



Ostrich Production

Joe Berry

Extension Poultry Specialist

Production of the ostrich in the United States in locations other than zoos and wildlife preserves is a new aspect of animal husbandry. The natural home of the ostrich is in Africa, but large numbers are now being produced in the United States. Birds are produced for the hide, meat, and feathers.

The ostrich is a very adaptable animal, one that can thrive in many different environments. A pair of ostriches that are of breeding age (about three years) will likely cost several thousand dollars. The price is expected to decrease once demand for breeding stock is satisfied and prices are determined by the use value. In the wild, the ostrich may not reach sexual maturity until age four or five, but in captivity two to three years is normal with the female likely to reach sexual maturity earlier than the male.

The male, which may in some cases stand nine to ten feet tall and weigh in excess of 200 pounds, displays black and white feathers. The color of the feathers is much brighter during mating season. The hen is somewhat smaller than the male and the feathers are more gray and drab.

The ostrich is the largest known bird and some scientists believe that the present bird developed from ancestors that were capable of flight. The ostrich of today cannot fly, but does run well and is capable of speeds of 50 miles per hour with strides of 15 feet (for very large bird the stride may be 20 feet or more). The feet of the ostrich have only two toes, the only bird that does. It has been said that the ostrich may hide its head in the sand, but this seems to be a myth. Instead the birds crouch very low to the ground and extend their neck and head along the ground in an attempt to blend into the surroundings. The bird does not always run and hide and is capable of kicking with a force of as much as 500 pounds per square foot. The kick of the ostrich is usually forward and down, so approaching an aggressive bird from the back or side may be safer. Animals may be more docile if their head is covered with a sock or cloth sack.

Egg Production

Egg production will begin when the female is sexually mature (usually at approximately two years of age) and if she is mating with the male. Egg production will likely begin about five to ten days after the first mating. The male usually scratches out a crude nest in the dirt and the female will then deposit the eggs in the nest. The number of eggs varies widely with 15 to 20 being considered normal; however, some producers in the U.S. have reported the production of more than 50 per year. Removing the eggs from the nest encourages the female to produce more eggs. The eggs usually weigh about 2.75 pounds and take 42 days to hatch.

Oklahoma Cooperative Extension Fact Sheets
are also available on our website at:
<http://www.osuextra.com>

Incubation and Brooding

Under natural conditions both the male and female sit on the eggs. The hen usually sits during the day and the cock usually sits at night. The incubation process takes about 42 days to complete.

Artificial Incubation of Eggs

Most producers prefer to use artificial incubation rather than natural incubation to hatch eggs. When eggs are collected, they should be stored in a cool place until incubation begins. A temperature of 55 to 65° F and a humidity of 75 percent is suggested for storage of the eggs. Daily turning of the eggs and setting within five to seven days is also necessary to maintain maximum hatchability. Eggs which need cleaning can be carefully sanded to remove any adhering dirt. In the case of extremely dirty eggs, washing can be an alternative as long as clean wash water is used and the temperature should be at least 10 degrees warmer than the eggs (do not use hot water).

The incubator should be tested for at least 12 hours prior to placing eggs inside. In this way, the temperature control can be properly adjusted before the incubation process starts. It is important that the incubator be cleaned and disinfected prior to use. The appropriate temperature for incubation of ostrich eggs is 100° F. Eggs should be positioned with the large end up, and if possible, at a 45 degree angle. Positioning eggs on the side is also acceptable. The eggs should be turned at least twice daily (up to eight times per day is better) until the 39th day. Egg should be marked on each side (perhaps with an X or 0) to ensure that all eggs are turned. Unlike chicken eggs which require a relative humidity of 75 to 80 percent, ostrich eggs seem to yield better results at a humidity of 25 to 40 percent. Eggs can be candled to determine fertility after about two weeks. Once identified, infertile eggs should be removed from the incubator. After the 39th day the eggs can be moved to a hatcher if desired. When hatched the chicks will appear mottled yellow-brown. The chicks can safely go without feed for a few hours after hatching since they receive nourishment from a portion of the egg yolk that is drawn into the body prior to hatching. As soon as the chicks are dry they can be removed from the incubator or hatcher and transferred to the brooding area.

