Northern producers.

Media pH and EC meters. As I mentioned in the March 2004 issue of *GPN*, these meters are the speedometer and gas gauge of growing. You cannot successfully grow most crops without monitoring media pH (affects nutrient availability) and EC (affects root growth, color and size of plants).

Sticky cards. A simple but highly effective tool for telling what insects and how many are in the crop at any time. Also, sticky cards are very good for evaluating pesticide selection and application.

Alkalinity test kit. Absolutely needed by the grower using acid injection to control alkalinity levels in their water. I like the kits made by Hach Company.

Leaf counting and bud measurement. For Easter lily growers these two tools, along with graphical tracking, have made growing this crop very predictable, despite the fact that the target date is different every year.

Pesticide labels. You would think this would be an obvious tool, but many growers never really read the labels. Keep a booklet of all recent labels for the chemicals you use, and note information about tank mixes, spreader-stickers, sensitive crops and other important information, besides what rate you used.

DLI. Daily light integral is the total quantity of light delivered to the plant during the course of a day. Measuring DLI is a great way to determine how much the plant is photosynthesizing and growing. Jim Faust wrote an excellent article in January 2004 *GPN* explaining his work with DLI. You can now measure DLI with a portable data logger caller Greenhouse Weather Tracker (Spectrum Technologies). DLI will be important for determining flowering dates of crops growing under baskets.

FUTURE TOOLS

While the tools we have now are great, the future holds more. Researchers, breeders and other interested parties are continuing to refine how effectively and cheaply we can produce any crop.

Here are three tools to look out for in the near future:

DLI modeling. Using the DLI concept, we will have a crop modeling system that incorporates temperature and specific crop to tell you when your crop will finish. This model will also advise growers on other decisions they make that will affect crop timing, such as choice of greenhouse, how many baskets and what types to grow over that crop, and lowering growing temperatures due to high fuel prices.

Automated correction of media pH and EC, along with alkalinity. We have the ability to measure these factors but not on a continuous basis. By sampling at designated intervals, results can be compiled on a graph and corrective measures such as choice of fertilizer or more acid implemented.

Lighting programs for precise flowering. As we gain more information on what makes crops flower, we can use more lights in the greenhouse effectively to precisely time flowering, whether long-day or light accumulators.

So how full is your toolbox? And do you know how to use all of the tools available to you? It is not necessary to use all of the tools all of the time, but you should know which tool to use at a particular time. The skill of the craftsman is in how well they use their tools. GPN

Roger Styer is president of Styer's Horticultural Consulting, Batavia, Ill. He can be reached by phone at (630) 208-0542 or E-mail at carleton@voyager.net.