Increasing the Productivity of Sorghum Farmers in Sudan Savannah of Nigerian: Effect of Access to improved Technology and Market


Sorghum in the 21st century, Cape Town, South Africa:12th April, 2018.
INTRODUCTION

✓ Sorghum [Sorghum bicolor (L.)] assumed greater importance in several African countries.

✓ There is renewed interest by processors who are interested in using the grain to compliment/substitute wheat and barley in the confectionery and malting industries.

✓ Had significant benefits to Nigerian farmers and National food security.
Study / intervention Areas

ATASP-1 Sorghum Outreach Implementation communities across agro-ecological zone in 2016

Legend
- ATASP- Communities

ICRISAT

INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS
Challenges addressed by Sorghum Outreach program

**Component 1: Technology verification and extension**
- Availability of Improved Sorghum OPVs and hybrids
- Striga control
- Low soil fertility
- Extension materials on improved Sorghum husbandry
- Seed supply system

**Component 2: Skills development**
- Product development and marketing
- Agricultural mechanization for reduced drudgery
- Storage techniques
- Linkage to financial institutions
- Capacity building for youth and women entrepreneurship
Methods of approach

- Participatory Research extension approach and trainings
- Innovation Platform formation for inputs and outputs markets
- Deployment of science proven technologies for farmers managed demonstration trials
  - Four distinct technologies: fertilizer management strategies, use of Improved varieties, seed dressing and tillage practices combined with ToT
  - Extension agents and development agencies;
  - Promotion of community-level seed production schemes
  - Community outreach programs (farmers field days, radio talk shows, )
Results of activities

- The planning meetings with key partners to strengthen the research-extension-farmer linkage by providing a forum that facilitated contributions from farmers, marketers and technical staff of the various participating organizations.
- During the planning process, technology gaps were identified and the researchers focused their efforts on filling the gaps.
Improving farmers’ access to quality seeds of improved varieties

- Over 40,000 farmers have access to quality seeds and other inputs through IP linkages, while expanding knowledge of Improved technologies to over 100 communities.
- 32.4% of the profiled Sorghum farmers in the project were women.
- Training of youths farmers on community seed production
- 110 MT of Sorghum seeds distributed to benefiting farmers, in the 3 SCPZs with production estimated at 70,267 MT (Valued at USD56 million).
- Varieties with high iron and zinc (e.g. Improved Deko and improved Zabuwa) that are drought tolerance and medium maturing were promoted

Table 1. Quantities of breeder, foundation and certified seed of Sorghum distributed by the ATASP-1 across three SCPZs in 2016 cropping season

<table>
<thead>
<tr>
<th>SCPZ</th>
<th>Breeder seed (kg)</th>
<th>Foundation seed (kg)</th>
<th>Certified seed (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kebbi-Sokoto</td>
<td>0</td>
<td>200</td>
<td>24,080</td>
</tr>
<tr>
<td>Kano-Jigawa</td>
<td>200</td>
<td>600</td>
<td>51,792</td>
</tr>
<tr>
<td>Bida-Badeggi</td>
<td>0</td>
<td>100</td>
<td>33,888</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>200</strong></td>
<td><strong>900</strong></td>
<td><strong>109,760</strong></td>
</tr>
</tbody>
</table>
CAPACITY BUILDING

The impacts of trainings resulted in about 60% improvement in the understanding of good agronomic practices and post-harvest handling by the farmers and extension agents.

Pre-Season training of extension agents, field assistants and lead farmers on good agronomic practices (GAPs) for increased sorghum productivity in Kano, Nigeria.
On-farm Technology Demonstrations

Fig. 2: Distribution of technology demonstration trials across the intervention states in Nigeria

Total Demos: 495 (328 Males, 31 Females & 136 Youth) across 100 Communities
On-farm Technology Demonstrations trials

Use of improved variety

(A) Sokoto-Kebbi SCPZ

Grain yield (kg/ha)

- OPV/Hybrid
- Local

Dandi Ngaski Bagudo Shanga Suru Kwara

39.2% yield gained

(B) Kano-Jigawa SCPZ

- OPV/Hybrid
- Local

31.3% yield gained

(C) Bida-Badeggi SCPZ

Grain yield (kg/ha)

- OPV/Hybrid
- Local

Lavun Mokwa Agaie Wushishi Gbako Katcha

22.7% yield increased
Seed dressing techniques

(A) Kebbi-Sokoto SCPZ

- **Dressed**
- **Undressed**

**18.4% yield gained**

(B) Kano-Jigawa SCPZ

- **Dressed**
- **Undressed**

**27.2% yield gained**

(C) Bida-Badeggi SCPZ

- **Dressed**
- **Undressed**

**28.4% yield gained**
Tillage practices

(A) Kebbi-Sokoto SCPZ

Grain yield (kg/ha-1)

- Conventional
- Minimum

35.8% yield gained

LGAs: Dandi, Ngaski, Bagudo, Shanga, Sunu, Kware

(B) Kano-Jigawa SCPZ

Grain yield (kg/ha-1)

- Conventional
- Minimum

16.5% yield gained

LGAs: Rano, Bebeji, Kura, Bunkure, G/Mallam, Gwarin Kudu, Gwarin, M/Madari, Auyo, K/Hausa, Hadejia
Market Linkages

- IP meetings - 4 meetings in 2016
- Linkages with Processors: HFM and NNFM
- Linkages with aggregators
- Seed companies

- Sorghum varieties used for commercial cultivation include; CSR 01; Samsorg-17(SK5912)
Conclusion

- The implementation of Sorghum outreach program of ATASP-1 in 2016 cropping season, has played a catalytic role in the dissemination of improved varieties and production technologies in the country.
- Promotion of high yielding, drought tolerant, disease and pest-resistant sorghum varieties.
- The technologies demonstrated had increased grain yields by:
  - 22.7 to 39.2% (use of improved varieties),
  - 18.4 to 28.4% (seed dressing), and
  - tillage practices was 16.5% in Kano-Jigawa and 35.8% in Kebbi-Sokoto SCPZ.
- Increased farmers’ technical knowledge on good agronomic practices (GAP) and post harvest handlings for Sorghum production
- Led to significant market linkage for sorghum to industrial processors
- Strengthened partnerships among farmer organizations, NARES, the private sector and NGOs.
### Partners

#### Research
- ARCN
- IAR
- NCAM
- NSPRI
- NAERLS
- IITA
- AfricaRice

#### Policy/Regulatory
- FMARD
- NASC
- State Ministries of Agriculture

#### Commercial
- Seed companies.
- Processing companies
- Fabricators
- Input/output Market
- Commodity brokers

#### Development
- State ADPs
- IFAD-CASP
- Fadama III AF
- LGAs
- Media
Thanks for Listening