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Sustained yields, Improved livelihoods

COMPRO II PROJECT

Quality & Yield

Supporting smallholder farmers' decisions on top quality commercial products

IN THIS ISSUE

A word from the project leader

Word from the Project leader

Dear reader,

We approach the end of 2014, with promising milestone progress.

In Tanzania, our partner the Tanzania Fertilizer Regulatory Authority (TFRA) has championed a successful process of working with partners to develop and launch the new bio-fertilizer and bio-pesticide registration guidelines. These guidelines are a crucial step in the path towards ensuring that smallholder farmers in Tanzania access only the best quality commercial products that can be vouched for.

> "We approach the end of 2014, with promising milestone progress"

Similar steps have been made in Kenya with KEPHIS spearheading a series of stakeholder engagement and awareness initiatives that will inform an improved regulatory preparedness and response for commercial products that are sold to farmers in Kenya. The successful initiatives in Nigeria, Tanzania, Kenya and Ghana, contain invaluable lessons for our other partners in Ethiopia and Uganda, where similar work continues.

We are also beginning to see movement to expand the scope of screening and testing work to other products ranges including Mycorriza and bio-pesticides as evidenced by the work of our COMPROII graduate students work, some of which you can read about in this issue of the newsletter.

Expanding the product range in our screening work means that, apart from the significant advances already made in rhizobium inoculation products, that can now be readily attested by farmers own testimonies, we should begin to see similar progress with other product lines as they are successfully tested with farmer in the region for other crops such as maize, sweet potato, and cassava.

As you read this issue of our newsletter, keep in mind the increasingly significant role that stakeholder coordination, and consensus building will play in ensuring that regulatory systems strengthening. One Tanzanian regulator aptly captures those next steps in their process elsewhere in this issue.

In addition to strengthening the regulatory frameworks in the various project countries, significant progress has also been made including scaling up profitable technologies, awareness creation for policy makers, crop advisors, and farmer organizations, as well as capacity building for graduate students and in-service professionals.

Dr. Cargele Masso

Project Leader

"I know that the next challenge for us is to convince the private sector actors that these regulations are good for them, not only in terms of conforming with the law, but also in demonstration value to their clients out there".

Dr.Susan Ikerra (TFRA)

Tanzania launches Registration guidelines for bio-fertilizer

By, Dr. Susan Ikerra

In November 2014, Tanzania was among the COMPROII target countries that realised a critical milestone.

Speareheaded by the Tanzania Fertilizer Regulatory Authority (TFRA), under objective 3 of COMPRO II project, Tanzania finalised and launched new registration guidelines of bio-fertilizers. This was a result of sustained partnership and collaboration with International Institute for Tropical Agriculture (IITA).
Like other countries in the region, Tanzania's biofertilizer market is marked by inadequate regulatory mechanisms that have resulted in prolifertaion of products whose quality and efficacy cannot be vouched for. lack of due diligence in commercial products markets has for a long time lacked the potential for these products to contribute to productivity in the agricultural sector.

The double burden, of unregulated products ending up in the hands of desperate smallholder farmers with little or no improvement in crop yied as promised by manufacturers means that in future, use of biofertilizers and related products, is likely to stagnate as a result of client apathy from ineffective products.

Tanzania's achievement goes along way to spur on similar work in Ethiopia, Kenya, Uganda, Nigeria and Ghana to ensure that the biofertilizer subsector is adequately regulated. Specifically it is a contribution towards ensuring that the circulation of such products for research or commercial purposes has been authorised and that they are safe, efficacious, and effective as per label claims.

These new guidelines will go along way in addressing a number of critical factors in this sector. The guidelines will ensure:

- Only registered biofertilizers are placed in the marketplace and made available for use by farmers
- Only biofertilizers that are demonstrated to be of high quality, safe, and efficacious for intended use are registered
- The labels of registered biofertilizers contain adequate information for proper, safe use and handling of the products
- Marketplace monitoring/surveillance after biofertilizer registration is institutionalized
- Biofertilizers which were introduced in the Tanzanian marketplace prior to implementation of these guidelines are re-evaluated for conformity to the requirements outlined herein

Tanzania Fertilizer Regulatory Authority (TFRA) was established under the Fertilizer Act of 2009 in 2012. The Authority is mandated to regulate the manufacturing, importation, exportation, sale and utilization of fertilizers and fertilizer supplements (e.g., biofertilizers) and to provide for other related matters.

