

The effect of harvest date on the quality and nutritional value of amaranth silage

Summary

The aim of the experiment was to examine the effect of the harvest time on the quality and nutritional value of amaranth silage. The raw material was harvested on three different days: the 85th day after sowing (seed development), day 105 (dough stage of seeds), and day 125 (full maturity). Silage produced from plants harvested at full seed maturity had the highest content of dry matter, crude fat, fibre and its NDF, ADF and ADL fractions. Silage from plants harvested on the first date had a favourable chemical composition, but the fermentation process was disturbed, as evidenced by the high pH and butyric acid content. The fermentation process in the silage from plants harvested 105 days after sowing can be assessed as good, due to the low pH, high lactic and acetic acid content, and low content of butyric acid. The silage prepared at the first harvest date had the highest energy value (UFL and UFL/kg DW). The silage harvested during the dough stage of seeds had the highest PDI and PDIN values. The results confirm that the date of amaranth harvest affects the chemical composition and nutritional value of silage. The results for the silage prepared from plants harvested in the dough stage indicate that it can be used in the diet of ruminants.

KEY WORDS: amaranth, silage, harvest date, nutritive value