

N2Africa Podcaster no. 42

December 2016

Introduction

Welcome to the last Podcaster of 2016! Although a hectic time for us all pulling together the reporting for the past year – it's also a great opportunity for reflection on all that has happened over the past 12 months. So much has happened it is hard to believe only last March many of us met in Livingstone at the PanAfrican Grain Legume and World Cowpea Conference to celebrate 2016 as the International Year of Pulses.

I'm delighted to announce that Dr Christian Witt is now the principal contact for N2Africa at the Bill & Melinda Gates Foundation in Seattle. Christian brings a rich experience in agronomy and soil science in Asia, in addition to the many years he has worked within the foundation. Looking back I see that Prem Warrior was our main contact at the foundation from Podcasters 1-20, Charlene McKoin from Podcasters 20-40 and we hope that Christian is with us for at least the next 20 Podcasters and beyond! With his encouragement we are already seeking closer links with the Africa Soils Information Service (AfSIS - <http://africasoils.net>), the Taking Maize Agronomy to Scale in Africa (TAMASA) and the African Cassava Agronomy Initiative (ACAI). The aim is to align our data management systems and to explore how soils data may help to improve tailoring of N2Africa technologies – a topic which is central to our work. Dr Jeff Ehlers will continue to provide guidance particularly on links to the Tropical Legumes project and other breeding aspects of the key grain legumes.

Fred Kanampiu and I attended the African Association of Biological Nitrogen Fixation (AABNF) conference in Gabarone in October. It was great to hear the latest updates on nitrogen fixation research and in particular to see the next generation of nitrogen fixation researchers presenting. In particular, Prof. Felix Dakora had brought a whole busload of students and staff from neighbouring South Africa. N2Africa has the honour of organizing the next AABNF conference in Rwanda in 2018 (see photo) and we will strive to have a similar major representation of postgraduate students.

Mid-annual and M&E review meeting in Ethiopia

N2Africa – Ethiopia held its Mid-Annual and M&E Review meeting from October 13th-14th, 2016 at ILRI in Addis Ababa. The overall objective of the workshop was to review the implementation progress of the project, in reference to the work plan 2016, and to develop strategies for improvements. The project is implemented in collaboration with diverse partners from public and private sectors, and NGOs using different methods and approaches. This semi-annual assessment of the status of implementation is



Fred Kanampiu accepting the invitation to host the next AABNF in 2018 in Rwanda on behalf of N2Africa. The current AABNF President, Prof. Flora Pule-Meulenberg, and founding member of AABNF, Prof. Shellemiah Keya are sitting on the podium.

In this Podcaster we report on the N2Africa planning workshops that took place in Ethiopia and Tanzania, on training events in Nigeria, results of Henri Tamba Nyuma's MSc thesis on groundnut in Tanzania as well as a selection of news items. We also report on two associated projects that we are collaborating with: ProIntensAfrica (<http://www.intensafrica.org>) and the Global Yield Gap Atlas (<http://www.yieldgap.org/>). Working with ProIntensAfrica, we have conducted a sustainability analysis N2Africa farmers in Ghana and Kenya using a wide range of indicators. We are supporting analysis of yields gaps of all the major grain legumes in Ethiopia, Kenya and Tanzania for the Global Yield Gap Atlas. N2Africa is proud of the leverage we are having through associated projects such as these and the many other initiatives we link with.

On behalf of all working with N2Africa I take this opportunity to wish you all a peaceful and enjoyable festive season. We hope you come back refreshed and we look forward to working closely together "*Putting nitrogen fixation to work for smallholder farmers in Africa*" in the New Year.

Ken Giller

required to identify lessons learnt, problems encountered and to devise solutions to rectify challenges.

Out of the seven Ethiopian N2Africa Public-Private Partnerships (PPPs), members of five clusters (Pawe, Jimma, North, Central and South Ethiopia cluster) attended the meeting (Picture 1). The two remaining clusters, South-East and Chewaka, were missing due to some security reasons in the Oromia region at the time the meeting was



Picture 1. Workshop participants (partial view)

held. However, progress of the latter were presented by the regional office (OARI) in Addis Ababa.

The review meeting was also attended by the N2Africa leadership team from Nairobi Fred Kanampiu (Project Coordinator) and Theresa Ampadu-Boakye (M&E Specialist), - Abuja Edward Baars (Senior BDO), and Wageningen, Minke Stadler (Reporting and Communication). The process of the meeting included presentation of the country work plan 2016 (overall targets and milestones), followed by progress presentations by individual partners and plenary discussions on the level of achievements and challenges.

