Global Organic Cereal Production

agri benchmark Organic

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Introduction

Based on the contributions of its partners, the *agri benchmark* Organic network makes special data on organic farming in various countries available by combining farm-level knowledge with the analysis of international commodity markets and value chains. In this way, unique data sets are created which serve to compare selected commodities across countries.

By comparing the organic cereal production in different countries, the *agri benchmark* Organic data base provides relevant information to experts who want to do research on organic agricultural topics, who aim at strengthening organic farming in their countries, and who want to build up scientific cooperation – a free service based on the agricultural data contributions of the *agri benchmark* Organic network community.

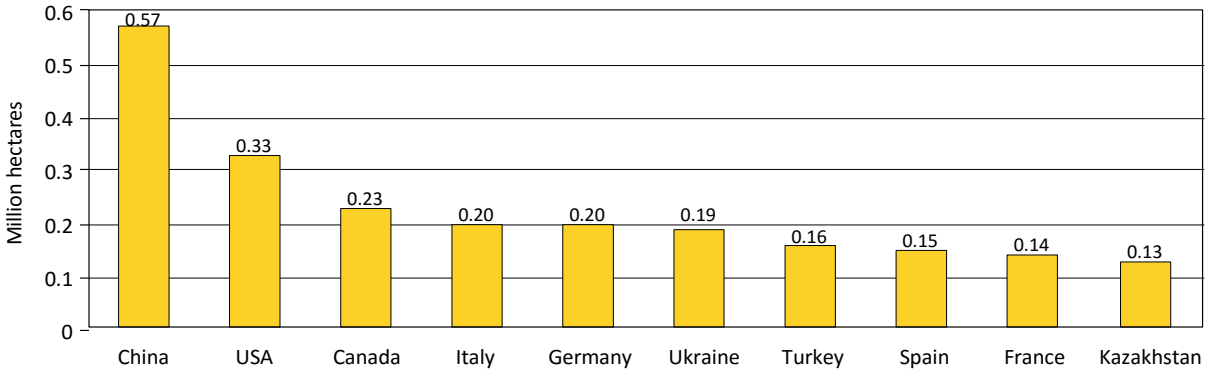
In the following report, the global organic cereal production is researched. A comparison of the organic cereal production in different countries helps to identify and to understand the driving forces of future trends and developments in organic cereal production in selected regions. In this way, scientifically consistent answers to strategic questions can be provided to decision-makers in policy, research and agribusiness.

As an illustrative example, the organic cereal production in the ten key producing countries is compared, as is data from the *agri benchmark* Organic network. Besides data on organic cereal production, this report presents information on the trade flows of organic cereals.

1 Key data on the global organic cereal production

In order to understand the level of organic cereal production worldwide, it is important to look at the global organic cereal area. In 2014, the global organic cereal area amounted to 3.3 million hectares (FiBL&IFOAM 2016: 89). Of the total cereal area, organic cereal areas represented 0.5 % (FiBL&IFOAM 2016: 89). Cereals include wheat, spelt, barley, oats, grain maize, rice, rye, and triticale (FiBL&IFOAM, 2017: 98).

Figure 1.1: The 10 countries with the largest organic cereal areas 2014 in hectares (including in-conversion areas)

