



# Report on farmers' field day in Basona Worena woreda, Ethiopia, October 2015

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The three projects are led by the International Livestock Research Institute (in the Ethiopian Highlands) and the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa). The International Food Policy Research Institute leads an associated project on monitoring, evaluation, and impact assessment.



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# Introduction

Africa RISING project in the Ethiopian Highlands has conducted various on-farm research activities in Goshe Bado and Gudo Beret Kebeles of Basona Worena Woreda in 2015 cropping season. These activities were implemented by different CGIAR centers with the active participation of local partners including Debre Birhan Agricultural Research Center, Basona Worena Office of Agriculture and Debre Birhan University. It aimed at letting the CGIAR centres and local partners to visit the status of the research activities at farm and watershed levels. Taking this in to account, the project arranged a field day program for each target Kebeles on which different CGIAR centers and local partners including extension and administration office from zone and Woreda as well as University, research center and NGO participated to evaluate the status of activities in the Woreda. The Kebele level innovation platform members participated on this field day visit as well. This report is therefore prepared to document and share the output of the field Day that was conducted from 16-17 October 2015 in Gudo Beret and Goshe Bado Africa RISING research Kebeles.

## Objectives

- To evaluate the status of the on-farm research activities by the innovation platforms members.
- To promote learning and idea sharing among CGIAR centers and local partners.
- To promote scalable technologies on the two Kebeles and beyond.

## Participants of the field day

- CGIAR centers: CIMMYT, ICARDA, ILRI and ICRISAT
- Local partners: Basona Worena Office of Agriculture; Debre Birhan Agricultural Research Center (DBARC); Debre Birhan University (DBU); Basona Worena Woreda Administration; North Shewa Zone Office of Agriculture; Basona Worena Woreda Women, Youth and Children affairs; and Sustainable Natural Resource Management (SUNARMA)

## Gudo Beret Kebele (October 16, 2015)

Temesgen Alene (Africa RISING Research site coordinator) briefly presented about Africa RISINIG 2015 Meher season activities and number of beneficiaries/participants on each research protocol. This was followed by participants from CGIAR centers, Zone, Woreda, Research, University and NGO introduction to the farmers.

The first stop was to visit research intervention on mechanized seeding of wheat by using small machine and community seed multiplication of bread wheat. Most of the participants appreciated the performance of wheat under machine planting. Farmers said that during planting they were uncertain that machine planting will be successful but at the time of urgency wheat under the machine planting was good compared with the local ploughing system “Marsha”. Field day participant count the number of tillers from machine seeding and local practice and appreciated the tiller number (15-30 tillers) on the machine seeding. Wondye Desta, chairman of Gudo Beret Kebele, said that the performance of the wheat under machine seeding in Mush village of Gudo Beret (Photo 1) looks that of “Jiru area” (Most known place with high productivity for wheat). Farmers raised the topography of the area and the number of machine given to the Kebele (i.e. one) will not be sufficient. Researchers and experts reacted to the farmers questions that every technology has its own limitation. The solution is to use the machine on appropriate topography (not to use it on very sloppy areas); and the aim of the project is to create technology demand after that if farmers like the machine they might organize themselves in a form of cooperative to buy the machine or may create different mechanisms to purchase the Machine.



**Photo 1.** Mechanized wheat seeding at Mush village (Photo credit: ILRI/Apollo Habtamu)

On adjacent fields with that of mechanized seeding of wheat the participants visited community seed multiplication of bread wheat (Tsehay variety). The variety used for machine seeding and community seed multiplication (CSM) was the same (i.e. Tsehay) but the performance of wheat under community seed multiplication was not as good as that of machine seeding. One of seed multiplication participant farmer, Mekuria Mengistie, responded the performance variation of wheat planted for community seed production and mechanized seeding was due to variation on crop management practices (fertilizer application and weeding). The amount of fertilizer applied on community seed production plot was small and weeded only once. He said, the amount of fertilizer he purchased was not sufficient for all his farm/farm plots. He requested the Kebele cooperative to get fertilizer in the form of credit but, the Kebele cooperative was not voluntary to sale fertilizer on credit basis. Mekuria added that the performance of wheat planted for mechanization seeding trial was good because of the use of recommended fertilizer rate and appropriate weeding (two times). The issue of not using recommended rate of fertilizer and that of the lack of credit facility was agreed to be one discussion point with innovation platform (IP) member institution.

