



# Mirimir

• ETHIOPIAN • INSTITUTE • OF • AGRICULTURAL • RESEARCH •

## SIMLESA to Promote Conservation Agriculture

The Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA) program aims at increasing food security and incomes at household and regional levels and economic development in eastern and southern Africa through improved productivity from more resilient and sustainable maize-based farming systems. The focal countries of this program are Ethiopia, Kenya, Malawi, Mozambique and Tanzania. The SIMLESA program was commenced in Ethiopia four years through 12 target communities to implement its objectives.

Hawassa Zuria, Badawacho and Meskan Weredas were selected for SIMLESA program from Southern Nations Nationalities and Peoples Regional State (SNNPRS) with the objective to characterize maize-legume production and input and output value chain systems and impact pathways, and to identify broad systemic constraints and options for field testing; to test and develop productive, resilient and sustainable smallholder maize-legume cropping systems and innovation systems for local scaling out; and to increase the range of maize and legume varieties available for smallholders through accelerated breeding, regional testing and release.

Hawassa Zuria Wereda managed the cultivation for this year and launched the field day on 16 August 2011. During the day Wamitu Mecho, Beyene Ayemo and Yohannes Gudeta, farmers from Hawassa Zuria Galo Aregesa Kebele, shared their success stories, demonstrated their farm activities and promoted the performance of conservation agriculture technologies.

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During the field day, the Hawassa Maize Research Center, which works with the program, demonstrated an experiment containing treatments of sole maize (BH543), sole common bean (Awassa Dumme), 100% seed rate of maize and 100% seed rate of common bean intercropping, 100% seed rate of maize and 50% seed rate of common bean intercropping.

Agronomic recommendations were applied and data was collected from each farmer's field.

ISSN 1015-9762  
Vol. 11  
No 8  
August, 2011

**Mirimir**, meaning 'Research' in Amharic,  
is a monthly newsletter of  
Ethiopian Institute of Agricultural Research

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The analysis results showed significant yield differences in maize grain yield among farmers who participated in the intercropping of maize and haricot bean, but not among treatments. Although there was no significant difference among the treatments in maize grain yield, the highest average maize yield was obtained from sole maize plot. The highest maize yield recorded was 7.7 t ha<sup>-1</sup>, obtained from intercropping of 50% common bean and 100% maize.



Farmer Wamitu Mecho in her maize farm

Farmers from the other SIMLESA districts of Meskan and Badawacho; officials, development agents and researchers visited and were impressed by the visible results of conservation agriculture, especially by the intercropping of maize and beans, which provides additional crop yield from the same field at a time. Farmers manage more than one crop at a time in the same field. Farmers used to broadcast common bean seeds in maize fields, however, through the SIMLESA program, common bean was planted within a row of maize fields with different proportions, and farmers preferred to plant 100% maize and 50% haricot bean.

Crop residues left on soil surfaces lead to higher soil aggregation, higher porosity, higher number of macropores, and thus to a trend in higher infiltration rates. As different cover crops produce different amount of biomass, the density of the residues varies with different crops and thus the ability to increase water infiltration.

The SIMLESA program boosted innovation platform systems and promoted conservation agriculture through crop residue management and cultivation of crops on non-tillage system.

Moreover, the project promotes non-tillage techniques, i.e., growing crops without disturbing the soil through tillage. This agricultural technique increases the amount of water and organic matter in the soil and decreases erosion. It also increases the amount and diversity of micro organisms on the soil.

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## Stakeholders Meeting on Mastitis, Calf Death and Crossbreeding

It has been said repeatedly that livestock diseases are the major causes of reduced productivity of meat, milk and milk products that result in economic losses of pastoralists in Ethiopia. This fact was the base for organizing a one day stakeholders' meeting at Debre Zeit Research Center (DZRC) on mastitis, calf health and cross breeding activities.

Dr Tamrat Degefa, from DZRC, in his presentation on *dairy development and health management in Ethiopia: the current status of mastitis*, noted that mastitis is one of the most prevalent disease in cattle and the most costly and noxious disease to dairy production. He mentioned some risk factors reported related to mastitis such as mastitis infection increases

with age and parity, high prevalence of mastitis associated with udder/teat injuries, inadequate follow up of clinical and chronic cases, poor milking procedure, and poor animal health service.

Dr Tamrat pointed out some ways of preventing the disease that deserve due attention, such as making available adequate housing with proper sanitation, regular screening for early detection and treatment of sub clinical mastitis, follow up of chronic case of the disease and culling of older cows with reported attack of mastitis .

