N2Africa Podcaster no. 35

January and February 2016

Introduction

I'm very much looking forward to meeting many of you at the Joint Pan-African Grain Legume and World Cowpea Conference that opens in Livingstone, Zambia, on 28 February. N2Africa will be strongly represented at the conference with posters and oral presentations. The meeting promises to be a great scientific event as well as a wonderful opportunity to meet other legume fanatics and to discuss their work. We are sad to share the news of the untimely death of a member of the N2Africa community, Mr BYAMUSHANA Cassien, and express our sincere condolences to his family and close colleagues in Rwanda.

I take this opportunity to thank Dr Bashir Jama for his wise counsel and support as he steps down from the N2Africa Advisory Committee (NAC). Bashir is leaving AGRA to join the Islamic Development Bank at Jeddah, Saudi Arabia to head their Agriculture and Food Security Division and we wish him every success in this challenging role. Dr Rebbie Harawa will take over as the Head of the Farmers Solutions unit at AGRA in March and we are pleased that she has agreed to replace Bashir on the NAC.

This Podcaster is comprised of articles on two main topics: activities that explore the role of grain legume residues in livestock feeding and articles on activities in Nigeria and particularly in Borno State. As well we have a selection of news items and reports from workshops. Enjoy reading and we look forward to your feedback and of course to reading your articles in the next Podcasters!

Ken Giller

Obituary

We are very sad to inform you of the sad demise of Mr BYAMUSHANA Cassien who was the senior researcher in the Soybean program and rhizobiology of Rwanda Agriculture Board (RAB), the main partner of N2Africa in Rwanda. Cassien passed away on 9 February 2016 at Butare hospital (CHUB).

We will sorely miss a great individual who helped the country, particularly N2Africa to achieve new heights. We regret the loss to his family as well. The ceremony and the funeral took place at Rubona station on Saturday 13 February 2016.

On behalf of N2Africa team in Rwanda
Speciose Kantengwa

Cassien In the last field tour to see on farm trials in Jan 16

Field visit in Ethiopia by the Project Director, BMGF and ILRI's Director General Representative in Ethiopia

Bale Zone is one of the target sites for implementation in Ethiopia where faba bean and chickpea legume crops are targeted under the South-East Public-Private Partnership cluster.

A team of project leadership including Charlene McKoin, Bill & Melinda Gates Foundation, Siboniso Moyo, the DDG of International Livestock Research Institute (ILRI) Ethiopian Office and Ken Giller, Wageningen University visited chickpea technology dissemination activities which were being implemented on smallholder farmers contracted to the private commercial farm, Balegreen Spice and Grain Development Plc., as out-growers at Ginnir Woreda. During the field visit key partners representing various institutions participated (certified chickpea seed multipliers and suppliers, extension and mechanization services providers, private commercial farm, public agricultural research

Adamu Zeleke, Socio-economics researcher and member of N2Africa project team at Sinana Agricultural Research Centre explaining on chickpea technology at Ato Nega Tibeb's plot in Ebbisa Kebele, Ginnir Woreda

institute, a private chickpea grain exporting company and a domestic inoculant production private company). The field visit was co- organized with "Joint Partners Field Day Event" and there was an opportunity for the project leadership, donors and project country coordinators to interact and share concerns with beneficiary farmers and other cluster partners.

Cluster partners and collaborators including Bale zone and Ginnir Woreda bureaus of agriculture (BoA), Woreda cooperative promotion and agricultural investment Offices, primary cooperatives, Oromia Agricultural Research Institute's Sinana Agricultural Research Centre, Balegreen Spices and Grain Development (Balegreen) and farmers from the different project intervention Kebeles were represented at the event.

Mrs Zehara Abdurahaman and her daughter on their chickpea plot explaining to the participants at Ebbisa Kebele, Ginnir Woreda.

Prof Ken Giller and Dr Endalkachew Wolde-meskel examining chickpea in the field

Field visits were made to chickpea technology dissemination activities on out-grower farmers' plots contracted to Balegreen for which N2Africa is supporting the cluster partners in terms of budget allocation, technical guidance, monitoring and evaluation processes and facilitation of the partnership processes to ensure sustainable access to knowledge, inputs and market to the smallholder farmers. Two Kabuli varieties of chickpea, i.e., ACOS Dubie and Arerti, with very good international market have been disseminated along with inoculants and fertilizers.

Back from the field visits, there was an intensive general discussion facilitated by project national team (Project country coordinator-Dr Endalkachew Wolde-meskel and Business Development Officer- Tamiru Amanu) and cluster partners (SARC Director-Seifudin Mehadi, Woreda BoA vice head-Mengistu Adare, and Balegreen General Manager- Million Bogale).