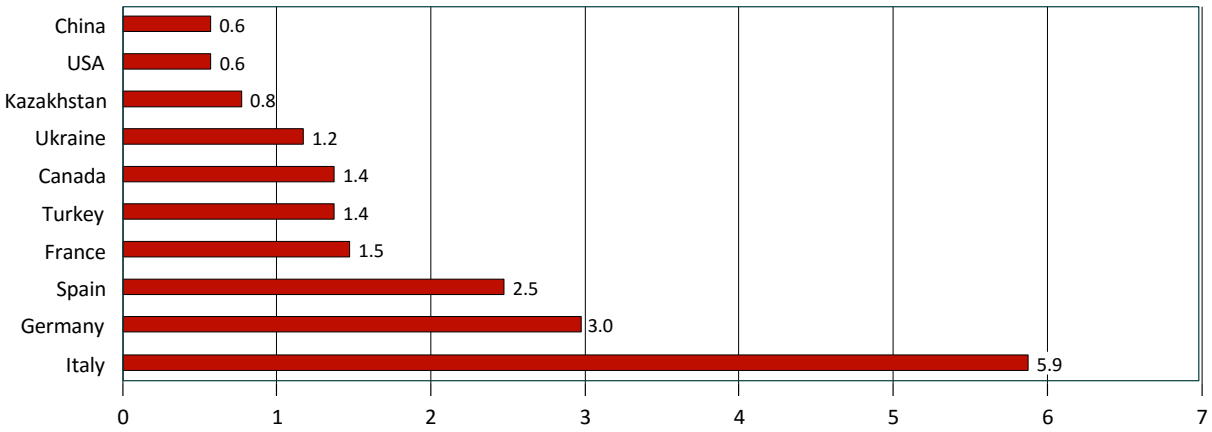


Source: FiBL&IFOAM (2016: 86), own presentation

Figure 1.2 shows the ten countries with the largest organic cereal areas in the year 2014. China with 565,754 hectares cropped by far the largest organic cereal areas in the world. The second largest organic cereal areas were situated in the USA and accounted for 328,474 hectares. All other countries listed in Figure 1.2 have organic cereal areas between 228,844 hectares (Canada) and 130,882 hectares (Kazakhstan) (FiBL&IFOAM 2016). For India, one of the key organic cereal producers, data on organic cereal areas are not available (FiBL&IFOAM 2016: 86, NCOF 2016).

Even though the total acreage under organic production is important, it would be of interest to have a look on the share of organic cereal areas in order to understand the strength of the sector for each country.

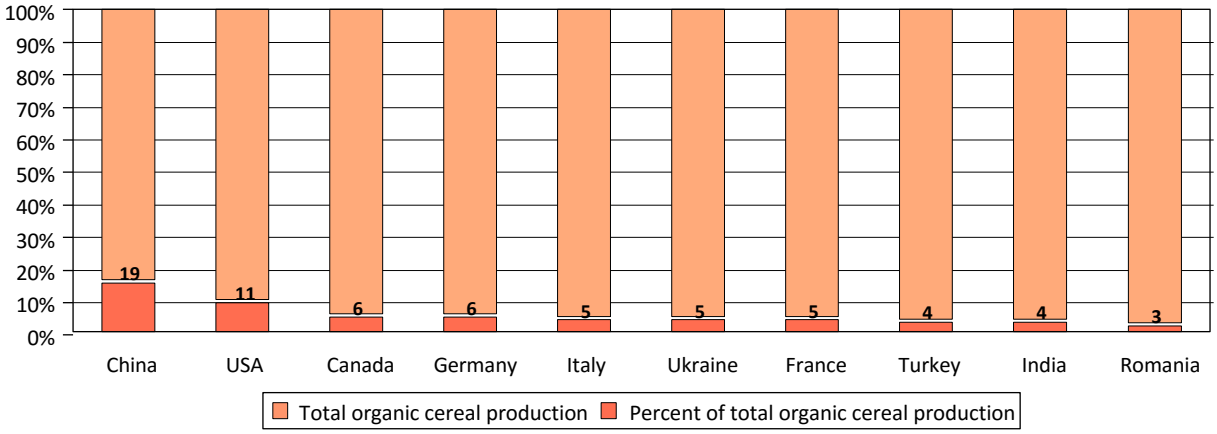
Figure 1.2 10 Countries with the largest organic cereal areas 2014: Organic shares in total cereal areas



Source: FiBL&IFOAM (2016: 88-89), own presentation

Figure 1.2 provides an overview on the shares of organic cereal areas in total cereal areas in the ten countries with the largest organic cereal areas in 2014. From Figure 1.2 it is obvious that the size of the shares in organic cereal areas differs from the size of the total organic cereal area (Figure 1.1). For instance, China as the country with the largest organic cereal area in terms of hectares, has only a share of 0.6 % of organic cereal areas in total cereal areas. The same holds for the country with the second largest organic cereal areas, the USA. Their organic cereal area share amounts up to 0.6 % of the total cereal area, too. Compared with China and the USA, smaller countries such as Germany and Spain crop higher percentages of organic cereal areas (3.0 % and 2.5 % respectively), while Italy has the highest share in organic cereal areas with 5.9 % (Figure 1.2) (FiBL&IFOAM 2016: 88-89).

