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Animal-friendly fattening turkey husbandry with structural and activity components

In a two-year model project of the Federal Ministry of Food, Agriculture, and Consumer Protection, the influence of different structural and activity components on the performance, the behaviour, and the health of fattening turkeys was evaluated on farms under conventional and ecological husbandry conditions. The results are presented below.

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Keywords

Turkey hen fattening, model project, structural components, activity components, animal welfare

Literature

References can be called up under LT 08316 via the internet address www.landtechnik-net.de/literatur.htm.

Fattening turkeys are largely kept in unstructured stalls which provide only little stimulation. The animals have only limited possibilities to show behaviour which is typical of their species, such as perching and avoiding conspecifics. Some scientists assume that these housing conditions in combination with the genetic material of the current breeding lines are not only one of the factors responsible for different diseases of the locomotor system, the breast skin, and the circulatory system, but also cause behavioural disorders, such as feather pecking and cannibalism. Since these behavioural disorders may lead to significant damage and suffering including death [1 to 5], housing conditions must be improved.

This model project, which was oriented towards constructional/technical aspects, addressed the question of whether the enrichment of the animals' housing environment enables animal health to be sustainably improved.

The studies were carried out on two conventional turkey farms and one ecologically oriented farm. Research concentrated on practical applicability and the acceptance of the constructional-technical measures by the animals. The examinations focused on the behaviour and the health of the animals and, hence, animal welfare.

Material and methods

The structural elements used were straw bales, raised floor sections in the form of wood plates with a ramp, stacked euro pallets, and additional A-racks installed by the fattener on the ecologically oriented farm (Table 1).

In addition to the straw bales, which also structure the stall, hay-filled wire baskets were available as activity components for the animals (Table 1). These wire baskets were developed and provided as prototypes by the company Big Dutchman exclusively for the described study.

The goal was to make a usable structure available for at least 10% of the animals.

The studies included one test period each in the summer and in the winter with a non-enriched stall for reference.

Over the course of the fattening periods, the following studies were carried out:

- Direct observations of space utilization and behaviour
- Video-based studies of space utilization, the time spent by the animals at and on the elements, and behaviour
- Registration of animal health and weight development based on fattening and slaughterhouse data
- An assessment of the living animals in the 15th week of their lives (evaluation of the feathers, the breast skin, the foot balls, assessment of bone parameters)
- A microbiological examination of the soiling degree of the structural components used
- The determination of labour management aspects (additional work requirements for the fattener) was documented for each individual component and compared with those in the reference stall.

Results and conclusions

The structural components offered were used by the turkeys. Utilization was observed particularly often during the twilight phases (nocturnal perching). The components favoured the species-typical resting behaviour of the turkeys and structured the stall in activity and resting areas.

The raised floor sections and straw bales were preferred by the animals. The longer average lying times on the raised floor areas indicate that these components were obviously particularly suitable as retreats. Here, the resting animals are disturbed less by their conspecifics.

Both the straw bales and the hay baskets were readily accepted for activity. The square straw bales have the advantage that they can be used for two purposes and not only serve as an activity component, but also for perching. The use of the hay basket strongly depended on the individual fattening period. So far, the reason for the differences in the intensity of use has remained unclear.

None of the stall equipment components offered had any noticeable positive or negative effects on health.