Fred Kanampiu warmly welcomed the participants and addressed an opening remark. In his speech, he indicated that by now the project is almost three years in its program, and it is useful to bring together stakeholders periodically to discuss progress at their respective target locations. He said, he and his colleagues from the leadership team look forward to hear encouraging achievements. Challenges encountered during the implementation process will be put forward for discussion, so that possible corrections could be made for effective delivery of project milestones.

Endalkachew Wolde-meskel, Country Coordinator Ethiopia, pointed out the steady country progress partners made over the last three years and presented the work plan 2016. 2014, the year the project was launched, marked the period for an extensive establishment of on-farm trials to demonstrate the technology. This was the period the project was only gaining a foothold. In 2015, in addition to the diagnostic trials and on farm demonstrations, more effort was placed on mapping of potential legume value chain actors for organizing of PPP clusters for the project target legumes at the different corners of the country. The PPPs are essential elements, not only to N2Africa-Ethiopia but also to N2Africa as a whole, to ensure effective dissemination of technologies and farmers' access to input and grain markets. In the 2016 season, the PPPs are in operation and inoculants from Menagesha Biotech Industry (MBI) are delivered to smallholders via Farmers' Cooperative Unions (FCUs) and agro-dealers. Furthermore, smallholder produces are connected to market their produces collectively to grain

buyers (Guts Agro-industry and Alema Koudijs Feed Plc), and to grain exporters, such as ACOS-Ethiopia.

Work plan 2016 was coined envisioning, among others:

- More technology "adoption", through designing cost-effective and polygonal dissemination approaches (media, training, field days, adaptation and demonstration trials, etc.);
- Further strengthening of the functional PPPs;
- Sustainable inoculant and seed supply (more seed production in partnership with seed producing farmers' cooperatives, community seed producers and private seed producing agro-industries, supporting potential last mile inoculant dealers and facilitating business agreements with MBI);
- Training of stakeholders;
- Conducting of research for closing of yield gaps (multi-locational variety by strain research).

Following the presentation of the work plan 2016, each individual partner of the PPP clusters presented their implementation progress, achievements, lessons learnt and challenges. Detailed workshop materials and partner presentations, can be accessed at from the [N2Africa-Ethiopia wikispaces](#).

Just in brief and for the taste, from the South cluster:

- Nineteen demonstration plots in the four Woredas (Boricha, Halaba, Damote, Shala), each engaging up to 25 farmers, benefited 419 farmers;
- Field day (in two weeks' time) to involve 300 farmers;
- 226 farmers (members of different primary cooperatives) engaged in community seed production (grain and seeds) altogether on 15 hectares of land;
- Training on legume agronomy and inoculation technology for ToT and farmers reached 795 beneficiaries;
- Over 1,050 sachets of inoculant distributed through Sidama Elto FCU and MBI. This number doesn't include those marketed as spill-over (farmers not directly targeted by N2Africa-Ethiopia);
- Variety by strain trials installed in nine sites (six for common bean and three for chickpea);
- Data on input distribution and field books (e.g. demonstration and adaptation trials) captured on hard copy and two trainings uploaded on ODK;
- Facilitated signing of agreement between ACOS and Sidama Elto FCU for grain market and between MBI and the same FCU for inoculants delivery and marketing;
- Existence of huge market opportunities, smooth communication among the partners and the growing interest and willingness of farmers to adapt improve legume technologies were among those listed under lessons learnt during the progress presentation of south PPP cluster.

Endalkachew Wolde-meskel, Country Coordinator Ethiopia and Team



N2Africa partners develop a strategy to achieve sustainability in Tanzania

“Sustainability” was the theme of the third N2Africa Tanzania review and planning meeting, that took place on October 19th-20th, 2016 in Dar es Salaam, Tanzania. The meeting brought together 34 participants drawn from partner institutions. Representatives from Rural and Urban Development Initiative (RUDI-IBB project); BRAC-Tanzania; Clinton Development Initiative (CDI); Building Rural Incomes Through Enterprise (BRiTEN); Faida-market Link (FaidaMali); Africa Fertilizer Agribusiness Partnership (AFAP); Farm Radio International (FRI) also representing projects Scaling-up Improved Legume Technologies (SILT) and Gender and Legume Alliance (GALA); Agricultural Research Institutes Uyole, Makutupola, Selian and Ilonga; District Councils of Hai, Moshi, Lushoto and Kongwa; N2Africa-Tanzania team and N2Africa technical teams comprised of Senior Business Development Officer, M&E Specialists and three MSc students who are supported by the project attended the meeting.

