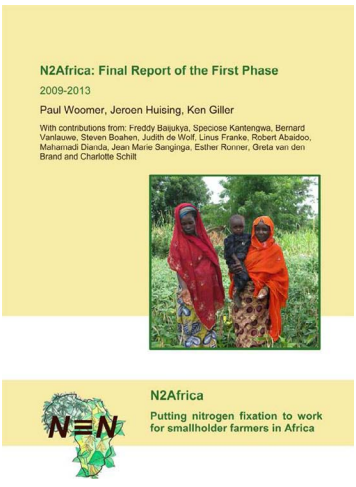
N2Africa Podcaster no. 26

May and June 2014

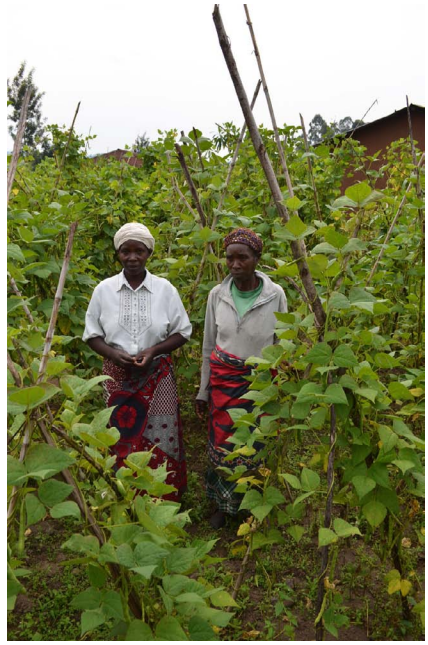
Introduction

We welcome Theresa Ampadu-Boakye to N2Africa as monitoring and evaluation specialist – and I'm pleased to report that we now have a full complement of staff across the project. Together with the addition of Jeff Ehlers, who leads the Small Grains & Legumes Crop Team within the Bill & Melinda Gates Foundation, to support Charlene McKoin in an oversight role for N2Africa this puts us in great shape for the forthcoming challenges of delivering on the ambition of N2Africa. At the same time this means that Vi Shukla of the foundation will have less of a direct role in N2Africa. We thank Vi for her help in getting the second phase of N2Africa off the ground, and I'm sure we'll find ways of interacting in future.

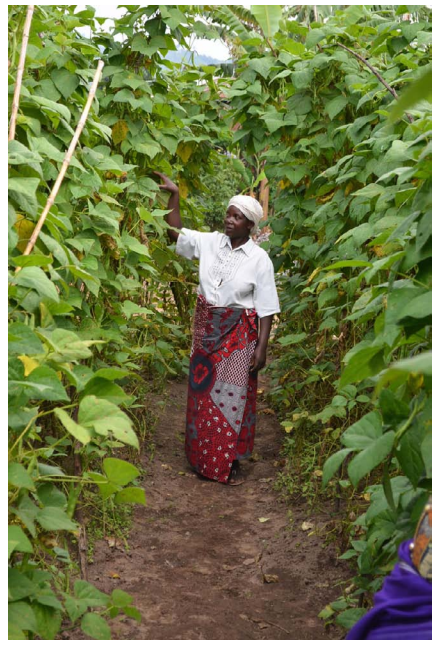
The past two months have been an exciting time for N2Africa and we have a lot to report. N2Africa was awarded the "Harvesting Nutrition" prize of the of the SecureNutrition Knowledge Platform's 2013. At the request of the Governor of Borno State, Nigeria and the Bill & Melinda Gates Foundation, activities of N2Africa have been expanded to include a new target area, which is a great endorsement of our approach. We have been working on a series of Master Plans to ensure coherence in our approaches across all the countries and target areas, and Andy Farrow of GeAgrofía has produced reports for Ethiopia, Tanzania and Uganda on how we can best target N2Africa activities. The final report of the first phase of N2Africa has been published and can be downloaded from the N2Africa website, as can the report on the first 6 months of the second phase. We have lots of new extension materials have been produced together with the African Soil Health Consortium, Nodumax is starting to produce inoculants in Nigeria and activities are in full swing in all of the countries.



