

SIMLESA

Bulletin

May 2015

A publication of CIMMYT's Sustainable Intensification of Maize–Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA) project



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MESSAGE FROM THE PROGRAM COORDINATOR



Welcome to all readers of this quarterly bulletin of the International Maize and Wheat Improvement Center (CIMMYT)'s Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA) project.

The project attempts to develop sound, sustainable-intensification options to deal with focused solutions to poor productivity, lack of market access, environmental degradation and the effects of climate change on vulnerable rural populations.

SIMLESA has successfully completed its first phase with good agricultural practices that helped improve the food and nutritional security of smallholder farmers in Eastern and Southern Africa. Funded by the Australian Centre for International Agriculture Research (ACIAR), the project was launched in 2010 to improve the livelihoods of smallholder farmers in Africa through productive and sustainable maize-legume (conservation-agriculture-based) systems and risk management strategies that conserve natural resources. It is managed by CIMMYT and implemented by national agricultural research systems (NARS) in five partner countries: Ethiopia, Kenya, Malawi, Mozambique and Tanzania. With lessons learned from these core countries, the project is also implemented in three spillover countries (Botswana, Rwanda, and Uganda).

The second phase of SIMLESA (2014–2018), a variation of Phase 1, was launched in July last year. Over the next four years SIMLESA will continue to work with the public and private sectors and with new science partners such as the International Livestock Research Institute (ILRI), and the International Center for Tropical Agriculture (CIAT). These partnerships are imperative for SIMLESA to achieve its objective to improve the productivity of maize and legumes for better food security in the focal countries.

As reported elsewhere in this bulletin, over the last four years, SIMLESA has contributed to the development of sustainable intensification options to improve production. The focus on maize and legumes is because maize is a staple crop while legumes are a source of protein for the majority of the rural people.

Both crops are a source of income for the small-scale farmers.

SIMLESA has also embarked upon the application of Innovation Platforms (IPs) to promote and scale out sustainable intensification options which will be further enhanced in the current phase: scaling out is a major objective with a commensurate substantial resource allocation to relevant partners. Innovation Platforms are fora for information and knowledge sharing on agricultural development.

In this issue, we are happy to share with you information on our achievements in various areas of our work. During the period under review, we organized various capacity-building activities as well as planning workshops. As a result, we are particularly excited to publish this bulletin after our regional review, planning and Program Steering Committee meetings and SIMLESA 11 launch and planning meetings in Ethiopia (for Ethiopia), Malawi (for Malawi and Mozambique), and Tanzania (Kenya and Tanzania) as well as highlights on international conferences at which SIMLESA has been represented by both NARS, CIMMYT and other partners. The planning meetings focused on the possible strategies and mechanisms in upscaling SIMLESA work in the second phase. We also highlight our field activities. Our feature article focuses on the role of gender in agricultural development, since one of SIMLESA's key thrusts is mainstreaming gender in its work.

I am particularly grateful to SIMLESA's Project Steering and Management Committees, ACIAR and CIMMYT who provided leadership, resources and guidance to implement SIMLESA's planned activities in various countries. And, on behalf of SIMLESA, I would like to thank all participating countries and partners that have enabled our staff to work with smallholder farmers and other key stakeholders in the region.

We welcome feedback on this and any issues of the bulletin. Please send your feedback to me, or to the SIMLESA Communications Specialist. We look forward to a successful completion of the 2014/2015 cropping season.

Mulugetta Mekuria
SIMLESA Coordinator

SIMLESA PHASE II *is launched*

Gift Mashango and Mulugetta Mekuria

SIMLESA entered its second phase in July 2014 with an urgent call for its components to work in close unison to achieve project objectives.

It was noted that during the first phase of the project, research scientists operated in isolation. Now, there was a greater need for the scientists to work as a team since the project objectives and activities are more closely linked in the second phase.

To kick-start this process, a series of planning meetings were held in Addis Ababa, Ethiopia, from July 1–4.

The SIMLESA Project Management Committee (PMC) team met to ensure that management and implementing partners had a common understanding of project objectives, targets, milestones, indicators and the assignment of coordination responsibilities. Members of the PMC are Olaf Erenstein, Director of CIMMYT's Socioeconomics Program; Bruno Gerard, Director of CIMMYT's Global Conservation Agriculture Program; Mulugetta Mekuria, SIMLESA Project Coordinator; Daniel Rodriguez of the Queensland Alliance for Agricultural and Food Innovation (QAAFI); and Peter Craufurd, SIMLESA Strategy Leader.

All participants agreed on an implementation plan that was further refined at national level during country-specific planning and review meetings later during 2014.

During the last four years, SIMLESA helped to transfer agricultural technologies and provided technical advisory services to smallholder farmers

and allied agribusinesses in five countries in eastern and southern Africa.

As the project entered its second phase in July, SIMLESA reflected on the impact it had in collaboration with its partners and clients.

Based on lessons learned from implementing SIMLESA's first phase, the PMC adjusted the design of activities, timelines and strategies for scaling out SIMLESA best practices to farmers. One key recommendation was to assign a coordinator to each of SIMLESA's four key activities, called objectives, whose coordinators are as follows: Paswel Marenya for activity (i); Isaiah Nyagumbo (ii); Peter Setimela (iii), and Michael Misiko for activity four.

Also, the PMC appointed a committee to spearhead the selection of partners for competitive grants in each country. The committee consisted of the national coordinator for each of the five target countries, an ACIAR representative, a Project Steering Committee member, the objective four leader and a PMC member. The two new partners, ILRI and CIAT, are responsible for forage, and soil-science-related activities, respectively.

A joint meeting with SIMLESA country coordinators was held on July 3–4. The coordinators presented achievements of the first phase, plus the challenges and strategic plan for the second phase. Planned project activities for the second phase are not homogeneous across the SIMLESA countries; they are guided by the country's priorities, the level of support required and the opportunities for scaling out. Discussions centered on strategies to scale out new technologies to more than 650,000 small-scale farmers by 2023.



Participants at the SIMLESA Phase II launch. All the participants agreed on an implementation plan that was further refined at national level during country - specific planning meetings.

ETHIOPIAN OFFICIALS PRAISE SIMLESA ON EVE OF SECOND PHASE

SIMLESA has successfully completed its first phase with significant outputs that helped improve the food and nutritional security of smallholder farmers in Eastern and Southern Africa.

