Preventive Measures against Various Diseases of African Ostriches and Their Treatment

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Abstract: Recommendations for the prevention and treatment of various diseases found in African ostriches are given. The symptoms of diseases, causes and methods of their treatment are described. Timely detection of the disease and treatment will help to avoid death and economic loss.

Key words: prevention, diseases, contagious and non-contagious diseases, ostrich, injuries, symptoms, treatment, deformity, limbs, vaccines, medicines, hygiene.

Introduction. Recently, the breeding of ostriches has become very popular all over the world. It turned out that the breeding of ostriches is a very profitable business due to the variety of products produced. In addition to the food industry, leather workers, fashion designers and manufacturers of various kinds of souvenirs are interested in ostrich products. There are now more than half a thousand thriving ostrich farms in Europe alone. The breeding of ostriches is especially popular among farmers in Belgium and France, as well as in Latin American countries [4].

The great interest in the cultivation of ostriches among farmers is due to a number of reasons:

- ostriches adapt well to new environmental conditions, easily tolerate temperature changes, as a result of which the construction of specialized premises is not required;
- ostriches do not require large expenses when growing, since the poultry diet may consist of ordinary cereals, vegetables, compound feeds, and in the summer the optimal food is fresh alfalfa greens and other field plants [1].

The above-mentioned advantages of the productive qualities of black African ostriches were the impetus for the emergence of farms in Uzbekistan. Moreover, in recent years in Uzbekistan, some farmers have been trying to breed ostriches imported from different geographical zones. As a result, there are certain problems of breeding ostriches in new natural and climatic conditions for them [1].

Main part. In this regard, at TSAU, Department of General Zootechnics and Veterinary Medicine, research work is being carried out aimed at a comprehensive assessment of the adaptive abilities and economically useful qualities of African ostriches of different genotypes in the conditions of Uzbekistan [1].

The studied complex includes the issues of ostrich diseases, their prevention and treatment.
As a result of the conducted research, some experience has been accumulated in the prevention of various diseases of ostriches and prevention measures. This information will be very useful for farmers who are going to breed African ostriches [2,3,4].

The main elements of the prevention of infectious diseases of poultry (infectious, viral, fungal), as well as non-infectious diseases are measures to prevent the introduction and spread of pathogens, preparation of premises for planting poultry and preventive vaccinations against major diseases.

The territory should be fenced, at the entrances and exits of the dominant, there are disinfecting barriers, and at the entrance to the premises associated with the withdrawal, cultivation and maintenance of poultry, there are disinfecting carpets of such sizes that the wheels of transport and shoes of persons entering the premises are fully processed. Disinfecting carpets, consisting of a scraper for cleaning the sole and a box filled with sawdust or shavings, are covered with a mesh and should be systematically abundantly wetted with disinfectant solutions [2,7].

In the cold season, 10-15% of table salt is added to the solutions so that the solutions do not freeze.

Doors and windows of the premises where ostriches are kept, as well as rooms where feed, inventory, bedding and other objects related to poultry are stored, are equipped with a grid that prevents wild birds and rodents from entering the premises.

Before placing the poultry, the premises, equipment, inventory are thoroughly cleaned and washed with hot (+700C) solutions with detergents or disinfectants: 5% disinfectant detergent, 5% creolin, 2% soda ash or 1% NaOH solution. The inner surfaces of the poultry house are bleached twice with a 20% solution of freshly slaked lime. The dry floor is sprinkled with lime-fluff (0.5-1.0 kg per 1 m2 of floor) and a layer of 15-20 cm is covered with dry bedding material. Feeders and drinkers are disinfected with hot solutions of 3-4% formaldehyde [7].

Before setting the bird, wet disinfection, burning of the floor, walls, equipment with a gas burner flame is carried out. During the same period, deratization, deacarization and all measures against protozoal and helminthic diseases are carried out. Immediately before setting the bird, the room is subjected to aerosol disinfection with formaldehyde vapors with exposure within a day or other modern disinfectants.

In the process of keeping poultry, the premises and equipment must be kept clean, cleaned periodically, and with all movements of poultry, the premises must be subjected to wet disinfection.

Ostriches do not belong to very sickly birds, have a good adaptive ability, a strong immune system and when keeping ostriches in normal technological and hygienic conditions, when feeding with well-balanced high-grade and good-quality feed, observing certain measures for the prevention of major diseases, ostriches significantly increase resistance to pathogens and major diseases [3,6].

However, there are several diseases, the probability of which is difficult to exclude, but which can lead to 90% of the death of young animals. Such diseases include: infection of the yolk sac at the outlet, deformity of the legs and fingers, blockages, diarrhea, stomach infections caused by coli, salmonella, histomonas and other bacteria.

Ostriches are subject mainly to the same diseases as other types of domestic birds. Some of them, apparently, it is advisable to briefly note [2,6,7].

