

Overview of the Poultry Industry

Lesson I: Overview of the Poultry Industry

The poultry industry makes up a large portion of Missouri's agricultural system. It provides millions of people with affordable and nutritious meat and eggs and other useful products such as fertilizers and livestock feed additives. The industry has grown tremendously in the last few decades. It began as small backyard farming systems and has now developed into large commercial enterprises with millions of birds.

What is Poultry?

Poultry is defined as economically important birds used either for food or show. This includes chickens, turkeys, quail, ducks, geese, and guineas. Other birds, such as pheasants, partridges and peafowl, can be classified as poultry. The following is poultry-related vocabulary.

Pullet - a young female chicken.

Hen - a sexually mature female chicken, usually more than 10 months old, that has started to lay eggs.

Chick - a baby chicken of either gender.

Broiler or fryer - a young male or female chicken, tender-meated with flexible breastbone cartilage, marketed at 6 to 8 weeks of age.

Roaster - a young male or female chicken, tender-meated with breastbone cartilage somewhat less flexible than a broiler or fryer, usually marketed at 7 to 10 weeks of age.

Capon - a surgically unsexed male chicken, usually under 8 months old, used for specialty markets.

Cockerel - a male chicken less than one year old.

Rooster - a sexually mature male chicken.

Poult - a male or female baby turkey.

Economic Importance of Missouri's Poultry Industry

The poultry industry is very strong in Missouri. The statistical information in Table I.1 illustrates the effect on Missouri's economy.

Poultry and eggs accounted for 27 percent of the total livestock cash receipts in Missouri in 2006. In comparison, meat animals, which include cattle, hogs, and sheep, accounted for 60 percent of total livestock cash receipts in Missouri during 2006. Total pounds of broiler meat produced was 1,075,000 pounds in 2006 and total pounds of turkey meat was 589,600 pounds.

Missouri's large scale poultry industry provides many people with careers in production and marketing. In addition, manufacturing companies support enterprises with equipment and facilities. The industry as a whole provides people with excellent dietary sources of vitamins and protein in the form of poultry and poultry products.

Table I.1 Effect on Missouri Economy

Product	Rank in U.S.	Total Production	% of U.S. Total	Value of Production
Turkeys	5th	20 million	7.6%	\$236 million
Broilers	10th	250 million	3.2%	\$403 million
Eggs	14th	1.9 million	2.1%	\$85 million
All Chicken (except broilers)	16th	9.4 million	2.1%	\$1.6 million

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Evolution of the Poultry Industry

The poultry industry began with early settlers who raised small flocks of birds around their homes. At first, raising birds for meat and eggs was considered a small enterprise on the farm. Soon demands for poultry and poultry products increased due to the growing population. By the 1800s, farmers began to specialize in poultry production that developed further with the onset of poultry shows by the 1850s. The American Poultry Association was founded in 1873 with the goal of establishing a distinctive set of standards for showing birds. This organization published the American Standard of Perfection in 1874.

Today the poultry industry in Missouri and in the United States is a highly specialized system of producers and hatcheries with few small home flocks. Many of the hatcheries in Missouri have continued to be productive entities in the state, shipping young poultry worldwide. Much of the poultry industry is concentrated in the southeastern and midwestern part of the United States where the climate is mild and feed sources are nearby.

The four major commercial enterprises in the United States that constitute the modern poultry industry are egg production, broiler production, turkey production, and raising pullets for replacement purposes. Since the late 1960s, there has been a decrease in the number of farms that raise laying hens; however, the size of flocks and farms has grown significantly. The total number of laying hens has decreased but egg production has been steady due to an increase in rate-of-lay per hen. Rate-of-lay refers to the total lifetime production of a hen. Egg consumption per person has decreased due to alternative breakfast foods, such as cereals, and concerns about negative health effects of eggs in relation to cholesterol intake. U.S. per capita production of eggs appears to have stabilized and has been increasing since 1990 with expansion in midwestern states.

Production of broilers and turkeys for meat has skyrocketed since the late 1960s. There has been an increase in consumption per person due to further processing of poultry meat into products like chicken

nuggets and precooked breast fillets. Also, since poultry meats are considered a low cholesterol food, public interest in a low cholesterol diet has also played a role in the growth of the industry.

As the different industries have grown, so has the demand for pullets, broiler chicks, and poults. Broiler chicks and poults production facilities are typically located close to the specific production facility, with breeder flocks somewhat isolated from the production farms. They consist of large hatcheries that incubate fertilized eggs, hatch, and deliver chicks or poults to the farms. Some hatcheries may provide other services such as vaccinations, egg injections, and beak trimming. Pullets and turkeys are sexed at the hatchery.

Common Breeds and Production Lines

For identification purposes, poultry is divided into breeds, varieties, types, and classes. A breed is a group of birds that share the same characteristics and have a common origin. A variety is a subdivision of a breed that is based on a group of specific traits, such as color or comb shape. Type describes the purpose for which the bird is used; the two general types are egg-type and meat-type. The class associates the bird with its place of origin. There are four general classes of poultry that include Mediterranean, American, English, and Asiatic.

