

International Maize and Wheat Improvement Center

**2011 EC/IFAD CGIAR Programme: Conservation Agriculture and
Smallholder Farmers in Eastern and Southern Africa-Leveraging
Institutional Innovations and Policies for Sustainable Intensification and
Food Security (CASFESA, 2011/260-204)**

Progress Report
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**Ethiopian Institute of Agricultural Research
(EIAR)**



Ministry of Agriculture and Irrigation, Department of
Agricultural Research and Technical Services (DARTS)

Table of Conetents

	Page
1. Introduction	1
2. Activities covered	2
Component 1: Participatory on-farm evaluation and adaptation of CA-based technologies and analysis of farm level economic incentives	2
<i>Activity 1.1 Rapid appraisals and characterization of target communities and households</i>	2
<i>Activity 1.2 Establish on-farm demonstration trials and participatory evaluation of alternative CA-based technologies</i>	8
<i>Activity 1.3 Analysis of on-farm trial data to estimate farm level economic and risk mitigation benefits of CA technologies and practices</i>	17
<i>Activity 1.4 Assess farmers' economic incentives and constraints to adopting CA-based practices using the existing farm household survey datasets</i>	17
Component 2: Enhance the pro-poor and gender sensitive targeting of CA based interventions	18
<i>Activity 2.1 Disaggregated stakeholder analysis to assess differential impacts and implications for more equitable inclusion (stakeholder consultation).</i>	18
<i>Activity 2.2 Analysis of crop residue use in contrasting mixed smallholder systems to quantify opportunity costs and sustainability benefits</i>	18
<i>Activity 2.3 Geo-referenced analysis and mapping of key indicators to enhance delineation of recommendation domains and enhance targeting of CA based interventions.</i>	18
<i>Activity 2.4 Conduct adoption studies and identify constraints and scaling up/out opportunities from initial uptake of CA practices</i>	18
Component 3: Improve the delivery of information, technologies and market opportunities through institutional innovations and value chains	18
<i>Activity 3.1 Identification and mapping of farmer organizations, extension and other value chain actors that condition the development and delivery of CA innovations.</i>	18

List of Tables

	Page
Table 1. Preliminary characterization of the CASFESA project sites in Ethiopia.	3
Table 2. Livestock production in the two CASFESA project Districts (heads)	5
Table 3. Area under crop production in the two CASFESA districts (ha)	6
Table 4. Distribution of the CA-demonstration sites (Ethiopia)	9
Table 5. Number of participants in the project briefing and planning meeting at South Achefer and Jabitehnan	11
Table 6. Number of farmers who participated on the farmers' field days.	14
Table 7. Summary of major issues raised by different stakeholders during the field days	15
Table 8. Distribution of the randomly selected treatment and control villages at Embu	16

List of Figures

	Page
Figure 1. Average livestock holding per household by livestock type	5
Figure 2. Area proportion of field crops in the two intervention Districts	6
Figure 3. Actual and potential yield of major crops in West Gojjam Zone	7
Figure 4. Illustration of the CA demonstration trial setup on a given plot.	8
Figure 5. Designing CA demonstration plot (<i>Hodansh, Jabitehnan</i>)	9
Figure 6. Map of the CA-demonstration sites/villages in the two Districts	10
Figure 7. Project briefing and stakeholders' planning workshop participants (<i>South Achefer</i>)	11
Figure 8. Project briefing and planning workshop participants (<i>Jabitehnan</i>)	12
Figure 9. Monitoring demonstration sites (<i>Wega, Jabitehnan</i>)	12
Figure 10. Monitoring demonstration sites (<i>Zaba and Weynima at Jabitehnan</i>)	13
Figure 11. Project evaluation team in field visit (<i>South Achefer</i>)	13
Figure 12. Organized farmers' field-days to evaluate CA-based vs. Conventional practices	15
Figure 13. Initial project planning and implementation meeting with District Agricultural Officer	17

ACRONYMS

ARARI	Amhara Regional Agricultural Research Institute
CA	Conservation Agriculture
CASFESA	Conservation Agriculture and Smallholder Farmers in Eastern and Southern Africa project
CIMMYT	International Maize and Wheat Improvement Center
DAEO	Division Agricultural Extension Officer
DAO	District Agricultural Officer
EC	European Commission
EIAR	Ethiopian Institute of Agricultural Research
IFAD	International Fund for Agricultural Development
KARI	Kenyan Agricultural Research Institute
NCE	No Cost Extension
PA	Peasant Association
PCC	Population Census Commission
RCT	Randomized Control Trial

1. Introduction

Conservation Agriculture and Smallholder Farmers in Eastern and Southern Africa-Leveraging Institutional Innovations and Policies for Sustainable Intensification and Food Security (CASFESA) project is funded by EC-IFAD and implemented by CIMMYT in Ethiopia and Kenya (Eastern Africa), and Malawi (Southern Africa) in collaboration with national partners (Ethiopian Institute of Agricultural research, EIAR, Kenyan Agricultural Research Institute, KARI, and Department of Agricultural Research and Technical Services, DARTS in Malawi). The overall goal of the project is increasing food security and incomes of resource poor smallholder farmers in Eastern and Southern Africa through pro-poor technological and institutional innovations that improve productivity and enhance the resilience and sustainability of farming system.

To systematically assess the role of institutional innovations and technological interventions in enhancing crop productivity and income of resource poor smallholder farmers, we followed a Randomized Control Trial (RCT) where Conservation Agriculture (CA) technologies are demonstrated in randomly selected treatment villages. Farmers in the treatment villages are invited to visit the demonstration plots in their villages and participate in the CA-based technology evaluations compared to their traditional (conventional) practices. With the aim of better adoption of CA-based practices in the treatment villages, in addition to CA-based technology demonstrations, the project facilitates/strengthens institutional and market arrangements that could enhance resource-poor smallholder farmers' access to CA related inputs like herbicides and farm equipments. In the final CA adoption assessment, farmers in the treatment villages are compared with farmers from counterfactual control villages. Control villages are randomly selected along with the treatment villages when the project implementation starts and left aside with no intervention.