Strengthening access to inputs including pesticides for bollworm, improved seeds and inoculants, and profitable market (particularly for the second Kabuli variety, Arerti) were the major points from the farmers.

Mrs Charlene McKoin (BMGF), Dr Siboniso Moyo (ILRI Ethiopia Director) and Prof Dr Ken Giller (WUR, N2Africa Project Director), from left to right, on general discussion.

On behalf of N2Africa and the visiting team from BMGF and ILRI, Prof Dr Ken Giller, acknowledged the efforts already being made by the project and the partners. He concluded his remarks by emphasizing that the project will continue to support the smallholder farmers for which collaboration and support of government institutions, development and private partners will be very crucial.

Tamiru Amanu, N2Africa BDO, Ethiopia

Exploring variability and options for improving the feeding value of legume crop residues for ruminants in small-holder crop-livestock systems of Ethiopia

Grain legumes produce a valuable grain crop for consumption or sale but they also produce residues that can be fed to livestock. As part of my PhD project I have been looking at variability among popular legume varieties and whether improved agronomic practices such as P fertilizer and inoculation, designed to increase grain yields, also

affect residue yield and quality. Residue samples were collected from N2Africa input and variety trials plots established during the 2013/14 cropping season. A total of 1161 legume crop residue (common bean=652, chickpea 194, faba bean=255 and soyabean=60) samples were collected and ground with a hammer mill to pass a 1mm screen.The collected sampleswerescanned using a Foss 6500 NIR spectrometer instrument at Central Queensland University (CQU) laboratory in Australia (Fig. 1) and straw quality traits (Total N, dry-matter digestibility and fibre fractions) were predicted using existing north Australian forage calibrations developed from tropical forages.

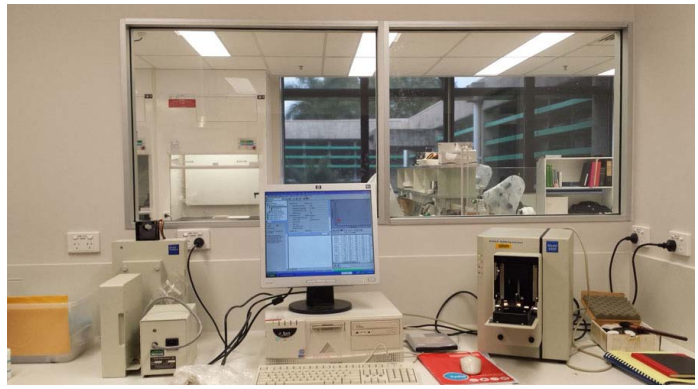


Fig. 1. Foss 6500 NIR spectrometer used to predict straw laboratory quality traits at CQU laboratory

Significant variation in seed, residue and total biomass yields, harvest index (HI) and laboratory straw quality traits were observed among the widely grown legume crop varieties. There were substantial variations in nutritive value between botanical fractions (empty husk and straw) of common bean, chickpea, faba bean and soyabean. Inoculation and/or application of di-ammonium phosphate (DAP) fertilizer improved seed and crop residue yields (Fig. 2a) and had mixed effects on residue quality (Fig. 2b) in common bean. This highlights the possibility of improving livestock nutrition in crop-livestock systems of Ethiopia through agronomic interventions.

NIRS calibration equations for legume crop residues in Ethiopia are being developed as part of the PhD study. A further study on farmers' choices and rationale for how they use legume residues is also underway.

