

Decision Support Tools for Fertilizer Recommendation

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There is an increasing evidence that crop yield is not proportionally increasing despite huge investments in fertilizers and other inputs in Ethiopia;

1. Limited response to Nitrogen and Phosphorus application could be largely due to critical deficiencies of micro and secondary nutrients;
2. ATA and Ministry of Agriculture developed a national fertilizer blending program in 2013, a shift from DAP and Urea blended fertilizers;
3. ICRISAT and AfricaRISING project have been doing validation and further refinement of blended fertilizer recommendations in the Wheat-based Cropping systems of the country, on about 240 farms.
4. Landscape position and slope dictated crop response to fertilizers that soil types and application rates



Fig 1. Degraded, limited response to K

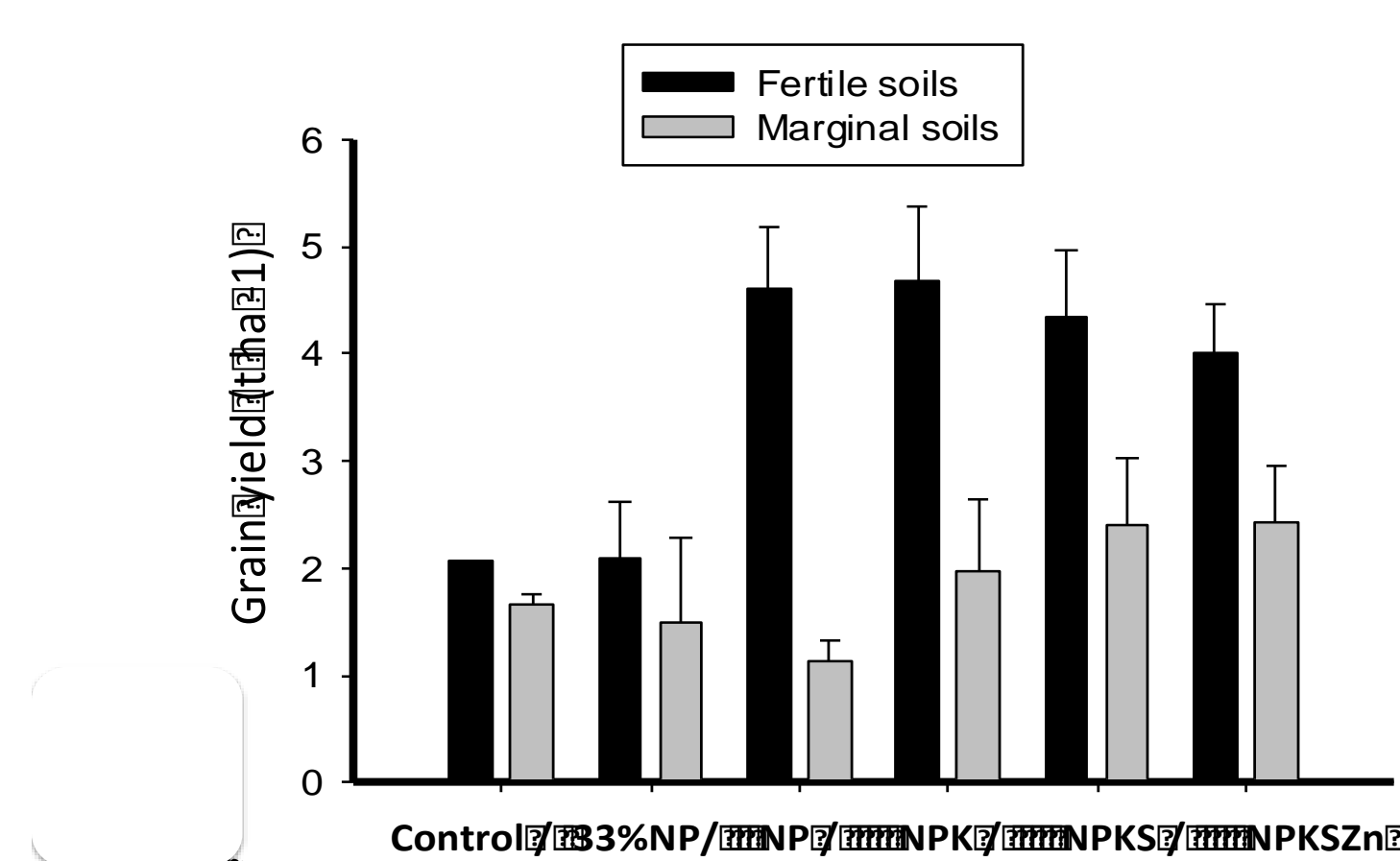


Fig 2. Responsive soils to NPK

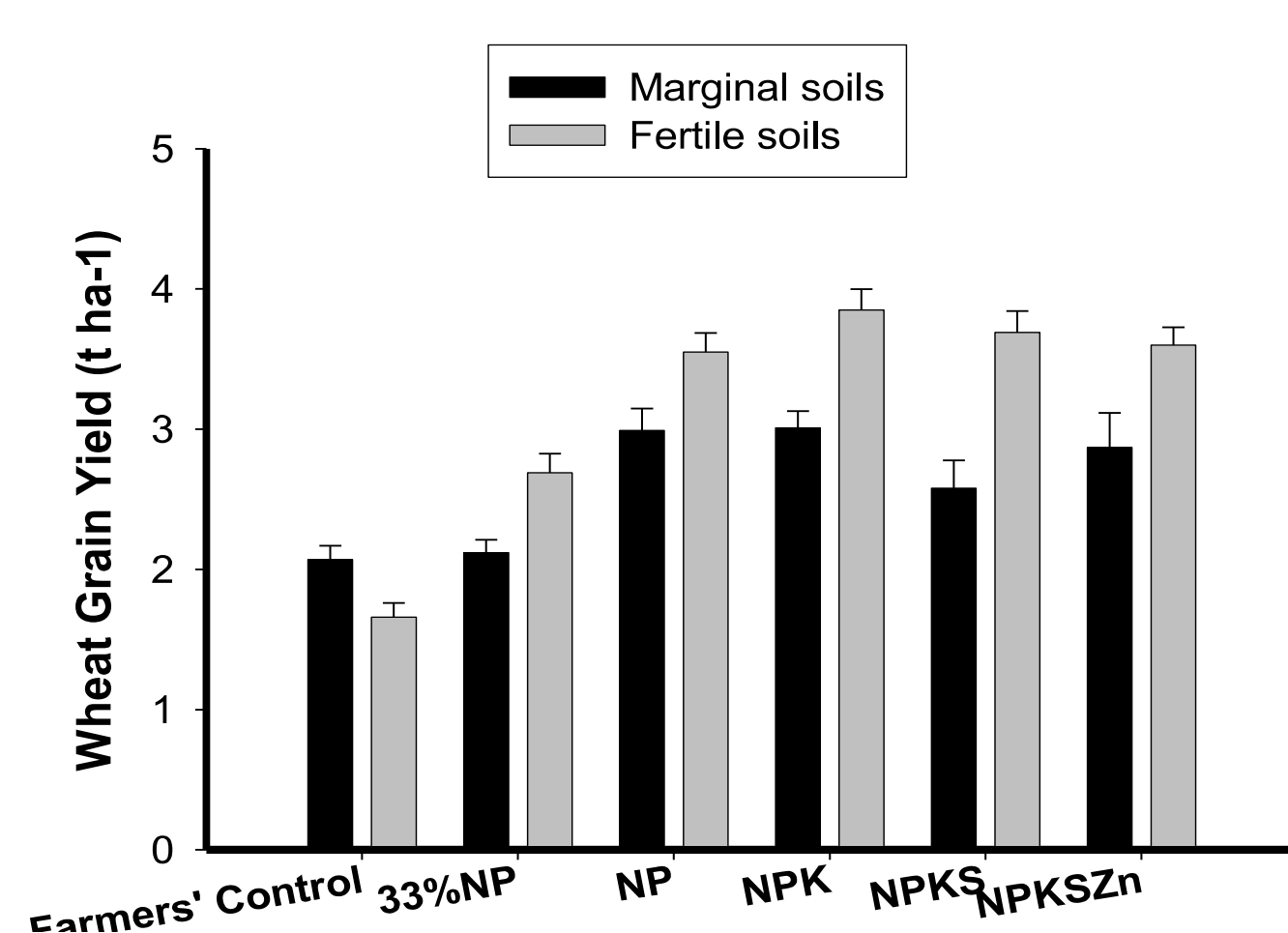


Fig 3. Fertile, valley bottoms, No response to NPKSzn

Crop response to fertilizer blends, Mehoni



Wheat response to fertilizer blends, Lemu



How would this continue in Phase II

- Synthesize existing but scattered research results on fertilizer trials and recommendations at national level;
- Together with the national research system, employing country-level strategy, including common research protocol in fine-tuning fertilizer recommendation;
- Conducting gap-filling fertilizer blend research in other major cropping systems;
- Establishing and facilitating a national taskforce to guide research priorities and assemble good practices;
- Developing and institutionalizing a functional Decision Support System for fertilizer applications in each production system country-wide

