

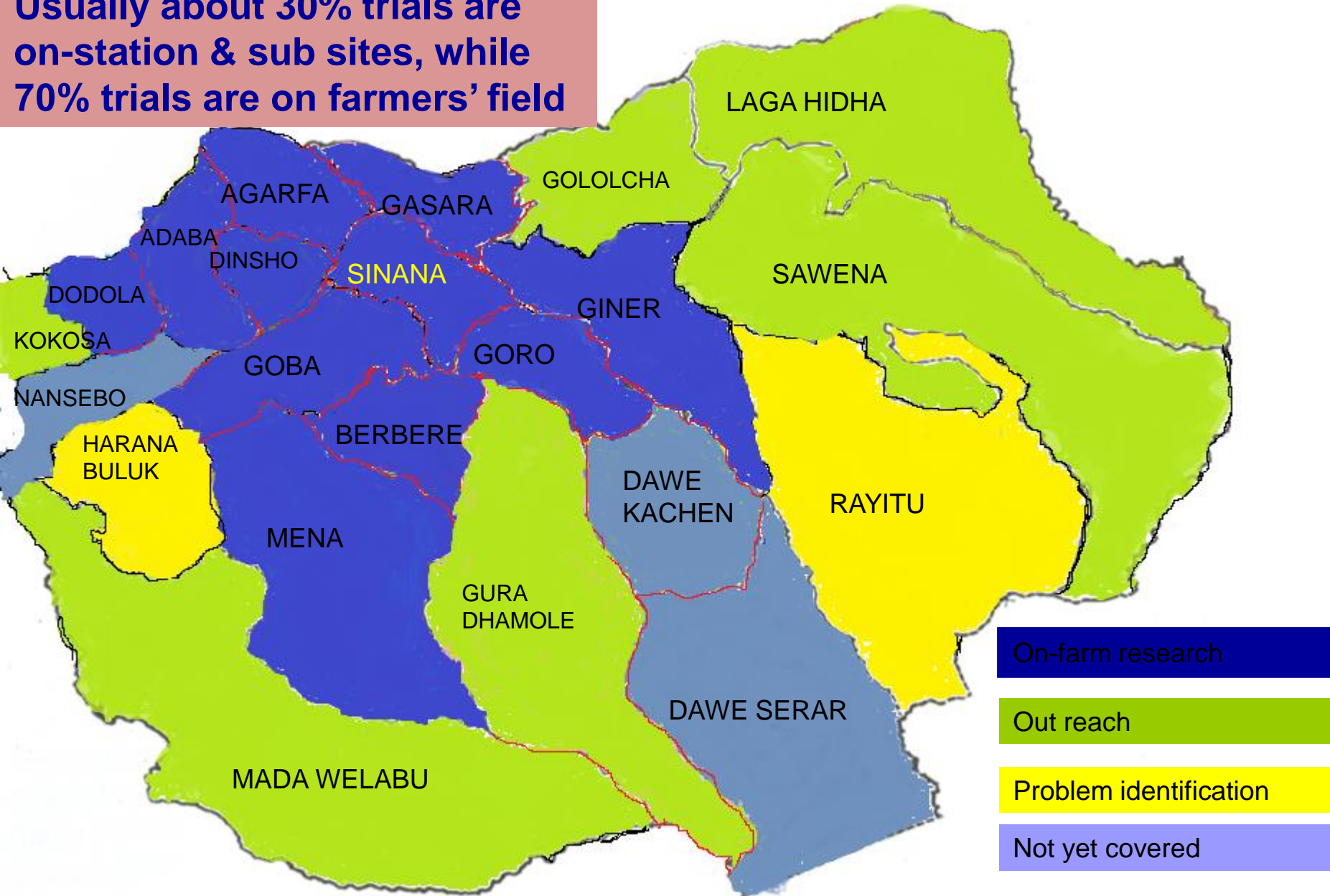
Sinana Agricultural Research Center (SARC)

Amare Biftu, SARC

**Africa RISING Training of Trainers (ToT) Workshop
Madda Walabu University, Robe-Bale, Oromia, 4-6 April 2017**

Mandate Area and Extent of coverage

Usually about 30% trials are on-station & sub sites, while 70% trials are on farmers' field



Sinana Agricultural Research Center

Established **1986 GC**

2400 masl

463.3 km from **Finfinne** in the SE
33.3 km from **Robe**

Leading objective:

- To generate or adapt improved agricultural technologies suitable for the south-eastern agro-ecology

Key Elements of Mission and Vision

Conservation of natural resource to create sustainable environment



Vision

Contributes to

- Food self-sufficiency and security
- Modernized agriculture



Mission

Adaptation, generation and transfer of demand driven sustainable agricultural technologies for food self-sufficiency and security, poverty reduction

Human Resource Status of SARC

- ❑ Researchers 40
(Male= 38, and Female=2)

- ❑ Support Staff 146
(Male = 120 and Female = 26)

Stakeholders and Collaborating Organizations/Institutes of SARC

International Organizations

- ICARDA
- CIMMYT
- Italian Develo. Cooperation
- RCBP
- EAAPP
- AGP
- ISSD Ethiopia
- AGRA
- Africa RISING
- N2 Africa

NGOs

- Lutheran
- Self help
- Agri service Eth.
- Hunde
- FARM Africa etc...

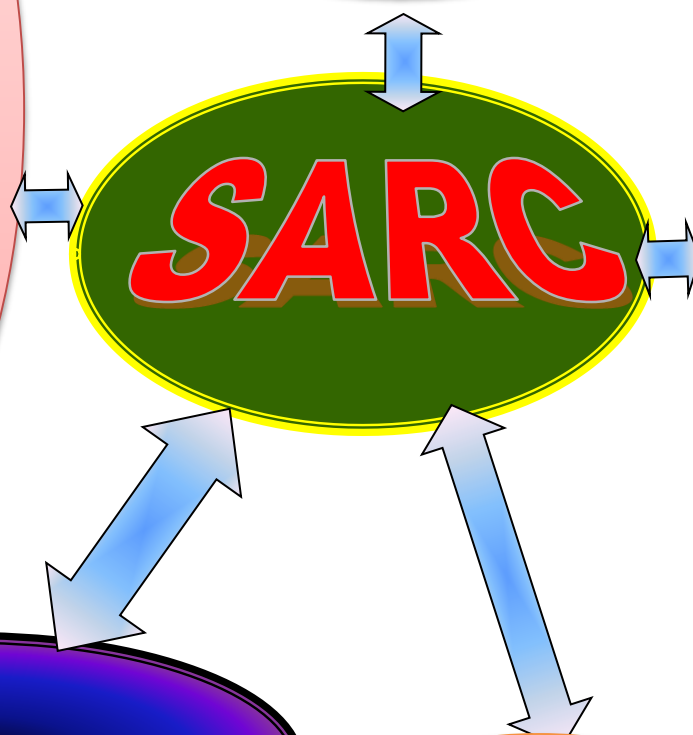
Gos

- EIAR
- Inst. of Biodiversity
- Federal & Regional Research centers
- Seed enterprises
- ANRD Offices
- LS & Fishery Res. Dev't Office
- Coops Pro Offices
- Unions
- Universities
- Agarfa ATVET college
- Meteorology agency
- Irri. Deve. Office

SARC

Private Investors

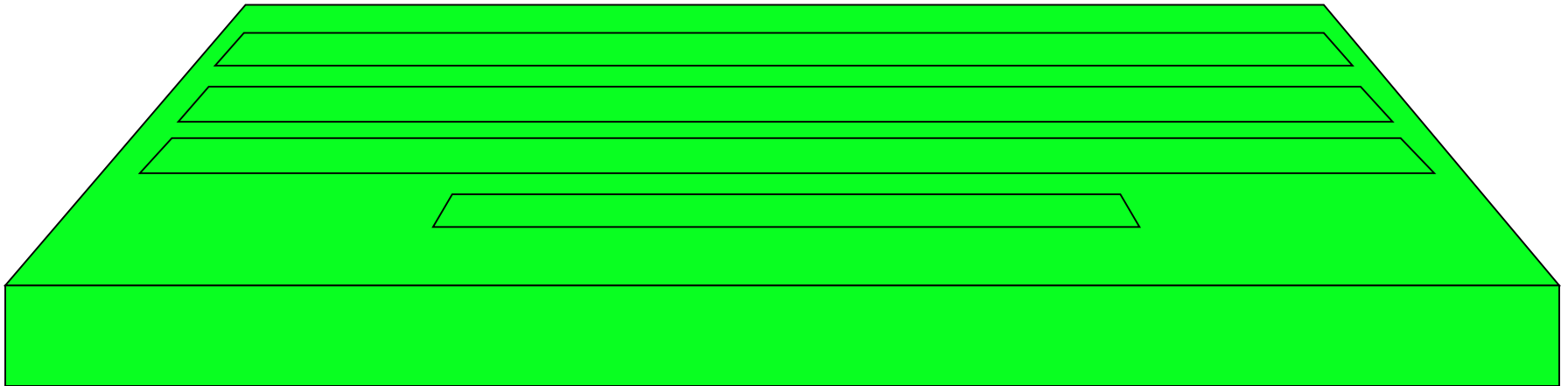
Farmers



Agricultural Research

Targets

(Applied Research)



Research Proposals Approved and Conducted in 2016/17

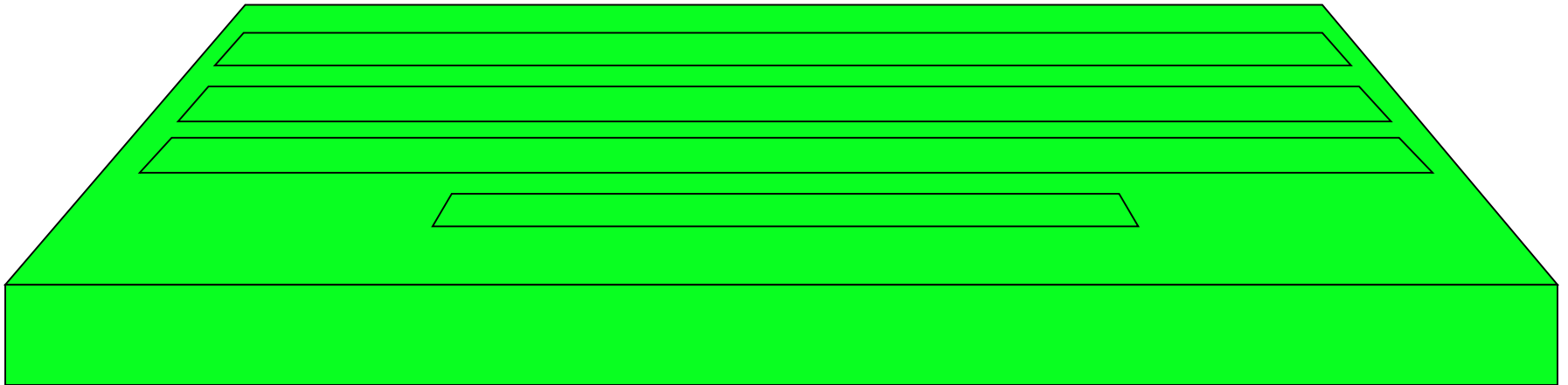
Lak	Garee Qorannoo	Hojjatamaa kan jiru	Haaraa	Waligala
1	Crop Research			
	Cereal Crops Technology Generating Team	16	17	33
	Pulse and Oil Crops Technology Generating Team	15	24	39
	Horticulture and Spice Crops Technology Generating Team	5	4	9
2	Livestock Research			
	AFN and Rangeland Improvement Case Team	5	5	10
	Apiculture Case Team	4	-	4

