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Are You Recognizing Your Heating Costs?

Many medium- and large-sized operations use cost-accounting software to estimate their costs of production. Some growers have created their own spreadsheets while others use a commercial product. I'm not an economist, but I know that determining "true" production costs is very difficult, in part because of the large number of crops produced, different shipping dates, unpredictable weather, changing input costs and variable shrinkage rates.

Energy for heating is often the second largest overhead cost for ornamental plant growers in the northern half of the United States and in Canada. There are a variety of growing practices and technologies that can be used to lower energy costs (more on that in upcoming articles). Of course, only so much can be done, and a substantial amount of heating can still be required to produce crops for late winter and early spring sales. Heating costs vary tremendously and depend in part on greenhouse location and characteristics, heating systems, and production time.

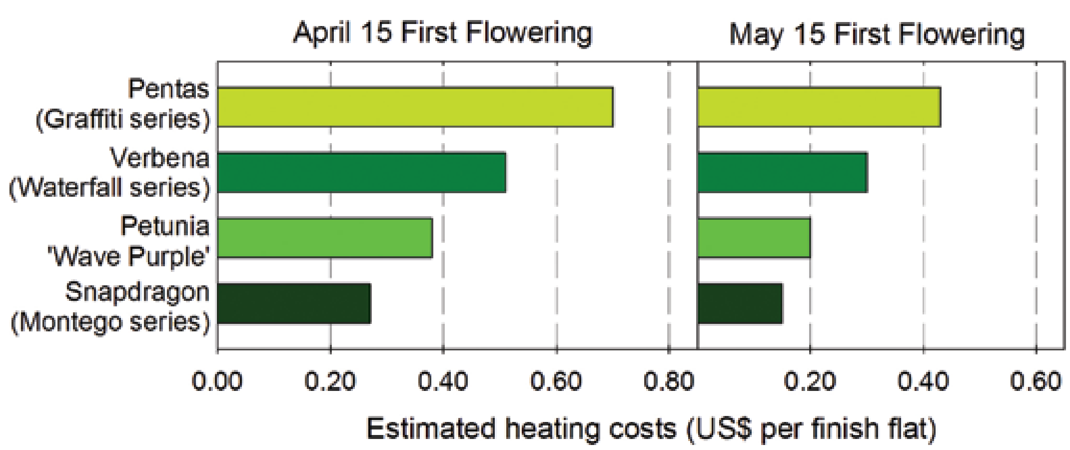
For any individual greenhouse, however, many of these production factors remain fixed or change little: the greenhouse characteristics don't change (except for additions and improvements), the location doesn't move, the heating method doesn't change, and shipping dates are often similar from one year to the next. For a particular greenhouse, the heating costs thus depend heavily on the crop grown, the starting plant size, the growing temperature, and the finish date.

It is possible to estimate heating costs on a crop-by-crop and finish date basis, but I suspect few people do. For example, I used data generated by my former graduate student Matt Blanchard and Virtual Grower to estimate heating costs to produce flats of four bedding plant crops in a greenhouse in Grand Rapids, Mich. (Figure 1). Nearly 90 percent more heating was required to finish pentas on April 15 compared to producing 'Purple Wave' petunia in the same size pot at the same temperature because of the differences in crop times. Similarly, twice as much heating was required to produce a verbena crop than a snapdragon crop for a May 15 finish date. Regardless of the crop, about 70 percent more energy was consumed for heating to finish plants on April 15 versus May 15.

In light of these differences, are you pricing crops appropriately to cover this variability in heating cost? Crop heating costs increase as production time increases, the size of the container increases, and the earlier in the spring that plants are finished. To increase profitability, can you grow more "quick" crops and fewer ones with long production times? Can you grow varieties that flower earlier than other varieties of the same species? Or, are you able to obtain a higher price for "slow" crops or those produced earlier in the year?

Sometimes, growers use a fixed heating cost on a square-foot basis in their accounting. But, heating is not a fixed cost; it varies dramatically from week to week. The MSU Greenhouse Cost of Production software, which is a Microsoft Excel file, considers heat as a variable cost is. More information about that program can be found online at http://flor.hrt.msu.edu/production-info. Although it assumes the greenhouse is located in Michigan and operates year-round, it gives an example of how heating costs can be allocated to different weeks of the year.

Figure 1. The estimated heating cost, on a per flat (1.8 square feet) and crop basis, to produce different bedding plants in flower for two different finish dates at a constant 68° F. Crop time (from transplant of a 288-cell plug to first flowering) was 29 days (snapdragon), 37 days (petunia), 48 days (verbena) and 60 days (pentas). Estimates were made using Virtual Grower 3.0 for a double-poly greenhouse located in Grand Rapids, Mich. The ¼-acre greenhouse had four spans that were each 114 x 24 feet, arched 12-foot roof, 9-foot gutter, polycarbonate bi-wall ends and sides, forced air unit heaters burning natural gas at $0.75 per therm ($7.68 MCF), 45 percent heating efficiency, no energy curtain, and an hourly air infiltration rate of 1.0.



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