

# FACT SHEET

## Increased sowing density with appropriate fertilizer

**Innovation Lab (submitting technology): Sustainable Intensification Innovation Lab**

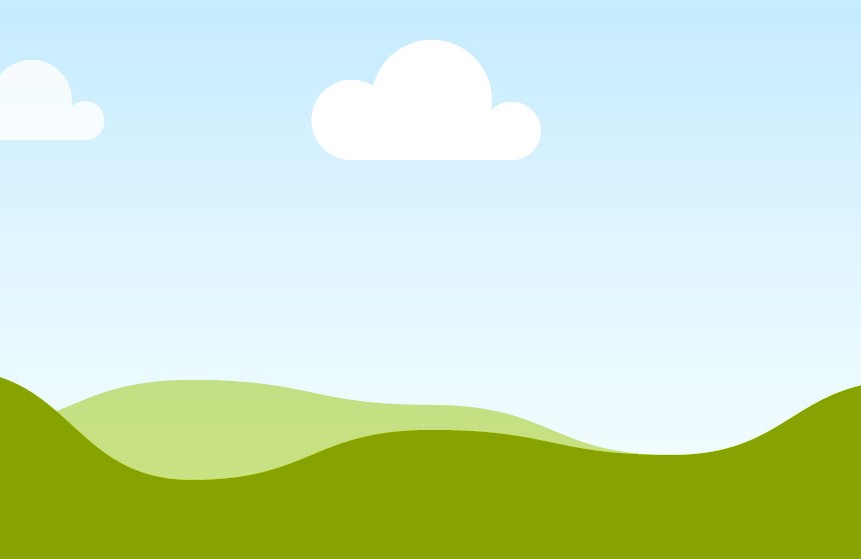
**Author(s): Aliou Faye, Zachary Stewart and Vara Prasad Location: Bambey satellite (Senegal)**

**Submission Group: 1 (Phase of Technology: #4)**

**Brief Description**

Sustainable intensification (SI) of agriculture production is required to address food and nutrition insecurity in West Africa. Significant millet production increase is possible through increasing sowing density (24 692 seed hills ha-1) with appropriate fertilizer application as compared to far-mer practice of 12 346 seed hills ha-1 .with flat fertilizer recommendation. With the country flat recommendation of 150 kg/ha of NPK (68,5- 22,5-22,5) + 100kg/ha urea at flowering, old millet variety (Souna 3) grain yield increase at least by 100% while improved millet variety Thialack 2 yield reach over 150%. These increases are again much better when fertilizer amount is enhanced at NPK 90-13-9.

## Technical Performance/Technical Characteristics



*Increased sowing density with fertilizer Photo credit: Aliou Faye, ISRA*

This technology demonstrated in 3 millet cropping zones of Senegal (Bambey, Nioro, and Sinthiou Malem) during 3 successive years shows that increasing sowing density at 24.692 seed hills ha-1 (0.90m\*0.45m) allows an increase of more than 30% in grain yield and straw yield compared to 12.346 seed hills ha-1 (0.90m\*0.90m). In other words, this allows for more grain yield production without increasing land area, regardless of the millet variety and the location.

## Price to Customers

No information

## Socio-economic Performance/Economic Profitability

Increased sowing density improved grain and fodder yield by 100% to 150%

Increased sowing density improved revenue and the economic profitability compared with the farmer’s practice

Low-cost technology for farmers

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## Increased sowing density with appropriate fertilizer

**Instructional Care of Technology**

Seeding density: 24,692 seed hill ha-1 (0.90m\*0.45m) Seeding period: early July

Soil preparation: Consists primarily of eliminating crop residues that can likely spread diseases and serve as a refuge for pests. In light soils, this cleaning followed by a superficial scarification is often done after the first light rain; this allows elimination of weeds and loosens the surface layer of the soil where the seeds will be sown after the first useful rain. In wetter areas or on heavier soils, ploughing early is recommended to eliminate the first weeds and loosen the soil which is refined by harrowing

Suitable area: All agroecological zones in Senegal

Fertilization: 150 kg/ha of NPK (15-15-15) + 50 kg/ha urea (46% N) at 15-21 days after sowing with an additional 50 kg/ha urea (46% N) at 45 days after sowing

Weeding: Is necessary for growth and allows better infiltration of rainwater, controls young weeds and helps avoid competition for water resources, which are often limited in the Sahelian areas. This first weeding is generally followed by one or two others according to demand, coupled with manual weeding within the row Phytosanitary protection: Phytosanitary protection must be perpetual. In case of attack, adequate treatment must be applied

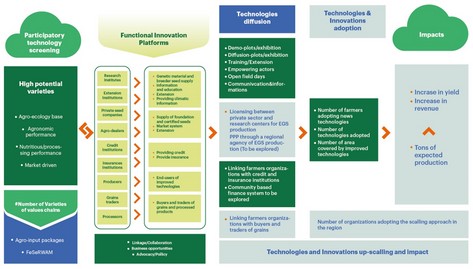
Harvest: Millet panicles and stover should be hand harvested at physiological maturity

## Climate Mitigation Information

No information

## Impact Pathway & Potential Scaling Partners

CORAF Scaling Model as an example; however, if the Innovation Lab has a model already in use, please use that model. Please provide specific names for scaling partners.



## Contact persons:

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