Domestic production

Import

Figure S1. Demand and supply of wheat in Ethiopia (2000-2016)

*Source: FAOSTAT, 2018*

Table S1: Comparison of farmer reported and genotyping verified varietal match across categories of seed sources

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Year of release | All seed sources combined | | Informal seed sources\*\* | | Formal seed sources\*\*\* | |
| Wheat varieties | No. genotyped plots^ | % plot match with farmer reported | No. genotyped plots^ | % plot match with farmer reported | No. genotyped plots^ | % plot match with farmer reported |
| Kakaba | 2010 | 1019 | 35.4 | 619 | 33.0 | 386 | 40.4 |
| Kubsa | 1994 | 488 | 18.0 | 384 | 19.0 | 103 | 14.6 |
| Danda'aa | 2010 | 375 | 31.7 | 254 | 29.1 | 114 | 39.5 |
| Digalu | 2005 | 302 | 57.0 | 225 | 58.7 | 66 | 60.6 |
| Bobicho | 2002 | 218 | 0.0 | 179 | 0.0 | 37 | 0.0 |
| Galema | 1995 | 187 | 1.6 | 157 | 0.0 | 23 | 13.0 |
| Hidasie | 2012 | 114 | 55.3 | 56 | 42.9 | 58 | 67.2 |
| Ogolcho | 2012 | 97 | 69.1 | 40 | 60.0 | 56 | 76.8 |
| Arendeto | 1966 | 94 | 0.0 | 82 | 0.0 | 8 | 0.0 |
| Pavon-76 | 1982 | 92 | 32.6 | 71 | 26.8 | 21 | 52.4 |
| Simba | 1999 | 69 | 4.3 | 49 | 4.1 | 17 | 5.9 |
| Hawi | 1999 | 62 | 9.7 | 38 | 15.8 | 23 | 0.0 |
| Shorima | 2011 | 45 | 31.1 | 23 | 26.1 | 21 | 38.1 |
| Tusie | 1997 | 35 | 68.6 | 24 | 75.0 | 11 | 54.5 |
| Hulluka | 2012 | 33 | 27.3 | 25 | 28.0 | 7 | 28.6 |
| Sirbo | 2001 | 30 | 0.0 | 0 | 0.0 | 7 | 0.0 |
| Dereselign | 1974 | 30 | 0.0 | 28 | 0.0 | 2 | 0.0 |
| K6294A | 1980 | 30 | 6.7 | 24 | 8.3 | 3 | 0.0 |
| Mada walabu | 1999 | 27 | 70.4 | 26 | 73.1 | 1 | 0.0 |
| ET-13 | 1981 | 24 | 4.2 | 23 | 4.3 | 1 | 0.0 |
| Bolo | 2009 | 23 | 0.0 | 19 | 0.0 | 2 | 0.0 |
| Gambo | 2011 | 22 | 0.0 | 18 | 0.0 | 4 | 0.0 |
| Enkoy | 1974 | 18 | 11.1 | 16 | 12.5 | 2 | 0.0 |
| Other\* |  | 109 | 5.5 | 117 | 5.1 | 11 | 0.0 |
| Unclassified |  | 228 | - | 207 | - | 16 | - |
| **Total** |  | **3771** | **26.2** | **2704** | **22.9** | **1000** | **36.9** |

\* Other: for detail look at the annex

\*\* Formal seed source= own saved, traders/market, other farmers; \*\*\* Formal source: Seed company and cooperatives

^The number of plots with genotyping verified varieties

*Source: CIMMYT/EIAR/CSA Survey 2016/17*

Figure S2. Extent of match between farmer reported and genotyping verified varieties: Comparison based on formal seed sources used by sample farmers (for top 14 varieties)

