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Evaluation of the Feed Quality of Six Dual Purpose Pearl Millet Varieties and Growth Performance of Sheep Fed their Residues in Niger

Clarisse Umutoni[1], Vincent Bado[1], Anthony M. Whitbread[2], Augustine Ayantunde[3], Ibrahim Abdoussalam[1], Seydou Korombe Hamza[4]

[1] *International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Dryland Systems and Livelihood Diversification, Niger*
[2] *International Crops Research Institute for the Semi-arid Tropics (ICRISAT), India*
[3] *International Livestock Research Institute (ILRI), Burkina Faso*
[4] *University Abdou Moumouni, Niger*

Abstract

Pearl millet (*Pennisetum glaucum* (L.)) is the main staple crop of Niger in the semi-arid region of West Africa. Apart from the use of its grain as a nutritious food for humans, the stover are commonly used to feed ruminants as a basal diet. Historically, crop improvement programs mostly focus on higher grains yields, stover yield, disease resistance and water stress tolerance while crop residue quality is rarely prioritised. Until recently, residue quality (especially digestibility) was not a trait that was screened or selected for the pearl millet improvement programs in West Africa. ICRISAT and its NARES partners have developed many dual-purpose pearl millet varieties as options to produce both food and fodder. This study, funded by the USAID Livestock Systems Innovation Lab, was conducted to assess the residue quality of five dual-purpose varieties, the feed intake and live weight gains of sheep fed these residues compared to a commonly used local landrace. Data were obtained from 36 sheep (live weight of 27±0.3 kg) fed the pearl millet residues and 600 g of cowpea hay per day as a supplement. Sheep were randomly assigned to the six treatments, confined and fed in individual pens per animal. Over 90 days, the animals fed with variety 167005 had higher ($p < 0.05$) final live weight and average daily live weight gain compared with those fed with cvs. 167006, 167111, 167002, chakti and the local landrace. Feed intake was also higher with cv. 167005 and 167006. The study revealed that the different varieties of pearl millet differ in digestibility and nutrient composition which significantly affects the growth performance of the sheep. Two varieties (167005 and 167006) could be recommended as the best dual purpose crops for mixed crop and livestock systems in Niger.

Keywords: Crop residues, digestibility, dual-purpose millet, feed, growth performance, sheep

Contact Address: Clarisse Umutoni, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Dryland Systems and Livelihood Diversification, Niamey, Niger, e-mail: c.umutoni@cgiar.org