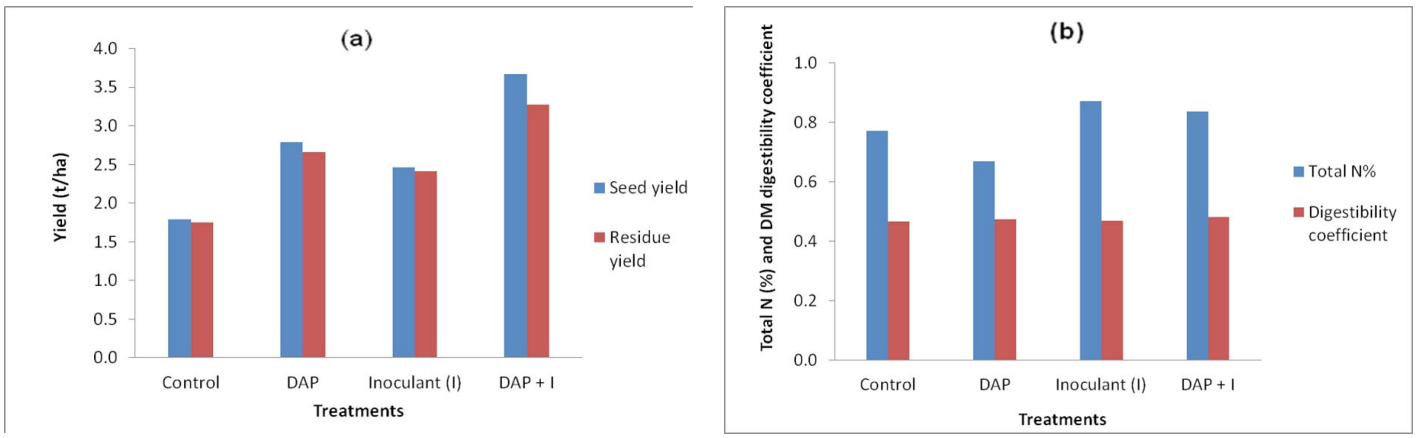


Fig. 2. Effect of di-ammonium phosphate (DAP) fertilizer and inoculation on (a) seed and residue yields, and (b) residue total nitrogen (N) content and dry-matter (DM) digestibility of common bean (variety *Nasir*) at Shalla in the 2013/14 season

By Mesfin Dejene, PhD student at The University of Queensland, Australia)

Impact of P fertilizer and inoculant application on feed quality of grain legume residues for livestock in mixed crop-livestock production system in Ethiopia

In Ethiopia where the mixed crop-livestock system is a predominant feature in agriculture, promotion of improved production technology is expected to boost grain legume production with a concomitant increase in the amount of legume residues for livestock feeding.

N2Africa is also considering the effect of improved grain legume production on livestock feed. On-farm trials are currently underway to demonstrate to farmers the effect of phosphorus (P) fertilizer and inoculants (I) application on grain and straw yield of four target grain legumes (faba bean, common bean, chickpea and soyabean) across four target regions in Ethiopia. This has created an opportunity for me to conduct my MSc research project on assessing the effects of these treatments on the yield and feed quality of the residues of these grain legumes in ongoing on-farm trials. Preliminary results shows (Fig. 1) that combined application of P and I increased % CP

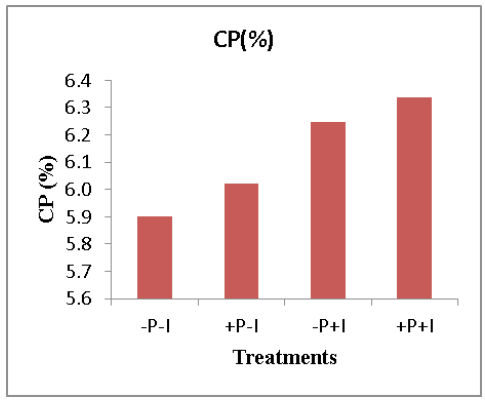


Fig. 1: Crude protein (CP) content of common bean straw grown with and without inputs (P and I)

(crude protein) contents reflecting improvements in the feed quality of the residues for livestock feed. As part of the study, assessment of farmers' perceptions on alternative uses of grain legumes straw (feed, soil mulching and fertility, for household energy etc.) is underway.

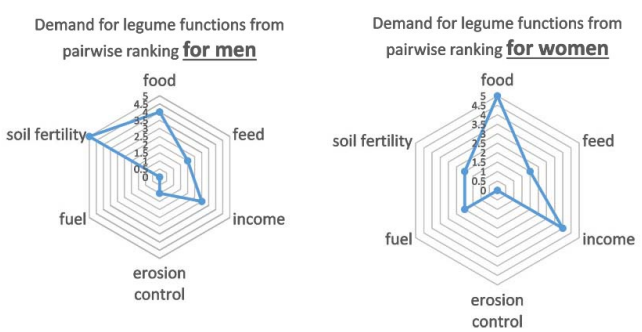
Overall, the output of this study is expected to show that promotion of improved legume production technology will also enhance livestock production, thus contributing to income diversification of the smallholder farmers by fostering the multiple uses of whole plant.

Fig. 2: Legume straw sample processing and analysis for quality parameters @ ILRI Lab

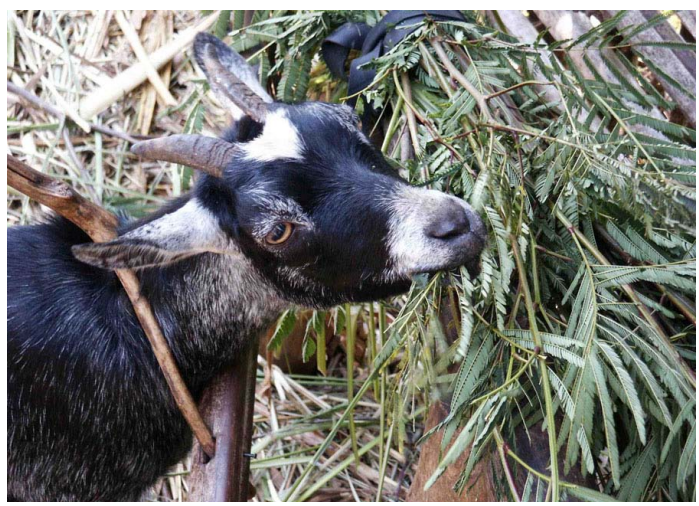
By Sisay Belete (N2Africa funded MSc student at Hawassa University)