I'm writing this introduction from a 'double' conference – the 6th International Food Legumes Research Conference and the 7th International Conference of Legume Genetics and Genomics in Saskatoon, Canada. I presented an invited keynote on behalf of N2Africa and Endalkachew Wolde-Meskel gave a great paper combining his earlier work on rhizobial diversity in Ethiopia and how this feeds into new N2Africa activities. The Legumes CGIAR Research Programme (to which N2Africa and the Tropical Legumes II project contribute) is very well represented with some exciting developments in grain legume varieties and seed systems. Endalkachew and I had lots of interesting discussions – and there are lots of new research areas we will form concrete collaboration.



No manure used



With manure and P fertilizer

I had the pleasure of visiting field activities in northern Rwanda together with Edouard Ruranga of the Rwandan Agriculture Board (RAB) and Jacques Hakizimana of Development Rural Durable (DRD). The climbing bean varieties developed and disseminated through the Pan African Bean Research Alliance (PABRA) are truly stunning, but only able to demonstrate their full potential when grown with manure and P fertilizer (see photos). I was privileged to be shown around some of Edouard's trials by Mrs Gasilida after whom one of the best climbing bean varieties was named!

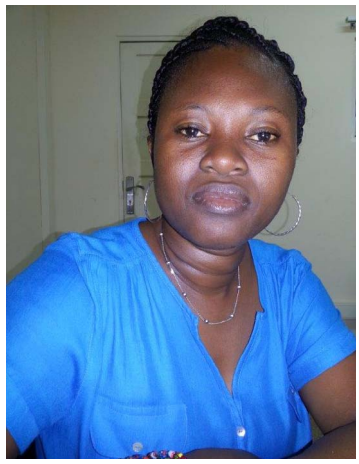
On a more somber note, we received the very sad news that George Kivandah, the Chairman of the Kenya Soyabean Farmers Association (KESOFA) passed away suddenly. Rev. Kivandah had been a great supporter of N2Africa and had attended many of our meetings – his vision, energy and leadership will be sorely missed and we extend our condolences to his family and close friends and colleagues.

Ken Giller

Obituary Rev. George Kivandah

We received a message from Kenya Soyabeans Farmers' Association (KESOFA): To their and our regret they had to announce that their Chairman Rev. Kivandah has passed away on May 3rd because of a stroke. He was great with KESOFA and he will be missed. KESOFA staffs will succeed his will and continue endeavouring to expand the organisation and community.

New Monitoring & Evaluation coordinator



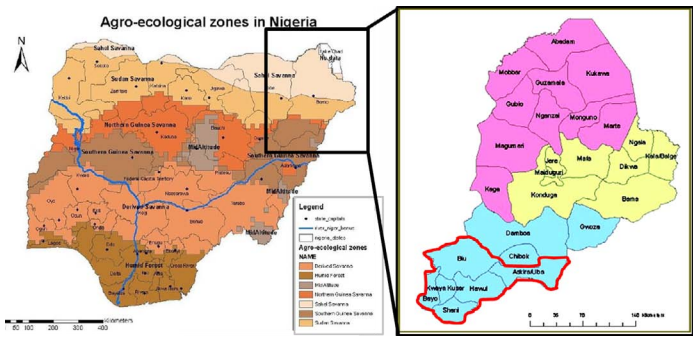
Theresa Ampadu-Boakye (Mrs) is the Monitoring and Evaluation Specialist for N2Africa. Prior to her appointment, she had worked as the Regional Monitoring and Evaluation Specialist for Towards Sustainable Clusters in Agribusiness Through Learning in Entrepreneurship (2SCALE) Project implemented by the International Fertilizer Development Centre (IFDC) for the North and West Africa Division where she developed and implemented a web based monitoring and evaluation system and an accompanying Project Monitoring and Evaluation Plan (PMEP) for the project. She had also worked for eight years with the German Development Cooperation (GIZ) funded Market Oriented Agriculture Programme (MOAP) as a Technical Advisor and subsequently as Senior Technical Advisor responsible for monitoring and evaluation and organizational development.

