

orientating away to orientating towards occurred at a distance of 0.25 m. This suggested that orientation behaviour is not fixed, but may be modified in response to the space available.

These results indicate more flexible spacing behaviour, which varies with rank and available space, than that suggested by the notion of "personal space" (Hediger, 1950; McBride, 1971).

REFERENCES

- Hediger, H., 1950. *Wild Animals in Captivity*. Butterworth, London.
- McBride, G., 1971. Theories of animal spacing: the role of flight, fight, and social distance. In: A.H. Esser (Editor), *Behaviour and Environment, The Use of Space by Animals and Men*. Plenum Press, pp. 53-68.

RESPONSIVENESS OF STALL-HOUSED SOWS

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ABSTRACT

Sows confined in stalls or by tethers have been reported to spend longer periods lying, or sitting with the head lowered, than do sows in groups. They have often seemed unresponsive to events in the world around them and have been said to be apathetic. In the studies reported here, the responsiveness of stall-housed sows has been measured precisely and compared with that of group-housed animals. In the first experiment sows were videotaped whilst undisturbed and on another day at the same time whilst a stranger stood quietly in front of them. The presence of the stranger elicited very little response from the sows. When 11 stall-housed sows were watched by a stranger for 1800 s from a distance of 1 m or 25 cm, the median time spent looking at the observer was 191 and 710 s ($P = 0.003$), respectively, but there was little other difference in behaviour.

Sows in stalls are generally very responsive to the advent of food at morning feeding time. When fed 10 food pellets every 30 min for 3 h in the afternoon on 3 days, these sows stood more, had their eyes open and looked at observers more than did unfed sows in neighbouring pens. The animals are responsive to cues associated with feeding.

In order to compare the responsiveness of stall-housed (S) and group-housed sows (G), animals were videotaped for 20 min before and after 200 ml of water was poured onto their backs by a solenoid-operated tipping mechanism controlled by a remote switch. All animals tested had been lying for at least 20 min and their eyes were open. A detectable response within 3 s was shown by all animals. The response of sitting up or standing up was shown more by group-housed pigs. In the 20 min after stimulus presentation, the median time spent sitting or standing was 733 s for G pigs and 27 s for S pigs ($P = 0.03$). The median time lying motionless was 429 s for G pigs and 1101 s for S pigs ($S = 0.02$), whilst the median number of activities such as stand, sit, shake, sniff ground, etc., was 8 for G pigs and 2.5 for S pigs ($P = 0.002$). There was some sign that sows which had been in the stalls for 2 days were less responsive than those which had been there for 8 weeks or more. The major result, therefore, was that group-housed sows were more responsive to the test used than stall-housed sows.
