

## Requirements for keeping fattening turkeys in a manner compliant with animal welfare standards



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## *Literature review*

*Evaluation of approx. 350 references  
(focussing on citable primary scientific literature)*

*The research engines Pubmed, Google scholar, Research Gate were used in particular, as well as e.g. post-doctoral theses, research projects, conference texts if based on scientific research ...*

## *1 General preliminary remarks*

Behavior of the wild turkey

Crossbreeding and modern hybrids

Parent stock husbandry

## *2 Legal basis, EU countries*



## *3/4 Catalog of requirements and detailed comments*

### *Annexes*

General data / parent stock husbandry

Artificial insemination

Legal bases, further information

Comments on the practice of debaking



## General remarks



### Behavior of the wild turkey

- ☞ Characteristic group dynamics
- ☞ Ranking determined by fights
- ☞ Differences in behaviour between the individual breeds are minor

### Crossbreeding and modern hybrids

- ☞ Large number of breeds / turkey lines
- ☞ Slow growing breeds do better
- ☞ Use of lighter breeds does not automatically result in improved foot pad health

### Parent animal husbandry: ?



## Requirements for the mobility and community needs of turkeys (stocking density / group size)



Maximum stocking density for turkeys at the end of the fattening period based on the available scientific literature and accounting for economic considerations appear to be at 36-40 kg live weight per m<sup>2</sup> of usable area.

<u>Country</u>	<u>Stocking Density</u> kg/m <sup>2</sup>	<u>Legal provision</u>
Switzerland	36.5	yes
Austria	40	yes
Sweden	40 (birds < 7 kg) * 45 (birds > 7 kg) *	yes
Denmark	52 (hen) # 58 (cock) #	yes
Poland	57	yes
U.K.	38.5	no
Norway	47 (birds > 7 kg)	no
Germany	52 (hen) * 58 (cock) *	no
France	?	no
Italy	?	no

Examples of stocking densities in European countries

\* Lower stocking densities (SE: 30, DE: 45/50) for farmers who do not take part in a health control program

# average of 48/55 over three runs must not be exceeded

Attempts to calculate space requirements:

e.g. KobaPlan: at which stocking density how much stable area occupied

no scientific investigations available about the space necessary for the exercise of normal behaviour



## ↑ stocking density

- ☞ Resting behaviour / behaviour
- ☞ Body mass / feed conversion
- ☞ Injurious pecking
- ☞ Pododermatitis
- ☞ Plumage / skin alterations
- ☞ Skeletal system alterations
- ☞ Respiratory (stress) symptoms



## Resting behavior / behavior

The likelihood of social disputes increases

## Body mass / feed conversion

Increase in BM decreasing from 16<sup>th</sup> week of life  
(30/40/50/60 kg/m<sup>2</sup>)

## Injurious pecking

many studies multifactorial  
increasing at 58 vs. 40 kg/m<sup>2</sup>  
same with small groups, clearly dependent  
on the available space

## Foot pad dermatitis

numerous publications

## Plumage / skin alterations

e.g. highly significantly less at 39 vs. 52 vs. 67 kg/m<sup>2</sup>

## Skeletal system

e.g. significantly lower elasticity and ultimate strength of the bones

## Respiratory (stress) symptoms



↑ stocking density



## Ad: stocking density



In addition to the criterion of  $\text{kg}/\text{m}^2$ , it is also important to take into account the absolute number of animals per  $\text{m}^2$ .

Group size: <30? No definition possible, depending on the space available  
in groups >100 animals no ranking is established

# Structure of the flock



Structuring the stable with resting areas is necessary.