Theresa is a product of the Kwame Nkrumah University of Science and Technology and has degrees in Social Sciences (Economics & Geography) and Development Planning and Management (SPRING Programme) jointly awarded by the University of Dortmund and KNUST. She also holds certificates in Value Chain Development using the Value Links methodology from the International Development Consultants (IDC) in collaboration with GTZ, Oestrich Winkel, Germany. Theresa brings to the N2Africa team, close to a decade of experience in project monitoring and evaluation and a breadth of expertise working across several countries in Western and Eastern Africa including Ghana, Nigeria, Benin, Mali, Burkina Faso, Kenya, Ethiopia and Uganda.

N2Africa ventures into Borno State, Nigeria

Published before on N2Africa Facebook, July 7, 2014

N2Africa has been granted an extra US$5 million supplementary grant from the Bill & Melinda Gates Foundation to expand its activities to Borno State, North-Eastern Nigeria. The request that N2Africa start activities in Borno came from the State Governor, another signal that the N2Africa story is reaching its potential clients! This initiative is aligned to a polio vaccination campaign, supported by the foundation, and will operate in a set of Local Government Areas in the south of the State, where security is less problematic (see map). Interestingly, this part of Borno State is a major producer of groundnut and cowpea, even nowadays when the only news one gets from that part of Nigeria is usually quite depressing. This new project has adapted the overall N2Africa Results Framework but adapted this to the situation in Borno State where most of the activities will be led by partners, already operating in the region, and where activities that require direct engagement from NARS and IITA scientists will be limited. One new component has been added to the project 'Providing opportunities for youth to engage in agri-business (input supply, value addition, etc)'. Experiences gained with such initiatives in the West of Nigeria will be transferred to Borno State where this theme is very relevant, especially in view of the vulnerability of unemployed young people to join in terrorist activities.



N2Africa will build sustainable, long-term partnerships to enable African smallholder farmers in Borno State to benefit from symbiotic N_2-fixation by grain legumes through effective production technologies including inoculants and fertilizers. Activities will focus on cowpea, groundnut and soybean. Within four years, building on local expertise, legume production will be enhanced in the target areas of Borno State, providing opportunities for the poor and addressing gender disparities. New value chains will be established and the food and nutritional security of the poor will be enhanced. N2Africa will reach more than 40,000 farming families and increase biological nitrogen fixation and productivity of grain legumes contributing to enhanced soil fertility, improved household nutrition and increased cash income. N2Africa will also provide job opportunities in agri-business for at least 200 youth living in the target area.

Bernard Vanlauwe

N2Africa wins top prize in the Harvesting Nutrition Contest

N2Africa was one of three winners of the SecureNutrition Knowledge Platform's 2013 Harvesting Nutrition contest. The SecureNutrition Knowledge platform of the World Bank has partnered with Global Alliance for Improved Nutrition (GAIN) and Save the Children to create the Harvesting Nutrition contest. A contest with the aim of showcasing projects around the globe that have bridged gaps between agriculture, food security, and nutrition.

In 2013, two nutrition case studies were done within N2Africa, one in Kenya and one in Ghana. For submission to the Harvesting Nutrition contest the results of these studies were highlighted. More households cultivating legumes with increased yields theoretically lead to more legumes being available for consumption or for sale depending on characteristics of the farmer. Although causality is not studied, this may have led to improved nutrient adequacy of the diet of children between 2 and 5 years old. Results suggest that targeting female farmers, focusing on crops mainly used for home consumption, and providing training on preparation methods and nutrition, would better ensure improvement of nutrient adequacy of the diet. The prize brings N2Africa a multimedia report and 5000 dollars!