Seifu Mahifere

The first phase ended with the Fourth Annual Regional Review, Planning and Program Steering Committee meeting in Addis Ababa, Ethiopia, on April 7–11, 2014.

Mr. Sileshi Getahun, Ethiopia's state minister of agriculture and the guest of honor, said the project had paid "substantial dividends" to sustainable agricultural development in Eastern and Southern Africa.

"SIMLESA is a model for many regional and sub-regional collaborative projects to address agricultural intensification [in Africa]," Mr. Getahun told more than 120 representatives of SIMLESA partner organizations attending the event.

Dr. Mulugetta Mekuria, project coordinator, outlined SIMLESA's main achievements in developing sustainable intensification options based on conservation agriculture (CA), technology adoption by both female and male farmers, capacity building for NARS of partner countries and the creation of enhanced partnerships and collaboration for a common goal.

Mekuria noted in particular that SIMLESA had contributed to the release of 40 new maize varieties, which have yield advantages of 10 to 30 percent when compared to existing commercial varieties in its project countries. The project also trained more than 3,000 agricultural scientists in the maize and legume production value chains and engaged more than 40,000 farmers (almost half of them women) through farmer field days and exchange programs.

Dr. John Dixon, ACIAR Principal Research Advisor, expressed his institution's commitment to support SIMLESA, which is considered a flagship project and is being adopted by donors as a framework for



Dr Mulugetta Mekuria addressing delegates at eve of SIMLESA second phase

sustainable intensification.

Dr. Fentahun Mengistu, Director General of the Ethiopian Institute of Agricultural Research and SIMLESA Program Steering Committee member, said SIMLESA had significantly contributed to the generation and adoption of user-preferred maize and legume technologies, as well as information and knowledge that improve system productivity and profitability of the target farming systems.

"The outcome of SIMLESA, in terms of human capacity and research facilities will improve our efficiency and impact in agricultural research in the future," Mengistu said.

Dr. Olaf Erenstein, CIMMYT Socioeconomic Program Director and SIMLESA Program Management Committee Chair, said SIMLESA II would have a broader technological focus on systems and would have positive impact as well as the creation of more partnerships and scaling out of project results.

The week-long meeting featured country-specific achievements from Australia, Ethiopia, Kenya, Malawi, Mozambique and Tanzania, backed by poster displays showcasing success stories.

Participants also visited maize and legume seed production, forage and irrigated intercropping trials and the Melkassa Agricultural Research Center, showcasing SIMLESA-supported technologies. They also saw an ultra-modern export company that cleans, grades and packages legumes and is linked to SIMLESA research teams in Ethiopia.

The Program Steering Committee commended SIMLESA for its substantive progress and NARS partners for their professionalism and skill during the meeting.

CIMMYT Embarks on Planning Meetings to Kick-Start Second Phase of SIMLESA



Participants at the Tanzania meeting. This last planning meeting meant that CIMMYT would go full throttle to implement SIMLESA second phase.

Johnson Siamachira

From August to October 2014, CIMMYT held a series of SIMLESA planning and launch meetings in Malawi, Ethiopia and Tanzania.

The meetings were a follow-up to the launch of SIMLESA 11 held in Addis Ababa, Ethiopia, in July 2014.

Representatives from ACIAR, QAAFI, CIAT, NARS of Ethiopia, Malawi, Mozambique, Kenya and Tanzania and CIMMYT scientists from Ethiopia, Kenya and Zimbabwe, met to finalize activities to meet the objectives of the second phase of the project.

The major objectives of the planning and launch meetings were to produce country-specific operational plans for the five SIMLESA countries. This involved realigning the countries' activities to the overall SIMLESA II project plan.

The Malawi launch and planning meeting was from August 18–22. Dr. Mackson Banda, SIMLESA–Malawi Program Steering Committee member and Acting Director of the Department of Agricultural Research Services, and Mr. Bright Kumwembe, Permanent Secretary, Ministry of Agriculture, Malawi, jointly opened the meeting. Kumwembe expressed his gratitude to CIMMYT and SIMLESA's contributions to improving food security in Malawi, and thanked ACIAR for funding the project.

The five-day meeting, attended by 50 people, ended with a field trip to Mitundu, Lilongwe District. Although the framing season had ended and therefore no crops in the fields, the visit was useful to the participants as it demonstrated practical examples and benefits of conservation agriculture.

In Ethiopia, key outcomes of the planning meeting, held from September 23–25, included a renewed commitment from the Ethiopian government and project partners, and an improved understanding by the project partners of their roles and key work areas.

Dr. Eshetu Verso, Deputy Crop Research Director of the Ethiopian Institute of Agricultural Research and guest of honor at the meeting, said SIMLESA had improved the production and productivity of smallholder farmers through productive and sustainable maize–legume systems.

Dr. Mulugetta Mekuria said the second phase of SIMLESA would complement the achievements of the first phase, especially by scaling-out good agricultural practices. “As we enter into the second phase of SIMLESA, we are taking stock of the successes and challenges of the previous phase. This will help us to plot the path for the next phase. We see this as presenting opportunities in current and future work,” he added.

The joint meeting for the Kenya and Tanzania country teams, held in Arusha, Tanzania, from October 14–17, was the third and last launch-and-planning meeting.

Dr. Fidelis Myaka, Director of Research and Development, Ministry of Agriculture, Food Security and Cooperatives, Tanzania, was the guest of honor. He said SIMLESA was one of the pathways for Tanzania to meet its nutritional requirements and achieve food security for its population by 2050. Myaka, who is also a SIMLESA Program Steering Committee member, added that the project's first phase focused on various agricultural technologies and improved the yield and productivity of

smallholder farmers through sustainable maize–legume systems in the five core countries.

“Now, we need to upscale all these good experiences and the second phase is not an opportunity to be missed. The implementation of SIMLESA II will give all of us an opportunity to work with farmers to increase their production for sustainable food security and income,” Myaka told the 42 meeting participants.

Mr. George Mburathi, ACIAR consultant, said SIMLESA had a role to play in telling its own story to the outside world. “SIMLESA should proactively develop content for its publications to give smallholder farmers a voice. This way, you will help to involve various stakeholders by communicating


for impact and influence.”

