



Fact sheet

Ostrich, Emu, and Rhea Production

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Introduction

In recent years, ostrich, emu, and rhea farming has become popular among small-scale or part-time farmers in the United States due to minimal land and husbandry requirements. These ratites are characterized by flightlessness, the ability to run, and the absence of a keel on their breastbone. Ostriches, emus, and rheas are hardy animals and can easily adapt to a multitude of climatic conditions.

Background

The ostrich (*Struthio camelus*) is indigenous to Africa and has been raised there commercially since the mid 1800s. Originally these birds were hunted and raised for their prized feathers, which were used in hats, costumes, and feather dusters. In 1882, the first ostrich was brought to the United States and shortly after, farming began in Arizona, Florida, and Georgia for feather production. After World War II, ostrich leather and meat were also in demand. The 1980s resulted in a great increase in ostrich farming in the United States.

The emu (*Dromaius novaehollandiae*) originated in Australia about 80 million years ago. In Australia, aborigines used the emu as a meat

source and their plumage for costumes. Emus were first brought to the United States between 1930 and 1950.

Rheas (*Rhea americana*) are native to the lowland steppes and high plains of South America. Rhea farming has become more popular in the United States in recent years.

Species Characteristics

Ostriches are the largest living birds, standing about ten feet tall and weighing nearly 400 pounds. Although there is one true species of ostrich, several subspecies are acknowledged. Ostriches are natural grazers and their diet consists of plants, fruits, and insects. Males and females reach adulthood at 30 and 20 months respectively and breeding usually starts at age two and a half to three years. The average life span of an ostrich is 70 years and reproductive life can exceed 40 years. The laying season commences in February and extends until August, varying with location. A female usually lays eggs every other day and may produce 30–50 eggs per season. The incubation period is 42–43 days. Ostrich eggs are white, and weigh about three pounds. Birds are usually slaughtered at 10–14 months. Male ostriches are characterized by solid black feathers with white wing tips,

while females are smaller and brownish gray. Defense mechanisms include the ability to run at 30 miles per hour for a sustained period of time, and using the toenail as a weapon when kicking.

Emus are smaller than ostriches, weighing about 120 pounds and standing about five feet at maturity. Emus reach sexual maturity at 18 months to three years. Female emus start laying at one and a half to three years and may continue until 25 years old. Eggs are laid every three to four days and the female may produce 20–40 eggs per season. The breeding season begins in early December and ends in April, with an incubation period of 48–56 days. This bird defends itself, as ostriches do, by running, kicking, and swimming.

Rheas stand four to five feet tall and weigh 60–80 pounds at maturity. The breeding season extends from early March until August. The females start laying eggs at 18–24 months and can produce as many as 60 eggs per season.

Management

Ratites have minimal housing requirements and are adapted to living in a variety of climates. Most ratites are housed in pairs, or with the rhea, a breeding trio (two females and one male). Fence height should be at least six feet for ostrich and emus and at least five feet for rheas. When designing the pen, note that it is common for ratites to get their legs or head caught in the fence. One solution is to use a high-tensile or chain-link fence. A “crawl out” space in the fence about 36–48 cm above the ground can be useful for human escape when the birds get aggressive. To decrease the risk of leg deformities and constipation, pens should also provide adequate room for the birds to exercise. To protect the birds from the elements, a free access shelter should be constructed inside the pen. Suggested shelter di-

mensions for housing a pair of ostriches are 20 feet by 20 feet. For a pair or trio of emus and rheas, implied dimensions are 10 feet by 10 feet. Food and fresh water should be continuously available. Feeders should be kept under shelter.

Identification of birds is a vital part of record keeping. A temporary means for identifying animals is a plastic or rubber band fastened around the ankle or above the hock. Permanent identification methods include tattooing under the wing or inserting a microchip that is readable by a scanner.

Nutrition

Nutrition is an important part of ratite management. Ratite diets are currently formulated based on poultry values due to a lack of research in this field. All birds should be provided with fresh water and a source of grit. Grit aids in digestion and sources include small stones or a commercial form available from feed stores. From hatching to two days old, ostriches should be supplied with plenty of water, continuous light, and a quality turkey or game bird starter with a minimum of 26% crude protein. This is the most difficult stage in ostrich rearing because chicks will consume anything and may overindulge, causing impaction. Severe constipation resulting in an impacted colon is the most common cause of death in hatchlings. A ratite starter crumble or chicken or turkey starter with 26% crude protein should be offered *ad libitum* for the first three weeks. After three weeks, feed the same diet *ad libitum* twice daily. Alfalfa pellets can be offered free choice. Vitamins and electrolytes, at the prescribed doses, should be dissolved into their drinking water beginning at two to three weeks of age. Water should be made available after hatching, and grass can be introduced two days after hatching.

As the birds grow and age, their requirements change. As yearlings (six to eighteen months), ratites should consume a commercial ratite grower or turkey-broiler grower with 24 to 26% crude protein. If grass is not available, a source containing 11 to 12% fiber should be provided.

