

The EU food and drink industry use of domestic raw material

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The EU food and drink industry uses 72% of the domestically produced agricultural raw materials

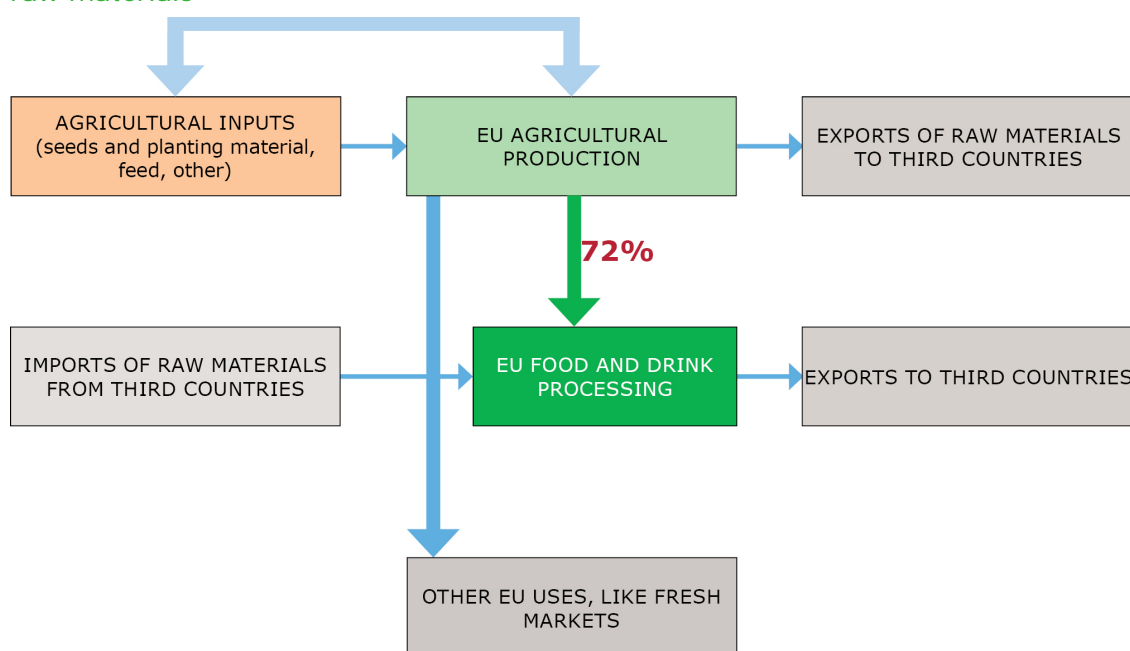


Figure 1 Stylised agricultural raw materials flow chart

The above figure is a schematic overview of the EU food and drink supply chain with the green arrow representing the flow of agricultural raw materials transferred to the EU food and drink industry. The total EU production of main agricultural raw materials was 940m tonnes in 2017. The estimated total amount of raw materials from EU production used in the EU food and drink industry was 678m tonnes in 2017. The share of domestic agricultural raw materials used in the EU food and drink industry has been stable between 2015 and 2017, around 72%.

Table 1 EU agricultural production and estimated usage in EU food and drink processing of main agricultural raw materials, in thousand tonnes

	2015	2016	2017
Total EU agricultural production of main raw materials	890,561	891,006	940,458
Total estimated EU agricultural production used in the EU food and drink industry	634,105	637,484	677,864
Share of the EU food and drink industry use	71%	72%	72%

Sources: see Appendix 1. Calculations: Wageningen Economic Research.

Stable EU agricultural production with some exceptions

For most agricultural raw materials, the production was stable (between -3% and 3% growth in the period 2015-2017), as shown in table 2. However, there are a few exceptions. Weather conditions, fish stocks, and worldwide developments in demand are the main causes of changes in production levels. For example, favourable weather conditions ensured a good yield of sugar beet in 2017.