Finding niches for legumes in smallholder farming systems

N2Africa followers do not need convincing about the benefits of legumes to smallholders. Yet, legumes mean different things to different people. Agro-foresters may think of tree legumes, livestock specialists may interpret legumes to mean forages, while to crop agronomists legumes tend to be grain legumes. Legumes are indeed a diverse class of plants – they are diverse in form: from the mighty Acacia to the diminutive white clover. They are also diverse in function and contribute multiple benefits to farmers: food, income, feed for livestock, fertility for following crops, protection of soils from erosion and so on. Making sense of this diversity of form and function among legumes could help us to match up different legumes with the needs of smallholder farmers. And this could improve adoption of legumes by farmers from the current low base. This targeting of legumes to niches in smallholder systems is the core objective of the Legume CHOICE project. Better targeting could help us get away from the prevailing fragmented approach to legume development in Africa. This could lead to legumes playing a more prominent role in farming systems by providing protein nutrition for families, improved feeding for livestock and environmental benefits through improved soil fertility. The International Livestock Research Institute (ILRI) has been leading the development of a decision support tool (also called Legume Choice) as one component of the Legume CHOICE project. The evolving tool is essentially a list of different legume options. Each option has been scored by experts for its contribution to a series of functions



Example output from Legume CHOICE tool



West African dwarf goat eating *Calliandra*, Cameroon

in smallholder systems: food, income, feed, soil fertility and so on. This is the **supply** side. The tool includes a community needs assessment where farmers can express their **demand** for the various benefits that legumes can provide. Matching scores for supply and demand allows prioritization of legumes into a shortlist of promising options that can then be tested with farmers. The prototype tool has been applied in Ethiopia, Kenya and Democratic Republic of Congo as part of the Legume CHOICE project. Preliminary feedback shows it to be useful but points to the need for a further component where agro-ecological suitability of legumes is also assessed. This component will be developed in this, the final year of the project. The Legume CHOICE project is funded by the German Federal Ministry for Economic Development and Cooperation (BMZ) and led by the International Institute for Tropical Agriculture (IITA) with ILRI, the World Agroforestry Centre (ICRAF), Oromia Agricultural Research Institute (OARI), Kenya Agriculture and Livestock Research Organization (KALRO) and the Catholic University of Bukavu as key partners.

By Alan Duncan

Third Annual Partners Review and Planning Workshop at ILRI-Ethiopia, Addis Ababa

Figure 1. Participants of ILRI-N2Africa Annual Partners Review and planning workshop.

N2Africa-Ethiopia held its third Annual National Partners Review and Planning Workshop from 27-29 January 2016 at ILRI campus, Addis Ababa. The main objectives of the workshop were to review achievements, lessons learnt, challenges encountered during the 2015 season and to plan project activities for 2016 season. More than 90 participants representing 30 different partner institutions attended the meeting [Government Offices- BoA & NARS, NGOs, CGIAR, Private companies, FCU (farmers' cooperative unions), BMGF, WUR etc.].

Dr. Siboniso Moyo, program leader for Animal Science for Sustainable Productivity and ILRI Director General's representative in Ethiopia, warmly welcomed the participants and gave opening remarks. She highlighted that the N2Africa has made significant progress since its launch in 2014. During its first year, the project promoted legume production technology among smallholder farmers in collaboration with only a handful of partners. Currently, N2Africa collaborates with about 30 partner institutions in many target Woredas (districts) and has established seven functional PPPs (private public partnerships) to strengthen legume value chain activities (technology dissemination, input supply and output market linkages). Finally, appreciating the achievements that the project gained during the past year, she wished for a very successful review and planning workshop.

The N2Africa-Ethiopia country coordinator, Dr. Endalkachew Wolde-meskel, presented the overall achievements of the project during 2015 and indicated the tasks that the project should focus on in the coming season. He particularly emphasized the strengthening of the Farmers' Cooperative Unions as a bridge for input supply and output market linkages, research on rhizobiology and non-responsive soils, gender issues, agribusiness and strengthening of market access to bring about economic benefit to smallholders.

