

RESEARCH WITH IMPACT

THE CHALLENGE:

Cassava is a staple food in many tropical countries, often only following rice and maize in importance. Cassava is widely grown because it does well on low fertility soils and can adapt to occasional drought. The ability to survive under challenging conditions makes it a particularly important crop for poorer communities. Current yields are usually well below their potential because cassava is typically grown on degraded soils that do not receive fertilizer. Cassava's rising demand for use as food, animal feed, and industrial purposes encourages farmers to increase production. Improved fertilizer practices are necessary to provide cassava with nutrients needed to produce higher yields, increase farmers' income, and reverse soil degradation.



Improving Cassava Yield and Profitability in the Philippines

THE RESULTS:

Response to Fertilizer

Cassava yields were greatly increased by fertilizer application when growing in low-fertility soils. The national average root yield in the Philippines is only 12.5 tonnes (t)/ha. In these 78 field trials, average fresh root yield was 22 t/ha in unfertilized fields. Application of recommended amounts of fertilizer increased yields to 38 t/ha. Yields reached as high as 98 t/ha in one location, showing the potential for further yield increases given proper growing conditions.

After only 1 to 2 years of cassava fertilization, the average yield increase attributed to individual fertilizer nutrient application was 30% for N, 20% for P, and 17% for K.

Profitability

Compared with the current national recommendation and farmers' typical practice for cassava fertilization, applying 4R principles increased the yield and profitability across 44 trials. Root yields were increased by 25% and gross profit increased by 18% after implementing 4R-based practices, compared with the national recommendation. Yields (37%) and profits (24%) were increased even further compared with current farmer practice.

Balanced application of nutrients helps improve cassava yield and the income of farmers in rural communities across the Philippines.

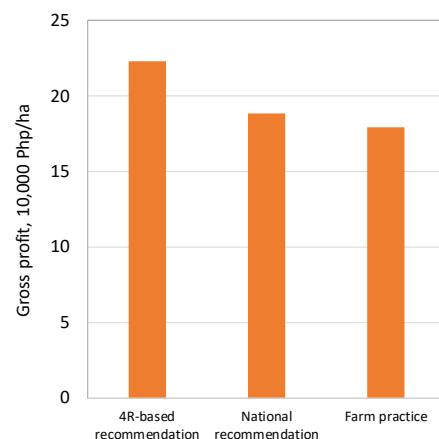
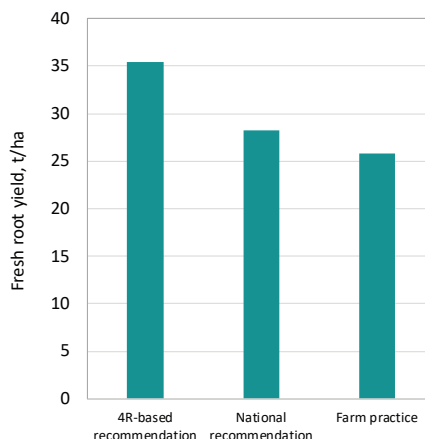


Research sites of the IPNI studies on cassava fertilization in the Philippines.

THE RESEARCH SOLUTION:



IPNI designed multiple research and demonstration projects to document 4R nutrient management practices for cassava. In partnership with the University of the Philippines and the Philippine Department of Agriculture, 32 research sites were studied to measure the response of cassava to combinations of nitrogen (N), phosphorus (P), and potassium (K) fertilizers. 4R Nutrient Stewardship was introduced to farmers growing small fields of cassava.



Cassava yields and farmer profitability are increased when 4R principles of balanced nutrition are adopted, compared with the national recommendation and farmer practice. US\$1 = 54 Philippine Peso (Php)



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