This report covers activities conducted during the period of 1st June 2012 to 31st January 2012. During this period, most of the project activities were conducted in Ethiopia. Project implementation in Kenya started late January 2013 where as some field activities are planned in Malawi for the next reporting period.

The report is organized as follows. In the next section (section 2), following the project's logical framework (components and activities), detailed technical reports are given under specific activities where we have conducted some operations. For other activities, the plan is stated. Challenges faced in the operation of the project is stated in section 3. Section 4 gives lessons learned and section 5 puts wayforward.

2. Activities covered

This section gives summary of outputs achieved during this reporting period following the project log-frame (by component and activity).

Component 1: Participatory on-farm evaluation and adaptation of CA-based technologies and analysis of farm level economic incentives

Activity 1.1 Rapid appraisals and characterization of target communities and households

During this reporting period, rapid appraisals and characterization of the target communities and households are done only for Ethiopia. Reports for Kenya and Malawi will be made in the next bi-annual report.

Ethiopia

In Ethiopia, CASFESA project is implemented in South Achefer and Jabitehnan districts of West Gojjam Zone, Amhara Region, in the north-western part of Ethiopia. South Achefer district covers land area of 1,182 km² and is home to 203,201 people (103,698 male and 99,503 female), which gives a mean population density of 176 persons per km² (PCC, 2007). Similarly, Jabitahnan district covers 1,170km² and is home to 191,837 people (95,737 male and 96,100 female), which gives a mean population density of 160 persons per km² (PCC, 2007). The total household numbers in South Achefer and Jabitahnan districts are 36,945 and 34,879, respectively. Average family size is 5.5 in both districts. Of the total human population in South Achefer and Jabitahnan districts, 93.2% and 93.3% live in rural areas, respectively, and mainly depend on maize, *teff*, legumes and some livestock production for their livelihoods (PCC, 2007). This shows the importance of agriculture to improve the livelihood of the population of the targeted districts.

The agroecological conditions of both South Achefer and Jabitahnan districts are suitable for the production of maize and grain legumes. About 87% of land area both in South Achefer and Jabitehnan lies in mid-highland (*Woinadega*) whereas the remaining percent is mid-lowland (*Kolla*). Both districts have monomodal rainfall distribution which extends from June to end of August with average annual rainfall reaching 1500 mm. This short growing season does not allow for relay-cropping of maize with pulse. Instead, intercropping of maize with bean and rotations are appropriate options for the areas. This short growing season also indicate that terminal moisture stress is an issue, especially for long maturing varieties of maize and other crop species. The two districts have larger proportion for areas with red soil whereas brown and black soils also constitute some proportions.

The farming systems in both districts are characterized by crop-livestock mixed farming system. In South Achefer and Jabitehnan districts, the dominant cereals are maize, *teff* and finger millet; and the dominant pulses are faba bean, chickpea and field pea. In both districts most of the cultivated land is covered by cereal crops mainly by maize (about 35% in both districts). Average farm size in South Achefer and Jabitehnan districts is 1.06 and 1.35 ha per household, respectively. Productivity of most crops under farmers' condition is very low, on average 2.8 t/ha, 1.4 t/ha, 1.3 t/ha, 1.2 t/ha, 1.7 t/ha and 1.5 t/ha for maize, *teff*, finger millet, haricot bean, chickpea and faba bean, respectively (CSA, 2010). However, the productivity of improved varieties of maize, *teff*, finger millet, haricot bean, chickpea and faba bean can reach 7.1 t/ha, 2.1 t/ha, 3.0 t/ha, 2.4 t/ha, 3.0 t/ha and 4.0 t/ha, respectively. This indicates the potential of agricultural productivity improvement in these areas through use of improved technologies. In both districts, cattle, sheep, goats, equines and poultry are the major livestock type kept by smallholder farmers. The average holding of cattle, sheep, goats, equine, and poultry for households in South Achefer is 4.2, 1.4, 0.8, 0.6 and 4.1 heads respectively. In the same order, the average holding is 5.4, 1.6, 0.6, 0.4, and 3.6 for households in Jabitehnan district.

Major constraints of the farming systems in both districts include low soil fertility, terminal moisture stress, crop pests and diseases, shortage of improved varieties, inappropriate cropping practice (monocropping), and inappropriate land preparation. Poor market infrastructure and land pressure also affect crop production in the areas. Similarly, seasonal feed shortage, animal diseases and parasites, low performance of local breeds, and short supply of improved forage seed are major constraints for livestock production.

Table 1. Preliminary characterization of the CASFESA project sites in Ethiopia.

Parameter		District	
		South Achefer	Jabitehnan
Livelihood sources		Maize, <i>teff</i> , legumes, some livestock	Maize, <i>teff</i> , legumes, some livestock
Major crops	Main cereals	Maize, <i>teff</i> , and finger millet	Maize, <i>teff</i> , finger millet wheat
	Main Legumes	Faba-beans, and field pea	Faba bean, chickpea and field pea
Average (range) rainfall (mm)		1510 (1480-1643)	1500 (1391-1686)
Major soils		Red soil (92%), Black soil (5%), and Clay soil (3%)	Red soil (60%), Brown soil (25%), and Black soil (15%)
Average farm size (ha/household)		1.06	1.35
Average family size (person/household)		5.5	5.5
% maize area to total crop area		35.4	34.0
% of legume area to total crop area		4.3	5.3
Average area under maize (ha)		0.38	0.46
Average area under legumes (ha)		0.05	0.16

Major livestock types	Cattle, sheep, goats, equines and poultry	Cattle, sheep, goats, equines and poultry
Source of forages and grazing	Communal grazing	Communal grazing

Source: Amhara Regional Agricultural Research Institutes (ARARI)

Input supply system, Market outlets and key interventions by other development partners

In both selected districts for CASFESA project implementation in Ethiopia (South Achefer and Jabitehnan), agricultural inputs (seed and fertilizer) are mainly supplied through cooperative union in collaboration with the district office of Agriculture. Cooperatives also supply herbicides and pesticides but in limited volume. Agricultural extension agents also play a great role in identifying the level of demand for agricultural inputs in their villages and in the supply of these inputs mainly through cooperatives. Most of pesticides and herbicides are supplied through private agro-chemical dealers that also retail chemical sprayers (both hand and back sack sprayers). In terms of output marketing, farmers mainly sell their crop harvest to local traders. Farmers' cooperatives also buy selected crops (like *teff*) that could be stored with less storage pest problems. Urban consumers are other buyers of farmers produce directly at spot markets.