At the three planning and launch meetings, national coordinators from the five countries gave an overview of SIMLESA I products. Leaders of each of the four key thematic areas highlighted the major changes to each area in SIMLESA II. Cross-cutting areas such as gender mainstreaming and development communications were also highlighted as crucial for SIMLESA II's success and impact. Participants developed workplans aligned to country priorities, which were linked to country financial budgets.

This last planning meeting meant that CIMMYT would go full throttle to implement SIMLESA second phase.

FROM THE FIELD

ETHIOPIA'S RESEARCH CENTERS AND ON-FARM VARIETY TRIALS EVALUATED



SIMLESA undertook the assessment in preparation to scale-out recommendations for the second phase of the project.

Johnson Siamachira and Hae Koo Kim

From September 15–22, 2014 SIMLESA undertook a week-long assessment of its conservation-agriculture (CA) -based on-station research, and on-farm activities in Ethiopia.

The SIMLESA project started in 2010 in partnership with the Ethiopian Institute of Agricultural Research (EIAR) and eight of its federal and regional research centers, covering 17 districts in different agroecological environments.

SIMLESA undertook this assessment in preparation to scale-out recommendations for the second phase of the project. CIMMYT socioeconomists (Paswel Marenya, Moti Jaleta and Adam Bekele), agronomists (Hae Koo Kim, Stuart Irvine-Brown and Joe Eyre) and breeders (Dagne Wegary and Alemeshet Lemma), EIAR and the Queensland Alliance for Agricultural

and Food Innovation (QAAFI), assessed the different maize–legume and forage/fodder production systems in northwestern Ethiopia (South Achefer, Jabitenan and Pawe), in the western subhumid area (Bako), in eastern Ethiopia (Jijiga and Gursum) and in the central/southern Rift Valley area (Melkassa, Meki, Adami Tulu, Hawassa, Boricha and Locakabaya).

Overall, the on-farm exploratory and on-station research trials carried out during Phase 1 demonstrated helpful technologies adopted by some farmers. However, the concerted effort and continued training of government extension workers and research institutions is critical for SIMLESA's long-term impact. More documentation of activities, success stories and exchange visits with peer farmers can enhance farmer-to-farmer participation and information sharing.

Although this was not a complete evaluation, the scientists monitored the progress across the different locations.

On-farm exploratory trials have been going on for three to four farming seasons, with the establishment of CA technology rated as “robust” in many agro-ecologies. In locations where crop–livestock competition is high, the new forage/fodder varieties should provide more solutions for scaling out CA technologies. At Pawe, farmers were excited about intercropping maize and soybean under minimum tillage as they observed a large reduction in disease and Striga infestation. At Bako, about 450 farmers in five districts are participating in pre-scaling-up of crop rotation and intercropping in maize and haricot beans, in addition to maize and soybean intercropping and rotation.

In some locations, the implementation of CA activities as a complete package has been challenging, with issues related to waterlogging, termite infestation and weed control. In particular, researchers and extension agents expressed the need to revise the CA package to provide better methods to improve weed control and residue management.

Even in relatively remote areas such as Pawe and Jijiga, the evaluation team observed young, capable and committed researchers with an established infrastructure. They also noted that farmers were committed research partners, adapting technologies to their preferred varieties and techniques. The evaluation team recommended local production of different maize, legume and forage seeds so that they are available for scaling-out partners during the next phase.

In the Southern Rift Valley, there was clear evidence of SIMLESA technology at work — intercropping of maize and pigeon peas or new crops for forage under minimum tillage. Farmers' technologies also featured relay-cropped haricot beans, residue retention and lay pasture rotation.

Ahead of the SIMLESA II planning meeting in Ethiopia at the end of September, the entire team acknowledged CA-based maize–legume cropping systems as a highly relevant intervention to reduce smallholder farmers' vulnerability and food insecurity.

RWANDA

So Much Abundant Potential In Rwanda

SIMLESA officials visited Rwanda from April 18–22 2014. Their purpose was mainly to monitor country activities in the first phase of the SIMLESA project and to plan for the second phase. The team visited Bugesera and Kamonyi Districts in eastern and southern provinces of Rwanda respectively.

Rwanda is one of the SIMLESA spillover countries. The other spillover countries are Botswana and Uganda. In SIMLESA 11, South Sudan is no longer part of the project mainly due to political instability in that country.

The SIMLESA officials visited long-term trials, established demonstration plots and conservation agriculture farmers. In all the fields visited, the importance of crop rotation was clear, given increased yield attributed to rotation. Also, more than 50 farmers in Bugesera District said the SIMLESA project had made them realize the importance of certified seeds in boosting agricultural production. Use of certified seed is one of the fundamental SIMLESA-

promoted practices. Fifty-three farmers in the two districts adopted CA and are moreover scaling out the technology to other farmers. The farmer field schools approach has been established through early adopters who each assist at least 10 farmers: Rwanda holds much agricultural potential to improve smallholders' productivity and yields.



Smallholder farmers in the two districts adopted conservation agriculture, such as mulching, and are moreover scaling out the technology to other farmers.



TRANSFORMING FARMING THROUGH CONSERVATION AGRICULTURE IN MALAWI

Johnson Siamachira and Isaiah Nyagumbo

Fifty-year old lead farmer Mrs. Catherine Kariza lives in one of Malawi's drought-ravaged villages in Ntcheu District. Kariza has been growing maize since 1985, but without water for irrigation and using traditional farming practices. Consequently, her yields were very low. With erratic rainfall, she harvested less than 1 tonne of maize per hectare, forcing her to register for government food relief services.

“Due to the harsh climate in Ntcheu, crop farming without irrigation was a huge challenge,” she said. Most smallholder farming in Malawi focuses on producing staple food crops, such as maize, for home consumption. The smallholder sector remains largely unprofitable and is characterized by low uptake of improved inputs and technologies, poor quality control, weak links to markets, high transport costs, and lack of access to finance and credit. To increase production, incomes and employment opportunities, and to move from subsistence to commercial farming, these issues need to be addressed effectively.

Since agriculture plays a dominant role in Malawi's economy, conservation agriculture — which aims for the sustainable and profitable farming based on three principles of minimal soil disturbance, permanent soil cover and crop rotation — is one key strategy to help reduce poverty and to enhance climate resilience, in addition to increased agricultural productivity.