Dr Million Tadesse from Holleta Research Center (HRC) on his part explained challenges of crossbreeding and lack of breeding animals in the market, lack of an efficient breeding system, prevalence of livestock diseases, poor feed supply and low quality, lack of breeding policy and breeding strategy (program), recording system, lack of institutional linkage, reproduction problems in dairy cattle. He suggested that addressing these major problems is wise to register the required development in the livestock sector.

Dr Gebremeskel Mamu, livestock researcher from DZRC, in his presentation stated that in spite of the presence of large and diverse animal genetic resource, large population and favorable climate, the

productivity of livestock (meat, milk etc. remains low in Ethiopia. He also stated that among many, inadequate nutrition, poor genetic potential, inadequate animal health services and other management systems are the major hindrances.

Dr Gebremeskel vividly stated the current status of dairy calf health problems that the country is experiencing and future directions to decrease calf morbidity and mortality such as the deadly calf diarrhea that accounts around 75% of dairy calves mortality. Dr He further stated that in order to address the issue of calf health to the required level, all findings of livestock research related to calf health should be communicated to the farmers, especially to smallholder farmers. The current status of calf health studies should also be intensified, he said.

The meeting was thriving in satisfying participants drawn from unions, farming community, investors in the livestock sector; it was also highly informative and successful in entertaining ideas forwarded from participants.

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## **Ethio-Germany Agricultural Training Center**

Germany parliamentary state delegation team of 24 members visited Kulumsa Research Center (KRC) on 24 August 2011. The delegates were led by the State Secretary of Food, Agriculture and Consumer Protection Ministry of the Federal State of Germany. During the visit, a signboard for the construction of Agricultural Further Training Center (ATC) was unveiled by the parliamentary state secretary delegates and EIAR higher officials at KRC. HE Mr Peter Bleser, head of the delegation and Dr Tolessa Debele from EIAR unveiled the signboard for the Ethio-Germany Agricultural Further Training Center construction. HE Mr Bleser confirmed the commitment of their

government to support the project for the benefit of both countries.

As a hosting center for the project, KRC has allocated about 5 hectares of land for the construction of offices, training rooms and machinery workshops, and additional 20 hectares for demonstration and training sites. The core objective of establishing the training center is to contribute towards modernization of agriculture in Ethiopia. It was courageously said that the project adds value to the advancement of agricultural mechanization for smallholder farmers and large scale producers. A strong link will be established between Germany farm machinery industry and the private sector so that technology transfer will be strengthened.

On the opening ceremony, Ato Solomon Gelalcha, Director of KRC presented a brief story of the Center and its key achievements since establishment. He highlighted research and development challenges in the mandate agro-ecologies and beyond. According to Ato Solomon, high cost of farming, low crop productivity, erratic and uneven rainfall distributions were mentioned among the problems.

Dr Tolesa, on behalf of EIAR, recognized the importance of having such training center to transform and modernize the Ethiopian agriculture in line with the five year Growth and Transformation Plan. He expressed the timeliness of the project to build national capacity in farm mechanization technologies required to double production in the coming five years.

Mr Loose, the coordinator of the project, briefly stated that the objective of the ATC in the first phase is to train more than 1500 graduates and to apply modern production technologies to increase production. He discussed the current status of the project and the remaining important activities to be

finalized such as administrative and legal issues; dispatch of machineries from Germany; construction of offices and training rooms and preparation of job descriptions for the core technical and administrative staff. Mr Loose underlined the key challenges of farm mechanization in Ethiopia which are the basis for this project. He mentioned limitations related to engineering and maintenance, and lack of qualified workshop attendants. The project will contribute to solve these problems at its best level.

During the briefing session for the delegates, it was learned that the project focuses on three selected crops, i.e. barley, wheat and potato, because of their importance in livelihood of the farmers in the target agro-ecologies.

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## Potato: The Buried Treasure

Traditionally, Ethiopian farmers focus on cash crops and cereals, leaving potato and other root crops aside from agricultural development efforts, but this imbalance seems to be changed in some areas of the country since the research focus on potato came into picture. The research is making its way to transform Potato to become a valuable source of cash income for most farmers in the country.

Holleta Research Center (HRC) is moving ahead safely in helping farmers in successful production of high-quality and disease-free seed potatoes through good management and strict disease control procedures, and the fruits of its efforts have been demonstrated to visitors drawn from different research centers during the field visit organized by the Center in Jeldu and Tikur Inchini Weredas.

Guta Gudissa, who deposited 9.5 million Birr in his account and owns 200,000 Birr worth potato storage and a 300,000 Birr worth car and a beautiful house a farmer, was introduced by HRC for his remarkable achievement in changing his and the lives of his family. Other dwellers of the area had already started following his footsteps to register the

same or probably more success. "some years back, it was a dream to own such a big wealth but here I am enjoying life with a great enthusiasm for more success, and I want to thank HRC for all the support they have given me in every step of the way," he said. Guta, as he expressed his happiness for being a role model for other farmers, mentioned his fears of market availability of potato produce.

