### Priority targets for crop improvement: Sub-Saharan Africa

<table>
<thead>
<tr>
<th>Crops</th>
<th>Area harvested (Million ha)</th>
<th>2005 yield (t/ha)</th>
<th>Yield gap (percent)</th>
<th>2008 yield (t/ha)</th>
<th>Yield gain potential by countering biotic stresses (Percent)</th>
<th>Yield gain potential by countering abiotic stresses (Percent)</th>
<th>Post-harvest pests</th>
<th>Drought</th>
<th>Soil nutrients</th>
<th>Total calories, 2007 (Billion kcal per year)</th>
<th>2005 Value of production, 2005-2030 (Billion $USD)</th>
<th>Projected growth, 2005-2030 (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cereals</strong></td>
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</tr>
<tr>
<td>Maize</td>
<td>24.9</td>
<td>1.3</td>
<td>216%</td>
<td>1.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>85,147</td>
<td>$3.7</td>
<td>126.9%</td>
</tr>
<tr>
<td>Rice</td>
<td>8.5</td>
<td>1.7</td>
<td>197%</td>
<td>1.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50,669</td>
<td>$2.8</td>
<td>102.6%</td>
</tr>
<tr>
<td>Sorghum</td>
<td>27.1</td>
<td>0.8</td>
<td>326%</td>
<td>0.9</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>49,052</td>
<td>$2.6</td>
<td>157.7%</td>
</tr>
<tr>
<td>Millet</td>
<td>21.2</td>
<td>0.8</td>
<td>335%</td>
<td>0.8</td>
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<td></td>
<td></td>
<td></td>
<td>35,600</td>
<td>$2.6</td>
<td>128.5%</td>
</tr>
<tr>
<td>Wheat</td>
<td>2.1</td>
<td>1.7</td>
<td>230%</td>
<td>1.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>41,121</td>
<td>$0.6</td>
<td>194.0%</td>
</tr>
<tr>
<td><strong>Roots &amp; Tubers</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Cassava</td>
<td>12.0</td>
<td>9.5</td>
<td>64%</td>
<td>9.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>67,285</td>
<td>$7.7</td>
<td>67.4%</td>
</tr>
<tr>
<td>Sweet potatoes</td>
<td>3.3</td>
<td>4.3</td>
<td>67%</td>
<td>4.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10,917</td>
<td>$1.3</td>
<td>82.3%</td>
</tr>
<tr>
<td>Yams</td>
<td>4.6</td>
<td>10.8</td>
<td>40%</td>
<td>10.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>19,853</td>
<td>$9.0</td>
<td>82.3%</td>
</tr>
<tr>
<td><strong>Legumes</strong></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Groundnuts</td>
<td>9.3</td>
<td>1.0</td>
<td>192%</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9,831</td>
<td>$4.0</td>
<td>62.2%</td>
</tr>
<tr>
<td>Beans</td>
<td>5.6</td>
<td>0.6</td>
<td>267%</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8,792</td>
<td>$1.3</td>
<td>47.1%</td>
</tr>
<tr>
<td>Cow peas</td>
<td>10.8</td>
<td>0.4</td>
<td>220%</td>
<td>0.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15,574</td>
<td>$1.2</td>
<td>47.1%</td>
</tr>
<tr>
<td>Chick peas</td>
<td>0.4</td>
<td>0.8</td>
<td>220%</td>
<td>0.8</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pigeon peas</td>
<td>0.5</td>
<td>0.6</td>
<td>220%</td>
<td>0.7</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Lentils</td>
<td>0.1</td>
<td>0.7</td>
<td>220%</td>
<td>0.8</td>
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<td></td>
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<tr>
<td>Other crops</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Plantain/banana</td>
<td>5.7</td>
<td>5.5 / 6.7</td>
<td>28%</td>
<td>5.6 / 7.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13,964 / 4,104</td>
<td>$5.1 / $1.2</td>
<td>96.7%</td>
</tr>
</tbody>
</table>

**Data Sources:**

**Countries:**
## Priority targets for crop improvement: South Asia (Bangladesh & India)

### Cereals
- **Maize**
  - Area harvested: 8.1 million ha
  - 2005 yield: 2.0 t/ha
  - Yield gap: 193%
  - 2008 yield: 2.2 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: 20,568 billion kcal per year
  - 2005 Value of production: $1.7 billion
  - Projected growth, 2005-2030: 162.7%

- **Rice**
  - Area harvested: 54.7 million ha
  - 2005 yield: 3.3 t/ha
  - Yield gap: 152%
  - 2008 yield: 3.4 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: 383,359 billion kcal per year
  - 2005 Value of production: $34.5 billion
  - Projected growth, 2005-2030: 42.6%