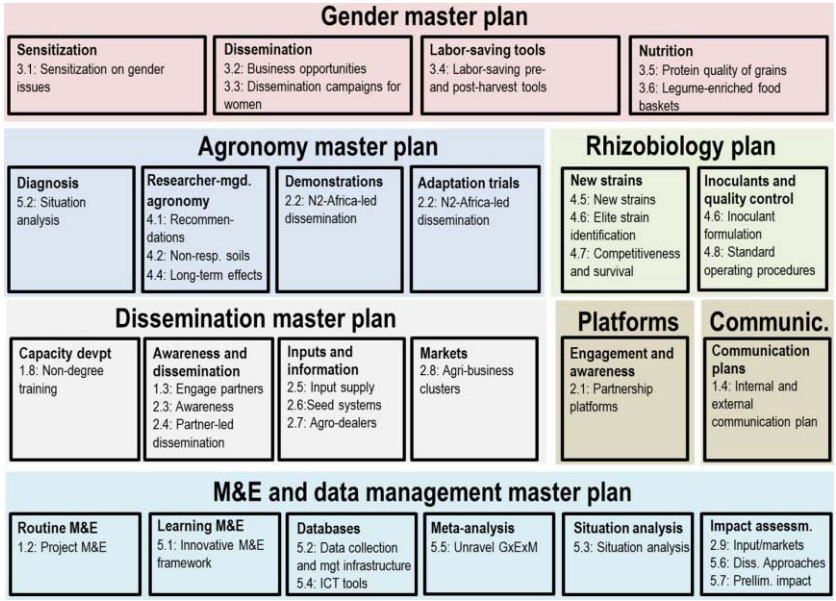
At the moment, I am back in Northern Ghana for further research to gain more insight into the relation between farming systems and improved nutrition among households of smallholder farmers.

Greetings from under a baobab tree in Zinyee village,

Ilse de Jager

N2Africa Master Plans: Creating synergies in a decentralized initiative

The second phase of N2Africa is organized around a decentralized structure with much of the decision-making processes residing with the coordinators of the core countries, in close consultation with the project leadership and coordination team. This was a necessary modification to the structure of the first phase, in view of the more opportunistic, partner-led strategies required for delivering the vision of success of phase II: (i) the second phase aims at institutionalizing legume agronomy within the national systems, (ii) most of the dissemination goals of the second phase are planned to be delivered through partner-led dissemination, and (iii) the sustainability aspects of the important supply chains require a direct engagement with private sector partners in the respective countries. A potential risk associated with a decentralized structure is that N2Africa will end up as 5 (or 11, including the Tier-1 countries) independent projects whereby cross-country learning and meta-analysis is impossible. The N2Africa Master Plans are documents intended to foster a common approach across the five Core Countries, thereby leaving the necessary flexibility for local modification and adaptation. The plans are designed to achieve the N2Africa Vision of Success and are aligned to the Research Framework of N2Africa.



Work is progressing on the following Master Plans: Gender (led by Amare Tegbaru), Agronomy (led by Joost van Heerwaarden), Rhizobiology (led by Mahamadi Dianda), Dissemination (led by Edward Baars), Platforms (led by Alan Duncan), Communication (led by Peter Ballantyne), and M&E and Data Management (led by Theresa Ampadu-Boakye) (see figure – unintentionally looking like the new Windows starter page). It is expected for the various Master Plans to be completed by the end of August for their use and integration in the work plans for the September 2014 season.

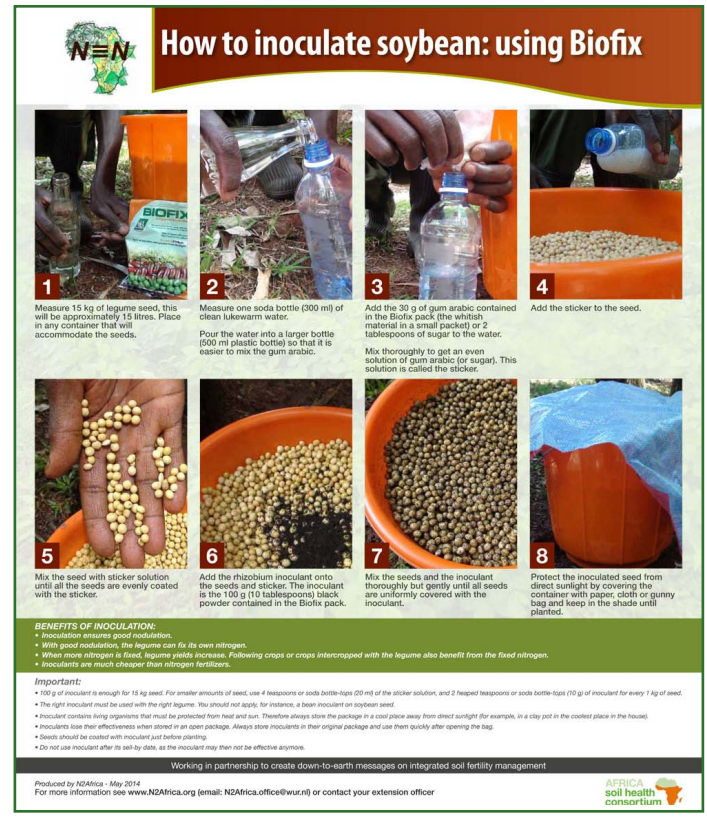
Bernard Vanlauwe

New extension materials ready!