The second stop was to visit integrated disease management (IDM) of faba bean gall and field pea participatory variety selection (PVS) research activities. On IDM of faba bean gall participants raised that the disease pressure this year was not severe to see clear difference among the treatments (variety and chemicals). They also asked about time of application of the chemical (Ridomyl). Researchers from ICARDA and CIMMYT responded that Ridomyl was applied as soon as the disease appeared on the plants. The severity of the disease was low as compared to that of last year. Still there is variation between treated and untreated plots but the final result will be seen after measuring the seed yield data from both plots. On field pea PVS most of the participants appreciated the initiative to start variety selection on field pea crop. Researchers from Debre Birhan Agricultural Research Center (DBARC) commented that local variety from the area should be included on the trial. They recommended to select one or two best performing varieties from this year PVS and to go for demonstration on large plots by including the local variety next year.

The third stop was to see lentil PVS; oat and vetch fodder production; and Durum wheat PVS research activities. Researchers and experts appreciate lentil PVS trial as it will help to identify suitable lentil variety for Meher season production. Farmers said that lentil production was not very common on Meher because of giving priority for crops that have grain yield for human and crop residue for their livestock. Based on their judgment shallow light soil is suitable for better lentil growth performance but deep and heavy soil results in lodging. Researchers and experts on the other hand described that deep soil should not be considered as reason for lodging by mentioning high lentil producing areas on deep fertile soil as a reference. Endale Lemma (Head of Woreda office of agriculture) said that lentil production should be considered not only for grain production but also for feed for livestock and thus selected varieties for both grain and straw having longer height without lodging behavior should be used for such purposes.

On oat and vetch (Photo 2) fodder production it was realized that the vetch dominated the oat due to moisture stress immediately after planting. Under the current scenario the female participant farmer (Desta W/Aregay) advised by researchers and experts to feed her livestock by cutting on green stage or to dry under the sun and to mix it with hey or crop residue in one to three ratio (i.e. 3 hey/crop residue to 1 vetch). Some researchers appreciated Desta W/Aregay for allocating part of her land for fodder production. She was



also advised to link it with beekeeping activity in the future and to secure some amount of seed for next year.



**Photo 2.** Mixed fodder production at Gudo Beret Kebele (Photo credit: ILRI/Apollo Habtamu)

The Durum wheat PVS activity was mentioned as a good start by researchers, experts and farmers because it can serve as cash crop and also to break occurrence of rust disease. Farmers asked how they can get the seed of durum wheat. They were informed after the selection of the varieties using farmers' criteria and yield result, initial seed of the selected varieties will be supplied by either the project or DBARC and then the dissemination will follow the usual practice (Farmer to farmer seed exchange).

The final visit was on the activities of tree lucerne; Wheat yield-gap research trial; and watershed initiative. On tree lucerne research Dr. Kindu Mekonnen explained the aim of the research is to determine the appropriate cutting height and the amount of biomass which can be collected. He also indicated tree lucerne was introduced to Basona Worena Woreda long time ago but the tree was not seen in each farmer's field as opposed to its long time history in the area. He also added there is a need to do much of work on utilization aspect which will help the extension to further scaling-up.

On yield-gap research protocol participants raised what was the base of selecting micronutrients and their rate combination for the trial? Dr. Tilahun Amede said that the basis for his research were the research output from Agricultural Transformation Agency (ATA) and current research initiative by the government. He said that, once appropriate fertilizer combination known from the current research for different soil types and landscape positions, recommendation can be given for policy makers to make appropriate adjustments as required. He also explained in addition to yield increment it is also possible to improve grain quality of crops by adding fertilizer which have micronutrient to the soil. He added researchers observed

what is called hidden hunger due to shortage of micronutrients in the human diet. Finally, he remarked the aim of his research is not on the type of fertilizer to use but the nutrient type and combination for better improvement in yield and quality of wheat.

On the watershed initiative Endale Lemma (Head of office of agriculture) valued technical support as well as experience sharing to Tigray region arranged by Africa RISING project in the Ethiopian highlands. He reminded that a lot of physical and biological interventions were done after the experience sharing. Dr. Kindu Mekonnen reminded the main contributions of Africa RISING project on the watershed were to bring farm level technologies tested by the project to watershed/landscape level; research support in terms of generating evidences for the extension related with watershed activities; and to bring change to the livelihood of the farming community in short period of time.



