

# WHEAT 4 Africa Updates

Unlocking the potential of wheat in sub-Saharan Africa



WHEAT 4 Africa Updates is a Newsletter of the SARD-SC Wheat program, an initiative funded by African Development Bank, AfDB. The project is implemented by ICARDA in 12 countries across Africa in partnership with the NARS.



Hon. Kebbi State Governor Atiku Bagudu, Hon. Linus Okorie Chair House Committee on Agricultural Institutions and Hon. Munir B. Danagundi at the International Wheat Conference in Abuja, Nigeria

## STAKEHOLDERS AT THE INTERNATIONAL WHEAT CONFERENCE IN ABUJA LOUD RECENT SUCCESSES IN THE WHEAT SECTOR, PLEDGE MORE SUPPORT

Stakeholders attending the International Conference on Wheat in Abuja, Nigeria lauded the recent successes in reducing wheat importation to Africa and have pledged more support. The stakeholders spoke during the conference organized by the AfDB funded SARD-SC Wheat project of ICARDA that was held from February 27<sup>th</sup> to March 2<sup>nd</sup> 2017 to take stock of current efforts on reducing wheat importation burden for the continent and the impact that has been realized by scientists and private sector working through the project.

The conference was attended by top wheat scientists and NARS leaders from 15 African countries, senior policy makers, AfDB officials, private sector representatives (millers, input suppliers, financial institutions, service providers) government institutions, model wheat farmers and partner CGIAR centres (IITA, ICARDA, CIMMYT

and IFPRI). During the official opening, chief guest Hon. Atiku Abubakar Bagudu, the Kebbi State Governor who is also the leader of the 'Presidential Taskforce on Wheat and Rice' acknowledged the impact that scientists working through the SARD-SC project have had in releasing heat tolerant varieties with better agronomic packages that have led to increase in wheat productivity from an average of 1.5t/ha to above 3.5t/ha at the national level. He however challenged stakeholders to provide scientific data on comparative production costs of wheat in various African countries and their competitors from the global market to enable policymakers to make policies that do not penalize local wheat farmers and actors in the wheat value chain. "If we have no research that informs policymakers about the totality of support that is given in countries, with whom we are competing and from whom we are importing, we are likely to continue penalizing our wheat value chain," Hon. Atiku stated.

Speaking at the same event, Hon. the Federal Minister for Agriculture for Nigeria Chief Audu Ogbah ably represented by the Federal Director of Agribusiness and Marketing in the Ministry Dr Muiyiw Azeez, commended the project for supporting the release of four high yield varieties of wheat, two irrigated and two rain fed for Nigeria. The Minister noted that after 40 years of trials, Nigeria now has high yield wheat varieties that meet the end use quality and this is thanks to the SARD-SC project.

The Chairperson of the Senate Committee on Agriculture Sen. Abdullahi Adamu said that SARD-SC as a whole had a remarkable impact on the Agricultural sector in Nigeria and the national assembly was repositioning agriculture by formulating robust legislations to support the sector. The Director of Agriculture at AfDB Dr. Chiji Ojukwu noted that the current level of food importation into the continent is unsustainable and that the Bank in its new vision is looking at an integrated multi-sectoral value chain approach to address this. He added that the Bank's vision for wheat is to increase the productivity to 4.4 t/ha and increase of land under wheat to 17.4 million ha by 2015. To realize this, the Bank and partners will commit up to USD 850 million to transform African agriculture through the TAAT (Technology for African Agricultural Transformation) initiative.

The ICARDA Deputy Director General Dr. Andrew Noble, representing the Director General Aly Abousabaa said that through SARD-SC wheat project, ICARDA has developed a successful model, a scalable consortium approach that could transform agriculture in the continent. The Executive Chairperson of the Flour Millers Association of Nigeria (FMAN) John Coumantaros represented by Dr. Nino Ozara on his part reiterated commitment of FMAN to support wheat production in Nigeria. "A practical demonstration of this commitment is our ongoing pledge to offtake all wheat produced in Nigeria, and this pledge has been sustained even for the 2017 harvest of wheat, of which we have begun discussing modalities for offtake," Dr. Ozara added.

