

Closing the gap between the potential yield and obtained results of improved maize varieties: *Case for Ethiopia*

Walter Mupangwa & Dagne Wegary

African Seed Trade Association (AFSTA) Congress

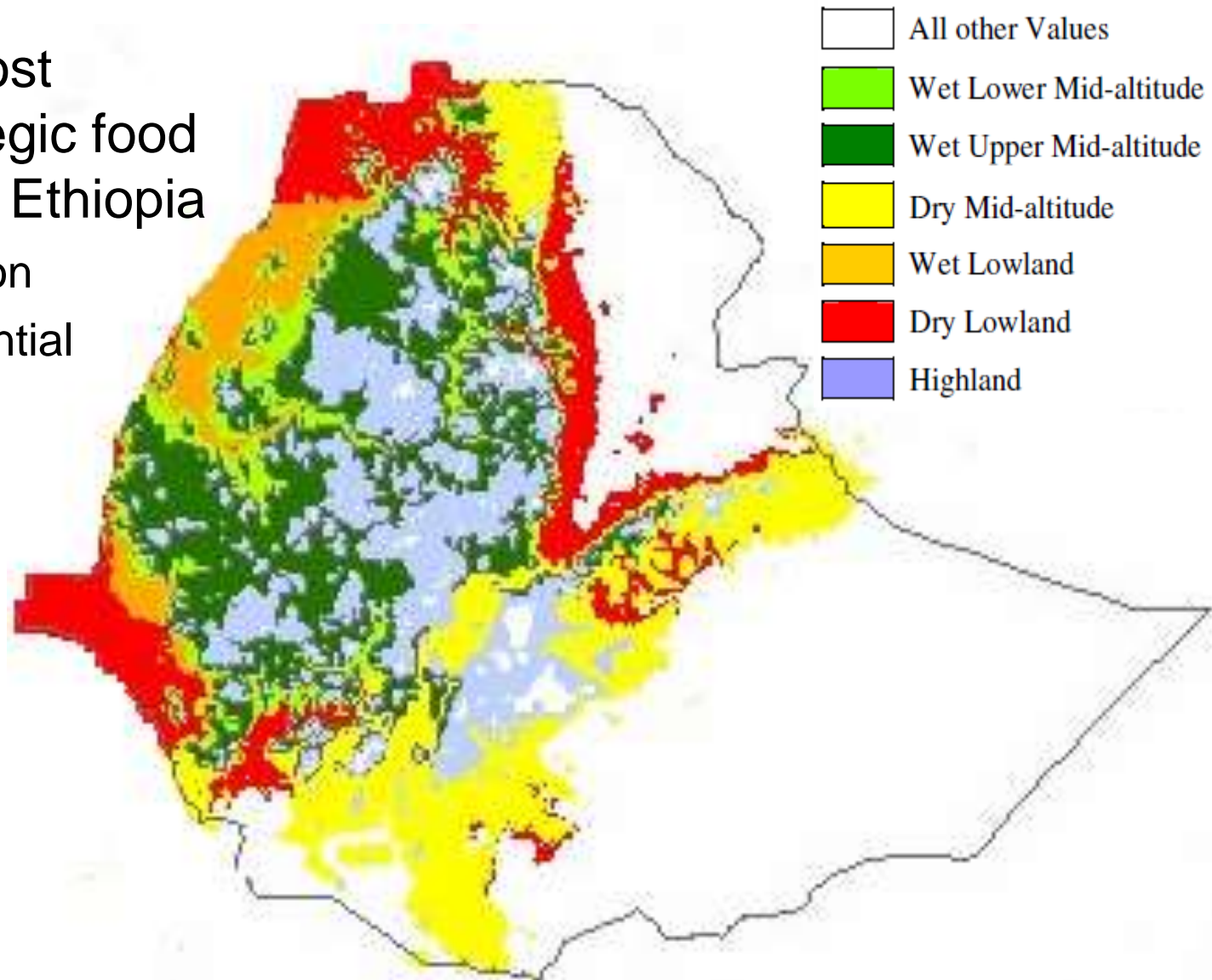
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Conrad Hotel, Cairo, Egypt

Maize producing areas of Ethiopia

Maize is the most important strategic food security crop in Ethiopia

- Wider adaptation
- High yield potential
- Multiple use
- Responsive to management

