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# West Africa Agriculture Technology Fair Mainstreaming Technology for Agricultural Development 25 October 2021

**TAAT Wheat Compact (TWC)**  
*Zewdie Bishaw et al*  
**ICARDA, Addis Ababa**  
**Ethiopia**

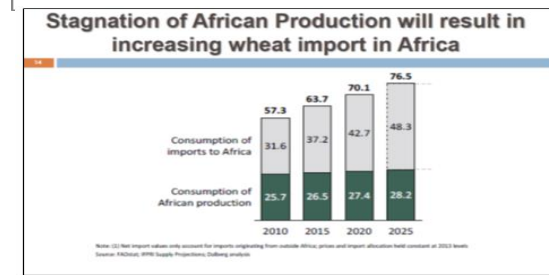
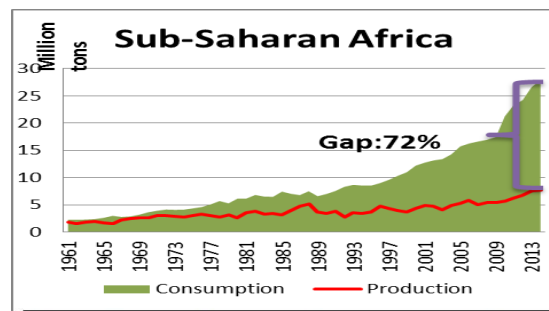
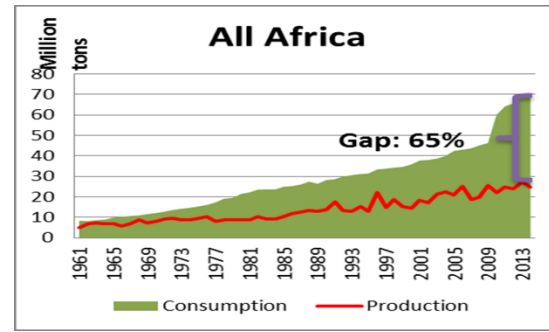


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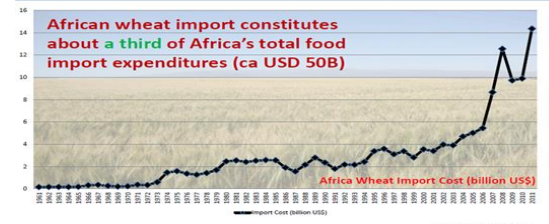


# Why Wheat in Africa?

1. Wheat is a major staple crop for several countries
2. Wheat consumption increasing over 20 years and the drivers are growing population, changing food preferences, strong urbanization leading to growing 'food gap'
3. Africa is world's biggest wheat importer with over 40 million tons in 2014 with about **US\$15 billion**, a third of total food imports
4. Wheat imports account for >60% of African's wheat consumption which is expected to grow by 2025, but with business-as-usual scenario, over 80% of all wheat consumed will be imported



## Rising Cost of Imports





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# Objective of TWC

TWC aims at achieving transformational impact and sustainable increases in wheat productivity and production for enhanced food security, economic growth, and poverty alleviation thus reduce unsustainable overdependence on wheat imports through

- Scaling up proven wheat technologies & innovations
- Contributing to African wheat revolution to achieve wheat self-sufficiency
- Taking wheat to new frontiers in Sahelian agro-ecology (Nigeria, Mali, Niger, Senegal, Burkina Faso, Mauritania, Cameroon, Sudan )





