



Texas Agricultural Extension Service

Ostrich Production

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Ostrich production in the United States must currently be considered a highly speculative venture. Ostriches may be a short-term attraction or they may become a minor agricultural industry of some economic importance.

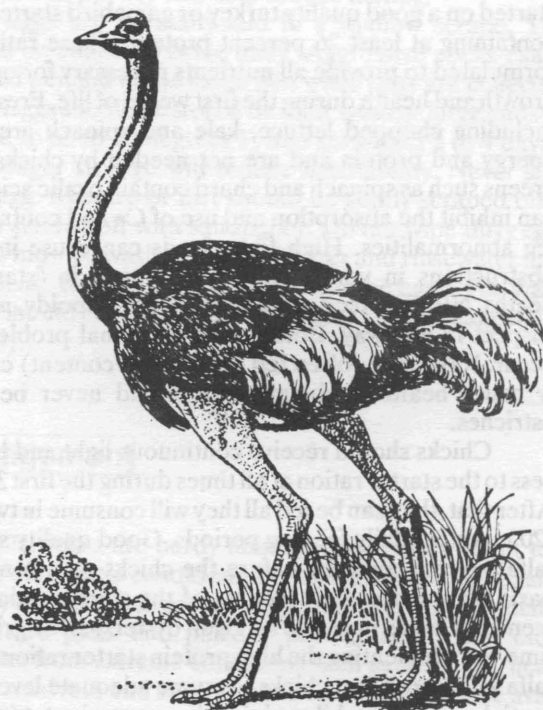
Current demand for ostrich breeding stock far surpasses supply, resulting in excessively high prices for all ages of birds. It is anticipated that these prices will decline dramatically once speculative demand for breeders is satisfied and prices become dependent on market demand for products such as skin, plumage and meat.

Successful large-scale production depends on implementing scientifically proven practices in management and husbandry, breeding, brooding and rearing, nutrition, health maintenance and, above all, hatchery management and incubation. Maximum utilization of quality forage will likely be necessary to make production economically feasible.

Getting Started

An ostrich business can be started in one of the following ways:

- Buy eggs and hatch chicks -- requires the least capital initially, provided eggs can be obtained at reasonable cost. However, production is at least 2 years away.
- Buy started, sexed chicks (8 weeks or older) -- reduces problems involved in hatching and early



Ostrich, *Struthio c. camelus*

brooding but will of course be more expensive than eggs. Again, production is at least 2 years away.

- Buy juveniles (year-old birds) -- offers the opportunity to select quality birds within a year of sexual maturity.
- Buy proven breeders -- the expensive route, but enables the producer to begin production immediately.
- Any combination of the above.

Producers should plan ahead when buying breeding stock to avoid potential inbreeding problems. Be careful to avoid purchasing cull stock and non-breeders. When purchasing adults obtain only guaranteed breeders from reliable sources. Be realistic on price.

Nutrition

Nutritional practices recommended by some self-professed experts often are not based on sound nutritional principles. Nutrition related mortality problems in chicks and young juveniles include malnutrition or starva-

tion, intestinal obstructions and leg abnormalities.

It is absolutely essential that ostriches have clean, potable water available at all times. They must receive feedstuffs that provide adequate levels of protein and essential amino acids, and meet vitamin, mineral and energy requirements.

The following program is practical and has provided excellent results in rearing ostrich chicks.

When chicks are 24 to 48 hours old they should be started on a good quality turkey or gamebird starter ration containing at least 26 percent protein. These rations are formulated to provide all nutrients necessary for optimum growth and health during the first weeks of life. Fresh foods including chopped lettuce, kale and spinach are low in energy and protein and are not needed by chicks. Some greens such as spinach and chard contain oxalic acid which can inhibit the absorption and use of Ca and contribute to leg abnormalities. High fiber foods can cause intestinal obstructions in young chicks and result in "starve-out" deaths. NEVER feed any feedstuff that is moldy, musty or suspect in any way. Botulism or intestinal problems can occur. Raw bone (often fed for mineral content) can easily cause health problems and should never be fed to ostriches.

Chicks should receive continuous light and have access to the starter ration at all times during the first 3 weeks. After that, they can be fed all they will consume in two short (20 minutes) daily feeding periods. Good quality small alfalfa pellets should be before the chicks on a continuous basis when twice daily feeding of the starter ration commences. Chicks may also be given oystershell or grit at this time. Supplementing the high protein starter ration with alfalfa will ensure that chicks consume adequate levels of essential nutrients while minimizing excessive weight gain which may contribute to leg weakness problems. Night lights are not required after chicks reach 3 weeks of age.

Waterers should be rinsed daily and scrubbed every 3 days with soap and water. Inexpensive, water soluble vitamins and electrolytes for poultry should be added (at the recommended level) to the drinking water for the first 2 to 3 weeks. (The fat soluble vitamins--A, D3, E and K--are compounded with a starch or protein emulsifier to enhance dispersion and availability in water.) This will ensure an adequate intake of vitamins, particularly A and D3. Other additives are not needed.