During the workshop, the seven PPP clusters (North, South, Southeast, Central, Chewaka, Jimma and Pawe) presented their progress and future plans with a focus on ensuring long-term sustainability, knowledge transfer,

legume technology dissemination, efficient input supply chains and access to markets. Cross-cutting issues such as ICT models, data flows and their outcomes and rhizobiology research efforts were presented. In addition, various posters were presented by private partners and a Union (ACOS, AKF, Balegreen, MBI, Guts Agro, Tsehay Union), thus providing an overview of their companies, challenges and opportunities in legume value chains. Another poster focused on the value of grain legume residues for intensification of crop-livestock systems in Ethiopia. PICS bags, effective against seed storage pests-weevils, were also demonstrated. In all sessions, participants were actively engaged in discussions. Questions and comments were received and responded as appropriate.

A general outline to plan activities in 2016 was presented by Mr. Tamiru Amanu, N2Africa BDO; partners then formed working groups around their PPP clusters. Overall, the 2016 planning will focus on strengthening the PPPs (as important drivers of the legume value chain), building up on previous efforts - technology dissemination, adaptation and market access to ensure farmers' benefits. Also, inoculants quality control along the input supply chain, issues related to non-responsiveness and research on rhizobiology – collection and comparative symbiotic effectiveness will be important research priorities for NARS and universities.

Dr. Fred Kanampiu, N2Africa project coordinator, said that it is vital to look into the entire project and assure that no components are left behind while planning. The 2016 planning should take into consideration lessons learned from 2015, and also be looking into publications coming out. Dr. Charlene McKoin, Senior Project Officer at the Bill & Melinda Gates Foundation, shared her observations on the partnership clusters, poster presentations and field visits (which she had a few days before the workshop). She was impressed with the overall progress made by N2Africa-Ethiopia, with the organized partnership clusters, and uniquely fascinated by farmers' feedback on technology evaluation events (at Ginir-Bale during her field visit).

Finally, Mr. Mulugeta Enki, Sourcing and Supply Chain Development Manager at Guts Agro Industry PLC, appreciated the synergies among partners to allocate their best resources (capital, staff, knowledge and time) to ensure the sustainability of the N2Africa vision. He also encouraged us to share the PPP models with other projects to scale research and development efforts.

Workshop materials can be accessed at:
http://n2africa-ethiopia.wikispaces.com/N2Africa_Annual_Review%26Planning_Workshop_Jan.2016

By: N2Africa-Ethiopia Team (Birhan Abdulkadir, Tamiru Amanu, Endalkachew Wolde-meskel)

N2Africa project Nigeria: Reflections on 2015 Season

The 2015 season commenced with a bee hive of activities after the Annual Review and Planning Meeting in Abuja, Nigeria. The driving force for these activities was the new engagements with private actors (NGOs) in the value chain to further expand the intensity of N2Africa activities, especially regarding dissemination, monitoring and evaluation. The Nigeria team was committed to pursue and implement these activities, popularly tagged as 'New Partnerships'. These reflections on season 2015 highlight the training events 2015 and the training session on the use of ICT tablets for data collection.

1 Training events 2015

In order to create commitment and mutual understanding, the partners (USAID MARKETS 11, CRS- SHARE, SASAKAWA GLOBAL 2000 - AGRA and IFDC - 2 SCALE) participated in a series of training activities. Field agents, extension agents, lead farmers, BSS, Community based seed producers, community based officers, amongst others joined to align dissemination approaches and to understand the N2Africa objectives and expectations.

We conducted different training sessions in collaboration with our partners and N2Africa Post Graduate Scholars. The training events focused on topics such as inoculants handling and safe use of agro-chemicals, best agronomic practices for increased legume productivity in the Nigerian savanna, community based seed production and market linkages, use of ICT-tools for agronomy and M&E data collection, post harvest activities and the application of specific M&E Tools for data collection. Furthermore, agro-dealers received training on handling, storing and using agro-inputs.

Mrs. Esther Chinedu (FLO) demonstrating handling and application of inoculants

Each of the partners further stepped down the training activities in their respective locations to address specific needs of the trainees and to further enhance learning, communication and application. For a more effective training, relatively, smaller populations of trainees were trained and training locations were decentralized for close proximity to where the partner operates.

Principally, N2Africa Project Staff were the main resource persons during such training events in collaboration with partners. However, additional technical information was sought for and obtained from other collaborators such as the National Agricultural Seed Council (NASC). At different occasions, the Council delegated her staff to participate in the training, especially when such trainings were related to community based seed production. Seed companies and agro-chemical companies also had a representation all of which was tailored to reach out to the farmers with innovations, which would enhance delivery and result.

Training outcomes
Many trainees showed a good level of understanding in the application of tools used during those trainings (such as demo and adaptation Field Books). Field experimentation, land preparation, plot layout, plant establishments and treatments as well as management attracted good responses from the participants. Much enthusiasm was shown by the participants, who were offered the opportunity of being a community based seed grower within their own community.

