MANAGEMENT OF OSTRICHES FOR EGG PRODUCTION

A VAN NIEKERK

Ministry of Agriculture, Water and Rural Development, Division Agricultural Research, Private Bag 13184, Windhoek, Namibia

INTRODUCTION

During the past few years ostrich farming became known in Namibia. The most commonly used system is the keeping of breeding birds under intensive conditions for egg production. However, ostrich farming cannot even be compared with chicken farming and it is thus important to note the finer points of this new farming type in order to ensure good results.

The system implies intensive keeping of breeding birds for egg production:

- Eggs are removed from the nest and incubated artificially. Thus electricity is needed for storage and incubation facilities. If not available, the birds can be allowed to incubate and hatch the eggs themselves, thus a chick production system.
- The hen is allowed to lay eggs continuously.
- If the breeding birds were allowed to incubate the eggs themselves, the testicles of the male would have enlarged for semen production and then reduce again while incubating the eggs. By removing the eggs daily and preventing the birds from incubating the eggs, semen production in the male is maintained over a longer period.

The number of breeding birds kept depends on factors such as:

- capacity of the incubator.
- land available.
- available funds of the farmer.

REPRODUCTION

Breeding birds

Recommendation:

- For selection purposes, a single breeding pair or trio (1 male with one or two hens). Easier record keeping is possible and infertile animals and low producers can be identified faster.
- For slaughter bird production, group mating (for example 10 to 20 breeding birds in a 2:3 male to female ratio) can be used. Also where young breeding birds must be "trained" or when new breeding birds are brought into the system to allow them to choose their new breeding partners.

Make sure that the breeding birds accept each other. The temperament of the males differs considerably and it is especially visible during the breeding season. Some males are very dominant and can injure the female. Such males should be monitored closely and be culled if necessary.

Enough males should be available to be rotated during the breeding season if necessary. Therefore, even when a breeding trio of one male and two females is used, there should be a second male available to rotate with the first male during the breeding season if the fertility of the first male reduces temporarily. A temporary decrease in fertility during the breeding season usually is indicated by the reduction in scarlet colour or a change in the general breeding behaviour and dominance of the male. These males should be allowed to "rest".

Sexual maturity

Feeding of ostriches from day-old to adult age will influence the age at which sexual maturity is reached. Underfeeding and/or malnutrition in especially the males prevent normal development of sexual organs during the critical period.

In captivity

- males are sexual matured at 3 years of age; sometimes already at 2 years of age, but with a limited production capacity.
- females are sexually matured at 24 months of age, but will lay only about 10 to 20 eggs for the first breeding season. With selection for egg production an average of 55 eggs per hen per breeding season can be expected; up to 80 or even more eggs per female is possible, but only from some females in good seasons. The production figures can differ considerable from season to season for a specific hen, or between females. A high producing hen must not be forced in some way or the other to keep on producing when the fertility and hatchability of her eggs and the viability of the chicks decrease later in the season.

Breeding seasons

In the southern hemisphere the breeding season starts in about July/August (Spring) and continues to March/April (Autumn). The season can be adapted to the farmer's management programme, but a total off-season (resting period) of 3 to 4 months is essential for the breeding birds.

Some farmers separate the breeding birds temporarily during December to make management easier. The type of breeding season used, will depend on the specific circumstances on the farm.

Reduction in egg mass, decrease in number of eggs, increase in number of infertile eggs or decrease in hatchability for the total breeding flock usually indicates the end of the breeding season. It is however wise to stick to a fixed breeding season. For example the breeding birds must be separated at the end of the official breeding season of the farmer, even if the birds are still in an excellent production rate.