Table 2 EU agricultural production of main raw materials, in thousand tonnes

	2015	2016	2017	% change 2015-2017
Live animals, of which	46,384	47,558	47,730	3
<i>Bovine</i>	7,657	7,892	7,876	3
<i>Pigs</i>	23,436	23,648	23,664	1
<i>Sheep and goats</i>	884	877	923	4
<i>Poultry</i>	14,407	15,141	15,267	6
Raw cow milk	162,928	162,987	165,600	2
Eggs	7,574	7,742	7,704	2
Fish	6,338	6,102	6,109	-4
Vegetables a)	63,785	64,704	64,704	1
Fruit a)	69,729	67,907	67,907	-3
Cereals	303,047	290,117	300,046	-1
Oilseeds	32,295	31,834	34,100	6
Potatoes	50,225	52,747	57,733	15
Sugar beet	101,872	111,750	141,094	39
Total b)	890,561	891,006	940,458	6

a) 2017 estimate is based on 2016; b) The components may not sum to total due to rounding

Sources: see Appendix 1. Calculations: Wageningen Economic Research.

Cereals show most Extra-EU import increase and export decrease

Total imports of main agricultural raw materials in the EU were 111bn tonnes in 2017, whereas exports accounted for 82bn tonnes (see table 3). The EU is a net importer of raw materials. Trade flows show different developments per product. Cereals show the highest EU-extra import increase (21%) and the highest decrease (-33%) between 2015 and 2017.

Table 3 Extra-EU imports and exports of main agricultural raw materials, in thousand tonnes

	2015	2016	2017	% change 2015- 2017	2015	2016	2017	% change 2015- 2017
	Import				Export			
Live animals, of which	3	3	4	33	449	541	576	28
<i>Bovine</i>	0	0	0		322	397	433	34
<i>Pigs</i>	0	0	1		32	18	24	-25
<i>Sheep and goats</i>	0	0	0		80	111	107	34
<i>Poultry</i>	2	2	3	50	15	14	12	-20
Cow milk	0	0	0		0	0	0	
Eggs	4	4	6	50	205	168	145	-29
Fish	8,990	9,203	9,387	4	2,012	1,927	1,888	-6
Vegetables	14,490	14,605	14,842	2	14,850	14,668	15,227	3
Fruit	31,888	32,540	34,436	8	23,413	22,915	23,525	0
Cereals	20,192	20,127	24,422	21	46,309	43,515	31,106	-33
Oilseeds a)	17,374	19,698	19,698	13	764	910	910	19
Potatoes	7,214	7,923	8,136	13	7,340	7,562	7,996	9
Sugar beet	0	0	0		0	0	0	
Total b)	100,157	104,105	110,935	11	95,791	92,746	81,949	-14

a) 2017 estimates are based on 2016; b) The components may not sum to total due to rounding

Sources: see Appendix 1. Calculations: Wageningen Economic Research.

Share of domestically produced agricultural raw materials in EU processing varies per product

Nearly all EU-grown sugar beets and oilseeds are destined for the EU food and drink industry (see Table 4). Animal slaughtering outside slaughterhouses, e.g. on farms, is limited to 3% in the EU as a whole. Slightly more sheep and goats are slaughtered outside the slaughterhouses. Industrial slaughtering is included in the EU food and drink industry. The majority of eggs in shell, vegetables, potatoes, fish and fruit is destined for sale as fresh produce to the EU consumers, or is exported.

For most products, the share of agricultural raw materials destined for further processing is stable. Only for fish (from 57% to 44%) and potatoes (from 37% to 29%) there has been a significant fluctuation in this share between 2015 and 2017.