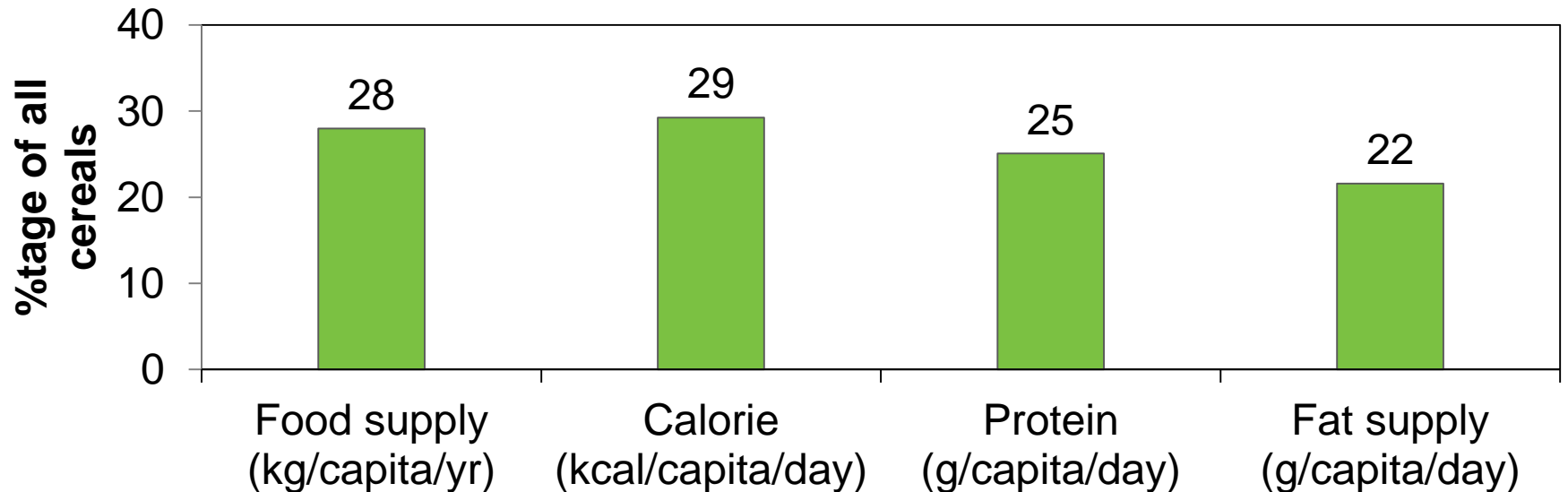


Importance of maize in Ethiopia

Maize production and productivity (CSA, 2017)

Parameter	Value	Maize share in Cereals
Household (M)	10.9	67
Area (M ha)	2.14	21
Yield (T ha ⁻¹)	3.7	-
Production (M T)	7.85	31

Maize food balance (FAOSTAT, 2017)