CIMMYT's SIMLESA project, is using conservation-agriculture-based systems in six districts of central Malawi, namely Kasungu, Mchinji and Lilongwe in the mid-altitude agroecology; and Balaka, Ntcheu and Salima in the lowlands agroecology. Following the successful implementation of the first phase, CIMMYT is implementing the second phase of

SIMLESA from 2014 to 2018, with an increased focus on upscaling the sustainable intensification technologies initiated and tested in the first phase.

As a result of early planting and adoption of good conservation-agriculture practices, Kariza, who is one of the lead farmers, got an excellent maize harvest and was able to introduce the technologies to 50 fellow farmers. Before SIMLESA, she used to produce 200 kilograms of maize on 0.3 hectares. However, after adopting SIMLESA-promoted technologies, Kariza managed to produce 1,350 kilograms of good-quality maize during the 2013/2014 growing season. Besides this, she also managed to produce 2,000 kilograms of groundnuts per hectare. Based on Kariza's experience, the maize-groundnut rotations under CA have led to yield increases upwards of 40 percent compared to continuous maize farming.

While the lead farmers do not access the full agricultural training given to extension officers, SIMLESA does however train them on some of the key improvements farmers can make to their farms.

Project agronomists and technicians provide training on choice of planting material, integrated pest and disease management and correct application of fertilizers. Farmers also learn basic business skills including record-keeping.

“I did not know that changing my farming practices to CA would make a huge difference to my yield.” Said Mrs. Jessie Mbobo, a lead farmer in Kasungu District

Mbobo intercroops maize with soybean to improve soil fertility and benefits from the produce by increasing household nutrition. She also uses herbicides such as glyphosate and Harness to control weeds in her CA plots.

Last farming season, Mbobo increased her maize production from 350 kilograms to 1,000 kilograms on her quarter-hectare plot. Mbobo's yields were significantly higher than the national average of approximately 2.6 tonnes of maize per hectare.

Malawi's mainstay is agriculture. This however leads to over-utilization of land for production of crops such as maize, the country's staple food. Over-utilization depletes soil nutrients leading to increased need for inorganic fertilizer. However, with increasing costs, most smallholder farmers cannot afford fertilizers, leading to low productivity. Therefore, production of legumes is pivotal in reducing nitrogen scarcity in the maize-based cropping systems since they assist in biological fixation of nitrogen in the soil thereby improving soil fertility.

Grain legumes are an important component of the country's maize-based farming systems. Beans and pigeonpeas are mostly intercropped with maize and other cereals. Maize and pigeonpea intercropping is a common practice especially in southern Malawi where average land holdings are small.

To test the productivity and resilience of sustainable intensification systems, exploratory trials were

established in 2010 to gauge various CA-based cropping systems selected on the basis of local cropping preferences, and adaptability to the local environment. Six farmers in each district were selected to host trials. In the lowlands of Malawi, five cropping systems were tested: the ridge and furrow traditional farmer practice, CA planting basins (15cm wide x 15cm deep) with maize intercropped with pigeonpeas, CA dibble-stick maize intercropped with pigeonpeas, CA dibble-stick with only maize and CA dibble-stick maize-groundnut rotation.

In addition to the testing of these technologies on these core on-farm exploratory trials, SIMLESA also embarked on an outscaling drive in which the core farmers graduated to become lead farmers building capacity among their peers. Each lead farmer is expected to work with at least 10–15 other farmers through simplified outscaling trials in which each farmer uses the traditional ridge-and-furrow system plus one other CA technique of their own choice. The lead farmers teach other farmers using their own land as demonstration plots. Most of this was facilitated through local innovation platforms which sought to facilitate improved access to inputs and to markets, farmer learning and knowledge exchange.



Maize and legumes intercropping is a common practice especially in southern Malawi where average land holdings are small.

MEGA DEMONSTRATION PLOTS IMPROVING AGRICULTURAL PRODUCTIVITY IN EASTERN KENYA

Alfred Micheni

Lead farmer James Mugo from Kyeni in eastern Kenya has increased his maize yields, thanks to a new concept that trains farmers to grow crops better.

Mugo is one of a small group of farmers who grew maize using conservation-agriculture (CA) -based systems. For him, the use of mega demonstration plots means that he is now able to increase the total production of his agricultural produce, with a surplus for income.

“As smallholders we have seen that the mega demonstration plots act as a conduit for us to learn better agricultural techniques,” said Mugo.

With the good agricultural practices that he learned from the mega demonstration plots, Mugo estimates he will harvest three tonnes of maize per hectare from his half-hectare plot this season – enough grain to feed his family of six throughout the year, with a surplus for sale. Mugo learned other good agricultural practices such as soil and water conservation, soil fertility management, seed variety selection for all crops suitable for the area, weed control, planting techniques and crop nutrition. The average maize yield in the area is 0.7 tonnes per hectare.

Mega demonstration plots are learning centers implemented by SIMLESA in eastern Kenya to promote smallholder agriculture and bring together farmers, Ministry of Agriculture staff, agro-dealers and other relevant stakeholders.

A mega demonstration site is a plot more than one acre which a community member provides. The plot hosts the project's promoted conservation-agriculture tillage methods, cropping systems and maize and legume varieties, including fodder crops. Technologies from members of local innovation platforms (IPs) are demonstrated. IPs are a medium to share information, knowledge and skills on agriculture technologies and development. Each demonstration plot is also used for training and field days. These also serve as learning sites where best practice to optimize productivity are demonstrated and compared.

One of the core functions of SIMLESA is to catalyze adoption of conservation-agriculture-based technologies by farmers in eastern Kenya. Mega demonstration plots were established in 2013 in the four project sites: Kyeni, Mariani, Mweru and Nkogwe.

SIMLESA conducted planning meetings in September–October to take stock of events and activities implemented during Phase 1. The meetings also mapped participatory strategies for out-scaling activities in SIMLESA II, to reach more beneficiaries within and beyond the initial project sites.

Maintenance of existing on-farm exploratory and demonstration plots and conducting field days were suggested to improve knowledge sharing in eastern Kenya. Exchange visits for IP members were also recommended to expose participants to knowledge beyond their region.



Mega demonstration plots, such as the one in the picture, are learning centers implemented by SIMLESA in eastern Kenya to promote smallholder agriculture and bring together farmers, Ministry of Agriculture staff, agro-dealers and other relevant stakeholders.