For information on incubators for hatching ostrich eggs contact:

Humidaire Incubator Co.
New Madison, Ohio
513-996-3001

RCO Incubators, Inc.
Box 838
Owasso, OK. 74055
918-273-7202

Kuhl Corporation
Flemington, N.J.
201-782-5696

Incubators manufactured by other companies may be able to be modified to accommodate ostrich eggs. As long as the temperature and humidity can be accurately maintained, the incubators should work.

Brooding

The brooding period is a very critical time and can be a time of high mortality if proper management is not used. The brooding area should always be clean and sanitary and have protection from the weather. A source of heat should be provided for the brooding area. Chicks will need access to temperatures of approximately 90° F for the first 10 to 14 days. The temperature can be reduced a few degrees each week until the chicks can survive without supplemental heat. (A few days or a few weeks depending on environmental temperatures.) Chicks will usually demonstrate the need for more or less heat by their actions. If they huddle close to the heat source additional heat may be necessary, while if they are grouped as far from the heat as possible, less heat and more fresh air may be needed. Maintaining the brooding area at a uniform temperature rather than having just one heat source may be preferred since the likelihood of chicks getting too far from the heat and getting chilled is minimized.

The floor of the brooding area should not be slick because chicks may slip and leg damage (spraddle legged) can result. Slick material such as plastic, newspaper, or cardboard should not be used to cover the floor. Usually the floor should be covered with some sort of absorbent material such as wood shavings, straw, rice hulls, or clean sand. Producers should be aware that gastric impactions may become problems since ostrich chicks are prone to eat large quantities of these materials. To prevent this problem it may be desirable to cover the litter with something like burlap or a similar material. After about two weeks this covering can be removed, but the chicks still need to be watched to be sure they are not eating the litter. Throughout the time when litter is used it should be stirred to encourage drying and any wet caked litter removed from the pen or house. A rake or pitch fork can be used for small areas, but for large areas a roto-tiller may be necessary.

When birds are old enough to be moved outside, the pen areas should be managed like those for other types of animals and should be well drained and clean. Even older chicks and young adult birds are prone to eat almost anything, so range or pen areas should be free of trash and litter, small rocks, or other material that could become a problem if eaten. In

addition, the birds will need some type of shelter at night and during inclement weather.

Determining the Sex of Chicks

It is difficult to determine the sex of young chicks because both sexes look very much the same. Such factors as smoothness or roughness of tarsal scales or breaks in the scutellation on the toe do not help in separating the males and females. In fact there is no outward appearance characteristics that are indicators of the sex. The only reliable method is examining the sex organs. In newly hatched chicks the presence or absence of a penis is the only evidence of differences. At a young age the penis is difficult to identify and is sometimes easily confused with the female clitoris, which is about the same size and appearance. Until the time of sexual maturity the sexual organs remain small.

In young birds of approximately nine months of age or older, the sex can be determined when the bird urinates or defecates since the penis emerges during the performance of these functions. As with other animals, the male is frequently larger than the female in birds the same age.

Mating

It is advisable to keep the males and females separated prior to pairing for mating. The birds will likely be more docile and easier to control. At the time of pairing, the ostriches should be kept in a pen or paddock away from other birds. The pen should be fenced with a smooth wire fence approximately five to six feet high. The pair will likely prepare a nest which will consist of a shallow depression in the ground. If for some reason, the pair does not make a nest or if no eggs are produced, another pairing should be tried. A second pairing is sometimes helpful if the hen stops laying. Some producers have been successful with breeding pens with one male and two to four females. If this program is used, extra time may be required to determine if all females are mating and laying eggs. If no eggs are being produced by some of the females, a change in the breeding pens may be necessary.