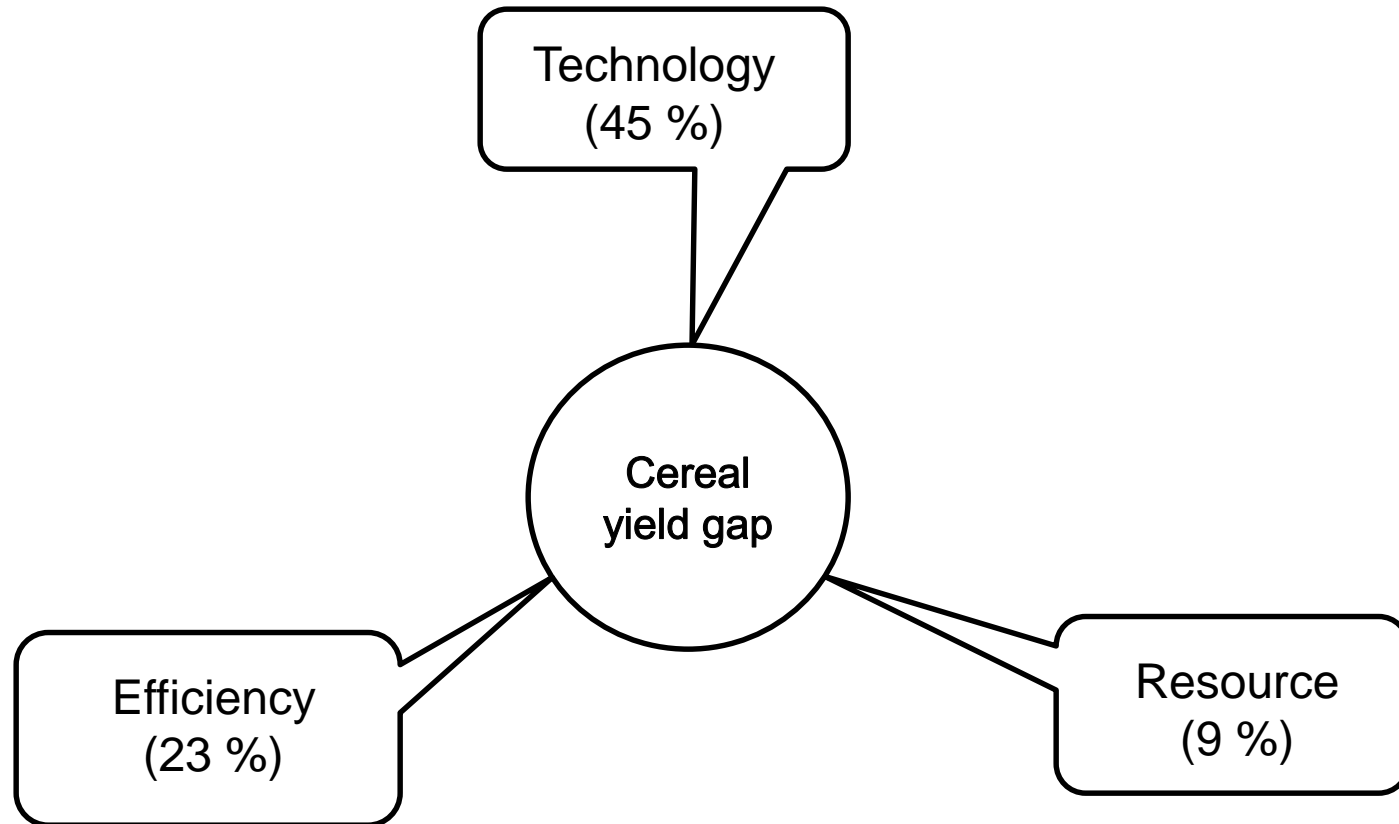


Maize yield gap levels in Ethiopia

Variety	Year of release	Altitude (m)	Rainfall (mm)	Yield (t/ha)	
				Research Station	Farmers field
BH 140	1988	1000-1700	1000-1200	7.5-8.5	4.7-6.0
BH 660	1993	1600-2200	1000-1500	9.0-12.0	6.0-8.0
BH 540	1995	1000-2000	1000-1200	8.0-9.0	5.0-6.5
BH 670	2001	1700-2400	1000-1500	9.0-12.0	6.0-8.0
BHQP 542*	2001	1000-1800	1000-1200	8.0-9.0	5.0-6.0
BH 543	2005	1000-2000	1000-1200	8.5-11.0	5.5-6.5
BHQPY 545*	2008	1000-1800	1000-1200	8.0-9.5	5.5-6.5
BH 661	2011	1600-2200	1000-1500	9.5-12.0	6.5-8.5
BH 546	2013	1000-2000	1000-1500	8.5-11.5	6.5-7.5
BH 547	2013	1000-2000	1000-1500	8.5-11.5	6.5-7.5
BHQP 548*	2015	1000-1800	900-1200	7.5-8.5	5.5-7.0
SPRH1	2015	1000-1800	1000-1200	8.5-9.5	5.5-6.5
SBRH1	2015	1000-1800	1000-1200	7.5-8.5	5.5-7.0
BH 549	2017	1000-1800	900-1500	8.0-12.0	6.0-7.0

*Quality protein maize

Causes of cereal yield gaps (including maize) in rural Ethiopia



Source: Silva J.V., Baudron F., Reidsma P., Giller K. Is labor a major determinant of yield gaps in sub-Saharan Africa? A case study for cereals in southern Ethiopia.

Upcoming paper submitted in 2017.

Causes of maize yield gaps in Ethiopia

- Use of old maize varieties – traditional varieties still used in the maize growing belt