Published before on N2Africa Facebook, June 27, 2014

We're happy to present three posters which are ready to use as extension materials in N2Africa. Two posters deal with inoculation, presenting inoculation methods for the two most widely used inoculants, LegumeFix and Biofix. The third poster shows different methods for staking climbing beans, including the advantages and disadvantages of the different methods. Please download the posters and use them however and whenever you like. Alternatively you can find the posters on www.n2africa.org.

N2Africa and the Africa Soil Health Consortium are collaborating to develop a set of extension materials. The materials we are working on so far include booklets, hand-outs for farmers and posters. The booklets contain practical steps on how to get a better legume yield, making better use of the legumes' potential to fix nitrogen. The set-up of the booklets is similar for all countries, but the exact content differs per country. We therefore develop the content in close collaboration with the N2Africa country teams. Simpler and shorter versions of the booklets will function as hand-outs for farmers, for example to accompany an N2Africa input package. With some more help from the country teams, the booklets will be finalized and ready for use soon!



Review of conditioning factors and constraints to legume adoption and their management in Phase II of N2Africa

The successful proposal of Phase II of N2Africa has given us an opportunity to select sites for the new countries in N2Africa to maximise the relevance of the research findings for different environments and communities. Since the middle of 2013 I have been collating information and reviewing the literature to identify the major factors that promote or hinder the adoption of grain legumes in sub Saharan Africa.

The purpose of the review was to develop the conceptual framework (Figure 1) on grain legume yield and biological nitrogen fixation at scale, and guide the choice of variables that need to be considered when characterising a new context. The report on the identification of factors that condition adoption, and how they can be managed within the research design of Phase II of N2Africa was published in March 2014. The findings of this report were then applied to the three new countries: Ethiopia, Tanzania and Uganda.

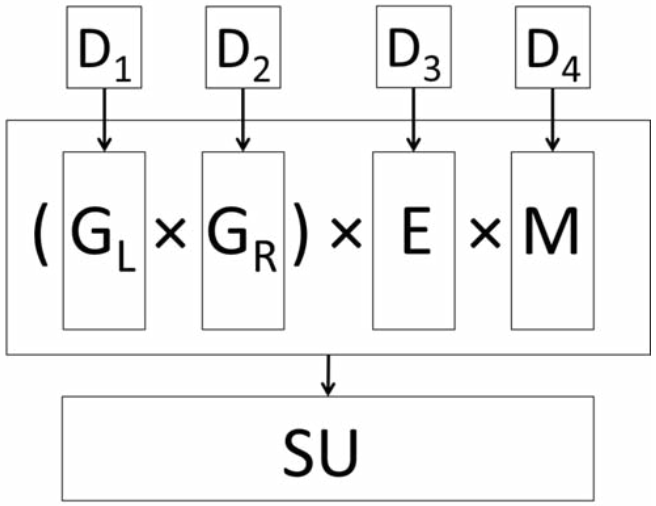


Figure 1. Grain legume yield and biological nitrogen fixation at scale, where D1 is the delivery of / availability of legume genotypes; D2 is the delivery of / availability of strains of rhizobium; D3 is the delivery / availability of other inputs; D4 is the delivery of / knowledge of management practices, and; SU is the marketing for sale and utilisation of the legume crop.

