The AgriFoSe2030
Annual Report 2018

AgriFoSe2030

Agriculture for Food Security 2030
- Translating science into policy and practice

SLU · Lund University · SEI · University of Gothenburg

Preamble

The Agriculture for Food Security 2030 Programme (AgriFoSe2030) aims to contribute to the Sustainable Development Goal on 'Zero Hunger'. Throughout 2018, the third programme year, our different projects have resulted in many science-based briefs and reports for improved practices and policies to achieve sustainable agricultural production that improve nutrition security in sub-Saharan Africa (SSA) and South and Southeast Asia. The programme has also organized training events in Asia, Africa and Sweden, primarily engaging researchers, but also policy-makers and practitioners involved in the agricultural sector. Altogether, the concept of translating agricultural science into policy and practice through capacity building and co-creation of knowledge that improve food security, is now getting widely acknowledged thanks to all skilled colleagues within the AgriFoSe2030 network!

Importantly, in 2018 we had a programme-wide "mid-term review". This was a very thorough and useful exercise in which we received a lot of constructive feedback on the programme's organization and activities. Both in the short-term, for the final year of phase 1 of the programme, as well in a more long-term perspective for a potential second phase of AgriFoSe2030. We are all looking forward to another successful, and final, year of AgriFose2030 phase 1.

- Professor Ulf Magnusson, AgriFoSe2030 Program Director 2015-2018.

Programme activities

The AgriFoSe2030 programme is designed to train researchers from sub-Saharan Africa, Southeast Asia and South Asia on how to;

- *analyse and synthesise* relevant scientific data and research findings supporting smallholder transformation.
- *communicate* findings to relevant stakeholders including practitioners, policy-makers and development actors.
- *identify and engage* with relevant stakeholders, co-creating knowledge.
- *train and engage* other researchers in how to better bridge the gap between science, policy and practice.

With this in mind AgriFoSe2030 has, during 2018, carried out several programme-wide, cross-theme activities. Some of these are described below.

In January 2018, a programme-wide training course was organized in Bangkok, Thailand, centered around capacity building for communicating science for policy and practice. The training course was followed by a programme-wide workshop titled "How to bridge policy and science? Fostering dialogue between science, practice and policy development". The workshop engaged 48 participants consisting of agricultural scientists from South and Southeast Asia, policy-makers and practitioner representatives from the agricultural sector. See here and here for more information about the course and workshop. The key insights and lessons learned from the workshop has been summarized in a workshop report, see below box for key messages.

Key messages from the workshop

- The ways of linking science, policy and practice are, in most cases, inadequate locally and regionally.
- Scientists in the regions are often unable, or have limited opportunities, to communicate their research results and implications of their research to relevant actors.
- There is a need to increase efforts of building capacity and strengthen individual and institutional mechanisms to collect, analyse and regularly share data and knowledge in a comprehensive and participatory manner.
- The relationships and communication between researchers, practitioners and policy-makers are often weak or absent. Knowledge brokers may contribute in creating such mechanisms and provide the know-how.

In December 2018, the Programme organized the second webinar on how to write a successful policy brief. The main aim of the webinar was to strengthen the capacity of researchers on how to summarize their research findings in a comprehensive way to a broader audience outside the scientific community. Particularly, the webinar focused on how to profile target audiences, formulate and effectively deliver research messages and how to write an attractive title for a policy brief. The webinar was well attended and is available on the AgriFoSe2030 webpage, along with other webinars. They are all continuously serving as tools for researcher on how to better synthesize their knowledge, connect to and receive attention of policy-makers and practitioners (see link here).

The low level of gender equity is a major problem for agricultural development in low-and middle-income countries. Gender equality matters not only in its own right, but as a prerequisite for the health and development of families and societies, and as a driver of economic growth. During 2018, AgriFoSe2030 researchers conducted a cross-thematic literature review on gender research and knowledge in their respective fields in order to identify knowledge gaps. The review concluded that the scientific literature on gender issues in agriculture is scarce and published in a variety of formats, including both scientific and grey literature. This literature is not always easy to assess in terms of scientific quality. A key conclusion of the review was therefore that the structural barriers and key factors that limit women's access to, and inheritance of land, availability of credit, agricultural inputs, services and markets needs to be better recognized, researched, and addressed (for full report see here).