**Viral infections**

**Newcastle Disease**

Ostriches have no immunity to this disease and timely vaccination is necessary against it. Without this procedure, in case of the disease, the mortality of ostriches at the age of 3-4 months may be more than 80%. There are no cases of positive treatment of poultry for this disease.
Avian pox

Ostriches aged from 1 to 4 months are susceptible to the disease. Mortality reaches 15%. After 6-10 days of the course of the disease, the eyelid swells to such a size that it prevents the opening of the eye. Medicines against this disease are unknown. The main objective of treatment is to prevent ostriches from secondary infection by using anti-infective ointments, treatment and mitigation of smallpox rash with iodine and glycerin.

Bird flu

Symptoms of the disease: greenish discharge, depression, decreased appetite and blurred eyes are hardly noticeable in the first months, but after 6 months they intensify. Flu causes up to 80% of mortality among 5-day-old ostrich pups. Drugs and methods of treating this disease are still unknown, and existing vaccines are not effective. The virus causing the disease is determined only by blood analysis and determination of the type and subtype by laboratory method. The virus is transmitted through the egg, causes embryo mortality and leads to reinfection in the incubator.

Bacterial infections

Infection of the umbilical cord. This is a typical disease for ostriches. The reason for it is always poor care and violation of the hygiene of the content. It is caused by several pathogenic bacteria such as Klebsiella Spp., proteus, pseudomonas, Salmonella, staphylococcus and streptococcus faecalis. Infection can occur even when the chick is released from the egg shell, which increases the mortality rate of embryos or in the first week after hatching, when the umbilical cord is not yet fully overgrown. The actions of antibiotics are usually not effective. Only maintaining strict hygiene standards in incubators and in the hatchery can prevent infection.

Pneumonia

Similarly to the case of infection of the umbilical cord, infection with this disease (E.coli, klebsiella pneumoniae) can occur during the incubation period. In such cases, the embryo or dies, the hatching process proceeds very poorly. In chicks, with visual contact, the symptoms of the disease are very weakly manifested. Cough and respiratory problems can be noticeable during observation, the survival of a chick when infected with such a disease is possible only with timely administration of antibiotics. Chronic disease in old age leads to deterioration of the bird's well-being and weight loss. The main measures to prevent the disease are strict adherence to hygiene rules and long-term treatment with antibiotics, which helps to avoid re-infection.

Coli-enteritis

For chicks bred in incubators, coli-enteritis is one of the most common diseases in the first weeks of life. Symptoms - diarrhea and pale, sometimes interspersed with blood, bowel movements. The reason is poor external conditions caused by insufficient hygiene or poor care, contamination of feed. A sharp change in the feed mixture can provoke a rapid increase in the reproduction of Escherichia coli, which is several times higher than the normal level of the presence of this bacterium in the body.

In practical conditions, together with active or passive immunization of chicks, an increase in the acidity of drinking water or feed mixture is practiced as preventive measures.

Fungal diseases

Candidomycosis

Fungal infection, the causative agent of which are: Candida albicans, Candida moniliformis and other yeasts. Candidiasis is diagnosed by a yellowish plaque on the mucous membranes of the oral cavity. At the same time, growth and development slows down, lameness appears, in the last stages - deformation of the beak with necrotic changes at the top of the beak. The bird can hardly open its beak and swallow food. Ostriches are dying of hunger.

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Candidiasis is caused by a violation of the hygiene of cooking and poor quality of feed, especially fermented milk products, as well as the excessive presence of antibiotics in drinking water.

During treatment, growths on the beak are mechanically removed and applied orally several times a day with nystatin. In severe cases of the disease, the feeding of ostriches is carried out forcibly.

Aspergillosis

It is caused by the fungi Aspergillus flavus and A. Fumigatus, together with A.niger, which develop during the storage of feed and litter with high humidity. The cause is usually moldy food and litter. High humidity and poor ventilation of feed and litter, high concentration of ammonium are potential conditions for the occurrence of Aspergillosis. The infection is transmitted by inhaling fungal spores from the surrounding air. A young bird that has not yet developed natural immunity to saprophytes is most susceptible to infection, which leads to large losses of ostriches under the age of 1 month. Uneven breathing and coughing are symptoms leading to pneumonia. Symptoms of the disease: white, cream-colored and greenish nodules with a diameter of 0.5-2 cm. turning to yellow, palm-sized fungal lesions in the trachea, lungs, air sac, also in the nose, beak and sinuses. The bird is usually depressed and moves with its head down, often showing signs of severe constipation. Such chicks have yellow-green granulomas and are spread just above the lung tissue. Preventive measures and strict hygiene in the incubator are the easiest and best way to avoid the spread of aspergillosis.

Endoparasites

Coccidiosis

An acutely contagious disease caused by the simplest single–celled microorganisms - coccidia (eimeria) belonging to the class Sporozoa, the order Coccidiata. When kept on damp floors, coccidiosis in young birds can lead to large losses. Special attention should be paid to the fact that coccidiosis ionophores are toxic to ostriches. The source of infection is a sick and ill bird, releasing oocysts into the external environment. The released oocysts pollute feed, water, bedding, care items, inventory and equipment and through them enter the body of healthy ostriches. In case of non-compliance with hygienic standards, it is possible to reinfect poultry with oocysts through feces.