Table 4 Total calculated EU agricultural production used in the EU food and drink industry

	2015	2016	2017	2015	2016	2017
	Thousand tonnes			% of total EU agricultural production		
Live animals, of which	45,166	46,324	46,391	97	97	97
<i>Bovine</i>	7,584	7,823	7,795	99	99	99
<i>Pigs</i>	23,112	23,344	23,310	99	99	99
<i>Sheep and goats</i>	783	773	782	89	88	85
<i>Poultry</i>	13,687	14,384	14,504	95	95	95
Raw cow milk	151,720	152,232	156,200	93	93	93
Eggs	1,818	1,858	1,849	24	24	24
Fish	3,632	2,672	2,672	57	44	44
Vegetables	19,793	21,077	19,793	29	31	29
Fruit	30,095	31,226	30,850	45	45	45
Cereals	184,374	176,507	182,548	61	61	61
Oilseeds	31,649	30,879	33,077	98	97	97
Potatoes a)	18,821	16,999	16,999	37	32	29
Sugar beet	101,872	111,750	141,094	100	100	100
Total b)	634,105	637,848	677,864	71	72	72

a) 2017 estimates are based on 2016; b) The components may not sum to total due to rounding

Calculation approach and assumptions

General

- The EU food and drink industry is covered by the Eurostat NACE Rev. 2 divisions C10 (Manufacture of food products) and C11 (Manufacture of beverages) and includes the feed industry covered by group C10.9.
- Calculated is the share of the volume of the EU agricultural production transferred to the EU food and drink industry. Other volume transfers include exports, fresh EU consumption and other EU uses, like for the production of biofuels.
- Only marketed agricultural production is taken into account. Reproduction material used on farms is excluded from the EU agricultural production statistic totals, where possible.
- Main agricultural raw material categories are chosen based on the existent product classification in agricultural and processing statistics. These cover nearly all primary production in the EU destined for human and animal consumption.
- The volume totals are based on the sum of the volumes of the main raw material included in the calculations.
- Products of the EU food and drink industry, including by-products, which are transferred to other users, are outside the scope.

Animals (bovine, pigs, sheep and goats, poultry)

- Meat processing involves slaughtering and manufacturing of meat products. These operations are covered by Eurostat NACE Rev. 2 group C10.1 (Processing and preserving of meat and production of meat products). In the EU, slaughterings take place in and outside slaughterhouses, e.g. on farms. Slaughterings outside slaughterhouses are excluded from the animal production transferred to the food and drink processing industry.
- Statistics on animal production and processing exclude other animals than bovine, pigs, sheep and goat and poultry. The numbers of other animals destined for human consumption, like rabbits, are too small and are not expected to have a significant effect on the outcomes.
- Re-exports of livestock are assumed not to be significant. EU slaughtered animals are EU grown or imported livestock. The imports of animals in the EU are very small compared to the EU livestock.

Milk

- Raw milk is used in the EU dairy industry (Eurostat NACE Rev. 2 group C10.5) for making a wide range of dairy products. The consumption of raw milk is very limited.
- The extra-EU trade of raw milk destined for processing is assumed to be nil.
- Raw milk that is not delivered to the EU dairies, e.g. milk that is used for making dairy products on farms, is excluded from the milk production transferred to the EU food and drink industry.
- Milk statistics used for milk production and processing include cow milk and exclude other milk, e.g. goat milk. The volumes of other milk are very small compared to cow milk production in the EU (about 3%). Including other milk production and processing is assumed not to have a significant effect on the calculations outcomes.
- Raw cow milk volumes delivered to the dairies are compared with the total production of raw cow milk to calculate the use in the dairy industry.

Eggs

- In the EU, eggs are partly destined for the food and drink industry, where eggs are processed for using as an ingredient in various other products. Fresh eggs are sold as shelled eggs via retail and foodservice.
- Egg statistics used for egg production include chicken eggs and exclude other eggs for human consumption, like eggs of ducks, geese and quails. The volumes of the latter are very small compared to the chicken egg production in the EU and will not have any significant effect on the calculation results.
- Extra-EU trade in fresh consumption eggs is limited. There is some limited extra-EU trade of fertilised eggs.
- The shares of different market channels is taken from the literature and used to estimate the actual yearly egg volumes transferred to the EU food and drink industry.

