

OSTRICH WELFARE IN RELATION TO CLIMATIC CONDITIONS IN GERMANY

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Abstract

Due to the BSE crisis, antibiotics in animal feed and the use of nitrophen in organic farming Ostrich farming in Germany has become of great importance in the last few years. But different welfare organizations are promoting the European climate, particularly during rainy periods (spring and autumn) and wintertime is unsuitable for these birds. Due to there is little scientific evidence to support these claims, the study recorded the frequency of behaviours of male and female ostriches over 1 year, kept on a farm in Southern Germany, in relation to the different climatic conditions. The adult ostriches (Zimbabwe Blue; n= 17, 5 male, 12 female) were kept in 5 groups (1 male and 1 to 4 females) in enclosures with areas of 5000 m²/group and open stables (base area 25 m²) with straw (3/4) and sand (1/4) on the ground. Weather conditions were recorded at the time of observation. Behaviour of the breeding groups was carried out by video observation in the stables. The hours of using the stables are increasing significantly ($p \leq 0,01$) with a decreasing of the outside temperature ($r = -0,8$). Also when the soil is frozen or covered with snow the sitting time in the stable/day/animal is increasing significantly ($p \leq 0,01$) in compare to dry, moist or wet conditions. The results indicate that adult ostriches in Southern Germany alter their behaviour in response to prevailing weather conditions, particularly frozen soil and extreme outside temperatures. So improvements in ostrich husbandry should take into account the need to provide an adequate shelter as a protection at very cold temperatures. Therefore it is necessary to pay more attention to the ventilation and isolation in the stables.

INTRODUCTION

Ostrich farming in Germany has become of great importance in the last few years, particularly due to the BSE crisis, antibiotics in animal feed and the use of nitrophen in organic farming. This has lead to a slump in demand for products from pork and beef. So the number of ostriches kept in farms in Germany is increasing constantly. The African ostrich (*Struthio camelus*) is the only living species of the Struthionidae, Family Struthionidae. Wild ostriches colonize today only small parts of Africa, whereas his ancestors originally lived in Europe, Africa and Asia.

Different organizations are promoting the animal's welfare as a reason why ostriches should not be kept on farms in Europe. It is reasoned that the European climate, particularly during rainy periods (spring and autumn) and wintertime is unsuitable for these birds (in contrast to other birds, the ostrich has no *Glandula uropygii* and so, he can not grease his feathers and they leak the water) as well as little is known about appropriate husbandry conditions in a northern European environment. To meet the climatic requirements of ostriches, in Germany stables of 10 m²/animal for adult animals are required by law and the housing of ostriches only in stables is forbidden (BMELF, 1994 and European Commission, 2000).

Due to there is little scientific evidence to support the claims of different Animal Welfare organizations, the study recorded the frequency of behaviours of male and female ostriches over 1 year, kept on a farm in Southern Germany, in relation to the different climatic conditions.

MATERIAL AND METHODS

The study was carried out on a commercial ostrich farm in Southern Germany. The adult ostriches (Zimbabwe Blue; n=17, 5 male, 12 female) were kept in 5 groups (1 male and 1 to 4 females) in enclosures with areas of 5000 m²/group. Each enclosure was of permanent pasture, sand baths and open stables (base area 25 m²) with straw (3/4) and sand (1/4) on the ground. Weather conditions were recorded at the time of observation and included the daily temperature (°C, min. and max.), relative humidity (%RH), average rainfall, wind velocity and an estimated percentage cloud cover or hours of sunshine. Behaviour of the breeding groups was carried out by video observation in the stables. Each group was observed for 2x24h/week (=20 days/group/season). Additionally the animals were observed outside (scan-sampling), whereby the behaviour was noticed every 30 sec for 9 h/day/week from 0800 to 1200 and the last 5 h until dawn (=5 days/group/season).

RESULTS

In spring 1/3thrd of the animals are using the stables for egg laying and sometimes also for breeding. In summer the stables are only used by the animals for feeding, sleeping is always outside. In cold winter nights all families make use of the stables as a sleeping place. Depending on the outside temperature, the hours of using the stables increased significantly ($p \leq 0,01$), which means the colder the outside temperature the longer, the observed ostriches are using the stables ($r = -0,8$, fig. 1).

Also the soil conditions have impact on the frequency of visiting and sitting time in the stables (fig. 2). Particularly when the soil is frozen or covered with snow the sitting time in the stable/day/animal is increasing significantly ($p \leq 0,01$) in compare to dry, moist or wet conditions and the animals are spending half of the day in the stables.

But during 'rainy' periods both males and females are not using the stables as a rain protection ($r = -0,1$), astonishingly they showed sitting behaviour outside significantly ($p \leq 0,01$) more than during dry and bright weather as well as during sunny weather ($p \leq 0,01$). But in contrast when its drizzling foraging and feeding increased significantly ($p \leq 0,05$). Increased sitting behaviour during rainy periods was due to a significant reduction in pacing and other behaviours ($p \leq 0,05$).