Figure 1.3: The 10 leading organic cereal producers 2014–2015 in percent

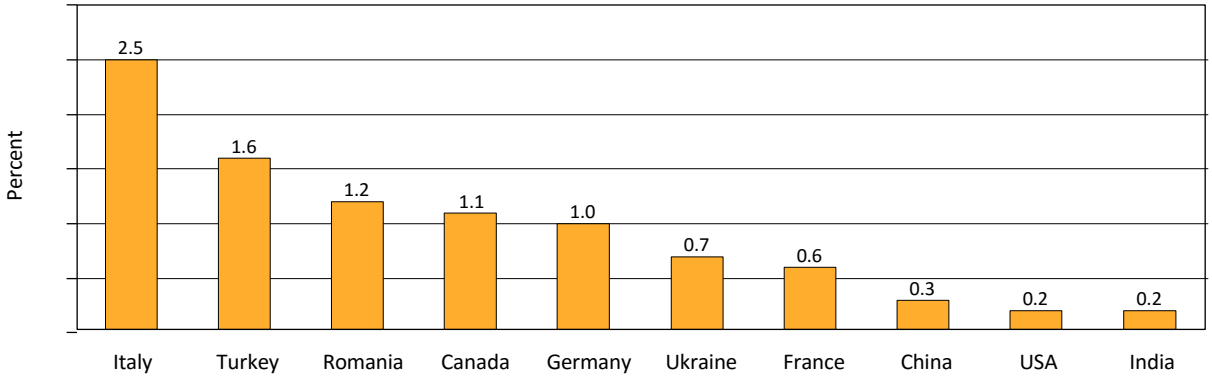


Source: AMI (2016a), Eurostat (2017a), NCOF (2016), Organic World (2017), own calculation. India: organic cereal harvests 2010-2011

Figure 1.3 shows the ten largest organic cereal producers in the production period 2014–2015. China was with 19 % (1,770,839 tonnes) of the total organic cereal production the largest producer of organic cereals worldwide. China was followed by the USA (1,062,418 tonnes) and Canada (577,834 tonnes) (11 and 6 % of the global organic cereal production respectively). The organic cereal production in the European countries Germany (522,470 tonnes), Italy (450,541 tonnes), Ukraine (447,792 tonnes), France (420,798 tonnes) and Romania (253,184 tonnes) amounted up to 24 % of the global organic cereal production altogether. Turkey (395,101 tonnes) and India (348,368 tonnes) each contributed 4 % to the global organic cereal production, whereas organic cereal production data for India were only available for the period 2010–2011. The shares of the ten countries with the highest production shares (Figure 1.3) added up to 67 % of the global organic cereal production in 2014–2015.

2 Comparison organic and conventional cereal production

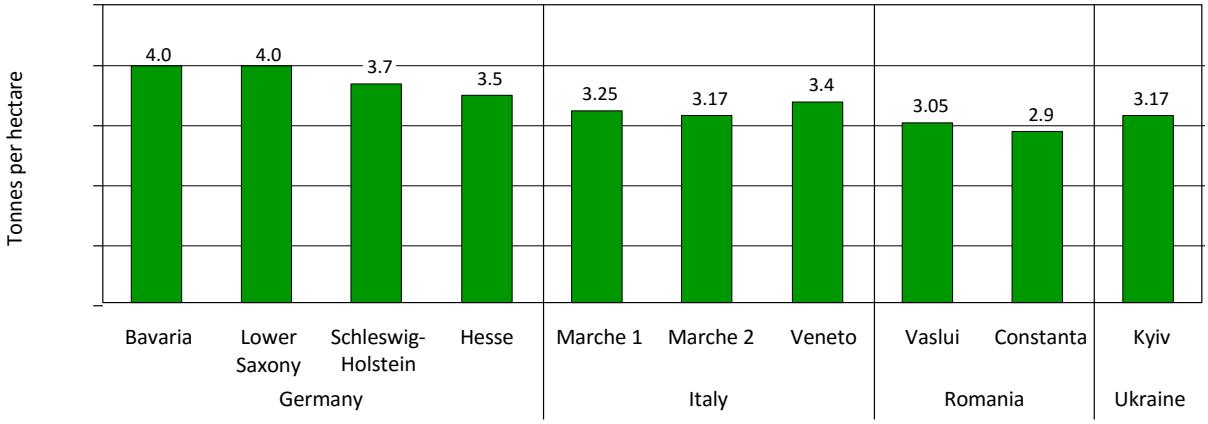
Figure 2.1: Key organic cereal producers: Share of organic in conventional cereal harvests 2014–2015