Refusal to eat and drink is a common problem with young ostrich chicks. This problem can be easily alleviated by placing several older chicks (1 to 3 weeks of age) that are already eating in with the babies. If older chicks are not available, domestic poultry chicks can be placed with baby ostriches to teach them to eat and drink.

At 8 weeks of age chicks can be placed on a good quality ratite or gamebird or turkey grower ration and fed what they will eat in two daily feeding periods. Continue to offer alfalfa pellets as a supplemental feed unless good quality forage is available. Juveniles can be maintained on this program until they reach sexual maturity. Breeder rations contain a high calcium level and should not be fed to juveniles.

Adults and older juveniles can be ranged on well drained, succulent pasture plots or they can be maintained under dry-lot conditions. Pastured birds should be main-

tained on small plots and rotated periodically for optimum grazing efficiency. Birds on large acreage may become semi-wild and difficult to manage.

Succulent forages such as irrigated alfalfa, wheat, rye, vetch, oats, bermuda grass, etc. are desirable for juveniles and adults and will reduce production costs significantly. Some forages may be too tough or high in fiber or too low in protein and energy to provide the nutrient level required for desired growth and performance.

Breeding birds on pasture should receive daily supplements of a good quality, high protein ratite or turkey or gamebird breeder ration to ensure optimum egg production, fertility and hatchability. Breeders in dry-lot confinement also should be fed the ratite or turkey or gamebird breeder ration, with continuous supplemental feeding of good quality alfalfa pellets or small cubes or hay. Pellets or cubes are less wasteful and easier to feed than hay.

Breeders should have access to oystershell, grit or commercially prepared bonemeal during the breeding period. The addition of poultry vitamins and electrolytes to the feed or water may improve fertility and hatchability.

Brooding

Ostrich raisers often experience high mortality in chicks and young juveniles as the result of improper brooding and poor early management practices. The following recommendations, when effectively implemented and carefully followed, will significantly improve livability and quality of both chicks and juveniles. Caretakers must be trained and properly supervised to maintain desired conditions and to recognize and correct problems.

The brooding facility must be designed to protect chicks from predators (dogs, coyotes, etc.) as well as from inclement weather. It must be kept dry and sanitary at all times and should be designed for effective ventilation and ease in cleaning. Concrete floors in brooding units make them easy to clean.

Temperature at chick level should be 88 to 92 degrees F during the first 10 days of life, then 80 to 85 degrees F until they are 3 weeks of age. From 3 through 8 weeks the ideal temperature is between 70 and 80 degrees F. Chicks must never be exposed to chilling temperatures nor allowed to become overheated. Chicks brooded in small pens with raised wire floors and heated with infrared heat lamps are particularly susceptible to chilling in cool weather. Warm room brooding (uniform temperature throughout the room) will prevent this problem. Space heaters or central heating is recommended.

If chicks are placed on litter material such as wood shavings, rice hulls or washed builder's sand, the litter should be covered with burlap for the first 7 to 10 days to keep chicks from eating litter and developing intestinal obstruction problems. After the burlap is removed the litter or sand should be stirred daily to stimulate drying and prevent packing. Slick surfaces cause "spradle legs," an always fatal condition. NEVER cover litter with newspaper, cardboard, plastic or other slick material or place chicks on such materials.

At 6 to 8 weeks of age chicks can be ranged outside in good weather but must be sheltered at night. They can be managed in groups of 25 to 50 birds. Young ostriches will swallow anything. Pens must be well drained, clean and free of coarse, dry vegetation, pebbles and small rocks, wire, staples and other debris which may cause intestinal obstructions or death if consumed. Clean up all spilled feed. Again, NEVER allow ostriches access to moldy, wet or spoiled feed.

At 4 months of age chicks are fairly hardy and can be ranged outside with less danger of intestinal obstruction problems. Shelter and shade must be available to protect both birds and feed during inclement weather and at night.

Hatchery and Breeder Flock

Hatchery and breeder flock management are critical to success. Fertility and hatchability problems can be caused by inadequate breeder nutrition, male fertility or mating problems, improper egg handling or contamination, incubator or hatcher malfunctions, and humidity or temperature problems.

Successful management of a moderate size hatchery requires a high degree of expertise and attention to detail. Cleanliness is very important. The hatchery building should be designed for durability and ease of cleaning, and should be environmentally controlled. It should be of sufficient size to handle the egg volume anticipated and must include areas for egg cleaning and culling, egg traying, cooling and storage, incubation and hatching, chick holding, equipment washing, and storage, as well as office and sanitary facilities.

Equipment requirements for the hatchery include a standby generator, forced draft incubators and hatchers, service tables, a vacuum for cleaning, pressure pump, tray washers and carts. Ostrich incubators and hatchers are manufactured by the Humidaire Incubator Co., New Madison, Ohio (513/996-3001) and the Kuhl Corp., Flemington, New Jersey (201/782-5696).

