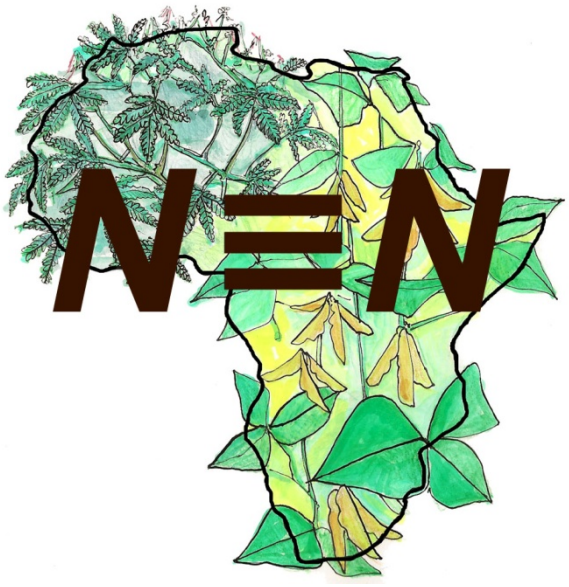

Production of seed for local distribution by farming communities engaged in the project

Milestone 4.3.2

Anne Turner

Submission date: 10 October 2011

N2Africa

Putting nitrogen fixation to work for smallholder farmers in Africa

N2Africa is a project funded by The Bill & Melinda Gates Foundation by a grant to Plant Production Systems, Wageningen University who lead the project together with CIAT-TSBF, IITA and many partners in the Democratic Republic of Congo, Ghana, Kenya, Malawi, Mozambique, Nigeria, Rwanda and Zimbabwe.

Email: n2africa.office@wur.nl
Internet: www.N2Africa.org

Author of this report and contact details

Name: Anne Turner
Address: IITA-Malawi, PO Box 30258, Lilongwe 3 Malawi
E-mail: a.turner@cgiar.org

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Milestone 4.3.2: By month 6 of year 2, at least half of the farming communities engaged in the project are actively producing seed for local distribution.

1 Background

In the proposal for the N2Africa project, it was envisaged that households which received introductory packages of Biological Nitrogen Fixation (BNF) technologies, which included seed of improved legume varieties, would use same to produce both seed and grain of one of the four project legume crops which would be used for household evaluation and up-scaling the following year. Some of this seed was expected to be supplied to new beneficiaries in Year 2 and community-based seed production thus initiated, with project specialists providing support for seed handling, treatment and packaging procedures. [1] As elaborated below, some project countries were more successful than others in achieving the target of "at least half the farming communities" engaged in the project becoming involved in seed for local distribution 18 months after the project began operations. Delays in finalizing agreements with partners in most countries resulted in (amongst other outcomes) lack of time to adequately discuss and plan how to implement a seed repayment strategy with participating partners and farmers. Although the general principle of "two for one" wherein for each kilogram of seed a farmer received, s/he is to give back 2 kg of seed to the community for distribution to new farmers in the subsequent season was supposed to be followed in all eight countries, this was often not the case. In some instances, this message was not adequately conveyed to the participating farmers, in others, low yields/crop failures arising from drought/flood, animal damage, pest and disease outbreaks as well as late planting and other crop management factors resulted in farmers either not being willing to part with the expected amount of seed, or unable to harvest sufficient seed to participate in the repayment plan. In some instances, the farmers were reluctant to give back seed either because they were so pleased with the performance of the new variety that they wished to hold onto all their harvest so as to expand production the following season, or the market for the crop/variety in question was so favourable that farmers could not resist selling most or all of their harvest. Additionally, in some countries/areas, farmers were accustomed to receiving large hand-outs from donor-supported projects, and considered the "small" amount of seed provided by N2Africa to be insignificant and not worthy of justifying repayment of any seed.

Some countries/partners, however, did achieve good results with respect to producing seed which enabled the participating communities to significantly expand production of the improved legume varieties. Paying farmers for the seed rather than expecting them to "return" it to the partnering organization/community was a more successful approach to building up local seed supplies, as is to be expected. Partners who ensured farmers knew of the two-for-one repayment from the start, and/or who had existing community based seed production strategies achieved larger volumes of repaid seed. Conditions favourable to good crop growth and high yields also helped to increase farmers' willingness to part with more of their harvested seed.

[1] Wageningen University, 2009. Grant Proposal for *Putting Nitrogen Fixation to Work for Smallholder Farmers in Africa.*

2 Results of community seed production by month 18 in each N2Africa country

2.1 Rwanda

With its long tradition of strong agricultural cooperatives, it is perhaps not surprising that establishing community based seed multiplication in the N2Africa areas of intervention in Rwanda was relatively successful when crop growing conditions were good, with the exception of resource poor farmers[2]. By month 18, at each of the 12 project action sites farmer groups were multiplying best varieties selected from the previous year's agronomic trials on soybean, bush bean, and climbing bean for local distribution in next season (2011/12A). Each action site dedicated at least 0.5ha of the field (used for agronomic trials) for seed multiplication, and sufficient bean seed was produced in these community based seed multiplication programs to supply all seed requirements for the 2011/12A dissemination activities. Rwandan partners contributed to this success by helping farmers to improve crop productivity, an important strategy given the scarcity of land in the country.

