

MANAGING GREENHOUSE PRODUCTION WITH COMPUTERS

By Barry K. Witt

In the past, it was simpler. There were fewer new varieties to choose from, fewer crop turns to worry about and orders booked in advance for specific dates were almost unheard of. It was just a matter of filling up the greenhouse and emptying it.

Today, we are facing a much more competitive situation. As customers demand the latest and greatest varieties in specified assortments on precise dates (all at a 'competitive' price), growers must get maximum production from their greenhouse space. This means maximum crop turns at minimum cost. While better greenhouse environments, soils and growing techniques (automation, plugs, etc.) can lead to more even plant growth, this fine tuning demands a corresponding refinement of the information used to schedule those plants and the space to put them in.

Let's say that you can now grow a particular crop so that all the plants in each planting group finish within five to seven days of each other. You must therefore schedule each planting at seven day intervals or less to avoid gaps in your plant availability. While this more frequent scheduling is not too difficult for crops like chrysanthemums, a bedding plant schedule with ten or more varieties (most of which have different plant-to-finish times) that have three or four months of weekly finish dates and more than one container size can require tens of thousands of calculations. For many growers, this means two to six weeks sitting down with pencil and paper. And what happened if your customers make major changes in the order later? You can spend almost as much time recalculating those numbers all over again.

But the cost of not properly scheduling your crops can be great. Plants available too early or too late often must be sold at a discount, if they can be sold at all. And if those plants were booked by a specific customer for a specific time, then you also may have to figure the cost of the loss of that unsatisfied customer's account for years to come.

Another area of concern as production schedules become more precise is the greenhouse space that you put those plants into. If you want to get the most out of your growing area, then you need to keep that space that you are paying for as full and productive as possible at all times. That means no empty space, but it also means that you can't over-fill that space. Too many plants simply mean that some plants don't get the space they need when they need it and must be discounted or dumped.

The solution is to determine your available space for each week of the year, the space required for each container at all of their different spacings and the number of weeks that each container will remain at each of those spacings. Ideally, you should also be able to easily adjust your predicted number of plants to do some 'what if' projections and match your space needed to your space available. Especially for when those customers call with those last minute order changes.

Once again we are looking at a process requiring many thousands of calculations, even for relatively small greenhouses. But if you make a mistake in your space planning, it can easily lead to five to ten percent of your plants being discounted or to the 'greenhouse shuffle' where you pay for lots of extra labor moving those extra plants to someplace they don't belong.

The tool best able to handle these massive number problems is obviously the computer. Not so obvious is which of the many options available to choose for your greenhouse. So what can you do? The 'traditional' approach has been to buy a large computer (mini or mainframe) and hire programmers to write software to handle accounting, shipping, sales and production. Not many growers can afford this approach (\$100,000 or more) but some of the larger growers have found it to be a financially viable solution.

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The recent free fall in personal computer prices has made some other options available to medium to small greenhouses. Several years ago, a few companies began to offer software that runs on personal computers which can handle greenhouse-specific accounting, shipping, sales and in some cases, production planning. These software packages, while targeted at plant nurseries and their special needs, still tended to focus on accounting, shipping and sales and only recently have added some production planning modules. A couple of other packages have recently been released that deal solely with production planning.

The cost of these software packages varies, but as a rule of thumb you can expect to pay less than two thousand dollars for the computer and two thousand five hundred to five thousand dollars for the software. The hidden cost is in training your people to use it. If it takes one or two people three to six months to 1) enter information 2) adjust the software to your particular greenhouse and (3) just learn how to use the system, then you are looking at potentially tens of thousands of dollars in start up costs. Also, if you already have accounting software that you like

and the package you buy does also, then you have to figure in the loss of time and money invested in the old system.

Another alternative is to hire a specialist on a contract basis. Since most decisions about scheduling are made at specific times about three to four months before major crops (bedding plants, poinsettias, etc), it can be much more cost effective to pay for a specialist for a few weeks than to pay a full time employee for fifty-two weeks, plus benefits. This also lets you avoid some of the hassles of keeping up with the constant upgrades in computer hardware and software. Be sure to choose someone with experience, not only in growing the crops that you grow, but under the conditions that you grow them. Also make sure that they are able to revise your schedules quickly and accurately and with the information presented the way that you need it. After all, the ability to get a computer-accurate, fully revised crop schedule in a couple of days instead of two to six weeks can be the difference between a successful season or not.

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