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Poster

Evaluation of the possibility for sustainable intensification of pearl millet crop through an increase in sowing density in low input small holders farming system of Senegal

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Pearl millet is a staple food millions inhabitants in the world and particularly important in food security in the Sahel region. In Senegal where it is massively grown, the yield are low and the planting density are considered as very low (around three plants per m²). Results previously obtained in research stations shown a positive response of the crops where the sowing density was doubled, with no particular effect of the varieties tested. These results raised two questions: i) are the varieties already used by the farmers tolerant to such an intensification and ii) is the method adapted to farms reality (rainfed crops, low fertility, etc.). To answer these questions we set up on-farm trials in three locations of the peanut basin in Senegal on a rainfall gradient ranging from 350 to 900mm. In each location, 10 farmers sown their own local pearl millet variety in two different densities (i.e. 3 or 6 plants.m²). The recommended improved variety for the zone was also cultivated in all the fields and in the two different densities. It was asked the farmers to take care of the experimental fields with no differences as they proceed usually. We performed soil sampling to assess the fertility of each field at sowing and harvest, we measured stover and grain yield in the different varieties and density treatment. The results shown a significant increase in both stover and grain yield with an average of 30% increase in yield in the higher density fields. The regions with the lowest rainfall suffered from high mortality due to rain break but the high-density treatment remained a good option in term of yield. Interestingly, the local varieties performed better, no matter of the density treatment nor location. Such results are encouraging to achieve sustainable intensification of pearl millet in the region.

Mots clés : Pearl millet; intensification; density; on-farm trials; Senegal