

Cultures
SUCRE

statistical Memo

SUGAR AND OTHER BY-PRODUCTS



CAMPAIGN
2022-2023



FRANCE • EUROPE • WORLD • OTHER BY-PRODUCTS

KEY FIGURES

OF THE BEET-CANE-SUGAR SECTOR

SUGAR-PRODUCING FRANCE AS AT 1 APRIL 2023

The figures for this Statistical memo take account of the 2022-2023 campaign, when figures for this campaign are available.



SUGAR PLANTS

■ SUGAR BEET (2022-2023 campaign)

23,700 growers produced on 402,000 ha (i.e. 1.6% of the Utilised Agricultural Area) **30.7 million tonnes** of sugar beet with **16%** sugar content.

■ SUGAR CANE (2021-2022 campaign)

More than 2 million tonnes of sugar cane was harvested over 37,271 hectares in French overseas departments (DROM).



SUGAR PRODUCTION

In 2022-2023, Metropolitan France had five sugar companies with 21 sugar-producing plants spread over northern France.

In regulatory terms, production* in 2022-2023 is **4 million tonnes of beet sugar**.

■ DROM (French overseas departments) (2021-2022 campaign):

In all, 5 sugar factories produced **202,023 tonnes of cane sugar** (Reunion, Guadeloupe, Martinique).

■ Alcohol/ethanol-producing France (2021-2022 campaign):

In 2022, Metropolitan France had 5 companies with 13 distilleries producing alcohol from beet and cereals and 1 company only rectifying and dehydrating the raw alcohol. France produced **15.5 Mhl** agricultural alcohol (bioethanol+traditional alcohol, vinification excluded) in 2021/2022.

■ **7.3 Mhl** from beet (47%) and **8.2 Mhl** from cereals (wheat+corn).

■ **10.3 Mhl** for the bioethanol (67%) and **5.2 Mhl** for traditional alcohol (33%).

In France, ethanol and beet sugar production puts to work **23,700** growers and supports more than **6,000** jobs in the sugar factories. The number of indirect or related jobs for agricultural alcohol production accounts for 9000 people.



FRANCE IN THE SUGAR-PRODUCING WORLD**

- Ninth largest sugar producer in the world
- Second beet sugar producer in the world
- Leading sugar producer in Europe (Metropolitan France + DROM)

* The definition of sugar production [Regulation (EU) 2017/1185] counts the quantities produced at the syrup stage regardless of the subsequent use (food, non-food, alcohol/ethanol).

** Average over three years.

FRANCE



23,700
growers



30.7 Mt
of sugar beets



4 Mt
of beet sugar



21
active sugar factories



2 Mt
of sugar canes



0.2 Mt
of cane sugar



5
sugar factories in French
overseas departments



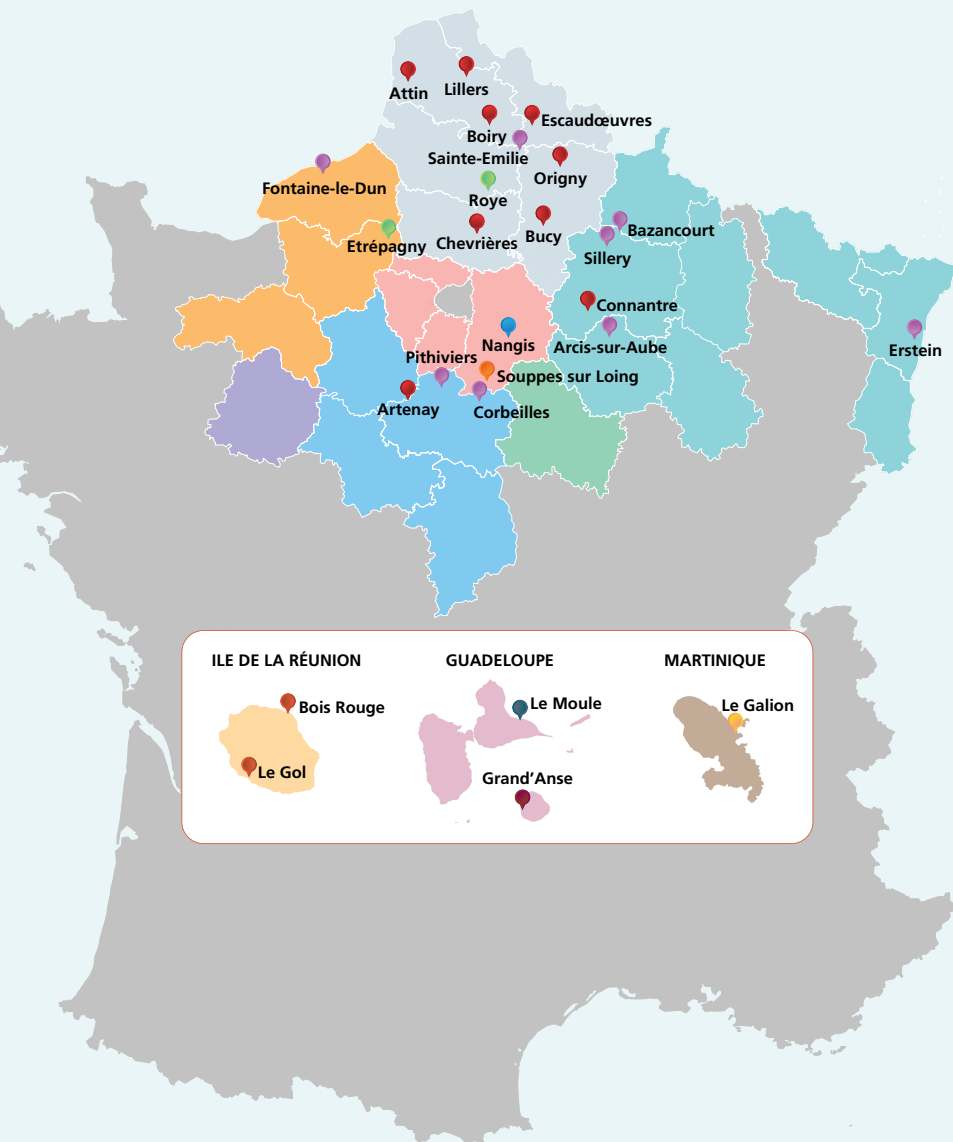
9th largest sugar producer in the globe
1st largest sugar producer in Europe

Mt = million tonnes

The figures on this statistical memo take into account the 2022-2023 campaign, when the figures for this campaign are available.

The sugar sector in France

2022 – 2023 campaign - Main sugar-producing departments



◆ Sugar beet sector in France

5 sugar companies and groups in mainland France

Groupe Cristal Union

(8 plants)

- Sucrerie d'Arcis-sur-Aube
- Sucrerie de Bazancourt
- Sucrerie de Corbeilles
- Sucrerie d'Erstein
- Sucrerie de Sillery
- Sucrerie de Fontaine-le-Dun
- Sucrerie de Pithiviers
- Sucrerie de Sainte-Emilie

Lesaffre Frères

(1 plant)

- Sucrerie de Nangis

Ouvré et Fils SA

(1 plant)

- Sucrerie de Souppes-sur-Loing

Saint Louis Sucre

(2 plants)

- Sucrerie d'Etrépagne
- Sucrerie de Roye

TEREOS

(9 plants)

- Sucrerie d'Artenay
- Sucrerie d'Attin
- Sucrerie de Boiry
- Sucrerie de Bucy
- Sucrerie de Chevrières
- Sucrerie de Connantre
- Sucrerie d'Escaudœuvres
- Sucrerie de Lillers
- Sucrerie d'Origny

◆ Sugar cane sector in France

4 sugar companies in the French overseas departments

Reunion

TEREOS Océan Indien

- Sucrerie de Bois-Rouge
- Sucrerie du Gol

Guadeloupe

GARDEL S.A.

- Sucrerie du Moule

SUCRERIE ET RHUMERIE MARIE GALANTE S.A.

