

# GREENHOUSE PRODUCTION

AgriScience  
& Technology  
Series

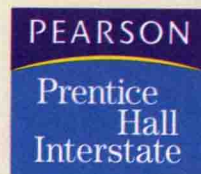


Ronald J. Biondo

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**Jasper S. Lee** — Series Editor



Upper Saddle River, New Jersey  
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# Preface

*Greenhouse Production* is a comprehensive book based on the greenhouse industry. It takes the reader beyond the most basic levels of horticulture. It includes botany and the production of floriculture crops. Greenhouse structures, equipment, and management techniques are covered, and specific growing instructions for the different floriculture crops are provided. Employment skills and business aspects of a greenhouse operation are also included.

This book represents a new approach in horticulture education. It is intended to be exactly what is needed in today's horticulture programs for greenhouse production. A student- and teacher-friendly approach is used. An abundance of color photographs and line drawings enrich the book by illustrating concepts discussed in the text. Activities are provided that go beyond the classroom.

# Acknowledgments

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**Ronald J. Biondo**

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# The Floriculture Industry

## OBJECTIVES

This chapter is an overview of the floriculture industry. It has the following objectives:

- 1** Describe the scope of the floriculture industry.
- 2** Explain the importance of the greenhouse industry.
- 3** Describe the extent and value of the floral design industry.
- 4** Identify careers found in the floriculture industry.

## TERMS

bedding plants  
buyer  
conditioning  
cut flowers  
cut cultivated greens  
floral arranger  
floral designer  
floral production

floriculture  
foliage plants  
greenhouse  
greenhouse worker  
grower  
marketing manager  
ornamental horticulture  
plant propagation

potted flowering plants  
propagator  
retail floral manager  
retail florist  
salesperson  
wholesale floral manager  
wholesale florist  
vase life

## WHAT IS THE SCOPE OF THE FLORICULTURE INDUSTRY?

The literal definition of **floriculture** is the “culture of flowers.” Floriculture is based on flowering and foliage (leafy) plants. It is an international, multibillion dollar industry. Floriculture businesses include the production of floral crops, the distribution of the crops from the grower to the consumer, and the processing of crops before sale. Some common floriculture businesses are retail and wholesale production greenhouses, florist shops, and floral supply companies. Floriculture is a major part of a larger industry called ornamental horticulture. **Ornamental horticulture** is the practice of growing and using plants for decorative purposes. Another major part of ornamental horticulture includes the nursery/landscape industry.



1–2. Floriculture is the “culture of flowers.”

## FLORAL PRODUCTION

**Floral production** involves the growing of flowering or foliage crops to sale size or maturity. The majority of the crops are produced in greenhouse structures. The value of floriculture crop production in the United States has shown steady growth. The United States Department of Agriculture (USDA) estimates the total wholesale crop value for all growers with \$10,000 or more in sales at \$4.74 billion for 2001. The states of California (22 percent) and Florida (16 percent) lead the way in floriculture production. Amazingly, the top five states—California, Florida, Texas, Michigan, and Ohio—accounted for \$2.52 billion, 53 percent of the total value.





**1-1. There are many floral products. (Courtesy, Society of American Florists)**

**Q**UICK! Mother's Day is approaching and you need to show your mother that you care. You could buy some candy, but somehow candy doesn't express your feelings. You could buy a card, but that doesn't appear to be enough. If you are like many people, a floral product seems to be most appropriate. Now, you must choose a bouquet, a houseplant, a corsage, a potted azalea, or one of many other floral products that are available. In fact, the number of items from which to choose can make the decision difficult. The good news is you have a wide selection of choices.

Have you ever given thought to where all these floral products come from? Have you considered how these products are grown so they are available at specific times of the year? Have you ever marveled at the ability some people have in designing floral arrangements? Most people don't give these things much thought. They simply appreciate the availability of the floral products. However, people who pose these questions touch upon the exciting floriculture industry.

**Table 1-1. Floriculture Production in the United States  
Based on Operations in Excess of \$100,000 in Wholesale Sales.  
(USDA Floriculture Crops 2002 Summary)**

State	Percentage of Sales
California	23%
Florida	17%
Texas	6%
Michigan	6%
Ohio	4%

When greenhouse operations having sales in excess of \$100,000 are considered, some interesting facts surface. These larger greenhouse operations dominate the market. Of all the greenhouse operations surveyed by the USDA, only 43 percent had sales above \$100,000. Yet, they accounted for \$4.44 billion in 2001 or 94 percent of the total value of floriculture crops.

What are the floriculture crops being grown? The wholesale value of bedding and garden plants reached \$2.18 billion in 2001. That represents 46 percent of the wholesale value of all floriculture crops. Potted flowering plants were valued \$832 million. The foliage category accounted for \$585 million. The value of cut flowers was \$424 million, while cut cultivated greens were valued at \$111 million.

