Data Article

Average crop yield (2001–2017) in Ethiopia: Trends at national, regional and zonal levels

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A B S T R A C T

This article presents average agricultural yield data per hectare for key cereal, legume and root crops from 2001 until 2017. Data was obtained from the annual Agricultural Sample Surveys of the Central Statistics Agency (CSA) of Ethiopia. We present data at national, regional (SNNPRS) and zonal (Wolaita) levels. The data shows that average yields for all crops, at all levels, show increasing trends during the time period. Data for the main cereal crops is consistent and aligns with literature relatively well, however we raise questions about the root crop data in an effort to encourage greater critical reflection of components of data from the CSA.

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Specification Table

Subject area    Agriculture
More specific subject area    Crop yield data
Type of data    Figures and tables
How data was acquired    Data were obtained from the annual Agricultural Sample Surveys of the Central Statistics Agency of Ethiopia.
Data format    Analyzed

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Experimental factors

Data used in this article were obtained from the Central Statistics Agency of Ethiopia, with reference to available literature.

Experimental features

Tables and graphic trends of analysis were employed.

Data source location

Ethiopia

Data accessibility

The data are with this article.

Value of the data

- Average agricultural data are presented for key cereal, legume and root crops from 2001 to 2017.
- The data can be used by researchers and policy makers to analyze the implications of agriculture products on food security and poverty reduction.
- Average yields for all crops, at all levels, show increasing trends, with cereals doing so progressively and root crops increasing rapidly in recent years.
- Based upon some components of the governmental data, questions are raised about accuracy, encouraging researchers to be more critical when utilizing these data sets.

1. Data

The figures and tables of agricultural data were obtained from the annual Agricultural Sample Surveys of the Central Statistics Agency (CSA) [1–13], covering the time period of 2001 until 2017. The CSA is the only provider of data at this scale. Average yields for all crops, at all levels, show increasing trends, with cereals doing so progressively and root crops increasing rapidly in recent years (Figs. 1–5). All the data is presented on a year-by-year basis in Tables 1–3, enabling ease of re-analysis. However, there are general concerns about the quality, methodologies, and politicization of data produced by central statistics agencies [14]. We present data at national, regional (Southern Nations, Nationalities and Peoples’ regional state; SNNPRS) and zonal (Wolaita) scales. The data for the major cereals (teff and maize) is relatively consistent with the literature, whereas the shifts as well as contrasts with the literature in root crops raise questions about components of the agricultural data. For example,

1) In the 2012/13 season yields per hectare of taro and sweet potato tripled, according to CSA personnel this was due to methodological changes (Tables 4–5) [15];

![Fig. 1. National, Regional and Zonal Average Teff Yield (Qt per Ha).](image-url)
Fig. 2. National, Regional and Zonal Average Maize Yield (Qt per Ha).

Fig. 3. National, Regional and Zonal Average Haricot Bean (Qt per Ha).

Fig. 4. National, Regional and Zonal Average Taro Yield (Qt per Ha).
Table 1
Ethiopia Yields by Crop (Qt per Ha).

| Year   | Crop          | Yield |
|--------|---------------|-------|
| 2001/02| Teff          | 8.95  |
| 2003/04| Teff          | 8.43  |
| 2004/05| Teff          | 9.48  |
| 2005/06| Teff          | 9.69  |
| 2006/07| Teff          | 10.14 |
| 2007/08| Teff          | 11.67 |
| 2008/09| Teff          | 12.2  |
| 2009/10| Teff          | 12.28 |
| 2010/11| Teff          | 12.62 |
| 2011/12| Teff          | 12.81 |
| 2012/13| Teff          | 13.79 |
| 2013/14| Teff          | 14.65 |
| 2014/15| Teff          | 15.75 |
| 2015/16| Teff          | 15.60 |
| 2001/02| Maize         | 21.16 |
| 2003/04| Maize         | 18.6  |
| 2004/05| Maize         | 17.19 |
| 2005/06| Maize         | 21.87 |
| 2006/07| Maize         | 22.29 |
| 2007/08| Maize         | 21.22 |
| 2008/09| Maize         | 22.24 |
| 2009/10| Maize         | 21.99 |
| 2010/11| Maize         | 25.4  |
| 2011/12| Maize         | 29.54 |
| 2012/13| Maize         | 30.59 |
| 2013/14| Maize         | 32.54 |
| 2014/15| Maize         | 34.31 |
| 2015/16| Maize         | 33.87 |
| 2001/02| Haricot Beans | 8.23  |
| 2003/04| Haricot Beans | 9.37  |
| 2004/05| Haricot Beans | 8.61  |
| 2005/06| Haricot Beans | 8.46  |
| 2006/07| Haricot Beans | 9.97  |
| 2007/08| Haricot Beans | 10.43 |
| 2008/09| Haricot Beans | 12.35 |
| 2009/10| Haricot Beans | 14.87 |
| 2010/11| Haricot Beans | 14.34 |
| 2011/12| Haricot Beans | 11.69 |
| 2012/13| Haricot Beans | 12.62 |
### Table 1 (continued)