The last nutritional stage takes place after sexual maturity. Females should be fed a ratite layer or breeder ration. In addition, ostriches should be fed a supplemental alfalfa source. Pellets or cubes are preferred to hay because they produce less waste and are more convenient. A calcium supplement should be added to the diet to replenish the supply used in egg production.

Biosecurity

Sound health practices can reduce or eliminate the spread of disease throughout a flock. It is recommended that ratites and other species (domestic and game birds) on the farm be separated due to the possible spread of disease. Rodents and predators should be discouraged from animal areas by storing food in tightly sealed containers. If you have a variety of birds on your farm, house them in different areas. If isolated housing is impossible, separate species by fences. When introducing new birds to your flock, isolate the new birds for approximately 30 days. This also gives the veterinarian an opportunity to do blood screening and test for parasites and salmonella.

Animal facilities should be sanitized regularly. Feeds should be kept dry and stored off the floor. Water and feed troughs should be cleaned regularly. Good ventilation will help keep indoor pens dry. It is recommended that buildings be disinfected using a soap and water combination. After washing, the area can be sanitized with a 5% bleach and water mixture. Minimize introduction of new disease by reducing the number of visitors to key areas of the farm.

Getting Started

A producer may choose one of several options when starting to raise ratites. One option is to purchase and incubate the eggs. Although the cost is low, the risk is high due to an increased mortality rate from day one to three months of age. Training is necessary in candling and incubation techniques for this to be successful. Due to the dark color and shell quality, emu eggs cannot be candled, and the producer must be trained in egg incubation techniques. The most cost-effective method is to buy chicks that are over three months old. Although this is more expensive than purchasing eggs, there are fewer losses due to chick mortality. If yearlings or young adult birds are purchased, the lag time between growth and productivity is reduced and the birds may become productive within two years after purchase. The most costly option when starting a ratite farm is to purchase adult birds that have a proven breeding record. However, this method may result in a greater return on investment the following season.

Products

Ratites produce four marketable products: meat, hide, feathers, and oil. The meat of ratites is being marketed as a healthy alternative to beef. In comparison with beef, ratite meat is similar in color, flavor, and texture, but with less fat and cholesterol (see table on next page). It has appeared on some fine American restaurant menus since 1992. Ratite hide possesses a distinctive quill pattern and is very supple, attracting bootmakers and leather artisans. Today, the market for feathers is limited due to cost effectiveness. In the United States, harvesting

feathers is labor-intensive, requiring collection, sorting, cleaning, and dyeing. Emu oil, another ratite product, comes from under the belly and is used for skin care products due to its penetrating qualities. An emu's backfat deposit provides 4–5 liters of oil that has been used in pharmaceutical and cosmetic products. Aborigines have used this oil to treat joint inflammation for hundreds of years. It is claimed that emu oil can reduce inflammation and can be used to alleviate pain and swelling associated with arthritis.

Ratite Meat vs Beef*			
Analysis	Ostrich	Emu	Beef
Calories (Kcal/100g)	104.7	113–127	157.2
Fat (%)	1.2	1.7–4.5	2–14.7
Cholesterol (mg/100g)	37.8	39-69.1	63
Protein (%)	21.7	21.2–23.3	18–22

*taken from the Department of Agriculture, Western Australia. Provided by the World Emu Corporation.

Statistics

There are no good estimates for the number of ratites currently being raised in the United States. There are probably between 50,000 and 100,000 ostriches and a similar number of emus. The number of rheas is unknown. One farmer estimated that there are about 500 ostriches and 250 emus being farmed in New Jersey. These figures are only estimates, since there is a lack of specific information.

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Information Sources

American Ostrich Association

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Suite 210
Fort Worth, TX 76104
(817) 926-1366

American Emu Association

P.O. Box 8174
Dallas, TX 75205
(214) 559-2321

North American Rhea Association

11902 Elm St.
Suite 4
Omaha, NE 68144
(918) 342-0269

Literature Cited

- American Emu Association News. March 1994.
- Bolen, Kenneth R. *Biosecurity and Disease Prevention for the Ratite Owner*. University of Nebraska Cooperative Extension (internet resource): May 1994.
- Fowler, Murray E. *Zoo and Wild Animal Medicine*. W. B. Saunders Company, Philadelphia: 1986.
- Jensen, J.M., J.H. Johnson, and S.T. Wiener. *Husbandry and Medical Management of Ostriches, Emus, and Rheas*. Wildlife and Exotic Animal Teleconsultants. College Station: 1992.
- Nelson, T. Milton and E. T. Mallinson. *Good Neighbors-A Health Program for Small and Specialty Poultry Flocks*. Mid-Atlantic Cooperative Extension Poultry Health and Management Unit: 1994–5.
- Parker, Z., G. L. Greaser, and J. K. Harper. *Agriculture Alternatives Ostrich Production, Emu Production, Rhea Production*. Pennsylvania State University College of Agriculture Sciences Cooperative Extension: 1994.