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His Excellency the vice President of Sudan attending the SARD-SC Wheat Field Day in Gezira

**"My dream is that in the next three to five years, ships will be sailing from the Port of Sudan carrying Sudanese wheat to the rest of the world," - Prof. Ibrahim Dukheri, Hon. the Minister for Agriculture and Forests 08/12/2016**

## TRANSFORMATIONAL IMPACT OF SARD-SC WHEAT: THE CASE OF SUDAN, ETHIOPIA AND NIGERIA

The rapidly growing demand for wheat in Africa, linked to population and income growth and changing food preferences has led to a growing 'food gap'. This is being met by imports of over 40 million tons per year costing –close to USD 15 billion in foreign currency. Recent research for development initiatives across Africa indicate that the continent is only producing 10-20% of its potential and through effective application of proven, scalable and transformative wheat technologies, it is physically possible and economically profitable for African countries to grow more wheat and attain greater wheat self-sufficiency in the near future.

### 1. The challenges

Wheat production in the three hub countries (Sudan, Ethiopia and Nigeria) are generally characterized by low yields, with national average productivity not exceeding 2t/ha. Among the underlying constraints affecting wheat production are lack of improved production and post-harvest technologies, low soil fertility and degradation of natural resources, biotic and abiotic stresses, poor access to inputs, credit and output market, poor infrastructure, weak extension services and inconsistent government policies. The aforementioned challenges are key factors significantly hampering the productivity and competitiveness of domestic wheat production in these countries, necessitating a growing over dependency on imported wheat to satisfy local demand. Consequently in 2012 the annual imports of wheat in Nigeria (4.0 million tons), Sudan (2.0 million tons) and Ethiopia (1.3 million tons) accounted for nearly 98, 78 and 30 percent, respectively.

### 2. The project interventions

The aim of the SARD-SC wheat project was to achieve transformational impact through a sustainable increase of wheat productivity for enhanced food security, economic growth and poverty alleviation across the project target countries. Enhancing the productivity and competitiveness of wheat involved the

development and deployment of appropriate technologies for targeted production environments and markets, while providing resilience and adaptation to climate change. The project specifically focused on testing, adapting, and promoting proven wheat based technologies best-fitted to the different wheat growing environments of Africa.

### 3. Achievements in technology generation - High yielding and heat tolerant varieties

In Sudan, the project released two bread wheat varieties in 2013 with yield of 4.5-6t/ha, twice the country's average. These varieties have good heat tolerance and are resistant to leaf and stem rust diseases. One of the varieties, 'Goumria' is an early maturing wheat with tolerance to intense heat stress prevailing in central regions of Sudan. The second variety 'Zakia' is highly valued for its excellent nutritional and baking qualities. Seven additional elite lines, comprising four spring bread and three spring durum have been identified and proposed for release to cover the wide range of agro-ecologies.

In Ethiopia, nine improved wheat varieties were released since 2013. Eight were bread wheat and one durum. Of these 'Adel-6' and 'Nejemah-14' for irrigated lowlands possess high grain yield of 5-6t/ha good end use quality and tolerant to heat and salinity. The project also released four new high yielding varieties with average of 5-7t/ha for highland rain fed agro-ecology that are also resistant to rusts and septoria.

In Nigeria, release of four heat tolerant wheat varieties with yields of 5 to 7 t/ha was a breakthrough that opened up new opportunities to grow wheat in vast non-traditional hotter and dryer agro-ecologies. The varieties 'Norman' 'Reyna-28' 'Pastor' and 'Kauz' released between 2013 and 2016 are suited for the northern irrigated lowlands. Further for the first time in Nigeria, two rain-fed wheat varieties CROW'S and Reyna-15 were released for the highlands.