Source: AMI (2017), Eurostat (2017a), FiBL&IFOAM (2016: 88-89), IGC (2017), NCOF (2016), OW (2017), Proplanta (2014), StatCan (2014), USDA (2011 a), USDA (2015), USDA (2016 d), own calculation

Figure 2.1 provides an overview on the ten key organic cereal production countries and the shares of their organic in conventional cereal harvests in the production period 2014–2015. Italy led the ten countries with a share of 2.5 % organic in conventional cereal harvests and was followed by Turkey with 1.6 %. In the middle range were Romania (1.2 %), Canada (1.1 %), Germany (1.0 %), Ukraine (0.7 %) and France (0.6 %) (Figure 2.1). The two largest organic cereal-producing countries, China and the USA, accounted for the lowest shares of organic cereal harvests in conventional cereal yields (0.3 and 0.2 % respectively, Figure 2.1). India, ranked at place nine, had an organic cereal harvest share of 0.2 %, too (Figure 2.1).

Figure 2.2: Average organic winter wheat yields in tonnes per hectare 2014



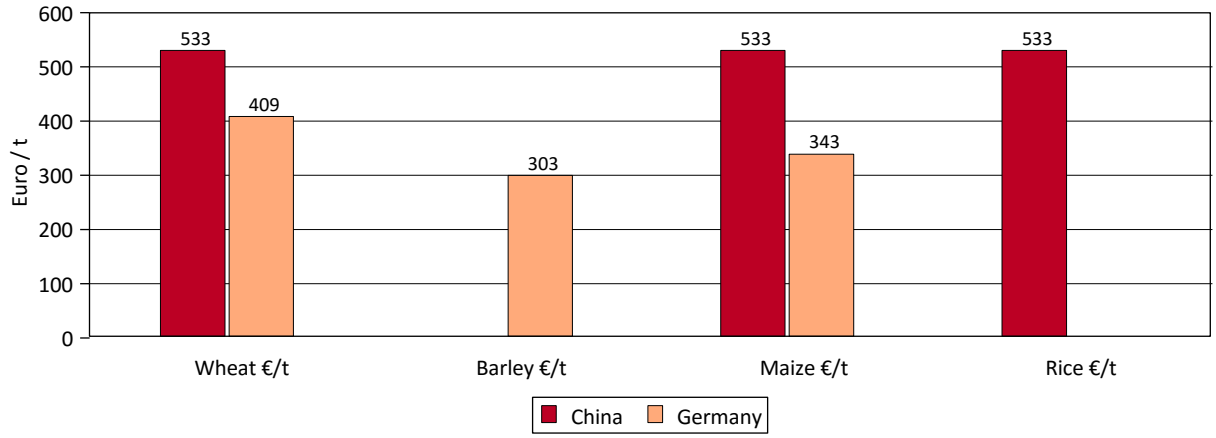
Source: Thünen (2015), own presentation

Figure 2.2 shows the organic cereal yields per hectare in Germany, Italy and Romania which belong to the major organic cereal producing countries, for the production period 2014. Data on the average organic spelt, winter rye and corn (maize) yields in several federal German states are available for the year 2014, too (Thünen 2015). The average spelt yield totalled 3.5 tonnes per hectare in Bavaria, 2.7 tonnes per hectare in Lower Saxony, 3 tonnes per hectare in Schleswig-Holstein and 2.25 tonnes per hectare in Hesse. For winter rye, the average yields were 2.5 in tonnes per hectare in Lower Saxony, 3 in tonnes per hectare in Schleswig Holstein, and 2 in tonnes per hectare in Hesse. The average yields for corn (maize) were as follows: 6.5 tonnes per hectare in Lower Saxony, 7.5 tonnes per hectare in the region of Veneto, Italy; 5.3 tonnes per hectare in the region of Vaslui, Romania; and 6 tonnes per hectare in the region of Vrancea in Romania (Thünen 2015).

This is an example for the type of data that the *agri benchmark* Organic network can create. These data are not available elsewhere. Currently, little information on organic cereal yields per hectare is available because the Organic network is still in its start-up phase and consists only of a small number of partner countries.

