AIP-Maize

Enhancing availability and affordability of maize seeds and varieties in Pakistan: A Public-Private Alliance for a Sustainable Maize Production

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Unlike wheat, maize interventions in Pakistan is very recent.
Why Maize?
Need for Feed!
I am more or less a value added maize!
## Asia maize indicators (2013-14)

<table>
<thead>
<tr>
<th></th>
<th>Area (M ha)</th>
<th>Yield (t/ha)</th>
<th>Production (M t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>35</td>
<td>5.9</td>
<td>205.6</td>
</tr>
<tr>
<td>India</td>
<td>9.1</td>
<td>2.5</td>
<td>22.7</td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.1</td>
<td>2.9</td>
<td>8.8</td>
</tr>
<tr>
<td>Nepal</td>
<td>0.9</td>
<td>2.4</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Pakistan</strong></td>
<td>1.1</td>
<td>4.3</td>
<td>4.8</td>
</tr>
<tr>
<td>Philippines</td>
<td>2.6</td>
<td>2.8</td>
<td>7.3</td>
</tr>
<tr>
<td>Thailand</td>
<td>1.1</td>
<td>4.3</td>
<td>4.6</td>
</tr>
<tr>
<td>Vietnam</td>
<td>1.1</td>
<td>4.3</td>
<td>4.9</td>
</tr>
<tr>
<td><strong>South Asia</strong></td>
<td>11</td>
<td>2.7</td>
<td>30</td>
</tr>
<tr>
<td><strong>South East Asia</strong></td>
<td>9</td>
<td>3.4</td>
<td>29</td>
</tr>
<tr>
<td><strong>World</strong></td>
<td>176.5</td>
<td>5.2</td>
<td>915.5</td>
</tr>
</tbody>
</table>

Source: USDA PSD 2014
Challenges of Pakistan’s maize sector
80-90% of hybrid maize seed is from import

Import value of seeds cereals + Veg: 140 million $

Import value of maize seeds: 56 million $

Of the imported cereal seeds is accounted for maize: 53%

Source: drawn from FSCRD unpublished reports (2013-14)
COMMISSIONED PROJECTS

AIP-Maize

Import bill of maize seeds $\approx$ Export value of mango!
Comparison of hybrid maize seed price
(USD/Kg)
Challenges....

- **Germplasm/product development**
  - Between 1993-2011/12 a total of 16 varieties developed (6 hybrids) by NARS, multinational companies (?)
  - India 107 varieties (64 hybrids) between 1993-2012
  - South Africa > 400 registered varieties by March 2012
  - Climate resilient maize (DT, HT, Low N, Water efficient...abiotic stress)
  - Maize tolerant to biotic stress (stem borer, weevils...)
  - Nutritionally enhanced maize (QPM, Provit A, Kernel Zn)

- **Absence of vibrant maize seed system**

- **Climate change** (floods, thermal heat, change in planting and harvesting dates...)
Zero visibility and low dry down
AIP maize projects

- Climate resilient maize
- Biofortified maize
- Maize tolerant to biotic stresses
- Enhancing the maize seed sector
Achievements in spotlight

• Evaluation of more than 800 varieties (introduced from CIMMYT regional breeding hubs in Africa, LA, Mexico and IITA)
• Consisting of traits of drought tolerance, enhanced nutrition, tolerance to biotic stress
• Majority of white kernel
• Low-N stress tolerant and stem borer resistant varieties (implications for environment)
• Dual purpose maize (food and feed): initiatives in GB
Achievements…

• More than 85 AIP maize varieties selected
• Forty Five candidate varieties at final NUYT stage
• Ten candidate varieties under farmers demo plots (pre release demonstration)
• More than five heat tolerant hybrids selected
• Three hybrids (2 QPM) in pipeline for registration
• Product allocation to partners (provision of parental lines)
• Promotion of locally developed hybrids (CCRI, MMRI and NARC hybrids)
Achievements…