There are private and government owned companies operating in relation to input production supply and output marketing in the Region. These include: The Amhara and Ethiopian Seed Enterprises, Avalo and Agriceft seed companies (for seed), Ambasel Trading and Farmers' Cooperatives (for fertilizer and herbicide supply). The Amhara Saving and Credit Institute (ASCI) is the strong credit providing institute supporting farmers in having access to improved agricultural inputs.

Livestock holding

In both South Achefer and Jabitehnan Districts, livestock is a major component of the farming system. Oxen and the major source draft power for ploughing and also used for threshing. Cows provide milk and other dairy products. They are also breeding stocks to replace retired oxen and cows. Sheep, goats and poultry are major source of cash for immediate need and source of protein in household consumption. Equines are used for transport. These animals also depend on crop residue as feed during the long dry season where grasses and other feed sources are limited. Table 2 shows the number of livestock (in type) and average holding per household in both districts.

Table 2. Livestock production in the two CASFESA project Districts (heads)

Livestock Type	Total		Average holding (Head/Household)	
	Jabitehnan	South Achefer	Jabitehnan	South Achefer
Cattle	189,218	153,612	4.2	5.4
Sheep	56,786	50,285	1.4	1.6
Goats	20,665	30,585	0.8	0.6
Equines	13,690	22,375	0.6	0.4
Poultry	126,912	149,796	4.1	3.6

Source: Amhara Regional Agricultural Research Institutes (ARARI)

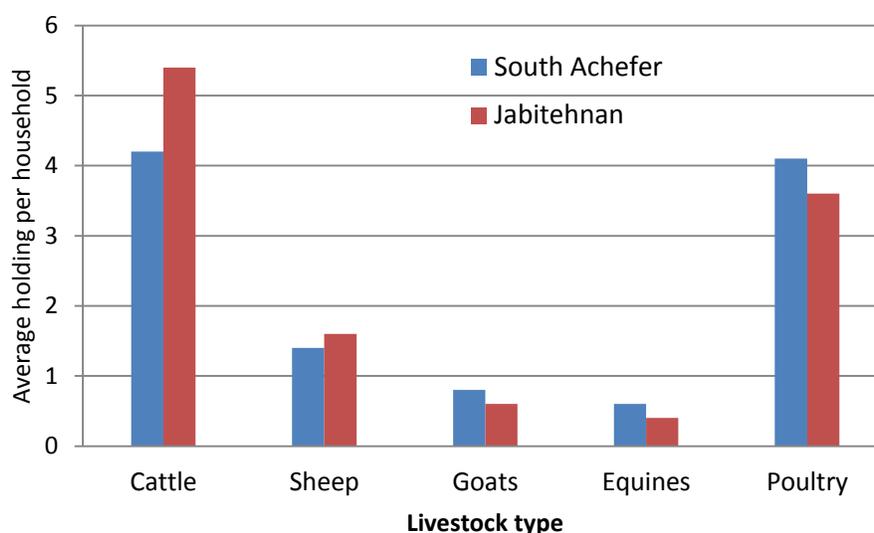


Figure 1. Average livestock holding per household by livestock type
(Source: Amhara Regional Agricultural Research Institutes (ARARI))

Crop production and productivity

Both South Achefer and Jabitehnan are known for their crop production. Most field crops are produced in both districts. In terms of area share, maize comes first, followed by *teff* in Jabitehnan and Millet in South Achefer.

Table 3. Area under crop production in the two CASFESA districts (ha)

Crop Type	Jabitehnan	South Achefer
Maize	16,001	13,865
Teff	11,995	5,200
Wheat	4,425	106
Sorghum	<i>nd</i>	886
Barley	2,688	3,169
Millet	1,536	7,615
Haricot bean	193	9
Faba bean (common bean)	812	968
Grass pea	503	<i>nd</i>
Field pea	370	508
Chickpea	606	<i>nd</i>
Groundnuts	<i>nd</i>	201
Oilseeds	4,500	3,405
Vegetables	124	<i>nd</i>
Root crops	817	<i>nd</i>
Spices	3400	<i>nd</i>

Source: Amhara Regional Agricultural Research Institutes (ARARI)

