IMPROVING BEDDING PLANT PRODUCTION OPERATIONS

In a recent engineering study of bedding plant production operations, a number of problem areas became apparent. Many of these problems can be solved if data become available to provide the needed input.

The five problem areas identified were:

1. Timing and scheduling of production
2. Environmental factors
3. Capacity of facilities
4. Layout of facilities
5. Materials handling and mechanization

The main problem of timing and scheduling production was effected by and interacted with the other four problems. Timing of crops was difficult because plant-timing guidelines were not available for any given environmental conditions. Also, environmental conditions are not being controlled or maintained for repeatable growing conditions season after season. The scheduling of production activities was also made difficult by crowded and inefficient arrangement of storage, work and growing areas, and by the lack of sufficient and properly designed material-handling equipment.

Cultural information is available for many floricultural species being produced, but little work has been done on the organization of production methods or facilities. The large numbers of bedding plant species and cultivars have been grown under varying environmental conditions, but little data have been made available for further use in planning. Specific data on personnel use, space use and current crop-timing practices are generally known only to the greenhouse operator. Accurate data would provide information for decision making and for evaluating and improving existing production systems, developing new methods, or developing alternative systems.

What kinds of data are needed? What records are useful? Some of the data needed to solve the problem areas listed earlier are:

1. **Plant-Timing Guidelines.** Growers should establish the number of days in each step of production for specific environmental conditions (sunlight, temperature, moisture, etc.) for early, mid- and late-season crops.

   Records should be kept of numbers of flats; seeding, transplanting and marketing dates; and any delays encountered, such as weather, lack of space, etc. for each species and cultivar. From this information, timing guidelines can be developed to specify a seeding-to-marketing schedule, adjusted for seasonal changes in the environment. Eventually, all plant species and production operations could be scheduled to efficiently utilize time, space and personnel, while satisfying the market demand with high-quality plants.

2. **Environmental Factors.** Temperatures maintained for each plant species should be noted. Other factors, such as watering or lighting practices, should be recorded. Any problems in maintaining desired temperatures or uniform plant growth should be noted because of the effect on plant quality.

3. **Capacity of Facilities.** Volume of all materials used with arrival, storage and use dates on major items define material flow and storage-space needs. Building dimensions for existing storage, work and growing areas show present capacities. Records of flats being transplanted and marketed define the size of the growing area used. Space allocation and use should be noted at different times in the production season.

4. **Layout of Facilities.** A scaled drawing showing buildings with sizes and locations of work, storage and growing areas is useful in describing the range. An indication of the flow of materials into, within and out of the system aids in evaluating the arrangement of operations.

5. **Materials Handling and Mechanization.** Methods used for moving flats, soil mix or personnel should be noted. The important point here is to quantify the volume and distances of present moves throughout the production process. Present use of mechanization should be noted in any description of the production operations.

These are some of the data requirements needed to develop solutions for the problem areas listed. The greenhouse operator can benefit directly from these records because they provide him with decision-making information. The best way to reduce production problems during the season is to do some advance proper planning based on reliable data.

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