Research Proposals Approved and Conducted in 2016/17

Lak	Garee Qorannoo	Hojjatamaa kan jiru	Haaraa	Waligala
3	Natural Resource Research			
	Garee Fooyyessaa Xaa'ummaa Biyyee fi Egum Biyyee fi Bishaanii	5	2	7
	Garee Qonna Bosonaa	6	4	10
4	Socio-economics and Agricultural Research-Extension Research			
	Garee Hawaasummaa fi Dinagdee Qonnaa	3	-	3
	Garee Qorannoo fi Babal'inna Qonnaa	7	5	12
Grand Total		66	61	127

1) Technology Generation

(Teeknoolojii
Burqisiisuu)

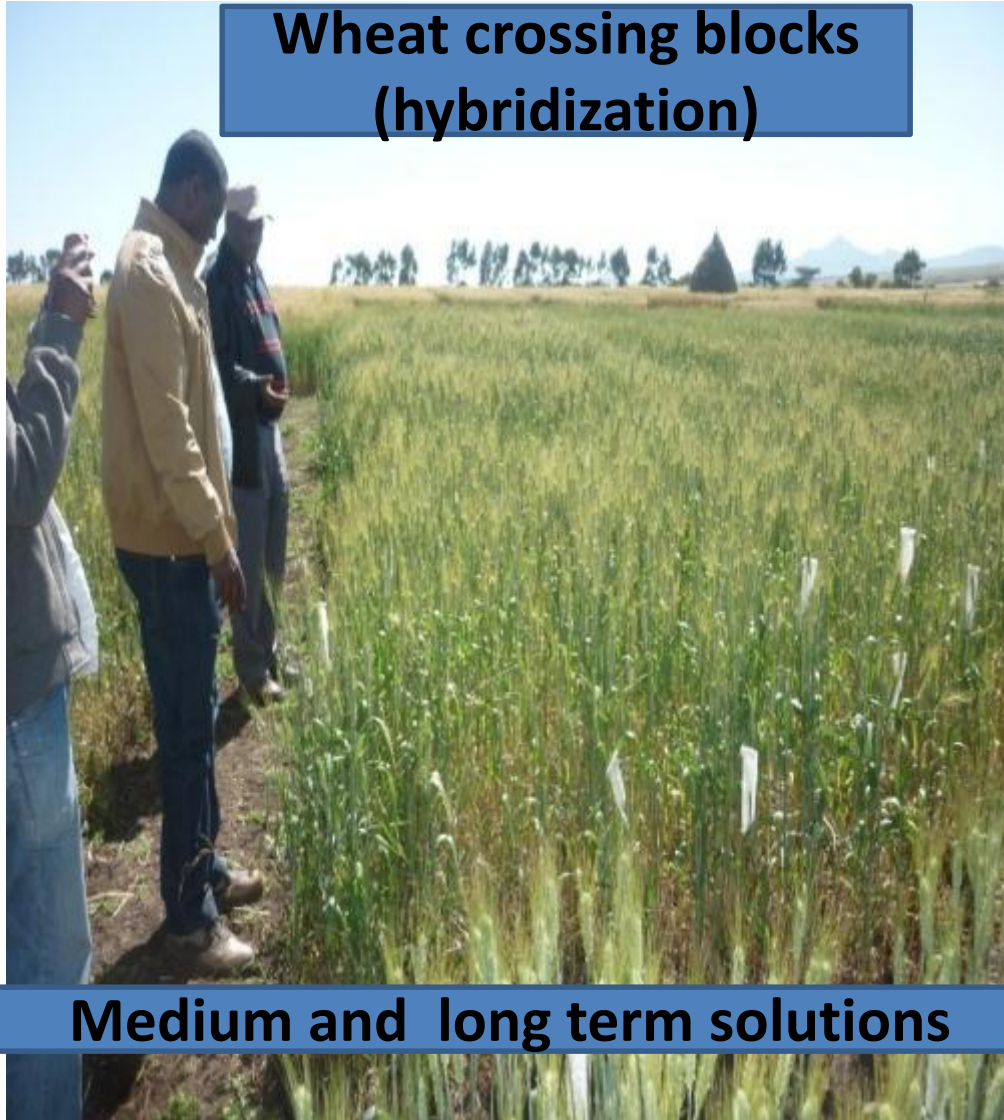


Through:

- 1) Collection of landraces
- 2) Evaluation of collected and introduced Germplasms
- 3) Selection
- 4) Hybridization

For Wheat Rusts Resistance

Wheat crossing blocks
(hybridization)



Medium and long term solutions

From Conventional to Gene Targeting/Molecular Breeding

Barley crossing blocks (hybridization)



**Objectives: 1) For Barley shoot fly
2) For diseases**



Name of new crop varieties released in 2016/17

1. Durum Wheat1

- Bulala

2. Emmer Wheat1

-Hayidaro

3. Field pea.....2

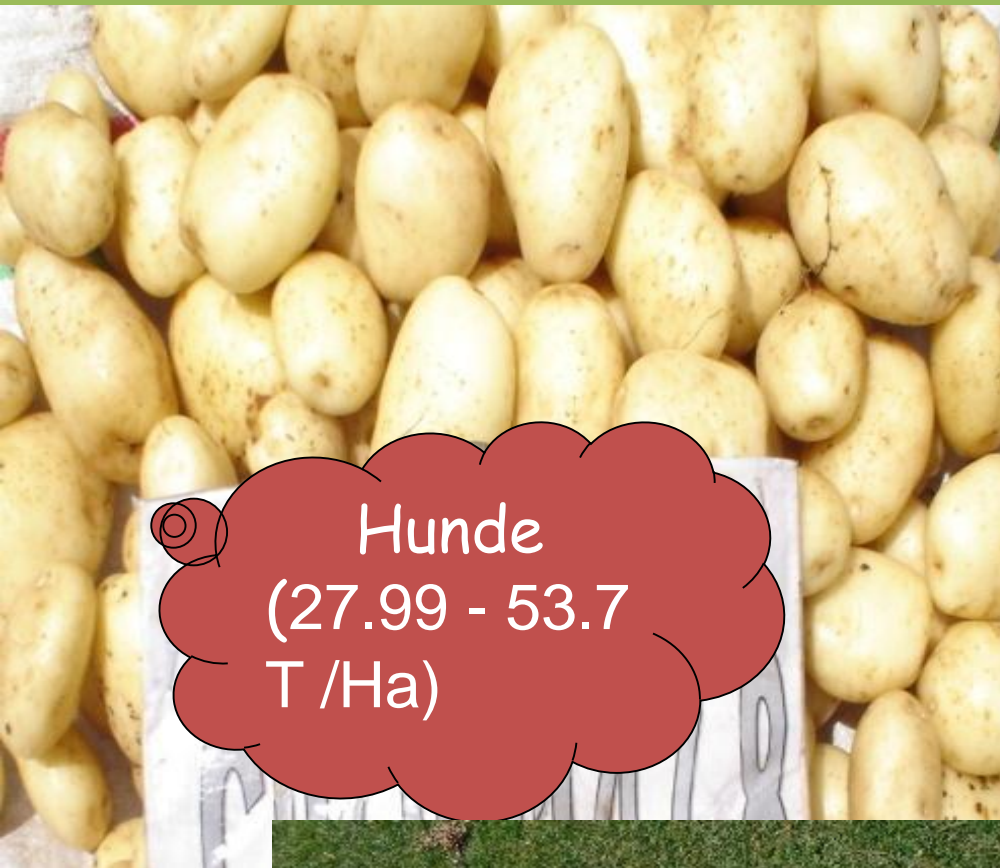
-Hortu

- Weyib

4. Faba Bean1

-Alloshe

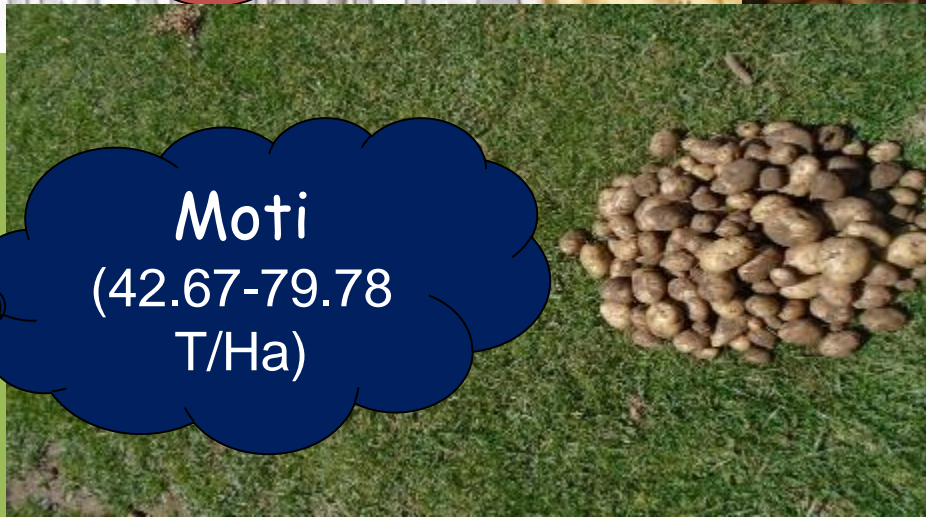
Horticulture (Kuduraa fi Muduraa- **Moosee**)



Hunde
(27.99 - 53.7
T /Ha)



Ararsa
(37.57-50.2
T/Ha)



Moti
(42.67-79.78
T/Ha)

Seed Spices (Mi'eessituu)