Note: nd=no data

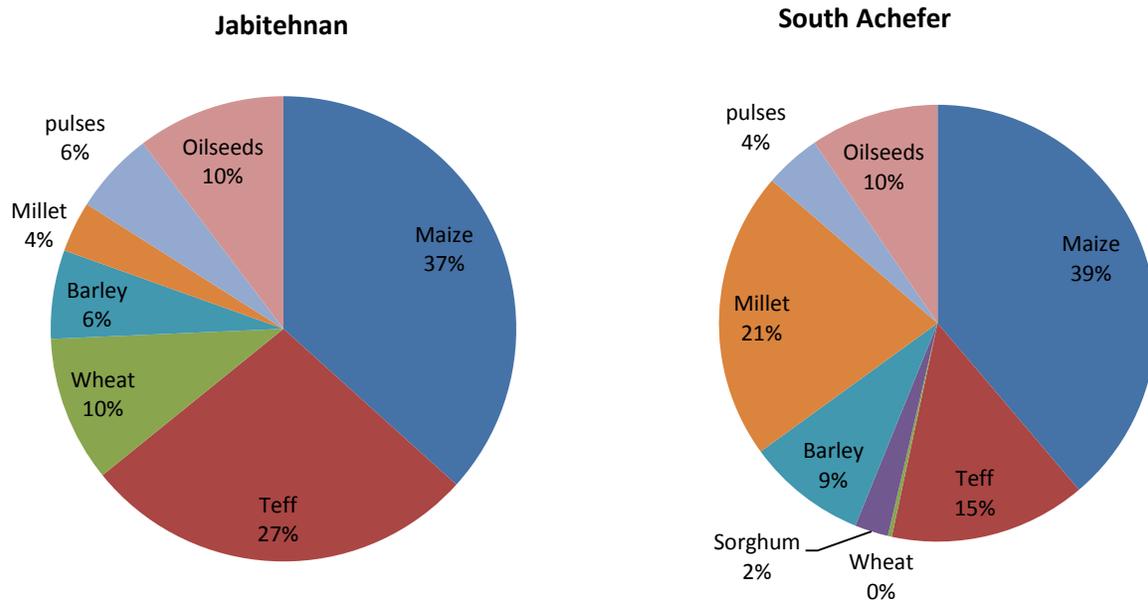


Figure 2. Area proportion of field crops in the two intervention Districts

Gap between actual and potential crop yield

Data obtained from the Amhara Regional Agricultural Research institute (ARARI) on the average actual and potential yield gaps of field crops in West Gojjam Zone shows that there is still much to do to improve crop productivity at farmers' level of. For instance, Farmers' average productivity in maize is 2.2 tons/ha whereas the potential yield that could be attained in the region is close to 10 tons/ha. This shows, with improved varieties and good management practices, maize productivity could be increased at least by 300% than its current average productivity under farmers' practices. Figure 3 shows the comparison of actual and potential yields of selected field crops in West Gojjam zone.

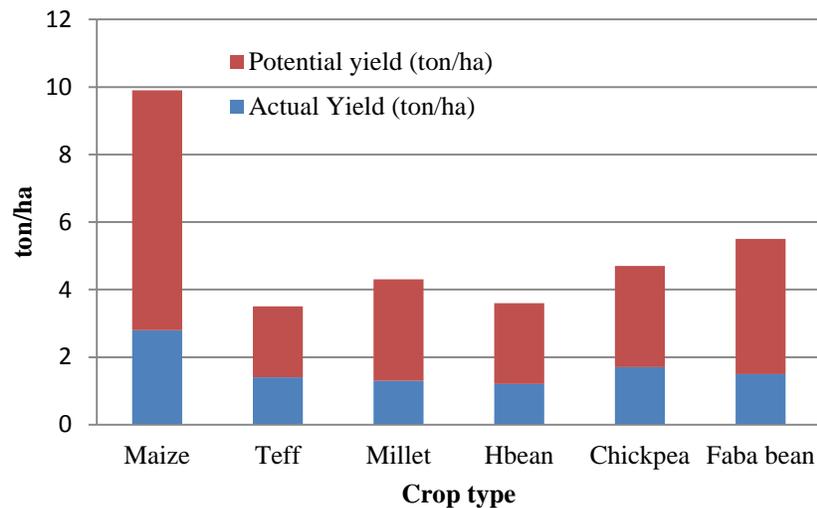


Figure 3. Actual and potential yield of major crops in West Gojjam Zone
(Source: Amhara Regional Agricultural Research Institutes (ARARI))

Kenya and Malawi

Pending for the next reporting period (February-July 2013)

Activity 1.2 Establish on-farm demonstration trials and participatory evaluation of alternative CA-based technologies

Ethiopia

The overall objective of the project is to assess the role of technological and institutional innovations in improving the food security and income level of smallholder farmers through the introduction of sustainable intensification. For this purpose, we preferred to use a Randomized Control Trial where some villages are treated with technological and institutional interventions while the other villages are left aside for control purpose. During the later years of the project life, this helps to make comparisons between the treatment and control villages on selected outcome variables (level of CA-based technology adoption, increased level of income, and level of household food security) due to the technological and institutional innovations introduced.

The CA-based technologies are introduced through establishing demonstration plots in the treatment villages. The establishment of these on-farm CA demonstration trials and its participatory evaluation helps to familiarize farmers with the practice and show how the technology performs compared to their conventional practices. To simplify the on-farm demonstration, only two technologies were selected: Zero tillage vs. conventional tillage and intercropping (maize with beans) vs. sole cropping. As illustrated in the figure 4 below, these treatments were established on experimental plots provided by two volunteer farmers in selected villages. For demonstration purpose, one farmer per village could be enough but we put two farmers to make sure that we will get good crop stand at least on one of the two plots for demonstration purpose.

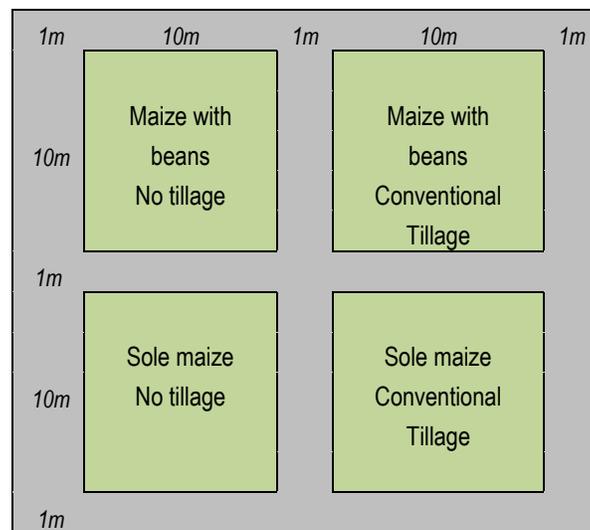


Figure 4. Illustration of the CA demonstration trial setup on a given plot.