- Sucrerie de Grand'Anse

Martinique

S.A.E.M. DE PRODUCTION SUCRIÈRE ET RHUMERIE DE LA MARTINIQUE

- Sucrerie du Galion

Sources: S.N.F.S., Tereos

◆ Changes in metropolitan production

thousand tonnes of white sugar

Sugar campaign	Production	Number of sugar plants
2018-19	5,092	25
2019-20	4,969	25
2020-21	3,445	21
2021-22	4,560	21
2022-2023 (provisional)*	4,006	21

Source: S.N.F.S.

*Provisional Metropolitan sugar production

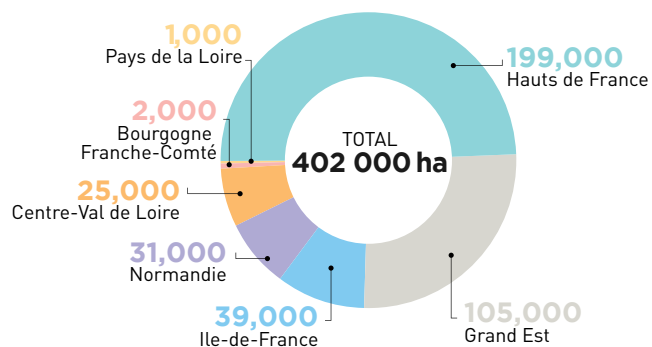
In France, the 2022/23 estimated report shows 5.5 million tonnes of sugar used, distributed in the following way: 2.8 million tonnes of sugar sold in France; 1.5 million tonnes of sugar sold in the EU; 0.4 million tonnes of sugar exported to third countries; and 0.8 million tonnes of sugar exported in the form of sugar-sweetened products.

In France, more than two thirds of the uses are destined for human consumption (table sugar, food industry products) with the remaining volume used in the chemical and pharmaceutical industries and the alcohol/ethanol sector.

◆ Sugar beet growing areas

In 2022-2023, sugar beets are grown in 7 regions in France, accounting for around 402,000 hectares¹.

Surface area of beet cultivation destined for sugar factories and sugar factories-distilleries (by region in hectares)



Source: Agreste, 01/01/2023 (2022 sowing)

1-This total also includes the French beet growing areas set aside to produce alcohol and bioethanol.

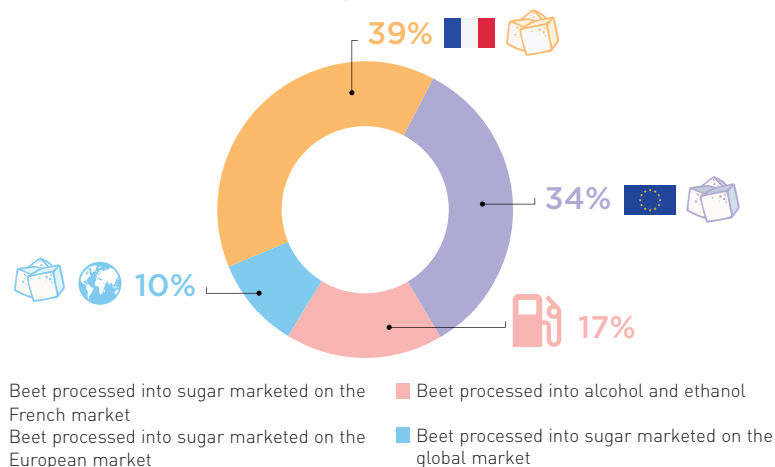
◆ Changes in sugar beet production

Sugar beet (all uses together)

Sugar campaign	Seeding (1,000 ha)	Sugar content (°S)	Beet yields (t at 16 °S/ha)	Tonnage of beet harvested (million t at 16 °S)
2013-14	391	17.6	85.3	33.4
2014-15	405	17.7	92.8	37.6
2015-16	383	18.3	87.8	33.6
2016-17	402	18.3	85.8	34.5
2017-18	485	18.0	96.1	46.7
2018-19	485	19.0	82.0	39.6
2019-20	445	17.8	85.0	37.8
2020-21	421	17.1	61.4	25.8
2021-22	402	17.4	85.7	34.5
2022-23 (estimations)	402	17.7	77.0	30.7

Source: C.G.B., I.T.B.

Breakdown of beet production in 2022-2023



The beet yields experienced large growth for more than 50 years (48.3 tonnes per hectare in 1960-61 versus 96.1 tonnes per hectare in 2017-18). This growth was essentially due to the progress made in the areas of genetics, seed selection and improved farming techniques.

The French sector has observed that for the past ten years, the beet yields have stabilised and endured significant fluctuations due to climate variations and parasitic attacks. Restrictions on the means of combatting parasites has penalised profitability in the French sector.

The genetic improvement of the beet varieties and the progress in farming techniques remain vital components in increasing productivity and guaranteeing the continuation of the French beet-sugar-ethanol sector.

The 2022-2023 campaign stands out because of an average yield of 16° lower than the five-year average, due to a low root yield.

Source: C.G.B.

◆ Organic sector in France

The players in the beet-sugar sector in France have been involved over the past several years in an organic beet sugar production sector with continually expanding farming areas, which went from **1,000 hectares in 2019 to nearly 2,500 hectares in 2022**.

◆ French sugar industry: a positive contribution to the country's trade balance

In 2022-2023, French **exports** (to third countries) and **shipments** (to EU countries) of unprocessed sugar will reach **1.9 Mt**, compared with **imports** of **0.3 Mt**. In 2022-2023, the net exports (exports – imports) have exceeded the 35% of French sugar production (including overseas departments).

Sugar is shipped mainly to the EU countries of Italy, Spain and Germany.

Outside the EU, the main customers are the United Kingdom and the countries located in West Africa, North Africa and the Middle East.

Thus, the positive balance of 860 million euros in 2022 (calendar year) shows the essential contribution made by the sugar industry to the country's balance of trade.

◆ Sugar consumption in France

The sales of sugar are a unique reflection of a notion of availability or volumes of sugar marketed at the scale of a country or a population. **In France, sales per inhabitant have been stable for more than fifty years.**

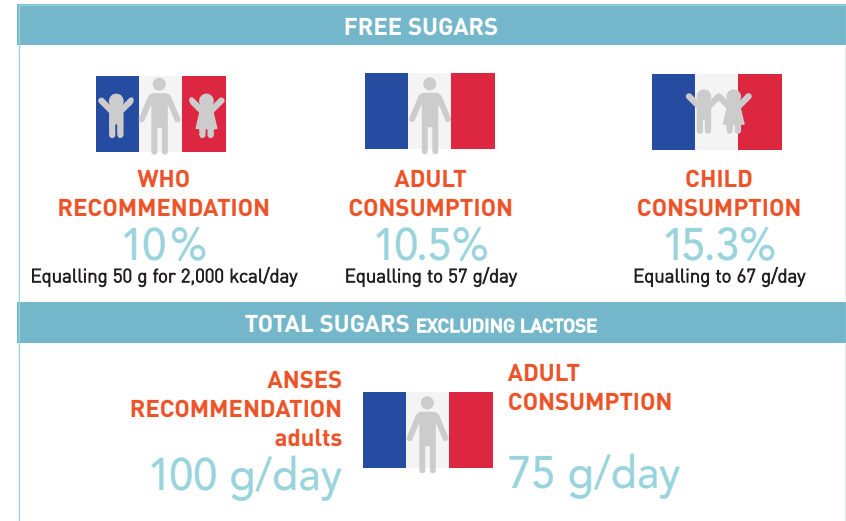
Here are the WHO* and ANSES** recommendations relating to sugar consumption. WHO recommends strongly limiting **free sugars** (added sugars and sugars found naturally in fruit juices), including cane or beet sugar, to at less than 10% of daily calories (i.e. 50 g for 2,000 Kcal) to prevent obesity and tooth decay.