Good Agricultural Practices (GAPs) Help Increase Crop Productivity, Food Security

Domingos Dias

Farmers from five communities in Mozambique have welcomed a new variety of maize, Pristine, introduced during the first phase of SIMLESA, and suggested that it should replace the old, open pollinated variety (OPV) Tsangano.

Pristine, which matures in about 75 days, is disease resistant, and is proving popular with smallholders in the communities of Manica, Sussundenga, Rotanda, Ciphole and Cabango because of its exceptionally high resistance to drought and its excellent grain quality.

From June 28 to July 5 2014, SIMLESA–Mozambique in collaboration with other partners and Innovation Platforms (IPs), conducted feedback meetings with researchers, extension workers and smallholder farmers from the five communities hosting the exploratory, participatory variety selection (PVS) and Mother Baby Trials (MBT). In Sussundenga, the meeting was attended by 32 farmers (15 women and 17 men).

The smallholders are already reaping the fruits of acquiring technical knowledge in agriculture. The farmers who participated in the field trials said the good agricultural practices (GAPs) they learned from SIMLESA helped them to attain better yields. These GAPs included use of hybrid seeds, correct crop variety, crop rotation and intercropping, among other technologies.

Through information sharing platforms such as field and technical days and farmer visits, the smallholder farmers learned good farming methods from each other. The field and technical days are helping to validate SIMLESA's whole-farm agricultural model

and the project's sustainable intensification of maize–legume (CA-based) cropping systems for food security.

Farmers also suggested using pigeonpeas (variety ICEAP 00040), cowpeas (variety IT-16) and sugar bean as alternatives for cover crops due to high infestation of termites that wipe out all residues and for crop intensification in the CA fields during SIMLESA 11. Intercropping and rotation of maize with legumes using CA and good agricultural management practices were also reported a very promising technologies and were selected for upscaling to new farmers during the second phase of SIMLESA.

Mozambique has a substantial maize-growing area of 1.4 million hectares. However, production stands at a mere 1.2 million tonnes annually due to low average yields (0.85 tonnes per hectare with high variability). Despite ample land, soil fertility and research and extension capacity are low, and infrastructure weak. Agriculture in Mozambique also suffers from recurrent droughts and floods, use of unimproved varieties, lack of access to good-quality inputs as well as dysfunctional agricultural markets. Consequently, the country regularly falls victim to devastating food and nutrition crises.

To address this all-too-familiar recurring scenario, SIMLESA is working with selected partners to build the capacity of agriculture and farmer institutions. A critical aspect is training of breeders, technicians, extension staff and focal farmers, seed companies for hybrids seed production, agronomists and economists to spearhead maize–legume value chain analysis and higher-level training in tertiary institutions.

GENDER

Integration In SIMLESA II: Empowering Smallholder Farmers To Realize Economic Opportunity

Vongai Kandiwa

(Gender and Development Specialist, CIMMYT–Kenya)

In Eastern and Southern Africa where CIMMYT's Sustainable Intensification of Maize–Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA) project works, women hold the key to improving the quality of life and increasing the food security of rural families. While men may have greater access to land, credit and market networks, women have the potential to be the drivers of agricultural productivity.

SIMLESA strives to provide men, women and youth with equitable access to inputs, credit, markets and training opportunities. The project integrates gender sensitivity into all project activities, facilitate people's access to basic services and continually evaluate results to maximize its impact on both men and women.

As part of our agricultural research and development work, SIMLESA's commitment to integrating gender strives to bring time- and labor-saving technologies to women farmers in the region. That's why SIMLESA, a project that aims to increase food security and incomes for smallholder farmers in five core countries in Eastern and Southern Africa (Ethiopia, Kenya, Malawi, Mozambique, and Tanzania) is ensuring women are among those receiving the technical assistance that can help them reach their full potential in the agriculture sector.

As SIMLESA is in its second phase, with all the excitement and energy, it is good to take stock of where we are on fostering gender equality and where we go from here. After all, our funding partners, ACIAR, CGIAR, CIMMYT and national governments in all SIMLESA countries are committed to social inclusion broadly, and to gender equity in particular. Specifically, these institutions' gender policy positions challenge SIMLESA to be vigilant about inclusiveness. Do SIMLESA approaches reach all individuals in the communities we serve? In what ways might certain subgroups, such as women or men, be constrained in accessing and adopting improved technologies? What can SIMLESA do differently to understand the various social contexts and develop ways to address them? If we pay attention to gender, what difference will it make in terms of ensuring food and income security and natural resource conservation?



In SIMLESA II, the aim to consolidate the gains made during SIMLESA I. Through the Association for Strengthening Agricultural Research in Eastern and Southern Africa (ASARECA)'s leadership, SIMLESA I strengthened the capacity of more than 1, 000 individuals by providing gender-sensitive training at times and places that were convenient for men and women to ensure they received equal access to the skills and knowledge needed to succeed in agriculture.

Additionally, ASARECA documented in-depth case studies that improved our understanding of best practice for gender analysis and development. SIMLESA II is poised to build upon this solid foundation and effectively integrate gender. SIMLESA is happy to report four key pathways to integrate gender into agricultural value chains and ensure all household members benefit from expanded agricultural and economic opportunities:

- a strong team of gender experts
- a gender strategy
- an gender monitoring and evaluation (M&E) framework
- solid commitment from the project leadership and team

Firstly, because SIMLESA operates in five African countries, it is essential to have a strong coordination unit that helps to streamline — and to some extent standardize — activities and tracking of progress. SIMLESA II engaged CIMMYT's gender specialist, to lead and coordinate the integration of gender. Since joining SIMLESA in July 2014 and with the help and

input from country coordinators, Vongai identified a strong team of country gender focal persons: Dr. Rehima Mussema (Ethiopia); Charles Nkonge (Kenya); Kenneth Chaula (Malawi); Maria Luz (Mozambique); and Vidah Mahava (Tanzania). This team will ensure that gender is taken into account during priority-setting fora such as country planning and coordination meetings, provide technical backstopping in-country and provide leadership on monitoring and evaluation of gender equality outcomes and processes.