Symptoms of the disease: weakness, lack of interest in food and water, foaming, bloody or muddy diarrhea. Infection can be fatal. Successfully treated with Sulfachlorpyracine (EEZ) and toltrazuril (Vausoh).

Deformity of cartilage and bones

It is caused by a lack of solar insolation, a violation of the usefulness of poultry nutrition, in particular, a lack of vitamin D3, the content and ratio of calcium and phosphorus, an increased content of chlorides. For prevention, it is recommended to add 300 mg of calcium gluconate per day to the feed mixture for chicks. Many South African farmers add manganese sulfate to the feed mixture for chicks (10g / 70kg of feed mixture or 5g / 10 liters of drinking water) twice a week to avoid joint problems or to treat existing injuries.

Rachitis

It is caused by a violation of mineral metabolism, a deficiency of vitamin D3, calcium and phosphorus in feed, as well as an excessive amount of calcium that disrupts the absorption of phosphorus. The first symptoms of rickets, especially manifested in 1-4-month-old ostriches, are swelling of the limbs, delayed development and problems with lifting and movement.

Constant diarrhea can be triggered by a difficult absorption of vitamins and minerals and eventually cause rickets. The most effective treatment is the consumption of large amounts of Vitamin D3 (15,000 IU / chick) and balancing the presence and ratio of calcium and phosphorus in the feed.
Deformities of the legs

Almost all newly hatched ostriches have osteoporosis - they have very soft bones, calcium and phosphorus deficiency affects the feeding of parents. In diurnal ostriches, with high humidity in the incubator, an increase in legs develops in the first days of life, there is a separation of legs in the first two days. In addition, the curvature of the toes is one of the most common diseases among chicks. The bird moves reluctantly, and eventually the bird is unable to move and paralysis may occur.

The main reason for leg deformity in young ostriches is the rapid development of leg bones (up to 2 cm per week). The reason for such rapid growth is the excessive consumption of high-energy feed by adult ostriches during their reproductive period. Therefore, during the laying and gestation of eggs, overfeed or the use of feed with a high energy content should not be allowed.

Deformities of the limbs during growth can be caused by the following factors: lack of intake of minerals and vitamins, especially vitamins B-complex and vitamin D (rickets), too small a room and increased planting density, stress caused by a sudden change in natural conditions or unfavorable environmental conditions, injuries resulting from contact with various kinds of fences, etc. The most common problems of leg deformity occur in summer period of the year.

To protect the limbs from deformities, it is necessary to balance feeding on all nutrients, including vitamins, amino acids and macro- and microelements; to force ostriches to do exercises, strengthen muscles and toes, as well as tendons and bone formation. If necessary, the chicks should be forced to run long distances in the company of healthy chicks. Vitamin supplements in drinking water can prevent the appearance of a deficiency of minerals or vitamins in the body of poultry.

Injuries

A large percentage of mortality among the younger ostriches is occupied by mortality that occurred as a result of self-inflicted injuries. Especially when the natural habitat conditions change, ostriches panic and can cause serious damage to themselves. Birds that have been in contact with people since the first days of life, accustomed to the noise of the engine, the barking of dogs, are less prone to panic. Only extreme cases: strong thunder or lightning strikes can plunge such birds into a panic state. An ostrich can break a bone when it hits fences or fences, and often there is damage to the muscle tissue of an ostrich.

Broken bones or other wing injuries should be treated immediately and fixed in their normal condition until complete healing (approximately 3-4 weeks).

Since ostrich diseases are difficult to treat, it is much easier to take appropriate measures to prevent them.

To prevent all groups of diseases, the following rules must be observed:
1. Daily cleaning of pens and premises where birds are kept.
2. Regular disinfection of the building where ostriches are kept, as well as feeders, drinkers and equipment that is applied to them.
3. Newly acquired and sick birds must be kept separately from all others in specially designated premises.
4. Mandatory hand treatment and during work in the incubator. All manipulations with eggs are carried out only with gloves.
5. Regular analysis of bird excrement for timely detection of parasites and diseases.
6. Constant fight against rodents that are carriers of infectious diseases.
7. Timely and regular vaccination of ostriches.
8. Availability of clean fresh water, high-quality feed, dry and clean litter.
9. Equipment of disinfecting barriers at the entrance to the farm, to the incubation and quarantine department, as well as to the room where the young are kept.

10. Sufficient ventilation of the premises for maintenance [4].

Every farmer should be interested in acquiring as much knowledge as possible about the needs of his birds. Then he will be able to reduce the risk of their diseases to a minimum. Ostrich farming can be very profitable, but if it is conducted incorrectly, it can become ruinous.

Conclusion. If your entrepreneurial activity develops successfully and ostrich farming begins to "gain momentum", it would not be superfluous to invite a professional veterinarian to a full-time position in your farm. Moreover, no matter how well the farm itself is equipped and the process of breeding ostriches is established, a program for the prevention of diseases of the ostrich population is still necessary [2].

The disease prevention program should include all possible biological safety, vaccination. Biosecurity is the easiest way to prevent diseases. It includes constant monitoring of both birds and staff, and must also ensure proper sanitary condition of the farm and its inhabitants [6].

List of used literature