- Crop management

- ✓ Planting time
- ✓ Crop density
- ✓ Weed control

- Low usage of mineral fertilizers & organics

- Acidic soils in the maize growing belt

- Monoculture – cereals dominate

- Erratic rainfall in some seasons



Awareness creation and training



Field Demo – new varieties



Field days



Training – Extension, seed companies & agro-dealers

Variety promotion for adoption

GIS-based identification of less addressed but high potential areas

Information materials on new varieties – e.g. flyers



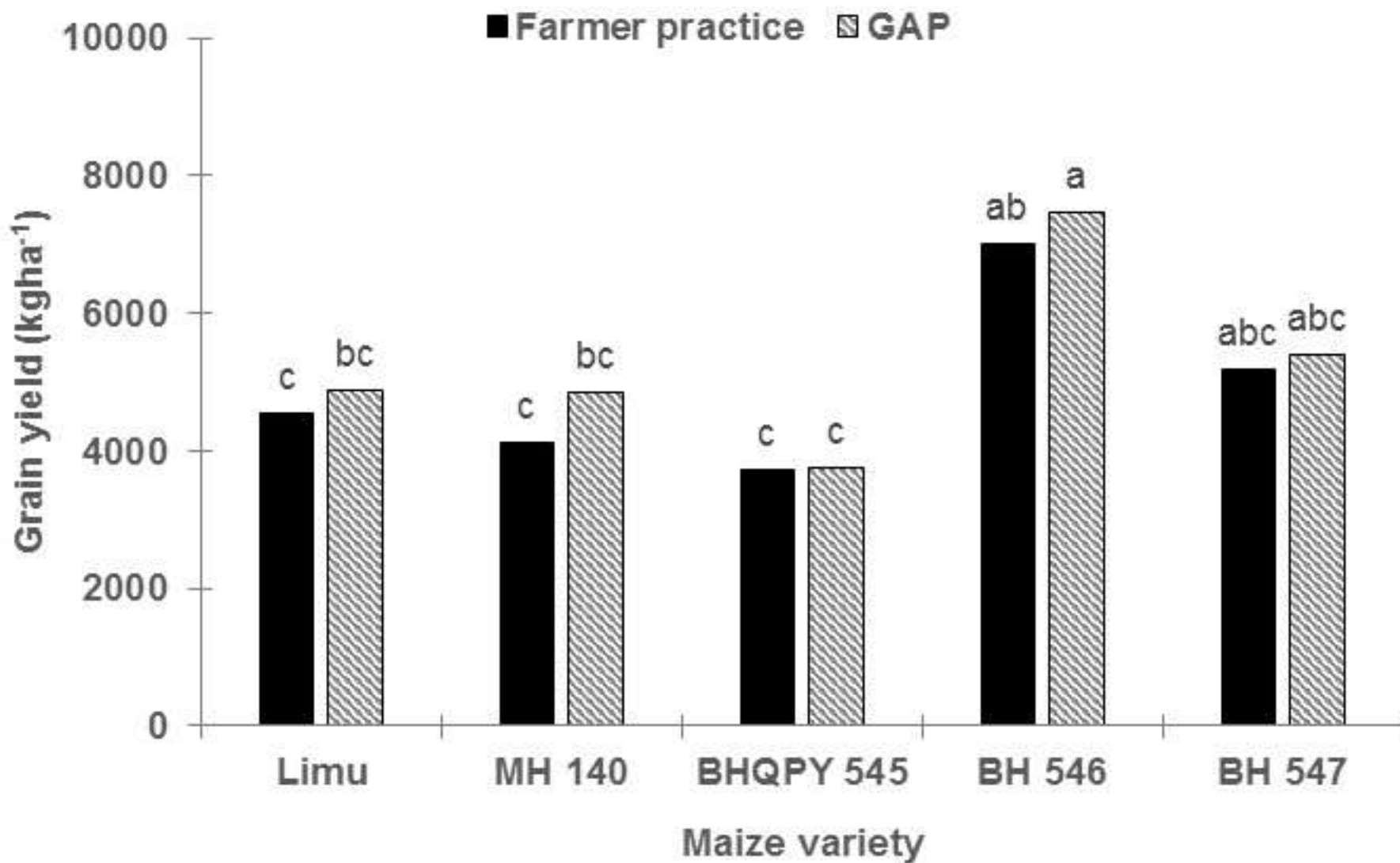
Media based publicity



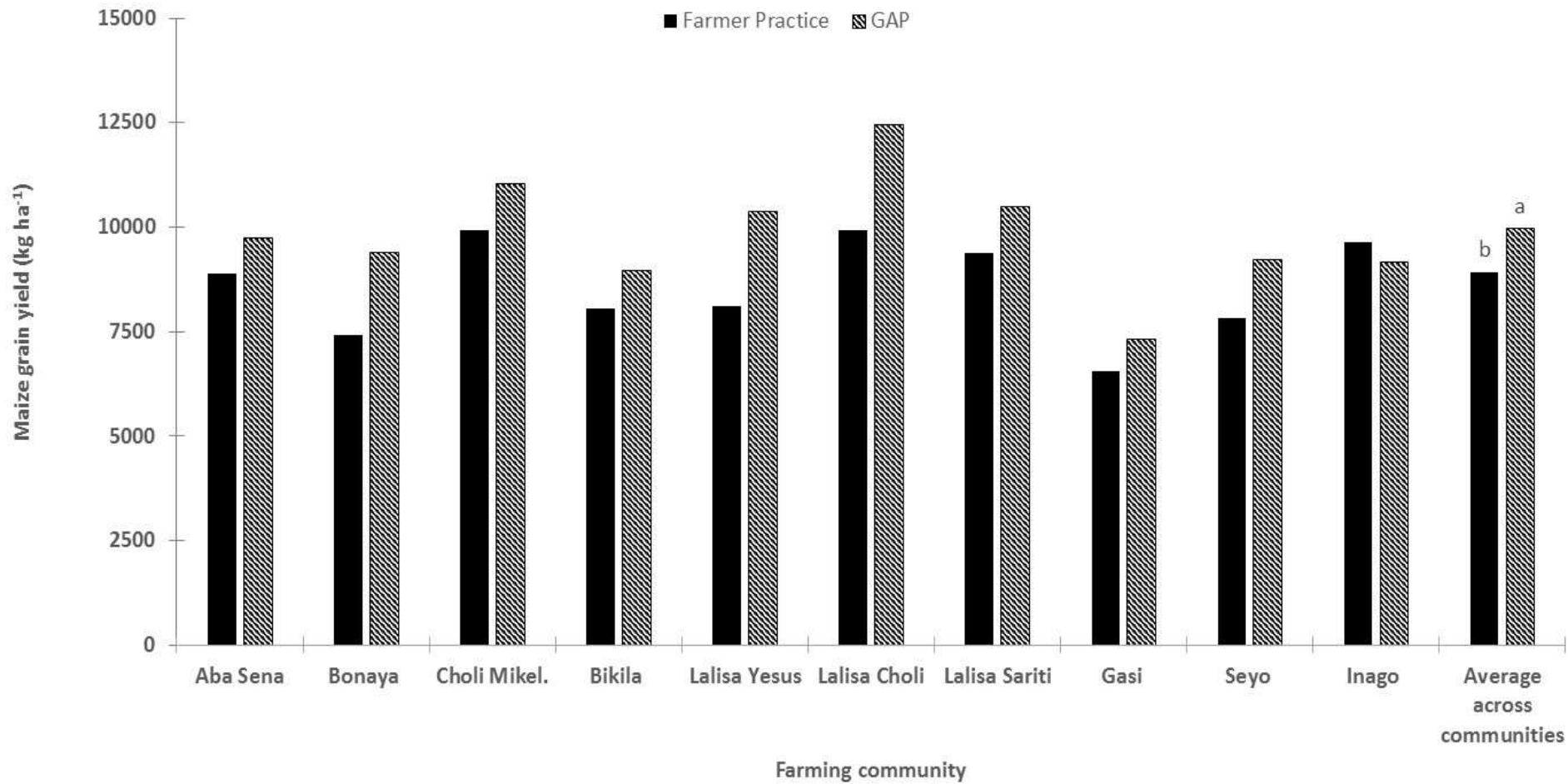
Post harvest demo.



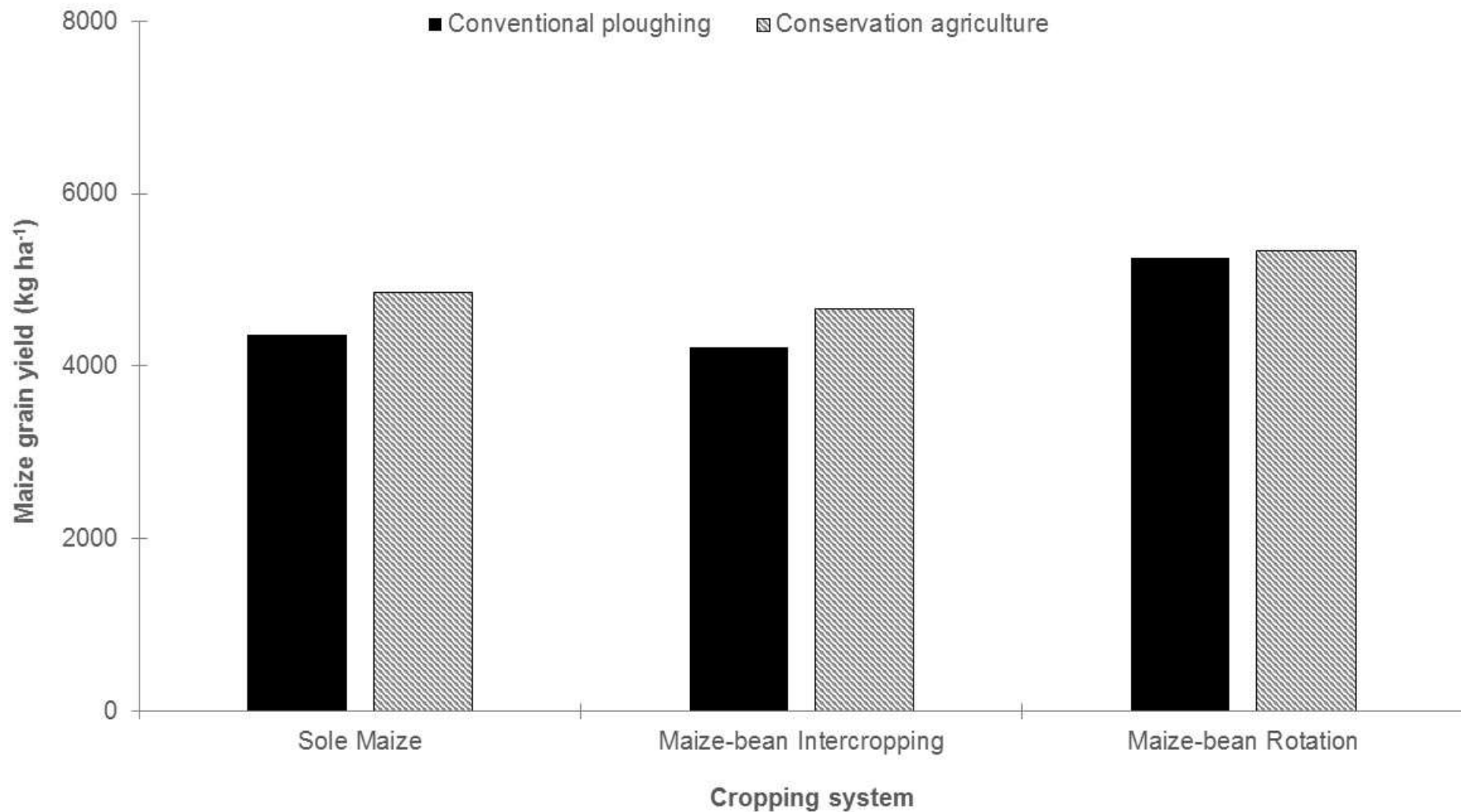
Integrating good agronomic practices (GAP) with improved maize germplasm