2 Use of ICT tablets for data collection
Using ICT tablets to collect, save and upload agronomy or M&E data on the N2Africa database using the ODK format was another innovation introduced in 2015. Understanding its application under field conditions, paucity of the ICT tablets and taking into consideration the spread of trainees from varied educational background contributed to slowing down effort on usage. However, the benefits of this technology are obvious: the centralized data are now expected to be safer and available for a wider scrutiny. Uploading the data on the N2Africa platform by our partners is still a challenge across different locations.


Practical demonstration in the field using the ICT tablet to collect, save and upload data.

We derived much inspiration from our trainees who were able to learn new things, acquired additional knowledge and expectedly added value to their respective work. There is hope for greater achievements in the coming season as we relate with all our partners in a more robust and result-driven collaboration. The future seems brighter now!

Bassey Ukem

CropLife Nigeria assesses contract sprayers in Borno State

Contract sprayers applying pesticides for a fee for farmers in Borno state in Nigeria do not follow responsible use practices.
- 10% do not wear any protective equipment;
- 40% do not read the label;
- 30% do not triple rinse the empty container;
- more than 60% leave the empty containers on the farm.

These are some of the conclusions of an assessment carried out by CropLife Nigeria on behalf of the N2Africa project.

Resulting from the negative results of the assessment carried out at the end of 2015, N2Africa has asked CropLife Nigeria to train 45 of the contract sprayers to become proper Spray Service Providers and link them to member companies.

Assessment contract sprayers
For the assessment a total of 50 farmers and 50 contract sprayers were interviewed, while 20 contract sprayers conducted the application test that is normally given to Spray Service Providers as part of their CropLife training.

The interviews were conducted by extension officers after receiving instructions from Siji Ofoesuwa, the SSP coordinator of CropLife Nigeria. The practical test was conducted by Siji.

Most of the interviewed contract sprayers (76%) have worked for more than 2 seasons as a contract sprayer. However, 35% did not undergo any training on the application of pesticides, and for those that did, for more than half did so more than 2 seasons ago. In 94% of the cases, the training program was only 1-day intervention. There seems to be enough work, as for most of the contract sprayers,

Siji Ofoesuwa (in striped shirt) with some of the contract sprayers

their activities are almost a fulltime job with more than half working in excess of 20 days per month.

Challenges

The contract sprayers mentioned several challenges:

- 70% indicated that buying quality pesticides is a problem;
- 50% had problems with reading the label;
- 65% mentioned a lack of knowledge on which pesticide to buy.

The outcome of the practical test that was undertaken by 20 of the group, was exceptionally poor: 8 did not score a single point, meaning that they did everything wrong. Only 2 succeeded in scoring 41%, which is still not sufficient to be an approved contract sprayer (minimum score is 60% for this).

Among the farmers that make use of the services of the contract sprayers, 90% are extremely satisfied or very satisfied with the work undertaken, and 93% indicated that they would definitely use these services again. This clearly shows that farmers also need more information on the correct use of application. Farmers use contract sprayers to apply herbicides on maize, cowpeas, soyabeans and groundnuts. The knowledge of the contract sprayer on application and pesticides is mentioned as the main reasons for farmers to use their services (76%).

Spray Service Providers Network

As part of the assessment, CropLife Nigeria recommended to give every contract sprayer the full Spray Service Providers training course, paying special attention to the practical exercises. The focus of the training would be on:

- Herbicides;
- The importance of wearing protective equipment;
- Handling wastewater after triple rinsing;
- Disposal of empty containers;
- No involvement of children in any activity related to pesticide handling or application.

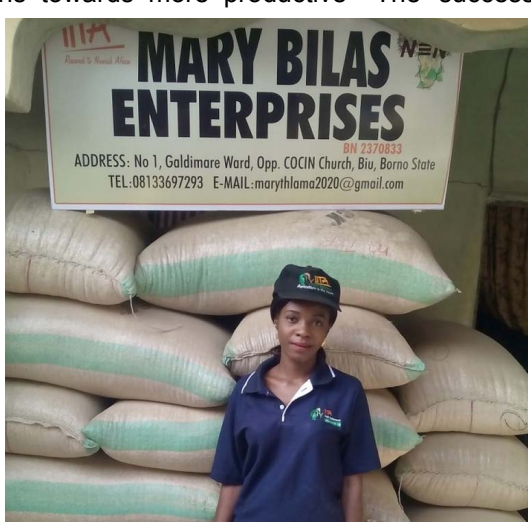
It would also include the need to create awareness among farmers that make use of contract sprayers, on the correct manner for the disposal of empty containers, that children are never allowed to be involved in any activity related to pesticide handling or application, and the importance of buying and using good quality pesticides.

Based on these recommendations, N2Africa agreed to have CropLife set up a network of Spray Service Providers in Borno state. The first activities are likely to start in March 2016.

Manon Dohmen (Summary from CropLife Africa Middle East Newsletter article by Minke Stadler). Link to the full newsletter.

