

WILD AND FARM-RAISED GAMEBIRDS: AN OVERVIEW OF FOOD SAFETY ISSUES

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What are gamebirds?

Wild gamebirds such as grouse, guineafowl, partridge, squab (young pigeon), quail, pheasant, wild ducks, wild geese, and wild turkey have been a part of the diet of the rural community who engage in hunting birds. However in recent years there has been an interest and demand for farm-raised gamebirds (pheasants, quails, partridges, mallard ducks, wild turkeys, emu, ostrich and rhea) as more and more restaurants and home diners have farm-raised gamebirds on their menu.

Game species raised on farms under appropriate regulations can be sold. Wild game species, that can be legally hunted under federal or state regulatory authority, cannot be sold, but can be hunted for personal consumption under the guidelines and laws governing the region. Information on regulations related to hunting of wild and migratory birds can be sought from the State Fish and Wildlife agencies or the U.S. Fish and Wildlife Service for federal regulations.

How big is the farm-raised gamebird industry?

Although not well publicized, the farm-raised gamebird industry is large and supplies live and dressed birds to restaurants, markets, and directly to consumers. The farm-raised gamebirds include pheasants (approximately 10 million), quail (37 million, including 12 million Bobwhite), Chukar partridges (approximately 4 million), Mallard ducks (approximately 1 million), wild turkeys (approximately 200,000), and several other bird species.

What are some of the farm-raised gamebirds in the United States?

• Wild ducks. History indicates that the Chinese were the first to be successful in raising wild ducks. The wild ducks raised on farms in the U.S. are descendants of either the Muscovy or Mallard species, and America's Long Island ducks are offspring of Pekin ducks (a variety of Mallard) brought from China in the late 1800s. A young duck or duckling is generally under 8 weeks of age, weighs about 3.5 to 5 pounds, and has dark, tender meat, and a mature duck is more than 6 months of age and has tougher meat.

• Geese. Geese were domesticated and raised in Asian countries, particularly in ancient Egypt, China, and India. A farm-raised goose weighs between 5 and 18 pounds and has tender meat.

• Guinea fowl. This bird, sometimes referred to as guinea hen or African pheasant, is related to the chicken and partridge. Guinea fowl is most likely to have originated from Guinea, West Africa. A young guinea fowl (11 weeks old) has tender meat. The meat is light red and slightly dry with a mild gamey flavor. Guinea fowl are small in size (2 to 3 pounds) and are sold as whole, including

giblets.

• Partridge. Partridges raised and sold in the U.S. market are the European or African varieties. In recent years, the Chukar variety from India has gained much popularity in the U.S. market.

• Pheasant. Originally from Asia, the female of this medium-size gamebird (approximately 3 pounds) has more tender, plump, and juicy meat than the male (approximately 5 pounds).

• Quail. American quail are known by various names such as Bobwhite, partridge, and quail (blue, California, mountain and Montezuma). A ready-to-cook quail weighs about 3 to 7 ounces, including the giblets.

• Squab or pigeon. Has been a delicacy for several centuries in the Middle East and Asia. A young immature pigeon that's about 4 weeks old is called as squab. The meat is very tender and the bird usually weighs about 12 to 16 ounces (including giblets). A pigeon has been allowed to mature and has tougher meat than a squab.

• Wild turkeys. Turkey is a native bird of North America. The name "turkey" was first given to African guinea fowl. When the first settlers in the U.S. came upon the American turkey, they thought it was the same bird as the African guinea fowl, and perhaps referred to it as turkey. However the two birds are quite distinct.

Are game animals inspected by USDA?

The Food Safety and Inspection Service (FSIS) branch of the USDA does voluntary inspection of migratory waterfowl (such as ducks and geese), gamebirds, ratites (emu, ostrich, and rhea), and squab. The FDA is responsible for inspection of imported wild game, and all other foods not covered by the federal meat and poultry inspection laws.

How are gamebirds raised on farms?

The gamebird chicks are highly susceptible to diseases, and therefore need a clean, healthy environment, free of predators and parasites, with lots of clean, fresh water, fresh air, and feed. They are housed in warm buildings with floors covered with litter made of agricultural byproducts such as pine shavings, rice or peanut hulls, sugarcane fiber, and ground corn-cobs. The gamebirds are fed a diet similar to domestic poultry, typically a lowfat mix that is higher in protein than that fed to chickens. The feed ingredients could include corn, alfalfa meal, wheat, soybean, meat-bone scrap, whey, fishmeal, and a vitamin/mineral mix.

When birds are a few weeks old, some producers transfer the gamebirds to flight pens. The flight pens vary in size but in general are about 130 feet long, 12 feet wide, and 6½ feet high. The floors of these pens are covered with natural vegetation. The use of sheds in flight pens protects the gamebirds from weather extremes, predators, people, and themselves.

Hormones are not used in raising gamebirds. However, FDA-approved antibiotics and antiparasitic drugs may be used. These drugs are administered in their feed or water. If a drug is given, it must be used according to its labeling. Almost all these drugs require

a "withdrawal" period usually up to 5 days from the time it is administered until it is legal to slaughter the animal or bird. This is so residues will not be in the meat. FSIS randomly samples the meat at slaughter and tests for any drug residues.

What foodborne bacteria are associated with gamebirds?