## Goshe Bado Kebele (October 17, 2015)

On the second day participants from local partners and farmers visited action oriented research activities at Goshe Bado Kebele. The research activities visited with some comments/suggestion summarized as follows:

### *Wheat yield-gap trial (ICRISAT)*

Farmers and other participants raised that the performance of the wheat under yield-gap trial was good. But it was not possible to see clear difference among the treatment and their suggestion was to see after the yield result.

### *Integrated disease management of faba bean gall*

The effect of seed dressing and chemical spray (Ridomyl) combined with improved variety showed variation with that of untreated plots. The disease pressure was not severe and the faba bean is struggling with moisture shortage which will have an impact on pod development and seed setting.

### *Mechanized seeding of wheat*

Farmers appreciated machine planted wheat for its spike length, seed setting and size of tiller for their livestock feed. But they commented the time taken during planting was long as compared with that of the local broad bed and furrow (BBM) system.

### *Bread wheat community seed multiplication*

The performance of Tsehay variety was good under farmer's management as compared with that of Gudo Beret. Wild oat was seen on some of the farmers field and it was commented to remove it otherwise it will have quality impact on the seed.

### *Lentil participatory variety selection (PVS)*

It was commented that the planting date was somehow late with reference to lentil planted on adjacent field with the PVS. It was also commented to include the local variety as a check (Photo 3).



**Photo 3.** Lentil participatory variety selection (PVS) trial at Goshe Bado (Photo credit: ILRI/Apollo Habtamu)

*Tree lucerne with Crop residue management (Crop residue shade & feeding trough)*

Abegaz Ayfokru described his work on tree Lucerne (Photo 4), crop residue shade and feed trough and most of the participant were very impressed by the performance of tree lucerne. It was suggested to link this work with beekeeping with some support from Woreda office of agriculture. Other participant farmers of the visit admitted that they see it is possible to grow tree lucerne around their homestead to complement the feed shortage especially during the dry season. Abiro from research centre commented to increase the number of Model farmers like Abegaz to change the attitude of the whole community.

*Food barley seed multiplication*

It was suggested that the harvested seed of HB1307 should be disseminated to other farmers (either farmer to farmer seed exchange or sell). Mikre Gashaw owner of the land briefly explained his last year experience on bread wheat (Tsehay) seed multiplication to the participants. He exchange some amount of Tsehay with other crop seed, he also directly sell to farmers and SLM project of the Woreda office of agriculture.



**Photo 4.** Well managed tree lucerne at Goshe Bado Kebele (Photo credit: ILRI/Apollo Habtamu)

*Field pea participatory variety selection (PVS)*

The overall performance of field pea PVS was promising. Endale lemma appreciated the work by remembering research activities on this crop was limited in the past. Abiro from DBARC reminded that before three years there was an adaptation trial done and it was not possible to get better yielding variety than the local. He suggested to select one or two best varieties from the PVS and go for demonstration including the local with big plot next year.

## Points during general discussion

The aim of the discussion after finishing the two day field visit was to know the reaction farmers and local partners have on the activities of the project and what can be taken as an assignment by Innovation Platform member institutions. Overall, field day participants said that the visit was an interesting event that they learn more from a lot of integrated on-farm research activities. Summaries of the point raised are listed below:

### *Farmers*

Most of the participant farmers were impressed by the activities of the project and promised to participate in seed multiplication and technology scaling activities.

### *Woreda office agriculture*

**Shewangizaw Nigussie** (Head of Extension process): Africa RISING project is doing variety demonstration and PVS with recommended management practices and seed multiplication these activities will supplement the work of Woreda extension. He also appreciated introduction of new technologies like Machine seeding of wheat that will save labor needed during planting. There is also a gap on allocating land for forage development by farmers in the area he appreciated tree lucerne at Abegaz Ayfokru backyard. He said that “now we have seen Model farmer on tree lucerne and the remaining work is scaling to the farming community”. He advised tree lucerne should be planted on farm land at the terraces after stopping free grazing using community discussion and formulating bylaws. Finally, he said it is good to see different technology options on the two Kebeles and the extension has the assignment to do scaling.