In September 2018, a four-person delegation from the AgriFoSe2030 programme management visited India, invited by AgriFoSe2030 steering committee member Rita Sharma. The main purpose of the visit was to learn more on how India and the Indian Council of Agricultural Research (ICAR), not least through the Krishi Vigyan Kendras (KVK) centers and institutions, supports Indian smallholder farmers to be more productive, sustainable and profitable. The local host was Dr. Javed Rizvi at World Agroforestry Centre ICRAF that together with his team organised a very interesting programme full of meetings and presentations by high-level representatives of the Indian farming and extension support system. The programme also included field visits to two of the KVK stations, and a rural community watershed programme. For more information see here.

I believe that the Indian expertise and experience on transforming the smallholder community to embark on more sustainable, productive and profitable pathways are most relevant for other parts of the world, specifically Africa

- Dr Javed Rizvi at ICRAF

A group of women plant paddy rice seedlings in a field near Sekong, Laos.

THEME 1

Social and economic dimensions of smallholder based agriculture and food security

During 2018, Theme 1 has, among other activities, continued to produce country policy baseline studies and knowledge syntheses, highlighting key social and economic challenges for smallholder agriculture and food security in AgriFoSe2030 target countries. Together with International Livestock Research Institute (ILRI), AgriFoSe2030 Theme 1 has also built a network of policy analysts for enhanced agricultural development, food and nutrition security in Kenya, the ReSAKSS network. In the pilot of this initiative, 13 highly qualified Kenyan graduates were trained in using analytical tools for data gathering, policy analysis and evaluation as well as in communicating and disseminating their findings to relevant decision-makers. As part of their training, they also prepared policy briefs (see box), which were presented at a policy dialogue forum with Kenyan policy-makers and practitioners in Nairobi in September 2018.

Selected ReSAKSS policy briefs

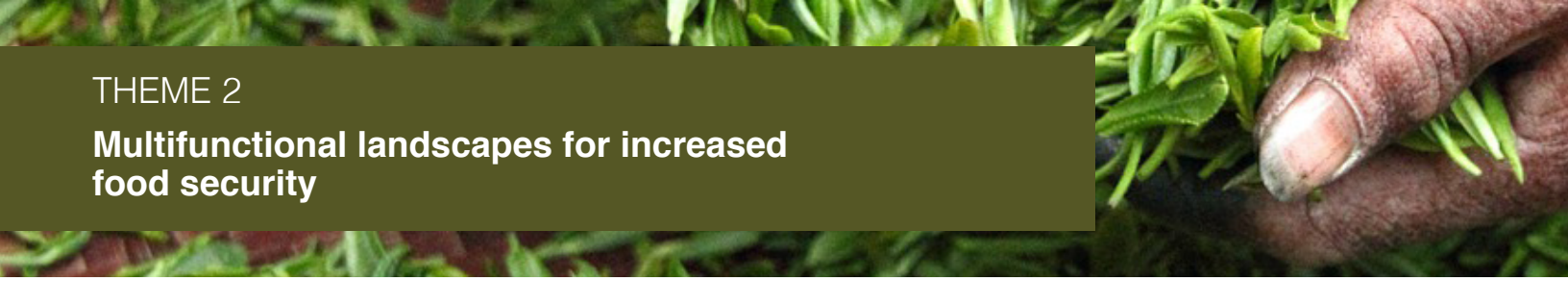
- Improving camel milk quality and safety for higher incomes for pastoralists
- Prickly pear cactus invasion: a major threat to biodiversity and food security in the drylands of Kenya
- Safe traditional vegetables for increased income, food security and nutrition
- Droughts in eastern Kenya: what this means for drought management
- Improving tick-borne diseases control in Kenya: a strategy to incorporate multiple approaches
- Urban agriculture: the neglected gem for food security in Kenya
- Looming threat from disease: a wake up call for Kenyan tilapia fish production
- In the “big four”, food security looms tall—but not without irrigated wheat
- Replenish millions of Kenyan household’s granaries through forest restoration
- Conservation agriculture: can it safeguard our soils
- Awaking the underutilised potential of tourism at the Mount Elgon protected areas,Trans-Nzoia and Bungoma counties
- Commercial pasture production and its economic feasibility in ASAL counties

The trainees all reported that the training has resulted in enhanced capacity to communicate their science and engage in policy processes in Kenya, visualised by the statement below by one of the trainees.

Initially I thought the policy formulation process was a preserve for those in specific positions within government and that scientists had nothing to do about it. However, after our training and engagement with various policy-makers, I am now convinced that as scientists we have a role to play in the process. More importantly, the research we conduct is the source of evidence to inform the policy formulation process and I now understand that I have knowledge that can provide important support for those processes.

Moving forward, Theme 1 seeks to take activities further through innovative approaches having the first cadre of trainees acting as resource persons in a wider capacity building process. The prospects of copying the success of this Kenyan project to other countries in the region are also being explored.

