

Africa RISING in the Ethiopian Highlands

Participatory variety selection and scaling: Small grain cereals

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Background and Justification

- Wheat-based system was becoming unsustainable due to poor soil fertility, diseases and weeds
- High yield gap (64%) for cereals
- Low adoption rate (10%) for barley
- Low area coverage by improved cereal varieties (~37%)
- Weak seed production and delivery system to scale improved barley and durum wheat cultivars
- Introduction of high yielding and disease resistant barely (malt and food) and durum wheat can diversify crop production and minimize risks due to diseases on bread wheat

Objectives

- To identify high yielding and farmer preferred varieties for future scaling out.
- To develop farmers on decentralized seed production and knowledge transfer system.
- To identify innovative cropping systems combining high yield and minimum negative impact on the environment.
- To build the capacity of farmers and extension partners.

Achievements

- Food barley cultivar HB1307 widely adapted
- Malt barley cultivars Bekoji 1 widely and Sabini for belg season adapted
- Bread wheat cultivars showed narrow adaptations
- Durum Wheat cultivar Utuba widely adapted
- About 3 tons of basic seed of improved varieties of barley and wheat multiplied
- Farmers selected improved crop technologies led to narrowing grain and biomass yield gaps, (Fig. 1)
- Field days organized

Table 1. Scaling of food barely and durum wheat in Sinana, 2015/16 cropping season

Crop	Variety	Quantity (q)	Farmers (Number)	Area (ha)	Expected yield (q)
Food barley	HB1307	2.61	8	2	60
	Abdene	1.81	8	2	60
Durum wheat	Utuba	4	11	2.75	110

Table 2. Durum wheat cv. Utuba scaling in Sinana, in 2016 cropping season

District	Village	Quantity (q)	Number of Farmer	Area (ha)	Expected Seed yield (q)
Sinana	Selka	46	13	30.5	1220
	IluSanbitu	29	16	19.5	780
	Shallo	4	1	2.5	100
	Hawusho	10	1	6.5	260
	KebiraTamoslem				
	ena	10	1	6.5	260
Goro	Mliyu Burka	2	1	1.5	60
Total		101	33	67	2680