### **Endale Lemma** (office of Agriculture head):

- He was happy with all the activities he observed. He said that many research protocols were presented during the 3<sup>rd</sup> strategic innovation platform meeting around June 2015 which he was in doubt for their implementation since the staffs were small but surprisingly all of them were implemented and observed on the ground.
- Assignment of Extension: He reminded most of the research activities implemented by Africa RISING project this year can be used as learnings/model site for the extension. He promised in collaboration with Kebele administration and DA's to organize repeated farmers field day with more number of farmers on selected research activities.
- Input utilization: farmers don't use recommended fertilizer in which one of their reason was related with that of access to credit. He admitted there was a gap on credit arrangement. This year we have tried to facilitate both cash purchase and purchase on credit at the same time but most of the farmer even if they have cash move to the credit system and this cause some problem. Thus, for the next season in collaboration with Kebele leaders and cooperative he promised to solve the problem related with credit system.
- Forage development: Endale said Tired corporate has a plan to build milk processing factory around Sheno town which has a capacity of processing 60,000 liters of milk per day. The factory has a plan to



collect 15,000 liters of milk per day from farmers. He question was the possibility to answer the huge demand of the processing factory by the current forage development? He advised field day participant farmers to concentrate on few number of animal but productive (i.e. improved breeds) and to start different forage development activities like the tree lucerne at the backyard of Abegaz Ayfokru.

- Seed of selected varieties versus scaling: Last season the Woreda office of agriculture tried to get the seed of selected variety of bread wheat (Tsehay) and faba bean (Dosha and Gebelecho) for scaling from Amhara seed enterprise but the variety was not in their system. This needs further action from Zone and region.
- Finally Endale concluded that he think that the faba bean gall disease problem doesn't get final solution; research started on field pea is encouraging; and he suggested higher officials (both from CGIAR and government) to see selected project activities.

#### *Debre Birhan Agricultural Research Center (DBARC)*

**Abiro Tigabie** (Socio economics researcher): reminded his research center is currently doing pre-scaling up of selected crop varieties by Africa RISING at different Kebeles of Basona Worena Woreda. At Goshe Bado Kebele pre-scaling up of Tsehay and Menzie bread wheat varieties done with an area of 4.3 ha and 6 ha respectively. At Gudo Beret faba bean Dosha variety on 4.5 ha; Food barley HB1307 variety on 5 ha; bread wheat Tsehay variety 2.6 ha; and malt barley Bekoji-1 variety on 1 ha of land are on their pre-scaling up program. He also said the Amhara seed enterprise demand for seed multiplication of selected varieties of crop should come from Zone office of agriculture.

**Beyene Bitew** (Center director): He informed participants his center has already provided basic seeds of different variety of bread wheat, faba bean and malt barley to Amhara seed enterprise to multiply it on large scales. He also promised to provide basic seed of selected crop varieties which will be depend on the capacity of the center.

#### *Debre Birhan University (DBU)*

**Wegayehu Feleke and Amhaeyesus Belete:** representatives from DBU promised that the University is one among the key partner institutions of Africa RISING project to include best technologies identified by the project in their community service plan in their future works.

#### *Woreda Administration office*

**Nigussie Zergaw** (representative from Woreda administration office) said that he was very impressed by the project activities on the ground. He said the Woreda administration is willing to support the project whenever asked to do so. For example, the Woreda administration may play an active role in community mobilization for effective participation on different project activities.



*Sustainable Natural Resource Management (SUNARMA)*

**Birhan Ali** (Head): Most of the works of SUNARMA are related with natural resource management so he said his institution will closely work at the watershed initiative with the project and other partners. He mentioned SUNARMA can multiply selected technologies of trees and grass at different nurseries which can be planted on the watershed.