ANSES made another recommendation: do not consume more than **100 g of sugars per day (excluding lactose)**, i.e. all sugars brought by food, be they naturally present (glucose, fructose or sucrose from fruit) or added to foods (sucrose from beet or cane, glucose syrups and honey mainly).

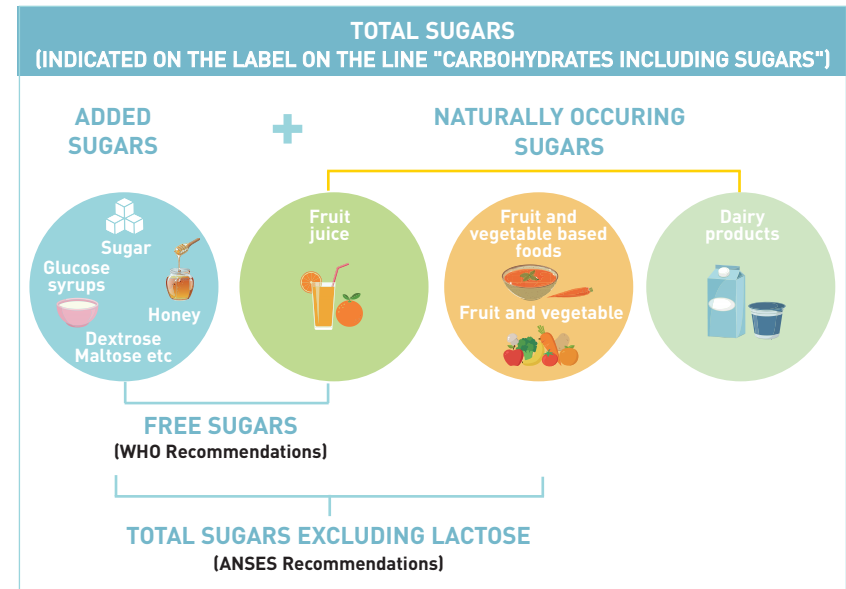
On average, adults therefore comply with the recommendations but children overrun them substantially. As it is an average, many adults are however above the recommendation.

* World Health Organization (WHO).

** Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail (ANSES),



Sources: CCAF (Credoc) 2019, Anses 2017



Source: Cultures Sucre

◆ Sugar's image: the French are very attached to Made in France products

The French have a well-established attraction to Made in France sugar and desserts

Conducted in 2022, the CSA-Cultures Sucre¹ national survey shows that **ending a meal on a sweet note is an important custom for 72% of French people**, underscoring dessert's place in their food culture.

Buying sugar produced in France is a key criteria in the French public's purchasing choices, coming in at 3rd place after the price and the type of sugar (caster sugar, sugar cubes). **For more than 8 out of 10 French people, buying sugar produced in France is considered important or very important**, with supporting French farmers (65%) and safeguarding jobs (58%) being the main factors.

Further misconceptions about sugar and a poorly understood sector

Nearly 3 out of 4 French people think that sugar consumption continues to rise when the average per capita consumption in France has remained stable for more than twenty years, according to surveys.

Putting sugar aside, 42% of the French surveyed do not know about the other opportunities in the sector. Bioethanol, however, is at the top of the 'correct answers', in front of animal feed and hand sanitizer.



1- Survey conducted from 16 to 25 November 2022 on the basis of a representative sample of 1,205 French people, 15 years old and older, via an online self-administered survey. Survey conducted by the CSA Institute for the Cultures Sucre association.

EUROPE



15 Mt
of white sugar produced



14.9 Mt
of white sugar used



2 Mt
of white sugar imported



0.6 Mt
of white sugar exported



89
active sugar factories



102,375
growers

The figures for this Statistical memo take account of the 2022-2023 campaign, when figures for this campaign are available.

Map of sugar-producing Europe in 2022-2023 (EU excluding overseas departments)



The dots represent each sugar-producing plant.

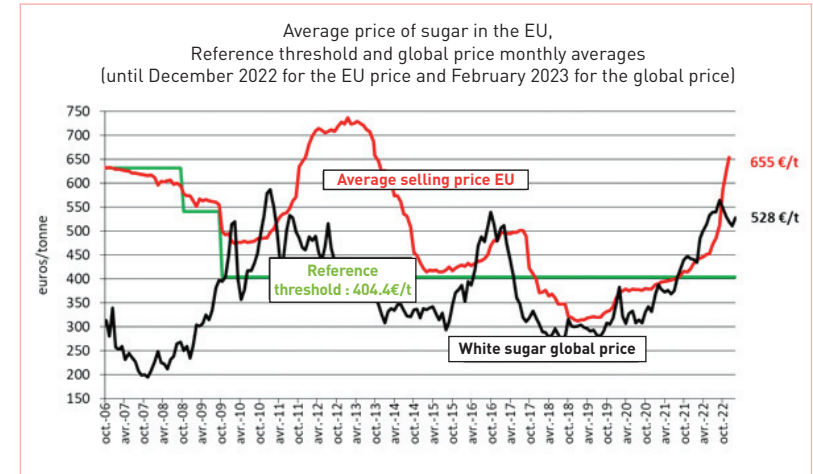
Sources: S.N.F.S., A.G.P.

◆ The sugar market

The sugar market in 2022

After a long period of very low rates, **global sugar prices**, boosted by the return in 2021 of economic growth and Covid vaccination progress, which braced the resurgence of global demand, **continued to rise in 2022**.

Sugar's community price, identified by the information system on EU sugar prices, **also continued to climb**, and after several years in severe crisis, it returned to a level that allowed it to better handle a deteriorating economic environment as well as inflation of production costs.



Beetroot producers and sugar plants actually experienced, like all the sectors of agrifood industry, an unprecedented rise in the cost of industrial inputs and energy, which led to a steep rise in production costs starting 2021, for both crop cultivation (fertilisers, etc.) and sugar production processes, which use a large quantity of gas. The war started by Russia against Ukraine in 2022 also exacerbated this increase venue.

◆ Sugar balance of the European Union of 27*

	Production	Uses**	Exports	Imports
2022-2023 (forecast)	15,030	14,880	620	2,000
2021-2022	16,623	15,147	801	1,498

* These data do not include sugar imports and exports as processed products nor the stock variations.

** All uses, including industrial uses (in millions of tonnes of white sugar).

The European Union of 27 countries produced 15 million tonnes of white sugar in 2022-2023. The uses cover food consumption as well as a variety of industrial uses: manufacture of alcohol and ethanol, yeasts, pharmaceutical and chemical products.

Source: European Commission

◆ European sugar industry in 2022-2023

Country (by region*)	Number of sugar plants	Production of sugar (beet)	Number of planters	Yield sugar (forecast)
	2021-2022	2022-2023** <small>(in thousand of tonnes)</small>	2021-2022	2022-2023 <small>(t/ha)</small>
Region 1				
Austria	35	4,237	36,120	9.6
Czech Republic				
Denmark				
Finland				
Hungary				
Lithuania				
Poland				
Sweden				
Slovakia				
Region 2				
Belgium	44	9,995	59,697	11.9
Germany				
France***				
Netherlands				
Region 3				
Bulgaria	10	592	6,558	8.3
Spain				
Croatia				
Italy				
Portugal				
Romania				
EU 27	89	14,824	102,375	11

* Data for production of sugar are no longer given for each member state, excepted for some countries like France.

