

Production related disorders in fattened animals (pigs, cattle, broilers, turkeys) and their relevance regarding § 11b *Tierschutzgesetz* (German Animal Welfare Act)

Stock breeding primarily involves genetic selection on production traits. It is achieved by deliberately altering the physiological and/or anatomical characteristics of the animal. Because the breeding of livestock is performed in order to deliver products for human consumption, it focuses particularly on consumer desires and market requirements.

For decades an increased emphasis has been put on the animals' productivity and, by using suitable breeding strategies, a continuous increase in the efficiency of production has been accomplished. Improved productivity can, however, have a negative impact on the animals' health, particularly when this aim is pursued single-mindedly. Certain diseases and syndromes are consequences of high productivity. These negative side effects of selection for high production efficiency are commonly referred to as "production diseases" or "production related disorders". They are often knowingly tolerated, although the German Animal Welfare Act has included a ban on so called *Qualzuchtungen* since 1986. As of this point of time, however, the corresponding article (§ 11b TierSchG) has not been implemented in the field of livestock breeding.

This thesis analyses diseases and syndromes that are linked to enhanced fattening performance. These diseases are accompanied by pain, suffering, or harm to the affected animals or their progeny and therefore have relevance according to § 11b TierSchG. Professional literature on the following seven production diseases related to the fattening of animals is gathered and analyzed: double-muscling in beef cattle, stress syndrome and osteochondrosis in fattening pigs, ascites syndrome and sudden death syndrome in broilers, as well as tibial dyschondroplasia and deep pectoral myopathy in broilers and turkeys. The clinical signs, possible diagnostic tools and relevance of these diseases regarding animal welfare are documented. Moreover, recommendations for counteraction and prevention are also discussed.

Based on the information gathered and its analysis, it becomes evident that unilateral genetic selection on fattening performance or increased muscle mass can bring about very similar negative side effects, regardless of species. In particular, the animals' bones, joints, muscles and the cardiovascular system can be negatively affected due to the inability of the skeleton and the cardiovascular system to keep up with rapid muscle growth in high performance fattened animals.

The responsibility for the prevention of production related diseases lies primarily with livestock breeders. Potential breeding animals should be examined for individual susceptibility to problematic diseases and syndromes and should be excluded from breeding when tendencies for such diseases are indicated. If a disease is caused by a genetic defect, the breeder may choose to selectively avoid this specific defect. However, for production related diseases for which the predisposing genes have not yet been discovered or for diseases that are caused by multiple genes with cumulative effects, the best recourse may be to simply reduce the animals' productivity. On the existing legal basis of the § 11b TierSchG, breeding associations should be held accountable for the consequences of their actions in these matters. In relation to this, several legal measures are also presented and discussed within this thesis.

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