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N2Africa: Putting nitrogen fixation to work for smallholder farmers growing legume crops in Africa



N2Africa is a large scale, science-based “development-to-research” project focused on putting nitrogen fixation to work for smallholder farmers growing legume crops in Africa (Giller et al., 2013). The project is implemented in 11 countries: Ghana, Nigeria, Tanzania, Uganda, Ethiopia, DR Congo, Malawi, Rwanda, Mozambique, Kenya and Zimbabwe. Our vision of success is to build sustainable, long-term partnerships to enable African smallholder farmers to benefit from symbiotic N₂-fixation by grain legumes through effective production technologies, including inoculants and fertilizers.

Grain legumes constitute the major source of protein in the diets of the poor in most parts of sub-Saharan Africa and provide important micronutrients and vitamins in comparison with maize (De Jager, 2013). Legumes are largely grown by women as food crops and are used within the family. In addition, legumes serve as cash crops. Groundnut and soybean for example are major sources of edible oil. Legumes are an important pathway for sustainable intensification of agriculture and contribute to the diversification of farming systems. The ability to fix atmospheric nitrogen provides residual nitrogen and reduces the need for mineral nitrogen fertilizers on subsequent cereal crops.

To enhance yields and increase the benefits from nitrogen fixation by grain legumes, in N2Africa we select and test good potential legume genotypes, identify the best matching rhizobia strains and optimize the management of legume fields. Our approach is to identify the best legume production technologies and disseminate them to large numbers of farmers. Through our monitoring & evaluation framework we assess these technologies together with farmers. Observations are analysed and fed-back in the subsequent season to improve the performance of technologies, allowing us to tailor and adapt legume technologies to specific sites and specific farmers (Franke et al., 2014; Ronner et al., 2016). Through such feedback loops we develop a ‘basket of options’ with relevant legume technologies for each project area, including opportunities for increased food security and improved (child) nutrition for subsistence farmers, and income generation for farmers producing for the market.

Because adoption of new technologies goes hand in hand with input and output markets, N2Africa engages with the private sector to ensure a stable supply of agricultural inputs such as seed, fertilizer and inoculant, and by linking farmers to output markets and adding value to legume produce. By working through national systems, by training of all key stakeholders from farmers to traders, development workers in extension and NGOs, and by educating MSc and PhD candidates in each country, we build capacity to sustain an independent and continuous improvement of legume production technologies in the future.



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References used in text:

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