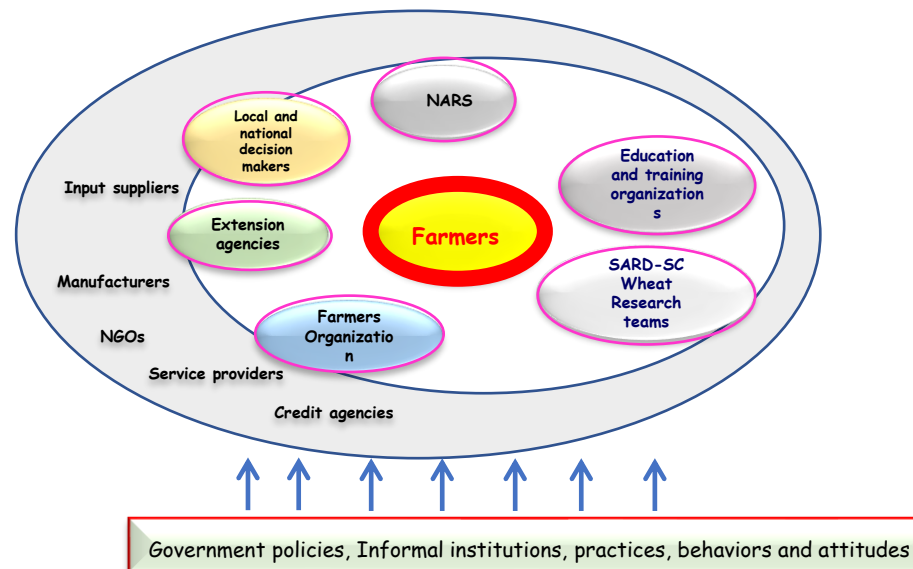
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## Approaches for Rapid Technology Scaling

- TWC adopted **Innovation Platform (IP) approach** for improved wheat technology validation, popularization and dissemination
- IPs established at **strategic (policy) and operational (ground) levels** to bring all wheat value chain actors
- **Engages multi-stakeholders**: farmers, seed producers, inputs providers, extension, research, NGOs, traders, financial institutions, agro-processors, and policy makers along the value chain
- **Engage with Enabler Compacts** for synergy leveraging technological tools (water), soil fertility (IFDC), capacity and outreach program (CDTO) and entrepreneurship (youth)

### Innovation Platform Approach: SARD-SC and TAAT

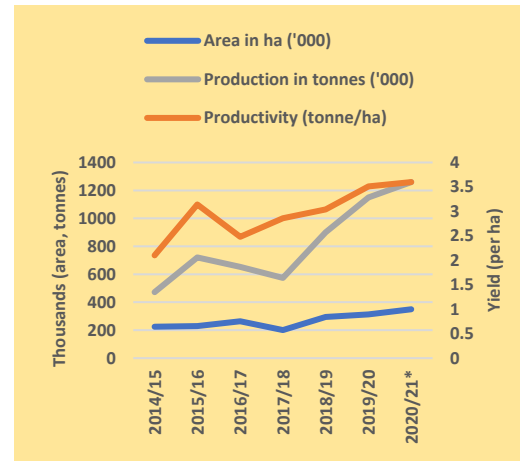


Rural entrepreneurship, job creation, empowering women and youth, market linkages, transformation

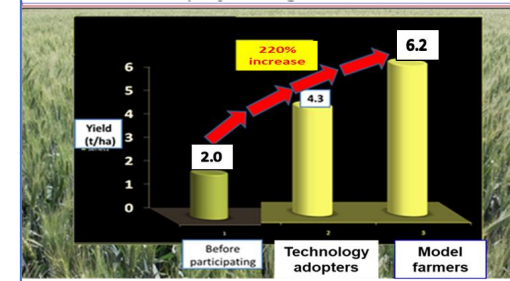
# Successes Stories

## TWC achievements that can be replicated

- **Policy advocacy for wheat self-sufficiency** to become a national agenda in target countries where high level inter-ministerial committees and technical committees established and road maps developed
- **Area expansion in almost all countries (437,595 ha) with estimated production (1.3 million tons) at average productivity of 3 tons/ha**
- **Additional value of wheat grain production estimated at US\$273.1 million (@US\$210 per ton)**
- **Average productivity at IP sites (4.2 tons/ha) and national level (3 tons/ha) across countries**
- **Average income from wheat production per household \$2806**



Average wheat productivity attained by technology adopters and model farmers at project IP sites in Ethiopia, 2018/19