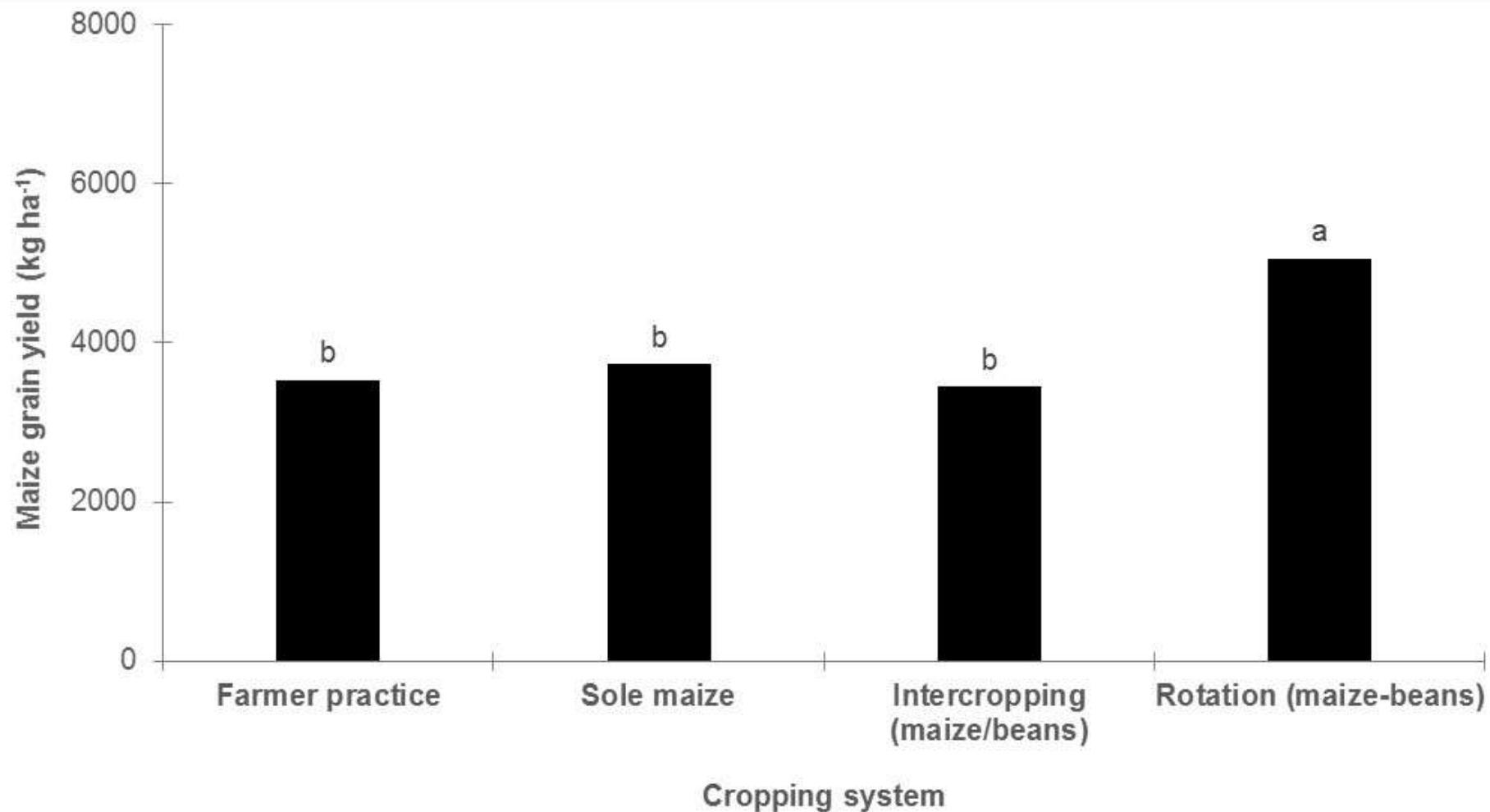
Promoting good agronomic practices on a wide-scale