Feeding

In the wild the ostrich feeds on a variety of plants and is reported to be a very adaptable grazer. In some cases, the domesticated bird has to acquire a taste for certain foods. It may pick up pebbles and other hard objects which are retained in the gizzard and help grind the food through peristaltic movements of the gizzard muscles. A frequent problem of young birds grown in captivity is impaction of the digestive system. This problem appears to be due to the excessive consumption of sand, small stones, or fibrous material and then being unable to pass these items through the digestive system. Older birds seem to have fewer problems with impaction partially because of a larger digestive system which passes problem items on through, and partially because they do not consume problem items in quantities that cause problems. Some producers have found that adding mineral oil to the ration on a regular basis (about once each week) helps reduce the problem of impaction, as does the feeding of ground bone particles. Raw bone is not recommended, so cooked bone should be used.

Feeding the newly hatched chicks the correct feed is important because they need to get a good start in life, but should not gain too much weight too fast or leg problems can develop. The chicks should be started on a game bird starter ration (20 percent protein) or the starter ration shown at the end of this publication. Some growers feel that including good quality small alfalfa pellets is a good addition to the feeding program. Plenty of fresh water should also be available. All feeding and watering equipment should always be kept clean and sanitized.

Adult birds that are penned outside can forage on such things as alfalfa, wheat, oats, or bermuda grass. A complete ration, such as a ratite or gamebird feed or the grower or breeder ration included in this publication, should also be provided. Pens should be rotated to prevent overgrazing.

The rations shown below are suggested as possible feeding programs for the different ages of ostriches.

Diseases

Producers that are in need of assistance with disease diagnosis and treatment should seek professional help from a local veterinarian. Disease diagnosis assistance is also available through the Oklahoma Animal Disease Diagnostic Laboratory at Oklahoma State University.

Ostrich Starter

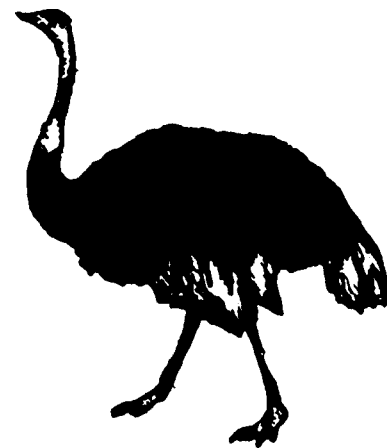
<u>Ingredient Name</u>	<u>Amount (Pounds)</u>
Soybean Meal	26.50
Corn Grain, Yellow	25.20
Alfalfa (Dehydrated)	18.60
Peanut Hulls	9.53
Sorghum	8.50
Corn Screening	5.50
Calcium Carbonate	1.84
Dicalcium Phosphate	1.84
Nutra Blend Vitamins	1.25
Fat (Animal)	0.80
Salt	0.60
DL Methionine	0.07
Total Weight	100.00

Ostrich Grower

<u>Ingredient Name</u>	<u>Amount (Pounds)</u>
Soybean Meal	26.00
Corn Grain, Yellow	22.90
Alfalfa (Dehydrated)	15.00
Sorghum	15.00
Wheat Midds	6.50
Fish Meal (Menhaden)	5.00
Peanut Hulls	4.80
Calcium Carbonate	1.47
Nutra Blend Vitamins	1.25
Dicalcium Phosphate	1.23
Fat (Animal)	0.50
Salt	0.30
DL Methionine	0.04
Total Weight	100.00

Ostrich Breeder

<u>Ingredient Name</u>	<u>Amount (Pounds)</u>
Soybean Meal	27.40
Corn Grain Yellow	21.00
Corn Screenings	10.20
Sorghum	10.00
Alfalfa (Dehydrated)	9.80
Meat and Bone Meal	8.18
Calcium Carbonate	4.90
Peanut Hulls	4.80
Nutra Blend Vitamins	1.25
Dicalcium Phosphate	1.20
Fat (Animal)	0.60
Salt	0.60
DL Methionine	0.06
Total Weight	100.00



The Oklahoma Cooperative Extension Service

Bringing the University to You!

The Cooperative Extension Service is the largest, most successful informal educational organization in the world. It is a nationwide system funded and guided by a partnership of federal, state, and local governments that delivers information to help people help themselves through the land-grant university system.

Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

- The federal, state, and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.
- It provides practical, problem-oriented education for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

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