## Success stories-2

- **Beneficiaries reached through direct scaling in IP sites and beyond through access to quality seed and scaling**
  - About 1,798,532 seed and scaling beneficiaries of which 34% women
- **Training of farmers, youth, seed experts, development agents through FFS, hands-on practical trainings and farmer-to-farmer interactions**
  - About 39858 people trained of which 34% are women and 12% youth
- **Entrepreneurship in agri-business along wheat value chain from production to value addition to marketing**
  - About 982 youth (28.5% women) organized in 47 groups in 38 IPs are engaged in different rural businesses
- **National and community level field days and campaigns to create awareness and demand for technology**
  - About 100 field days organized and about 14,090 attended by value chain actors from farmers to policy makers
- **Additional job creation for farmers, youth and women in wheat grain production, seed production, value addition and allied services (machine rentals, services)**
  - About 112,774 additional jobs created of which 44% youth and women

**Nigeria February 2020**



**Sudan March 2019**



# Success stories...3

## Job creation and value addition

- Job creation-grain producers, seed producers, value addition for revenue generation
- Linkage to markets such as seed users, flour mills, local restaurants

### Galma Fadama Cooperatives Union in Nigeria (seed = N 24 million)



### Babahu JIGi community-based wheat seed production in Mali (FCFA = 172.6 million)



### Wad Rabia'a Women Association (value addition)-Sudan

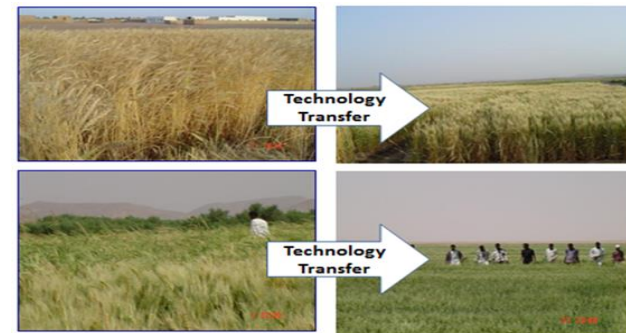
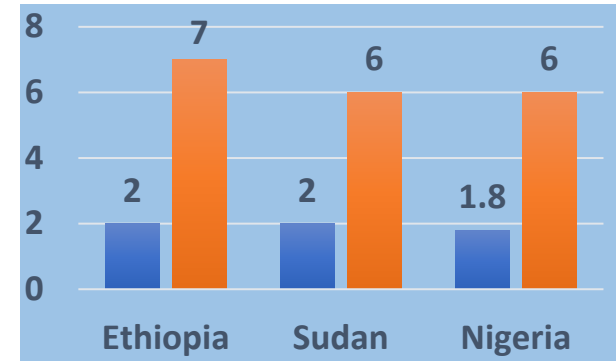


### Weira Farmers Association (value addition)-Ethiopia (daily sales= 2800 ETB)



# Wheat Technologies and innovations

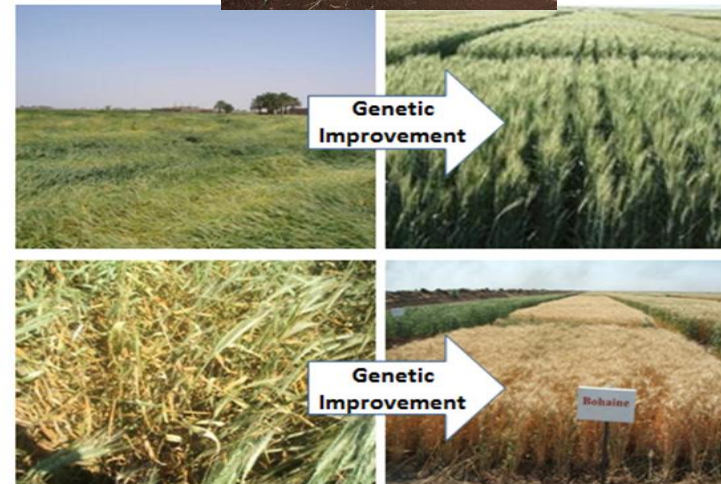
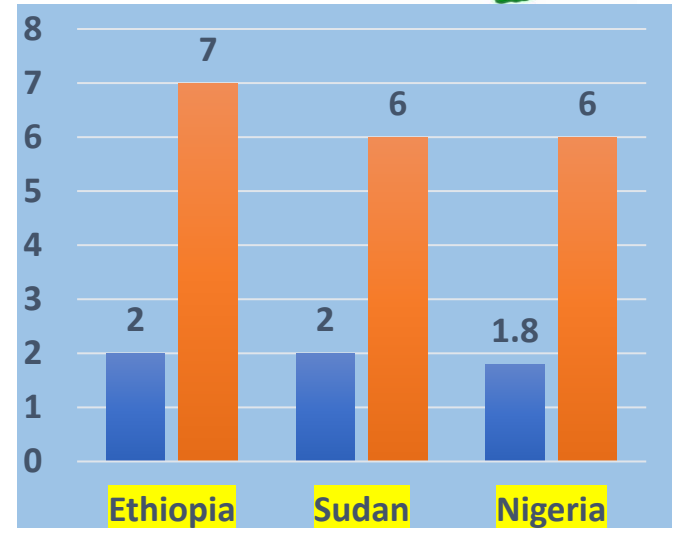
1. **Climate smart wheat varieties (45 varieties across 7 countries)**
  - High grain yield (4-7 tons per ha)
  - High grain quality (13-16% protein)
  - Heat and drought tolerant (>30 released under SARD-SC)
  