Shuqoo
Hunda'ol



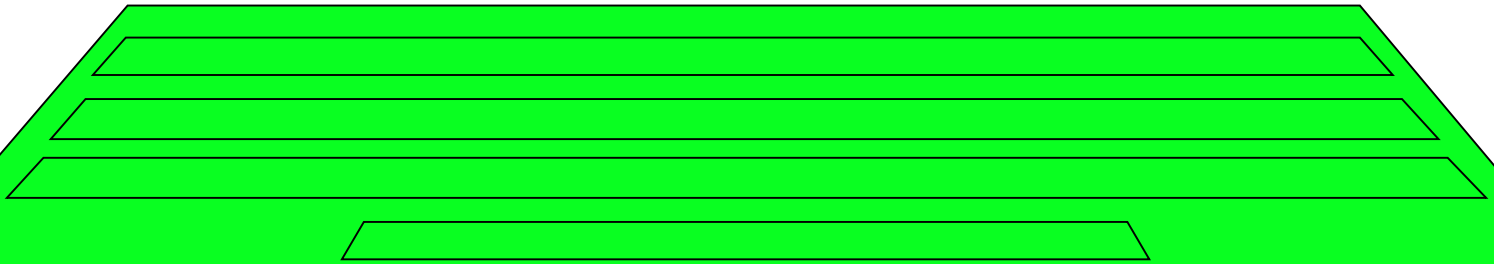
Dimbilaala
Walta'l



Abasudaa Gurraacha
Darbera



Crop Management



Recommended seed and fertilizer rates for cereal crops

Crop	Species	Seed rate (kg/ha)	Fertilizer rate (kg /ha)	Yield advantage (%)
Wheat	Bread wheat	150	DAP= 100 UREA=50	1/3 UREA application at planting and 2/3 at mid-tilleing increased yield by 23-78%
	Durum wheat	150	DAP= 100 UREA=100	1/3 UREA at planting and 2/3 at mid-tillering increased yield by 23.2%
	Emmer wheat	100	DAP= 100	
Barley	Food barley	100-120	DAP= 100	18-33% over no fertilizer
	Malt barley	100-120	DAP= 150	37% over no fertilizer

Recommended seed and fertilizer rates for Pulses and Oil crops

Crop	Species	Seed rate (kg/ha)	Fertilizer rate (kg /ha)	Yield (%)	advantage
Legume	Field Pea	75, except 100 for Dadimos	DAP= 100		
	Faba Bean	175-200	DAP= 100		
	Lentil	65	None		
Oil Crop	Linseed	25-30	Urea= 30 DAP= 50		

Fungicide screening against wheat rust diseases

List of fungicides verified at SARC for the control of wheat rusts

No	Fungicides	Rate (lit/ha)	Status	Company
1	Tebuconazole 250 EW (NATURA)	0.65	Registered	Lions International Trading PLC.
2	Amistar xtra 280 Sc	0.65	Registered	Syngenta Agri-Service AC
3	Opera Max	1	Registered	BASF Trading PLC
4	Progress 250 EC	0.5	Registered	Chem Trading International
5	Diprocon 30 EC	0.45	Recommended for registration	Lions International Trading PLC.
6	Ecostar 250 SC	0.7	Recommended for registration	Lions International Trading PLC.
7	Triadimefon 20% EC (PREVENT)	0.65	Rejected	Lions International Trading PLC.

For all fungicides, 250 lit/ha water was used.

Herbicides screened & registered for grass weed control

No	Chemical name	Scientific name	Verification year	Appl rate (litre/ha)	Yield advantage over weedy check (%)	Chemical company
1	Fuca-75	Phenoxaprop-p-Ethyl-Mefenpyr- Diethyl	2005	1.2	14 -20	Lions internat.
2	Falcon	Falcon	2007	1	23	General Chem.
3	Foxtrot	Foxtrot	2008	1	38	General Chem.
4	Current	Cladinafop-propagyl	2008	1	54	General Chem.
5	Omerus Super	Omerus Super	2008	1	45	General Chem.
6	Cladinafop	Cladinafop-propargyl	2008	0.33	38	General Chem.
7	Cladinafop 240	Cladinafop-propagyl 240 EC	2009	1	19	General Chem.
8	Fenopax	Fenopax 69 EW	2010	0.80	15	Lions internat.
9	Axial	Axial 045 EC	2010	1	12	Syngenta agro
10	Traxon	Traxon 45 EC	2010	1	12	Syngenta agro
11	Top Harvest	Clodinafop propargyl 80%EC	2011	0.75-0.90	39	Lions internat.
12	Rubah	Clodinafop propargyl 8% EC	2011	0.75	53	Dej.A.M.Gonafer & sons

Herbicides screened & registered for the control of broad leaf weeds

No.	Chemical name	Scientific name	Verification year	Rate of application (litre/ha)	Yield advantage over weedy check (%)	Chemical company
1	AG Chem	AG Chem 2, 4-D	2007	1	38	General Chem.
2	2,4-D	2,4-D Amine	2007	1	41-45	Samrawit
3	Lit Amine	Lit Amine 72 SL	2007	1	23	Lions Intern.
4	Agrocide	Agrocide 720 SL	2008	1	27	
5	Greenstar	Greenstar 75 WG	2008	1	37	Lions Intern.
6	Lioncide	Lioncide SL	2010	1	44	General Chem.
7	Power	Power 860 SL	2010	1.2	16	Lions Intern.
8	Richway	Tribenuron-methyl 75% WDG	2011	25g	38	Lions Intern.
9	Furaa	Furaa 75%SL	2010	1		Axum Greenline
10	Servian	Halosulfuron methyl 750g/l	2011	50g	53	Syngenta agro.

Herbicides screened and registered for controlling both grass weed and broad leaves

No.	Chemical name	Scientific name	Verification Year	Rate of application (litre/ha)	Yield advantage over the check (%)	Chemical company
1	Topic plus	Clodinafop propergyl 80 g/l tribenuron methyl 15g/l	2011	1	37.7	Syngenta agro.
2	Pallas 45 OD	pyroxyslam	2009	0.5	45	Chemtex

A diagram of a laptop. The screen is a large rectangle with a black border, containing the text 'Adapted Technologies' in a bold, red, serif font. The laptop body is a trapezoidal shape with a black outline, representing the keyboard area. It contains four horizontal lines, each with a small gap in the center, representing keys. The entire laptop is filled with a solid light blue color.

Adapted Technologies

Nationally released improved Cereal Crops varieties adapted under Bale condition

Bread Wheat varieties	Durum Wheat Varieties	Maize Varieties	Food Barley Varieties
Jaferson	Mukiye	Jibat (AMH 851)	Shegie
Huluka	Mangudo	Wenchi (AMH 850)	Dimtu
Ogolcho	Hitosa	Hora (Ambo 2 synl)	HB 42
Hidase	Denbi	Melkasa-1	HB 1307
Shorima	Werer	Melkasa-2	Setegn
Danda'a	Kokate	Melkasa-4	Ardu 12-60B
Kakaba	Mettaya	Melkasa- 6Q	
Alidoro	Yerer	Melkasa-7	Malt Barley
Millennium	Ude	Kulani	Beka
Bika	Ginchi	BH 660	Holker
Meraro	Asasa	BH 670	Bekoji-1
Digalu	Bichena	Katumani	Sabini
Bobicho	Kilinto	Adapted Tef varieties	Bahati
Sirbo	Foka	Tseday	Miscal-21
KBG-01	Boohai	Key Tena	HB 52
Hawi	Cocorit	Gemechis (Dz-Cr-387)	ET 1847
Simba	Gerardo	Ambo Toke (DZ-01-1278)	HB 120
Shina		Koye (DZ-01-1285)	HB 1533
Honkolo		Dukam (DZ-01-974)	
Galema		Ziquala (Dz-Cr-358)	
Dashen		DZ-Cr-82	
Kubsa		Quncho (Dz-Cr-387)	

Nationally released improved Pulse & Oil Crops varieties adapted under Bale condition

Crop	Variety Name	Year of recommendation	Recommended for (Location)	Seed Yield qt/ha
Haricot bean	Awash	2009	Berbare	7
	Awash Dume	2009	Berbare	11
	Batu	2009	Dello-Mena	12
	Deme	2009	Dello-Mena	11
	Awash Melka	2009	Goro	10
	Roba-1	2009	Goro	11
	Melka Deme	2009	Dello, Goro, Berbare	7-12
Soybean	Nova	2009	Dello, Goro	8-12
	Awash-95	2009	Dello, Goro	8
	Cocker 240	2009	Berbare	7
	Davis		Berbare	6
	William		Dello-Mena, Goro, Berebere	6
Faba bean	Moti, Walki,	2010	Highlands of Bale	38
Lentil	Alemaya	2000	Harena-Buluk	18
Chickpea	Harbu	2011	Goro, Ginir,	32-40
	Arerti	2011	Goro, Ginir,	30-39
	Akaki, worku	2000	Goro, Ginir	19
Sesame	Adi	2009	Dello-Mena	5
	S		Dello-Mena	6
	Mehado 80	2009	Goro	5.5
	Argene, Abusera, Abasena, Chalasa	2009	Dello, Goro	25

Nationally released improved Horticultural Crops varieties adapted under Bale condition

Crop	Varieties	Yield (q/ha)	Year of recommn	Location
Onion	Nasic red	241.2	2012/13	Delo Mena
	Adama red	238.93		
Tomato	Roma FV	509.69	2010/11	Delo Mena and Berbere
	Kochoro	560.19		
	Bishola	451.43		
Pepper	Mareko Fana	14.01	2010/11	Delo Mena and Berbere
	Melka Eshet	11.76		
Sweet potato	Bereda	244.44	2009/10	Delo Mena and Berbere
	Awasa	234.85		
	Dimtu	232.57		
Banana	Williams-1		2011/12	Delo Mena and Berbere
	Grand nain			
	Robusta			
	Butazua			
	Poyo			
	Jiant Cavandish			
	Dwarf cavandish			

7 desert type banana adapted at Dallo Manna Ginnir, Barbare (with irrigation facilities)

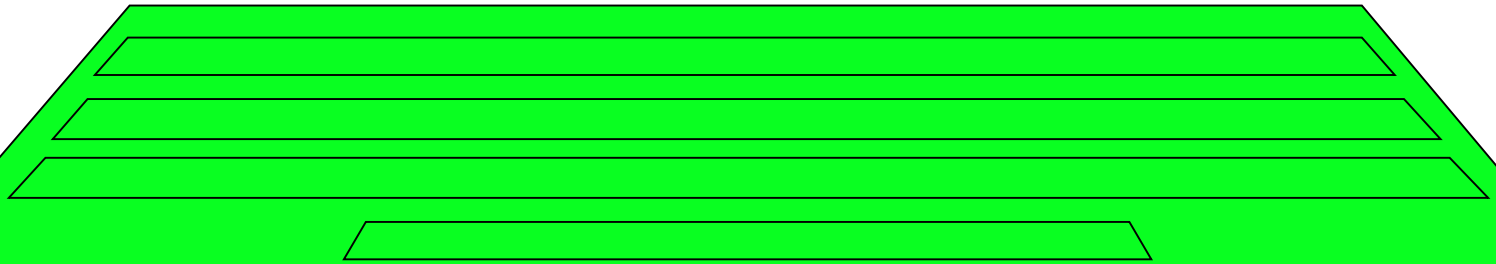
- Kan naannoo caala mi'aawan
- Firii baay'ee qabu
- Giddugaleessaan, abbazaan tokko hanga firii 120-150 qabata
- wagga 1 keessatti firii kennan