Participants at the policy dialogue, where certificates were awarded to endorse the trainees. Courtesy of Judy Kimani, ILRI.



THEME 2

Multifunctional landscapes for increased food security

AgriFoSe2030 Theme 2 focus on knowledge synthesis that highlight challenges and opportunities for multifunctional landscapes in target countries. Researchers in the theme have done extensive work during 2018 to produce a book titled *Multifunctional land use in Africa: sustainable food security solutions*. Watch the video from the writeshop for this book on success stories, held in June 2018.

One of the stories of the book, on watershed management, is written by Kassa Teka, Mekelle University in Ethiopia who together with Eunice Githa, has a project on *Vermi-Composting for increased Agricultural Productivity.*

In Ethiopia, large parts of the farming area in the country is characterized by low soil fertility, high soil degradation, and extremely low external inputs of fertilizers. The use of earthworms as a composting technique known as vermi-composting has now been introduced as a strategy to improve farmer productivity in a few areas of the country. Vermi-composts contain beneficial soil microbes which help soil to regenerate and become more fertile, promoting agricultural productivity. In this AgriFose2030 project, the technology has been introduced to a large group of women farmers aiming for sustainable adoption.

The project started off with cultivating over 135 000 worms, distributed to 90 women farmers in three areas in Ethiopia. The second step was to introduce vermi-composting, organised as a 5-day training on vermi-compost making, management and use, by researchers and experts from Mekelle University, St. Mary's College and Wukro Agricultural Poly Technique College. To illustrate the potential of the vermi-compost technology, four sites with different agroecological conditions were chosen for experimental demonstrations. Detailed yield and agronomic parameters were recorded to understand how much compost should be used for different types of crops as compared to conventional fertilizers. These experimental sites will continue for the next two growing seasons. The project has engaged a variety of different stakeholders, such as the Bureau of Agriculture and Natural Resources, where visits and demonstration sites have been arranged. In 2019, the project will focus on scaling up to reach more women and stakeholders, including organising a larger stakeholder workshop to present project findings.

Theme 2 researcher during daily follow-up of worms at Mekelle University, and productions of worms at Getskimilesley Farmer Training.

THEME 3

Increased productivity and diversity in smallholder cropping systems for increased food security

Theme 3 has continued to focus on challenges and opportunities for increased productivity and diversity in smallholder cropping systems for increased food security. Here we highlight the work on the root and tuber crop disease prevention in sub-Saharan Africa. Cassava, sweet potato, yams, and potatoes are essential crops for African diets and thus important for food security and the livelihoods of African small-scale farmers. However, loss of crops caused by root and tuber diseases is a severe problem in SSA and the use of environmentally friendly and low-cost disease prevention tools is therefore of great importance for the farmers.

The AgriFoSe2030 project *"Plant protection strategies for disease free tuberous production in Africa"* has used two approaches to support practices for low-cost and sustainable disease prevention.

The first is field demonstrations of low-cost and environmentally friendly methods for crop disease control, where the Theme 3 researchers Tewodros Mulugeta, Philippus Steyn, Lerato Matsaunyane and Erik Alexandersson organised field demonstrations for local farmers, extension agents and local policy-makers in Ethiopia and South Africa. These demonstrations showed the potential of phosphite and botanical extracts to boost the plant's own immune systems making potato plants more resistant to an aggressive potato pathogen *Phytophthora infestans* causing late blight, a major source of yield losses all over the world. In addition, they have collected research done in this subject area through a review on "Botanicals and plant strengtheners for potato and tomato cultivation in Africa".

The second approach has been to develop strategies for producing disease free cassava seedlings to small-scale farmers in East Arica. Cassava has a huge potential to contribute to food security and livelihood in large parts of Africa. But for this to happen, disease free planting material, adequate seed system structures and functional regulations to support the development of cassava seed value chains needs to be developed.

Field demonstrations on plant protection strategies in South Africa.

AgriFoSe2030 researchers Settumba Mukasa, Athanase Nduwumuremyi, at Makerere University and University of Rwanda used their own research to develop a detailed proposal for a new cassava seed system model, and suggestions for key government interventions that can strengthen a sustainable cassava seed system.

Field demonstrations on plant protection strategies in South Africa.

THEME 4

Livestock-keeping among smallholders for a nutritious diet and increased food security

Theme 4 has, among other activities, continued to produce studies highlighting challenges and opportunities for smallholder livestock keeping for a nutritious diet and increased food security in 2018. Here we focus on the project by Dr Maria G Nassuna-Musoke and her team at the Makerere University in Uganda. The project is promoting Jersey cow breed and artificial insemination for improved livelihoods in smallholder dairy farming households in Central Uganda.