## 4. Achievements in technology adoption

The SARD-SC wheat adopted the innovation platform (IP) as an effective approach for dissemination and promotion of proven technologies and for linking farmers to input and output markets through active participation and interaction of all concerned stakeholders along the value chain, including farmers, extension officers, inputs providers, seed producers financial institutions, agro-processors and policy makers.

### 4.1 Nigeria

In Nigeria, the project established six innovation platforms across 4 states (Kano, Kebbi, Jigawa and Gombe) in order to promote the dissemination and adoption of proven wheat based technologies with management packages and involved over 11,200 farmers and stakeholders. Accordingly, IP participating farmers from four states who adopted the heat tolerant improved technologies increased their farm level wheat productivity to 5-6 t/ha – significantly higher than the 1-2 t/ha average of traditional varieties. The household income of IP participating wheat farmers increased by 46-105% compared to non-participating farmers. Wheatfarmers in Nigeria are linked to guaranteed output market, with formal Agreement signed between the Nigerian Farmers Association and the Nigerian Millers Association in 2016. In Kano state alone, number of registered wheat farmers increased from 1,700 in 2012 to 22,000 in 2016. Wheat area in Nigeria increased by 100%, from 50,000 ha in 2012 to 100,000 in 2016. Wheat production increased by 257% from 70,000 tons in 2012 to 250,000 tons in 2016, and wheat productivity increased by 78%, from 1.4 t/ha in 2012 to 2.5 t/ha in 2016.

### Key policy impact in Nigeria

The impressive performance of improved and heat-tolerant wheat varieties with yields of 5-6 t/ha – significantly more than 1-2 t/ha average of traditional varieties – convinced policy makers and generated key policy shifts.

Wheat has been included as a priority in the Nigeria Government's Agricultural Transformation Agenda, ATA. Government created a market for domestic wheat – with minimum price guarantees for farmers to promote domestic production. Through the ATA program, the Government launched a nation-wide scaling up



His Excellency the President of Nigeria officiating start of wheat planting season in Kebbi State



Dr. Akinwumi Adesina at a past wheat field day in Nigeria

**"Nigeria never had a rain fed highland wheat variety, in fact for 40 years we tried and failed, however through SARD-SC we now have two varieties," Dr. Oluwasina Olaniji, Executive Director Lake Chad Research Institute, 03/3/2017**

program to expand the wheat area— from 70,000ha in 2015 ha to 340,000 ha in 2019. Through the ATA program, the Government set a target to reduce Nigeria's unsustainable import burden by up to 50% in 2019. At current market rates, this reflects a saving of around USD 2 billion each year in import costs.

#### 4.2 Sudan

Following the successful adoption of improved wheat technologies at the six project IP sites (Great Wad Medani and Southern Gezira platforms at Gezira State, Ed-Damer in River Nile State, Dongola in Northern State and Dimiat and Deberira sites in New Halfa State) involving 10,700 IP participating farmers, the average productivity of wheat in farmers' fields increased to 4-6 t/ha—significantly superior to the average yield of 2.0t/ha for non-participating farmers. The household incomes of IP participating farmers from four states who adopted the heat tolerant improved technologies increased by 55-60% compared to non-beneficiary farmers. After the successful interventions by SARD-SC wheat at Gezira IP site, the amount of loan available for wheat farmers by financial institutions increased from USD 771,400 in 2012 to USD 3,241,810 in 2016. Similarly, the amount of loan repayment rate (recovery rate) of wheat farmers increased from 70% in 2012 to 100% in 2016 with no default problems. Wheat acreage in Sudan increased by 23%, from 185,000 ha in 2013 to over 230,000 in 2016. The national wheat production increased by 133%, from 324,000 tons in 2012 to 787,400 tons in 2016 and the national average wheat productivity increased by almost 100% from 1.7 t/ha in 2012 to 3.39 t/ha in 2016.