Secondly, SIMLESA produced and widely shared a draft gender strategy for the project. The strategy provides clear guidelines on where gender is relevant, delineates where action is feasible, what specifically needs to be done, by whom, at what level, at what cost, and how to track progress. The strategy is built upon three key principles:

1. **Understanding** – seeks to critically examine and understand how, and in what contexts, gender has impact on conservation-agriculture (CA) - based) maize-legume systems, especially for adoption and scaling out.
2. **Opportunity** – women are sometimes unable to influence the decisions that directly affect farm yields and household income. SIMLESA promotes agriculture as a family business, giving women the ability and autonomy to make decisions. We train women in leadership skills and negotiation, and plan to train them in group formation. The project also endeavors to foster equal opportunities for men, women and youth to access information, markets, participate in demonstrations, trials and field days, and receive training and provide leadership in local agricultural innovation platforms.
3. **Learning** – continued learning on gender through research and practice. Overall, in SIMLESA II, the project hopes to minimize the chances of creating gender gaps in access to improved technologies and opportunities, bridge gender gaps where they exist and avoid creating new ones. The strategy was presented and discussed at the Malawi and Mozambique planning meetings in August 2014. It was also presented and discussed at the Ethiopia, Kenya, and Tanzania planning meetings.

Thirdly, the SIMLESA gender strategy outlines clear and measurable M&E indicators which will be integrated into the overall SIMLESA M&E framework. Most importantly, the project not only track standard quantitative indicators, but also qualitative ones such as approaches and processes that are effective in ensuring equal participation and benefits sharing between men and women in

communities where we work. The idea is to share ideas, learn from one another and constantly improve on our strategies.

Finally, and probably most importantly, SIMLESA leadership remains strongly committed to gender equality in word and deed. Interactions with Dr. Mulugetta Mekuria (SIMLESA Project Coordinator) and George Mburathi (ACIAR Consultant) always leave the project team with a sense that it gets better every time – that having an impact especially on the lives of women in SIMLESA countries is within reach. That leadership and commitment is conducive for integrating and mainstreaming gender in planning and implementation, as well as in monitoring and evaluation.

Looking ahead, what will it take to successfully integrate gender? Success on gender in SIMLESA will not entirely depend on what individual SIMLESA gender experts do. Rather, it is our collective commitments, responsibilities and efforts that matter. After all, many of the gender-relevant activities will be led and carried out by other SIMLESA team members who are not necessarily gender specialists. In most cases, project teams never lack commitment to gender: what usually limits them is clarity on what needs to be done. With the SIMLESA gender team in place, a solid strategy and a robust M&E framework, SIMLESA has no excuses.



Men and women should participate effectively in agricultural development. Above, an Ethiopian farmer explains the devastating effects of striga infestation.

SIMLESA

on the International Map

CONSERVATION AGRICULTURE PRACTITIONERS LEARN TO BETTER UNDERSTAND CA CONCEPTS



The sixth World Conservation Agriculture Congress at Winnipeg Convention Center, Canada, from June 23–25, 2014, emphasized and presented solutions for quick adoption of conservation agriculture (CA), particularly in Africa where farmers are affected by critical challenges such as late weeding, inefficient residue application and lack of farm mechanization.

The need for farm mechanization to ease CA demand for labor, particularly for weeding and residue maintenance, was also viewed as a key strategy for CA success at the three-day congress. In the case of Africa, special CA equipment such as jab planters and small tractors were considered critical tools.

Although they are not cash crops, cover crops such as sunhemp, peas, pigeonpeas and beans could resolve the lack of residue, termite infestation and residue competition by livestock, the congress was told.

Crop management is key to CA success in Africa. Lack of knowledge on basic agronomy practices among both farmers and extension workers hampered CA performance and adoption. The panelists and presenters emphasized the rehabilitation of non-responsive soils. However, the challenge is the difficulty and inappropriateness in most

environments. The congress presented strategies for addressing soil health challenges.

Relevant topics related to soil health programs and works can be found on VI WCAA proceedings particularly Healthy Soil is the Foundation for Food (by Jill Clapperton) and Technological Interventions for Strategic Management of Water in Conserving Natural Resources (by Chandra Sekhar Praharaj).

On the last day of the congress, ACIAR/SIMLESA organized a parallel meeting to discuss cross-cutting issues affecting smallscale farmers, policy challenges, networking, general constraints to CA adoption and challenges affecting CA promotion particularly in East and Southern Africa where CIMMYT is implementing SIMLESA.

The last day of the congress was also dedicated to field visits for both Canadian and USA conservation agriculture and technological farmers' sites.

Three agronomists from SIMLESA countries — Mozambique, Kenya and Tanzania, and one from Uganda, a spillover country — presented posters and abstracts on agricultural developments from their countries.

CIMMYT^{MR}



SIMLESA To Share Lessons Learned, Experience Gained

Johnson Siamachira

CIMMYT's Sustainable Intensification of Maize Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA) project held two workshops to extract, document and package key messages and lessons learned, as well as experiences gained from the first phase of the SIMLESA (2010-2013). Using appropriate channels, these will be disseminated to wider audiences and partners under the guidance of CIMMYT's Communication Team.

The first meeting was held in Melkassa, Ethiopia, from December 15-17, 2014, while the second was held in Lilongwe, Malawi during January 19-25, 2015. Similar meetings were planned for Kenya and Tanzania teams during the first quarter of 2015.

Dr. Paswel Marenja, SIMLESA socioeconomics (Objective One) Team Leader, told the two meetings that one of the major challenges for researchers everywhere is to make themselves heard clearly, and by many different publics. "If a tree fell in the forest and no one is there to hear it, did it make a sound?" He posed. "If we produce interesting research from our work but fail to document and communicate these to the wider community, we lose a great opportunity to be heard and we may also lose the opportunity to make an impact," he added. In fact, many development practitioners contend that inadequate documentation skills in many organizations made it difficult for them to gather success stories, case studies and information beneficial for informing policy action and technical guidelines for extension staff, among other communication products.

The three-day meeting in Ethiopia was attended by 23 participants from the Ethiopian Institute of Agricultural Research (EIAR) and CIMMYT. Selected participants from EIAR presented summarized information on achievements of SIMLESA Phase I.

Keynote presentations focused on farm household typologies, economic return analysis of conservation-agriculture-based practices and adoption monitoring.

Participants recommended that SIMLESA advice on the production of appropriate information and communication products, based on the information presented.