| Year     | Crop            | Yield  |
|----------|-----------------|--------|
| 2013/14  | Haricot Beans   | 14.15<sup>a</sup> |
| 2014/15  | Haricot Beans   | 15.92<sup>a</sup> |
| 2015/16  | Haricot Beans   | 14.85<sup>a</sup> |
| 2001/02  | Taro            | 79.93  |
| 2003/04  | Taro            | 78.39  |
| 2004/05  | Taro            | 79.69  |
| 2005/06  | Taro            | 68.50  |
| 2006/07  | Taro            | 77.43  |
| 2007/08  | Taro            | 75.29  |
| 2008/09  | Taro            | 75.45  |
| 2009/10  | Taro            | 77.78  |
| 2010/11  | Taro            | 80.37  |
| 2011/12  | Taro            | 79.41  |
| 2012/13  | Taro            | 270.4  |
| 2013/14  | Taro            | 279.8  |
| 2014/15  | Taro            | 297.81 |
| 2015/16  | Taro            | 249.61 |
| 2001/02  | Sweet Potato    | 99.67  |
| 2003/04  | Sweet Potato    | 105.91 |
| 2004/05  | Sweet Potato    | 99.42  |
| 2005/06  | Sweet Potato    | 81.40  |
| 2006/07  | Sweet Potato    | 73.06  |
| 2007/08  | Sweet Potato    | 84.43  |
| 2008/09  | Sweet Potato    | 79.48  |
| 2009/10  | Sweet Potato    | 84.31  |
| 2010/11  | Sweet Potato    | 90.13  |
| 2011/12  | Sweet Potato    | 76.03  |
| 2012/13  | Sweet Potato    | 284.64 |
| 2013/14  | Sweet Potato    | 334.04 |
| 2014/15  | Sweet Potato    | 456.56 |
| 2015/16  | Sweet Potato    | 334.39 |

<sup>a</sup> CSA began dividing white and red haricot beans in 2013/14, the figures used are an average of the two.

### Table 2

SNNPRS Yields by Crop (Qt per Ha).

| Year     | Crop | Yield |
|----------|------|-------|
| 2003/04  | Teff | 6.54  |
| 2004/05  | Teff | 7.76  |
| 2005/06  | Teff | 7.53  |
| 2006/07  | Teff | 7.80  |
| 2007/08  | Teff | 9.89  |
| 2008/09  | Teff | 10.77 |
| 2009/10  | Teff | 11.88 |
| 2010/11  | Teff | 11.18 |
| 2011/12  | Teff | 11.40 |
| 2012/13  | Teff | 12.43 |
| 2013/14  | Teff | 12.62 |
| 2014/15  | Teff | 13.7  |
| 2015/16  | Teff | 13.08 |
| 2003/04  | Maize| 17.8  |
| 2004/05  | Maize| 15.21 |
| 2005/06  | Maize| 16.27 |
| 2006/07  | Maize| 18.73 |
| 2007/08  | Maize| 17.67 |
2) Data for sweet potato are stable in SNNPRS from 2007 to 2011, but during this period sweet potato virus infection was high, affecting roots, weights and cuttings yet no decline was recorded (Table 5) [16];

3) During the 2007/08 season a higher yielding variety of taro was introduced with high adoption rates but no increase was recorded in the years that followed (Table 4) [15];
Table 3
Wolaita Yields by Crop (Qt per Ha).