- **Sorghum**
  - Area harvested: 8.5 million ha
  - 2005 yield: 0.8 t/ha
  - Yield gap: 233%
  - 2008 yield: 0.9 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: 21,035 billion kcal per year
  - 2005 Value of production: $0.8 billion
  - Projected growth, 2005-2030: 132.1%

- **Millet**
  - Area harvested: 11.9 million ha
  - 2005 yield: 0.9 t/ha
  - Yield gap: 106%
  - 2008 yield: 0.9 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: 31,031 billion kcal per year
  - 2005 Value of production: $1.7 billion
  - Projected growth, 2005-2030: 46.1%

- **Wheat**
  - Area harvested: 27.6 million ha
  - 2005 yield: 2.6 t/ha
  - Yield gap: 211%
  - 2008 yield: 2.7 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: 21,439 billion kcal per year
  - 2005 Value of production: $10.8 billion
  - Projected growth, 2005-2030: 59.3%

### Roots & Tubers
- **Cassava**
  - Area harvested: 0.3 million ha
  - 2005 yield: 30.5 t/ha
  - Yield gap: 50%
  - 2008 yield: 32.1 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: 6,192 billion kcal per year
  - 2005 Value of production: $0.5 billion
  - Projected growth, 2005-2030: 54.1%

- **Sweet potatoes**
  - Area harvested: 0.2 million ha
  - 2005 yield: 8.9 t/ha
  - Yield gap: 179%
  - 2008 yield: 8.9 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: 1,260 billion kcal per year
  - 2005 Value of production: $0.1 billion
  - Projected growth, 2005-2030: 58.0%

- **Yams**
  - Area harvested: ----
  - Yell gap: ----
  - Yield gap: ----
  - 2008 yield: ----
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: ----

### Legumes
- **Groundnuts**
  - Area harvested: 6.2 million ha
  - 2005 yield: 1.2 t/ha
  - Yield gap: 147%
  - 2008 yield: 1.2 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: 2,470 billion kcal per year
  - 2005 Value of production: $3.0 billion
  - Projected growth, 2005-2030: 19.7%

- **Beans**
  - Area harvested: 8.7 million ha
  - 2005 yield: 0.3 t/ha
  - Yield gap: 290%
  - 2008 yield: 0.4 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: 10,705 billion kcal per year
  - 2005 Value of production: $1.3 billion
  - Projected growth, 2005-2030: 10.9%

- **Cow peas**
  - Area harvested: ----
  - Yield gap: ----
  - Yield gap: ----
  - 2008 yield: ----
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: ----

- **Chick peas**
  - Area harvested: 7.2 million ha
  - 2005 yield: 0.8 t/ha
  - Yield gap: 48%
  - 2008 yield: 0.8 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: ----

- **Pigeon peas**
  - Area harvested: 3.6 million ha
  - 2005 yield: 0.7 t/ha
  - Yield gap: 109%
  - 2008 yield: 0.7 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: ----

- **Lentils**
  - Area harvested: 1.6 million ha
  - 2005 yield: 0.7 t/ha
  - Yield gap: 79%
  - 2008 yield: 0.7 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: ----

### Other crops
- **Banana/Plantain**
  - Area harvested: 0.7 million ha
  - 2005 yield: 31.7 t/ha
  - Yield gap: 202%
  - 2008 yield: 33.9 t/ha
  - Insects: >60%
  - Viruses: 45-60%
  - Fungi: 0-15%
  - Bacteria: 30-45%
  - Soil: 15-30%
  - Total calories, 2007: 11,114 billion kcal per year
  - 2005 Value of production: $2.6 billion
  - Projected growth, 2005-2030: 87.0%

### Data Sources:
- Harvested area (thousands of hectares) and yield (metric tonnes per hectare) from FAOSTAT data, 2005 and average 2006-2008.
- Yield gains from addressing biotic and abiotic stressors from a series of papers by Waddington, Dixon et al. and are rough approximations.
- Total calories (billion kilocalories per year) from FAOSTAT data on food supply (kcal/capita/day) and population, average 2005-2007.
- Value of Production and projected increases in market demand from IMPACT model estimates projecting market growth from 2005-2030.

### Countries:
- Bangladesh, India.

**Note:** Some of the baseline 2005 yield estimates used in calculating the yield gap appear inconsistent with published FAO yield data for 2005. This is especially the case for bananas and cassava. Hence the yield gap estimates for these crops should be treated with caution. Data on biotic and abiotic stressors for millet, sweet potato, groundnut and banana were not found for South Asia; SSA estimates are above.