3 Farm gate prices

Figure 3.1: Average farm gate prices for organic cereals 2014 in euros per tonne



Source: Thünen (2017), OANDA historical exchange rates 2014

Farm gate prices for organic cereals were with 533 EUR per tonne wheat, maize and rice much higher in China as compared to prices in Germany (Figure 3.1). In Germany, one tonne of organic wheat attained an average price of 409 EUR, organic barley 303 EUR and organic maize 343 EUR respectively (Figure 3.1).

Farm gate prices for organic cereals in the other eight countries with the largest organic cereal areas: USA, Canada, Italy, Ukraine, Turkey, Spain, France and Kazakhstan) were not available.

4 Features of the countries with the largest organic cereal areas

Table 4.1: Features of the countries with the largest organic cereal areas 2014–2015 (including areas in-conversion)

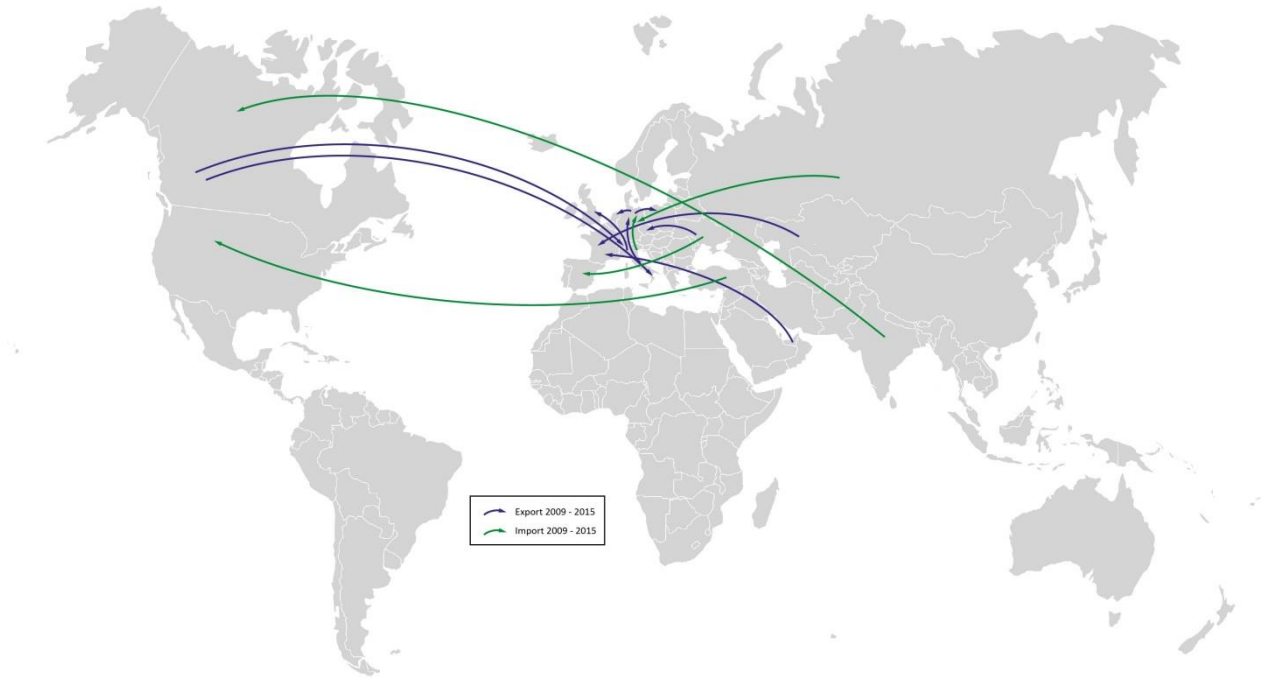
Country	Organic cereal area per ha	Organic area share in %	Organic yield per t	% of global production	Conventional yield per t	Share organic yields in conventional yields in %
China	565754	0.6	1,770,839	19	548,300,000	0.3
USA	328474	0.6	1,062,418	11	432,800,000	0.2
Canada	228855	1.4	577,834	6	51,000,000	1.1
Italy	203685	5.9	450,541	5	18,000,000	2.5
Germany	199000	3	522,470	6	52,000,000	1.0
Ukraine	189467	1.2	447,792	5	63,376,820	0.7
Turkey	159226	1.4	395,101	4	24,600,000	1.6
Spain	154760	2.5	159,571	2	20,141,000	0.8
France	140506	1.5	420,798	5	72,600,000	0.6
Kazakhstan	130882	0.02	330,857	4	16,400,000	2.0

