

Voluntary intake of grass silage by cattle. E Teller, M Vanbelle, P Kamatali (AGRO/BNUT, Université Catholique de Louvain, Place Croix du Sud 2 Bte 8, B-1348, Louvain-la-Neuve, Belgium)

Numerous models have been proposed for the mechanisms involved in the physical control of voluntary forage intake by cattle (Kamatali, 1991). A new theory is discussed on the basis of the results obtained with wilted *versus* direct-cut grass silage.

Six heifers (Exp 1) and 4 lactating dairy cows (20 l milk/day; Exp 2), fitted with ruminal and duodenal cannulae, were fed *ad libitum* with direct-cut or wilted grass silage. In Exp 2, the silages were supplemented with 5.0 and 5.3 kg concentrates, respectively. The experimental techniques have been described by Narasimhalu *et al* (1989) and Teller *et al* (1990).

Wilting of grass augmented its dry matter (DM) content from 18 to 39%. No noticeable effect was found for organic matter degradability in the rumen (mean values: 71 and 64% in experiments 1 and 2, respectively), which was thus not responsible for the increased intake of wilted silage (+ 1.9 kg DM/day). Mean particle size in duodenal digesta ($324 \pm 103 \mu\text{m}$) was far below the critical value for passing through the

reticulo-omasal orifice. Duration of chewing (min/day) and ruminating (min/kg DM intake) was not significantly different between both types of silage.

The results indicate that ruminal digestibility and reduction of particle size by chewing were not the prevailing factors controlling forage intake. Other parameters should be considered, for instance functional density of feed particles in the rumen (Lechner-Doll *et al*, 1991) which is related to the chewing behavior of the animals.

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