In Ethiopia, West Gojjam zone (Jabitehnan and South Achefer districts) were purposively selected to capitalize on the on-going CA-based sustainable intensification interventions started under SIMLESA-Expansion project in the same cropping seasons. In May 2012, basic information of the two districts were collected, maize producing Peasant Associations (PAs) in the two districts were identified, and 15 treatment and 15 control villages were randomly selected from the maize producing villages (Sub-PAs) in each district. In each village/Sub-PA, two volunteer farmers were identified to host the CA-Based demonstration plots to be established in the treatment villages. Table 4 gives distribution of PAs, maize potential Sub-PAs, number of control and treatment villages, and number of demo-hosting farmers in the two districts.

Table 4. Distribution of the CA-demonstration sites (Ethiopia)

District	Number of PAs		Number of Sub-PAS (Maize producing)	Number of treatment Sub-PAs/villages	Number of Control Sub-PAs/villages	Number of demo hosting farmers (2 farmer per village)
	Total	Maize producing				
South Achefer	18	16	42	15	15	30
Jabitehnan	37	28	87	15	15	30



Figure 5. Designing CA demonstration plot (Hodansh, Jabitehnan)

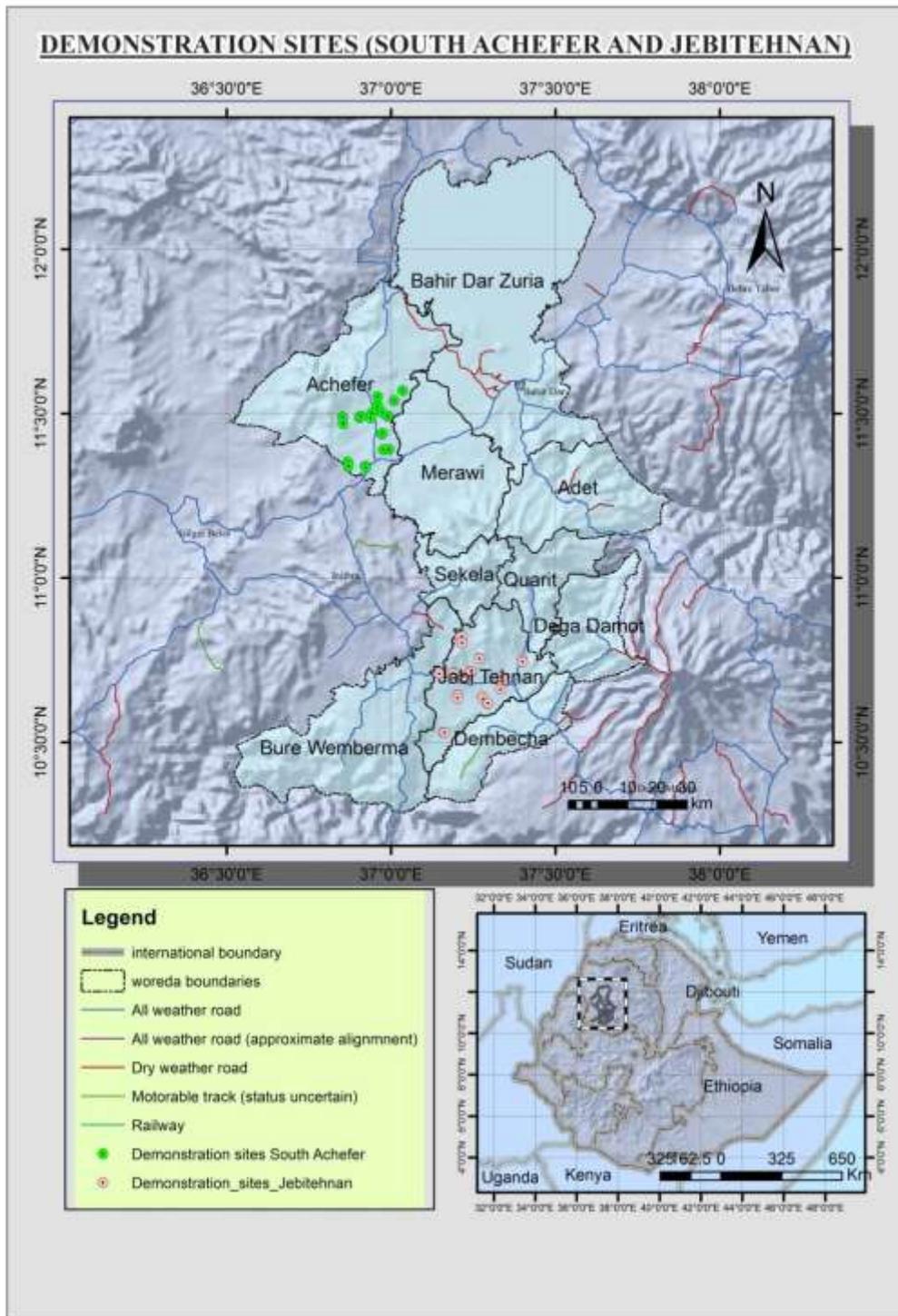


Figure 6. Map of the CA-demonstration sites/villages in the two Districts

Project briefing and planning workshop

On 21st and 22nd September 2012, a briefing and project planning meeting was held at South Achefer (Durbete) and South Achefer (Finoteselam) districts. CA-demonstration hosting farmers, extension agents engaged in monitoring the demonstration plots in the treatment villages, experts from District Office of Agriculture, private agro-chemical suppliers in the districts and delegates from farmers' cooperative union were participated on the meeting. Project objectives and implementation plans were discussed with these stakeholders for half-a-day at the two districts.

Table 5. Number of participants in the project briefing and planning meeting at South Achefer and Jabitehnan

Participant type	District					
	South Achefer			Jabitehnan		
	Male	Female	Total	Male	Female	Total
CA-demo hosting farmers	24	0	24	28	2	30
Extension agents	6	3	9	10	1	11
District level agricultural experts	4	0	4	4	0	4
Farmers' Cooperative Union	1	0	1	2	0	2
Private agro-chemical dealer	0	0	0	1	0	1
Researchers (ARARI+CIMMYT)	5	0	5	5	0	5
Total	40	3	43	50	3	53



Figure 7. Project briefing and stakeholders' planning workshop participants (South Achefer)



Figure 8. Project briefing and planning workshop participants (Jabitehnan)

Field monitoring and project evaluation

CA demonstration plots were regularly monitored by the extension agents working in the treatment villages and supervised by the district focal person from the District office of agriculture, researchers from ARARI and CIMMYT. Monitoring includes germination, weed management, disease and pests, fertilizer application, etc.