- About 150 farmers hosting the demos
- Sweet corn and popcorn varieties from IITA
- The shortest time span to avail new varieties to farmers
- Working with 19 institutions: 10 private and 9 public
- Interventions covering all provinces of Pakistan including AJK and GB
<table>
<thead>
<tr>
<th>Rank</th>
<th>OPV</th>
<th>Late hybrids</th>
<th>Intermediate hybrids</th>
<th>PROVIT A</th>
<th>QPMY</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(no. of ent 30)</td>
<td>(no. of ent 40)</td>
<td>(no. of ent 60)</td>
<td></td>
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<tr>
<td>1</td>
<td>PAN413</td>
<td>12.69 CZH131007</td>
<td>11.16 CZH131011</td>
<td>10.47 HP1060-8</td>
<td>9.55 SA2146-38</td>
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<td>2</td>
<td>SC301</td>
<td>12.46 CZH132064</td>
<td>9.77 CZH1221</td>
<td>9.68 HP1060-6</td>
<td>9.44 SA2125-23</td>
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<td>3</td>
<td>TP1219</td>
<td>12.25 CZH132070</td>
<td>9.77 KKS4611</td>
<td>9.20 HP1060-1</td>
<td>9.30 SA2125-21</td>
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<td>5</td>
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<td>11.63 CZH132074</td>
<td>9.57 CS200 (local check)</td>
<td>8.69 HP1060-9</td>
<td>8.88 SA2146-75</td>
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<tr>
<td>6</td>
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<td>11.24 CZH131008</td>
<td>9.34 KKS4663</td>
<td>8.49 HP1060-15</td>
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<td>7</td>
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<td>10.77 CZH131006</td>
<td>9.34 CZH131015</td>
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<td>8</td>
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<td>10.75 Local check</td>
<td>9.28 CZH1227</td>
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<tr>
<td>9</td>
<td>07SADVE2</td>
<td>10.66 CZH132075</td>
<td>9.28 CZH132058</td>
<td>8.39 HP1060-4</td>
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<td>10</td>
<td>TP1221</td>
<td>10.64 CZH122</td>
<td>9.22 CZH132043</td>
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<td>8.11 SA2146-39</td>
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<tr>
<td>Mean</td>
<td></td>
<td>6.75</td>
<td>7.64</td>
<td>7.13</td>
<td>7.76</td>
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<tr>
<td>LSD (0.05)</td>
<td>2.23</td>
<td>1.85</td>
<td>2.17</td>
<td>1.96</td>
<td>0.95</td>
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<tr>
<td>MSe</td>
<td>1.77</td>
<td>1.28</td>
<td>1.73</td>
<td>1</td>
<td>0</td>
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<tr>
<td>CV</td>
<td>19.72</td>
<td>14.80</td>
<td>18.47</td>
<td>12.00</td>
<td>5.00</td>
</tr>
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</tbody>
</table>
In Pictures

Maize training and field data recording at Balochistan
Exploring the potential of maize on the mountains and hills of AJK
Unlocking the untapped potential of maize in Sindh (14 t/ha)
GB to get new white maize varieties soon
Interactions with farmers and researchers in KP and Punjab
Enhancing local capacity

- AIP MWG meetings
- First national maize workshop
- Maize breeding and seed production training
- Maize travelling seminar
- 12th Asia maize conference
- Synergies with HTMA, CRP…
- Collaboration with Ag. Univ.
- SGA and equipment
- Data analyzed and shared
In figures

- 692 Training/knowledge share
- >800 Diverse maize germplasm tested
- 138 Women participation
In figures

108 Set of trials

45 Maize varieties at NUYT

19 NARS (seed companies...)

[Image of people in a maize field]
We still need to address

- Further market opportunity for maize farmers
- Availability of DH facilities
- Issue of aflatoxin
- Issues related to seed law and enforcement (variety protection)
- Monitoring grain quality of biofortified maize
- Maize agronomy and technologies for sustainable intensification
- Issue with post harvest loss
- How to deal with limited funding
PPP under AIP maize

DAG-GB
DAG-AJK
DAG-Balochistan
UAP
Bahut Shukriya !!