

# Growing Bedding Plants

**B**EDDING PLANTS are immensely popular and for good reason. They provide much of the bright color we see in landscapes throughout the growing season. Also, bedding plants are widely sold, relatively inexpensive, and easy to grow. This unit focuses on the production of bedding plant crops in the greenhouse.



## Objective:



Examine bedding plant production.

## Key Terms:



bedding plants  
cell packs  
DIF  
fertigation

finished  
hard baskets  
leached  
plugs

shelf life  
soft baskets  
toning

## Bedding Plant Production

Herbaceous annual plants used for ornamental display or vegetable production are called **bedding plants**. Ornamental bedding plants are valued for the colorful blanket of flowers or foliage they lend to the landscape when used in planting beds or containers.



FIGURE 1. Bedding plants add color to the landscape.

The most popular bedding plants, based on nationwide sales, include impatiens, petunias, pansies, marigolds, seed begonias, and seed geraniums. Bedding plants include vegetables started in containers and transplanted to the garden, such as tomatoes, broccoli, and peppers.

Sales of bedding plants outpace those of all other subgroups of the floriculture industry in the United States. In a recent year, according to the USDA Floriculture Crop Summary, the wholesale value of bedding plants surpassed \$2.6 billion.

## TRENDS

Some trends in the bedding plant industry are important to note. Marketing of bedding plants has gone beyond greenhouses and garden centers. For example, consumers can readily find bedding plants at large retail chains and grocery stores.

Greenhouse operations have grown in size due to the development of automated systems for plant production. Automation has triggered the use and development of plugs. **Plugs** are small plants grown in small amounts of medium in divided trays. Within a tray, the cell for each plug may be  $\frac{5}{8}$  inch or larger.

Bedding plants are grown in flats, pots, and hanging baskets. The trend has been for bedding plants to be grown in larger containers, such as 4-inch pots. Higher-quality plants can be produced in the larger containers. These containers lengthen the shelf life of the plants. **Shelf life** is the period a plant maintains health while on display for sale.

Hanging baskets have grown in popularity with consumers. There are two main types of hanging baskets. **Hard baskets** are those that have plants grown from cuttings, such as fuchsias, geraniums, and New Guinea impatiens. **Soft baskets** are those that contain plants grown from seed, such as petunias, impatiens, and browallias. Hard baskets require 12 to 15 weeks to produce, while soft baskets require only 6 to 8 weeks.

## SCHEDULING

Bedding plant production begins with scheduling and is followed by propagation of the plants. Basically, growers determine a sale date. Then, they count backward from that date the number of weeks it takes to have the plants grown to peak appearance and health. Depending on the species, anywhere between 8 and 18 weeks are needed to produce bedding plants grown as 48 cells per flat.



FIGURE 2. In this greenhouse, hundreds of plug trays are sown daily by automation.

## PROPAGATION

Most bedding plants are grown from seed. A few bedding plants, including zonal geraniums and fuchsias, are propagated by cuttings. Commercial mixes that are uniform, fine textured, and free of disease organisms are recommended for germinating seeds. Most seeds germinate well in a medium with a pH between 5.5 and 5.8. Most bedding plant seeds germinate when the medium is kept at temperatures around 75°F (24°C). Different species like different levels of moisture, so special attention to watering is important. Keep the medium moist until the seeds have sprouted.

### Hand Sowing

Guidelines have been established for the hand sowing of seed. Use fresh seed. Determine whether the seed requires any special treatment, such as exposure to light or darkness or a cold period. Plant the seed no deeper than three times its diameter. Plant seed in rows to reduce the possible spread of disease across an entire flat.

Transplant the seedlings to cell packs or pots when the first true leaves have formed. **Cell packs** are molded plastic containers divided into separate growing compartments in which the plants will be **finished**, or grown to a saleable size. When transplanting, gently lift the seedlings from the germination flat. Handle the seedlings by their leaves only, since their stems are very easily bruised.

### Plug Technology

Plug technology has revolutionized the bedding plant industry worldwide. Large operations produce plugs in trays holding 70 to 800 plants. They sell the plugs to growers throughout the country, who transplant the plants into finish containers. By purchasing



FIGURE 3. Rows of seed were sown by hand.