Well-nourished female ostriches begin laying at approximately 2 years of age and are reported to have a productive life of more than 30 years. Egg production is variable but can exceed 60 eggs per year. Production begins in early spring and continues into the fall. Well-nourished hens may lay throughout most of the year -- particularly if they are placed on a light stimulation program.

The cock matures 3 to 6 months after the female. A young cock should not be used on older females because he usually will not be sufficiently aggressive to mate with them.

Juvenile hens and cocks should be reared separately from 1 year of age to sexual maturity. Mature hens and cocks should be separated after the breeding season. The birds will be more rested and will come into heat more readily when placed together for the next breeding season.

Eggs often are infertile during the early part of the breeding season. This is usually caused by infertility in the cock. The problem can be avoided by installing a time clock and using light to stimulate the cock herd. Breeding cocks

should receive 16 hours of light each day beginning 3 to 4 weeks before being penned with their hens.

The breeding pen for each cock and his two to four hens should be 1 to 3 acres in size and well drained. Birds in larger enclosures are more difficult to manage. Eggs also will be more difficult to find and collect. Ideally, there should be a 6- to 8-foot-wide lane between pens to prevent fighting between cocks. A few trees or shrubs in the pens will provide privacy and help induce mating.

Eggs are normally laid in a shallow scrape. They should be collected twice daily. Aggressive cocks can be fed and penned in the catch pen while eggs are collected.

Eggs should be stored on their sides or large ends up, cooled to 65 to 70 degrees F, and set within 2 to 4 days of lay. Longer storage will reduce hatchability. Never set a dirty egg. Manure or dirt should be gently scraped off or lightly sanded off with sandpaper. Do not wipe dirty eggs. If eggs must be washed the washwater and rinsewater must be at least 10 degrees F warmer than the eggs. The washwater should contain a sanitizing agent and be changed frequently.

Management

Ostriches are hardy animals that readily adapt to a variety of climatic conditions. Performance should be satisfactory in most areas provided adequate shelter is available in pasture plots and pens to protect adults and older juveniles from extreme conditions such as snow, ice, heavy winds, cold rain and sleet. In summer, shade must be available. Chicks and juveniles younger than 1 year must, of course, be well protected against bad weather.

The shelter should be designed so that birds must enter through a confinement pen. This makes it easier to catch them. Feed and water should be located inside shelters in order to condition birds to enter the shelters freely as well as to protect feed from the weather. Feeders should be positioned so that caretakers can fill them without being exposed to aggressive males. Both feeders and waterers should be of the open type and should be adjustable so that they can be kept at chest-height to the birds.

Fences for older juveniles and adults should be at least 5 feet high and constructed of five to seven strands of smooth, barbless wire. The bottom wire should be high enough above the ground so that the caretaker can escape from aggressive males. Mesh wire is sometimes used for outside fencing to keep out predators, but should not be used in pens because the birds can injure themselves on it.

Loading chutes and catch pens should be at least 8 feet high and of solid construction to prevent frightened birds from seeing beyond the pen and attempting to escape by jumping or climbing out.

Tame, gentle ostriches are much easier to handle and less prone to injury than non-gentle, semi-wild birds. Caretakers should spend time with chicks and young juveniles to tame them. Move gently among the birds, taking care to avoid frightening them. Daily hand-feeding of tidbits to juveniles is recommended. Ostriches can be trained to follow but are difficult to drive. Teaching young

ostriches to follow by trailing pellets, lettuce, etc. will make handling easier as they mature.

In chicks and young juveniles there is little difference between the sexes. Early sex determination is difficult, but can often be made by examining the sex organs. The penis is slightly larger than the clitoris, although both are very similar in appearance. At about 9 months of age sex determination becomes easy when the penis emerges during urination.

Chicks can be tattooed or branded at 1 day of age. The brand can be placed on the bare patch of the belly immediately behind the thigh or on the bare patch in front of the thigh. A thin wire is formed into the identifying numerals or letters, heated red-hot and touched to the skin to create a permanent mark. Leg and wing bands also can be used for identification, but may create problems.

Health

Mortality and health problems diagnosed in Texas relate mainly to chicks and young juveniles; they include starvation and malnutrition, intestinal obstructions, leg abnormalities and coliform infections. Causes include improper brooding or nutrition, stress, improper handling and genetics. Diagnoses in other areas of the United States have confirmed rhinitis, candidiasis, Salmonella, aspergillosis and coccidiosis infections. Parasites identified include lice and ascarids.

Ostrich diseases and parasites reported in Africa include anthrax, tape worm, wire worm, nematodes, ophthalmia, lice and ticks. While none of these have proven to be a problem in the United States, it is possible that imported ostriches may bring them in and create future problems.

Professional assistance should be obtained promptly when a health problem is suspected. Indiscriminate use of medications can create problems.

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