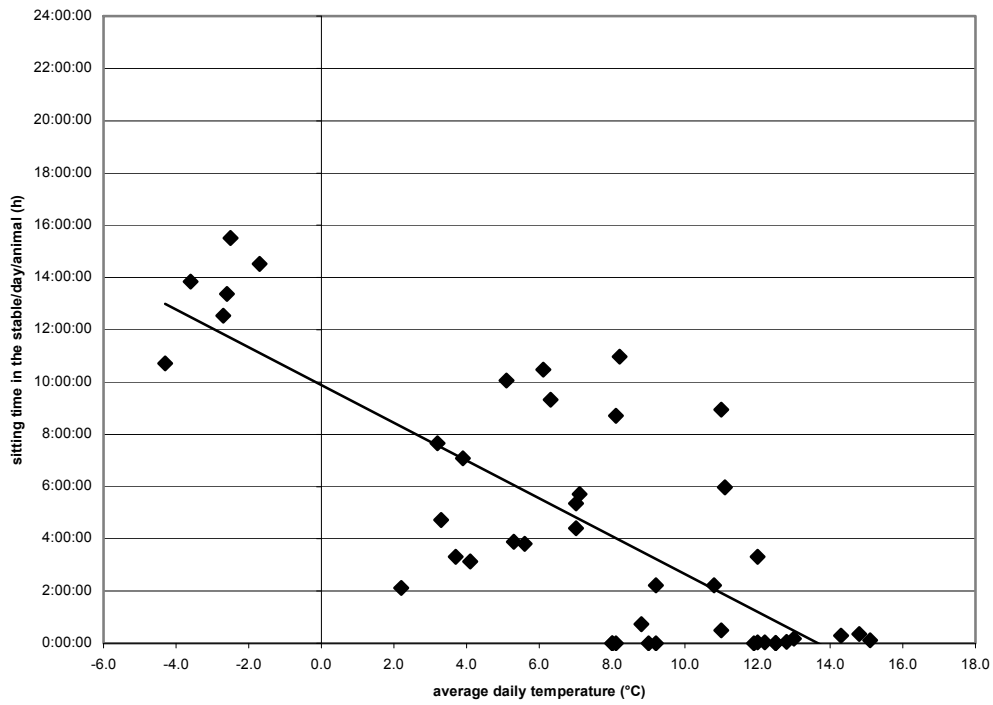


Figure 1. Average sitting time in the stables in dependency to outside temperature

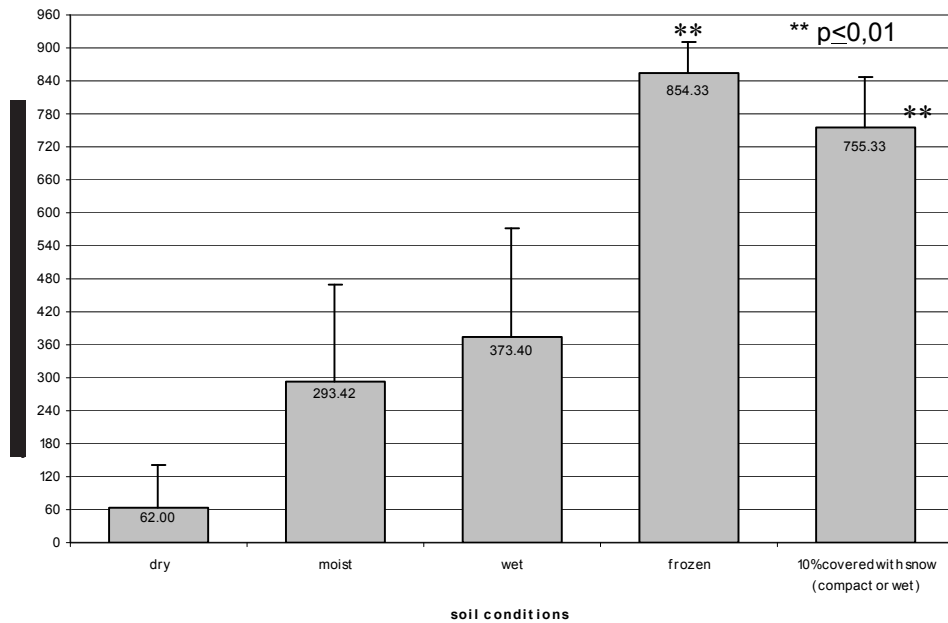


Figure 2. Average sitting time in the stables per day and animal in dependency to soil conditions

During all climatic conditions, feeding and foraging were the most dominant behaviours. A possible influence of the climatic or housing conditions on the frequency of eating their own eggs could not be explained until now.

DISCUSSION

The results indicate that adult ostriches in Southern Germany alter their behaviour in response to prevailing weather conditions, particularly rain and extreme temperatures. So improvements in ostrich husbandry should take into account the need to provide an adequate shelter as a protection at very cold temperatures. Therefore it is necessary to pay more attention to the ventilation and isolation in the stables. It is also necessary that newly imported ostriches will be trained to use the stables. Another problem of the stables are ranking problems at the entry due to only one exit/entry. It is very important that submissive animals have the space to avoid attacks from dominant animals as well as the possibility to enter the stable. Due to ostriches do not intend to use the stables during rainy periods, the outside ground should be well drained. Without such improvements, ostrich welfare under German climatic conditions during all seasons will be at serious risk.

REFERENCES

1. **BMELF (1994)**. Gutachten über Mindestanforderungen an die Haltung von Straußenvögeln, außer Kiwis.
2. **European Commission (2000)**. Empfehlung für die Haltung von Straußenvögeln des Ständigen Ausschusses des Europäischen Übereinkommens zum Schutz von Tieren in landwirtschaftlichen Tierhaltungen vom 7. Februar 2000.