

Microclimates and animal performances in five pig fattening houses

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In order to determine if the K. L. PETIT's Bioclimatic (B) index we have been using in the Villefranche de Rouergue Experimental Station would allow, on the one hand to estimate microclimates in pig houses and, on the other, to associate this parameter with the performances of the animals, we submitted simultaneously five lots of fattening pigs to five « microclimatic treatments » in five different buildings. It was observed that different buildings submitted at the same time to an identical local climate exhibited different microclimates which could then be evidenced by means of the B Index. Differences also appeared between animal performances : growth rate was higher in one of the buildings and lower in another one ; in a house of the « semi-open-air » type, backfat thicknesses of all the animals were significantly lower than those in the other buildings. In the house showing the best growth rates, B Index values were always : located in the optimum zone whereas in the house showing the poorest growth rates, the B Index values were also the lowest. Using a multiple regression we have set up a new equation of the B Index easier to handle and thus better adapted to technical popularization. This equation puts forward two « specific factors » that could allow to extend the use of the B Index to other domestic species.

Effect of some environmental factors on performances of fattening pigs

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The influence of environmental factors on fattening pig performances is rather difficult to estimate since there are only few possibilities for experimentation in this field and notably because there might be many interactions between these different factors.

The interest of this study depends on the use of a statistical method (main component analysis) by means of which it was possible to show the influence of the principal environmental factors on the performances of fattening pigs.

The results of 416 batches of pigs obtained in 91 pig houses of 6 different types were analysed and showed the favourable influence of air volume per pig, thus demonstrating the necessity of using lofty rooms.

The effect of the region was very important. This effect includes different factors : origin of the piglets, climate, feed, which renders the interpretation more difficult.

We hope that further studies using an analogous method of interpretation will complete these informations and provide a more accurate definition of the environmental conditions satisfying the requirements of fattening pigs.

Fattening performances of Large White pigs in different piggeries according to the season and choice of cereals

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Two diets, barley-soyabean or maize-soyabean, containing 53 g digestible crude protein and 2.5 g lysine for 1 000 kcal digestible energy were offered simultaneously in three different pig houses during three successive seasonal replications. The effects of type of housing, feeding systems (individual or in groups with or without individual feeding troughs) and alternation of cold and hot seasons were studied in 216 Large White pigs. The results concern the environmental factors of the production system :

— Collective pen with meal feeding in individual troughs restricted by 13-15 p. 100 the level of the performances.

— Seasonal fluctuations partly controlled by heating and (or) ventilation of the piggeries did not directly affect the performances. On an average these performances were equivalent with diets based on barley or maize, taking into account the different energy values.

However, in the case of separate feeding of castrated males and females, the utilization of cereals was not equivalent for both sexes in the different production systems.

A) The maize-soyabean diet was generally better used for growth in the castrates the feed conversion ratio (3.58) of which was similar to that of the females (3.45). On the other hand the barley-soyabean diet was better used by the females, the growth of which started in the hot season ; in that case, feed conversion ratios were equivalent in females fed with barley (3.25) or maize (3.27). The risks of feed intake reduction depending on environmental factors (housing conditions-season) were less marked in the females, better adapted to feed restrictions.

B) The excessive fatness of the carcasses of castrates was almost equivalent in all seasons ; the loin/backfat ratio was 23 p. 100 higher in the females. For the latter, fatness was reduced when growth started in the hot season. Conversely, winter-summer growth led to a definitive pre-fattening of the females. At slaughter, backfat weight (6.07 kg) was comparable to that of the castrates