Males and females are separated between 15 March and end of April and kept in separate flocks where they can not hear or see each other. Gradually change from the ostrich breeding ration to the ostrich maintenance ration about 2 to 3 weeks before or from the date of separation is recommended. Fertile eggs can still be expected up to 3 weeks after separation.
At mid June the males can be placed in their breeding camps to give them time to get used to their new surroundings. (However, in the case of dominant males it is rather wise to put the female in the breeding camp first, otherwise it could happen that the male will not allow the female into his territory.) At the same time start to change gradually (over the next 2 to 3 weeks) from the ostrich maintenance ration to the ostrich breeding ration for both males and females. At the end of June, the females are in the breeding camps with their males. By this time, the change in rations is completed.

It seems as if the claim that a male chooses his female for the rest of his life, does not carry that much weight. It is possible to allot a different female to the male for each breeding season. Some males will even accept a different female during the breeding season, depending on dominance. If problems are encountered with males which do not want to accept their allocated females, the practice to place the female first in the breeding camp and adding the male to the new territory at a later stage, can overcome this problem.

The first eggs of a breeding season are often infertile due to infrequent mating. If necessary, leave a nest egg in the nest so that the hen will lay each following egg at the same spot. Use an infertile egg (from the start of the season) as nest egg. The fresh egg must be removed from the nest daily and not be left as nest egg for the following egg.

Nests
It takes about 48 hours for an egg to develop completely in the reproductive organs of a female ostrich. The female can thus at the most lay an egg every second day.

Where necessary, leave a nest egg in the nest so that the hen will lay each following egg at the same spot. Use an infertile egg (from the start of the season) as nest egg. The fresh egg must be removed from the nest daily and not be left as nest egg for the following egg.

The hen usually lays the egg late in the afternoon. It is however wise to collect eggs at least twice daily. Thus an approach of collect it as it is laid to prevent the fresh egg from being exposed to unfavourable conditions, e.g. sun-rays during the day, cold during the night.

FEEDING
Provide at all times a balanced ostrich feed:
- During the breeding season ostrich breeder ration at about 2.0 to 2.5 kg / ostrich / day.
- During the off season ostrich maintenance ration at about 2.0 kg / ostrich / day.

As there is a large variation between different birds in built and size, it is important to feed breeding birds more accurately according to condition and production to prevent them from getting too fat. Obesity is not only a lost in money for feed, but it can also causes infertility and thus a lost in production. On the other hand, underfeeding will result in no or low production. It is therefore important to provide adequate feed during the onset of the breeding season to stimulate the breeding birds into production.

When the males are actively mating and the females are laying eggs, they need more feed than breeding birds which do not reproduce. It is possible, especially in males, that they will not produce the rest of the season even under optimal circumstances if something prevented them from coming into production during the onset of the breeding season. Changing in rations (breeder and maintenance) and also changes in amount or texture of ration (meal to crumps or pellets) must take place over about 2 to 3 weeks. Do not change unnecessarily during the breeding season from one feed mix to another, as this can cause a drastic decrease in production. A change in feed is only allowed if the breeding birds are already producing poorly and if all other possible causes for this are eliminated. It is wise to make critical changes in feeding only during the off-season.

Provide additional pebbles for digestion purposes where necessary, for instance in sandy areas.

CAMPS
Fences
Height of fences should at least be 1.5 m (5 feet). Use only smooth wire and not barb wire. Space wires about 22 cm (9 inches). The bottom wire must be at least 45 cm (18 inches) from the surface to prevent the ostriches from injuring their legs in the fence.

If necessary, use chicken wire for the lower 1.2 m (4 feet). It is however more safe to leave a larger space at the bottom, as it is easier for the egg collector to get through underneath the fence than trying to jump over it when a breeding bird suddenly gets aggressive.

Use enough poles and droppers to make the fence sturdy.

Camp areas
For single breeding pairs use camps of not smaller than 0.5 hectares (1.2 acres). It is however advised to use camps of about 1 hectare (2.4 acres) to insure large enough areas for the breeding birds to be able to define their territory, have privacy and to prevent obesity through exercise. If the availability of land is a problem, the farmer should have at least some larger camps for breeding birds which tend to get fat.

During the off-season these larger camps can also be used for the male and female flocks.

