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Commercial floriculture began in Indiana as an outgrowth of the home garden (2). Most sources agree that the beginning was spirited by E. G. Hill of Richmond (1,2,3) who established a florists' production-retail-mail order business in 1881 (4). After Hill started the flower cart rolling, many other families began to get into the florist business. In the next several articles we will discuss developments in various areas. For now let us list some early families around the state who played important roles in development of the industry.

Dividing the state into areas and beginning near Richmond, the Meeks of New Castle and Gauses of Richmond have been in the business many years (1,4). In the Evansville area, the Blackmans were early floriculturists. Kleitz is another historically prominent family, as is Zeidler (5).

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1 Present address: Keefer's, Andrews, IN.

2 Assistant Professor of Floriculture, Purdue University
To enter the Easter flower or potted plant market, the greenhouse offers an opportunity to do this early in the year before the bedding plant season. One florist had a problem of obtaining flowers for Mother's Day because they have no space for holding them in good condition.

**Summer Uses**

Uses for the house in the summer are less obvious. Of course, there's not a great investment in it, so it could stand idle. It would tend to get pretty hot in there, unless you put on reflective plastic or shaded it in some way, and provided plenty of ventilation. In cooler climes bedding plants may be sold through July and August, but in the midwest it gets too hot. One possibility would be to remove the plastic, cover with saran screening and use for growing and selling garden mums in containers.

**Problems**

A problem with any plastic sales house is maintaining it in an attractive condition. In the summer the temptation may be strong to accumulate pots, flats and other unsightly materials in the greenhouse. This may be all right if the sides are down and the ends closed off from view of retail customers.

Deterioration of the plastic is also more serious for the sales house than for a production house since torn plastic, flapping in the breeze can be an eyesore and a deterrent to sales.

**Building Codes, Zoning Ordinances, Etc.**

Before constructing your sales greenhouse, contact a licensed engineer (or architect) to advise you on design requirements necessary to meet Indiana's Administrative Building Council's Code, and any local zoning or building codes which may prevail. The Indiana Administrative Building Council requires that all public buildings (such as retail sales buildings) meet certain standards of design to assure public safety. Detailed plans for such buildings must be drawn up and stamped by a registered engineer, then submitted to the Administrative Building Council for their approval. Allow at least 4 to 6 months to obtain plans and secure their approval. Once approved, the building must be constructed under the same engineer's supervision to assure compliance with the plan.

If one of the state's building inspectors should discover a public building being constructed without a permit, he can have construction stopped, the business closed down, and assess a fine of $100 per day for each day the building remains in violation of the Code. This can soon become considerably more expensive than the permit fee (20 to 40 cents per hundred dollars of valuation) and the engineer's fee. Furthermore, having the building constructed according to approved plans provides a measure of protection against liability or negligence suits in the event a customer or employee should become injured.
Opportunities

A greenhouse designed specifically for retail selling and for holding plants in anticipation of sale offers the following opportunities:

1. Powerful sales appeal
2. Effective merchandising methods
3. Efficient materials handling and operation
4. Reduced risk of plant injury of losses
5. Greater flexibility in buying, reducing risk of not being able to obtain plant materials when needed.
6. Multi-purpose use
7. Low investment

If you're thinking of selling from a greenhouse, minimize your problems and maximize your opportunities by designing it from the start as a greenhouse for selling.

Quick-Grown Cyclamen

Several recent reports on cyclamen have described the short-time production system developed in Europe (1-5); and Dick Widmer and coworkers at the University of Minnesota have worked out the following schedule for the northern U.S. (6). Production time is almost halved, the finished plants are somewhat smaller, and profits are up (unless heating costs continue to skyrocket or fuel becomes unavailable).