** [forecast] white value

*** Excluding overseas departments

Sources: European Commission, C.E.F.S

WORLD



World's largest producer



BRAZIL

41 Mt
of sugar

World's largest consumer



INDIA

27.4 Mt
of sugar

World's largest exporter



BRAZIL

28.5 Mt
of sugar

World's largest importer



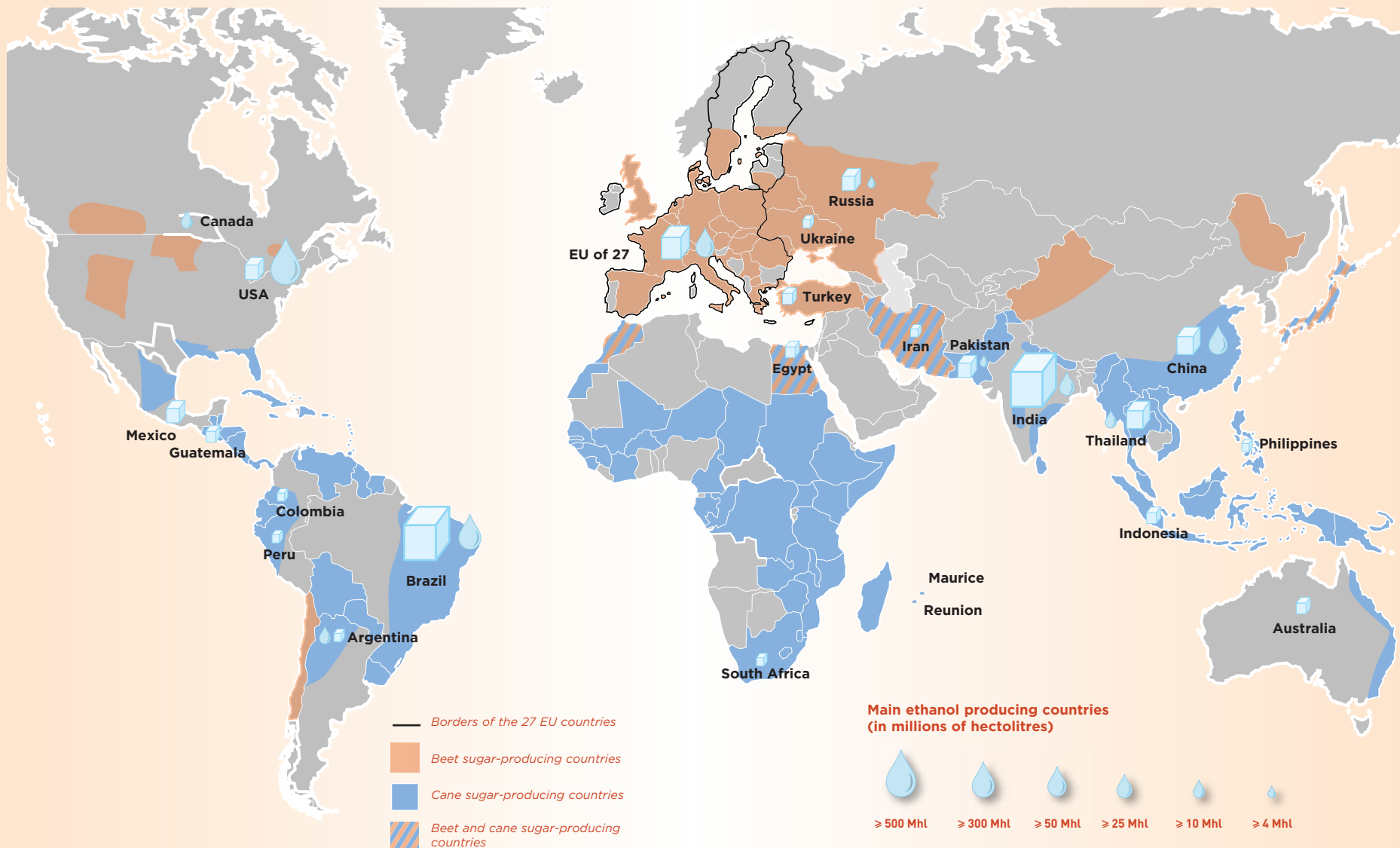
CHINA

6.2 Mt
of sugar

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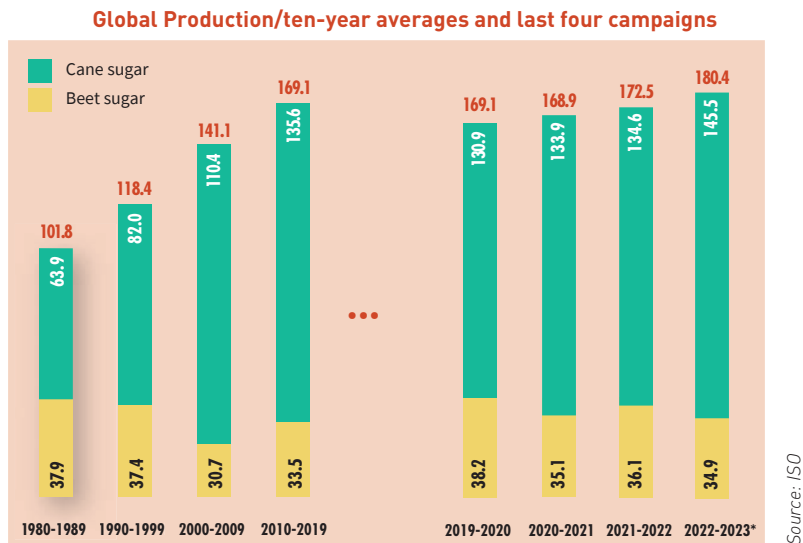
Sugar-plant cultivation regions, sugar-producing countries and ethanol-producing countries

Main sugar-producing countries (thousand tonnes of sugar - tel quel value)



◆ Changes in world sugar production

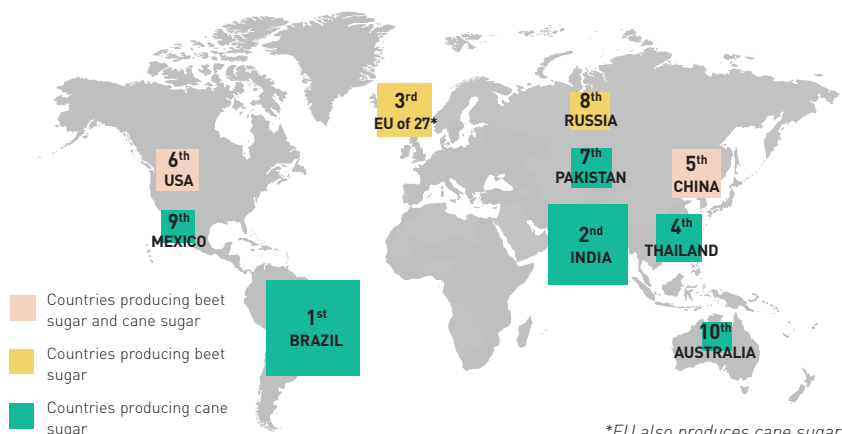
Per campaign (in millions of tonnes of raw sugar)



1- The graph combines the figures from national campaigns with dates varying from country to country, unlike the balance table established at a fixed date. Slight differences therefore result. Cane sugar henceforth represents 80% of world production.

*Estimations

◆ 10 largest sugar-producing countries in the world



◆ World sugar balance

1 October to 30 September

thousand tonnes of tel quel sugar¹

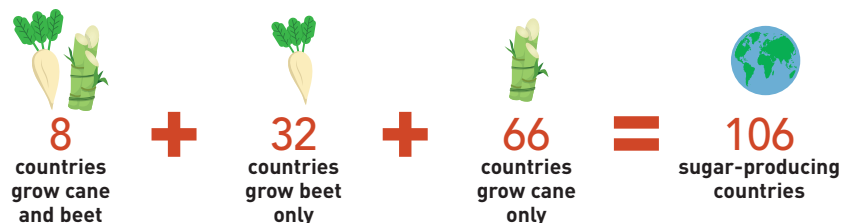
Oct/sept	2020/21	2021/22	2022/23
Initial stock	102,561	102,564	99,920
Production	168,946	172,526	180,431
Consumption	169,708	174,773	176,280
Final stocks	102,564	99,920	103,386

1- In these statistical data, certain figures are expressed in white sugar, others in raw sugar and others in tel quel sugar. Global statistics are normally expressed in raw sugar; nevertheless, the ISO has been expressing balance statistics in tel quel since 2015. The conversion rate from raw to white, given by the International Sugar Council and used here by ISO, is 0.92. The conversion rate from white to raw is 1.09.