2.2 DRC

In the DRC, community seed multiplication is somewhat hindered by the very small number of partners available (three only), and at times limited land, especially during the second rainy season (Season B) when land planted to legume-cassava intercrops in the first rainy season is fully occupied by the cassava by the time of the Season B. The partners designate land which is dedicated to seed multiplication with labor provided by households which benefitted from project assistance in previous seasons. The N2Africa DRC team plans, in collaboration with the IFAD funded CIAT Integrated Soil Fertility Management (ISFM) project, to increase community seed production during the 2011/12 A Season through a total of 2 ha being dedicated to seed multiplication by the farmers working with the three partners.

2.3 Kenya

N2Africa's activities in Western Kenya have been well planned an organized since the beginning of project operations. By month 18, ten of the 23 project partners were reported to be entirely self-sufficient in seed, and three sold a total of 1930 kg back to the project for distribution to new partners in the southern, central and northern areas of Western Kenya. Plans were already underway for distribution of a Seed Collection Point dissemination tool to improve quality and quantity of seed produced, packaged and collected for the following rainy season (Short Rains 2011-12).

2.4 Malawi

Harvesting of crops from the first season had not been completed by month 18 of the project, however there were already indications by this time that community seed production was going to achieve significant success with only one partner, primarily because the others had not conveyed the "two for one" seed repayment principle clearly from the start of activities. Blame for this should not be attributed entirely to these partners, as they were hindered by the very late start-up of N2Africa dissemination activities in Malawi's first year. The one partner who was largely successful in achieving seed repayment had established strong working relations with government extension agents from several years of collaborative activities. Thus their staff ensured that farmers, through extension agents, were properly informed about what was expected of them from N2Africa dissemination activities. The issue of seed repayment was introduced to farmers at the very beginning, when the collaborative

[2] Reckling, 2011.

agreement was signed with participating farmers. The partner maintained regular dialogue with the farmers, via the extension agents, and thus ensured that most of the farmer groups adhered to the seed repayment agreement. Lessons learned from the success of this partner will be applied in the next season of dissemination activities to try to boost community legume seed multiplication in Malawi, including through collaboration with the IFAD funded CIAT ISFM project which will provide inputs (legume seed, inoculants and fertilizer) to over 1100 first year N2Africa farmers. There are indications that the high price and demand for soybean in the southern Africa region may result in many farmers opting to sell all the seed they harvest of this crop to traders, rather than to invest it into community seed banks; efforts will be made to link soybean (as well as other legume crop) farmers with private seed companies in order establish sustainable seed output market linkages, in addition to encouraging all to respect the two for one seed repayment to their communities.

2.5 **Mozambique**

In the first year of N2Africa dissemination activities in Mozambique, the project worked exclusively with one partner, namely the international NGO Technoserve, and through them with another international NGO (CLUSA) and a Mozambique farmer-owned company, Ikuru. Technoserve (together with CLUSA) had been disseminating soybean production under a separate project since the 2009/10 growing season in Mozambique, and had an existing soybean seed multiplication initiative which linked medium-sized farmers/farmer groups with buyers such as IKURU. None of the N2Africa demonstrations implemented under Technoserve's direction in 2010/11 involved community-type seed multiplication activities, however in response to the very high demand for soybean seed in Mozambique and the entire southern Africa region, N2Africa dissemination trials in 2011/12 will seek ways to link participating farmers with seed suppliers. Given the large distances between communities and the lack of infrastructure at the village level where N2Africa works in northern Mozambique, this is likely to be a more workable approach than establishment of community based seed systems.

2.6 **Zimbabwe**

Dissemination activities in the first year of operations in Zimbabwe suffered some delays, similar to the situation in Malawi, and additionally were hindered by the lack of a Farm Liaison Officer on board the project until the growing season was close to ending. The message to farmers that they were to use the seed as a "starter pack" to increase the area planted to the improved legume varieties was not clearly conveyed to all participating farmers in the first season. As a result, little seed was recovered from the farmers, with the exception of a few areas, where farmers did save seed and turn it over to the Lead Farmers with whom they were affiliated. The N2Africa Zimbabwe team will make strong efforts to encourage farmers to return 2 kg of seed for each 1 kg they receive next season, and also supply some of the first year farmers with inputs to promote seed multiplication in the second year. Additionally, there will be promotion of legume seed production in collaboration with the IFAD funded CIAT ISFM project, as is to occur in DRC and Malawi.