Fish

- Fish caught by fisheries and produced by aquaculture are marketed in different ways. The fish processing industry (Eurostat NACE Rev. 2 group C10.2) makes processed fish products, which are eventually sold via retail and foodservice outlets. Fish is also sold to consumers via the retail without any processing, as (whole) fresh fish. Some fish processing takes place at specialised fish retail and food service before selling to consumers. This fish is excluded from the fish production transferred to the EU food and drink industry.
- Conversion factors of processed fish products to primary equivalent were estimated based on the literature. Reported volumes of processed fish products, and conversion factors are used to calculate the use of fresh fish per type by the EU fish processing industry.
- The EU fish processing industry is reported partly to rely on the extra EU imports. Information on the supply per fish species (quoted catches, aquaculture and import) in the EU and consumption is used to define the share of the domestic fish available for the fish processing industry per species.

Fruit, vegetables and potatoes

- In the EU, fruit, vegetables and potatoes are partly destined for the food and drink industry, where these raw materials are processed, e.g. for using as an ingredient in various other products. Other fruit, vegetables and potatoes are sold as fresh via retail and foodservice. The latter volumes are not included in the share of fruit, vegetable and potatoes used by the EU food and drink industry.
- Conversion factors of processed fruit, vegetables and potatoes to primary equivalent were estimated based on the literature. Reported volumes of processed fruit, vegetables and potato products and conversion factors are used to calculate the use of fresh crops per type of processed product.
- Imports of raw materials for the EU food and drink industry from outside the EU are assumed to be limited. EU crops that are specifically grown for processing are assumed mostly to be delivered to processing plants in the same region. In the EU, there are some imports of intermediate fruit and vegetable products for processing, e.g. juice concentrates for the domestic juice industry. The use of these materials in the EU food and drink industry is estimated based on the literature and excluded from the calculated raw material use.
- For some crops, like tomatoes and apples, there is a clear differentiation between crops for processing and fresh crops in public agricultural production statistics. These production statistics have been compared with the calculated use of domestic crops in the EU food and drink industry and are consistent with the calculated numbers.
- For potatoes, seed potatoes are excluded from the reported agricultural production (estimated 6-8% based on the literature).

Cereals

- Cereals are used as input for food, drink and feed industries, in non-food processing (e.g. biofuels) and directly as feed for animals on farms. Exported cereals, and cereals transferred to the EU non-food industries and cereals directly used on the EU farms as feed for animals are excluded from cereal production transferred to the EU food and drink industry.
- Seeds are excluded from the reported agricultural production (about 4% based on the literature).
- For simplicity and due to a lack of consistent data, it is assumed that the proportion of the use of cereals in the EU food and drink industry is the same for domestically produced as well as imported cereals. Because imports are only about 5% of domestic supply, the maximum effect on the calculated share of cereals destined for the EU food and drink industry is 2 to 3%.

Oilseeds

- Nearly all oilseeds are used in food and feed industries.
- Re-exports of oilseed from the EU are assumed not to be significant
- Total production statistics are compared with total crushing statistics. The values are consistent.

Sugar beets

- Nearly all sugar beets are assumed to be processed by the EU sugar industry.