Sources: I.S.O. - S.N.F.S.

◆ Sugar worldwide 2022-2023

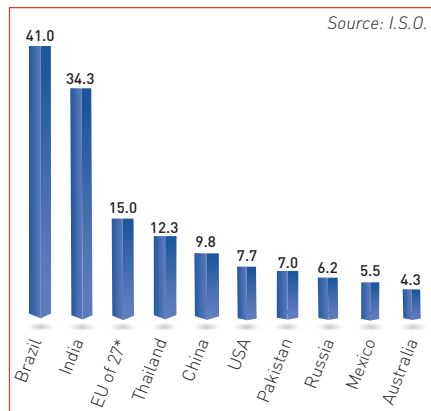
Source: F.O. Licht



◆ Sugar worldwide 2022-2023

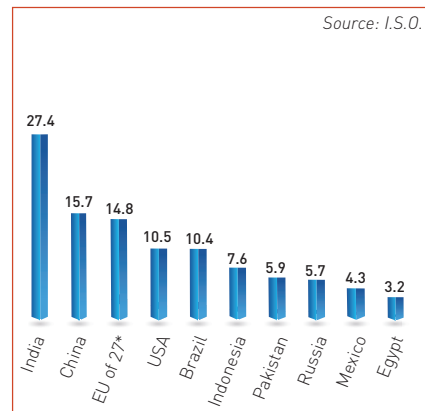
The ten largest producers

Account for 79% of world sugar production, i.e. 143.4 million tonnes of sugar (tel quel value):



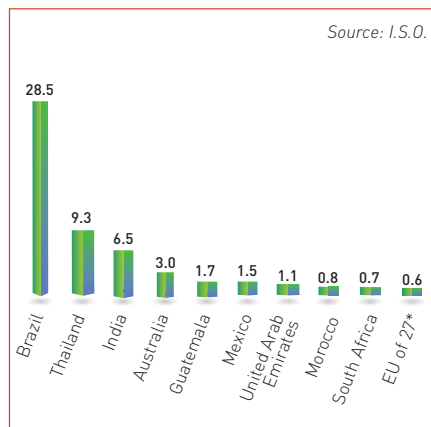
The ten largest users

Represent 60% of worldwide sugar consumption, i.e. 105,8 million tonnes of sugar (tel quel value):



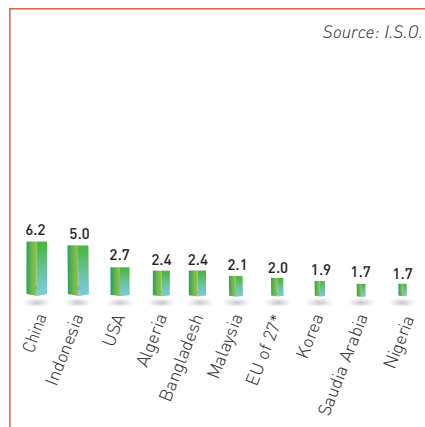
The ten largest exporters

Exports (million tonnes of tel quel sugar):



The ten largest importers

Imports (million tonnes of tel quel sugar):

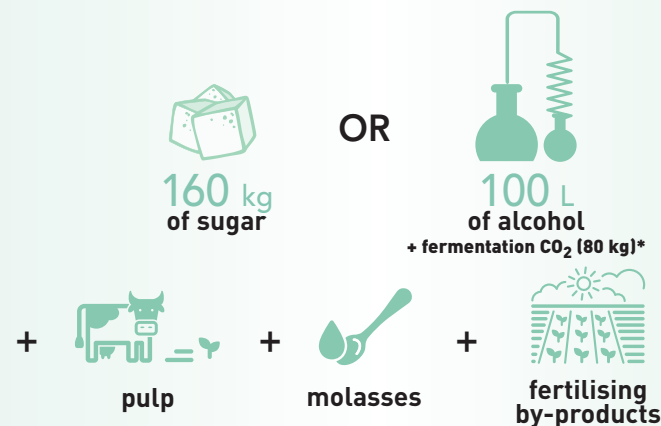


*Source: European Commission

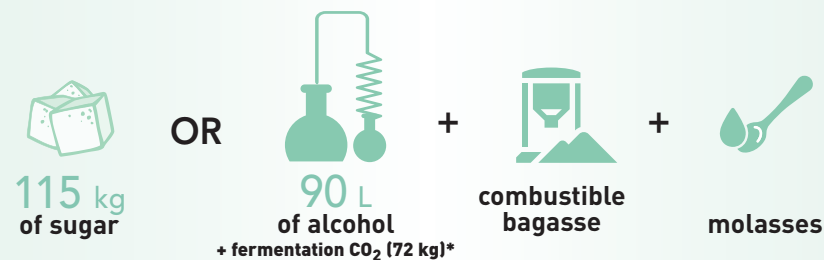
OTHER BY-PRODUCTS



A tonne of sugar beet produces



A tonne of sugar cane produces



*CO₂ comes from the plant and is captured in the air by the plant.

The figures for this Statistical memo take account of the 2022-2023 campaign, when figures for this campaign are available.

◆ By-products in France and Europe

Pulp

Once all the sugar has been removed by diffusion in warm water, the beet - now called pulp - is used in animal feed. Rich in vitamins, proteins and minerals, it also contains the residual sugar. This composition is an ideal feed for animals, especially ruminants which consume it fresh or dehydrated.

There are now **new industrial outlets for it: opaquing agent for paper pulp, natural fibre insulation for buildings, filtering industrial effluents, etc.**

Pulp production in France

2021-22 Campaign	Tonnage of dry materials	% compared to 28 EU country production
Compressed pulp	810,000	28%
Dehydrated pulp	84,000	25%

Sources: A.R.T.B., C.G.B., U.S.I.C.A., C.I.B.E.

Molasses

Molasses is the end product for both cane and sugar beet - non-crystallised, viscous and highly-coloured. It is used to help fermentation in the production of alcohol, yeasts or micronutrients and in compound animal feeds.

- Production by the Member states of Europe of 28, 2020-2021 campaign: **3,500,000 tonnes***
- Production in Reunion: **56,000 tonnes in 2022**
- Production in the French West Indies:
 - Martinique: **583 tonnes in 2021***
 - Guadeloupe (GARDEL + SRMG): **20,767 tonnes in 2022**

Sources: CEFS, Reunion Chamber of Agriculture, Reunion sugar syndicate; Martinique: company data; Guadeloupe: company data, Agreste.

Bagasse

Bagasse is a lignocellulosic residue obtained after grinding canes to extract the sugar which is now basically used as fuel in sugar-plant boilers.

Production in Reunion: **400,000 tonnes in 2022**

Production in Martinique: **11,164 tonnes in 2021***

Production in Guadeloupe (GARDEL + SRMG): **127,870 tonnes in 2021***

Sources: Reunion Chamber of Agriculture, Reunion sugar syndicate; Martinique: company data; Guadeloupe: Assocanne (Union of sugar and rum producers/exporters from Guadeloupe and its dependencies).

Skimmings

Co-product of the sugar-making process, the skimmings are collected when purifying the juice from the beet by precipitation of impurities. Rich in mineral salts and especially calcium, they are recycled in farming as calcareous fertilizers.

Fermentation CO₂

When sugar is transformed into alcohol, the yeast produces in equal parts alcohol and CO₂ created during fermentation. This CO₂ is incorporated into carbonated drinks instead of fossilbased CO₂. In the future, it could be used to produce synthetic fuels.

*The 2022 data were not available at the time.

ALCOHOL BIOETHANOL



16.8 Mhl
of agricultural-origin
alcohol produced in France
(2022 campaign)



55,000
farmers¹



< 1%
of usable French
farming land²



13
production sites in
France³



760
million euros in the French
balance of trade in 2022 through
non imported petrol⁴



1.1
billion euros in revenue
in 2022⁵

1- Beet and grain farmers.