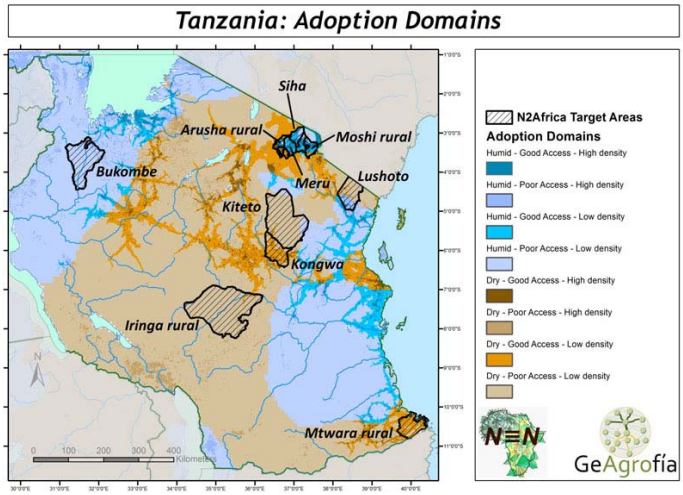


Figure 2. Adoption domains for groundnuts in Tanzania

Spatial data were sought for each country to develop adoption domain maps (see Figure 2 for an example) that could be used to characterise the major legume growing areas of each country and select sites for subsequent N2Africa field and business activities. The reports for Ethiopia, Tanzania and Uganda have recently been published (June 2014) on the N2Africa website and the spatial data are now being organised and will soon be available for download.

Andrew Farrow, GeAgrofía

NoduMax: a new legume inoculant in West Africa

IITA and N2Africa are exploring commercial inoculant production through its recently established Business Incubation Platform (BIP). A new building was constructed at the BIP that has ample room to accommodate different inoculant production lines and scales of operation. The factory consists of a warehouse area, a carrier preparation room, a station where broth is prepared and mixed with carrier, a curing room, a product storage room, and a quality control laboratory. The curing room has both controlled temperature and humidity so that the inoculant rhizobia may be better hardened prior to use. Two production approaches are being tested, the standard broth injection procedure and bulk mixing. The current pilot product, NoduMax is a peat-based carrier intended for soybean containing elite Bradyrhizobia. It is packaged in 100 g quantities intended for 10 to 20 kg of soybean seed along with gum arabic and instructions in four languages, English, Hausa, Ibo and Yoruba. Currently only inoculants for soybean are under development, bit additional products, included a granular formulation for groundnut are planned.

Photo 1. The NoduMax factory team at the IITA Business Incubation Platform are developing a commercial production line for legume inoculants in west Africa

Photo 2. NoduMax is being packaged in 100 g sachets with 50 sachets to the box for distribution to agrodealers and soybean producer associations in Nigeria

Product refinement is underway. Different strains of elite rhizobia for soybean are being evaluated in the greenhouse and field. The imported peat carrier material was originally intended for sterilization by gamma irradiation elsewhere in Nigeria, but that facility is currently not in operation and autoclaving the carrier in 40 kg batches has resulted in mixed success. The production and delivery of rhizobial broth is also under refinement, an initial approach to rearing rhizobia in liquid media under forced aeration has proven difficult to scale up and the use of larger, industrial bio-fermentors is being considered. Early approaches to the packaging suggests that up to 1600 packets with a total value of US $4000 may be produced in one day.

The NoduMax factory at the BIP is not intended to meet all of West Africa's demand for soybean inoculant, rather it is considered to be a pilot operation where the feasibility of inoculants are demonstrated to the private sector. At best, the NoduMax factory can only provide 10% of the soybean inoculants required by soybean growers in Nigeria alone. The overall strategy of the BIP is "to better link research, product development, commercialization and capacity building through the establishment of pilot production facilities intended for adoption, replication and scale up by the private sector", and NoduMax is performing this function. Once a smooth production line is established, potential investors will be invited to evaluate its operations and profitability and invited to replicate legume inoculant enterprise, relying on the BIP for training and technical backstopping. Look to the Podcaster for more developments on NoduMax in the future.

Paul L. Woomer and Dianda Mahmadi

PhD story Michael Kermah: Exploring opportunities for sustainable intensification of grain legumes towards improving crop productivity, food security and livelihoods of smallholder farmers in northern Ghana

Field work was started in the Cropping season of 2013 from May to November 2013. Two field trials have been conducted as follows and preliminary data analysis done: 1) Effect of intercropping patterns on biological nitrogen fixation (BNF) and crop productivity and 2) Effect of cowpea-maize relay intercropping on biological nitrogen fixation and crop productivity across fields of different soil fertility levels in northern Guinea and Sudan savanna agroecological zones of Ghana. Figure 1 shows preliminary results of the intercropping patterns on crop productivity. A rapid survey of farms (120 in farms total) has been conducted in the two trial villages in the Guinea and Sudan agroecological zones and a farm typology developed. A detailed farming system characterisation involving three farms each from the five farm types identified (30 farms in total) has also been completed. The preliminary analysis and results will be out soon as possible.