Revisiting intercropping and rotation practices



Revisiting intercropping and rotation practices



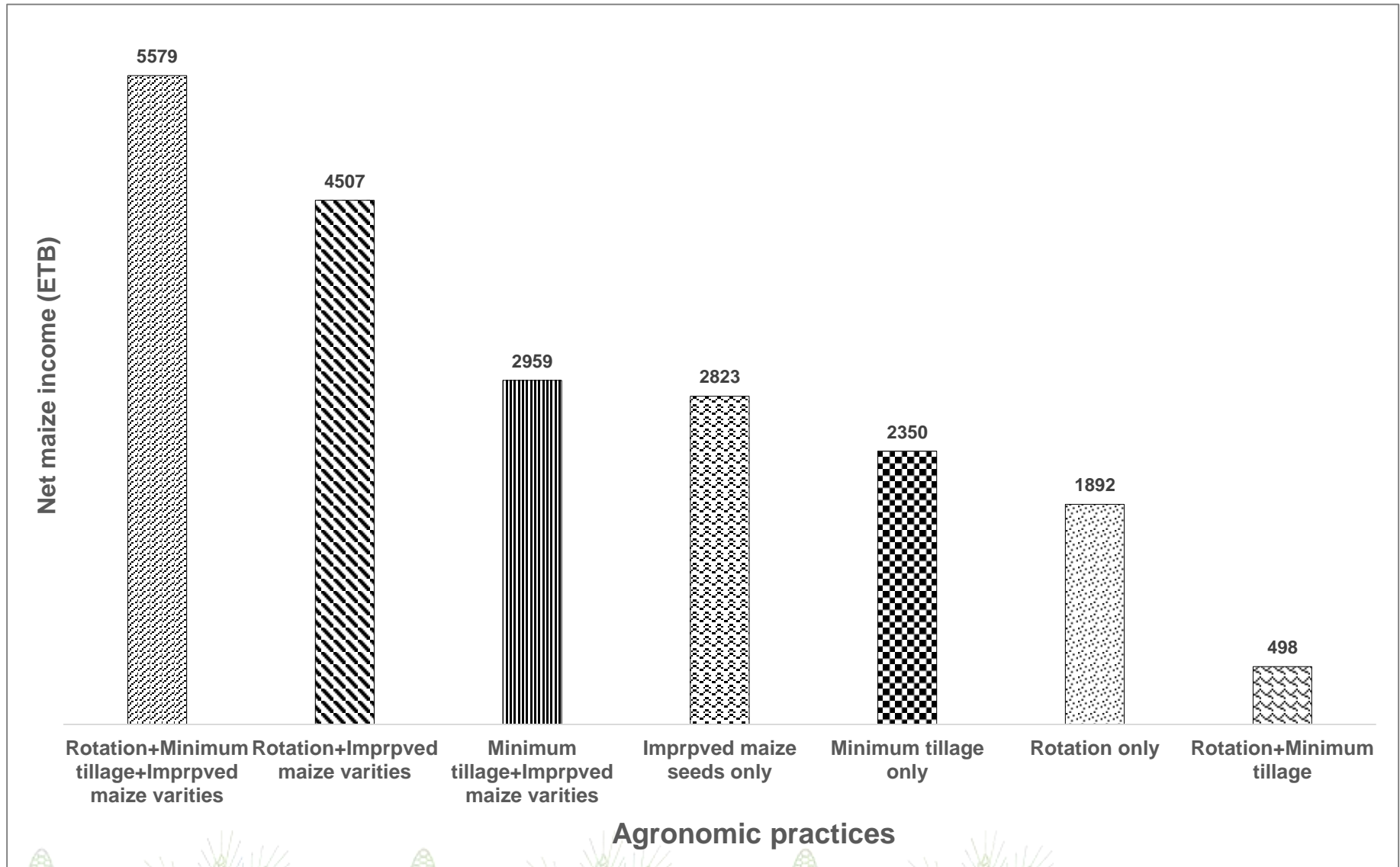
Precise seeding and fertilization using mechanization



