

8. Summary

Comparing studies in regard of health, fattening efficiency and meat quality of pigs in the indoor and outdoor keeping respectively

The aim of this project was to examine indoor, outdoor and mixed kinds of keeping pigs and their influences on animal health, fattening efficiency and meat quality in order to give advice concerning kinds of keeping pigs.

In a controlled experiment 473 piglets (crossbreeds) spent the suckling period partly in indoor stables and partly in outdoor stables. In order to be able to compare the results, one half of each litter of young pigs was then raised indoors, the other one outdoors. For suckling, raising and fattening the pigs, four different kinds of keeping resulted from this, which could be compared through multivariate analysis on a level of significance: $p < 0,05$.

Both qualitative parameters as morbidity, mortality, organ diagnostics, grades on meat, pH and LF values and quantitative parameters as daily weight increase, feed consumption, slaughtering weight and duration of fattening were compared for indoor and outdoor keeping during three periods: suckling, raising and fattening. In addition we considered the seasonal influence by evaluating separately piglets born in summer and piglets born in winter.

Animal Health

The morbidity of piglets was clearly lower in the outdoor keeping condition (0,9%) than in the indoor keeping condition (17,1%). The result of the piglets born in summer was even significant. During the raising the morbidity of the pigs that were born in the outdoor stables was lower (outdoor-outdoor: 21,8%; outdoor-indoor: 40%) than of the pigs that were born in the indoor stables (indoor-indoor: 57,8%, indoor-outdoor: 63,8%). During the fattening the morbidity was significantly lower in the outdoor stables (outdoor-outdoor: 0%; indoor-outdoor: 1%) than in the indoor keeping (indoor-indoor: 32,7%, outdoor-indoor: 29,5%;).

In addition the way of keeping shows also a significant influence on organic diagnostics. Among those pigs being born in winter less pneumonia were found in the lungs of those fattened in outdoor stables (outdoor-outdoor : 16%, indoor-outdoor: 26%) than among those being fattened in indoor stables (indoor-indoor: 55%, outdoor-indoor: 36%). The livers of those pigs being fattened in the outdoor stables were significantly less of poor quality (outdoor-outdoor: 5%, indoor-outdoor: 6%) than of those being fattened in indoor stables (indoor-indoor: 35%, outdoor-indoor: 16%).

Achieved Fattening

Those pigs being kept in outside stables all the time showed significantly the highest weight increase during the raising. (\bar{X} 438 g). During the fattening those pigs being born and suckled in outdoor stables showed the significantly highest weight increase (outdoor-outdoor: \bar{X} 844 g, outdoor-indoor: \bar{X} 826 g) than those being born in indoor stables (indoor-indoor: \bar{X} 788 g indoor- outdoor: \bar{X} 753 g) regardless of the way of keeping in the fattening period. Those pigs being kept exclusively in outdoor stables had the shortest duration of fattening (\bar{X} 175 days) and the highest slaughtering weight (\bar{X} 91 kg).

Both the feed consumption during the raising (outdoor-outdoor: Ø 833g, indoor-outdoor: Ø 778g, indoor-indoor: Ø 567g, outdoor-indoor: Ø 699g) and the fattening (outdoor-outdoor: Ø 2,8 kg, indoor-outdoor: Ø 2,4 kg, indoor-indoor: Ø 2,3 kg, outdoor-indoor: Ø 2,4 kg) was raised significantly by keeping the pigs in outdoor stables.

Meat Quality

Those pigs being born and suckled in outdoor stables during the winter period as well as those pigs being fattened in outdoor stables during the winter period showed a significantly lower level of lean meat and therefore a poor grade on meat. The conductivity measurement of ham proved partly significant differences between the ways of keeping pigs. From a methodical point of view these results have to be seen with great attention.

Our results lead us to the conclusion that considering prevention of cruelty to animals and from a veterinarian and ethological point of view exclusive outdoor keeping is most profitable for pig health and well being. However, considering the momentary situation on the pork market, the outdoor keeping of pigs has its drawbacks, too: the need for much space, a high expenditure of work, a high feed consumption and a low level of lean meat.

Other options offering a compromise between economical and ethological needs e.g. keeping pigs in straw-bedded outside-climate stables with resting boxes should be scientifically researched.