Schedule for 4" to 5" Pots Flowering in Mid-December

<table>
<thead>
<tr>
<th>Date</th>
<th>Approximate Weeks Before Open Flowers</th>
<th>Procedure or Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 1</td>
<td>37</td>
<td>Sow Seed: germinate in darkness at soil temperature less than 72°F, eg. 66-68°F, in peatmoss blocks</td>
</tr>
<tr>
<td>May 1</td>
<td>34</td>
<td>1. Put in Greenhouse: germinated seedlings are grown in a 66-68°F temperature, day and night</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Maximum light intensity should be 4500 footcandles</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Water and fertilize well</td>
</tr>
<tr>
<td>July 3</td>
<td>25</td>
<td>Flat plants in peatmoss at 3&quot; x 3&quot; spacing</td>
</tr>
<tr>
<td>August 1-15</td>
<td>21-19</td>
<td>Pot: to 5-inch containers, use high peatmoss medium</td>
</tr>
</tbody>
</table>

1Compiled by Tom Weiler.
<table>
<thead>
<tr>
<th>Date</th>
<th>Number</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 1</td>
<td>16</td>
<td>Water less frequently; lower fertilization rate</td>
</tr>
<tr>
<td>October 1</td>
<td>12</td>
<td>Spray with gibberellic acid: the whole plant is wetted, but especially the small flower buds; 25-50 ppm active ingredient is used; add a safe wetting agent</td>
</tr>
<tr>
<td>October 15</td>
<td>10-9</td>
<td>1. Spray with gibberellic acid: this is the second application (see October 1 for information) 2. Reduce night temperature to 65°F</td>
</tr>
<tr>
<td>October 31</td>
<td>7</td>
<td>Reduce night temperature to 62°F</td>
</tr>
<tr>
<td>December 15</td>
<td>0</td>
<td>Plants in flower</td>
</tr>
</tbody>
</table>

One essential ingredient is the 68°F growing temperature, and another is the use of early flowering cultivars (Minnesota has successfully used TAS 'Dark Salmon Red,' TAS 'Rosa Von Zehlendorf,' TAS 'Pure White,' 'Improved Bonfire,' and 'Hallo.' The first two are earliest).

The third essential is avoiding limits to growth from lack of water, nutrients, or container space in which the roots can grow (the Minnesota system involves germinating each seed in a small peatmoss block contained in a flat, reflattling the blocks in nutrient enriched peatmoss at a 3" x 3" spacing in early July, and potting to 5" containers in early to mid August.)

The last element for the quick crop is spraying with gibberellic acid which promotes small flower buds to enlarge more rapidly, giving a heavy, early flush of flowers. (Pure gibberellic acid is available from chemical companies. A 25 ppm solution contains 0.1 gram per gallon. A florists production supply company offers tablets containing 26.6% gibberellic acid, so approximately 0.4 grams of tablet per gallon would be needed. A 4-gram tablet dissolved in 10 gallons will be approximately 25 ppm.)

**Literature Cited**


Starflowers

summarized by Tom Weiler

Information on "Starflower" or "Skyrocket" so popular now, is almost impossible to find. The plant is not listed in Bailey's Cyclopedia, Bailey's Hortus II, or popular works such as Everett's Encyclopedia of Gardening. Dr. Peter Hyyppä recently sent us the story.

"Starflower" belongs to the genus Syngonanthus (the "Shoe-Buttons" (1)), and the common small type we see is probably S. niveus. The genus belongs to the family Eriocaulaceae, the Pipewort family (1). These are monocots, not dicots, thus are very far afield from "Strawflower" (Helichrysum) in the Compositae.

The flowers are borne in heads and are unisexual, although pistillate and staminate flowers occur in the same head. Each flower is subtended by a chafflike bract. The heads terminate a leafless stem (1).

Syngonanthus, mostly perennial in mild climates, is native to wet areas, chiefly in South America, although some species grow near the U.S. coast from Alabama to North Carolina, including Florida (1).

The flowers of commerce are collected in the wild in Brazil, where S. niveus is native. Often they are dyed bright colors.


Literature Cited


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1 Extension Botanist, L.H. Bailey Hortorium, Cornell University, Ithaca, N.Y.