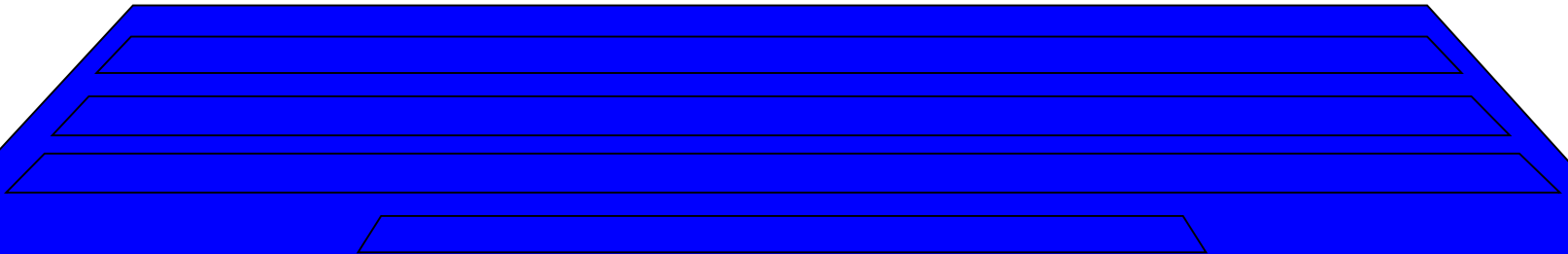
Nationally released improved Forage Crops varieties adapted under Bale Condition

Forage crops	Species	Yield/season (Dry matter t/ha)		Annual yield t/ha
		Belg	Meher	DM
Herbaceous Legumes	Melilotus alba	4.9	5.6	10.5
	M. altissimus	5.3	4.8	10.1
	Hedysarium coronarium	1.4	5.2	6.6
	Alfalfa (Hunter river)	1.3	2.6	3.9
	Desmodium intortum	1.7	1.8	3.5
	Desmodium uncinatum	1.2	2.0	3.2
Perennial Grasses	<i>Phalaris aquatica</i> 'Sirocco'	4.5	3.6	8.1
	<i>Phalaris aquatica</i> 'Sirossa'	4.0	4.3	8.3
	Rhodes grass	2.7	4.2	6.9
	<i>Panicum coloratum</i>	2.5	3.4	5.9
Elephant Grass	ILCA 14984	10.8	1.8	12.6
	ILCA 14983	12.5	1.3	13.8
	Variety "X" (Holetta local)	13.4	1.6	15.
Forage crops	Species	Yield (Fresh herbage t/ha)		yield/year t/ha FH
Vetch	Vicia villosa	130	50	180
	Vicia dasycarpa	93	53	146
	Vicia atropurpurea	73	36	109
	Vicia sativa	48	28	76
Oats	Oats - CI-8251	59	30	89
	Oats - CI-8235	54	27	81
	Oats - CI-8237	50	27	77
	Grey Algiers	50	27	77
Multipurpose Trees	Tree lucern			1-2
	Sesbania			1-2

**2) Early Generation
Seed Multiplication
(Teeknoolojii
Baay'isuu)**



**3) Technology Promotion-
Through Research based
Extension (Teeknoolojii
Babal'isuu)**



Why Research based Extension?

1) Technology Promotion Research (in multidisciplinary approach)

2) Extension System Research

Major Objectives

❑ **On-farm Demonstration** of Improved Agricultural Technologies (in FTCs and farmers' field)....on small plot size **(10mX10m)**

- Participatory assessment/evaluation and validation

❑ **Pre-scaling up** of best performing technologies....on wider plot size **(32mX32m)**

✓ Organizing extension/promotional events

- participatory trainings (multidisciplinary) for capacity build

- Field visit/experience sharing

- Field days

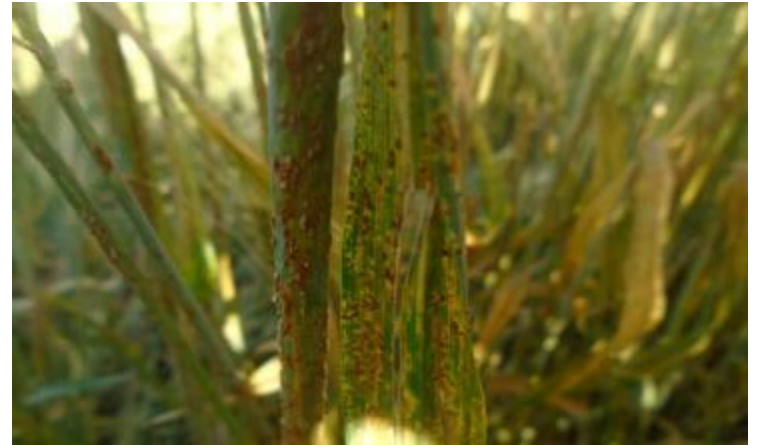
❑ **Feedback assessment** on the technologies

❑ **Linkage, collaboration and coordination (ADPLAC)**...for wider scaling up/out

For Wheat Rusts Control (Workshop with relevant stakeholders)



For Wheat Rusts Control (Too'annoo Dhibee Waagii Qamadii)



Emergent action

Field Days on effective herbicides (Wheat)

Herbicide	Rate (L/ha)	
Nonselective (broad-spectrum)		
Pallas 45 OD	0.5	Wheat
Atilantis OD	1-1.2	Wheat
37.5		



Field Days on effective herbicides (Barley)

AXIAL ONE

The chemical was tested and effective against grass and broadleaf weeds in **barley**



□ Pre-extension Demonstration of Bread Wheat Technologies (Oborra, Sannate and Hidase varieties with Recommended Packages)

□ Locations:- 6 districts (Sinana, Agarfa, Gassara, Ginnir, Adaba and Dodola)

Performance of the varieties...

Gosa Midhaanii = Qamadii

Bal'inna Lafaa = 10x10M(100M²)

Gosa Sanyii = Oborraa

Hanga Sanyii = 1.5 Kg

Hanga Xaa'oo = NPS = 1Kg

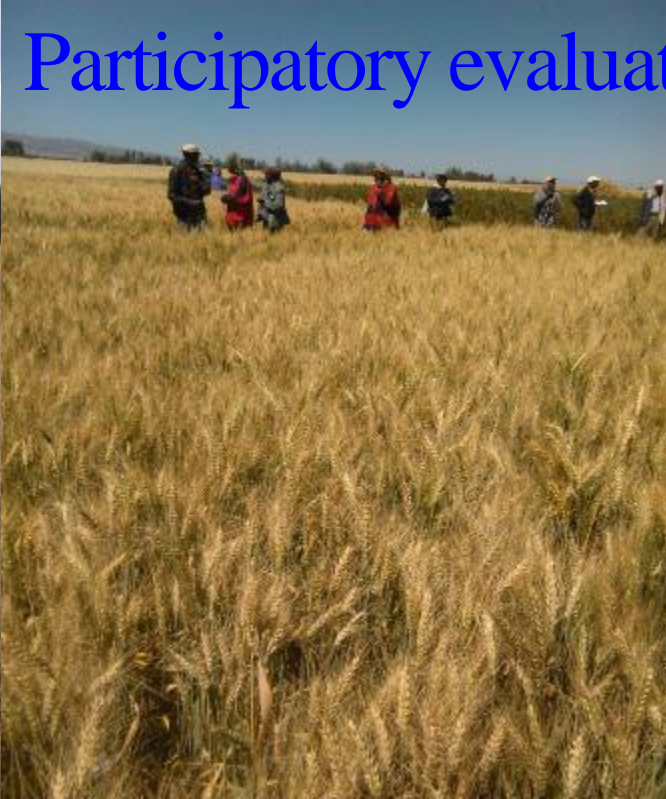
UREA = 1 Kg

Guyyaa Itti Faca'e = 12/12/2008

Demonstration evaluation 2017



Participatory evaluation of the varieties



Summary of Matrix Ranking of Farmers' Selection Criteria (Input for Breeders) (Boef and Thijssen, 2007)

Matrix Ranking result showed that

No	Variety Traits	Frequency	Rank according to total score
1	Tillering (<u>≥10</u>) fertile tillers	5 times	4 th
2	Disease Tolerant (YR, SR)	8	1 st
3	Spike Length	3	6 th
4	No. of Spikelet/Spike	2	7 th
5	Seeds per Spike (<u>>60</u>)	6	3 rd
6	Crop stand	4	5 th
7	Biomass Yield	0	9 th
8	Seed colour, hardness & softness	1	8 th
9	Overall Yield	7	2 nd
	Total	36	

