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Large variability of intake of lick-block supplement among individual animals under different forage types in group-fed cattle

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Take home message The use of in-paddock technologies is a promising approach to understand individual animal response to lick-block supplements, offered as a free-choice.

Introduction Novel in-paddock technologies, such as electronic feeders (EF), allow measuring individual supplement intake and feeding behaviour of molasses and mineral blocks offered as free-choice to group-fed cattle. EF might also help to capture temporal changes in supplement intake as a result of forage type and grazing management (Titgemeyer *et al*., 2004). We studied the variability in lick-block supplement intake of individual animals as they grazed paddocks with different forage quantity and quality.

Materials & methods Twenty-seven Charolais x Angus steers and heifers (initial weight 192 ± 37 kg) rotationally grazed temperate pastures and oat crops (15 ha in 10 paddocks) during a 7-month trial from May to December (see Table 1). Animals were also fed supplementary hay of lucerne, oat and wheat during the last 72 days. An EF (Smartfeed) was installed at the only water point enclosed by a yard with an entry and an exit gate. A single lick block of cooked molasses was available inside the EF throughout the trial (40 kg; 4 Season Co. Pty Ltd, Creastmead, QLD). The EF records the electronic ID tag, date and time, feed consumed and duration of all visits. Animals were grouped into high (HG > 25 kg), medium (7 kg < MG < 25 kg) and low (LG ≤ 7 kg) intake groups based on the amount of supplement consumed during the entire trial. Supplement intake (g/hd/day) was analyzed using a mixed-effects linear regression model considering date as a repeated measure on each animal, and group, feed type and their interaction as fixed effects.

Results & discussion Supplement intake differed amongst intake groups (P-value Group <0.01) but this difference was not dependent on the type of forage available over time (P-value Group × Feed type > 0.05). Supplement consumption was greatest during hay feeding and lowest while Oat/Pastures feeding (P-value Feed type <0.01), showing more than 3-fold variability over time for MG animals (Table 1). LG included 2 non-feeder animals that never registered a visit.

Table 1 Mean ± SE of lick-block supplement intake (g/hd/day) of steers and heifers consuming different types of forages over time. Animals were assigned to groups of high, medium and low supplement intake. Feed type is ordered from the start (below) to the end of the experiment (above).

			Supplement intake group		
Feed type	Days	Average	High (n=10)	Medium (n=9)	Low (n=8)
Oat/Wheat hay	39	174 ± 14	293 ± 22	180 ± 22	48 ± 26
Lucerne hay	33	90 ± 48	190 ± 27	79 ± 27	0
Mix grazing Oat/Pastures	24	58 ± 36	121 ± 30	54 ± 30	0
Grazing Oat	36	73 ± 26	107 ± 26	89 ± 26	23 ± 70
Grazing Pastures	87	66 ± 17	130 ± 18	46 ± 20	22 ± 44
Average total intake		92 ± 14	168 ± 11	90 ± 11	19 ± 38

Conclusion Intake of lick-block supplements in group-fed cattle markedly differed between individual animals and the type of feed consumed. Electronic feeders allow monitoring supplement intake over time for all individuals under grazing conditions and identifying those animals with low supplement intake as well as using shifts in the supplement consumption to decide grazing strategies (e.g. moving animals to a fresh paddock). This may help to increase our understanding of factors affecting the intake of free-choice supplements in group fed cattle and improve nutritional management and productivity.

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References

Titgemeyer E, Drouillard C, Greenwood JS and Ringler JW 2004. Journal of Animal Science 82, 487-494.