Figure 9. Monitoring demonstration sites (Wega, Jabitehnan)



Figure 10. Monitoring demonstration sites (Zaba and Weynima at Jabitehnan)

During October 4-6, 2012, project evaluation team from EU-IFAD spent a day in the field and visited some of the demonstration plots in South Achefer District. The team interacted with demonstration hosting farmers, reserachers and extension agents monitoring the demo plots.



Figure 11. Project evaluation team in field visit (South Achefer)

Farmers' Field Days

Farmers' Field Days were organized in each of the treatment villages to acquaint farmers in the treatment villages with CA technologies on the demonstration plots and make them evaluate the crop stand from the four blocks on the demonstration plots. Explanations on CA technologies in enhancing soil fertility and increasing crop productivity are explained by researchers and extension agents whereas demonstration plot hosting farmers explain the plot design, inputs used management practices etc. to their fellow farmers. Questions raised during the field days were answered by researchers, extension agents and hosting farmers based on the levels of technical know-how and experience it requires. Summary of field day participants and major issues raised by different stakeholders attended the field days are presented in table 6 and 7, respectively.

Table 6. Number of farmers who participated on the farmers' field days.

Type of participants	Jabitehnana			South Achefer			Grand Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Farmers	1661	132	1793	666	79	745	2327	211	2538
Woreda agriculture experts	25	1	26	14	2	16	39	3	42
Village extension agents	33	4	37	17	10	27	50	14	64
Others (Kebele administrators, teachers, etc).	26	7	33	19	8	27	45	15	60
Total	1745	144	1889	716	99	815	2461	243	2704

Table 7. Summary of major issues raised by different stakeholders during the field days

CA demo-host farmers	Non-hosting farmers	Agricultural experts/extension agents
<ol style="list-style-type: none"> 1. CA technology is easy and labour saving, saves oxen-days used for ploughing. 2. CA is suitable for women headed households and households with no oxen 3. No difference on wheat stand between CA and conventional plots. 	<ol style="list-style-type: none"> 1. Competition for maize residue for mulching and livestock feed. 2. Conflict of ideas between what development agents and CASFESA project on the frequency of tillage before planting. 3. Concerns on side-effect of roundup on soil and associated organic matter. 4. Witnessed better performance of maize stalks and cobs on CA plots, compared to the conventional tillage plots. 	<p>Convinced enough from the demonstration plots to advice farmers to use CA and save labour and oxen-days in maize production.</p>



Figure 12. Organized farmers' field-days to evaluate CA-based vs. Conventional practices

Yield data

To evaluate the yield difference between CA-based technologies (zero tillage and intercropping) versus conventional practices (tillage and monocropping), production data from demonstration plots are recorded. Since some of the farmers didn't thresh the maize harvest from these plots, complete production and yield dataset with some initial assessment will be presented in the next reporting period.

Kenya

During January 22-25, 2013, Scientists from CIMMYT and KARI-Embu contacted Embu West and Embu East District Agricultural Officers to get basic information that could be used to select the treatment and control villages to set the CA-demonstration plots in the randomly selected villages. Accordingly, with the District experts and Division Agricultural Extension Officers from both districts, 172 maize producing villages were identified in two districts (Embu East and Embu West). Embu North was excluded due to less proportion of maize production in the tea and Coffee dominated farming system at the bottom of Mount Kenya.

From the 172 villages, we randomly selected 15 treatment and 15 control villages to establish CA demonstration plots in the treatment villages. Details are given in Table 8. During the week of 28 January 2013, and afterwards, identification of two volunteer farmers in each treatment villages has been going-on. Location map of the treatment and control villages will be included in the next report.

Table 8. Distribution of the randomly selected treatment and control villages at Embu

District	Division	Location	Sub-location	Number of Villages	Randomly selected	
					Treatment villages	Control villages
Embu East	Kyeni	Kyeni East	1	10	1	2
		Kyeni South	2	20	2	1
	Runyenjes	Kagari South East	2	19	0	1
		Kagaari South West	3	15	0	0
		Runyenjes East	3	23	2	1
		Runyenjes West	1	7	2	0
Embu West	Central	Mbeti North	3	22	2	3
	Nembure	Kithimu	3	28	3	3
		Gaturi South	3	28	3	4
Total			21	172	15	15



Figure 13. Initial project planning and implementation meeting with District Agricultural Officer (Embu West)

Malawi

In Malawi, no plan to establish demonstration plots but focus on the existing on-farm experimental trials and make adoption assessment from the already collected household level survey data from Central and Southern Provinces.

Activity 1.3 Analysis of on-farm trial data to estimate farm level economic and risk mitigation benefits of CA technologies and practices

Pending for 2013 for the three countries (Ethiopia, Kenya, and Malawi).

Activity 1.4 Assess farmers' economic incentives and constraints to adopting CA-based practices using the existing farm household survey datasets

Pending for 2013 for the three countries (Ethiopia, Kenya, and Malawi).

Component 2: Enhance the pro-poor and gender sensitive targeting of CA based interventions

Activity 2.1 Disaggregated stakeholder analysis to assess differential impacts and implications for more equitable inclusion (stakeholder consultation).

Pending for 2013 for the three countries (Ethiopia, Kenya, and Malawi)

Activity 2.2 Analysis of crop residue use in contrasting mixed smallholder systems to quantify opportunity costs and sustainability benefits

Pending for 2013, and will be done based on SIMLESA baseline survey data for the three countries (Ethiopia, Kenya, and Malawi).

