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"Resilience of agricultural systems against crises"

Can an Improved Dual Purpose Groundnut Cultivar Increase Milk Production in Crop-Livestock Systems in India?

Thanammal Ravichandran[1], Nils Teufel[1], Michael Blümmel[1], André Markemann[2], Anne Valle Zárate[2]

[1] *International Livestock Research Institute (ILRI), India*

[2] *University of Hohenheim, Dept. of Animal Production in the Tropics and Subtropics, Germany*

Abstract

Groundnut is an important crop in dry areas of South Asia where it is grown for oil production. In addition, it also serves as valuable source of livestock fodder. In Anantapur, one of the poorest districts in southern India, groundnuts occupy 70-80 % of the cropped area. A new groundnut cultivar ICGV 91114, developed by scientists from ICRISAT1 and ILRI2, with superior grain and fodder traits, was introduced to this district in 2003. The present study was designed to capture the impact of this new cultivar on milk production on farm compared to the dominant traditional cultivar TMV 2.

Two participatory feeding trials were conducted with 52 farmers from 4 villages, animals with average milk yield of 2-5 l day^{-1}. First, 17 dairy animals were fed with groundnut fodder harvested in the rainy season (July to November) together other common feeds (rice straw, rice bran, broken rice etc.). The animals were offered one groundnut fodder variety for 10 days and then fed with the other groundnut fodder variety for the following 10 days, keeping the overall feeding regime constant. Subsequently, a similar experiment was conducted with 37 animals and groundnut haulms harvested during the winter season (January to April). Milk yields and feed amounts were recorded daily. Milk composition was analysed locally while feed samples were analysed by Near Infrared Reflectance Spectography at ILRI.

The results show no significant effect on milk yield of groundnut cultivars based on kharif fodder. However, for winter fodder a significant increase in milk yield (400 g) can be attributed to feeding ICGV91114. This is supported by the laboratory analysis which for this season shows higher levels of nitrogen, metabolisable energy and lower lignin and fibre content compared to the traditional cultivar. In contrast, the quality of haulms from both cultivars harvested in the rainy season was poor, possibly because of rain damage. The results highlight the potential of including the nutritional quality of crop residues in crop breeding programmes. However, the results of the present study may not be generalised due to the small scale of the trials.

Keywords: Dual purpose crop, feeding trial, groundnut, mixed farming

Contact Address: Thanammal Ravichandran, International Livestock Research Institute (ILRI), International Livestock Research Institute (ILRI) 904 Aggarwal Corporate Tower Rajendra Place, 110008 New Delhi, India, e-mail: thanamvet_bha@yahoo.com