2- Equalling 300,000 hectares for production of bioethanol production and its food by-products.

3- Raw alcohol, with 5 recent global-scale industrial facilities.

4- Based on yearly average of Rotterdam gasoline prices.

5- Estimate based on annual ethanol production volume and yearly average of ethanol T2 Rotterdam.

◆ Alcohol and bioethanol in France, Europe and worldwide

Ethyl alcohol or ethanol, more commonly known as “alcohol”, is produced by fermenting and distilling agricultural substrates (from beet or cane, cereals or vinification) or by synthesis.

Production in the sugar sector comes from fermenting the sugar contained in the juices extracted from the beet or cane, in syrups created by crystallisation and in the molasses. The alcohol is used in food (beverage alcohol), industry (solvent for chemistry), perfumery and pharmaceuticals for hydroalcoholic gel for instance. It is also being used more and more as fuel and takes then the name of **bioethanol**.

FRANCE

France was the largest European producer of alcohol in 2022 with a volume accounting for 21% of European production, ahead of Germany (14%) and the United Kingdom (10%) and Spain (7%).

Sources: FranceAgrimer, F.O. Licht

Alcohol production in France (thousand hl)

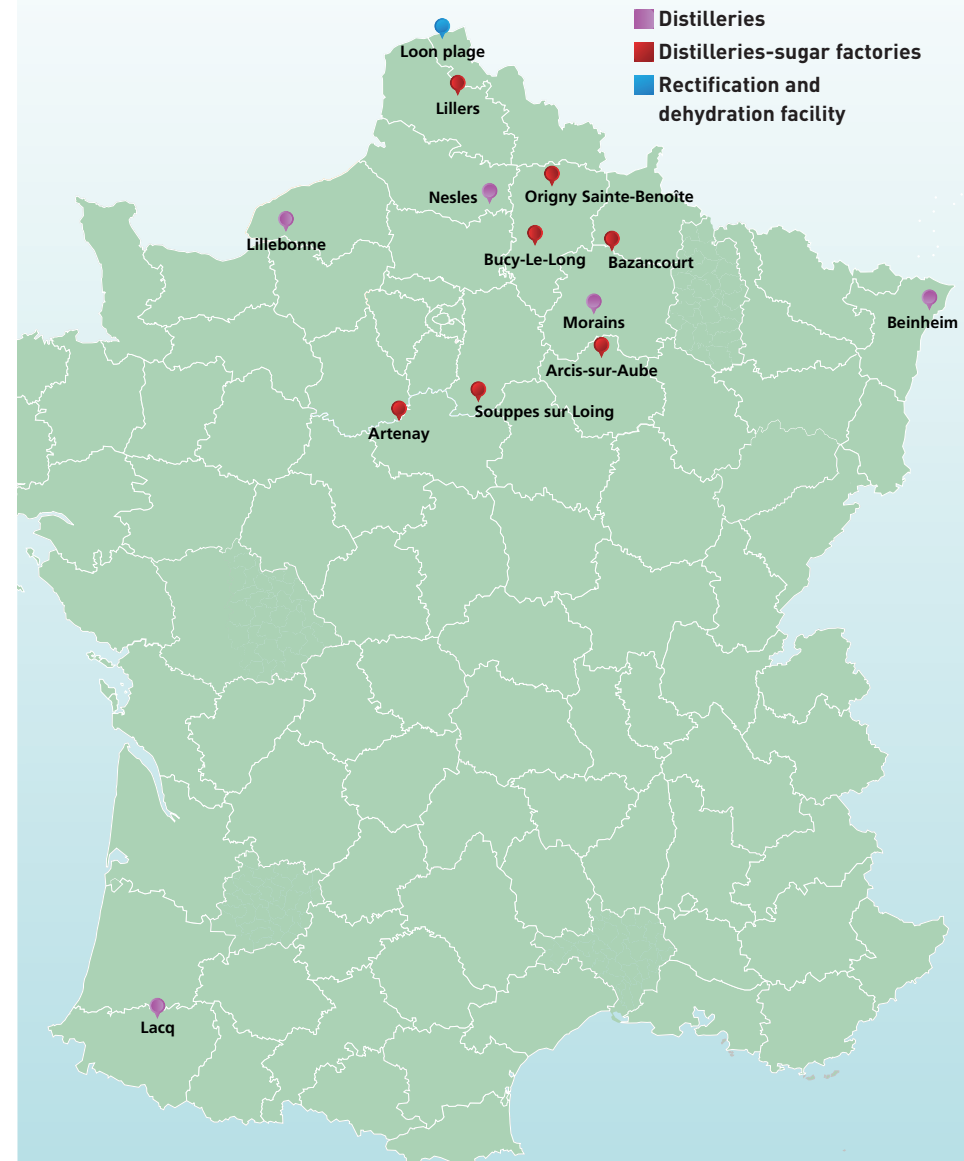
Origin	2019	2020	2021	2022
Beet*	8,720	7,960	6,500**	8,170
Cereal	8,580	8,170	8,415	8,190
Vinification (estimate)	490	720	436	474
Total	17,800	16,900	14,900	16,800

Sources: S.N.P.A.A., FranceAgriMer and CGB

*Includes alcohol from molasses.

**This level is low due to the beet yellows virus that affected beetroot production in the 2020-2021 campaign

◆ Agricultural-origin alcohol sector in France

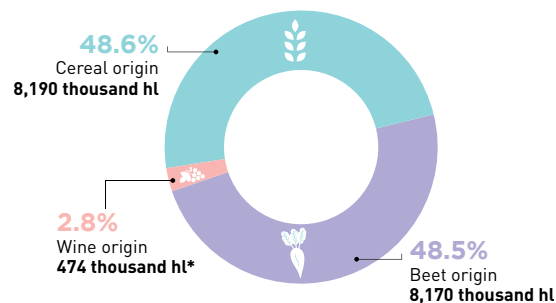


France produced 21% of European alcohol in 2022.
Two thirds of the alcohol produced in France is used as bioethanol (France or export).

Source: S.N.P.A.A.

FRANCE

Alcohol and bioethanol production 2022 breakdown depending on the origin (in %)



Source: FranceAgriMer

*European Regulation (COMMISSION DELEGATED REGULATION (EU) 2020/592 of 30 April 2020) authorising crisis distillation.

BIOETHANOL FUEL IN FRANCE

Volume of bioethanol fuel in alcohol production in France

Million hl	2018-2019	2019-2020	2020-2021	2021-2022
Alcohol production*	17.6	17.2	14.7	15.5
Including bioethanol	10.8	10.5	9.1	10.3
Beet bioethanol	3.5	3.5	2.3	3.5

* Excluding wine

Sources: S.N.P.A.A., C.G.B.

Use of bioethanol 2021

According to the Directorate-General of Customs and Indirect Taxes (DGDDI), the volumes declared under the Incentive Tax for Incorporation of Biofuels (TIRIB) in 2021 were as follows:

- Ethanol incorporated directly: **9.2 Mhl**
- Ethanol in ETBE: **3.5 Mhl**
- Total quantity of ethanol incorporated: **12.7 Mhl**

The official rate for incorporating renewable energy in petrol was 8.63% in 2021.

Biofuel incorporation objectives in petrol in France (in energy)

France	2018	2019	2020	2021	2022	2023	2024
Objectives	7.50%	7.90%	8.20%	8.60%	9.20%	9.50%	9.90%

Source: Customs

Incentive tax credit for the incorporation and use of renewable energy in transports (TIRUERT): ethanol produced from waste material (residual starch and 50% of the low-grade runoff and second jet flows) is counted as above 7% up to 0.2% in 2019 and 0.4% in 2020 and 0.8% in 2021, 1% in 2022 and 2023, and 1.1% in 2024.

