How reliable are dominance hierarchies in fattening pigs?
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there is a scarcity of relevant data (Kenny and Tarrant, 1982). Transportation is made up of a number of elements: loading and unloading, stationary confinement, confinement on a moving truck, and others such as mixed penning. These elements may be investigated individually and appropriate combinations. Continuous observation of cattle in a moving vehicle may be carried out by direct observation or by video. Direct observation allows better visibility of subtle behaviours. However, the indirect method is necessary where full truck loads and long distance are involved. Data on the preferred orientation of cattle in trucks and the frequency of changes in position may be calculated from working diagrams of group configuration plus time spent in each configuration. The relationship between vehicle movement (braking, cornering, acceleration) and animal movement (changes of position, loss of balance) may be established from a recorded commentary.

Reference

Quantity and quality of behaviour
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Differences in quality and quantity of behaviour are discussed, taking the development of agonistic behaviour in piglets as an example. The relation between the amount of free space available in farrowing crates turned out to be very important for piglets to perform and learn the species-specific agonistic behavioural strategies. These differences were only observed by using a fine-grained ethogram and after performing a sequential analysis on interactions between piglets. In contrast to these qualitative aspects of behaviour, the quantity, total duration, mean duration and development of agonistic behaviour over the first 8 weeks of life did not depend on the available space.

How reliable are dominance hierarchies in fattening pigs?
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Dominance hierarchy in groups of fattening pigs is usually established on the basis of aggression in paired food competition tests.

The interest of two other parameters, feeding latency and tolerance time, was assessed for measuring hierarchy in groups of eight 60 kg pigs (4 castrated males and 4 females). The relationship with determinations of hierarchy in two different test situations was also evaluated.

There was a small but significant correlation between aggression and latency time ($r = 0.403$, $n = 24$). Dominance orders were similar in group feeding situations and paired food competition tests, although the level of aggression was higher in the second situation.

The discussion emphasizes the inadequacy of single descriptors of dominance hierarchies in pigs. The expression of hierarchical relationships is dependent on individual characteristics such as weight, age, behavioural idiosyncracies and affiliative relationships with some congeners. In addition, hierarchical relationships are sensitive to environmental influences such as housing and rearing conditions. For
example, space restriction was found to decrease the number of interactions between animals. It should also not be forgotten that dominance hierarchies represent only a limited facet of social behaviour.

References

Individual differences in the enforcement of hierarchy in pigs

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Social interaction in a group of pigs manifests itself in the form of hierarchical behaviour, the intensity of which is dependent on the restrictiveness of the confinement system. We postulate that under barren conditions feeding hierarchy overrides all other activities. Distinctive individual and group behaviours can be identified in the enforcement of this hierarchy. They are characterized by overt aggressiveness, pursuit, spontaneous submissiveness or retreat, avoidance, tolerance which allows pushing, «right of way» and «right of being there first» and coalitions between animals of equal or very unequal status. Moreover there seem to be sex differences in that females are more often overt aggressive and males (entire) more often show behaviour involving tolerance. The value and effect of different kinds of adaptive behaviour in relation to utility of restricted resources should be investigated further.

Social tolerance and preferential relationships

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Studies on social relationships in cattle have mainly been carried out on dominance relationships. As important, and even more important, is the phenomenon which reunites and holds the individuals together. Affiliative relationships, however, can be less evident and more difficult to observe. We have studied such relationships in groups of heifers and cows and we have tried to understand their origin. The methodology was to observe and quantify agonistic and non-agonistic interactions, to measure individual distances in several situations and associations during feeding at hay-racks, and to study the behaviour of animals in a competitive situation.

The criteria chosen to assess affinity between animals were a high frequency of non-agonistic interactions, a low frequency of agonistic interactions and spatial associations. Some animals presented the three criteria, others only two of them. Being reared together from birth leads to the development of affiliative relationships reflected in these three criteria. Furthermore the animals are also highly tolerant among themselves even in competitive situations.