

Shredlage or whole-crop maize silage: conservation, digestibility and use in the fattening-bull ration

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A novel technique for harvesting whole-crop maize silage called “shredlage”(SHR) has been developed in the USA. The crop is chopped more coarsely than in the standard method (STD), the stalk is ripped longitudinally and the corn grains are crushed by a cracker roller. The aim of this process is to improve digestibility and nutrient availability for ruminants. Three experiments comparing SHR to STD were implemented: one with the aim of evaluating conservation parameters, a second studying the forage fibrosity and digestibility, and the third assessing the performances of fattening bulls in a feeding experiment. The maize silage was harvested on the same plot field at a theoretical length of cut of 30 mm (SHR) or 10 mm (STD) and ensiled in bales or in a tower silo (STD only).

The proportion of fibres larger than 19 mm in SHR was not as high as announced by the manufacturer (21% vs >25%). The conservation test revealed that the fermentation parameters were similar between STD and SHR. However, the SHR contained more yeasts than the STD, which could be explained by higher temperature increase of SHR silage noticed during a post-fermentation test.

The apparent organic-matter digestibility measured *in vivo* in sheep was not significantly different between the SHR and STD silages (76.3 vs 75.4%), resulting in close nutritional value. In the fattening-bull experiment, the maize silage accounted for 72% of total Dry Matter Intake (DMI). The average DMI (6.97 vs 7.30 kg/d; $P=0.05$) and average daily gain (1.50 vs 1.58 kg/d for SHR and STD, respectively; $P=0.07$) tended to be lower for SHR than for STD diets.

Particularly at the beginning and at the very end of fattening period, the SHR ration was ingested at a lower rate than the STD one. This could be due to a reduced ingestibility linked to the coarse structure for the young animals, and to the higher fill value of the feed at the end of the fattening period. Carcass quality was not significantly different between the two groups. Such results highlight that the potential advantages of the novel SHR technique are reduced and may not impact positively the economic profitability of farm.