Camp lay-out
Lay-out of breeding camps must be in such a way that there is a main passage where a tractor can move through to provide feed and for the purpose of moving animals.

Between breeding camps a smaller passage can be left to prevent males from fighting through the fence. A hedge can be planted in the passage to provide more privacy for the breeding birds. A cheaper alternative is to put an additional wire at chest height about 70 cm from the fence on the inside of the camp which will prevent the ostrich to reach the fence with its legs. Fighting amongst males is however only a problem with some dominant birds. If the breeding birds are left in peace (not chased around) and handled with respect, all these precautions will probably be unnecessary.

Provide shade and protection against rain in the form of shade trees (which do not have poisonous berries or which do not have small twigs falling down which can cause compaction in the ostrich when eaten) or shade netting, etc.

Situatuse breeding camps away from any roads or other disturbances. Ostriches are relatively shy animals and such disturbances can cause the males to refuse to mate and thus a huge loss in production.

Breeding camps must be preferably on sandy soil and also at a slope to provide good drainage during the rainy season.

Camps must be preferably placed in rows, thus only 2 sides border with other camps. Nature must be copied as far as possible.
GENERAL

Record keeping

Age classification for record keeping purposes:
- Chicks - up to 1 year of age
- Juveniles - 1 year olds
- 2 year olds (or first breeders?)
- Adults - 3 years and older.

Record keeping is important in order to:
- monitor reproduction of individual birds and thus efficiency of individual birds and the system.
- have records on offspring for later sales of breeding material.

It is thus important to mark all animals according to a (personal) system for easy identification. (Different methods: metal sheep tag in the wing from 4 months of age - most effective method; plastic tag in the neck at a later age (about 5 months) - prone to tear out; micro-chip - expensive; plastic ring around the neck or leg - must be replaced frequently.

Try to weigh breeding birds frequently, for example every time they are handled for other purposes such as drenching for internal parasites, etcetera. However, breeding birds must not be disturbed during the breeding season if not absolutely necessary. Keep records of the date, tag number of ostrich, weight and condition point. Also keep records of weekly feed intake of breeding pairs or groups.

Compile general lists for record keeping on mortalities, sales and purchases for monitoring total stocks on the farm. Keep records on other management practices, for example changes in feed, changes in camps or breeding pairs.

Treatment for internal and external parasites and vaccinations

Drench for internal parasites according to weight.

Frequency of drenching must be adapted to management practices (if breeding birds are handled during the breeding season, they can stop egg production or mating) and only when necessary. The recommendation is to drench at least at the start and end of the breeding season.

Anthelmintics containing Morantel (Banminth en Thelmesan) may not be used for ostriches.

Rotate the type of anthelmintic for drenching of internal parasites in the same bird.

Ostriches must be treated for external parasites such as ticks, fleas and feather mite with products suitable for ostriches.

It is recommended that breeding birds should be vaccinated for botulism on an annual basis.

DISADVANTAGES AND ADVANTAGES OF THE SYSTEM

Disadvantages
- high capital inputs for fences and other facilities.
- high feeding costs.
- infertile males are only identified later in the season, thus a loss in production (thus monitor breeding birds to identify birds which do not mate).
- sometimes (very rarely) breeding birds are not compatible (therefore "test" breeding pairs by using breeding groups).
- high input for storage of eggs, incubators and labour.

Advantages
- accurate records are possible for individual birds for fertility, hatchability and genetic characteristics.
- accurate determination of feed intake is possible.
- possible to breed for specific genetic characteristics (larger birds, better feathers) with single breeding pairs.
- collecting of eggs easier.
- record keeping easier.
- handling of birds in smaller camps easier.

CONCLUSION

Ostrich farming acquires high financial and labour inputs, but can with proper management results in a good income for the Namibian farmer. It is also advised to start out small and as an additional income to existing farming practices. Over time, as the farmer sorts out management problems, the ostrich farming system can be enlarged as desired by the farmer.

REFERENCES