CHAPTER 2

Origin of Agriculture and the Domestication of Plants

Short Answer

1. What is the definition of agriculture?

   The production of plants and animals to meet basic human needs.

2. List five theories on the origin of agriculture and provide a brief explanation of each.

   - **Agriculture as a Divine Gift—Although there are many descriptions on the origin of agriculture based on classical mythologies from a variety of civilizations, the same general theme is clearly that agriculture was a divine gift.**
   - **Agriculture as a Discovery—There are a number of theories on how agriculture was discovered; the ones proposed by Sauer (1952) and Anderson (1954) are the most widely accepted.**
   - **Agriculture as a Result of Stress—There is now a considerable amount of support for the theory proposed by Cohen (1977), which suggests that the increased stress caused by an increase in population and depleted resources led to the adoption of agriculture as a means of procuring food.**
   - **Agriculture as an Extension of Gathering—In primitive societies based on hunting/gathering, people had the knowledge to develop agriculture but elected not to. Basically, hunter/gathers did not farm because food in the wild was plentiful.**
   - **Agriculture as a Result of No Specific Model—All existing models proposed thus far have been refuted in one way or another. The no-specific-model concept allows for a wide array of possibilities in which agriculture was developed. Basically, this theory recognizes that the human civilization is very different in all parts of the world and no single model can explain the origin of agriculture (Harlan, 1992).**

3. What was the major limiting factor in primitive societies?

   An available and dependable food supply.

4. What was the immediate reward of agriculture, which provided an available and dependable supply of food?

   There was now time available for a new class of specialists, such as artists, scientists, and workers engaged in other professions.

5. What are the top four major food crops produced today?

   Wheat, rice, maize, and potato.

6. Provide examples of food crops domesticated in each of the 13 major regions of the world.

   See Figure 2-2, the world food crop, in the text.

7. What was the time frame during which the domestication of plants occurred?

   Plants were domesticated toward the end of the Ice Age, or 11,000 to 15,000 years ago.

Define

Hatch Act—an act passed by the U.S. Congress that provided yearly support to agricultural experiment stations in each state.

Agricultural Adjustment Act—an act passed by the U.S. Congress, directed at the expansion of utilization research, to correct the problem of overproduction or surplus of goods, which became a major problem during the Depression in the 1930s.

Agricultural Marketing Act—an act passed by the U.S. Congress in order to change the imbalance between production and postproduction research.

True or False

1. **T** The time frame during which domestication of plants occurred was toward the end of the Ice Age.
2. **T** The current view holds that plants were domesticated at different times over a wide geographical range.
3. **T** One of the major accomplishments of the Egyptian civilization was the development of irrigation systems through the use of hydraulic engineering.
4. **T** The Greek civilization was only involved in practical agriculture in a minor way.
5. **T** Although the Greeks were great scientific thinkers, they did not show much interest in the day-to-day problems of agriculture.
6. **T** The Romans produced very little new discoveries, but they did make great improvements on existing technology.

Fill in the Blanks

1. There are **thirteen** major regions of the world where major food crops were domesticated.
2. Agriculture is the production of **plants** and **animals** to meet basic human needs.
3. The **Renaissance** was the period of time that immediately followed the Middle Ages.

Matching

1. **C** Hatch Act (1887)
2. **A** Agricultural Marketing Act (1946)
3. **B** Agricultural Adjustment Act (1938)

A. Passed to correct the imbalance between production and postproduction research
B. Initiated to correct the problem with overproduction or surplus of goods resulting from the Depression
C. Provides yearly support to agricultural experiment stations in each state

Matching

1. **E** Stephen Hales (1677–1761)
2. **G** Charles Darwin (1809–1882)
3. **A** Marcello Malpighi (1628–1694) and Nehemiah Grew (1641–1712)
4. **C** Rudolph Camerarius (1665–1721)
5. **D** Linneaus (1707–1778)

6. **H** Gregor Mendel (1822–1884)
7. **F** Joseph Priestly (1773–1804)
8. **B** Robert Hooke (1635–1703)

A. Responsible for the initiation of basic studies in plant anatomy and morphology
B. Found that living things were made of cells leading to the future of cytology
C. Demonstrated sexuality in plants, thereby providing the roots of genetics
D. Developed a simple yet elegant system for the classification of plants called binomial nomenclature
E. Published "Vegetable Staticks," which was the first significant publication in plant physiology
F. Showed that plants purify air
G. First to describe plant movement in response to light and gravity
H. Founder of modern genetics

Matching

1. **E** Theophrastus (377–288 BC)
2. **G** Varro (116–20 BC)
3. **F** Dioscorides (AD 40–90)
4. **D** Robert Prince (1730)
5. **C** Andrew J. Downing (1815–1852)
6. **B** Frederick Law Olmstead (1822–1903)
7. **A** Liberty H. Bailey (1858–1954)

A. The modern counterpart to Linnaeus. He wrote the book *Hortus Second*.
B. Considered to be the father of landscape architecture. He was the primary landscape architect for Central Park in New York City.
C. The first American landscape gardener.
D. Established the first commercial nursery in the United States.
E. Student of Aristotle and the most significant Greek horticulturist.
F. Wrote the authoritative book *De Materia Medica*.
G. Developed techniques for postharvest storage of fruits.