Precise seeding and fertilizer placement using small mechanization options for smallholder farmers



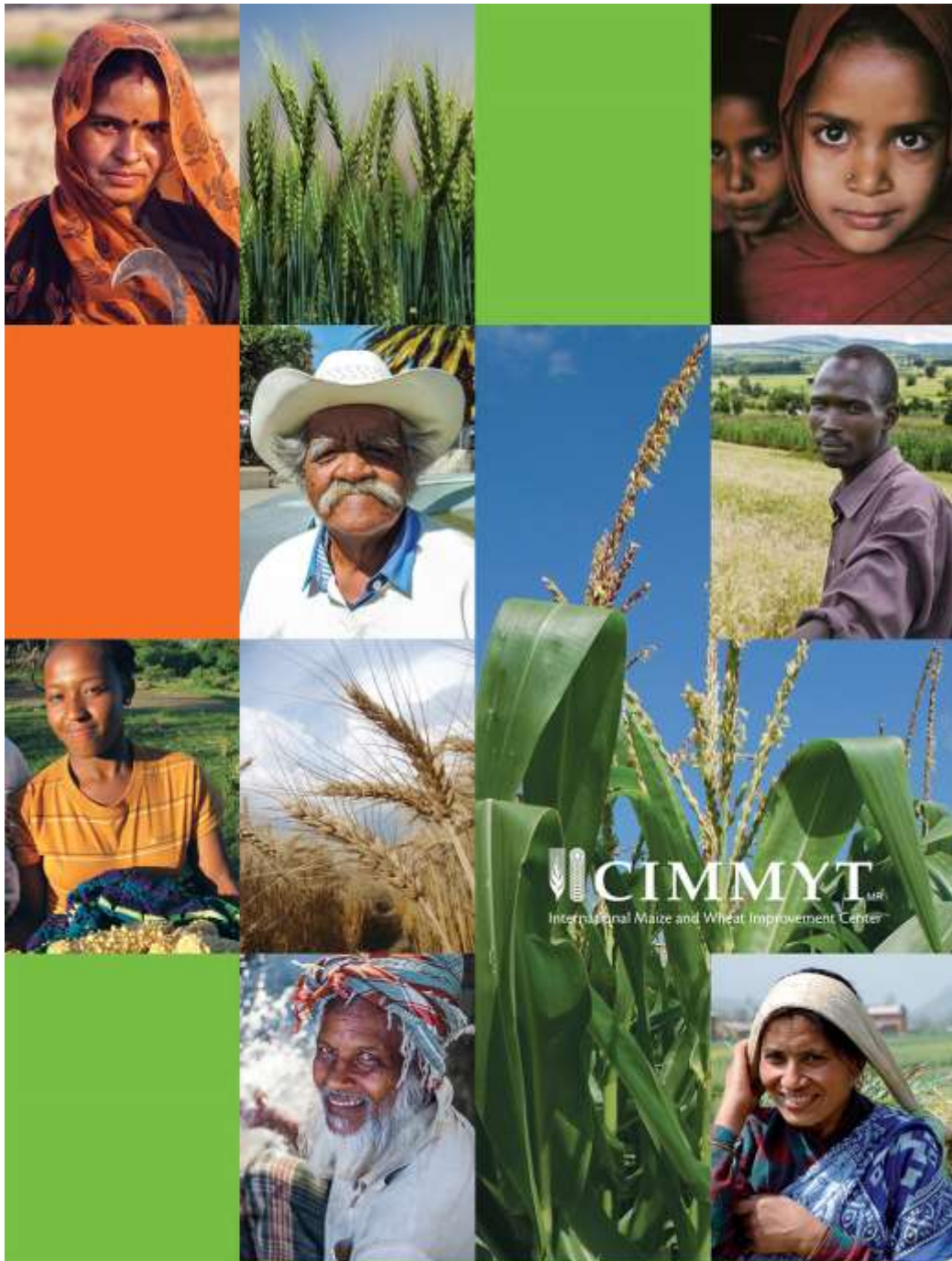
Higher benefits from a combination of technologies



Source: Mekuria and Kassie (2014)

Way forward

- Integrating different technologies that aim at increasing crop productivity
- Improving farmer access to new improved maize varieties
- Improving availability of seed for legumes and other crop
- Grow the agro-dealer network for improved farmer access to inputs
- Addressing soil acidity and land degradation in Ethiopia
- Training on good agronomic practices – farmers, extension agents
- Revisiting pest and disease management more strongly



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