**Table 1.** List of research protocols with their participant farmers/beneficiaries for 2015 at Basona Worena site.

SN.	Research protocols	Participant farmers								
		Goshe Bado			Gudo Beret			Total		
		Male	Female	Total	Male	Female	Total	M	F	Total
1.	Yield-gap (CIAT)	-	-	-	4	-	4	4	-	4
2.	Yield-gap (ICRISAT)	24	2	26	15	-	15	39	2	41
3.	Exhaustion trial (ICRISAT)									
3.1	Potato	8	2	10	-	-	-	8	2	10
3.2	Faba bean	2	-	2	2	-	2	4	-	4
4.	Raised bed	6	-	6	-	-	-	6	-	6
5.	Mechanized seeding	2	1	3	2	1	3	4	2	6
6.	Participatory Variety Selection (PVS)									
6.1	Field pea PVS	2	-	2	2	-	2	4	-	4
6.2	Durum wheat PVS	2	-	2	1	1	2	3	1	4
6.3	Lentil PVS	2	-	2	2	-	2	4	-	4
7.	Integrated faba bean gall management	2	-	2	2	-	2	4	-	4
8.	Community seed production									
8.1	Bread wheat (Tsehay)	3	-	3	3	-	3	6	-	6
8.2	Faba bean (Gebelecho)	4	-	4	4	1	5	8	1	9
8.3	Food barley (HB1307)	5	-	5	1	2	3	6	2	8
8.4	Potato (Gera)	6	-	6	3	1	4	9	1	10
9.	Tree lucerne research protocol	23	8	31	55	10	65	78	18	96
10.	Crop residue research protocol	7	-	7	7	-	7	14	-	14
11.	Mixed fodder production (rain fed)	2	-	2	8	4	12	10	4	14
12.	Sweet lupines adaptation trial	1	-	1	1	-	-	1	-	1
13.	Highland fruit	6	3	9	30	11	41	36	14	50
14.	Irrigation scheduling trial	-	-	-	7	8	15	7	8	15
								255	55	310

NB: One farmer may participate in more than one research protocol

**Table 2.** List of Participants (CG centers and farmers) on the two day field visit.

Name	Organization	Contact address
Kindu Mekonnen	ILRI	<a href="mailto:K.Mekonnen@cgiar.org">K.Mekonnen@cgiar.org</a>
Annet Mulema	ILRI	<a href="mailto:A.Mulema@cgiar.org">A.Mulema@cgiar.org</a>
Apollo Habtamu	ILRI	<a href="mailto:A.HABTAMU@CGIAR.ORG">A.HABTAMU@CGIAR.ORG</a>
Tilahun Amede	ICRISAT	<a href="mailto:T.Amede@cgiar.org">T.Amede@cgiar.org</a>
Tadesse Gashaw	ICRISAT	<a href="mailto:T.Asrat@cgiar.org">T.Asrat@cgiar.org</a>
Dereje Tirfessa	CIMMYT	<a href="mailto:D.Tirfessa@cgiar.org">D.Tirfessa@cgiar.org</a>
Negussie	ICARDA	<a href="mailto:negussie_ab@yahoo.com">negussie_ab@yahoo.com</a>
Yetsedaw Ayenewa	ICARDA	<a href="mailto:ayenyetse@gmail.com">ayenyetse@gmail.com</a>
Temesgen Alene	ILRI	<a href="mailto:t.alene@cgiar.org">t.alene@cgiar.org</a>
Shimelis Mengistu	ILRI	<a href="mailto:S.Mengistu@cgiar.org">S.Mengistu@cgiar.org</a>
Abiro Tigabie	Debre Birhan ARC	0931522241
Beyene Bitew	Debre Birhan ARC	0911338789
Endale Lemma	Woreda office of agriculture	0911088005
Admasu Altaye	Zone office of agriculture	0910805679
Yeshewatsehay Hailu	Woreda office of agriculture	
Zegeye Wondmagegnehu	Woreda office of agriculture	
Birhan Ali	SUNARMA	0910050022
Mitku Haile	SUNARMA	0920986376
Nigusie Zergaw	Woreda administration office	0913138578
Amhaeyesus Belete	Debre Birhan University	0920175218
Dawit Belay	Zone office of agriculture	0911811295
Shewangizaw Nigussie	Woreda office of agriculture	0911719077
Wegayehu Feleke	Debre Birhan University	0912228591
Teklu Girma	Woreda women, children and youth affair	
Wondye Desta	Gudo beret Kebele administration	
Engdasew Abebe	Gudo beret Kebele agriculture office	
Melkamu Dagne	»	
Ashenafi Yifru	»	
Mikre Gashaw	Goshe Bado Kebele administration	
Sebsbie Sahile	Goshe Bado agriculture office	

**Table 3.** Participant farmers on the field day

Kebele	Male farmers	Female farmers	Total
Gudo Beret	24	10	34
Goshe Bado	26	6	32