Implications of the research outputs for generating development outcomes

- Reducing cost of inputs, increasing profitability of farmers;
- Improving production efficiency, with targeted fertilizer applications
- Enabling development agents and development partners to provide evidence-based recommendations to farmers;
- Rethinking of policy makers and lead institution towards evidence-based fertilizer blends and recommendations;
- Creating confidence of traders and farmers
- Increasing system productivity through judicious use of fertilizers and other inputs;
- Towards selected and targeted import of fertilizers



5. There was strong crop response to application of Nitrogen and Phosphorus, with positive response to Potassium particularly in degraded soils and Nitosols
6. Response to Sulfur limited to pocket areas. However, application of Sulfur and Zinc has significantly improved grain quality (Calcium content 200% and Zinc 35%)
7. Need to undertake a landscape-based crop fertilizer responses in Maize-based, Teff-based, Barley-based, Sorghum-based and Enset-Coffee-based systems

Current partnerships and future engagements for scaling

- Local level bureau of agriculture and natural resources in the selected districts;
- EIAR and other National and Regional Research institutes dwelling on fertilizer issues;
- The Agricultural Transformation Agency and the Ministries, which are target institutions for influence
- Farmers' Organizations and Cooperatives;
- Policy makers, particularly those interested in Agriculture and transformation and productivity of Agricultural systems
- Potential investors in soil, environment and systems (GiZ, USAID, DFID, IRISHAid etc.

Core partners



We thank farmers and local partners in Africa RISING sites for their support