In his opening remarks, Dr Freddy Baijukya, N2Africa Tanzania Coordinator, appreciated the commitment and effort made by partners in the process of diffusing the legume technologies to smallholder farmers. He said “through partnership, N2Africa has expanded the area of operation, reached many institutions working on legume development creating an opportunity to reach more farmers with legume technologies”. He told the participants that, while the project had successfully institutionalized its approaches, it remained a challenge to ensure sustained delivery of legume technologies.

In their remarks, representatives of BRAC, BRiTEN, Faida-Mali and CDI appreciated the partnership that N2Africa had built and emphasized on the need to ensure that farmers have access to knowledge, improved seeds, fertilizers and inoculants and markets for their produce. They emphasized the need to link agro-input dealers and last mile networks in supplying legume agro-inputs to farmers and agri-business clusters established. Furthermore, they iterated the importance of establishing actual input and output demand in order to create a climate, in which the private sector is attracted to invest in small-scale farmer supply chains.

Edward Baars, the Senior BDO, presented the strategy for input demand projection. He said the Tanzanian combination of partnerships is qualified to deliver activities related to making input supply chain more effective, predicting demand, stimulating supply and delivery and linking farmers to agro-dealer networks. He presented the case of the Legume Alliance (e.g. iLogix, AFAP, ASA, Farm Radio, Shujaaz, CABI, KIT, SARI, CRS and N2Africa) to show how different combinations of partnerships can deliver. He urged partners to upload farmer and retailer databases with mobile phone numbers to the ICT platform. This database allows to take a representative sample of farmers in the

target areas to assess the demand for inputs by conducting computer aided telephone interviews (CATI). He also emphasized the importance of creating awareness and use of the improved database system for different partners.

Theresa Ampadu-Boakye, M&E Specialist, emphasized the importance of collaboration to achieve impact. She indicated that most partners were specialized in particu-

Table 1. Suggested mode of collaboration of partners in Tanzania, where partners with different capacities serve each other

Partner	Capacities	Whom to partner with
BRiTEN	Commercially rural agro business, focus on input and output value chain and strengthen business skills	Build capacity of farmers working with ARI Ilonga, ARI Uyole, BRAC, CDI and CRS to produce Quality Declared Seed (QDS) on business skills Assist BRAC, CDI and CRS to predict input-output demand, as well as building marketing skills of farmer groups
BRAC	Micro-finance, capacity building and training farmers	Assist farmers working with research institutions (ARI Ilonga, ARI Makutupora) to produce QDS and farmer working with CDI to access finance for their business
RUDI	Farmer organisation, networking and partnership	Assist CDI, RUDI, BRiTEN business skills, financial support from BRAC, AFAB (production of leaflets and content development of media events)
FaidaMali	Market linkages	Assist ARI Selian in QDS, BRAC (supporting the groups), Local government (support group identification), ASA (QDS for common bean)
ARI Uyole	Technology development, quality seed	Provide quality seed of soyabean and common bean and to BRAC, CRS, CDI and RUDI for production of QDS Provide recommendations from agronomic trials for scaling
ARI Makutupora	Research, quality seed	Assist ARI Ilonga, BRAC in implementation of the demonstration and adaptation trials on cowpea Provide recommendations from agronomic trials for scaling
ARI Ilonga	Research, quality seed	Provide quality seed for production of QDS to BRAC
ARI Selian	Research, quality seed	Provide quality seed of common bean to Local Governments (LGA) of Moshi, Lushoto and Hai to produce QDS and breeder seeds to ASA to produce foundation and certified seeds Provide recommendations from agronomic trials for scaling
Legume Alliance and SILT- project	Packaging message and production of extension material	Production of leaflets and content development of media events



Picture 1. Partners Southern cluster discussing collaboration to improve their work plans 2017, Dar es Salaam



Picture 2. N2Africa review and planning meeting 2016, Dar es Salaam

lar topics and needed to come out of their closets. She suggested that partners working in the same area should capitalise on each other and collaborate more closely in the coming season. Partners clearly indicated in their work plan 2017 which new modes of collaboration between partners were developed and what was expected from each partner (Table 1).