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How we did it

A market survey in Tanzania that was conducted in 2013 in the Southern Highlands of Tanzania revealed that upto 35 supplement products, mainly bio-fertilizers were being sold in the market without being registeres by TFRA. The products ranged from foliar growth promotors containing some of the macro and micro nutrients.

Having no registration guidelines made it impossible to easily register the bio fertilizers and hence TFRA in collaboration with IITA collected information mainly from AATF on registration guidelines for Sub saharan Africa that was reviewed and adapted to Tanzania situation . Several reviewers were involved to reach consensus and finally the document was presented to a consultative fora for technical inputs.

The document begins with an introduction of principles involved in registration of biofertilizers. Chapter two outlines details on registration, chapter three provides guidance for registrants and chaper four deals with concluding remarks. The document has annexes of Pre-Submission Consultation procedures; application form; summary data form, Model certificate of registration and a sample label for the biofertilizers respectively. It is expected that these guidelines will be a useful tool for the establishment of national procedures for registration of biofertilizers in Tanzania.

The aim is to provide more guidance to applicants, registrants and TFRA's staff to ensure consistence in registration process of bio-fertilizers. The implementation of the registration guidelines for quality control will also enable the enforcement of compliance. The bio-fertilizer intended for commercialization in Tanzania will have to comply with these gudelines to ensure product safety, quality, eficacy and proper labelling.

The scope of these registration: covers bio-fertilizers containing natural occuring microorganisms. In otherwords, microoganisms that have not been genetically engineered. Therefore GMOs are out of scope of these guidelines.

Deodatus Stanley Kiriba- MSc. Student from Tanzania

COMPROII Student Profiles

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By Dr. Susam Ikerra

2014 has been a good year for us in terms of capacity building in product screening and evaluation. One PhD, and two MSc. students are working on various aspects over the next few months and in fact most are in the process of completing their studies. Below we highlight their profiles:

Kiriba is a COMPRO II (IITA's project) sponsored scholar working toward his master's degree in soil science and land management from Sokoine University of Agriculture, Tanzania. Kiriba earned a bachelor's degree in environmental sciences and management from the same university prior to working as an agricultural research officer at Selian Agricultural Research Institute in Arusha, Tanzania.

Kiriba's IITA sponsorship allowed him to begin his master's degree in 2012 at Sokoine University of Agriculture where he studied several courses related to soil fertility, soil microbiology and land pollution. His current research investigates the quality and effects of commercial chemical and microbiological products in soil on maize growth and yields on an Ultisol soil of Morogoro region and is in the final stages of hard-binding his dissertation for submission before he graduates on 28th November, 2014. Kiriba hopes that his research can ultimately assist in recommending the most effective commercial products for adoption by small-scale farmers in Tanzania.

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Johari Mohamed- MSc. Student from Tanzania

Johari is a COMPRO II (IITA's project) sponsored student working toward her master's degree in soil science and land management from Sokoine University of Agriculture, Tanzania. Johari earned a bachelor's degree in agronomy from the same university in 2011 prior to IITA sponsorship in 2012 which allowed her to begin her master's degree at Sokoine University of Agriculture where she studied several courses including soil fertility, soil microbiology and land pollution. Her current research investigates the effectiveness of rhizobium inoculant commercial products on yields of soybeans and common beans grown on an Ultisol in Morogoro, Tanzania and she has submitted her soft-bound copies of her dissertation for external examination before her graduation 2014.

Chrian Marciale – PhD Student from Tanzania

Chrian Marciale, a COMPRO II PhD student at Sokoine University of Agriculture in Tanzania. He has completed remedial courses, made two presentations on his proposal titled "Efficacy **of selected microbial pesticides in management of tomato Fusarium wilt and Root knot nematodes in Tanzania**". The proposal has been passed at Department level to the faculty level. He has also identified potential suppliers of microbial pesticides in Tanzania. In November and December 2014, he is planning to work on identification of field work sites and collection of soil and tomato plants samples. In the near future, he is expecting to come up with microbial pesticides and cultural methods that are effective for management of Fusarium wilt and Root knot nematodes species that will be identified in tomato fields in Tanzania.

Nodules on plant root from control (C) and from biofertilizer treatment (R)

Rhizobium inoculants demonstrate yield Increase on soybean as we ask:

Can they also work for common bean in Eastern Tanzania?

TANZANIA

By: Matilda Kalumuna., Susan Ikerra and Mkangwa C.