2. **Good Agricultural Practice (land preparation, planting, fertilization, irrigation, weed control, disease and pest control, harvesting, post-harvest management= 6 bundled technologies)**
  
3. **Seed system innovations (accelerated seed production) involving formal (private and public) and informal sectors (cooperatives, farmer associations)**
  
4. **Mechanized raised based technology for irrigated wheat production (low cost and locally fabricated)**
  - Save applied water (20%), reduce seed rate (30%),
  - Decrease farming cost (25%), reduce fertilizers (20- 30%); increase crops yields (20%)



# Wheat Technologies and innovations

## 1. Heat and drought tolerant climate smart wheat varieties

- High grain yield (4-7 tons per ha)
- High grain quality (13-16% protein)
- Heat tolerant (expansion in irrigated areas)
- About 30 varieties released through NARS and ICARDA collaboration
  - **Mali (5), Nigeria (7), Niger (3)**



## Wheat Technologies and innovations

### 2. Good Agricultural Practices (bundled technologies)

- Land selection, preparation and planting
- Soil fertility management-fertilization
- Water management-irrigation
- Plant protection- weed, disease and pest control
- Harvesting and post-harvest management

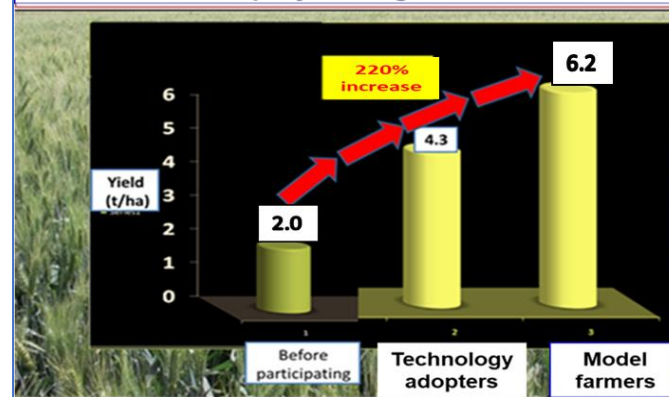


Average productivity of 4.2 tons/ha (4-7 tons/ha) achieved at IP sites

Average national productivity reached 3 tons/ha across target countries

Average income generated per household reached \$2608

Average wheat productivity attained by technology adopters and model farmers at project IP sites in Ethiopia, 2018/19



# Wheat technologies & innovations

## 3. Seed system innovations

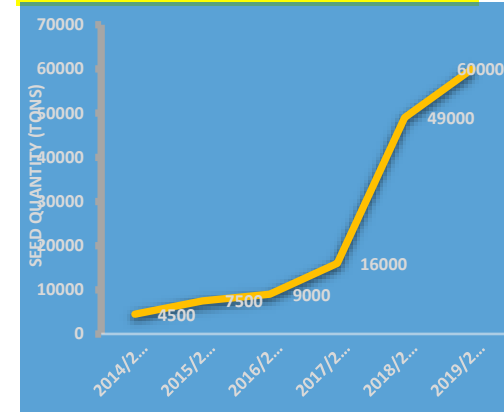
- Development of seed road maps commensurate with area expansion
- EGS production including off-season supporting NARS
- Certified seed production in partnership with private and public sector
- Quality declared seed production with cooperatives and farmer associations at IP sites and beyond