FIGURE 4. Plugs are produced in plastic trays.

plugs for finishing, growers do not have to be concerned with buying, storing, and germinating seeds.

Plug producers strive to produce uniform, compact plants with a high number of dark green leaves. Six to 10 weeks are needed to grow quality plugs.

## CULTURE

High-quality bedding plants have flowers just ready to open, have numerous breaks, and are compact. Temperature, moisture levels, growing medium, light, and fertilization programs affect the quality of the plants.

### Watering

As with other floriculture crops, watering is the most important cultural practice. The frequency of watering depends on the weather conditions and the sizes of the pots and plants. A general rule is to water as the medium approaches drying, then wait until it approaches drying before watering again. A key is to water thoroughly, or until the medium is saturated and water drains through the drainage holes of the containers. An additional benefit to heavy watering is soluble salts are **leached**, or washed, from the medium. The use of automated watering systems has increased dramatically and has reduced the amount of labor required in watering.

### Fertilization

Bedding plants respond well to constant liquid feeding that begins at the time of transplanting. Fertilizing of the plants while watering or irrigating is known as **fertigation**. A recommended rate of fertilization is 200 ppm nitrogen, 100 ppm phosphorus, and 200 ppm potassium. If soilless mixes are used, selecting fertilizers that contain micronutrients is important.



**FIGURE 5.** These workers are setting up a boom to fertigate a section of the greenhouse.

### Temperature

Bedding plants like warm night temperatures that range from 65° to 72°F (18° to 22°C). DIF can be effectively used to control stretching of the plants. **DIF** is the difference between day and night temperatures. Keeping the night temperature 6 to 8 degrees warmer than the day temperature halts cell elongation and plant stretching.

Growth regulators are sometimes used to maintain plant height and to encourage compact growth. A-Rest and B-Nine are the two most widely used growth regulators.

## Light

Most bedding plants grow best in full sunlight. Shade-loving bedding plants, including impatiens, wax begonias, and coleuses, might require shading in late spring and early summer.

## Toning

Before shipping bedding plants, growers prepare the plants for post-production environments. They lower temperatures in the greenhouse to slow plant respiration, and they reduce the fertilizer levels 50 percent when flower buds first become visible. This procedure of preparing plants before shipping is called **toning**.

## Summary:



Bedding plants are herbaceous annual plants for ornamental display and vegetable production. In a recent year, the wholesale value of bedding plants surpassed \$2.6 billion.

Trends include sales beyond greenhouses and garden centers. Greenhouses have automated systems that have enabled the growing of plugs. Bedding plants are grown in larger containers, such as 4-inch pots.

Growers determine a sale date and count backward from that date the number of weeks it takes to produce a crop. Most bedding plants are grown from seed.

Plug technology has revolutionized the bedding plant industry. Plugs are sold to growers, who transplant the plants into finish containers.

High-quality bedding plants have flowers just ready to open, have numerous breaks, and are compact. Temperature, moisture levels, growing medium, light, and fertilization programs affect plant quality.

Before shipping bedding plants, growers lower temperatures and reduce the fertilizer levels 50 percent. Preparing plants before shipping is called toning.

## Checking Your Knowledge:



1. What are bedding plants?
2. What are trends in the bedding plant industry?
3. How are bedding plants propagated?
4. What are the cultural requirements for bedding plants?
5. What is toning?

## Expanding Your Knowledge:

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Grow bedding plants in your school greenhouse with a spring sale in mind. Schedule the bedding plants to meet the sale date. Provide proper cultural conditions to produce healthy plants.

## Web Links:

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### Horticulture

<http://www.aces.edu/pubs/pubIndexes/anrho.php>

### Plant Propagation

[http://www.ces.ncsu.edu/depts/hort/floriculture/crop/crop\\_bp.htm](http://www.ces.ncsu.edu/depts/hort/floriculture/crop/crop_bp.htm)

### Agricultural Career Profiles

<http://www.myaert.com/career-profiles>