Closing the meeting, Mrs Joyce Kessy, District Crop Officer for Hai, on behalf of the participants, thanked the organizers for a successful meeting and N2Africa for its continues efforts to increase legume productivity in smallholder farmers. She reminded participants to observe and implement the developed work plans 2017, as they were realistic.

Freddy Baijukya, Country Coordinator Tanzania, Minke Stadler and Mwantumu Omari

Reflections on training events in Nigeria

Best agronomic practices and M&E tools

A series of training was conducted for Extension Agents (EAs) and partners' staff of Niger State Agricultural and Mechanization Authority (NAMDA) and USAID-MARKETS II in Niger, Kaduna, Benue and Kano states during the 2016 planting season. Such trainings were also attended by the respective partners targeting the needs of farmers and other collaborators in the legume value chain. The training was specifically designed to raise the capacity of N2Africa partners in view of the responsibility and high expectations on delivery as contained in the partnership document. More so, some partners had engaged new faces (EAs) and other adhoc staff for the routine task of implementing the different activities in the collaboration. Therefore, creating awareness and boosting the capacity

of staff in the field, especially with regards to application of N2Africa data collection tools, ranging from field agronomy (demo, adaptation, focal adaptation and diagnostic trials) and M&E tools became important and timely. It is noteworthy of mentioning that these trainings were also replicated by other N2Africa partners, such as CRS and IFDC.

In this kind of forum, there was an interactive session between participants and training facilitators on one hand and among participants themselves. Different topics in agronomy, M&E tools, as well as other sundry issues related to N2Africa activities and the expected outcomes were clearly elucidated and responses obtained during evaluation. Also, N2Africa data collection documents such as Field Books for demonstration, focal adaptation, input



A cross section of the participants with the Managing Director Seraph Oil Mills



A training session with Madam Esther Chinedu facilitating



Outside demonstration of planters to the extension agents



A cross section of the participants with the Managing Director NAMDA



Dr. Joost Heerwaarden during field inspection and ICT training with Extension Agents and project staff at Shishimpe community near Mpape in Bwari LGA, Abuja Nigeria



Interactive session with participants during the training



Demonstration of planters to Extension Agents



Group photograph with the participants and farmers from Shishimpe community near Mpape in Bwari LGA, Abuja Nigeria

distribution/ feedback adaptation forms, field days, media events and technology evaluation tools were effectively put into use and articulated.

In the end, new lessons were learnt, additional knowledge was gained through learning, a better understanding of project activities and implementation was obtained, timeline for carrying out certain activities and expected report(s) was mutually set and agreed upon and effective channels of communication were established. All with the intentions of consolidating and enhancing a robust delivery on activities and achieving greater success in the task ahead. To achieve all these, the EAs, partner's staff and other concerns were trained. N2Africa staff were the main facilitators; however, partner's staff of NAMDA, MARKETS II, EGALF and SASAKAWA Global 2000 made good contributions and also assisted strongly in some of the logistics.

Participants' feedback and conclusion

In all the locations where the training was conducted, the participants exhibited a good sense of discipline and made

themselves available to learn. N2Africa tools either from agronomy or M&E were extensively used to enhance application in their respective communities. Learning atmosphere was generally conducive and as such, participation was not a serious challenge. However, some of the trainees need a regular follow up to sift level of accomplishment, compliance and attainment of targets. The onus therefore lies on both the project and partners to evolve a common strategy for effective and timely implementation of mutually agreed activities notwithstanding whether such activities are labeled either as N2Africa direct or joint implementable activity.

In view of this, cohesion, understanding, mutual trust and sacrifices would be required to attain and or surpass the expected targets and much more, in the interest of the resource-poor small holder farmers in Nigeria who are genuinely committed to sustainable food production.

Bassey Ukem, Research Associate, Nigeria

N2Africa as case study for PROIntensAfrica - What role for legumes in sustainable intensification?