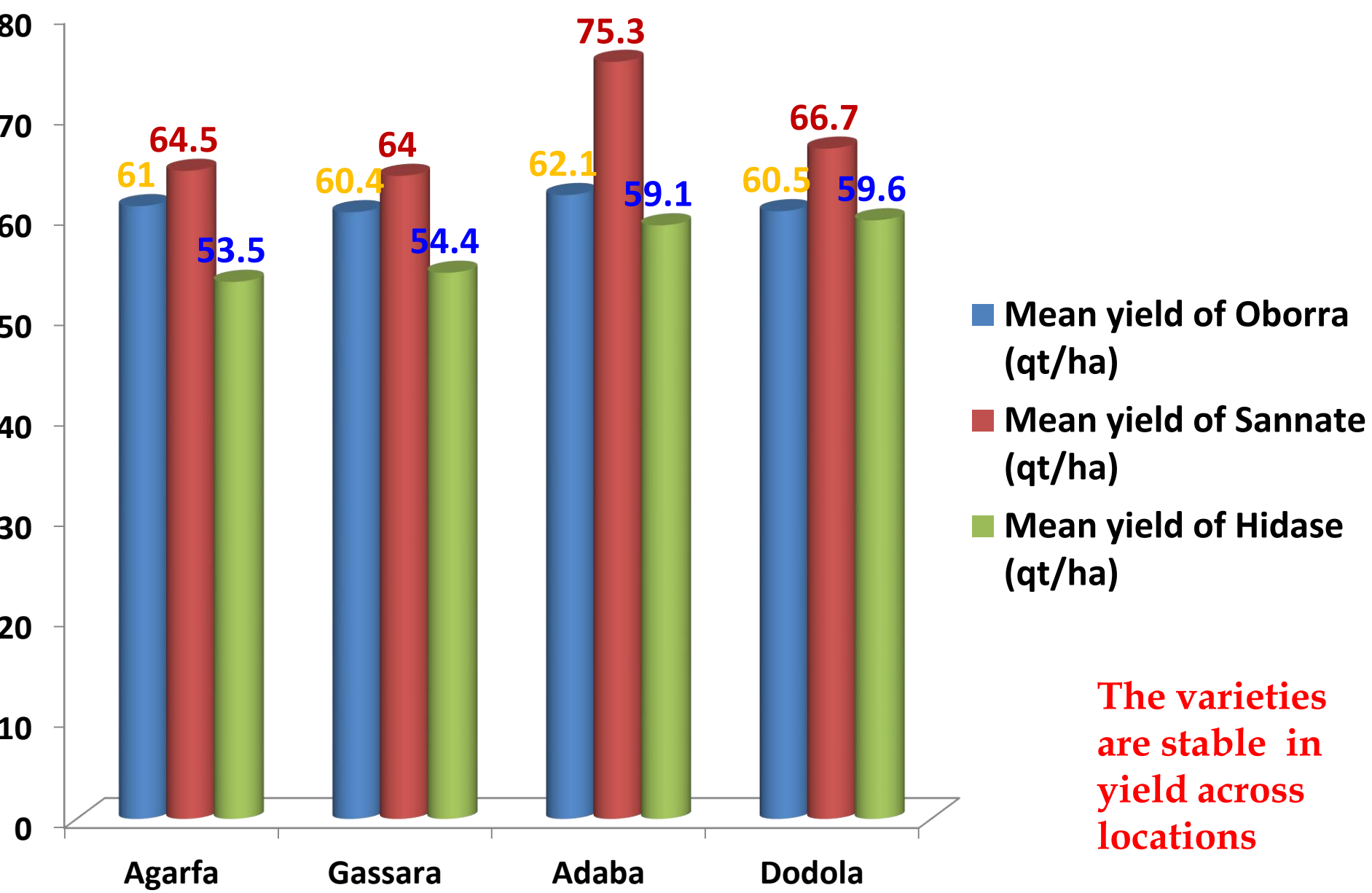
Seed colour of the varieties



Result of Participatory Demonstration and Evaluation of the Varieties over Locations

No	District	Variety Trait	Oborra (Mean)	Sannate (Mean)	Hidase (Mean)
1	Sinana	Tillering (count) (≥ 10) fertile tillers	12	14	11
		Seed per spike (≥ 60)	48	73	51
		Crop stand (%)	85	90	85
2	Agarfa	Tillering (count)	8	9	7
		Seeds/spike (count)	72	73	74
		Crop stand (%)	85	95	85
3	Gassara	Tillering capacity	10	12	10
		Seeds/spike (count)	56	73	69
		Crop stand (%)	85	90	80
4	Adaba	Tillering (count)	8	9	8
		Seeds/spike (count)	45	60	51
		Crop stand (%)	85	95	80
5	Dodola	Tillering (count)	9	9	7
		Seeds/spike (count)	45	65	53
		Crop stand (%)	80	90	80

Mean yield of the demonstrated plots



The varieties are stable in yield across locations

Comparing Yield Advantage

District	Mean yield of farmer's variety (qt/ha)	Mean yield of improved bread wheat varieties (qt/ha) and yield advantage over the check			
		Sannate	%	Oborra	%
Agarfa	Hidase				
	53.5	64.5	20.56	61	14.02
Gassara	54.4	64	17.65	60.4	11.03
Adaba	59.1	75.3	27.41	62.1	5.08
Dodola	59.6	66.7	11.91	60.5	1.51

Rank of the varieties based on farmers' selection criteria

P #	Varieties	Rank	Reasons
1	Oborra	2 nd	Lack of uniformity on heading and maturity, Medium tillering capacity, disease resistant (YR, SR), medium crop stand, attractive seed colour and hard seed for market, good yield
2	Sannate	1 st	High tillering (≥ 10), seeds/spike (≥ 60), disease resistant (YR, SR), good pl.ht, very good crop stand, very good yield, strong stem and good for black soil like MW, poor seed colour for market, shattering problem in case of off-season rain
3	Hidase	3 rd	Susceptible to diseases (YR,SR), Medium tillering capacity, soft seed for market, medium crop stand, good yield

Yield data from Ginnir District will be included (harvesting and weighing of the plots is underway).

Yield data of Sinana District is (not representative) excluded from the report because of frost damage at maturity stage of the crop.

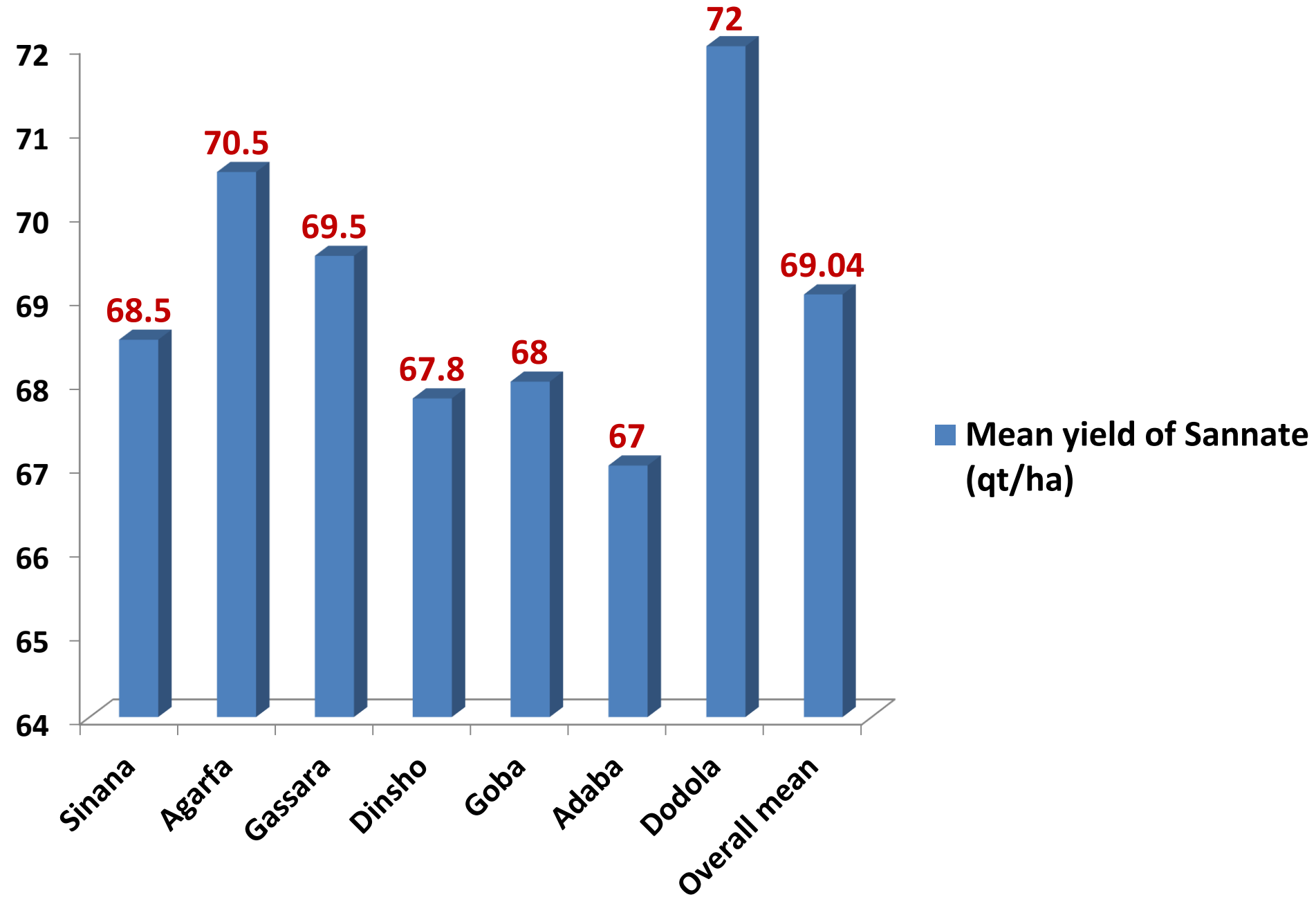
Result and Recommendations

- ❑ Stable, Suitable and widely accepted bread wheat variety/ies for the study areas were identified and ranked based on farmers assessment and grain yield data. Thus,
- ❑ Sannate is well performed than Oborra and farmers variety (Hidase) in all parameters.
- ❑ Oborra is less performed than Sannate and Hidase. Besides, it lacks uniformity and not recommended for pre-scaling up activity.
- ❑ Thus, Sannate is recommended for wider scaling up/out activity in the districts.
- ❑ Oborra variety will be maintained by Breeders for its good seed color and other merits to be used for breeding purpose at SARC on-station.
- ❑ Where as, Hidase is preferred for its yield by some farmers in Adaba and Dodola districts with the availability of fungicides.

Bread Wheat Variety (Sannate) Pre-scaling up activity

Year	Cropping season	Locations	No. of trial farmer	Plot size (m)	Seed for one farmer (kg)	Total seed distribute (qt)	Fertilizers for one farmer (kg)		Total Area (ha)	Harvested seed (qt)
							UREA	NPS		
1	2015/16 (2008 E.C)	Sinana Agarfa Gassara	10	32X32	16	1.6	11	11	1.1	75.8
2	2016/17 (2009 E.C.)	Sinana Agarfa Gassara Goba Dinsho Adaba Dodola	25	32X32	16	4	11	11	2.67	184
Total			<u>35</u>			<u>5.6</u>			<u>3.77</u>	<u>259.8</u>

Mean yield data of Sannate in the districts (2015/16 & 2016/17)



Performance of Sannate in the districts of Bale and W/Arsi Zone



Gosa Midhaanii = Qamadii

Bal'inna Lafaa = 10x10M(100M²)

