The Nature of the Agricultural/Horticultural Industry

The agricultural/horticultural industry employs a large number of people to meet the needs of our citizens for food, clothing, and shelter. Much of the economic activity of the United States focuses on providing products to meet these basic needs. Many changes have occurred in how this is done as agriculture has modernized and people increasingly express their preferences.

Objectives:

1. Describe the modern agricultural/horticultural industry.
2. Trace major developments in the history of the agricultural/horticultural industry.
3. List important benefits of agriculture and horticulture in the United States.

Key Terms:

agricultural industry
aquaculture
commerce
domestication
forestry
horticultural industry
ornamental horticulture

(Courtesy, U.S. Department of Agriculture)
The Modern Agricultural/Horticultural Industry

The agricultural/horticultural industry helps meet the needs of people in several important areas. The agricultural industry segment is composed of all the processes in making food, clothing, and housing available. Much of the work is carried out on farms and ranches and in agribusinesses of the United States. Production agriculture is the growing of crops and raising of animals. The agribusinesses include the nonfarm sectors of the agricultural industry, such as supplies and services and products processing.

The horticultural industry segment is composed of all the activities in producing ornamental plants, including bedding plants and cut flowers, in landscaping, and in producing fruits, nuts, and vegetables. The area of horticulture that deals with producing plants for their beauty is known as ornamental horticulture. Much of the work is in greenhouses, floral design businesses, nurseries, and similar endeavors but may include designing landscapes and caring for ornamental plants in a variety of settings to achieve desired aesthetic purposes. The areas the horticultural industry that deal with producing fruits and nuts and with producing vegetables are called pomology and olericulture, respectively.

In agriculture, several specialized areas help provide for the needs of people. Among these are forestry and aquaculture. Forestry is the production of trees and their products. In the past, many forests were native forest lands, but today, more and more are tree farms. A tree farm is an area planted to specific varieties of trees to yield desired products. Aquaculture is the production
of aquatic plants and animals, with fish farming being the predominant enterprise. Ornamental fish, as well as fish used for food, are included in aquaculture.

Natural resources and environmental areas are often included with agriculture. Natural resources are the living and nonliving things found in nature. They include trees, wildflowers, and game and other animals, as well as minerals and fossil fuels. Maintaining the quality of the water, soil, and air in our environment is critical.

In recent years, companion and small animals areas have emerged in the agricultural industry. These animals are those that people keep as pets, for hunting, and as guard animals. Some principles of small animals are the same as those of larger animals, such as beef cattle, dairy cattle, swine, and horses.

The use of new technology, modern equipment, and other practices has increased farm productivity and made possible the production of an abundance of food and fiber crops. Tractors and implements guided by GPS and computer-based systems are used with many crops. Harvested crops are expertly processed and prepared for distribution. International commerce allows crops to be exported as well as imported by agribusinesses in the United States. The notion of long days of hard hand labor on farms has been largely replaced, though some crops, particularly certain fruits and vegetables, continue to require hand labor in their production and harvesting.

History of Agricultural Developments

The history of agricultural developments in the United States is parallel with the arrival of colonists and the emergence of factories and refineries. Early practices were influenced by the experiences of Native Americans in culturing crops. Colonists often learned about new crops and methods of growing them. They also brought many crops and practices from Europe and other areas of the world. Too, European developments had major influences on agriculture in the United States.

Plant and animal domestication was a major achievement in allowing the culture of food and fiber crops. Domestication is the adapting of plants and animals to live in association with humans. Wild specimens are obtained and brought into human contact. Beef cattle, hogs, and other animals, as well as nearly all

![FIGURE 3. Domestication involves bringing plants and animals, such as beef cattle, under the control of humans. (Courtesy, U.S. Department of Agriculture)]
crop plants, involved domestication. Domestication often gradually occurred as people relied more on farming and less on hunting and gathering food and other materials from the wild.

Early farming was a way of life. People lived and worked on the land. Much of their effort went into providing for their own needs. Little above the needs of a family was typically produced. New developments, however, allowed people to be more productive. This made it possible for them to sell or barter when production exceeded family needs.