Dr Adugna Wakjira, Director of HRC happily mentioned his contentment after seeing visitors' impression during the field visit and said that the Center continues

working on supporting producers group and help them share expertise and strengthen their bargaining power during sale of their product. He also mentioned that potatoes sell through fragmented marketing chains with little co-ordination, and lack of market information is an issue which the center is already in action to address. In doing so, a working group is already established in the Center to address marketing problems and any other farmers' concern that affect better productivity. This obviously is a relief for farmers who often raise the issue of market availability, he said.

Dr Berga Lemaga, who resides in Uganda working on the international potato seed system, explained the overlooked value of potato and said that potato has a potentially important role to play in the food system of the country because it is rich in carbohydrates and contains adequate recommended vitamin C and protein of a fairly high quality which makes it a good source of energy. Dr Berga after seeing immensely potato covered fields said that what has been done so far indicates that the country has a great potential in producing the crop and significantly change the lives of many farmers.

As concern grows over the risk of food shortages especially in low-income countries like Ethiopia, turning the attention to root crops such as potato could help ease the strain of food price inflation. Moreover, it is now an unending path to better life for farmers of Ethiopia and what has been done in Jeldu and Tikur Inchini Weredas is a showcase for the worthiness of giving full attention to the buried treasure potato.

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## Energy and Money Saving Agricultural Practices

A regional project on Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA) is a research program developed by African and Australian stakeholders to fit the regional and national agricultural development priorities of the target countries (Ethiopia, Kenya, Malawi, Mozambique and Tanzania). It is funded by the Australian Center of International Agricultural Research and implemented by CIMMYT.

In Ethiopia, maize and different legume crops co-exist in all maize production belts. Most maize growing areas in the country can be regarded as maize-legume based farming systems; the difference lies in the maize varieties and legume crops and varieties used. Cereals and legumes are planted in intercrops, alleys and rotation with maize. On the mid-altitude sub-humid (common beans and soybean), highlands (faba bean and chick pea), dryland (common bean, pigeon pea, cowpea and groundnut) and low-altitude sub humid ecologies.

The SIMLESA program was launched in Ethiopia in March 2010 and operating in ten target districts in two major maize and legume growing agro-ecologies selected for the implementation of the Program. In the drought stressed maize legume growing areas, seven districts were targeted by Melkassa Research Center (Adami Tulu, Boset, Dugda and Shalla). In doing so, four treatments including conservation agriculture options and conventional practices were used in the exploratory trials planted on farmers' fields in four districts. The treatments included sole maize with conservation agriculture; inter cropping with conservation agriculture, bean-maize rotation with conservation agriculture. The varieties used are Melkasa-2 maize and common bean varieties Nasir and Awash-1 depending on farmers' preferences.

During the field day organized by MRC in Adami Tulu and Shalla Weredas, it was explained that SIMLESA promotes maize and legume technologies in conservation agriculture (CA) based farming systems.

Conservation agriculture at its best level got the attention of visitors drawn from different professions during the field visit. Fatuma, a mother of 10, got all the fascination of the visitors while she was explaining how hard she thought life could be when her tenacious and development hero husband died, as she said, keeping life the same way as her husband did was all her responsibility and of course she managed to continue her husband's success because she was smart enough to accept all the advices she got from researchers who approached her through SIMLESA and she said "I was very happy when they told me that I don't need oxen to cover my farm land and they guaranteed better productivity if I take and implement all the advices they gave me, and I did all I was told and I found the result very satisfactory".

Dr Dagne Wagary, the Project Coordinator from MRC explained that they are working to introduce technologies to the farmers and visible results that got the attention of every

one during the field visit will obviously inspire other farmers to follow benefited farmers, as he further said, farmers usually raise their concern over feed for their animals because in conservation agriculture, the straw should be left on the field to be a residue for its importance as fertilizer.

Dr Dagne as he believed the relevance of farmers' concern, explained that the project has also managed to introduce other animal feeds with good nutrient to be planted at the border age of the farm lands; this way of addressing the concern was convincing enough for the farmers to focus only on advices they get from the researchers for the energy and money saving agricultural practice.

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## Books Donation

Ato Abebe Kirub, Director of Information and Communications Directorate of EIAR has donated a number of books as a gift to Ethiopian Institute of Agricultural Research (EIAR) library. The donated books comprise of science fictions, Amharic and English fictions, dictionaries and technical books on agriculture.