Seed class	Quantity produced (t)	Partnership
EGS (basic)	5,939	NARS
Certified seed	158,575	Private & public seed companies
Quality declared seed	8,873	Cooperatives, farmer associations
<b>Total</b>	<b>173,387</b>	

Ethiopia February 2020



Seed Production in Sudan



## Wheat Technologies and innovations

### 4. Mechanized raised-based technology

- Low cost and locally fabricated
- Save applied water (20%)
- Reduce seed rate (30%),
- Decrease farming cost (25%)
- Reduce fertilizers (20- 30%)
- Increase crops yields (20%)





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## Partners and stakeholders and deliverables

Technologies	Organizations	Deliverables	Outcome
Wheat technologies and packages	7 national agricultural research institutes	Technology validation and demsonstration EGS production Capacity development	Better food and nutrition security
Seed delivery systems	58 private seed companies, public seed enterprises, cooperatives and farmer associations	Large scale certified seed production Quality declared seed production	Availability and access to quality seed
Technology promotion	Development agencies, extension services, SG200	Technology demsonstration and dissemination	Awareness and demand creation
Value chain sectorial associations	Farmers' associations, Flour millers Associations, seed trade associations	Linking farmers with markets	Input and output markets
Financing wheat production and value addition	Financial institutions- rural microfinance and agri-banks	Credits for farmers and value chain actors	Business and employment
Enabling environment	MoAg, MoTrade, MoFinance	Policies and incentives	Wheat self-sufficiency



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## Technology brokerage

Technology	Source institute	Video links
Heat tolerant wheat varieties Early generation seed production Good agricultural practice	7 NARS in target countries Ethiopia (EIAR), Sudan (ARC), Nigeria (LCRI), Mali (IRE), Tanzania (TARI), Zimbabwe (DRSS)	<a href="https://www.afdb.org/en/news-and-events/multimedia/video/taat-wheat-compact-sudan-helps-crops-flourish-dry-arid-conditions-44044">https://www.afdb.org/en/news-and-events/multimedia/video/taat-wheat-compact-sudan-helps-crops-flourish-dry-arid-conditions-44044</a>
Seed system innovations (EGS, certified seed, QDS)	58 private seed companies, public seed enterprises, cooperatives and farmer associations in target countries	<a href="https://www.youtube.com/watch?v=WhKK1fjmYkE">https://www.youtube.com/watch?v=WhKK1fjmYkE</a>
Mechanized raised-bed technology (low cost and local fabrication)	ICARDA, Dalia Bldg, 2nd Floor Bashir El Kassar Street Verdun Area, Beirut, Lebanon	<a href="https://www.youtube.com/watch?v=5SW_Hf5AM3Y&amp;t=27s">https://www.youtube.com/watch?v=5SW_Hf5AM3Y&amp;t=27s</a>
Conservation Agriculture in Crop-Livestock Systems	ICARDA, Dalia Bldg, 2nd Floor Bashir El Kassar Street Verdun Area, Beirut, Lebanon	<a href="https://www.youtube.com/watch?v=7MNHwbZwGnA">https://www.youtube.com/watch?v=7MNHwbZwGnA</a>

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*“The TWC project has dramatically ramped up production of certified seed of heat-tolerant wheat varieties and putting these high productivity wheat seeds into the hands of millions of smallholder farmers in Ethiopia, Sudan and across other countries where the project is being implemented. The AfDB believes that this is a real game-changer for Africa; expanded production will relieve the continent of an ever-increasing import bill of nearly USD \$10 billion per annum.”*

**Dr Martin Fregene, Director, Agriculture and Agro-Industry, African Development Bank**

**Acknowledgement**  
**AfDB**  
**CORAF**

**Thank you**