Poultry raised from commercial producers are identified by breeder strains. Strains are families or breeding populations possessing common traits. They may be subdivisions of a breed or variety or may even be systematic crosses. However, a strain shows a relationship more exacting than that for others of similar appearance. Strain crossing refers to crossing of different strains of the same variety. The commercial poultry industry today is based almost 100 percent on the strain approach. Many commercial strains exist. Examples of chicken strains are Cobb, Hubbard, DeKalb, Hyline, Babcock, and Shaver. An example of a turkey strain is Nicholas. Strain breeders are constantly looking for additional material for gene pools.

The *American Standard of Perfection*, published by the American Poultry Association, lists more than 300

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different breeds and varieties of poultry. Of the many different species listed in the publication, very few are used commercially, but it is an excellent reference for birds raised for showing purposes.

Most commercial breeds and strains of chickens used for meat and eggs are a product of cross mating, crossbreeding, or inbreeding. Cross mating involves mating birds within the same breed. Crossbreeding is mating birds of different breeds or varieties. In an inbreeding system, birds that are very closely related to each other are mated to get specific traits.

Some chicken breeds are used primarily for commercial egg production. The most common commercial white, egg-layer hen is the Single Comb White Leghorn (a Mediterranean breed) for her excellent egg production. Some smaller flock owners choose to raise dual-purpose, brown egg-producing strains because they use them for both egg and meat production.

The most common bird used for meat production was originally a cross between the male Cornish of the English class and the female White Plymouth Rock of the American class. Hens produced by this cross have a low rate of egg production but are very efficient in meat production.

Turkeys are usually bred from a definite line or strain. Turkeys are typically referred to as their strain name rather than by their variety name. Common examples of commercial production strains are the Broad-Breasted Large White, Beltsville Small White, Nicholas, and British United Turkey (BUT).

Types of Poultry Enterprises

Three types of enterprises exist in today's poultry industry: commercial, backyard, and niche markets. A commercial enterprise raises birds in quantities of 100,000 or more. Backyard enterprises raise smaller amounts. The niche market enterprise raises birds in an alternative manner to the commercial industry. It produces products that are restricted to specific guidelines, such as utilization of special medications, facilities, or production process.

The three types of commercial enterprises include egg production, broiler or turkey production, and raising pullets and poult for replacement, which supplies the other two enterprises with replacement birds. The use of vertical integration is very common in the commercial poultry industry. Vertical integration means that one enterprise owns and controls more than one type of production operation. For example, a farmer may choose to purchase a feed mill, therefore supplying his own flocks with ready-to-eat feed. This system dramatically increases the size of operations and efficiency. A vertical integration system is run by poultry processors or manufacturers who are in charge of the majority of management decisions and problem solving. Nearly all meat production systems are produced under vertical integration and about 50 percent of egg production uses this system. The poultry meat industry is unique because most of the products are sold under a brand name, such as Holly Farms, Tyson, Cargill, or Con-Agra.

Commercial broiler fowl and laying hens are produced by specialized genetic companies that own breeding fowl. These companies incubate and hatch commercial layers and broiler chicks. Such operations usually provide producers with the bird, vaccinations, feeding, lighting, and pullet-growing program. They also provide veterinary and technical field services.

Commercial egg production systems are very large. They usually have a minimum of 100,000 head and many farms have up to 1,000,000 birds at a time. Hens are kept in cages with environmentally controlled housing. This controlled housing has specific lighting programs and computers that control the ventilation. Egg collection and feeding is completely automated.

In backyard enterprises, people choose to take advantage of the efficiency of poultry and raise their own smaller flocks. Maintaining a chicken flock requires a minimal amount of space and many people enjoy having the fresh eggs and meat available to them from their own backyard. Breeds recognized for dual purposes, such as the Rhode Island Red, Plymouth Rock, New Hampshire, Wyandotte, and Orpington, are popular among small flock owners because they are relatively efficient in both egg and meat production.

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Niche market enterprises provide meat and eggs grown in an alternative manner. Systems such as these may raise their birds cage-free and organically. The term “organic” has had many different definitions. In general, organic refers to products produced free of synthetic chemicals and drugs. Current standards exist but vary from state to state. There are more than three dozen different certification organizations within the United States that try to define organically grown meats and produce. The USDA Agricultural Marketing Service developed a National Organic Program.

Career Opportunities

The poultry industry provides many people with a variety of careers from marketing to research sciences. The poultry industry has grown significantly over the years and the systems of production have become very specialized. As technology and research continues to develop, so do the employment opportunities in the poultry industry. Many positions within the poultry industry require specialized training and/or certification. Examples of these occupations are chick sexers, artificial insemination technicians, blood testers, and sanitation workers. Other occupations require a college degree for employment. Examples are poultry breeding, field service personnel, waste systems managers, personnel officers, and accountants. Some occupations require an advanced degree. Examples are poultry geneticist, scientist, or veterinarian.

Summary

In general, poultry is any bird raised for food or show. The poultry industry in the United States has grown from small, family-owned, backyard flocks into large commercial enterprises. These enterprises are very important to the economy of Missouri and the United States. The different types of poultry enterprises include the commercial, backyard, and niche market. There exist many different breeds and strains of poultry, but only specific crosses of birds are used in the poultry industry. The size and diversity of the poultry industry offers employment opportunities to many people with varied experience and skills.

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