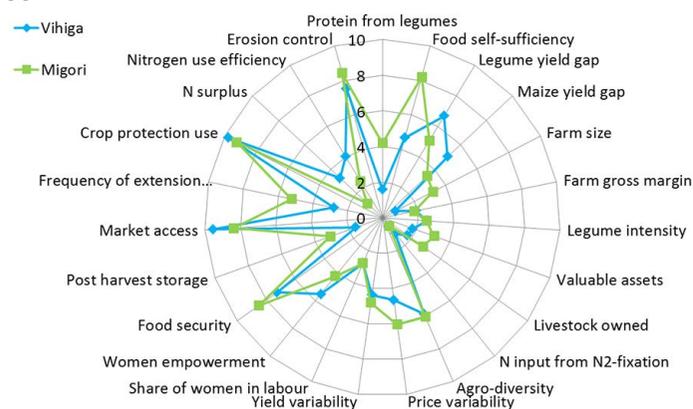
In 2015, N2Africa was selected as a case study within the PROIntensAfrica initiative and over the last one and a half year this case study was conducted in two of the N2Africa countries, Ghana and Kenya. We have given regular updates in the Podcaster, and the case study has now been finalised. The report can be found online: [click here](#).

The objectives of the case study were to identify drivers of change, describe the current role of legumes as pathway for sustainable intensification and identify priority areas for research for smallholder farming systems in Western

Kenya and Northern Ghana. The study involved literature research, stakeholder interviews, a household survey and a final stakeholder workshop in both countries. The study concluded that important drivers of change of rural development in both Ghana and Kenya were population pressure, poor government policies and external development projects and agencies. Specific drivers of change for Kenya were changing market conditions and yield reducing factors in legumes, and for Ghana improved availability of inputs, climate change and improved education.

Western Kenya

A



Northern Ghana

B

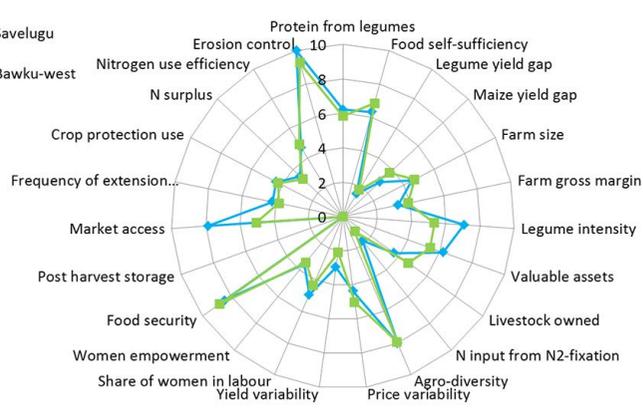


Figure 1. Average scores on selected sustainability indicators for households in study sites in Western Kenya (A) and Northern Ghana (B)

The role of legumes in sustainability of farming systems at household level was presented in spider charts with scores on a scale from 0-10 for a selection of sustainability principles and indicators. Average scores on the level of principles were below 6 for nearly all principles in both case study countries. This means that sustainability of interviewed households could be considered low or just sufficient. On the level of indicators, Western Kenya had smaller yield gaps for maize and legumes than Northern Ghana (Figure 1). In contrast, the score for protein from legumes in Northern Ghana was almost double that of Western Kenya. Scores for N input from N₂-fixation, N surplus and nitrogen use efficiency on farm level were low in both countries. There were no consistent differences between farms with a small and large share of their farm under legumes (legume intensity), although yield gaps of legumes and in particular maize were more positive for households with a higher legume intensity in Western Kenya, and households with a higher legume intensity had higher indicator scores for farm size, nitrogen use efficiency, and market access in Northern Ghana. Overall, there was a lot of variation in individual households' results per indicator.

Priority areas for research identified in both Western Kenya and Northern Ghana were the effects of population pres-

sure and reduced interest of youth in farming on agricultural production; the availability of knowledge for farmers and the facilitation of farmers in well informed decision making; the need for labour saving technologies and mechanisation in soyabean and groundnut (harvesting and threshing) and crop-livestock integration. In Kenya, additional priorities were the area specific assessment of the economic viability of legumes and the role of the government to institutionalize legume cultivation. Additional priorities in Northern Ghana were increased availability and affordability of legume inputs; identification of options for value addition through small or medium scale processing enterprises; identification of optimal intercropping configurations for cereal-legume intercropping systems; climate resilient cropping practises and area specific fertiliser recommendations. The need for integrated options were key in both case study countries and pointed at the need to embed pathways for sustainable intensification, such as the use of legumes, at all system levels. The wide variation in the indicators for sustainability among households once more emphasized that such integrated solutions should consider the enormous diversity that exists in smallholder farming systems in sub-Saharan Africa.

