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Enhancing the yield effect in pearl millet and sorghum and disseminating the technology in West Africa

Case of Maradi, Niger

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Seedball journey so far...

• scientifically reviewed as a potential tool for Sahelian peasants
• developed and optimised for pearl millet and sorghum
• unveiled the yield enhancement mechanisms + several publications
• yet to find a solution for mechanised seedball production
  - open to effective, affordable and sustainable ideas...
• out-scaled in strategic regions of Niger
• currently undergoing socio-economic evaluations
Seedball testimonies

• several field trials by the local farmers?
• Seedball trial by soil, gender, location, sow time, etc
• seedball application with other management practices
• lessons from seedball interactive training sessions
• yield assessment in both pearl millet and sorghum
• suggestions from the farmers?
### Combined effect of seedball + other strategies

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Yield (kg ha(^{-1}))</th>
<th>CV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay + sand + NPK</td>
<td>631</td>
<td>87</td>
</tr>
<tr>
<td>Manure + clay</td>
<td>703</td>
<td>76</td>
</tr>
<tr>
<td>Manure + liquid loda</td>
<td>592</td>
<td>97</td>
</tr>
<tr>
<td>Sand + liquid loda + ash</td>
<td>832</td>
<td>69</td>
</tr>
<tr>
<td>Sand + powder loda + NPK</td>
<td>681</td>
<td>70</td>
</tr>
</tbody>
</table>

➢ higher nutrient supply leads to better seedlings performance
Combined effect of seedball - recent field trials results

**Results**

- consistency in panicle enhancement
- higher nutrient supply = better panicle yield
- note the high error margins; field trial effect

*SbA = Woodash Seedball; OM = Organic manure; M = Mineral fertiliser*
Seedball scaling activities

• three different regions
• 4 cardinal axis – north, south, east, west
• different farmers federations + villages
• at least 10 producers per village
• gender balanced; male and female

<table>
<thead>
<tr>
<th>Region</th>
<th>Federation</th>
<th>Village</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maradi</td>
<td>FUMA</td>
<td>94</td>
<td>525</td>
<td>438</td>
</tr>
<tr>
<td>Dosso</td>
<td>Mooriben</td>
<td>15</td>
<td>105</td>
<td>45</td>
</tr>
<tr>
<td>Tillabery</td>
<td>Mooriben</td>
<td>15</td>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2</td>
<td>124</td>
<td>543</td>
</tr>
</tbody>
</table>

Both training and distribution were successful
Seedball scaling activities - *seedball caravan*

• all about seedball technology dissemination

• explained seedball to peasants application + benefits

• randomized seedball technology testing by men + women

• informal farmer extension visit; farmer to farmer discussion

• presented FUMA GASKIYA to all interested farmers

• exchanged contacts for future clarifications where needed

Sensitized over 1,000 farmers in different regions
Agro-sociology

Aim

• organizational set-up + procedures to qualify advisors for seedball training towards sustainable agriculture

Objectives

• to recall past participatory training activities and promote seedball technology in Maradi, Niger
• to review, analyse and reflect on trainers and trainees’ experiences (self-assessment and reflection)
• to achieve conceptualization in view of transformative learning options
### Agro-sociology – preliminary results

<table>
<thead>
<tr>
<th>Highlights of training</th>
<th>Limitations of training</th>
<th>Consequences on future trainings</th>
</tr>
</thead>
<tbody>
<tr>
<td>• training by group***</td>
<td>• certificate after each course</td>
<td>• group training must be maintained</td>
</tr>
<tr>
<td>• participatory approach***</td>
<td>• insufficient number of training days</td>
<td>• issuing of attestation after each training course</td>
</tr>
<tr>
<td>• collaboration between facilitators and producers**</td>
<td>• insufficient follow-up training</td>
<td>• increase the number of training days</td>
</tr>
<tr>
<td>• local transmission language**</td>
<td>• insufficient trainers</td>
<td>• carry out regular follow-ups of trainers.</td>
</tr>
<tr>
<td>• applied methods</td>
<td></td>
<td>• increase the number of trainers</td>
</tr>
<tr>
<td>• organizational skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• sharing experience**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The more the stars, the higher the level of emphasis*
What next?

• continue with investigation of new products for seedball preparation
• monitoring of farmers’ innovation
• training of new farmers on seedball production and application
• seedball caravan continuation as a scaling means
• more impact studies + localized mechanization of seedball
• transfer of seedball to small-sized grains; which grains?
General conclusions

• seedball application is an affordable millet and sorghum yield enhancement option
• local farmers can apply the technology independently
• it is possible to combine seedball with other fertilisation strategies
• more work is needed on seedball technology mechanization
• transferring seedball to other small-sized grains might benefit the local farmers
Acknowledgement

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