**Table 1-2. The Wholesale Value of Top Floriculture Crops  
in the United States in 2001 (USDA Floriculture Crops 2002 Summary)**

Crop	Sales	Percentage
Bedding and garden plants	\$2.18 billion	46%
Potted flowering plants	\$832 million	18.7%
Foliage plants	\$585 million	13.2%
Cut flowers	\$424 million	9.5%
Propagative material	\$306 million	6.9%
Cut cultivated greens	\$111 million	2.5%

## CAREERS IN THE GREENHOUSE INDUSTRY

Floriculture production involves people with different skills. Some have a sound understanding of plants and plant growth. Others may be strong in business. There is also room for





**1–3. Growers are in charge of crop production.**  
(Courtesy, *Greenhouse Product News*)

unskilled laborers. Some job titles associated with floriculture production include grower, propagator, marketing manager, and greenhouse worker.

## Grower

The person in charge of crop production is called a **grower**. Large greenhouse operations will employ a number of growers, each of whom may focus on one or more specific crops. Growers have extensive knowledge in crop production and are responsible for crops. Growers assign some tasks to greenhouse workers.

## Propagator

Production begins with some form of plant reproduction, whether by seed or by using a portion of a plant. Plant reproduction is commonly known as **plant propagation**. The new or young plants are grown to a size or an age at which they may be sold for further production purposes. Some might be sold directly to the consumers. A **propagator** is an employee trained in plant reproduction.

## Greenhouse Worker

**Greenhouse workers** often start as unskilled laborers and are trained in greenhouse production tasks. Greenhouse crop production is labor intensive and there are plenty of opportunities for workers. The jobs assigned to a greenhouse worker might range widely. Some jobs include potting, disbudding, watering, applying pesticides, packaging crops for shipment, and maintaining greenhouse structures and equipment.



## Marketing Manager

The **marketing manager**, sometimes called a wholesale manager, has the responsibility of moving the crop to the customer. He or she promotes the sales of crops and handles orders. The marketing manager sees that crops are graded and selected for the customer, stored if necessary, packaged, and delivered.

## GREENHOUSES

Most floriculture crops are produced in some type of greenhouse structure. A **greenhouse** is a structure enclosed by glass or plastic that allows light transmission for plant growth. Greenhouses give growers the ability to control environmental conditions affecting a crop. Greenhouses allow a high level of light to reach the plants. They can be heated or cooled depending on the needs of the plants. Watering and fertilizer applications are also carefully controlled by the grower. In addition to providing control of specific growing conditions, greenhouses allow plants to be grown throughout the year.

Greenhouse growers often specialize in growing certain crops. The decision to grow certain crops is based on a number of factors. The most important factor determining which crops are produced is profit. Can the crop be sold for a profit? The climate is another very important factor. The greatest concern with climate is the amount of sunlight and the average temperature. One reason the major producers of cut carnations and roses are located in Columbia, South America, is because the climate is perfect for growing these crops and greenhouses are unnecessary.

Nearness to the market influences decisions as to what crops are grown. Cut flowers can be grown far from the marketplace. They are relatively lightweight. As a result, the cost of

**1–4. Greenhouse structures allow light transmission for plant growth. Pictured is the conservatory at Kew Gardens, England.**



shipping cut flowers by air, even across oceans, is affordable. Potted plants are most often grown locally because of the cost of shipping. Laws also restrict the movement of soil across borders.

## MAJOR TYPES OF FLORICULTURE CROPS

The floriculture crops produced in the greenhouse industry fall under a number of groupings. The largest of these groupings include cut flowers, cut cultivated greens, potted flowering plants, foliage plants, and bedding and garden plants.



**1–5. Florists work with cut flowers and foliage. (Courtesy, Society of American Florists)**



**1–6. The poinsettia is a popular potted flowering plant. (Courtesy, Paul Ecke Poinsettias)**

**Cut flowers**—Some floral production operations focus on supplying cut flowers to wholesale florists. That is, they grow flowers, cut them when they reach a certain maturity, and sell them to a wholesaler. Roses, carnations, chrysanthemums, and orchids are a few common cut flowers.

**Cut cultivated greens**, or leaves grown for floral design work, are also grown and harvested. Leatherleaf, lemon-leaf, and huckleberry are common foliage materials used in floral work. Those in the industry often refer to cut cultivated greens as cut foliage or “greens.”

**Potted flowering plants**—A large segment of the floriculture industry is the production of flowering plants in pots. The plants may be propagated by seed or through asexual means, such as cuttings of plants. The young plants are grown to the flowering stage in a greenhouse structure. The entire plant and the pot are then shipped to market. Some popular potted flowering plants are poinsettias, chrysanthemums, Easter lilies, and African violets.