Esther Ronner and Wytze Marinus, Wageningen University & Research

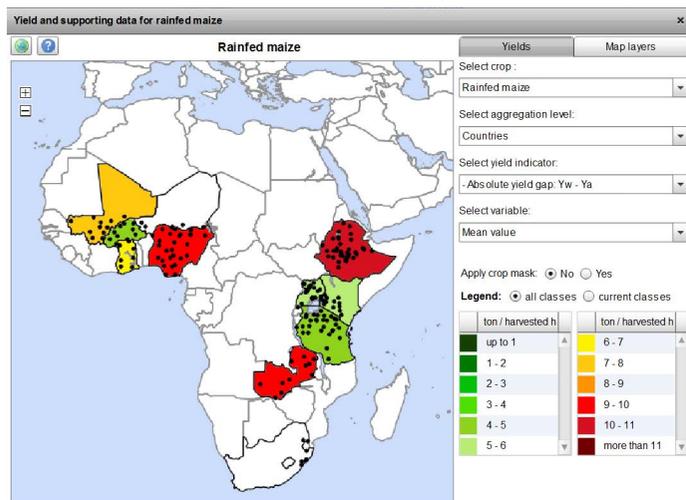
Legume yield gaps in Ethiopia, Kenya and Tanzania

Currently sub-Saharan Africa (SSA) is not self-sufficient in cereals, while the demand is projected to triple between 2010 and 2050 due to population growth and changing diets. Therefore it is needed to drastically increase food production to meet this challenging demand for agricultural products by 2050. A major option is narrowing gaps between actual farm yields and yield potential.

Yield potential is the yield with optimal crop growth, i.e. optimal soil management, no nutrient deficiencies, and no yield reductions by weeds, pests and diseases. The difference between the yield which farmers actually obtain and

the potential yield is called the yield gap. To reduce yield gaps in SSA, it is needed to substantially increase nutrient inputs on cropland. However, many African countries agreed to contribute to the Paris Climate Agreement, while fertilizers contribute to high greenhouse gas emissions. An opportunity exists in Africa to benefit from cultivating legumes as demonstrated by N2Africa.

Within the Global Yield Gap Atlas (GYGA, www.yieldgap.org), the yield gaps for several cereal crops (e.g. maize, sorghum, millet, rice, wheat) in SSA are already determined and mapped (Picture 1). The project 'Bringing Climate Smart



Picture 1. Maize yield gap in SSA at country level from the Global Yield Gap Atlas (www.yieldgap.org), black dots indicate the weather stations used for the yield gap assessment

Agriculture to scale: assessing their contributions to narrow nutrient and yield gaps' builds upon the GYGA project. The project is part of the collaboration between Wageningen University & Research, University of Nebraska-Lincoln and the CGIAR research programme on Climate Change, Agriculture and Food Security (CCAFS), and is also supported by the International Fertilizer Association (IFA) and Yara. The project aims at substantially improving food productivity in SSA (specifically Ethiopia, Kenya, and Tanzania) without corresponding increases in emissions of greenhouse gasses and nutrients to the environment. The addition

of the legumes to the Global Yield Gap Atlas is part of the first work package of the project. For Ethiopia we are looking at common bean, chickpea, and faba bean. For Kenya at common bean, cowpea, and pigeon pea. For Tanzania at common bean, chickpea, cowpea, pigeon pea, and groundnut. Within these countries these crops are the main legumes on area basis and are therefore chosen (this is also supported by the N2Africa Baseline Reports I and II). Assessing yield gaps of these legumes could help to provide insight in opportunities to increase productivity of agricultural systems in East Africa with minimum intensity of greenhouse gas emissions.

The yield gaps are estimated based on data collected from weather stations to estimate location specific yield gaps. These are scaled-up to the regional and national level. To do this collaboration with N2Africa agronomists and data on current location specific cropping systems are essential. Therefore, contacts have been established over the past two months between this new project and country agronomists of N2Africa to add the legume yield gaps in Ethiopia, Kenya and Tanzania to the Global Yield Gap Atlas (www.yieldgap.org). Currently, we are working hard to present the first results to you in the next podcaster. By that time we like to present the first results of the Ethiopian chickpea yield gap and the comparison of the common bean yield gap in Ethiopia, Tanzania and Kenya.

