



Tropentag, September 17-19, 2013, Stuttgart-Hohenheim
“Agricultural development within the rural-urban continuum”

Tiller Removal and Defoliation Prior to Grain Harvest of Pearl Millet in the African Sahelian Zone

ERIC TIELKES¹, DRISSA YOSSI², BOUBACAR CISSÉ²

¹*DITSL Witzenhausen, Germany*

²*Institut d'Economie Rurale (IER), Mali*

Abstract

In order to gain fodder for draught animals, farmers in south-eastern Mali are harvesting pearl millet leaves (*Pennisetum glaucum* (L.) R. Br.) prior to grain harvest. Effects of this practice on grain yield were investigated under field conditions, thereby distinguishing between removal of tillers that up to flowering had not developed visible panicles (R) and partial or complete defoliation of reproductive tillers before the dough stage of the grain (D). The dry matter yield of the removed biomass was measured and at grain harvest the dry matter yield of stems, leaves and panicles and the number of panicles was determined. The forage quality of the removed biomass was also evaluated.

For the local cultivar Souna, treatment R reduced grain yield by 13% and 19% in two successive years. Yield reduction was due to fewer panicles per plant and decreased grain yield per panicle. The latter effect was more pronounced without fertiliser application, which indicates the importance of the vegetative tillers as a source of assimilates for the reproductive tillers. Effects of treatment D on grain yield were related to the number of leaves left on the stem and the growth stage at leaf removal; again, grain yield reduction was due to a smaller grain yield per panicle but in this case was not influenced by fertiliser application.

The fodder obtained through the two treatments was of relatively good quality, supplying maintenance feed for draught oxen. Depending on treatment, feed harvested from one hectare of millet supplied one Tropical Livestock Unit for 44 (D) up to 147 days (R).

Since the need for animal feed in sedentary agro-pastoral farming systems increases, selective removal of tillers and partial defoliation of millet plants offer possibilities for harvesting good quality forage that can be fed to selected animals during shortage periods. Based on the experimental results the appropriate timing for harvesting millet fodder prior to grain harvest should be identified, thereby accounting for the actual climatic conditions *viz.* physiological stage of millet during the growing season.

Keywords: Animal feed, biomass removal, maintenance requirements, *Pennisetum glaucum*, Sahel