Gosa Sanyii = Saannatee

Hanga Sanyii = 1.5 Kg

Hanga Xaa'oo = NPS = 1Kg

UREA = 1 Kg

Guyyaa Itti Faca'e = 12/12/2008

Sannate Variety....Dodola & Agarfa

Field day at Dodola, Agarfa, Gassara & Sinana districts

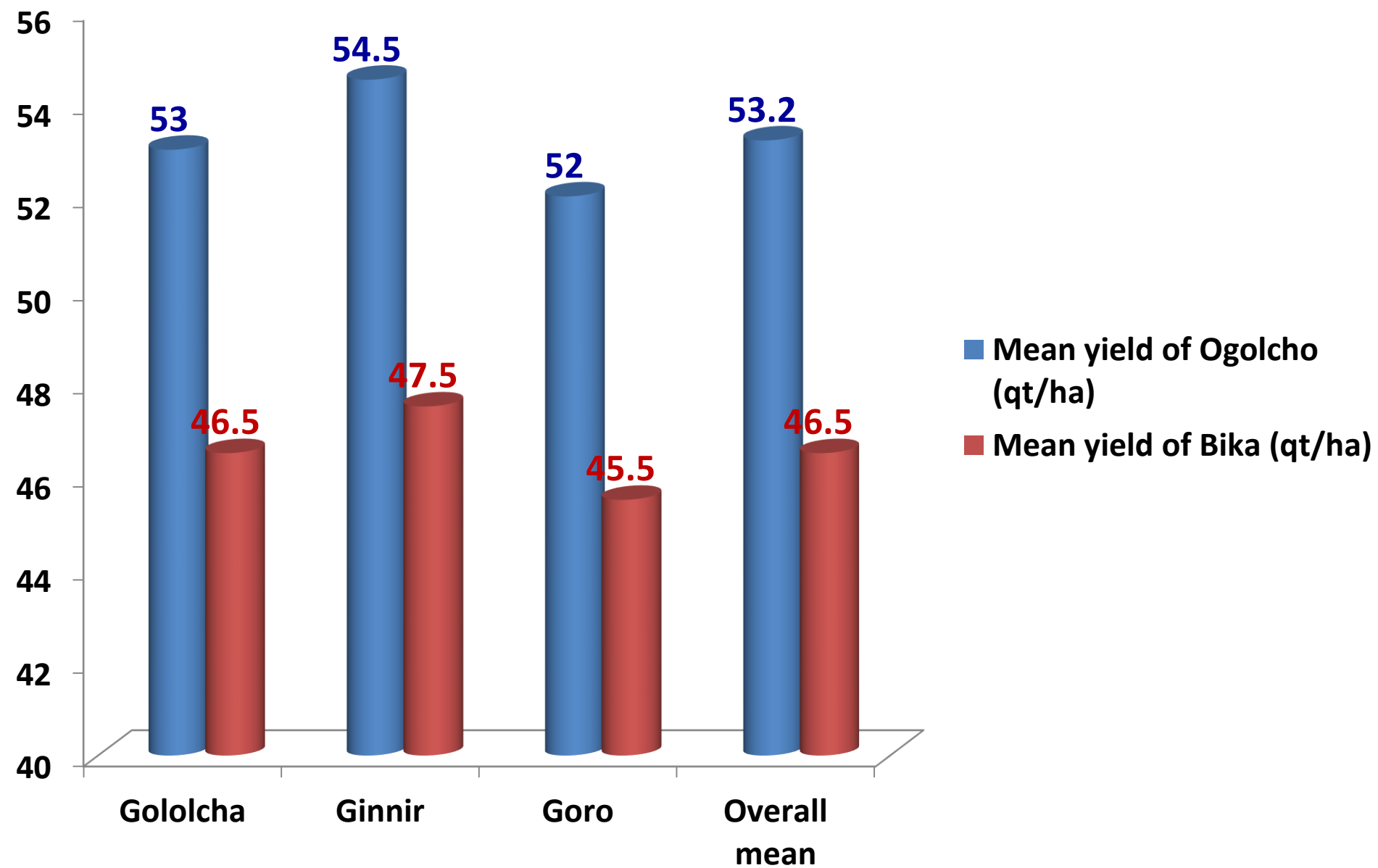
Sannate Variety...Dodola district



Bread Wheat Varieties (Ogolcho & Bika) Pre-scaling up activity in Mid altitude areas of Bale zone

Year	Cropping season	Locations	No. of trial farmer	Plot size	Seed for one farmer (kg)	Total seed distributed (qt)	Fertilizers for one farmer (kg)		Total Area (ha)	Harvested seed (qt)
							UREA	NPS		
1	Ogolcho in 2016/17 (2009 E.C)	Gololcha Ginnir Goro	6	32X32	16	0.96	11	11	0.64	34
2	Bika in 2016/17 (2009 E.C.)	Gololcha Ginnir Goro	4	32X32	16	0.64	11	11	0.43	20
Total			10			1.6			1.07	54

Mean yield data of Ogolcho & Bika in the districts (2016/17)



Performance of Ogolcho & Bika varieties in the districts

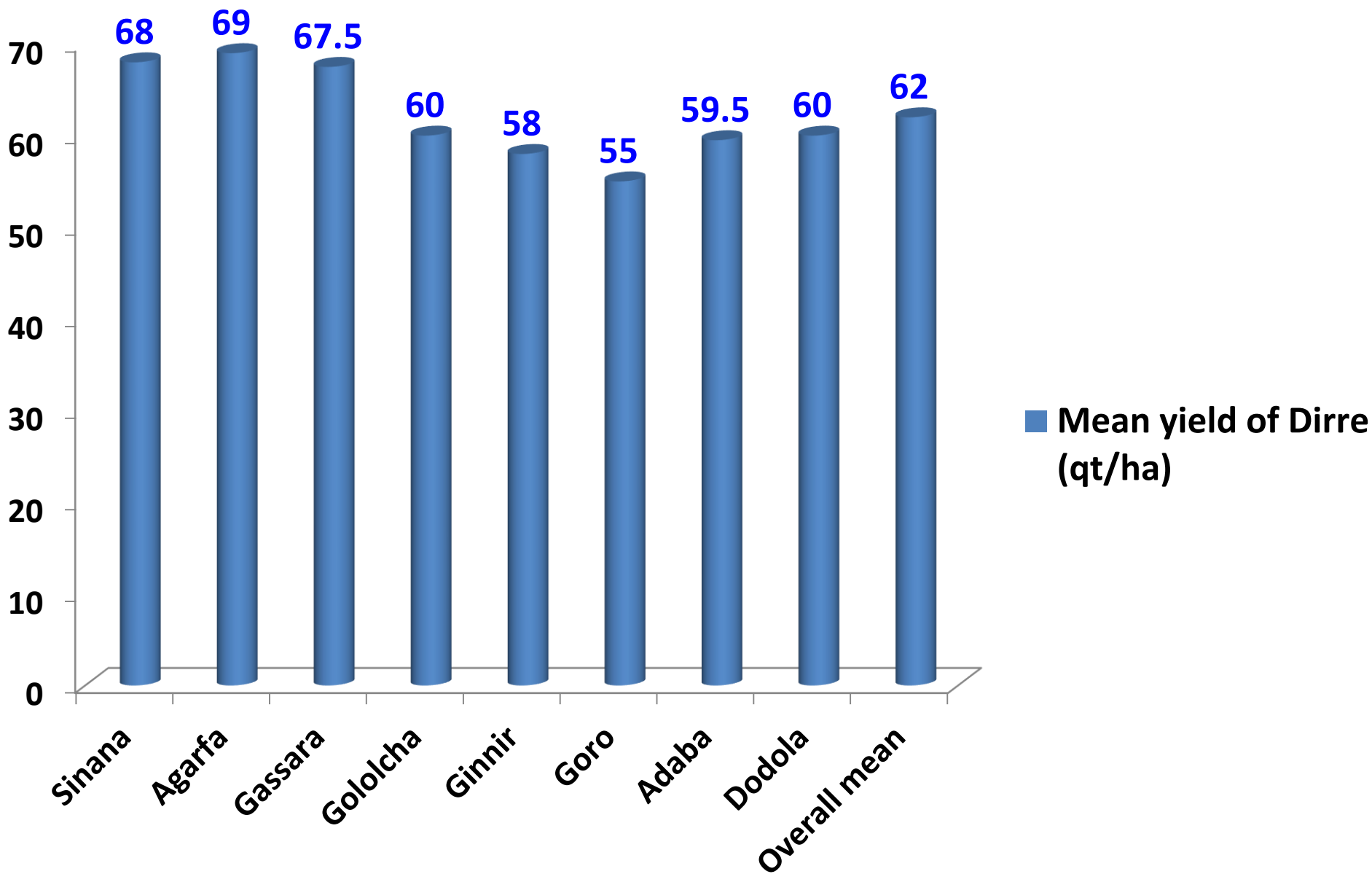
Ogolcho and Bika Varieties
...Ginnir



Durum Wheat Variety (Dirre) Pre-scaling up activity

Year	Cropping season	Locations	No. of trial farmer	Plot size (m)	Seed for one farmer (kg)	Total seed distribute (qt)	Fertilizers for one farmer (kg)		Total Area (ha)	Harvested seed (qt)
							UREA	NPS		
1	2015/16 (2008 E.C)	Gololcha Ginnir Goro	9	32X32	16	1.44	11.3	11	0.96	59.5
2	2016/17 (2009 E.C.)	Sinana Agarfa Gassara Gololcha Ginnir Goro Adaba Dodola	34	32X32	16	5.44	11.3	11	3.63	225
Total			43			6.88			4.59	284.5

Mean yield data of Dirre in the districts (2015/16 & 2016/17)



There was RF shortage in Goro & Ginnir districts during the cropping season

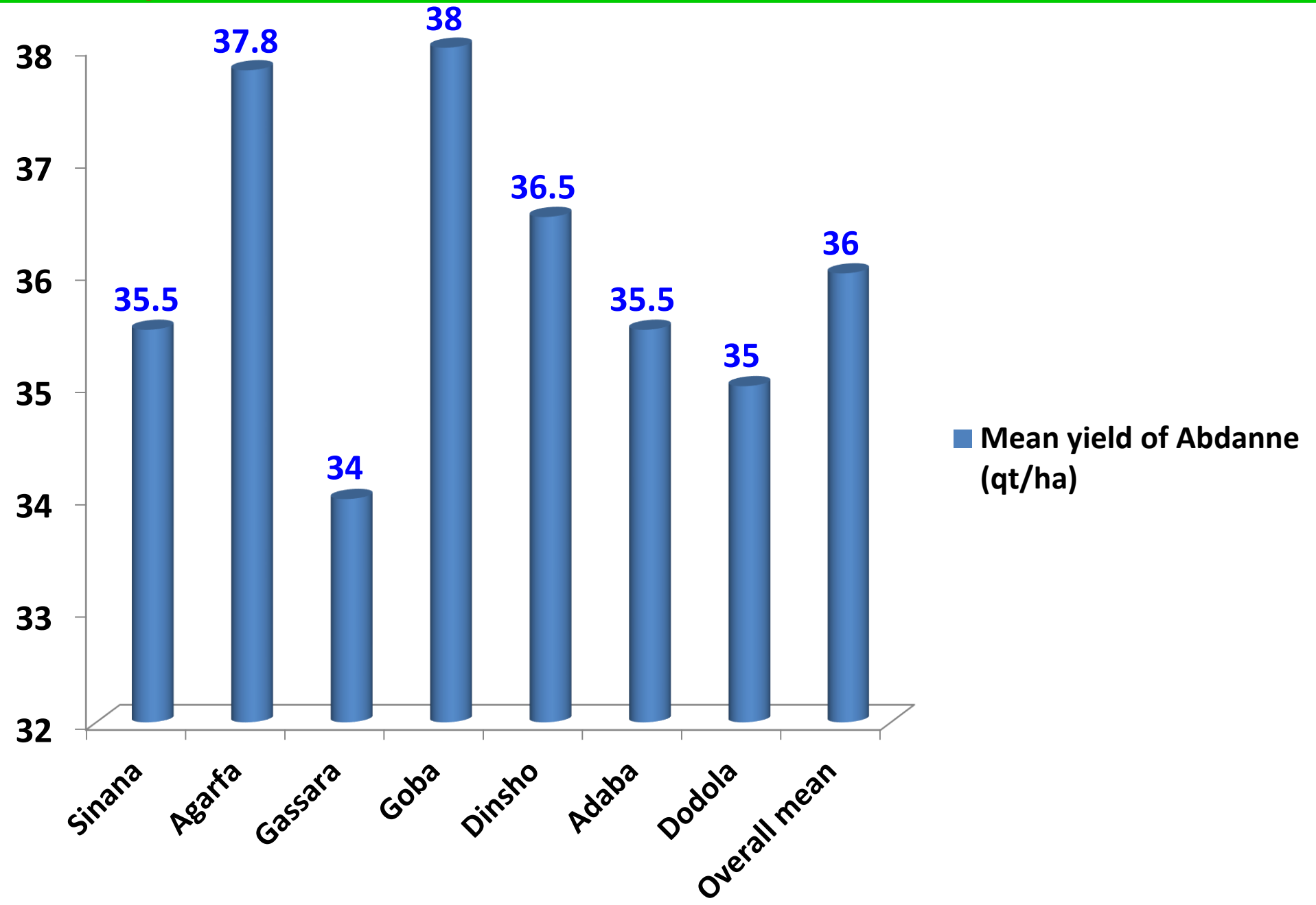
Field days at Sinana, Agarfa, Gasara and Dodola districts (2016/17)