Ad: structure

it is recommended to create elevated perching options

high variety in  
experimental designs



Shift of center of gravity: due to the hypertrophied breast muscle, turkeys lie down with their ventral side on the perch when sleeping

## Ad: structure: perching options

Space on the perches  
influences its use  
more important with > age



- ☞ better plumage condition
- ☞ species-specific behaviour
- ☞ reduction of injurious pecking
- ☞ structuring into activity, retreat and resting areas
- ☞ partial reduction of stocking density

# Analysis and evaluation of the structural and occupational elements used in the model project (Spindler et al., 2007)

- ++ very positive,
- + positive,
- 0 no effect or no difference to the littered barn area
- critical
- very critical



Element	Occupation	Retreat	Species-specific rest	Health	Risk of injury	Labour requirement	Costs
Round straw bales	++	+	(++)*	0	0	+	+
Cubic straw bales	++	+ / ++	++	0	0	+	+
Littered cubic raised levels	0	++	++	0	0	--	-
Hay baskets	++	0/+	0	0	0	-	-
Littered pallet stacks	0	0	0	0	-	--	-
A-racks	0	+	+	0	0	+	+

★ Round bales tended not to be used as an elevated level on account of their height and were therefore classified as disadvantageous compared to cubic bales

# Ad: structure: outdoor climate area



☞ should be offered as of the 6<sup>th</sup> week of life

☞ positive influence on behaviour, plumage, walking ability, respiratory tract, (decreasing heart diseases), injurious pecking





## Ad: structure: outdoor run

No statistical survey possible in comparison

Risk of infectious agents and predators

- ☞ shelter for protection
- ☞ reduce contamination of the soil  
e.g. by changing run-out areas

Adaptation to climatic conditions

- *birds are more active*
- *less breast alterations*



## Ad: litter



- ☞ material
- ☞ height?
- ☞ moisture
- ☞ barn climatic parameters

High frequency of re-littering and loosening the litter is more important for turkeys than for chickens

The litter must be clearly loose, dry, clean, as dust-free as possible and of such quality as to allow the birds to scratch and peck.



The litter moisture shall nowhere exceed 30%

# Ad: lighting

- ☞ Light intensity
- ☞ Light duration
- ☞ Light spectrum
- ☞ Flicker fusion frequency
- ☞ Light colour



## Ad: lighting



### Light duration

clear day/night rhythm  
positive for animal health

### Light intensity

Significantly stronger perception of light  
brightness in turkeys

### Daylight

Necessity can not be clearly deduced  
significant differences  
Natural habitat "open forests ..."

### LUX??

Different light intensities preferred for  
different activities (1, 6, 20, 200 Lux)

### Varying test results

# Ad: animal care and monitoring



Several daily checks (at least once in the morning and once in the afternoon)  
3-4 times throughout the day in intensively kept turkeys with intact beaks  
Records of surveillance



## Ad: animal care and monitoring



Enrichment throughout the whole fattening period

Type can be chosen freely, but sufficient number and changing

Good acceptance of materials that turkeys have to 'work for'

Ad: knowledge and skills of people who keep,  
look after or have to look after turkeys

- All persons in contact with the animals must have verifiable knowledge and skills in the appropriate handling of the animals they care for
- All animal keepers should attend appropriate short courses at least once or twice a year

## **Key results of the survey on animal welfare requirements for turkey husbandry**

### **Stocking density**

Based on the available scientific literature and economic considerations, a maximum density for fattening turkeys of 36-40 kg live weight per square metre of usable area is adequate

### **Enrichment**

In order to meet some of the behavioural needs of turkeys, it is necessary to structure the turkey house:

- ☞ Perching areas / elevated platforms
- ☞ Occupational elements that the animals can also peck at throughout the whole fattening period
- ☞ Outdoor climate area of at least 20% of the usable floor area

### **Litter**

The litter must allow the animals to scratch and peck throughout the entire growing period. It must be loose, dry (< 30% moisture) and sufficiently clean (litter > faeces) at all times.

## **Light**

- ☞ Sufficiently even light so that the animals can show a normal level of activity
- ☞ Eight hours of darkness (emergency lighting with 0.5 lux possible)
- ☞ Light spectrum includes UV-A
- ☞ Flicker-free lighting (light frequency exceeds turkeys' flicker fusion frequency)

## **Indoor climate**

A good indoor climate is important for animal welfare. Ventilation, dust, temperature, humidity and gas concentrations must be kept at levels that do not harm the animals.

## **Care**

- ☞ Check the animals several times a day, records of the surveillance
- ☞ Staff must have demonstrable knowledge of and ability to handle the animals
- ☞ All animal keepers should attend appropriate short courses at least 1-2 times/ year

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