As a result of the surge in domestic wheat production and productivity over the past four years, wheat importation in Sudan has reduced from 78% in 2013 to 64% in 2016. After the project intervention, there has been a surge in the establishment of milling companies and rehabilitation of other grain mills. Likewise the number of new private seed companies engaged in seed production increased across the country.

#### Key policy impact in Sudan

The successful experiences of SARD-SC wheat in promoting wheat technologies at 6 innovation platforms (IPs) with yields ranging from 4.0 t/ha to 6.5t/ha is shifting opinion of

policymakers and has generated the following key policy impacts.

The government of Sudan has; Officially adopted the IP approach as its national agricultural technology extension program throughout the country for wheat and other major food security crops. Created a market for domestic wheat – with minimum price guarantees for farmers and incentives for millers to buy domestic wheat. Launched a national target for expanding wheat acreage from 214,000 ha in 2015 to 500,000 ha in 2019 and then progressively to 600,000 ha over subsequent three years to boost domestic production and to significantly reduce and eventually stop importation.

#### 4.3 Ethiopia

As a result of the successful adoption of proven wheat technologies at the six project IP sites (Sinana and Gololcha IP sites in Oromia region, Bichena and Shebel Berenta IP sites in Amhara region, Gedebano IP site in SNNP region; and Oflla IP site in Tigray region) of Ethiopia involving 10,500 farmers and stakeholders, the farm level wheat productivity of IP participating farmers increased to 4-7 t/ha, when compared to the non-beneficiary wheat farmers whose yield is not exceeding 2 t/ha.

The project impact assessment revealed that the household incomes of IP participating farmers from four regions who adopted the improved technologies, increased by 55% over the non-beneficiary wheat farmers. Wheat farmers at the project intervention sites across the four regions are directly linked to the output market, with a formal agreement signed between the farmers' Association and the wheat flour Millers since 2015. In Ethiopia, the national wheat production increased by 45% from 2.92 million tons in 2012 to 4.23 million tons in 2016. Wheat acreage increased by 16% from 1.43 million ha in 2012 to 1.66 million ha in 2016, and the national average wheat productivity increased by 21% from 2.1 t/ha in 2012 to 2.54 t/ha in 2016.

#### Key policy impact in Ethiopia

The successful experiences of SARD-SC wheat in promoting proven wheat technologies across the 6 innovation platforms (IPs) in Ethiopia generated the following key policy impacts.

The government of Ethiopia adopted the IP approach for clustering wheat farmers to provide better extension services, improved access to inputs and mechanized equipment for field operation and harvest, and for developing integrated corridor-based wheat production and milling/ processing zones across the country. Government also launched a national target for expanding domestic wheat production by developing 300,000 ha of irrigated land in the lowland areas of the country to achieve a national wheat self-sufficiency over the coming 5-10 years.

#### Future wheat potential expansion areas

In addition to the 1.66 million hectares that are currently devoted to rain-fed wheat production in the highlands of the Ethiopia, the country has the potential of 300,000 ha for irrigated wheat production in the lowlands. The regional states suitable for irrigated wheat production include Oromia region, Afar region, Amhara region and Ethiopian Somali region.

Sudan has about 1 million hectares suitable for the expansion of irrigated wheat production. These are found in the regional states of Gezira, River Nile, Northern State, Kassala State (New Halfa) White Nile State and Blue Nile/ Rahad/ Khartoum.

In Nigeria, wheat currently occupies 21.4% of the developed irrigation areas but at the same time more than 650,000 hectares of suitable land are available for expansion of irrigated wheat. Expansion of wheat production to new frontiers includes the traditional 10 wheat growing states of Kano, Kebbi, Jigawa, Katsina, Zamfara, Sokoto, Borno, Yobe, Gombe and Bauchi and the non-traditional five new states of Adamawa, Kaduna, Nasarawa, FCT and Ogun states, which can be developed and utilized for domestic wheat production so that Nigeria attains wheat self-sufficiency within the coming few years.