Incorporation of bioethanol in petrol in France (including double counting)

Bioethanol and others*	2016	2017	2018	2019	2020	2021
(% petrol)	7.00%	7.50%	7.82%	7.95%	8.20%	8.63%

*others: petrol type hydrotreated palm oil (until 2020)

2022 SP95-E10 and Superethanol-E85 report in France

■ Superethanol-E85

Marketed since 2007 in France, Superethanol-E85 contains between 60% and 85% bioethanol with the rest being unleaded petrol.

The consumption of Superethanol-E85 jumped by +83% in one year (versus +33% in 2021). The market share of Superethanol-E85 in the French fuel market thus increased from 4% 2021 to 6.5% in 2022.

With less of a tax because it is more environmentally friendly, Superethanol-E85 remains the cheapest fuel on the market. Sold on average for €1.12* per litre at the pump, **it can offer more than 440 euros in savings per year for 13,000 km of distance driven** compared to the petrol SP95-E10 and more than 650 euros for 20,000 km.

As of March 2023, Superethanol-E85 is **now available in more than 3,364 service stations in France**, amounting to 37% of the stations in the country.** With a growth of 20%, the distribution network **has increased by more than 550 new points of sale in 2022.**

The mobile application 'Mes Stations E85' that can be used to geolocate the stations, compare prices at the pump and identify stations out of fuel, was **downloaded more than 87,000 times** in 2022, two times more than in 2021 (45,000 times).

*prix-carburants.gouv.fr as of 13/03/22

**Petrol stations registered on prix-carburants.gouv.fr (government website)

E85 conversion boxes approved by the government

With 120,000 new cars equipped with the flex-85 technology in 2022, the fleet has increased by 67%, amounting to 300,000 vehicles.

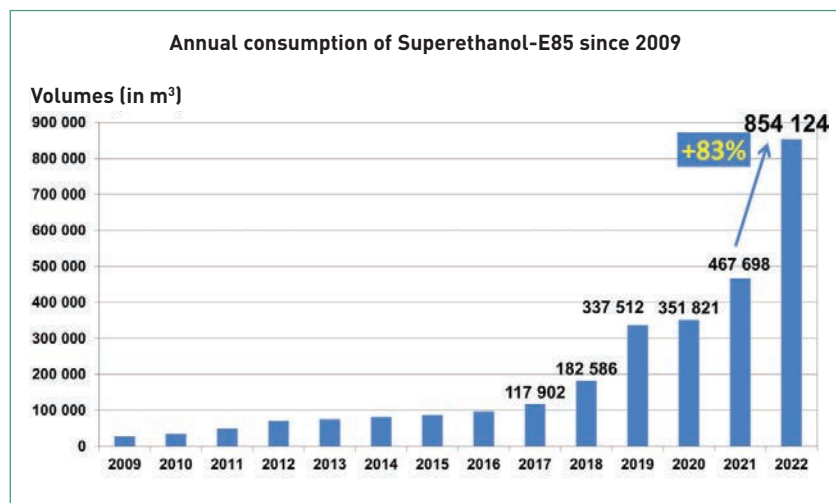
In 2022 alone, around **85,000 new approved E85 converter kits were installed** versus 30,000 in 2021 and 15,000 in 2020. It is estimated that currently **220,000 petrol vehicles are equipped with converter kits so they can run on Superethanol-E85.**

Today, 2 manufacturers offer a range of flex-E85 vehicles:

■ Ford with a line of 6 vehicles: Puma mHEV, Focus mHEV, Kuga FHEV, Fiesta, Fiesta Van and Transit Connect

■ Jaguar LandRover with 3 mHEV flexfuel hybrid models: E-PACE, Discovery Sport, Range Rover Evoque

Since 1 April 2021 and the entry into force of the amended approval order, **9 out of 10 petrol cars are eligible for the installation of a converter kit**, including vehicles with diesel particulate filters and 15 CV or larger engines. E85 conversion kit manufacturers – Biomotors, FlexFuel Energy Development, Borel and eFlexFuel Technology – received at least one certification for one of the twelve categories of existing vehicles (details at www.infoE85.fr).

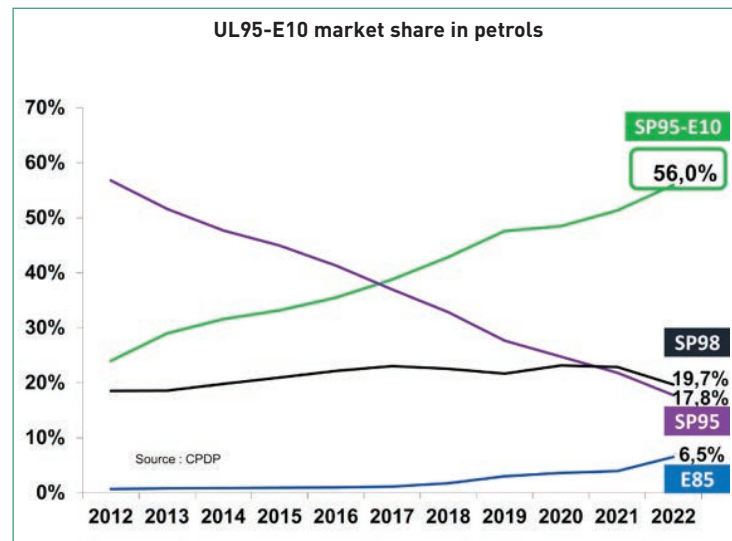


■ SP95-E10

Marketed in France since 2009, SP95-E10 contains 90% fossil-fuel petrol and up to 10% bioethanol.

As the main petrol in **France since 2017**, SP95-E10 sales continued to rise in 2022. **Its annual market share increased by nearly 5 points to reach 56% in 2022**. Sold for three to four cents* cheaper than SP95 and containing up to 10% ethanol, SP95-E10 is more attractive for drivers. With fuel prices surging since March 2022, it reached a record **share of 59.3% of the fuel market in February 2023**.

*prix-carburants.gouv.fr



Immediately available renewable energy

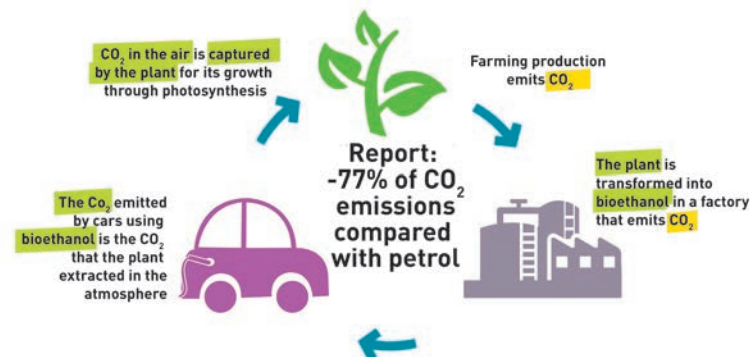
Bioethanol now replaces a portion of fossil-fuel petrol and helps combat global warming. Pure bioethanol produced in Europe reduces net greenhouse gas emissions (CO₂ equivalent) by more than 77% on average compared with the substituted fossil-fuel petrol (source: ePURE for 2021).

The bioethanol consumed in France helps prevent CO₂ emissions from one million vehicles and 800,000 tonnes of petrol is saved each year*.