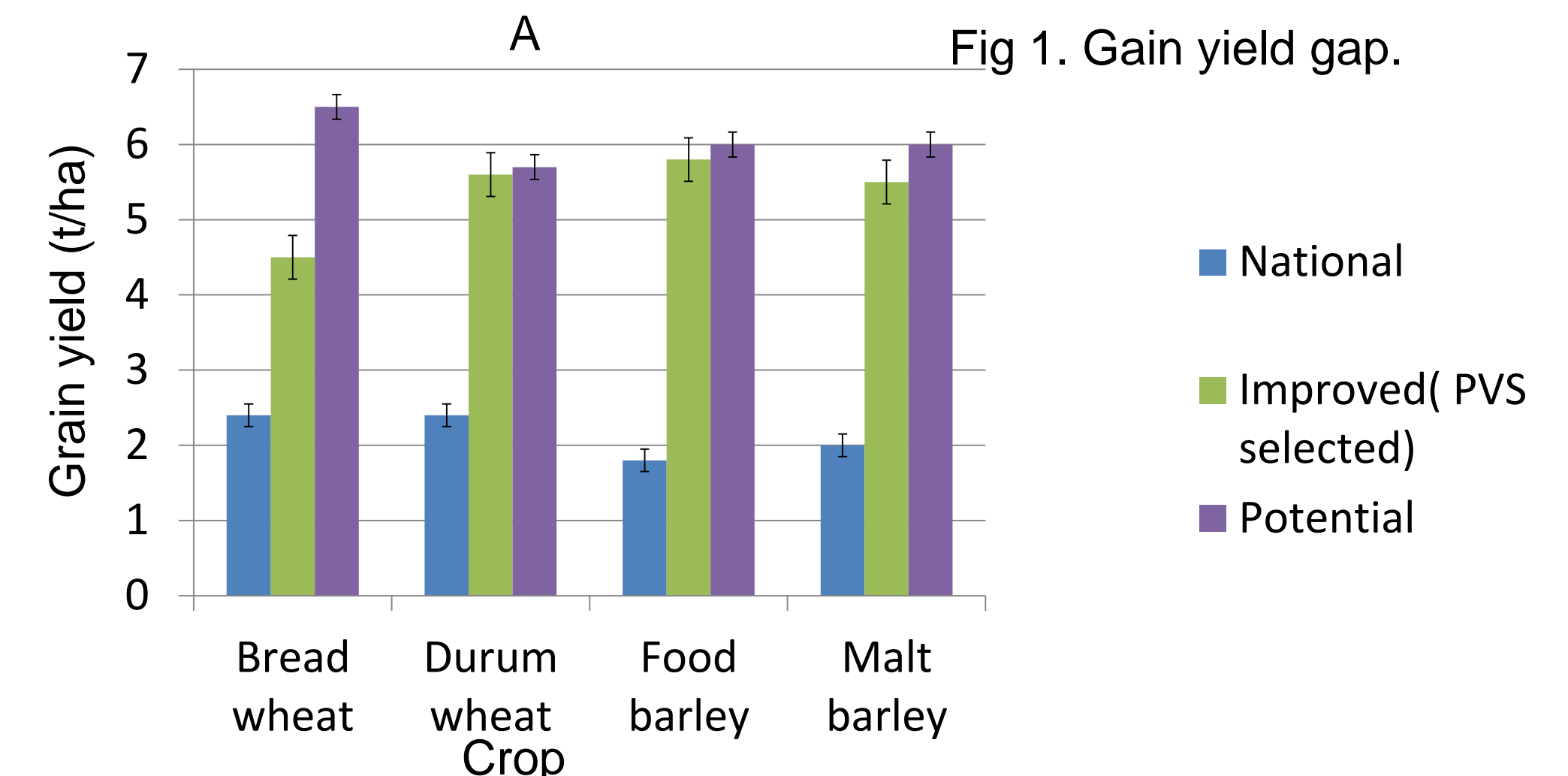


Fig. 2. Male participants on PVS (A) Female participants on PVS (B), Malt barley PVS trial field day participants (C), and Durum wheat PVS trial field day participants (D),

Lessons learned

- Crop diversification ensures sustainable production (stress mitigation & income generation)
- Conducting adaptation trial (PVS) speed up acquisition of new technologies.
- Working in partnership enhances technology promotion
- Participatory research is the gate way to technology dissemination
- Appropriate and farmers preferred technologies speeds up adoption and scaling
- Small scale irrigation agriculture has future in Bale zone
- Multiplication of one variety per village maintains genetic purity
- Improved seed availability triggers variety dissemination

Potential partners for phase II

- Government extension offices
- Industry (Meta Abo Brewery S.C., (Diageo Company), Kality Food Factory PLC, Dashen Brewery, Raya Brewery, Assela Malt Factory, Gondar Malt factory, Global Malt PLC
- Seed producers and marketing cooperatives unions
- Seed enterprises
- Ethio-Italy cooperation durum wheat value chain project
- NARS

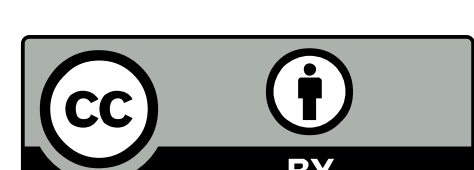
Scaling out to date

- Sixty smallholder farmers have taken part in scaling improved varieties of barley and wheat varieties (Table 1 and 2)
- A total of 74 ha covered with improved varieties of barley and wheat (Table 1 and 2)

Core partners



We thank farmers and local partners in Africa RISING sites for their support



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