N2Africa Borno State: Youth Agripreneur activities

The overall goal of the Borno Youth Agripreneur activities is to re-orientate rural youths towards more productive engagement in agriculture. In 2014, the IYA organized - in collaboration with the N2Africa project - a training workshop on “Agribusiness, a key to productive youth engagement”. Twenty young people were selected and enabled to increase their knowledge in sustainable crop and fish production practices and develop the entrepreneurial skills in agribusiness to promote self-dependence. The same group received additional training in 2015 to improve their skills of writing of bankable/fundable business plans. The successes of the first Borno Youth Agripreneurs



Borno Youth Agripreneurs; marketing legumes, producing poultry



Borno Youth Agripreneurs; inspecting groundnut oil refining unit, producing and marketing soybean, producing cowpea.

empowered us to start with a second batch of twenty youth. And plans have also been conducted to train and empower another set of 40 youth who have been specifically selected from other local government areas in Borno State.

Once trained, in 2017 and 2018 the Borno Youth Agripreneurs will be supported with concrete monitoring and mentorship councils, internships and ad-hoc re-training, cementing of partnerships, amongst others to foster business consolidation. The Agripreneurs are expected to create job opportunities in agri-business for other youths in Borno State.

Up to now, one great learning point is that the likelihood of male and female youths making good incomes and livelihood from agribusiness is becoming real. The active interventions are beginning to create positive ripples in the local economy of our host communities!

Shakiru Quadri

IITA Special issue on Youth Agripreneurs

Last December a special issue of the IITA newsleter, dedicated to N2Africa Youth Agripreneurs was released.

NoduMax in 2015

The first set of NoduMax legume inoculant developed by IITA and N2Africa at the Business Incubation Platform (BIP, IITA-headquarters, Ibadan, Nigeria) has been released for distribution to soyabean farmers during the rainy season 2015. More than 32,000 sachets containing 100 g of soyabean inoculant were produced for sharing mainly with partners of the N2Africa network in Nigeria and Ghana. At the same time, the NoduMax team carried out product monitoring and evaluation trials on station (IITA campus). More importantly, NoduMax samples were allocated to independent research partners that were interested in the product development for testing in different environments of West Africa.

NoduMax performance – 2015

On station in Nigeria – The NoduMax team implemented a trial on IITA campus aiming to check the effectiveness of inoculant being distributed to farmers. Inoculation treatments included two randomly selected NoduMax batches intended to assess product consistency, Legumefix as a standard commercial inoculant and three check-treatments (i.e. +P and +N each at 20 kg ha^{-1} and a control). The use of inoculant resulted in yield improvement of about 30 % in grain yield relative to the un-inoculated treatment (Fig. 1), which is quite above what was obtained upon fertilizers use at 20 kg ha^{-1}. Thus, it appears that NoduMax is not only qualitatively consistent (across batches), but also compares well with standard commercial products.

Farmers'fields in Benin Republique – Spectacular effectiveness of NoduMax in farmers' fields was recently described for the 2015 growing season in a project report by the 'Université d'Abomey-Calavi' of Benin (Pascal Houngnandan, 2016). NoduMax was used to demonstrate

Fig. 4. A view of a farmer field inoculated with NoduMax

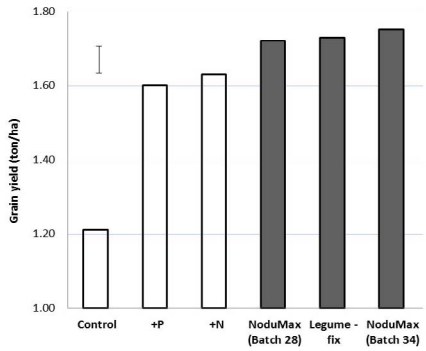


Fig. 1. Soyabean yield responses to NoduMax and Legumefix inoculants, and mineral fertilizers on station in Nigeria

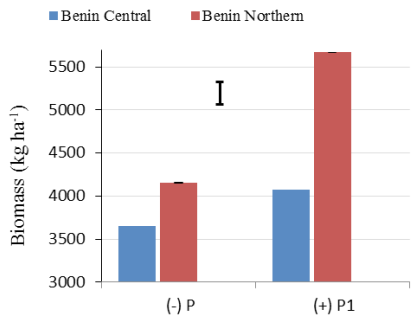


Fig. 2. Soyabean biomass responses to P fertilization at two locations in Benin Republique (Adapted from Houngnandan, 2016)