*Source: DGEC CarbuRe 2022 data

A more ecological biofuel

Source: ePure 2021



◆ EUROPE

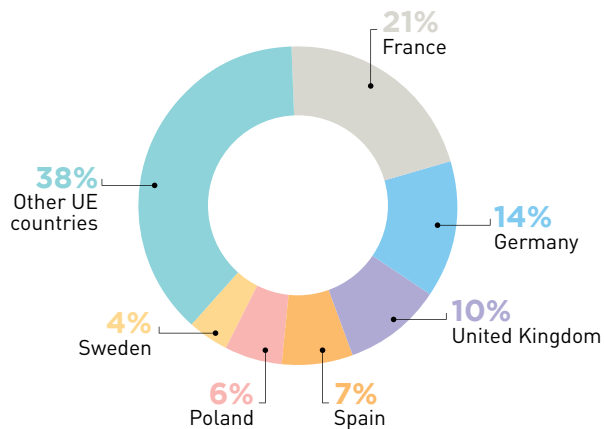
Alcohol and bioethanol production in Europe (thousand hl)

Pays	2018	2019	2020	2021	2022*
France	18,250	17,850	16,900	15,360	16,800
Germany	11,170	10,280	11,000	12,220	11,300
United Kingdom	9,300	4,600	6,000	6,200	7,500
Spain	5,520	5,780	5,200	5,510	5,250
Poland	3,800	4,090	4,170	4,610	5,000
Sweden	2,450	2,800	2,800	2,850	2,850
Other EU countries	27,920	25,770	22,870	27,750	30,100
Total	78,410	71,170	68,940	74,500	78,800

* Estimates

Source: F.O. Licht

Breakdown of alcohol and bioethanol production in 2022 (estimates) (percentage)



Sources: F.O. Licht, European Commission

In Europe, bioethanol is mixed with petrol, either pure or after processing into ETBE (ethyl-tert-butyl-ether compound of half ethanol and half isobutylene, a petroleum by-product).

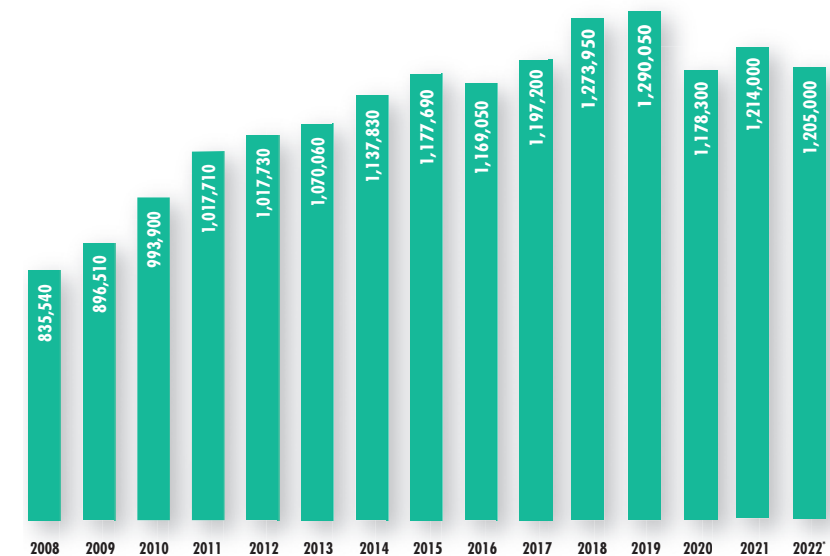
Agricultural alcohol uses in Europe

Uses (Mhl)	2020		2021	
Food	9.6	15%	10.4	16%
Industrial/Other	12.8	20%	11.2	18%
Fuel	42.6	65%	42.6	66%
Total	65.0	100%	64.1	100%

Source: European Commission, alcohol balance sheet

◆ WORLD

Changes in worldwide alcohol production (including bioethanol) (thousand hl)



* Estimation

Source: F.O. Licht

KEY FIGURES

Ethanol and alcohol in the world

The 5 largest ethanol and alcohol producers (in thousands of hectolitres)

Pays	2018	2019	2020	2021	2022*
United States	623,760	613,259	544,000	603,000	602,000
Brazil	331,160	331,160	335,870	317,000	306,000
China	100,000	98,000	92,000	101,000	101,000
European Union	76,900	71,170	67,700	78,000	79,000
India	34,500	31,800	37,500	58,000	58,000
Rest of the world	107,630	144,661	81,230	57,000	59,000
Total	1,273,950	1,290,050	1,178,300	1,193,000	1,205,000

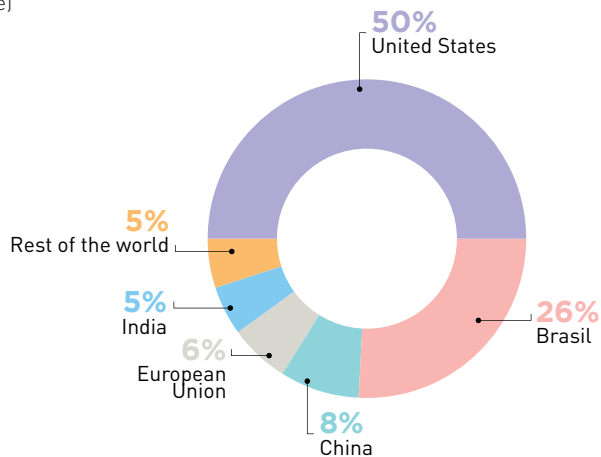
* Estimates

Source: F.O. Licht

The ten largest producers accounted for 95% of the total volume of world alcohol production in 2022.

Breakdown of alcohol production (including bioethanol) in 2022

(percentage)



Sources: F.O. Licht, European Commission

CONSTANTS

- 1 hectolitre (hl) of bioethanol = 78.9 kg
- 1 hectolitre (hl) of petrol = 75 kg
- 1 tonne (t) of bioethanol = 12.6 hl

LOWER CALORIFIC VALUE (LCV)

- In volume, bioethanol LCV = 21.285 MJ/l
- In volume, petrol LCV = 32.020 MJ/l

ETHANOL/PETROL ENERGY RATIO = 0.66

- 1.5% of bioethanol in volume has to be added to incorporate 1% of bioethanol in LCV in petrols.
- Bioethanol sector: 77% less greenhouse gas than the petrol sector (ePURE 2021)

KEY FIGURES: AVERAGE OVER 5 YEARS



1 hectare of beet

- = 87 tonnes of beets
- = 8,700 litres of ethanol
- = 7.1 tonnes of ethanol
- = 4.6 tonnes oil equivalent

Sources: A.D.E.M.E., C.G.B., S.N.P.A.A.

bioéthanol
Roulons plus vert et moins cher

www.bioethanolcarburant.com

Cultures Sucre has produced this statistical memo by consolidating the figures supplied by the following bodies:

- **AGRESTE**, Paris, tel. +33 (0)1 49 55 40 11, www.agreste.agriculture.gouv.fr
(Agriculture Ministerial Statistical Department)
- **A.R.T.B., Paris**, tel. +33 (0)1 44 69 41 84, www.artb-france.com
(Beet Production Technical Research Association)
- **C.E.F.S., Brussels, Belgium**, tel. +32 (2) 762 0760, www.cefs.org
(European Association of Sugar Manufacturers)
- **C.G.B., Paris**, tel. +33 (0)1 44 69 39 00, www.cgb-france.fr
(General Confederation of Beet Growers)
- **C.I.B.E., Brussels, Belgium**, tel. +32 (2) 50 46 090, www.cibe-europe.eu
(International Confederation of European Beet Growers)
- **EUROPEAN COMMISSION, Paris**, tel. +32 2 299 11 11, www.ec.europa.eu
- **F.O. Licht Gmbh, Ratzeburg, Allemagne**, tel. +49 4541 88920
- **FranceAgriMer, Paris - Montreuil**, tel. + 33 (0)1 73 30 30 00, www.franceagrimer.fr
(National Institute for Agricultural and Seafood Products)
- **ITB**, tel. + 33 (0)1 42 93 13 38, www.itbfr.org
(Technical Beet Institute)
- **I.S.O., London, United Kingdom**, tel. + 44 (0207) 513 1144, www.isosugar.org
(International Sugar Organisation)
- **ODEADOM, Paris - Montreuil**, tel. + 33(0)1 41 63 19 70, www.odeadom.fr
(Overseas Departments Agricultural Economy Development Office)
- **S.N.F.S., Paris**, tel. +33 (0) 1 49 52 66 66, www.snfs.fr
(National Union of French Sugar Manufacturers)
- **S.N.P.A.A., Paris**, tel. +33 (0) 1 49 52 66 97, www.alcool-bioethanol.net
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