Michael Kermah, Ghana, PhD student at Wageningen Unversity

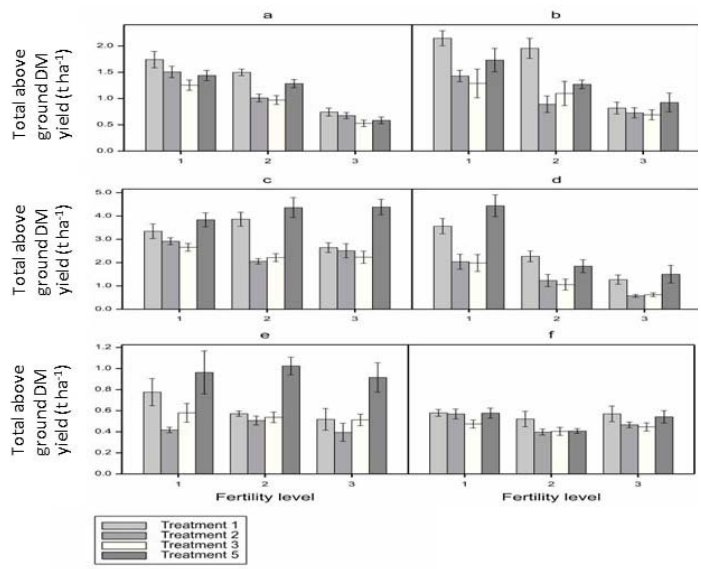


Fig. 1 Total above ground dry matter yield (shoots + pods) for spatial plant arrangements of cowpea, soyabean and groundnut at three fertility levels and two agroecological zones. Total dry matter yield cowpea, soyabean and groundnut in AEZ 1 are respectively shown by figures a, c and e while b, d and f are for AEZ 2. Treatment 1 – within-row intercropping of maize and legume, treatments 2 and 3 – one row maize, one row legume as well as two rows maize and two rows legume in distinct row intercropping, treatment 5 – sole legume.

Presenting the first six months report of Phase II

N2Africa Phase II is going full speed ahead, and we've already had our first round of reporting to the Bill & Melinda Gates Foundation. In the first months of N2Africa Phase II, we have made good progress towards Objective 1 - Project strategy, coordination and implementation and capacity strengthening. Country teams were formed and soon after involved in many meetings and workshops. In addition, an overall technical expertise team, leading activities across all countries, has been established. With this flying start, and building on earlier work from Phase I and the Bridging Grant, the research and dissemination in the five Core countries are promising.

In the Tier 1 countries (Kenya, DRC, Rwanda, Malawi, Zimbabwe, Mozambique), the aim is to disseminate the outcomes from the first phase through co-funded dissemination activities. All Tier 1 countries have retained partners from Phase I involved and are currently involving new partners to increase the coverage area. In DRC and Rwanda, partners have already established demonstration trials in various sites and have reached thousands of farmers with input packages.

Please read our full narrative report here.

Other N2Africa reports published recently

On June 30th the report on Media events in N2Africa (related to Milestone 4.4.4) was published. It tells about ways that were used so far to get the N2Africa message disseminated widely.

Humidtropics conference

Humidtropics is organizing an International Conference on Integrated Systems for Sustainable Intensification in Smallholder Agriculture, 7-10 October 2014 in Ibadan, Nigeria. For the conference website, poster and announcement follow this link.

The Podcaster is published six to eight times per year – we look forward to receiving news and contributions – particularly from partners. Please send in contributions well in time. Contact address for this newsletter is: N2Africa.office@wur.nl

Please feel free to forward this email to colleagues you believe would be interested. This email has been sent to you by N2Africa, funded by The Bill & Melinda Gates Foundation and The Howard. G. Buffett Foundation.

When you change your e-mail address and want to keep receiving the Podcaster, please send your new address to N2Africa.office@wur.nl. If friends/colleagues like to receive future Podcasters let N2Africa.office@wur.nl know as well.