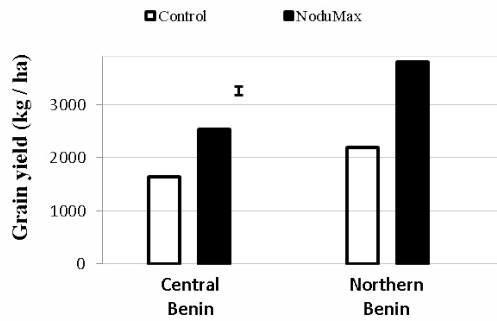


Fig. 3. Soybean yield responses to NoduMax inoculant in Benin Rep. during the 2015 rainy season (Adapted from Houngnandan, 2016)

the potential of inoculant technology in boosting soybean yield in 16 fields at two locations (eight fields each) representing the following agro-ecologies: The 'cotton belt' in Central Benin and the 'staple food bell' in Southern Borgou. These locations vary widely in responsiveness to P fertilizer (Fig. 2). There was a consistent increase of soyabean yield by inoculation across locations. The yield benefit gained, however, was more substantial (74% yield increase) in southern Borgou than Central Benin (55% increase) (Fig. 3).

Seed multiplication in Burkina Faso – During the 2015 rainy season NoduMax inoculant was tested along soybean seed production by INERA, at the Banfora research station (south-western Burkina). Despite poor crop establishment due to erratic early rains, the use of inoculant led to yields as high as 3 t clean seed per hectare, the best record observed over the past three years. According to the scientist Kiema Sebatien, head of the research station, this result is self-demonstrative enough that they are convinced to contribute further to Nodumax promotion.

By Mahamadi Dianda

References

Houngnandan P. 2016. Rapport de la mise en place de seize (16) champs de demonstration sur l'inoculation du soja dans les huit (8) communes prioritaires du PROGRI en 2014-2015. Faculte des Sciences Agronomiques, Universite d'Abomey-Calavi. 15 pp.

N2Africa in the news

N2Africa is mentioned in an interview on low-cost nitrogen fixing technology with Emmanuel Chikwari from the Chemistry and Soil Research Institute in Zimbabwe, published by SciDev.net.

The Soybean Innovation Lab newsletter highlights collaboration with N2Africa.

One Acre Fund refers to its collaboration N2Africa in a blog post.

WageningenUR highlights al kinds of research done and recently "Pulses as source for enriching diets" was presented was mentioned.

Publications

Ludy Keino *et al.* published from N2Africa work in Kenya in PLOS one journal: "Nutrients Limiting Soybean (*Glycine max l*) Growth in Acrisols and Ferralsols of Western Kenya".

Reports and other output uploaded on the N2Africa website

MSc thesis "Influence of biochar amendment on the effectiveness of elite Kenyan rhizobia nodulating common bean (*Phaseolus vulgaris* L.)" by Martin Koinange.

MSc thesis "Evaluation of yield potential and management practices affecting soybean production in western Kenya" by Wycliffe W.Waswa.

The N2Africa Dissemination Master Plan.

The N2Africa Kenya Country Annual Report 2015. This is the first of a series of reports on the progress per country.

The N2Africa Annual Report 2015: A report summarizing the progress in 2015 project wide.

The N2Africa Value Chain Analysis of Grain Legumes in Borno State, Nigeria.

The N2Africa Baseline report for Borno State.

Related newsletters

Farm Radio International released an e-newsletter called Making Waves. In its first issue it refers to N2Africa in its article "CIFSRF's UP: Farm Radio International wins two projects":

Winning the competition always feels great, especially when the field is big and talented. We are excited to announce we are partners in two of the successful bids in the most recent round of grants under the International Development Research Centre's Canadian International Food Security Research Fund (CIFSRF).

This round specifically targeted scaling up food security and nutrition innovations. Of the nearly 200 proposals submitted by consortia of government, non-government and private sector partners, just a few were selected. And Farm Radio International is a partner in two of them. This is a real testament to the confidence the development community is now placing in our methodologies, especially interactive, participatory rural radio.

In Tanzania, Farm Radio is leading a project that includes the African Fertilizer and Agribusiness Partnership, the International Institute for Tropical Agriculture (IITA), the N2Africa Initiative and the Centre for Agriculture and Biosciences International (CABI), among others. The project aims to improve legume productivity through the increased adoption of improved seeds, use of inoculants and use of appropriate fertilizer blends.

In Ghana, Farm Radio will work with Grameen Foundation and Wageningen University of the Netherlands on a project called "Achieving impact at scale and economic viability of agricultural extension services in Ghana."

Announcements

Two interesting conferences we would like to announce:

- The International Legume Society and the Instituto de Tecnologia Química e Biológica António Xavier of the Universidade Nova de Lisboa cordially invites you to join us at the Second International Legume Society Conference (2ndILSC), scheduled the 11th to the 14th October, 2016 at the Tróia resort, the vicinity of Lisbon, in Portugal.

- The 12th European Nitrogen Fixation Conference organized 25-28 August 2016 at the Danubius Health Spa Resort in Budapest, Hungary.

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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