Activity 2.3 Geo-referenced analysis and mapping of key indicators to enhance delineation of recommendation domains and enhance targeting of CA based interventions.

Pending for 2013, and will be done based on SIMLESA and DIIVA survey data, for Ethiopia and SIMLESA survey data for Kenya, and Malawi.

Activity 2.4 Conduct adoption studies and identify constraints and scaling up/out opportunities from initial uptake of CA practices

Pending for 2013. Preparation is going-on to conduct a baseline survey in treatment and control villages of the project intervention sites to get data that could be used in analyzing CA adoption studies.

Component 3: Improve the delivery of information, technologies and market opportunities through institutional innovations and value chains

Activity 3.1 Identification and mapping of farmer organizations, extension and other value chain actors that condition the development and delivery of CA innovations.

Ethiopia

Initial identification of farmer organizations, extension and other value chain actors in relation to CA innovation was done in both South Achefer and Jabitehnan Districts. Accordingly, there are farmer organizations supplying agricultural inputs and (few of them) purchased agricultural products. Further detailed analysis will be conducted during 2013.

Kenya and Malawi

Pending for 2013 for both countries (Kenya and Malawi).

Activity 3.2 Conduct market and value chain studies on selected service delivery systems (inputs, credit, CA equipment, crop residue and outputs)

Pending for 2013 for all the three countries (Ethiopia, Kenya, and Malawi).

Activity 3.3 Identify pro-poor institutional innovations for enhancing the flow of information and access to technologies and markets

Pending for 2013 for all the three countries (Ethiopia, Kenya, and Malawi).

Activity 3.4 Enhance the integration of low income and women farmers into equitable and efficient value chains

Pending for 2013 for Ethiopia and Kenya. Awareness creation on the benefit of CA based practices will be conducted in the locations where the demonstrations are established.

Component 4: Develop policy options and recommendations that create an enabling environment for scaling up/out CA based innovations

Activity 4.1 Identify policy gaps, impediments and/or opportunities for CA based intensification

Pending for 2013 for all the three countries.

Activity 4.2 Evaluate alternative policy options and generate evidence based recommendations

Pending for 2014, depending on the permission of No Cost Extension (NCE).

Activity 4.3 Facilitate policy dialogue on CA systems through regional policy/stakeholder workshop

Pending for 2014, depending on the permission of No Cost Extension (NCE).

Activity 4.4 Enhance synergies and complementarities with other development programs to facilitate CA scaling out/up

Pending for 2014, depending on the permission for No Cost Extension (NCE).

Component 5: Enhance the capacity of R&D stakeholders for participatory learning and k-sharing

Activity 5.1 Synthesis of lessons learned from existing knowledge, best practices and experiences with CA innovations

Pending for 2014, depending on the permission for No Cost Extension (NCE).

Activity 5.2 Facilitate participatory knowledge sharing and learning on CA systems

Pending for 2014, depending on the permission for No Cost Extension (NCE).

Activity 5.3 Enhancing the skills and capacity of R&D partners and stakeholders research, targeting and economic analysis

Pending for 2014, depending on the permission for No Cost Extension (NCE).

3. Challenges

Since the project is at its initial stage for this reporting period, there was no big challenge faced. However, there were some minor challenges faced in the operation of the project mainly due to the lag in signing the grant agreement between CIMMYT and EC-IFAD, and the delay in transferring research fund from IFAD to CIMMYT account. This had implications on the time of project starting date and staff recruitment.

Moreover, still it is not clear whether the whole project budget approved (1 million Euro) is to be used in one and half years (June 01, 2012 till December 31st, 2013) as stated in the contract agreement or whether there could be a possibility that the available fund could be used for another one year period with No Cost Extension (NCE) till December 31st 2014. Initially when the project proposal was developed, it was based on the understanding that the project activities could be implemented within two and half years. But, if the NCE of one year could not be in place, implementation of most activities in component 4 and 5 that focus on knowledge management and transfer, policy analysis and advocacy, etc. could face a challenge.

4. Lessons Learned

Since the project is at its initial stage, not much lessons are generated from the project activities. However, from the experiments conducted on the demonstration plots, we have learned that lowland haricot bean varieties (Awash-1) couldn't perform well at mid-highland areas. Therefore, we are planning to introduce another variety in consultation with pulse breeders at Melkassa and Adet Agricultural Research Centers.

5. Way Forward

Project implementation in Kenya started late January 2013 and preparations to establish demonstration plots during the March rain is going on. Stakeholders' project briefing and planning meeting is planned to be held at Embu on 22nd February 2013.

There is a planned field visit in Malawi in April 2013 to make CIMMYT scientists working on CASFESA project acquainted with the farming systems where CA on-farm experiments were taking place and the districts where household survey data was conducted to analyze household level adoption of CA-based technologies. Secondary data will be collected from District offices of agriculture and also at a province level to map areas/farming systems where CA-based technologies fit best.

Second year planting in Ethiopia will start in April/May and preparations in input delivery to the demohosting farmers and awareness creation for farmers in the treatment villages to use CA based technologies will be undertaken.

Annex

Table A1: Achievements of Project Activities (1st June 2012 – 31st January 2013)

Components and Activities	Country		
	Ethiopia	Kenya	Malawi
<i>Component 1: Participatory on-farm evaluation and adaptation of CA-based technologies and analysis of farm level economic incentives (including profitability and risk mitigation benefits) under risk-prone mixed smallholder systems in eastern and southern Africa</i>			
<i>Activity 1.1</i> Rapid appraisals and characterization of target communities and households in new and extended CA communities in three target countries	<i>Done</i>	<i>Planned for 2013</i>	<i>Planned for 2013</i>
<i>Activity 1.2</i> Establish on-farm demonstration trials and participatory evaluation of alternative CA-based technologies along with conventional tillage systems in target countries	<i>Done (But will be continued)</i>	<i>Planned for 2013</i>	<i>Not applicable</i>
<i>Activity 1.3</i> Analysis of on-farm trial data to estimate farm level economic and risk mitigation benefits of CA technologies and practices in risk-prone mixed smallholder systems	<i>Planned for 2013</i>	<i>Planned for 2013</i>	<i>Planned for 2013</i>
<i>Activity 1.4</i> Analysis of existing farm household survey datasets (linked to SIMLESA and DIIVA surveys) to assess farmers' economic incentives and constraints to adopting CA-based practices using the existing farm household survey datasets	<i>Planned for 2013</i>	<i>Planned for 2013</i>	<i>Planned for 2013</i>