Marloes van Loon, Plant Production Systems, Wageningen University & Research

MSc thesis Groundnut response to calcium and phosphorus fertilizer rates in Tanzania

My research focused on investigating the response of groundnut to inorganic sources of calcium (Ca) and phosphorus (P) with emphases on yield, fats and protein contents, as well as profitability of fertilizer in groundnut production at Sokoine University of Agriculture in Morogoro, Tanzania.

The study was conducted in Morogoro region, an area located at 525 m above sea level in Morogoro municipality. The area is situated at the foot of Uluguru mountain and the climate is predominantly sub-humid. The region is characterized by a bi-modal rainfall pattern, with short rains from November to December and long rains from March to May/June. The rainfall distribution is irregular and unreliable. The soil in this area is dominated by kaolinitic clay, which is well drained.

The main objective of the study was to identify appropriate fertilizer rates for calcium and phosphorus from inorganic sources for groundnut production. We used Di Ammonium Phosphate (DAP) as source of phosphorus, at 55 kg P ha⁻¹. Locally produced Minjingu mazao was used as source of calcium, at 125 kg Ca ha⁻¹.

The study results found that application of DAP significantly ($P < 0.05$) increased kernel yields, from 1,505 to 1,760 kg ha⁻¹. An increase in pod yield was also observed, from 2,676 to 3,025 kg ha⁻¹. A value cost ratio (VCR) of 2.2 was obtained with application of DAP, compared to a VCR for Minjingu mazao of 0.3. For groundnut farmers, this impli-



Picture 1. Mr Henry Nyuma displaying freshly harvested groundnut crops at Sokoine University of Agriculture



cates that application of DAP increases kernel and grain yields, hence profitability. Furthermore, Minjingu mazao did have significant ($P < 0.05$) effect on leaf area index, crop biomass, crop growth rate, biological yield, number of filled pods per plant and oil content. A net income of about \$1,969 was accumulated with application of DAP, compared to \$550 with calcium application.

Related newsletters

- CIAT Blog: [Bean researchers in Ethiopia win highest accolade](#);
- Tropical legumes III: [An exemplar of partnerships for pulses](#);
- Soybean Innovation Lab –[Newsletter November 2016](#);
- Soya ni Pesa [Newsletter Issue 5](#);
- Tropical Legumes III Blog: [Taking on the challenge of Learning to improve Monitoring & Evaluation beyond standards](#);
- Legume Alliance Blog: [The Shujaaz Legume Alliance campaign](#);
- Blog: [Scaling-Up Improved Legume Technologies \(SILT\) project-IITA maps out its role in SILT research](#);
- CABI Blog: [World Soil Day blog ... celebrates growing soil information resource](#);
- IITA Bulletin: [African Cassava Agronomy Initiative \(ACAI\) to change the fortunes of cassava farmers](#);
- IPNI Blog: [Taking Maize Agronomy to Scale in Africa \(TAMASA\)](#);
- IPNI Topics: [chickpea](#);
- AfSIS Blog: [Rapid, low-cost technologies generate high-value soils information for planners and farmers](#).
- Global Yield Gap Atlas: [Can sub-Saharan Africa feed itself?](#)
- ProIntensAfrica [Newsletter 3/2016](#)

Results from [this study](#) reported increase in grain and pod yields due to application of DAP, hence profitability. However, further studies using different fertilizer rates and combinations of calcium and phosphorus might provide optimum fertilizer rates for groundnut production in Tanzania.

Henri Tamba Nyuma

Related publications

[Genome-Enabled Prediction Models for Yield Related Traits in Chickpea](#)

M., Roorkiwal, A., Rathore, R.R., Das, R R, M.K., Singh, A., Jain, S., Srinivasan, P.M., Gaur, B., Chellapilla, S., Tripathi, Y., Li, J.M., Hickey, A., Lorenz, T., Sutton, J., Crossa, J.L. Jannink and R.K., Varshney. (2016) Genome-Enabled Prediction Models for Yield Related Traits in Chickpea. *Frontiers in Plant Science*, 7(1666), 01-13.

Announcement

On January 18th, 2017, the world will celebrate pulses! Global Pulse Day will be celebrated every year to promote the nutritional and environmental benefits of pulses. [Submit ideas for Global Pulse Day on January 18th, 2017](#)

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

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