*Source: CIMMYT/EIAR/CSA Survey 2016/17*

Table S2: Specific seed source of the wheat varieties verified by genotyping

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Wheat varieties** | **No. Genotypingverified plots** | **Seed source (%)** | | | | |
| **Cooperatives** | **Seed company** | **Other known farmers** | **Market/ traders** | **Own saved** |
| Kakaba | 1005 | 33.0 | 5.4 | 20.0 | 14.8 | 26.8 |
| Kubsa | 487 | 19.3 | 1.8 | 26.3 | 19.9 | 32.6 |
| Danda'aa | 368 | 24.2 | 6.8 | 30.4 | 10.9 | 27.7 |
| Digalu | 291 | 19.2 | 3.4 | 32.6 | 22.7 | 22.0 |
| Bobicho | 216 | 13.0 | 4.2 | 28.2 | 20.4 | 34.3 |
| Galema | 180 | 12.8 | 0.0 | 22.8 | 18.9 | 45.6 |
| Hidasie | 114 | 43.0 | 7.9 | 23.7 | 10.5 | 14.9 |
| Ogolcho | 96 | 31.3 | 27.1 | 18.8 | 6.3 | 16.7 |
| Pavon-76\_Tossa | 92 | 18.5 | 4.3 | 29.3 | 13.0 | 34.8 |
| Arendeto | 90 | 7.8 | 1.1 | 27.8 | 17.8 | 45.6 |
| Simba | 66 | 21.2 | 4.5 | 31.8 | 16.7 | 25.8 |
| Hawi | 61 | 26.2 | 11.5 | 23.0 | 11.5 | 27.9 |
| Shorima | 44 | 29.5 | 18.2 | 13.6 | 15.9 | 22.7 |
| Tusie | 35 | 22.9 | 8.6 | 34.3 | 11.4 | 22.9 |
| Hulluka | 32 | 21.9 | 0.0 | 28.1 | 12.5 | 37.5 |
| Dereselign | 30 | 3.3 | 3.3 | 20.0 | 13.3 | 60.0 |
| Sirbo | 29 | 17.2 | 6.9 | 24.1 | 6.9 | 44.8 |
| K6294A | 27 | 7.4 | 3.7 | 22.2 | 18.5 | 48.1 |
| Mada walabu | 27 | 0.0 | 3.7 | 22.2 | 33.3 | 40.7 |
| ET-13 | 24 | 4.2 | 0.0 | 33.3 | 12.5 | 50.0 |
| Gambo | 22 | 18.2 | 0.0 | 18.2 | 27.3 | 36.4 |
| Bolo | 21 | 9.5 | 0.0 | 28.6 | 28.6 | 33.3 |
| Enkoy | 18 | 11.1 | 0.0 | 33.3 | 16.7 | 38.9 |
| Senkegna | 15 | 13.3 | 0.0 | 26.7 | 13.3 | 46.7 |
| K629 BULK | 13 | 0.0 | 7.7 | 30.8 | 7.7 | 53.8 |
| Katar | 13 | 7.7 | 0.0 | 23.1 | 23.1 | 46.2 |
| Abola | 10 | 0.0 | 10.0 | 30.0 | 30.0 | 30.0 |
| K6295-4a | 10 | 0.0 | 10.0 | 20.0 | 20.0 | 50.0 |
| Sofumar | 8 | 0.0 | 0.0 | 37.5 | 0.0 | 62.5 |
| Dashen | 7 | 0.0 | 0.0 | 0.0 | 71.4 | 28.6 |
| Lasta | 6 | 0.0 | 0.0 | 33.3 | 0.0 | 66.7 |
| Dambal | 4 | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 |
| Mitike | 3 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| Lemu | 2 | 50.0 | 0.0 | 0.0 | 50.0 | 0.0 |
| Mangudo | 2 | 0.0 | 0.0 | 50.0 | 0.0 | 50.0 |
| Tate | 2 | 50.0 | 0.0 | 50.0 | 0.0 | 0.0 |
| Yerer | 2 | 0.0 | 0.0 | 50.0 | 0.0 | 50.0 |
| Biqa | 1 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| Ejersa | 1 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Guna | 1 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 |
| Kingbird | 1 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Kulkulu | 1 | 0.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| Lakech | 1 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Mekelle-02 | 1 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 |
| Tay | 1 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| Werer-2 | 1 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 |
| not classified | 223 | 5.8 | 1.3 | 29.6 | 15.2 | 48.0 |
| Total | 3704 | 22.2 | 4.8 | 25.4 | 16.3 | 31.4 |

*Source: CIMMYT/EIAR/CSA Survey 2016/17*

Figure S3. Frequency of replacing wheat cultivar into fresh seed

*Source: CIMMYT/EIAR/CSA Survey 2016/17*

Figure S4. Distribution of farmers by age of the varieties currently grown

*Source: CIMMYT/EIAR/CSA Survey 2016/17*

Figure S5. Relationship between yield and farmer reported varietal age (unweighted)

*Source: CIMMYT/EIAR/CSA Survey 2016/17*

Note: The zones are shown under the regional states (Tigray, Amhara, Oromia, or SNNP) to which they belong

Figure S6. Wheat varietal age at zonal level based on farmer reports and genotyping result

*Source: CIMMYT/EIAR/CSA Survey 2016/17*

Table S3: Comparison of area covered by cultivated wheat varieties based on farmer reports and genotyping

|  |  |  |  |
| --- | --- | --- | --- |
| Wheat varieties | Area covered | | Proportion (%) of area (B/A) |
| Genotyping (A) | Farmer reports (B) |
| KAKABA | 183.06 | 108.03 | 59.0 |
| KUBSA | 86.55 | 40.34 | 46.6 |
| DANDA'AA | 65.69 | 54.72 | 83.3 |
| DIGALU | 69.66 | 63.79 | 91.6 |
| BOBICHO | 32.43 | 0.00 | 0.0 |
| GALEMA | 39.23 | 3.77 | 9.6 |
| HIDASIE | 20.07 | 20.98 | 104.5 |
| OGOLCHO | 18.76 | 17.49 | 93.2 |
| ARENDATO | 15.05 | 0.00 | 0.0 |
| PAVON-76 | 24.06 | 10.95 | 45.5 |
| SIMBA | 13.14 | 1.25 | 9.5 |
| HAWI | 13.58 | 10.80 | 79.6 |
| SHORIMA | 5.08 | 3.72 | 73.2 |
| TUSIE | 11.35 | 10.61 | 93.5 |
| HULLUKA | 7.83 | 7.68 | 98.1 |
| SIRBO | 7.39 | 0.00 | 0.0 |
| DERESELIGN | 4.52 | 0.00 | 0.0 |
| K6294A | 3.88 | 1.16 | 29.8 |
| MADA-WALABU | 6.93 | 10.32 | 148.8 |
| ET-13 | 4.02 | 0.16 | 3.9 |
| BOLO | 5.60 | 0.00 | 0.0 |
| GAMBO | 4.64 | 0.00 | 0.0 |
| ENKOY | 3.90 | 2.37 | 60.7 |
| Other\* | 28.51 | 334.47 | - |
| Unclassified | 34.62 | - | - |
| Total | 709.52 | 702.59 | - |

\*The remaining 23 varieties combined

*Source: CIMMYT/EIAR/CSA Survey 2016/17*