Food Barley Variety (Abdanne) Pre-scaling up activity

Year	Cropping season	Locations	No. of trial farmer	Plot size	Seed for one farmer (kg)	Total seed distribute (qt)	Fertilizers for one farmer (kg)		Total Area (ha)	Harvested seed (qt)
							UREA	NPS		
1	2015/16 (2008 E.C)	Sinana Goba Agarfa Gassara	11	32X32	13	1.43	-	10.5	1.19	43
2	2016/17 (2009 E.C.)	Sinana Agarfa Gassara Goba Dinsho Adaba Dodola	30	32X32	13	3.9	-	10.5	3.25	117
Total			<u>41</u>			<u>5.33</u>			<u>4.44</u>	<u>160</u>

Mean yield data of Abdanne in the districts (2015/16 & 2016/17)



Abdanne Variety



Project Name: Africa RISING

CIMMYT/CIP/ICARDA Research protocol

Trial Name: Food Barley PVS

Variety: Abdanne

Planting Date: 24/08/14

Seed rate: 125 kg/ha

Fertilizer rate: 100kg/ha DAP & 50kg/ha Urea

Field day at Dodola, Agarfa, Gassara & Sinana districts



Faba Bean Varieties (Mosisa, Moti, Walki) Pre-scaling up activity

Year	Cropping season	Locations	No. of trial farmer	Plot size	Seed for one farmer (kg)	Total seed distribute (qt)	Fertilizers for one farmer (kg)		Total Area (ha)	Harvested seed (qt)
							UREA	NPS		
1 Mosisa	2015/16 (2008 E.C)	Sinana Goba Agarfa Gassara	12	32X32	18.5	2.22	-	10.5	1.24	40
2 Mosisa & Moti	2016/17 (2009 E.C.)	Sinana Agarfa	Mosis	32X32	18.5	5	-	10.5	2.78	89
		Gassara Goba Dinsho Adaba Dodola	Moti							
Total			<u>45</u>			<u>8.33</u>			<u>4.64</u>	<u>151.32</u>

Large seeded faba bean varieties preferred by farmers



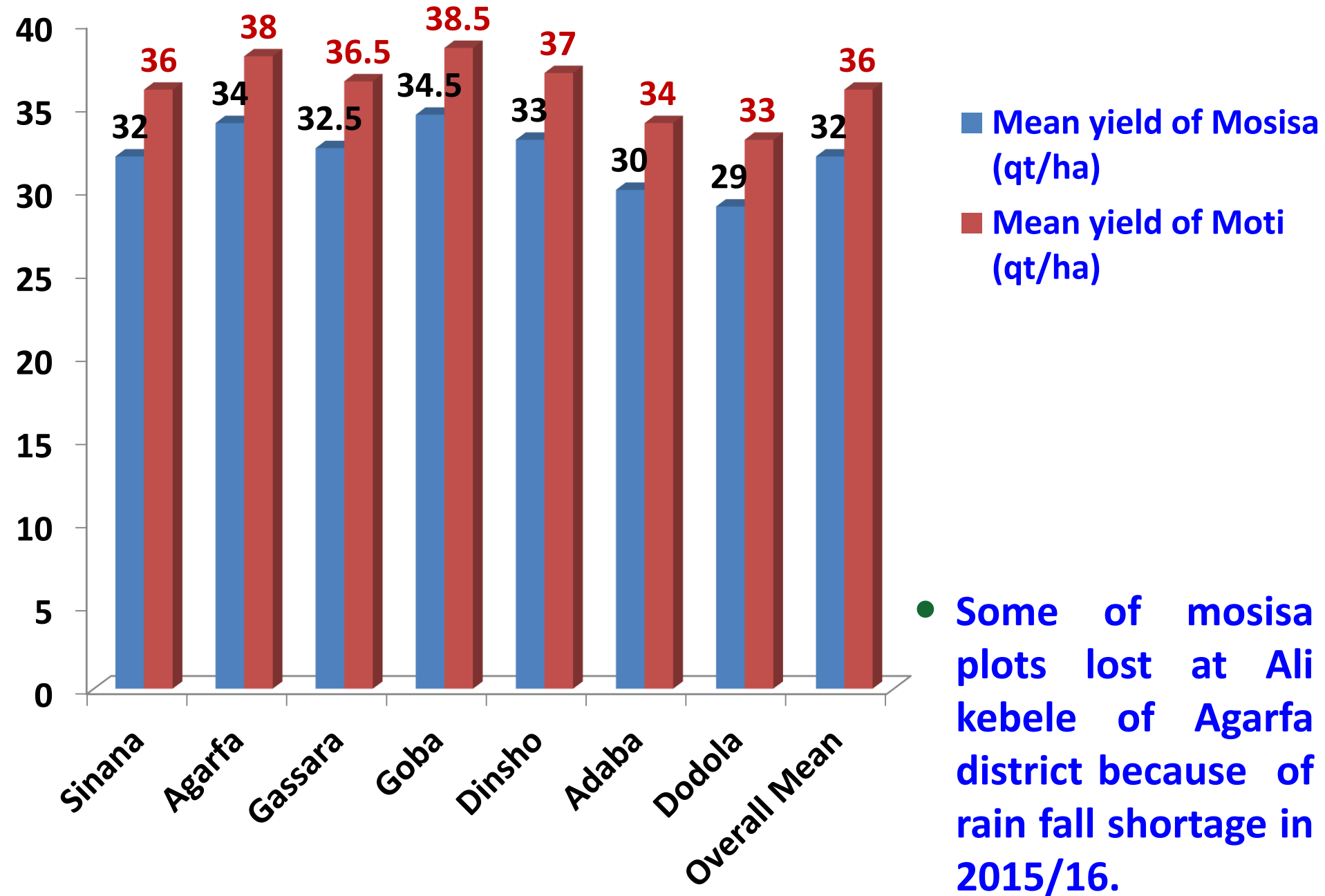
Mosisa



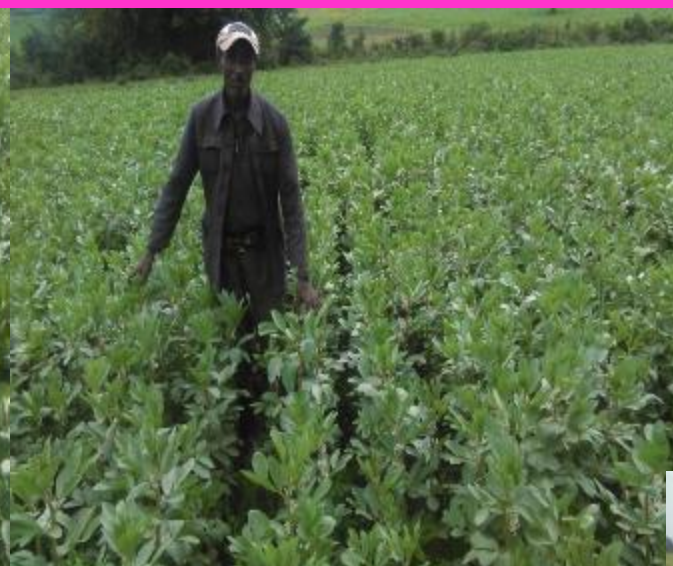
Moti



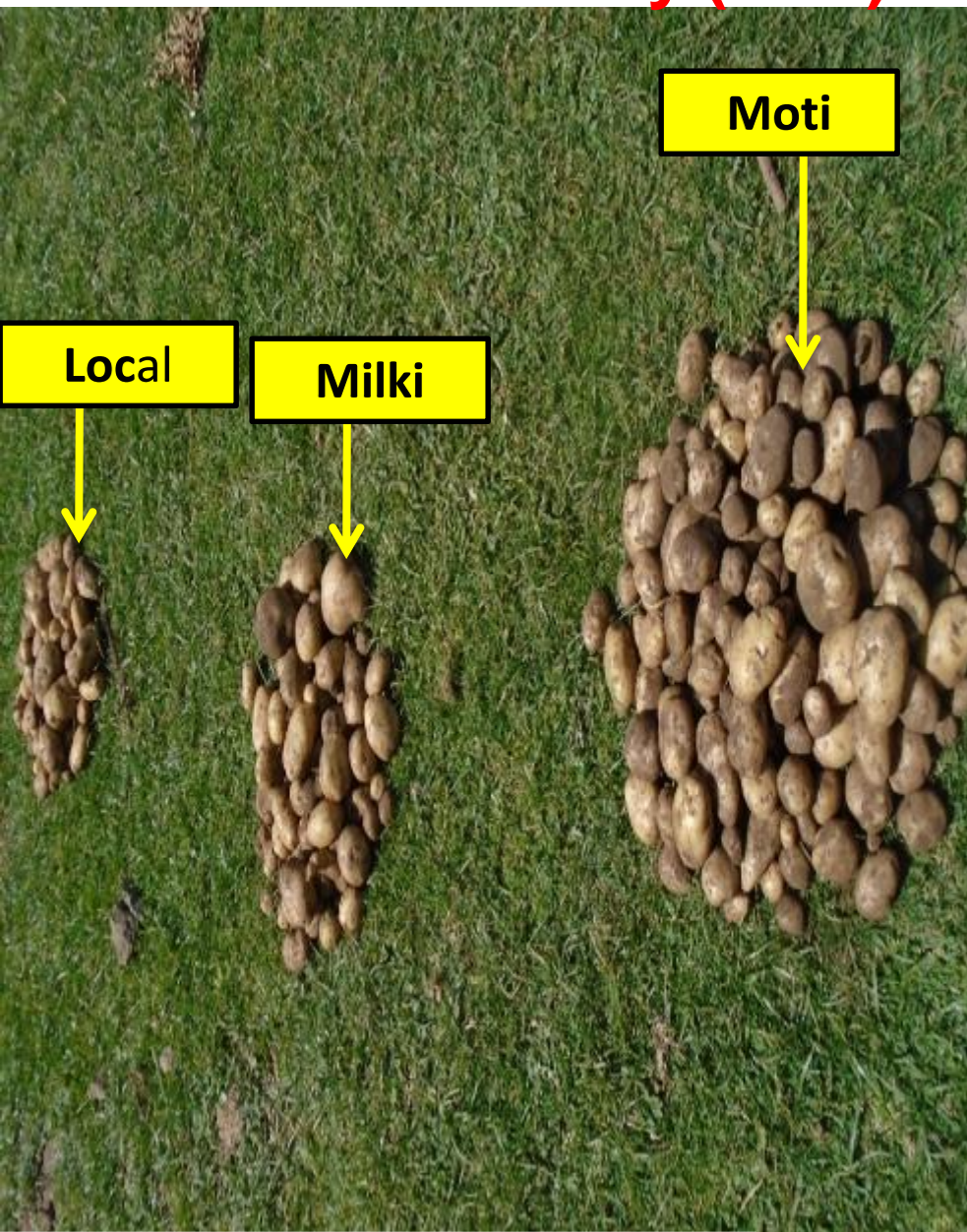
Mean yield of Mosisa & Moti in the districts (2015/16 & 2016/17)



