

**Soil analysis and mineral fertilizer blending for increased farm productivity and resilience (Micro-nutrient enriched formulas procurement by SHFs)**





# 1. Pioneer partnership

Increasing farm productivity, soil analysis, and fertilizer blending was promoted in the sorghum pilot partnership with Nestle Nigeria in Northwest Nigeria (from 2016-2018) and cassava partnership with Pсалtry International implemented in Oyo state (from 2012-2018). The practice of introducing crop specific fertilizers became necessary after realizing that the target crops of sorghum and cassava; despite applying all the best practices were still not reaching their optimum average productivity. Soil nutrient deficiency was suspected, and the commercially available fertilizers were not specific to any crop, hence may not provide the complete nutrients.

The overall ambition of the practice is to improve crop productivity by adding the right quantity of micro-nutrients into a formulation containing the primary nutrients required by sorghum and cassava. This practices for sorghum were introduced in Kano, Kaduna, Katsina, and Jigawa state. In the cassava partnership, the target state was Oyo where the PPP was implemented.



More value for farmers: micro-nutrient enriched formulas greatly enhanced production

## 2. Replicable practice

To summarize, this practice is addressing constraints in terms of micro-nutrient deficiency to boost sorghum and cassava productivity at farm level. Soil analysis was conducted using soil samples collected in the cluster areas where these partnerships were implemented, and crop specific fertilizers formulated based on the analysis results. The major micro-nutrients deficient in the target areas include Zinc, Boron and sulphur for Sorghum and sulphur and Magnesium for cassava. Two fertilizer blends were produced/ introduced for cassava and one blend for sorghum:

1. A blend containing Nitrogen, Phosphorus, Potassium, Sulphur, Zinc and Boron (N-P-K-S-Zn-B 17: 17:17:2.5:0.8:1) for sorghum production in the Sahel region at a rate of 150kg per Ha.
2. Two blends containing Nitrogen, Phosphorus, Potassium, Sulphur and another containing Nitrogen, Nitrogen, Phosphorus, Potassium, MgO supplied at the rate of 350-400kg per Ha.

In summary, this practice is addressing constraints in terms of:

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| Inclusion | <ul style="list-style-type: none"><li>• <b>Risks:</b> These new blends and farmers investing in them guarantees that farmers will achieve the full yield potential of the commodity planted. In the period of glut when prices fall, the improved productivity will help cushion the impact on farmers using this fertilizer in addition to other improved practices.</li><li>• <b>Rewards:</b> Farmers productivity for sorghum and cassava improved by more than 50%. Fertilizer blenders added new products to the products they offer.</li></ul> |
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# 3. Preconditions for replication

The following conditions are necessary for this replication practice to succeed:

1. Commercial capacity to produce the fertilizers by linking with local blenders interested in the business idea of releasing new blends must exist. Usually, the first batch of the blend produced is expensive because it is not common and blenders have to deal with slow adoption rate before the prices become affordable.
2. Availability and affordability of the raw materials needed for the development of the new blend must be confirmed. Where raw material is too expensive or not available, alternatives should be sourced to ensure the new blend is easy to reproduce and cost effective for farmers to adopt.
3. The impact of the blend must provide economic benefits at farm level for farmers to adopt this new blend by investing in it. In this case the fertilizer blends pushed productivity by about 50-100%. Soil analysis of the area must also be conducted before the blends are formulated, tested, and recommended to farmers.
4. Low productivity of the crop must be connected to soil nutrient deficiency so that the blend must show economic benefits to adopting farmers. It must be confirmed that the low productivity is not due to lack of application of other good agronomic practices. Nutrient deficiency should be the culprit before replicating this practice.

# 4. Results Achieved

The following results were achieved after this practice was introduced:

- 1. The farmers increased their productivity by more than 50% which also had a positive impact on their income.
- 2. These innovative and eco-efficient fertilizer blends became a new business line for two fertilizer blenders in Nigeria including Notore and Agtho fertilizer Merchant.

# Want to know more?

To know more about this practice, please reach out to Otitoju Oluwatoyin Modupe, [motitoju@2scale.org](mailto:motitoju@2scale.org) 2SCALE Cassava Partnership Facilitator or Johnpaul Chime [jchime@2scale.org](mailto:jchime@2scale.org) Sorghum Partnership Facilitator in Nigeria.



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