The five-day Malawi meeting was attended by 25 people from the country's Ministry of Agriculture, and the National Association of Smallholder Farmers of Malawi. The meeting agreed to focus on pulling together the output from SIMLESA Phase I around the following themes:

- Success stories, markets and value chains (the consolidation in the markets and value chains work could focus on developing maize legume value chain factsheets);
- Adoption monitoring (possible products are factsheets and policy briefs);
- Agronomic and economic impacts of conservation agriculture;
- Innovation platforms (videos, radio programs and feature articles); and,
- Gap analysis in SIMLESA.

To complement the discussions, the participants took a one-day field trip to Salima District. Mr. Donald Siyeni, SIMLESA Malawi Conservation Agriculture (Objective11) representative, said: of the meeting: "The meeting has helped the Malawi team to focus on the project's achievements and to shape future activities."

Now in its second phase (2014-2018) SIMLESA implements a number of development initiatives in Ethiopia, Kenya, Malawi, Mozambique and Tanzania. These initiatives are expected to produce lessons that will inform future long-term agricultural interventions in sub-Saharan Africa. Stakeholders are supposed to generate communication products with the assistance of SIMLESA field staff. These lessons are part of CIMMYT's responsibility to produce public goods in the form of "knowledge products" that can be used to guide agricultural development in maize-based systems around the developing world.

A TECHNOLOGICAL SOLUTION FROM SIMLESA IS AT HAND TO SOLVE A PERENNIAL PROBLEM, BUT....

“...TRAINING ALONE WITHOUT MARKET LINKS IS NOT PROFITABLE”

Insights From Malawi And Mozambique

Isaiah Nyagumbo, Johnson Siamachira and Jefias Mataruse

And what solution is this? That Southern Africa smallholder farmers can attain food security and more income through sustainable intensification of maize-based farming systems. This was revealed during recent field learning tours in Malawi and Mozambique.

The annual field tours, which ran from February 9–19, 2015, were organized by CIMMYT's Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA) project. A total of 224 people (147 men and 77 women) visited 11 sites. The objectives of the field tours were twofold: to examine how the new experiments under SIMLESA Phase II were progressing, and to gather farmers' feedback on some of the sustainable intensification research interventions.

SIMLESA's farmer-tested improved maize-legume technologies were showcased during the learning tours. Smallholder farmers interacted with non-governmental organizations (NGOs) and private-sector partners who have shown a great interest in the SIMLESA outscaling approach using lead farmers and learning sites. Some of the sites promote smallholder agriculture development by linking farmers with buyers and agrodealers, and by providing access to credit and technical training.

In Malawi, the field visits began at Kasungu District, with 16 farmers and technical staff from Mozambique who were on an exchange visit also participating. The group visited outscaling initiatives by the National Association of Smallholder Farmers of Malawi (NASFAM), in which maize-groundnut rotations and maize-pigeonpea systems are being implemented through lead farmers. More than 120 households per

field learning site are participating in the demonstrations on each of the five NASFAM sites visited.



Transforming agriculture through technology: One of the farmers in Mitundu district, Malawi, Mrs Grace Chitanje, leads indemonstrating the use of Li seeder equipment

In the mid-altitude agroecological region of Malawi, new maize varieties have been introduced under SIMLESA Phase II as well as new groundnut and cowpea varieties, in addition to the previously tested soybean varieties in the core on-farm exploratory trials.

Conservation agriculture (CA) exhibited mixed fortunes and presented more opportunities for information sharing. Due to the excessive rains experienced in January, maize on the conventional ridge-and-furrow systems was generally greener and taller than on the CA plots, although the positive rotation effects in CA were clearly evident from the healthy maize crop following soybeans. Also, some maize varieties under CA were more susceptible to diseases such as leaf rust and suffered more from pests such as white grubs which attacked maize roots.

The next stop in Malawi was Mitundu, Lilongwe District, with new crop establishment trials. Here,

various new hand-planting tools were being tested, such as jab planters, the Li seeder or planting hoe and the Oklahoma State University (USA) green seeder — all in comparison to the conventional dibble stick and traditional hoe.

"The use of a Li seeder has a lot of advantages, including enabling farmers to work faster, saving on time and does not strain the back," said Mr. James Segula, a smallholder farmer. The Li seeder simultaneously opens a planting hole, drops seed and fertilizer, and covers the hole.

Key lessons for the Mozambique and Malawi groups were timely weeding, correct maize and legume crop varieties, correct use of fertilizers, residue application and appropriate and safe use of agrochemicals.

Crossing borders to Mozambique's Angonia District, the group visited exploratory trials which included farmer-preferred maize varieties and the new maize-soybean intercrop system being tested for the first time. In SIMLESA Phase 1, common beans intercrop failed, hence the switch to soybeans. In the central region, members of the national innovation platform which brings on board NGOs such as Total Land Care, Manica Small-Scale Farmers and the Agência de Desenvolvimento Económico de Manica (ADEM) showcased the importance of partnerships. Innovation platforms are fora for information and knowledge sharing on agricultural development. Interesting differences in the tested maize hybrid and open pollinated varieties (OPV) included better leaf diseases tolerance from the hybrid Pristine, in

contrast to early maturity characteristics from the OPV.

SIMLESA's innovation platform is working with partners such as ADEM to facilitate farmers' access to inputs, links them to financial institutions to access credit and connects them to markets for their produce. Mr. Domingos Dias, SIMLESA–Mozambique National Coordinator, said: "We commend this approach of linking farmers to input suppliers and credit providers. Lessons learned, and experience gained over the years, indicate that training alone without market links is not profitable."

Main points from the learning tours included:

- Linking the smallholder farmer to input and output markets is an integral part of SIMLESA Phase II's smallholder commercialization thrust.
- The participation of private-sector companies in SIMLESA demonstrations is a vital exit strategy to ensure sustainability and continued engagement with smallholders.
- CA technologies performed rather poorly in periods of excessive rainfall, and particularly so for nitrogen-starved crops.
- Using different maize varieties could help SIMLESA recommend the best CA-ready maize cultivars capable of tolerating diseases and pests characteristic in CA systems through better integration of agronomy and improved seed multiplication initiatives.



SIMLESA's farmer-tested improved varieties were showcased during the learning tours.