2.7 **Ghana**

From the first N2Africa growing season in Ghana (2010), very little (ca. 1%) seed was recovered. The agricultural extension agents working with the project apparently did not follow through with the seed repayment, in part because the importance of doing so had not been strongly emphasized in the communications conveyed to them. Plans were therefore drawn up during the March 2011 planning meeting to engage first year N2Africa farmers to undertake seed multiplication on 0.2 – 0.4 ha plots, in some instances with technical assistance from private seed companies on seed production, harvesting and post harvest handling.

2.8 Nigeria

Similar to what occurred in Ghana, seed multiplication and recovery in the first season of N2Africa activities in Nigeria was not very successful. This was attributed in part to poor conveyance plus the cumbersome and time-consuming nature of the two for one repayment strategy to extension agents working with participating farmers. It was also found that extension agents in some areas were less diligent than others in following through with the seed repayment (e.g. Kaduna State, where extension agents are more experienced and better trained accomplished more community seed multiplication than other areas). Plans were subsequently made for first year farmers to cultivate 0.4 ha of improved legume crops in the second season, and for some of these farmers to be organized for community based seed production.

3 Summary of Challenges

3.1 Repayment strategy and plans for seed storage need to be clearly conveyed to farmers from the start

In a great number of the N2Africa countries, seed repayment/community seed multiplication was much lower than planned in the first season of activities because the message along with the importance of achieving the two for one goal was not clearly conveyed to extension agents and/or participating farmers. Ensuring that project partners, extension staff and participating farmers are aware of their obligation to repay the legume seed which is given as a **loan** rather than a "one-off hand-out" at the beginning of the season as well periodically reminding all, together with monitoring crop production throughout the growing season could help to mitigate this problem. Plans also need to be in place for seed collection and storage under conditions which will prevent insect infestation and other factors which result in deterioration of seed quality. Kenya has already produced a dissemination tool on seed collection, grading and storage (mentioned above) which will be deployed in the 2011/12 Short Rains. Instructions for good seed grading and storage techniques are being disseminated in the "simplified" version of Lead Farmer Guidelines being tested in southern Africa during the 2011/12 season, and if successful should be disseminated in all project countries.

3.2 Measures to mitigate against sales/other uses of all seed harvested.

In several N2Africa countries, farmers were reluctant to repay the seed loan in the first season of activities because of high market prices for seed, low yields, perception that the amount loaned was too small to scale up production the following season, etc. Monitoring of crop production by partners and extension agents throughout the season should help the project to predict where yields will be low as well as where there may be bumper harvests. In cases of poor yields, the repayment terms may have to be modified (e.g. one for one rather than two for one). When prices for certain crops (e.g. soybean in southern Africa) are high, linking participating farmers to good output markets (i.e. which offer fair prices and reasonable conditions of purchase) might encourage them to participate in formal markets rather than farm-gate traders and respect the repayment agreement. This will need to be accompanied by training on proper seed production, grading and storage as well as development of farmers' business skills (e.g. calculation of their production costs to estimate whether the price offered is fair). In many countries, seed certification bodies will need to visit the seed multiplication fields during the growing season to ensure quality control measures are in place and respected.

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1. N2Africa Steering Committee Terms of Reference
2. Policy on advanced training grants
3. Rhizobia Strain Isolation and Characterisation Protocol
4. Detailed country-by-country access plan for P and other agro-minerals
5. Workshop Report: Training of Master Trainers on Legume and Inoculant Technologies (Kisumu Hotel, Kisumu, Kenya-24-28 May 2010)
6. Plans for interaction with the Tropical Legumes II project (TLII) and for seed increase on a country-by-country basis
7. Implementation Plan for collaboration between N2Africa and the Soil Health and Market Access Programs of the Alliance for a Green Revolution in Africa (AGRA) plan
8. General approaches and country specific dissemination plans
9. Selected soybeans, common beans, cowpeas and groundnuts varieties with proven high BNF potential and sufficient seed availability in target impact zones of N2Africa Project
10. Project launch and workshop report
11. Advancing technical skills in rhizobiology: training report
12. Characterisation of the impact zones and mandate areas in the N2Africa project
13. Production and use of Rhizobial inoculants in Africa
18. Adaptive research in N2Africa impact zones: Principles, guidelines and implemented research campaigns
19. Quality assurance (QA) protocols based on African capacities and international existing standards developed
20. Collection and maintenance of elite rhizobial strains
21. MSc and PhD status report
22. Production of seed for local distribution by farming communities engaged in the project

Partners involved in the N2Africa project

Caritas Rwanda

Diobass

Eglise Presbéterienne Rwanda

Resource Projects-Kenya

Université Catholique de Bukavu

University of Zimbabwe