Structural or activity component	Description	Picture
Straw bales	Square bales (2.50 m • 1.25 m = 3.12 m ² area; height: 0.80 m) were used to structure the stall. In addition, they allowed the animals to peck and to pull out straw parts. In order to prevent injuries, loosened plastic cords were removed. When required, the square bales used were replaced with new ones.	
Raised floor section	Non-perforated railway wagon plates (2.20 m • 1.25 m = 2.75 m ² area; height: 0.8 m) with a ramp (2.25 m long, 0.6 m wide), always littered.	
Euro pallets	Two types were used: 2nd choice euro pallets (used once before) and pallets out of pine core wood, which were chosen because of their antimicrobial properties. The euro pallets were arranged group-wise in sets of two (one on top of the other). Their surface was splinter-free due to the danger of injuries. They were used only during the first fattening period because they did not prove useful (risk of injuries; hygiene, littering, and disposal problems, infrequent use). Measurements: 0.80 m • 1.20 m = 0.96 m ² area; height: 0.20 m.	
A-racks (only on ecologically oriented farms)	Wood perches in a stepped form (3 levels) according to the EC Eco Directive (height: 3 wooden slats at a height of 24 cm, 46 cm, 67 cm, width of the sitting surface: 4 cm; total height: 80 cm; length: 2.0 m)	
Hay baskets	Metal baskets from the company Big Dutchman (2 mm wire mesh; mesh size: 2.5 • 5.0 cm; diameter: 0.5 m; height: ~ 1.0 m. Basket bottom out of sheet metal with ~ 30 to 33 holes, which have a diameter of 2.5 cm). A lid prevents animals from falling into the basket. The basket was attached to the stall ceiling with the aid of a height-adjustable chain, which allowed it to be suspended at variable heights depending on the age and the size of the animals. (The lower end was always at the height of the animals' backs). Hay was offered permanently.	

Table 1: Description of the structural and activity components used

The germ load on the surfaces and the litter of the structural components was comparable with the germ load on the floor litter. The A-racks showed the lowest germ numbers because they were only slightly soiled with excrement.

On the other structural components, a “germ plateau” developed on the surface after approximately 14 days. This plateau corresponded to the total germ content of the floor litter.

From the viewpoint of labour management, straw bales cause lower expenses and are more practicable to handle than raised floor sections.

The animals used the pallet stacks and A-racks (on the ecologically oriented farm) only to a small extent. In addition, the pallet stacks caused an increased risk of injury because the limbs of the animals can get caught in the gaps between the boards. Moreover, the pallets are not very satisfactory because their cleaning and disposal are more labour-intensive. Thus, they are not very suitable as structural components and cannot be recommended.

Summary and outlook

In principle, all four structural components offered were used by the turkeys.

Occupation with objects (object pecking) occurred at both the hay basket and the straw bale. The latter provided an additional benefit as a structural component. At both activity components, a tendency towards a reduction of object pecking was registered over the course of the fattening period with increasing age of the turkeys. Since feather pecking or cannibalism occurred neither in the experimental stalls nor in the reference stalls, the influence of the structural and activity components on these kinds of behaviour could not be clearly determined.

All in all, the tested structural and occupational components enriched the housing environment of turkeys and were frequently accepted and used. Disadvantages for animal health could not be observed. However, the advantages for the behaviour and the well-being of the animals are also difficult to estimate and require further studies.

Literature

Books are marked by •

- [1] • *Berk, J.: Artgerechte Mastputenhaltung. KTBL - Schrift 412, Darmstadt, 2002*
- [2] *Hafez, H. M.: Übersicht über Probleme der haltungs- und zuchtbedingten Erkrankungen bei Mastputen. Arch. Geflügelk. 60 (1996), S. 249-256*
- [3] • *Hafez, H. M.: Federpicken und Kannibalismus. In: Hafez, M. H. und S. Jodas (Hrsg.): Putenkrankheiten, 1. Aufl., Ferdinand Enke Verlag, Stuttgart, 1997, S. 172-174*
- [4] *Hafez, H. M.: Gesundheitsstörungen bei Puten im Hinblick auf die tierschutzrelevanten und wirtschaftlichen Gesichtspunkte. Arch. Geflügelk. 63 (1999), S. 73-76*
- [5] *Krautwald-Junghanns, M. E.: Putenproduktion in Deutschland: Ansätze für eine tierschutzgerechte Haltung. Deutsche Tierärzteblatt, (2003), H.1, S. 4-8*