5th Annual Review And Planning Meeting To Strengthen Phase II

Johnson Siamachira and Gift Mashango

Sustainable intensification through conservation agriculture (CA) is not only necessary but urgent. This is the key message and approach that SIMLESA is focusing on, in collaboration with its international partners and national agricultural research systems (NARS) in Africa.

About 120 SIMLESA partners, stakeholders and invited guests met in Harare, Zimbabwe, between March 16–19, to review activities to date and to plan for the 2015/2016 season. The second phase of the project (2014–2018) started in July 2014. Like Phase I, it is funded by the Australian Centre for International Agricultural Research (ACIAR) and managed by CIMMYT.

NARS project partners from SIMLESA's core countries (Ethiopia, Kenya, Malawi, Mozambique and Tanzania) and spillover countries (Botswana, Rwanda and Uganda), attended this 5th Annual Review and Planning Meeting. Representatives from the Queensland Alliance for Agricultural and Food Innovation, the International Center for Tropical Agriculture, the International Livestock Research Institute (ILRI), International Crops Research Institute for the Semi-Arid Tropics and CIMMYT

scientists from Africa and Mexico also attended the event-filled meeting.

Other participants included SIMLESA's Project Management Committee, Project Steering Committee, donor representatives and senior Zimbabwe government officials. The meeting was officially opened by Mr. Ringson Chitsiko, Permanent Secretary, Ministry of Agriculture, Mechanisation and Irrigation Development, Zimbabwe. He said the project had targeted increasing farm-level food security and productivity in response to the effects of climate risk and change. In addition, SIMLESA served as a model to many regional and subregional collaborative projects on agricultural intensification.

“In this respect, the challenge to NARS to develop agricultural technologies, information and knowledge that sustainably increase agricultural productivity, is very high,” said Chitsiko, adding that as government institutions, NARS from the different SIMLESA countries should play a critical role in integrated agricultural research and development. Chitsiko cited food production, economic growth and sustainable intensification as major avenues to unlocking Africa's agricultural development



Dr. Mulugetta Mekurira addressing participants at the SIMLESA meeting

opportunities. “Sustainable intensification of maize and legumes will increase resources productivity as well as reduce production risk,” he said.

Through the SIMLESA Project, smallholder farmers practice sustainable intensification principles, such as zero or minimum tillage, maize–legume intercropping, maize–legume rotations, growing new maize and legume varieties and appropriate fertilizer use.

The project has tested promising smallholder maize–legume cropping systems, attempted to increase the range of maize and legume varieties available for smallholders and facilitated strong capacity building for agricultural research partners, among other achievements.

Dr. Mulugetta Mekuria, SIMLESA Project Leader, said the second phase of SIMLESA would complement the achievements of the first phase (2010–2014), especially by scaling out good agricultural practices. Mekuria shared the objectives of the project's second phase, including the continuation of the original 10-year vision with ambitions to sustainably improve maize and legume productivity of selected maize-based farming systems in each target country by 30 percent from the 2009 average, and reduce the expected downside yield risk by 30 percent for approximately 650,000 farm households. “We will also strengthen innovation platforms where farmers and agribusinesses have a platform to share market information, agronomic practices and other technologies,” Mekuria said.

At the four-day meeting, national coordinators from the five countries gave an overview of SIMLESA I products. Leaders of each of the four thematic areas highlighted the major changes to each area in SIMLESA II. Cross-cutting areas such as gender mainstreaming and communications were also highlighted as crucial to the success and impact for SIMLESA II. Participants streamlined their work plans and aligned them to country priorities, which were linked to country financial budgets.

Participants attended the CIMMYT–Southern Africa's 30th anniversary celebrations. They also went on a field trip to Goromonzi and Murewa Districts in Mashonaland East Province where CIMMYT is implementing a research project on crop–livestock

integration jointly with ILRI, the government of Zimbabwe, and local non-governmental organizations.

SIMLESA's Project Steering Committee, composed of NARS leaders, independent Australian and African Co-Chairs, Project Management Committee Chair and the Project Leader, held a series of meetings to review the progress made and came up with recommendations.



Dr. Thokozile Ndhlela (left), a CIMMYT–Zimbabwe scientist, explains CIMMYT's pro-vitamin A, highly nutritious, orange maize breeding work to SIMLESA delegates at the field day held on-station in Harare, Zimbabwe. In the picture are the good lines (regarding productivity, drought tolerance, high yield potential) that have been selected to date. This work is done in collaboration with CGIAR HarvestPlus Challenge Program.

Participants visited CIMMYT–Southern Africa Regional Office (SARO) research activities at its main research station outside Harare. CIMMYT–SARO showcased a wide range of breeding, physiology, agronomy and seed system activities. On-farm visits to the farming communities and partner seed research farm demonstrated CIMMYT's involvement in technology development, testing and evaluation, and deployment to the ultimate beneficiaries. A series of presentations by other related sustainable intensification projects revealed areas of potential collaborations with SIMLESA. A panel discussion highlighted the project's way forward and the importance of policy support in promoting sustainable intensification in Africa.

SIMLESA got coverage on the main news bulletins for three consecutive nights on national television station, following interviews with NARS leaders and the project leader. News and feature stories in national print media were expected to be produced by invited sections of the media.

About Us



This bulletin is a quarterly publication of the Sustainable Intensification of Maize–Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA). Funded by the Australian Centre for International Agricultural Research (ACIAR), SIMLESA was launched in 2010 to improve the livelihoods of smallholder farming communities in Africa through productive and sustainable maize–legume systems and risk management strategies that conserve natural resources. It is managed by CIMMYT and implemented by partners in Ethiopia, Kenya, Malawi, Mozambique and Tanzania. From gains and lessons learned in these project countries, there are benefits for three spillover countries — Botswana, Rwanda and Uganda.

Through participatory research and development with farmers, extension agencies, non-governmental organizations, universities and agribusinesses along the value chains, the project aims to improve maize and legume productivity by 30 percent, and to reduce the expected downside yield risk by 30 percent for an approximate additional 500,000 farms within 10 years (by 2023).

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THE UNIVERSITY OF QUEENSLAND AUSTRALIA



QAAFI Queensland Alliance for Agriculture and Food Innovation



CIAT International Center for Tropical Agriculture



ICRISAT International Crops Research Institute for the Semi-Arid Tropics



VARSARCA Village Agricultural Research and Support Centre for Africa



ILRI International Livestock Research Institute



ILRI International Livestock Research Institute