• Wild gamebirds. It has been well documented in the literature that wild gamebirds serve as carriers for agents of several zoonotic diseases (communicable diseases between animals, birds and human beings) including foodborne pathogens such as Salmonella, Campylobacter and Clostridium perfringens. It's extremely important to know how to handle wild gamebirds after they are killed. The birds should be defeathered (skinned where possible), eviscerated within an hour of kill, and the carcass should be placed in plastic

bags and transported on ice. It's frequently observed that hunters, after killing the birds, usually put them in the back of their truck, and allow them to stay there anywhere from 4 to 12 hours and sometimes under hot and humid conditions. Such practices are detrimental both for the quality of meat and to the health of the individuals who consume such meat. If the birds are not defeathered and eviscerated within an hour following the death of the bird, foodborne pathogens such as Escherichia coli, Salmonella, Campylobacter, and Clostridium perfringens present in the intestine could grow to high numbers. Removal of the gut containing high bacteria counts could contaminate the carcass and organs, resulting in contaminated meat. When on evisceration, wild gamebirds show extensive parasitic infestation, foul odor emanating from the thoracic and body cavi-

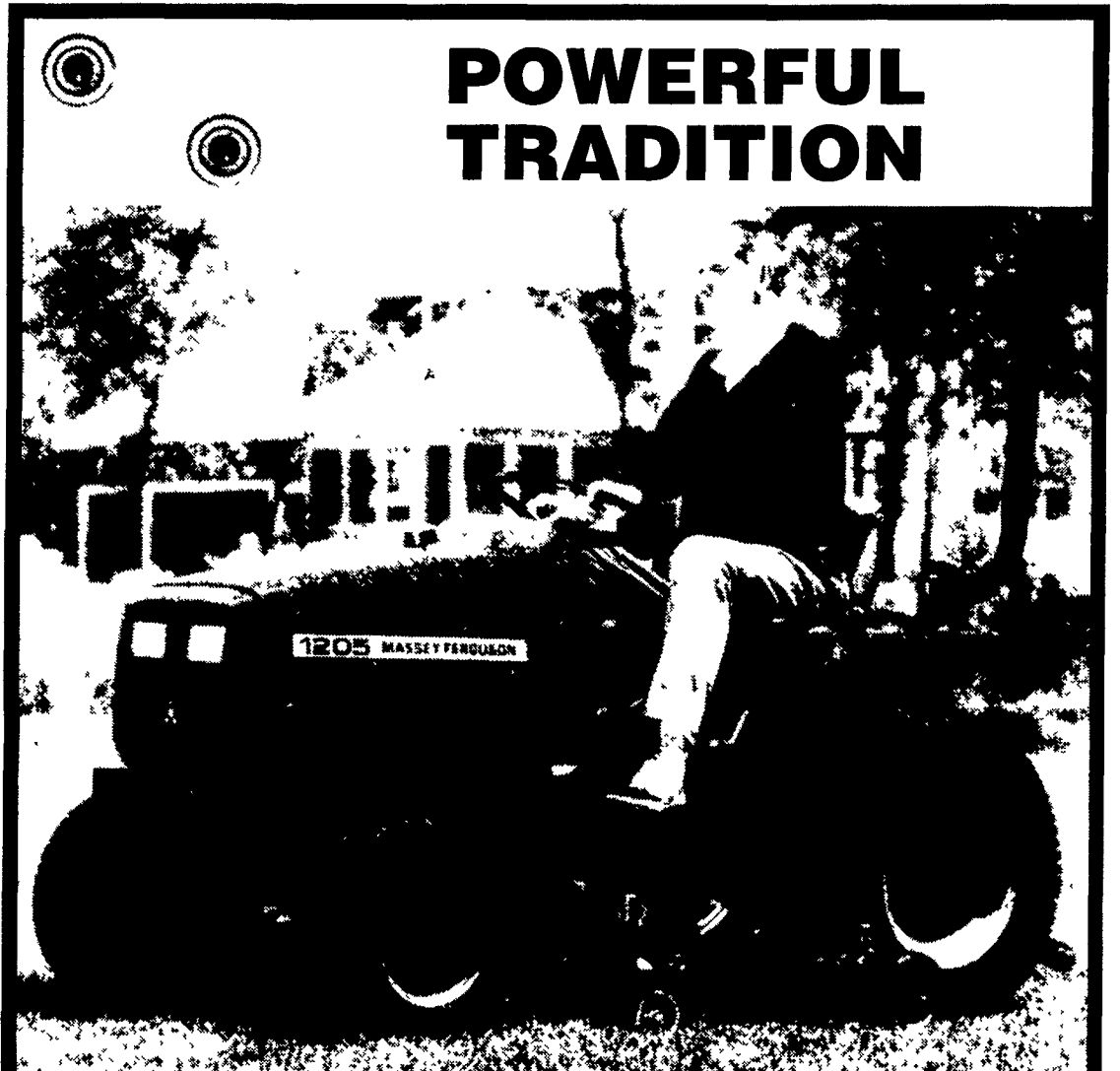
ties, enlarged organs, and small to large hemorrhagic areas on the muscles, it would be prudent to discard birds showing these signs rather than risk consuming the meat.

• Farm-raised gamebirds. Farm-raised gamebirds, if infected, are likely to harbor foodborne pathogens very similar to that of chickens. Foodborne pathogens include Salmonella, Campylobacter, Clostridium perfringens, Escherichia coli, and Staphylococcus aureus. When proper care is taken during handling of live gamebirds, evisceration, and cleaning and cutting of the meat, this results in none to minimal contamination of carcasses with foodborne pathogens.

What precautions should be taken while handling gamebird meat?

Gamebird meat is handled just as poultry meat. The demand for

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