The country is currently experiencing a population explosion which largely increase pressure on land available for farming. An increase in population also means an increase in the need for the animal protein and milk production. Exotic animals have been used to improve the milk yield of indigenous cattle through cross breeding, with some successes. However, the crossbred animals have often suffered from diseases and do not perform well under the hot and humid environments in Uganda. Thus, there is a need for breeds of exotic animals which survive and produce well under Ugandan conditions over time. One such breed is the Jersey breed, which, with its small body size is easy to handle by women, children and elderly. Jerseys are also able to transform a wide variety of feed into milk and are thus more cost-efficient milk producers compared to other exotic dairy breeds.

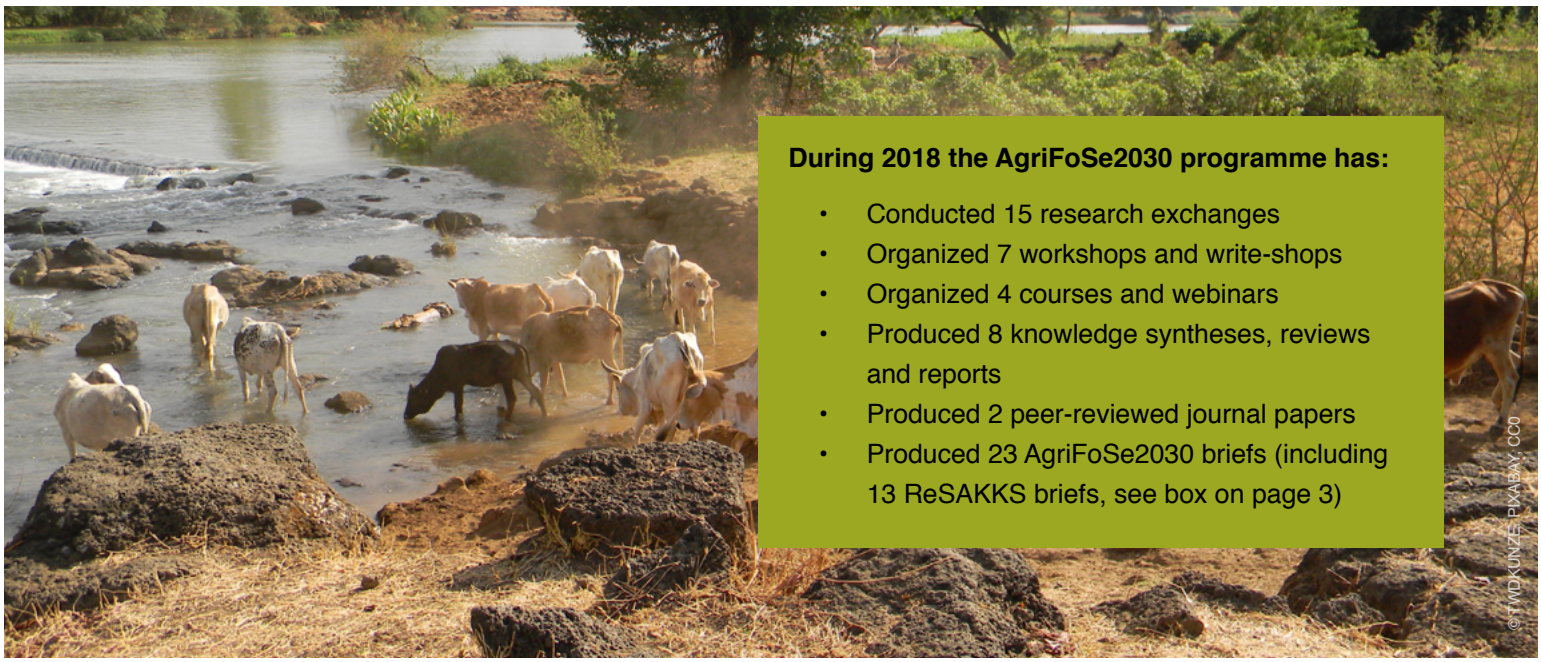
Makerere University's College of Veterinary Medicine, Animal Resources and Biosecurity (CoVAB), together with AgriFoSe2030, are promoting the Jersey breed as a viable alternative to inclusive and sustainable dairy farming in Uganda. The project is placing great emphasis on engaging policy-makers to support this initiative.

The Jersey cow.