ABOUT THE PROJECT

SARD-SC Wheat is the wheat component of Support to Agricultural Research for Development of Strategic Crops in Africa (SARD-SC) an African Development Bank, AfDB funded CGIAR-led project that targets enhanced food and nutrition security and reduced poverty across sub-Saharan Africa through strengthening of value chains of major commodity crops. SARD-SC Wheat is leading efforts to boost the production of wheat in 12 countries: Eritrea, Ethiopia, Mali, Mauritania, Niger, Nigeria, Sudan, Tanzania, Zambia, Zimbabwe, Kenya, and Lesotho.



Alhaji Sani Garba

ABOUT ICARDA

The International Center for Agricultural Research in the Dry Areas (ICARDA) is the global agricultural research organization working with countries in the world's dry and marginal areas to increase productivity, improve rural nutrition, and strengthen national food security through sustainable systems solutions. A member of CGIAR Consortium, ICARDA works closely with national agricultural research programs and other partners in more than 50 countries across North and Sub-Saharan Africa, and Central, South, and West Asia. [www.icarda.org](http://www.icarda.org)

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EDITORIAL TEAM

- Dr. Solomon Assefa - Wheat Commodity Specialist and Coordinator
- Dr. Mohamed El Mourid - North Africa Regional Coordinator
- Polycarp Otieno Onyango - Communication Consultant
- Adote Kpakpo - M & E Specialist Consultant
- Dr. Habib Ketata - Consultant
- Dr. Ali Chebi - Socio-Economics Specialist

CONTACT US

Rue Mahmoud Ghaznaoui, El Menzah IV- 1082 Tunis Tunisia. Tel: + 216 7175 3680  
 Email: [s.assefa@cgiar.org](mailto:s.assefa@cgiar.org) | Fax: +216 71753170  
 For media inquiries, newsletter subscription & communication materials:  
 Email [o.polycarp@cgiar.org](mailto:o.polycarp@cgiar.org)

**FARMERS NOW RECORDING ALMOST TRIPLE YIELDS, ACQUIRING ASSETS**

As a result of new varieties and better agronomic packages, farmers across the hub countries are now almost tripling their yields. This is enabling them to acquire assets and diversify their incomes

**Alhaji Sani Garba from Nigeria**

"Previously I got just 5 bags from less than 0.75ha, last year (2016 season) however from 10ha I got 350 bags and sold them for about N23,000 (USD 58)" says Alhaji Sani Garba.

Alhaji is originally from Borno State. Due to conflict there he migrated to Kano where he got a loan and bought 20ha of land. He has been a wheat farmer for over 20 years. He says that for many years he planted less than one ha because production and market was low. He says his productivity begun to gradually rise four years ago. In the 2014 season he got 45 bags from 2ha. The following season of 2015 he planted 3ha and got 80 bags. Alhaji says the increase in productivity was because of training and from the training he learnt row planting, early planting and use of liquid fertilizer. Last season he planted the variety Atilla Gan Atilla and Norman from SARD-SC. He says as a result of wheat farming he bought a water pump, has taken four children to the university and even bought himself a car mainly from proceeds of wheat.

**Awad Hamad from Sudan**

"My yields almost tripled to 22.5 bags per feddan (4.5 t/ha) from when I begun using new wheat varieties from SARD-SC, doing rotation of wheat with groundnuts and practicing ridge planting as per the trainings that I received," says Awad Hamad, a 78 year old farmer from Gezira in Sudan. Awad has grown wheat for more than 10 years. For many seasons his wheat yields were low, not exceeding 8.5 bags per feddan (1.6 t/ha).

"As a result of better yield from wheat, I got more money with which I bought 10 heads of cattle and these helped me to diversify my farm income," Awad explains. Awad is a member of the Rai Ebasatna innovation platform of the AfDB funded SARD-SC wheat project of ICARDA. He has undergone a series of training into better agronomic practices of wheat farming and also received various support from the project. After the training, Awad was contracted to be a wheat seed producer to produce new varieties Zakia, Iman and Goumia.

