Odour and flavour affect acceptance of novel supplements for grazing sheep in Vietnam

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Ruminants offered novel feeds in unfamiliar surroundings exhibit neophobia. They may take several weeks to learn to eat a new feed, even though it is safe and nutritious (Chapple and Lynch, 1986). In Vietnam, small grazing ruminants are offered a variety of novel supplements, depending on cost and availability. Their intakes may be sub-optimal for considerable periods while they are learning to eat each new feed type.

To test whether their 'learning curve' might be improved, and intake and production increased, *24* sheep were offered a novel feed, rice bran, in the presence or absence of a familiar odour or flavour (taste and odour). The odour/flavour was a diluted juice extracted from 3 species of local grasses known to be eaten readily by the test sheep.

Groups of 6 sheep were randomly allocated to 4 treatment groups. The control group was offered rice bran with no added odour or flavour. Two other groups were offered rice bran placed in the feed container on top of a closely woven bamboo lattice. A plant extract (10 ml) or dog faeces (1 g) was placed in a container 3-4 cm below the rice bran (under the lattice). This set-up enabled the sheep to smell but not make contact with the plant juice or faeces. The fourth group (grass flavour) was offered rice bran with plant juice mixed into it (20 ml/kg). At about 06.00 h each day, after an overnight fast, all sheep were offered rice bran with or without odour/flavours, for 5 min. Groups of 6 sheep were simultaneously offered rice bran from individual containers. Feed troughs (two in each of 2 yards) were partitioned lengthwise, using bamboo lattice, into 3 bins, each just wide enough to allow one sheep to eat simultaneously in full view of its neighbours. Intake of feed was determined for all *24* sheep individually for 2 1 days (Figure 1). All sheep were familiar with the testing procedure, having been trained for one week when an unrelated grass was offered in the same testing routine.

When associated with a familiar taste or odour, the novel food, rice bran, was sampled immediately and intake increased to a plateau in about 7 days. In contrast, animals confronted with bran smelling of dog faeces did not sample the bran for 12 days and intake remained low thereafter. Control sheep first sampled the bran after 4 days and intake then increased to a plateau over the next 8 days but still tended to be less than those with grass flavour or odour cues for a further 9 days. During this time the 'grass flavour' group ate more ($p < 0.05$) than the grass smell group.

The increases in intake of bran over time in this study are similar to those recorded by Chapple and Lynch (1986) for sheep with or without previous experience of eating wheat. Both studies suggest that the time to first intake is reduced when a feed has a familiar and acceptable taste or odour. This may be explained as a decrease in the level of neophobia associated with a novel feed, or the manifestation of a previously learned preference for a food associated with positive postingestive effects. The avoidance of the canine smell may be an innate or learned avoidance of situations associated with a natural predator of sheep.

Reference

Chapple, R. and Lynch, J. J (1986). ***Research and Development in Agriculture*** **3,** 113–120.

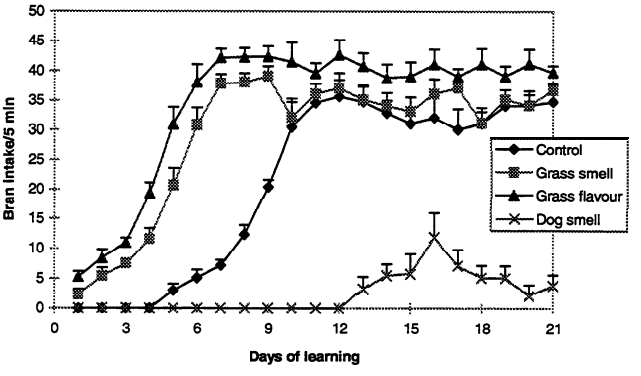

Figure 1 Intakes of a novel food, rice bran by sheep when associated with smell or flavour of familiar grasses, or odour of dog faeces.