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11. Do Cattle Choose Preferred Plant Species Without Visual Sense?

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It is known that volatile flavor compounds (VFCs) released from fresh leaves are different among plant species. We recently showed great difference of relative preference (RP) by grazing cows and VFCs among Japanese native plants; *i.e.*, *Miscanthus sinensis* (high RP, major VFC was green leaf volatiles), *Sasa palmata* (medium RP, sesquiterpenes) and *Pteridium aquilinum* (low PR, C₈ compounds). In this study, feeding experiments were conducted to examine whether cattle choose preferred plants by using VFCs as cues in food choice without visual sense. Five Japanese Black beef cows were used after taming the experimental condition. Fresh leaves of the three native plant species were harvested two hours before the experiments, and two among the three species were simultaneously fed with 30 cm apart, close to muffle of each cow. This operation was repeated 10 times per cow firstly under non-blinder (NB), then blinder (BL). The cows chose *M. sinensis*, *S. palmata* and *P. aquilinum* in 87, 62 and 0 occasions, respectively, out of 100 in NB ($P < 0.05$). Similarly, they chose *M. sinensis*, *S. palmata* and *P. aquilinum* in 79, 67 and 0 occasions, respectively, in BL ($P < 0.05$), indicating the cows chose the preferred plant without visual sense. However in BL, the cows touched *P. aquilinum* with their muffle in 10 occasions, and put it in their mouth in 13 occasions. These results suggest that scent plays a major role in discriminating foraging plants, and visual and tactile sense also function food choice of grazing cattle in Japanese native pastures.