

BEDDING PLANT PRODUCTION

DEXTER McDONALD

*Amfac Garden Perry's
Ventura, California 93006*

The bedding plant, by nature, is a quick-turn commodity that moves rapidly through production, through the retailer and into the homeowner's garden in a relatively short period of a few weeks. We also find that the marketable life expectancy of most bedding plants is only 3 to 4 weeks on the average.

As with most any crop, it must be emphasized in the beginning that cultivar selection, scheduling, and production operations vary with the change of geographical location of the growing grounds. Temperature highs and lows, light intensity, as well as coastal conditions, air pollution, and other environmental factors all influence one's approach to bedding plant production. Our bedding product is not only grown year-round in California and Arizona, but a large portion of that product's production time is spent outside under mother nature's influence, over which we have little control.

GROWING MEDIA

The growing media we use is typical of most other bedding plant growers. The basic objectives are the same:

- 1) Optimum characteristics for the particular crop.
- 2) Uniform and consistent in quality and performance.
- 3) Available and economical.
- 4) As clean as possible.

We basically use the same medium for our total product line which, other than bedding plants, includes a large production of ground covers and a sprinkling of specialty crops, such as poinsettia, garden mums, and cyclamen. This medium doubles as a rooting and growing medium for our ground covers and poinsettias.

Our current growing medium consists of.

40% peat moss

30% vermiculite (#4 fine grade)

30% perlite (#2 Horticulture grade)

These components come to us clean and bagged and, consequently, we do not fumigate. However, we are quick to apply preventive fungicide treatments soon after planting to insure protection for our crop.

Our growing medium is analyzed regularly to assist us in regulating our fertilization program. Currently, our medium is being supplemented during mixing with the following base fertilizer mix.

Per ton. 120 lbs calcium nitrate
560 lbs single superphosphate
120 lbs ferric sulphate
560 lbs calcium carbonate
640 lbs dolomite lime

This fertilization supplement varies slightly from location to location due to change in water quality. Calcium nitrate is injected through a proportioning system into daily waterings to complete the fertilization program for our bedding plant production.

SEED PLANTING

Our seed operation is handled by a precision planter that was designed for efficiency in labor and precision in seed planting. This planting unit is calibrated and adjusted by changing the conveyor belt speed, cup orifice size, and/or speed of the rotating seed-distribution head. As the seed size and weight change, the planter is readjusted for ideal seed-planting density in the seed flat.

Typically, the planter is calibrated so that seed flats, when mature, will produce up to 25 to 30 finished flats. Finished flats are based on 6 plants per pack and 12 packs per flat or a total of 72 plants per flat. Our current Amfac Garden Perry's product line has over 300 bedding cultivars and practically all are started by seed.

However, not all these kinds of seed are planted with this precision planter; several cultivars are still planted by hand broadcasting and some are hand-planted directly into the salable unit. Amfac Garden Perry's other primary finished bedding units are the pot pak with 6 plants per pak and 6 paks per flat/unit, and the 4-inch pot with 1 plant per pot and 16 per flat/unit.

After the seed flats have been planted, the conveyor takes them through a light watering application. They are then top dressed accurately with silica sand at the end of the conveyor. This silica sand is ideal for seed cover due to its uniformity, cleanliness, ease in application and ideal air/water holding capacity.

Seed flats are then placed in greenhouses where air temperatures are maintained at approximately 70 to 80°F. Depending on the cultivar, germination usually takes place anywhere from 5 to 21 days.

Ideally, we prefer our seedlings to be in the first true leaf stage before they are spotted off. If they have a tendency to get too tall before the true leaf stage is reached, then the height becomes the determining factor for spotting off. The length of

time to this stage varies considerably by cultivar. The average range of time is 3 to 5 weeks.

As seed flats near the spotting-off stage, they are occasionally treated with B-Nine, a growth regulator (using 6 to 11 oz/25 gal) to hold them for later use. These flats can be held in prime condition for up to 7 to 12 days with B-Nine^{*} treatment. This not only enables us to hold our seed flats until we can get to them but also allows us to plant more seed flats than projected in order to respond quickly to increased market activity

Once finished flats are planted, they are immediately irrigated and treated with a Benlate/Lesan^{**} fungicide application for their protection against any soil disease problems. These newly planted flats are placed in greenhouses for approximately 2 to 4 weeks for their initial development.

The average time from seed to market for our primary product types are:

Pot paks: 6 to 8 weeks (6 wk ave)

Pot paks: 10 to 14 weeks (12 wk ave)

4-inch: 12 to 16 weeks (14 wk ave)

After spotting-off, the primary plant maintenance operations, other than irrigation, consists of:

- 1) Fertilization: calcium nitrate (7% nitrogen solution) is injected into daily waterings.
- 2) Pest control: various insect larvae are primary problem pests and various rots are primary diseases.
- 3) Fixing: replacing any damaged plants in flat
- 4) B-Nine treatment. Help maintain salable life.
- 5) Rotation and moving: necessary for proper development and finishing.

California's unique climate allows us to grow bedding plants year-round, and also makes it possible to finish out many of our crops outside, under mother nature. Depending on the crop, cultivars are moved outside 2 to 4 weeks after spotting off. Sun-requiring bedding plants like petunias, marigolds and zinnias are moved out into direct sunlight, whereas shade plants, such as impatiens and begonias, are moved out under shade cloth for the finishing of the crops.

In summary, we are supplying a product to satisfy demand projected a year in advance. This product is grown from seed that can run several thousand dollars per pound, purchased 6 to 8 months prior to planting. It goes from seed to the homeowner's garden in an average of 10 weeks, with a market-

* B-Nine — daminozide, Uniroyal

** Benlate — benomyl, duPont

Lesan — fenaminosulf, Mobay

able period of 3 or 4 weeks. Those plants that do not move to market make the compost pile shortly thereafter. After considering the implications of these production and marketing conditions, now think of the challenge of outguessing the season to determine when spring will break and sales will soar. If we are conservative and plan for a late spring, the market can leave us in the dust; and we lose that early market surge. If we throw caution to the wind, gamble on that early spring market, and spring breaks 3 weeks later than planned, only our compost pile reaps the benefit. Bedding plant production is a real challenge.

QUESTIONS FOR DEXTER McDONALD

CHARLIE PARKERSON: Do your 4-inch and pak materials compete with each other in the market? Is the season longer for the 4-inch?

DEXTER McDONALD: Yes, they do compete. The season is not longer for the 4-inch, but the holding time is. They remain salable for a longer period of time.

CHARLIE PARKERSON: Can all types of containers go through the same filling and planting equipment?

DEXTER McDONALD. Yes, with minor adjustments.

CHARLIE PARKERSON: How do you water?

DEXTER McDONALD: We use sprinklers. We have no specific nozzles. Often we hand water as well.

IRIS SOFT ROT CAUSED BY *ERWINIA CHRYSANTHEMI*, ASSOCIATED WITH OVERHEAD IRRIGATION AND ITS CONTROL BY CHLORINATION

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Abstract. Iris soft rot, previously reported to be caused by *Erwinia carotovora* subsp. *carotovora*, was correlated positively with the intensity of sprinkler irrigation rather than iris borer damage in a commercial rhizome production operation in Virginia. *Erwinia chrysanthemi* was consistently isolated from the rotted plants and reproduced the symptoms observed in

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