Sources: AMI (2017), Eurostat (2017a), FiBL&IFOAM (2016), IGC (2017), NCOF (2016), OW (2017), Proplanta (2014), StatCan (2014), USDA (2011 a), USDA (2015), USDA (2016 d), own calculation

Figure 4.1 presents details on the organic and the conventional cereal production of the ten countries with the largest organic cereal areas for the production period 2014–2015. In terms of absolute figures, China was the leading organic and conventional cereal producer of the world. If we look at the shares, China's organic cereal area amounted to 0.6 % and the share of organic in conventional yields accounted for 0.3 % (Figure 4.1). Almost the same shares applied to the second largest cereal producer USA with 0.6 and 0.2 % respectively (Figure 4.1). Italy and Germany had the highest shares in organic cereal areas with 5.9 and 3.0 % respectively (Figure 4.1).

5 Trade flows of organic cereals

Map 5.1: Trade flows of organic cereals 2009–2015



Sources: FiBL&IFOAM (2016), Jaenicke, Demko (2015), Kilcher, Willer et al. (2011), Schaack, Rampold et al. (2011), Thünen (2016), UNEP (2015), USDA (2011 b), USDA (2016 a), USDA (2016 c), USDA (2016 f), YES.BANK (2016), ZAUBA (2017)

Map 5.1 summarises information from various sources and illustrates trade flows of organic cereals in the period 2009–2015. They are shown in the form of arrows from one importing or exporting country to another single importer or exporter, even though the trade relationships of one country may be manifold. With regard to exports, Canada, Italy, Kazakhstan, Russia, Spain and the Ukraine were key exporters of organic cereals in the period 2009–2015 (Map 5.1). Some of these countries such as Canada or Italy import organic cereals as well. A similar situation exists in India. The country is self-sufficient with respect to organic cereals and a net exporter of that commodity. However, the country is re-importing processed organic cereal products from their trade partners (ZAUBA 2017).

Although the number of countries involved in international trade flows of organic cereals is limited, some countries reported strong fluctuation and dynamic changes in the import countries. For example, the three leading sources of organic maize in the USA in 2014 (Romania, Turkey and the Netherlands) supplied little or no maize to the USA in 2013 (Jaenicke and Demko 2015). Ukraine – ranked sixth in global land use for organic oilseeds and eighth for organic wheat – has become a main import country of organic cereals for the EU. Organic cereal imports from Ukraine to Germany, for example, were insignificant before 2011, but increased to a share of 25% in total import volume in 2014/15 (AMI 2016b). Changes in trade flows are mainly due to differences in

yields in key production countries, changing political framework conditions and the development of the domestic demand and supply. The latter was the case in Germany where an increase in demand for organic cereals and a slight decrease in domestic production in 2014/15 resulted in growing imports, mainly from Italy, and Central and Eastern European countries.

6 Challenges

A major challenge in collecting data on trade flows of organic commodities consists in the HS code classification system (Harmonised System) for each tradable good. According to the World Customs Organisation, which developed the HS codes, it is a multipurpose international product nomenclature used by more than 200 countries for about 5000 commodity groups (WCO 2017). Each commodity group can be identified by a six digit code (WCO 2017). A look at the HS code lists reveals that the digit code starts with a four digit codes which is enlarged in order to specify subgroups of the commodity in question (FT 2017). For instance, “wheat and meslin” obtained the four digit code 1001, while “cereals; wheat and meslin, durum wheat, seed” is identified by the six digit code 100111 (FT 2017), and organic durum wheat for import to the USA with the ten digit code 1001100025 (USDA 2017). A complete list with codes for organic cereals is not publicly available. Moreover, it seems that organic cereals are being distinguished at the ten digit HS code level only that also may differ between the countries. In sum, it is possible that organic and conventional cereals are not listed separately when exported or imported.

Another issue are data on farm gate prices, harvests and yields per hectare. As it was difficult to obtain these data, there are only a few farm gate prices, harvests and yields per hectare mentioned in this report. They are from *agri benchmark* Organic partners. As *agri benchmark* Organic aims at providing its partners with detailed information on these special data, which are not available in publications or in the Internet, the network welcomes more countries to join in.

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