New inventions in machinery reduced labor requirements in producing, harvesting, and processing food and fiber. These gradually occurred with the development of tools used by humans or pulled by animals. A number of useful inventions appeared in the late 1700s and early 1800s, such as the reaper by Cyrus McCormick.

Transportation also had a major impact on the emergence of commercial agriculture. Ships carried products overseas and brought other products to the United States. In the 1800s, the railroad provided transportation within the United States. Trucks and highways followed in the 1900s.

A major invention was the internal combustion engine. The engine was placed on a steel frame and connected to wheels, creating the farm tractor. This provided power to move implements over the land, plowing, planting, cultivating, and harvesting crops. One individual could produce far more crops using mechanical power than working by hand.

The 1900s saw improved varieties of crops, new fertilizers and pesticides, and other new technologies related to agriculture. Hybrid varieties of corn and other plants, including orna-

ON THE JOB...

CAREER CONNECTION:
Small Fruit Geneticist

A small fruit geneticist studies the hereditary traits of fruit and identifies useful traits that can be developed to improve desired qualities of the fruit produced. A college degree is needed in genetics, plant science, or a related area. Many small fruit geneticists have graduate degrees at the master’s or doctoral level in horticulture, genetics, or biotechnology. Most jobs are with universities, government agencies, and agricultural research facilities.

This geneticist is studying strawberries from cold climates to identify those that may be able to withstand low temperatures in the winter. (Courtesy, Agricultural Research Service, USDA)
mental plants, were developed. Animal breeding was used to improve the quality and productivity of the major species, including beef and dairy cattle, hogs, and poultry. New methods were developed in aquaculture, which is water farming, or the culture of aquatic crops such as fish, oysters, and kelp (seaweed).

As a new century began, major advancements were underway with cloning and genetic engineering. Computer and remote sensing technologies, including global positioning and variable-rate applications, were rapidly gaining acceptance. New and greater uses of technology are continuing to change the nature of the agricultural industry.

**TABLE 1. Selected Major Events in Agricultural Development**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>7000 B.C.</td>
<td>Native Americans began simple farming.</td>
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<tr>
<td>650 B.C.</td>
<td>Native Americans cultured beans and squash, among other crops.</td>
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<td>1607</td>
<td>Colonists brought hogs, sheep, goats, cattle, and horses to Jamestown.</td>
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<td>1731</td>
<td>Jethro Tull, of England, published ideas about farming and plant growth; he reported previous development of a seed planter and a horse-drawn hoe for use with crops.</td>
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<td>1793</td>
<td>Eli Whitney, originally of Massachusetts, created a machine that removed seed from cotton. (Catherine Littlefield Greene, originally of Rhode Island and later of South Carolina, assisted Whitney with the development.)</td>
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<td>1831</td>
<td>Cyrus McCormick, originally of Virginia and later of Illinois, developed many labor-saving agricultural devices, with the reaper (grain harvester) being the most important. He later founded a large agricultural machinery company.</td>
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<td>1837</td>
<td>John Deere, originally of Vermont and later of Illinois, developed a steel plow that worked well in prairie soils of the Midwest. He founded Deere &amp; Company in 1868.</td>
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<td>1859</td>
<td>Charles Darwin, of England, published important work on natural selection and other scientific theories on nature.</td>
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<td>1865</td>
<td>Gregor Mendel, of Austria, published findings of experiments with plant hybridization and genetics, especially involving peas.</td>
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<td>1908</td>
<td>George Harrison Shull, originally of Ohio and later of New Jersey, described heterosis. This was useful in developing hybrid plants. Shull is known as the father of hybrid corn.</td>
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<td>1996</td>
<td>Monsanto Corporation released insect-protected cotton, a genetically-altered cotton variety known as Bollgard®.</td>
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<tr>
<td>2002</td>
<td>Steve Stice, originally of Illinois and later of Georgia, cloned a female beef animal that gave birth to a normal calf in 2005. (Stice was an FFA member while in high school.)</td>
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**Benefits of Agriculture and Horticulture**

Agriculture and horticulture help meet our basic needs, create commerce, provide a consistent and uniform supply of products, create jobs, provide international trade, and make a pleasing environment.
MEET NEEDS

Agriculture and horticulture provide products that meet our basic needs. Food, clothing, and housing are fundamental to our well-being. Fortunately, research has found new ways to produce improved products. Having our needs met promotes a high standard of living.