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Appendix 1: Sources used

Table A1 Sources

	Agricultural production	Imports and exports	Processing input	Processing output	Other
Animals	Eurostat [apro_mt_pann], [apro_mt_sloth]	Eurostat Comext [DS-016894]		Eurostat [apro_mt_pann]	
Milk	Eurostat [apro_mk_farm], for 2017 Short –term outlook for EU agricultural markets https://ec.europa.eu/agriculture/markets-and-prices/short-term-outlook_en		Eurostat [apro_mk_cola], for 2017 Short –term outlook for EU agricultural markets https://ec.europa.eu/agriculture/markets-and-prices/short-term-outlook_en		
Eggs	European Commission Eggs Dashboard https://ec.europa.eu/agriculture/sites/agriculture/files/dashboards/eggs-dashboard_en.pdf	Eurostat Comext [DS-016894]			P. van Horne (2014) Economic Perspective for the EU egg industry https://www.eggindustrycenter.org/media/cms/2014_1_VanHorne_EU_EconomicsPerspect_D576964DB61F8.pdf ; Agra CEAS Consulting (2008), The EU Egg Production Sector, Final report for Euro Group
Fish	AIPCE-CEP Finfish 2017 https://www.aipce-cep.org/wp-content/uploads/2017/11/FinFish-Study-2017.pdf ;	AIPCE-CEP Finfish 2017 https://www.aipce-cep.org/wp-content/uploads/2017/11/FinFish-Study-2017.pdf		Eurostat PRODCOM	FAO WHO Codex Alimentarius (var. processed products standards) http://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en/ ; FAO Yearbook of Fishery and Aquaculture Statistics http://www.fao.org/fishery/statistics/yearbook/en ; Euromonitor International (2016), Fish and Seafood Western Europe Monitor overview at Seafood Investors Forum
Vegetables	FAOSTAT	Eurostat Comext [DS-016894]		Eurostat PRODCOM	FAO WHO Codex Alimentarius (var. processed products standards) http://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en/ ; FruitLogistica (2018), European Statistics Handbook; HarmonyHouseFoods.com, Rehydration Chart; PROFEL Statistics https://profel-europe.eu/ ; Lund, J. W. and P. J. Lienau. Onion Dehydration; Spencer, S. (2004), Price Determination in the Australian Food Industry, A report, Australian Government Department of Agriculture, Fisheries and Forestry, Canberra.

	Agricultural production	Imports and exports	Processing input	Processing output	Other
Fruit	FAOSTAT	Eurostat Comext [DS-016894]		Eurostat PRODCOM	<p>FAO WHO Codex Alimentarius (var. processed products standards) http://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en/;</p> <p>AIJN European Fruit Juice Association, 2017 Liquid Market Report; DG Agri Dashboard Apples https://ec.europa.eu/agriculture/sites/agriculture/files/dashboards/apple-dashboard_en.pdf;</p> <p>EU Fruit Juice CSR Platform (2013), Fruit Juice Supply Chain Analysis – Europe;</p> <p>FruitLogistica (2018), European Statistics Handbook</p> <p>HarmonyHouseFoods.com, Rehydration Chart;</p> <p>PROFEL Statistics https://profel-europe.eu/;</p> <p>OIV (2017) Statistical Report on World Vitiviniculture, 2017 World Vitiviniculture Situation</p> <p>Spencer, S. (2004), Price Determination in the Australian Food Industry, A report, Australian Government Department of Agriculture, Fisheries and Forestry, Canberra.</p>
Cereals	Eurostat [apro_cpnh1]	Eurostat Comext [DS-016894]			<p>EU Graanbalans (EU Cereals balance sheet) https://data.overheid.nl/data/dataset/eu-graanbalans;</p> <p>FEFAC The compound feed industry in the EU livestock economy</p>
Oilseeds	FEDIOL statistics, Oilseeds - production, imports, exports and crushing https://www.fediol.eu/web/evolution%201980%20-%202016/1011306087/list1187970169/f1.html	FEDIOL statistics, Oilseeds - production, imports, exports and crushing https://www.fediol.eu/web/evolution%201980%20-%202016/1011306087/list1187970169/f1.html	FEDIOL statistics, Oilseeds - production, imports, exports and crushing https://www.fediol.eu/web/evolution%201980%20-%202016/1011306087/list1187970169/f1.html		EC Committee for the Common Organisation of Agricultural Markets (2017) Oilseeds and protein crops market situation
Potatoes	Eurostat [apro_cpnh1]			Eurostat PRODCOM	<p>FAO WHO Codex Alimentarius (var. processed products standards) http://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en/; HarmonyHouseFoods.com, Rehydration Chart;</p> <p>Lund, J. W. and P. J. Lienau. Onion Dehydration;</p> <p>Spencer, S. (2004), Price Determination in the Australian Food Industry, A report, Australian Government Department of Agriculture, Fisheries and Forestry, Canberra.</p>
Sugar beet	Eurostat [apro_cpnh1]	Eurostat Comext [DS-016890]			<p>EU Sugar market observatory https://ec.europa.eu/agriculture/market-observatory/sugar/statistics_en</p> <p>CEFS Sugar Statistics https://cefs.org/statistics/</p>