Performance of faba bean varieties in the districts



Potato Variety (Moti) Pre-scaling up activity

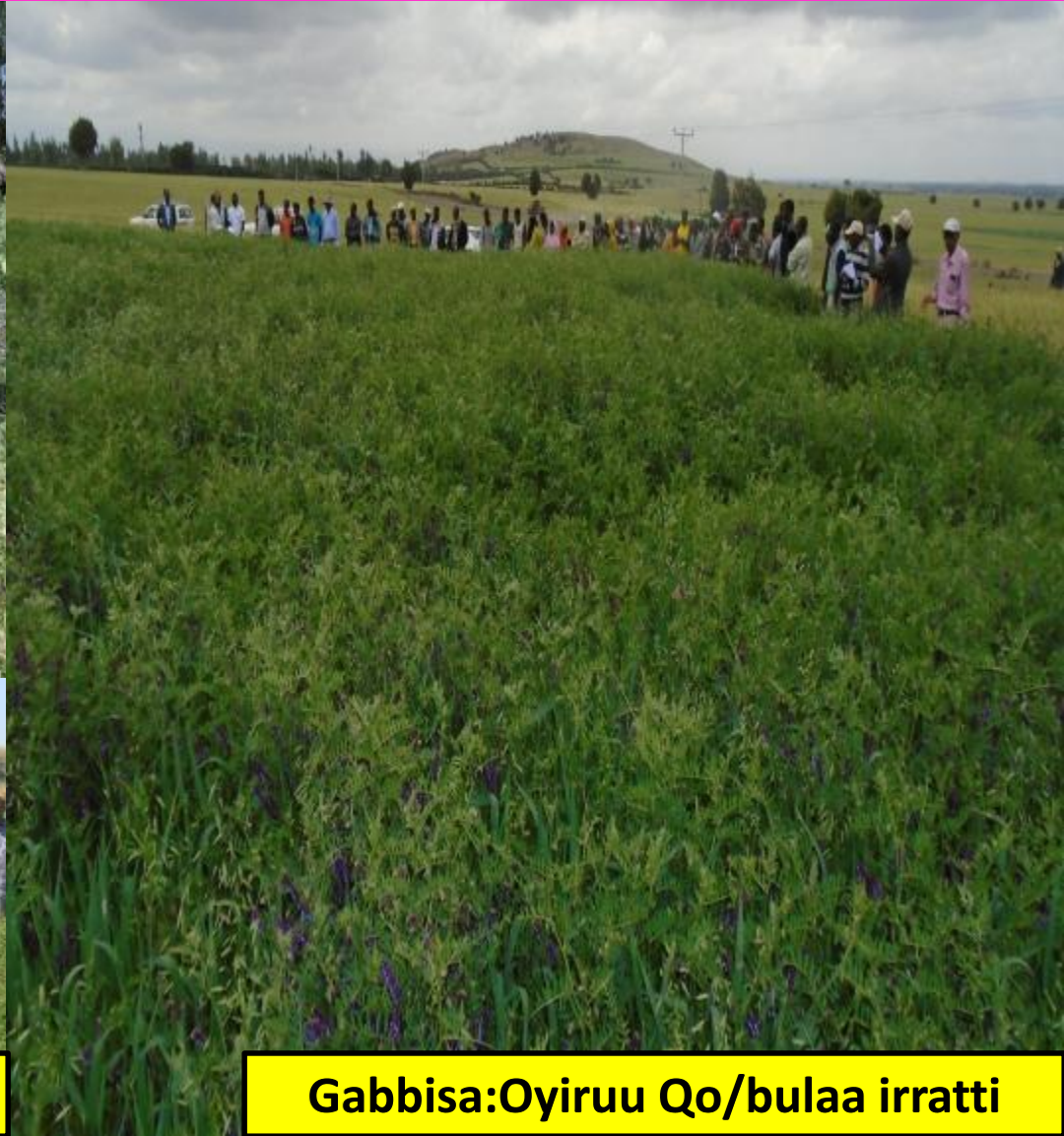


Average tuber from 4 plants



Sanyii Filatamaa Nyaata Beeyiladaa Babal'isuu

Participatory Demonstration and Popularization of Adapted and Released Forage Varieties at the Backyard Production System



Lalisaa: Oyiruu Qo/bulaa irratti

Gabbisa: Oyiruu Qo/bulaa irratti

Dhiheessa Teeknolojii Kanniisaa

Pre-Scaling up of Transitional Chefeka hive Technologies in Bale Highlands

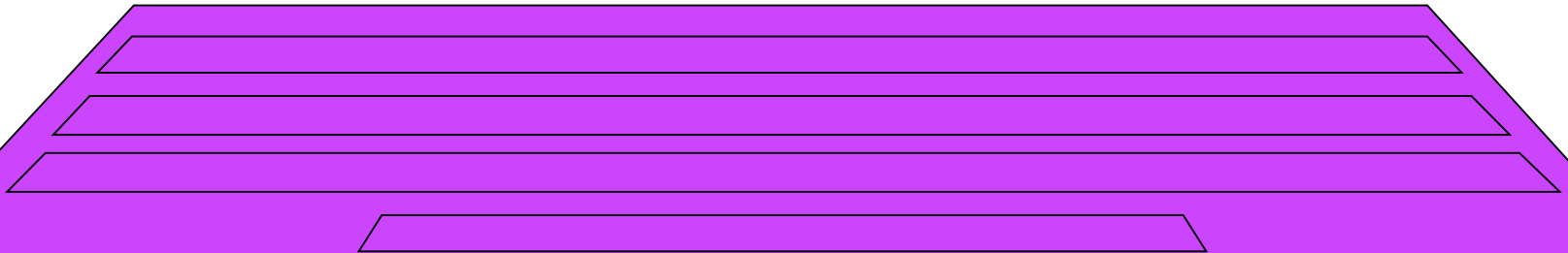
- Garee Qo/Bulaa 4 (2 at Goba & 2 at Dinsho) hundeeffamee jira.



Gaagura Ce'umsaa

Collaborative Activities

**(Hojii Projaktoota adda
addaa waliin hojjatame)**



Agricultural Value chains in oromia (AVCPO) – Durum Wheat

Component

- organizing stakeholder platform,
- training for capacity building on durum wheat production and management packages,
- seed distribution to cooperatives,
- facilitating contractual farming/market linkage,
- seed sample collection, protein quality testing, reporting to farmers to improve their bargaining power and linkage with agro-industries,
- facilitating construction of physical capacities (seed and grain store),
- joint monitoring and evaluation
- organizing result communication workshop, .
- organizing field days



Project conclusion workshop





CIMMYT/Wheat Improvement

- Sanyii bu'ura duraa fi bu'ura baay'isuu fi raabsuu keessatti gahee guddaa taphata. Leenjii Qo/bultootaaf, Ho/Misoomaa fi Ogeessotaaf kennamu nideeggara.

Mandoyyu: at SARC



Sannatee: at SARC



Theroretical training



Practical training



Organizing field days



Field days: 85 individuals participated



Africa RISING.....Phase I

- MoU signed,
- Sharing human resources/researchers (from Cereal Crops, Pulse & Oil crops, Horticulture & Spice Crops, AFN, Socio-economics & Agri. Research-Extension)
- Active participation on baseline survey works (PCA, FEAST)
- Community mobilization
- Training for capacity building (DAs, farmers)
- **Starter seed supply for demonstration activities**
- Demonstration site selection and implementation
- joint monitoring and evaluation
- Follow up & data collection, processing & reporting
- organizing result communication workshop,
- Innovation platforms
- organizing experience sharing, farmers field days

Africa RISING.....Phase I Cont.....

- ❑ Starter seed supply (Released by SRAC)
- Food barley (Abdanne, Harbu, Dafo)
- Faba Bean (Shallo, Mosisa)
- Field Pea (Haranna, Tullu Shanan)
- Durum Wheat (Tate)
- Feed forages (Oat & Vetch)

Africa RISING.....Phase I Cont.....

- ❑ M.Sc. Students attachment to the project
- ❑ **Sheep BARN construction at SARC**



Mini Field day & Exp. Sha



Manure to compost

□ Capacity Building

- Tractor maintenance
- Laptop computers
- LCD projector



Phase II

Africa RISING.....Phase II

- The previous collaborative work will continue**
- Sharing human resources/researchers (from Cereal Crops, Pulse & Oil crops, Horticulture & Spice Crops, AFN, Socio-economics & Agri. Research-Extension)
- Training for capacity building (DAs, farmers)
- Starter seed supply for scaling up/out**
- joint monitoring and evaluation
- Innovation platforms
- organizing experience sharing, farmers field days

Challenges/Constraints

- Shortage of farm machineries: Tractor and combine harvesters
- Absence of farm implements that are important for **early generation seed multiplication**
 - Row planter
 - Tractor mounted sprayer
 - Cultivator
 - Plot Harvester
 - Seed cleaning, packing and labeling machine etc.
- Skilled man power (professional) with in the team Seed Specialist and other technical personnel
- Erratic rainfall and absence of supplementary irrigation

Constraints cont.....

- ❖ Cereal based mono-cropping (commodity integration-production diversification)
- ❖ **Absence of livestock research**
- ❖ Problems related to agro-chemical dealers
- ❖ Sub-site for barley research at Dinsho, Goba etc. **(SARC is Center of excellence for barley)**
- ❖ Shortage of land for early generation seed multiplication