| Year     | Crop           | Yield  |
|----------|----------------|--------|
| 2003/04  | Teff           | 5.54   |
| 2004/05  | Teff           | 5.59   |
| 2005/06  | Teff           | 8.43   |
| 2006/07  | Teff           | 8.76   |
| 2007/08  | Teff           | 7.78   |
| 2008/09  | Teff           | 10.33  |
| 2009/10  | Teff           | –      |
| 2010/11  | Teff           | 9.07   |
| 2011/12  | Teff           | 10.60  |
| 2012/13  | Teff           | 11.64  |
| 2013/14  | Teff           | 12.11  |
| 2014/15  | Teff           | 13.14  |
| 2015/16  | Teff           | 13.00  |
| 2003/04  | Maize          | 21.91  |
| 2004/05  | Maize          | 13.08  |
| 2005/06  | Maize          | 18.92  |
| 2006/07  | Maize          | 19.21  |
| 2007/08  | Maize          | –      |
| 2008/09  | Maize          | –      |
| 2009/10  | Maize          | 18.19  |
| 2010/11  | Maize          | 17.09  |
| 2011/12  | Maize          | 24.10  |
| 2012/13  | Maize          | 25.73  |
| 2013/14  | Maize          | 25.24  |
| 2014/15  | Maize          | 26.42  |
| 2015/16  | Maize          | 26.99  |
| 2003/04  | Haricot Beans  | 6.75   |
| 2004/05  | Haricot Beans  | 6.79   |
| 2005/06  | Haricot Beans  | 7.42   |
| 2006/07  | Haricot Beans  | 8.92   |
| 2007/08  | Haricot Beans  | 7.57   |
| 2008/09  | Haricot Beans  | 8.96   |
| 2009/10  | Haricot Beans  | –      |
| 2010/11  | Haricot Beans  | 11.88  |
| 2011/12  | Haricot Beans  | 8.60   |
| 2012/13  | Haricot Beans  | 10.05  |
| 2013/14  | Haricot Beans  | 16.62* |
| 2014/15  | Haricot Beans  | 14.51  |
| 2015/16  | Haricot Beans  | 16.00  |
| 2003/04  | Taro           | 80     |
| 2004/05  | Taro           | 80.00  |
| 2005/06  | Taro           | 84.40  |
| 2006/07  | Taro           | 94.81  |
| 2007/08  | Taro           | 83.84  |
| 2008/09  | Taro           | 83.84  |
| 2009/10  | Taro           | –      |
| 2010/11  | Taro           | 86.06  |
| 2011/12  | Taro           | 86.06  |
| 2012/13  | Taro           | 327    |
| 2013/14  | Taro           | 327    |
| 2014/15  | Taro           | 336.4  |
| 2015/16  | Taro           | 256.4  |
| 2003/04  | Sweet Potato   | 118    |
| 2004/05  | Sweet Potato   | 109.00 |
| 2005/06  | Sweet Potato   | 100.00 |
| 2006/07  | Sweet Potato   | 87.53  |
| 2007/08  | Sweet Potato   | 102.91 |
| 2008/09  | Sweet Potato   | 102.91 |
| 2009/10  | Sweet Potato   | –      |
| 2010/11  | Sweet Potato   | 106.79 |
Alternative surveys of the required scale do not appear feasible or realistic at this time. However, the questions above highlight the need for more research to assess the data provided by central statistics agencies. Often these data sets are utilized without critical reflection about quality, methodology or politicization.

2. Experimental design, materials and methods

Average crop yield data at national, regional (SNNPRS) and zonal (Wolaita) levels (see Map 1) were obtained from the CSA annual Agricultural Sample Surveys. The data is presented using figures to highlight trends and tables to allow for further analyses of the data. We have selected SNNPRS as an example region and Wolaita as an example zone primarily due to our familiarity with the areas respectively, and thus enhancing our ability to identify questions. The objective of raising questions about the agricultural root crop yield data is to encourage researchers to engage with central statistics

| Year   | Crop         | Yield     |
|--------|--------------|-----------|
| 2011/12| Sweet Potato | 106.79    |
| 2012/13| Sweet Potato | 241       |
| 2013/14| Sweet Potato | 364.54    |
| 2014/15| Sweet Potato | 378.66    |
| 2015/16| Sweet Potato | 321.29    |

* CSA began dividing white and red haricot beans in 2013/14, the figures used are an average of the two.

Map 1. National (FDRE), Regional (SNNPRS) and Zonal (Wolaita).
data more critically. This does not suggest that the CSA data is inaccurate; rather it acts an encouragement for CSA data to be a subject of greater study.

**Transparency document. Supplementary material**

Transparency document associated with this article can be found in the online version at http://dx.doi.org/10.1016/j.dib.2017.12.039.

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