Components and Activities	Country		
	Ethiopia	Kenya	Malawi
<i>Component 2: Enhance the pro-poor and gender sensitive targeting of CA based interventions through analysis of farmers' perceptions, sustainability gains, and tradeoffs in utilization of crop residues in mixed smallholder systems</i>			
<i>Activity 2.1</i> Disaggregated analysis of target communities by resource endowment and gender to assess differential impacts and implications for more equitable inclusion (stakeholder consultation)	<i>Some information is already collected but more analysis is planned for 2013</i>	<i>Planned for 2013</i>	<i>Planned for 2013</i>
<i>Activity 2.2</i> Analysis of crop residue use in contrasting mixed smallholder systems to quantify opportunity costs and sustainability benefits and reduce economic and environmental tradeoffs in CA systems	<i>Analysis of crop residue use is partly done and quantification of opportunity costs and sustainability benefits are planned for 2013</i>	<i>Partly done under EC-IFAD project and quantification of opportunity costs and sustainability benefits are planned for 2013</i>	<i>Planned for 2013</i>
<i>Activity 2.3</i> Geo-referenced analysis and mapping of key indicators (and associated attributes) to enhance delineation of recommendation domains and enhance targeting of CA based interventions.	<i>Planned for 2013</i>	<i>Planned for 2013</i>	<i>Planned for 2013</i>
<i>Activity 2.4</i> Conduct adoption studies and identify constraints and scaling up/out opportunities from initial uptake of CA practices.	<i>Planned for 2013</i>	<i>Planned for 2013</i>	<i>Planned for 2013</i>

Components and Activities	Country		
	Ethiopia	Kenya	Malawi
<i>Component 3: Improve the delivery of information, technologies and market opportunities through institutional innovations and value chains for active participation of low income farmers and women and for stimulating CA based intensification of mixed smallholder systems</i>			
<i>Activity 3.1</i> Identification and mapping of farmer organizations, extension and other value chain actors that condition the development and delivery of CA innovations.	<i>Planned for 2013</i>	<i>Planned for 2013</i>	<i>Planned for 2013</i>
<i>Activity 3.2</i> Conduct market and value chain studies on selected service delivery systems (inputs, credit, CA equipment, crop residue and outputs)	<i>Planned for 2013</i>	<i>Planned for 2013</i>	<i>Planned for 2013</i>
<i>Activity 3.3</i> Identify pro-poor institutional innovations for enhancing the flow of information and access to technologies and markets for women and low income farmers	<i>Planned for 2013</i>	<i>Planned for 2013</i>	<i>Planned for 2013</i>
<i>Activity 3.4</i> Enhance the integration of low income and women farmers into equitable and efficient value chains for stimulating CA based intensification and income growth	<i>Planned for 2013</i>	<i>Planned for 2013</i>	<i>Planned for 2013</i>
<i>Component 4: Develop policy options and recommendations that create an enabling environment for scaling up/out (and widespread farmer investments in CA based productivity growth to increase food security and adaptation to climate change) CA based innovations</i>			
<i>Activity 4.1 (Document current policies to)</i> Identify policy gaps, impediments and/or opportunities for CA based intensification in mixed smallholder systems	<i>Planned for 2013</i>	<i>Planned for 2013</i>	<i>Planned for 2013</i>
<i>Activity 4.2</i> Evaluate alternative policy options and generate evidence based recommendations for promoting pro-poor CA technologies	Planned for 2014 (if NCE is allowed)	Planned for 2014 (if NCE is allowed)	Planned for 2014 (if NCE is allowed)

Components and Activities	Country		
	Ethiopia	Kenya	Malawi
<i>Activity 4.3</i> Facilitate policy dialogue on CA systems through regional policy/stakeholder workshop, policy briefs and advocacy	Planned for 2014 (if NCE is allowed)	Planned for 2014 (if NCE is allowed)	Planned for 2014 (if NCE is allowed)
<i>Activity 4.4</i> Enhance synergies and complementarities with other development programs to facilitate CA scaling out/up	Planned for 2014 (if NCE is allowed)	Planned for 2014 (if NCE is allowed)	Planned for 2014 (if NCE is allowed)
<i>Component 5: Enhance the capacity of R&D stakeholders for participatory learning and k-sharing by developing client oriented knowledge management systems that facilitate generation of national and regional public goods</i>			
<i>Activity 5.1</i> Regional Synthesis of lessons learned from existing knowledge, best practices and experiences with CA innovations in smallholder mixed systems	Planned for 2014 (if NCE is allowed)	Planned for 2014 (if NCE is allowed)	Planned for 2014 (if NCE is allowed)
<i>Activity 5.2</i> Facilitate participatory knowledge sharing and learning on CA systems	Planned for 2014 (if NCE is allowed)	Planned for 2014 (if NCE is allowed)	Planned for 2014 (if NCE is allowed)
<i>Activity 5.3</i> Enhancing the skills and capacity of R&D partners and stakeholders research, targeting and economic analysis of CA innovations	Planned for 2014 (if NCE is allowed)	Planned for 2014 (if NCE is allowed)	Planned for 2014 (if NCE is allowed)

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- Central Statistical Agency (CSA). 2010. Statistical bulletin for crop production forecast sample survey. Addis Ababa, Ethiopia.
- Federal Democratic Republic of Ethiopia Population Census Commission (FDRE_PCC). 2007. Summary and Statistical Report of the 2007 Population and Housing Census. Addis Ababa, Ethiopia.