Small holder farmers who wish to try inoculation of their soybean crop in Tanzania have reason to be optimistic. Two products tested by researchers from the Mlingano Agricultural Research Institute, Tanga, Tanzania indicate very positive results with yield increases ranging from 35% to 63%, especially when applied together with P fertilizer. below is a highlight o the study.

In 2014, we tested two types of rhizobium inoculants on soils in Eastern Tanzania that showed good promise for common bean farmers. With variations depending on application of Phosphorous fertilizer with inoculation, we see potential for some of the commercial products, for common bean farmers in the Eastern region of Tanzania.

Nodules of Biofix treated soybean

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We tested *Bio fix* and *Nitrosua* manufactured by MEA and Sokoine University respectively. These are among bio fertilizers reported to nodulate with legumes and convert atmospheric Nitrogen into available form to crops. In this case the study was specific to common bean. Efficacy of Biofix and Nitrosua on field bean (*Phaseolus vulgalis*) was evaluated on 3 sites in Tanga region, Tanzania for one season.

In the case of soybean we evaluated Legume fix on two varieties of Soya bean, Soya-1 and Bossier for two seasons on six sites in Kilosa district, Morogoro region and Muheza and Korogwe districts in Tanga region in Eastern zone of Tanzania. Biofix was evaluated on soya -1 for one season on 3 sites in Muheza and Korogwe district, Tanga region. In both products, the Soybeans formed effective nodules leading to increased yield of various magnitude ranging from 35% to 63%. in most cases the increase in yield was more significant with the addition with Phosphorous fertilizer.

To read more about the full results of the product testing reported in the

article above contact Dr. Susan Ikerra

A recent stakeholders consultative meeting on regulatory environments for bio-fertilizers in Ethiopia

Moving to address policy environment for commercial products in Ethiopia

ETHIOPIA

By Dr. Tesfaye Shimber

Taking stock of the issues

The Ethiopian regulatory environment like many other countries in the region has been defined by inadequate mechanisms. As a result, we have a situation where, quality screening and monitoring of commercial products is still not adequately centralized.

Lack of a centralized and widely accepted system means that stakeholders wishing to introduce new commercial products on the market face a daunting challenge of identifying the institutional framework for regulation. This not only limits the scale and reach that can be achieved for products such as bio-fertilizers but very importantly decreases the momentum for private sector entry and participation in the commercial products market.

In the course of 2014, a number of stakeholders have reflected on the specific issues around the policy environment that need to be addressed in order to fully realize the benefits of commercial products for smallholder farmers productivity and crop yield improvement. Below are some key thematic areas that we are working to address in the medium term:

- A widely accepted set of National standards to be used by all the actors.

ETHIOPIA

- A mandated independent Institutional framework to carry out quality control including monitoring and certification
- Clear separation of roles of actors to avoid duplication and conflict of interest
- Sustained capacity building for staff to ensure that quality monitoring work conforms with international standards
- Incentive mechanisms to support and encourage private sector participation in the commercial products market including strengthening the supply chain for commercial products in line with the more developed mineral fertilizer supply chain. Additionally, reliable prediction of demand for some products.
- Scaled up awareness and sensitization initiatives for farmers
- Making a strong business case for both government and private sector to invest in development of the commercial products markets.

Recognizing the problem of ineffective regulation

Obviously under-regulated environment bring with them a number of problems.

There is the overwhelming problem with poor quality and standardized materials and products reaching our farmers with the risk of slowing down or even reversing demand for certain commercial products including bio-fertilizers. for a sector that is young and showing potential, demand from farmers is absolutely critical for its development.

These policy issues and messages were discussed at length at a workshop in March 2014 and also reflect the most recent discussions on regulatory aspects that was held in Addis in the course of December 2014. stakeholders present at these consultations included ATA, Ethiopia Standard Agency, EIAR, N2Africa, NSTC-ESHC, MOA (Plant Health and Regulatory directorate, Soil Fertility directorate, Agricultural inputs and Marketing directorate), Horticultural Agency, Menagesha Biotech PLC. For more information on the specific policy issues for Ethiopia contact Dr. Tesfaye Shimber.

'Quality & Yield' is the newsletter of the COMPRO II project. It is a quarterly publication that highlights key activities and experiences of the project. 'Quality & Yield' is produced and designed by CABI. We welcome
short and medium length articles by project partners. Send your comments and articles to C.Masso@cgiar.org and J.Watiti@cabi.org
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