CREATE COMMERCE

Commerce is the buying and selling of commodities on a large scale. Transportation is needed to get the products where they are bought and sold. Many raw materials and products in commerce come from agriculture and horticulture. Many successful businesses are involved in commerce with food, clothing, and housing products. The modern supermarket represents a very successful approach to commerce in which food products from many widespread places are available in one large store.

PROVIDE A CONSISTENT AND UNIFORM SUPPLY

Agriculture and horticulture provide a consistent and uniform supply of products. Food products and ornamental plants are available year round, not just in the growing season. Pres-
ervation practices are used to keep food wholesome and allow it to be transported long distances without losing its quality. The products are graded and inspected to assure that they are wholesome and of acceptable quality.

**CREATE JOBS**

Many people have jobs in the overall agricultural/horticultural industry. One out of every five jobs in the United States is said to be in the industry. The jobs provide salaries and wages that help people meet their needs and enjoy life. They are in areas that (1) provide the supplies and services needed on farms and ranches, (2) produce plants and animals and their products, and (3) process and otherwise market agricultural and horticultural products.

**PROVIDE INTERNATIONAL TRADE**

Agricultural and horticultural products create international trade. The products are exported as well as imported by agribusinesses in the United States. Major exports include soybeans, corn, and cotton. Imports include certain cut flowers, fruits and vegetables, some seafood, and coffee and tea. Clothing made from cotton is increasingly manufactured overseas and imported for selling in retail stores. Forest products are exported as well as imported.

**MAKE A PLEASING ENVIRONMENT**

Our surroundings are important. Agriculture and horticulture help create pleasing surroundings. Forests cover large areas of land, producing a pleasing natural landscape. Turf, bedding plants, other horticulture plants, and horticultural skills create pleasing lawns, athletic fields, and similar areas. These uses also help to improve air quality by removing impurities and restoring oxygen to the air.

**Summary:**

The agricultural/horticultural industry focuses on meeting the basic needs of people and creating a pleasing environment. Forestry, aquaculture, and other areas are a part of this industry. New technology has changed how plants and animals are produced and the quality of the products harvested. Overall, the goal is to provide for the well-being of people.
Much of the history of agriculture in the United States reflects the arrival of colonists. Practices used by Native Americans and those followed in the nations from which the colonists departed were mixed in launching a highly productive agricultural industry. Early in the process, plants and animals were domesticated. Astute producers often studied their crops and became scientists with considerable insight into agricultural practices. New machines and devices were developed beginning in the late 1700s. Major advances came in the 1800s and 1900s.

Agriculture and horticulture provide many benefits. In addition of meeting basic human needs, the production and distribution of the plant and animal products create commerce, jobs, and international trade. They also provide a consistent and uniform supply of food, clothing, and housing products. Of course, plants and animals are also used to create a pleasing environment.

Checking Your Knowledge:
1. What is the agricultural industry?
2. What is the horticultural industry?
3. What is domestication? Why was it important in the development of agriculture?
4. What are important contributions of the following individuals: Jethro Tull, Eli Whitney, Cyrus McCormick, Gregor Mendel, and Steve Stice?
5. What are the benefits of the agricultural/horticultural industry?

Expanding Your Knowledge:
Using print media and/or the Internet to gather information, prepare a report on the meaning and importance of agriculture and horticulture.

Web Links:
Agricultural History Society
http://www.usi.edu/libarts/history/AHS/

Illinois Agriculture Historic Preservation Society
http://www.illinoisaghistory.com/

Facts About Illinois Agriculture
http://www.agr.state.il.us/about/agfacts.html

Agricultural Career Profiles
http://www.mycaert.com/career-profiles