In order to identify key stakeholders, understanding the problems and the drivers of change needed to successfully promote the Jersey breed of dairy cattle, the AgriFoSe2030 researchers developed a theory of change (ToC) model for the project together with policy-makers and practitioners. The project also developed a mobile phone application in 2018 to be used for easy recording, transmission and tracking of artificial inseminations as they happen in the field. This application will enable easy and fast recording and transmitting of information to the project team, partners, communities and dairy farmers.

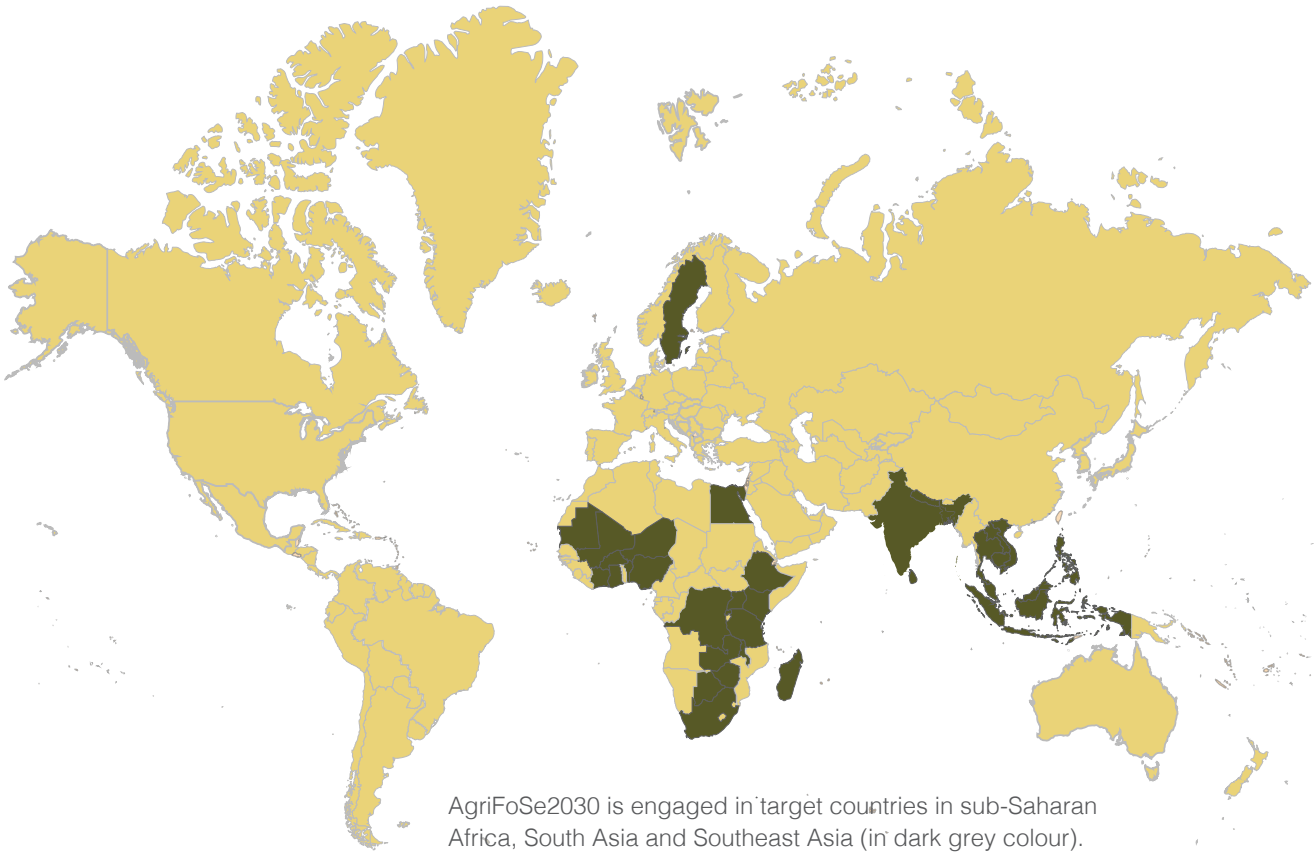
Read more about the work with ToC and listen to Maria talk about it here.

Jersey cows grazing in the field.



During 2018 the AgriFoSe2030 programme has:

- Conducted 15 research exchanges
- Organized 7 workshops and write-shops
- Organized 4 courses and webinars
- Produced 8 knowledge syntheses, reviews and reports
- Produced 2 peer-reviewed journal papers
- Produced 23 AgriFoSe2030 briefs (including 13 ReSAKKS briefs, see box on page 3)



AgriFoSe2030 is engaged in target countries in sub-Saharan Africa, South Asia and Southeast Asia (in dark grey colour).

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Read more about our workshops courses, reports, briefs, syntheses and see webinars on:

www.slu.se/agrifose