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**Report Highlights:**

France's agricultural biotechnology sector operates under strict regulations and faces significant public opposition, limiting its development despite growing discussions about agricultural innovation and food security driven by climate change and global challenges. While the country is a leader in medical biotechnology, agricultural biotechnology remains underfunded, tightly controlled, and widely unpopular. The government permits the import of genetically engineered (GE) products for animal feed but prohibits their cultivation and restricts research. However, interest in New Breeding Techniques (NBTs) is increasing, reflecting broader trends across the European Union as stakeholders explore solutions to address climate-related and food security concerns.

## **Executive summary**

France does not currently grow or test genetically engineered (GE) crops, with the last approved field trial ending in 2013. Research in agricultural biotechnology is minimal, and there are no immediate plans to bring GE crops to market. However, the French livestock industry depends heavily on imported GE feed, such as soybeans, rapeseed, and corn, from countries like the United States, Canada, Australia, and South America.

While many scientists, farmers, and industry leaders support biotechnology, public opinion in France remains largely negative. Anti-biotechnology groups have destroyed suspected GE crops in the past, discouraging field trials. French media rarely highlight the potential benefits of biotechnology, such as reduced pesticide use or improved agricultural efficiency. This has allowed opponents to dominate public discourse, overshadowing support from grain producers, animal feed companies, livestock industries, and scientists.

In animal biotechnology, France focuses mainly on medical research, with the government opposing its use in animal breeding. Animal rights groups also discourage discussions about the potential benefits of these techniques, including their potential to improve animal welfare.

Despite widespread resistance to agricultural biotechnology, interest in New Breeding Techniques (NBTs) has grown in recent years. This shift is driven by concerns over climate change, recent droughts, and disruptions to global food supplies. A new European regulation on NBTs is expected soon, which will apply directly to all member states of the European Union, including France.

The current French Minister of Agriculture, Annie Genevard, appointed in September 2024, has not yet taken an official position on NBTs. However, France's representative at the European level supports the new NBT regulation.

**Acronyms used in this report are the following:**

**FAPB:** French Association of Plant Biotechnology (AFBV or “Association Française des Biotechnologies Végétales”)

**ANSES:** Agency for Food, Environmental and Occupational Health and Safety

**ECJ:** European Court of Justice (or “Court of Justice of the European Union”)

**CRISPR:** Clustered Regularly Interspaced Short Palindromic Repeats

**EFSA:** European Food Safety Authority

**EU:** European Union

**GE:** Genetically Engineered

**GMO:** Genetically modified organism, preferred term for French stakeholders to speak about genetically engineered organism

**HCB:** High Council for Biotechnology

**INRA:** French National Institute for Agricultural Research

**TMT:** Thousand Metric Tons

**MY:** Marketing Year-for soy products it refers to October to September, for rapeseed it targets July to June, for cotton it refers to August to July, for corn it triggers October to September, for Distiller’s Dried Grains with Solubles it refers to the calendar year

**NGO:** Non-Governmental Organization

**Glossary:**

“Event” within the genetically engineering framework is the insertion of a particular transgene into a specific location in the chromosome. The term "event" is often used to differentiate genetically engineered crop varieties.

“Genetic Engineering” used in this report is the deliberate manipulation of an organism’s genetic material through transgenesis (insertion of foreign DNA).

“Innovative biotechnologies” is used here as a synonym for “New Breeding Techniques” (NBTs) and is generally referred to as gene editing. It excludes plants or animals resulting from traditional genetic engineering (transgenesis), known as genetically modified organisms (GMOs).

Table of contents

CHAPTER 1 – PLANT BIOTECHNOLOGY .....	7
PART A – PRODUCTION AND TRADE .....	7
a) PRODUCT DEVELOPMENT.....	7
i. Limited Research in Agricultural Biotechnology.....	7
ii. Genomics in Plant Breeding .....	7
iii. French companies developing biotech plants for non-EU markets .....	7
iv. Laboratory research for medical applications .....	8
b) COMMERCIAL PRODUCTION.....	8
c) EXPORTS .....	9
d) IMPORTS .....	9
e) FOOD AID.....	14
f) TRADE BARRIERS .....	15
PART B - POLICY.....	16
a) REGULATORY FRAMEWORK.....	16
i. Table of legal terms .....	16
ii. Responsible government ministries and their role .....	17
iii. Role and membership of the biosafety authority .....	17
iv. Political factors influencing regulatory decisions.....	18
vi. Distinctions between regulatory treatments.....	19
vii. Legislation and regulations affecting U.S. trade .....	19
viii. Timeline for approvals.....	19
b) APPROVALS.....	19
c) STACKED OR PYRAMIDED EVENT APPROVALS.....	19
d) FIELD TESTING .....	20
e) INNOVATIVE BIOTECHNOLOGIES .....	20
f) COEXISTENCE.....	21
g) LABELING AND TRACEABILITY .....	21
h) MONITORING AND TESTING .....	22
i) LOW LEVEL PRESENCE POLICY .....	22
j) ADDITIONAL REGULATORY REQUIREMENTS.....	23
k) INTELLECTUAL PROPERTY RIGHTS.....	23
l) CARTAGENA PROTOCOL RATIFICATION .....	24
m) INTERNATIONAL TREATIES AND FORUMS.....	24

PART C – MARKETING .....	24
a) PUBLIC/PRIVATE OPINIONS .....	24
b) MARKET ACCEPTANCE/STUDIES .....	26
CHAPTER 2 – ANIMAL BIOTECHNOLOGY .....	26
PART D – PRODUCTION AND TRADE.....	26
a) PRODUCT DEVELOPMENT .....	26
b) COMMERCIAL PRODUCTION.....	27
c) EXPORTS .....	27
d) IMPORTS .....	27
e) TRADE BARRIERS .....	27
PART E – POLICY .....	28
a) REGULATORY FRAMEWORK.....	28
b) INNOVATIVE BIOTECHNOLOGIES .....	28
c) LABELING AND TRACEABILITY .....	28
d) INTELLECTUAL PROPERTY RIGHTS.....	28
e) INTERNATIONAL TREATIES AND FORUMS.....	28
PART F – MARKETING .....	28
a) PUBLIC/PRIVATE OPINIONS .....	28
b) MARKET ACCEPTANCE/STUDIES .....	29
CHAPTER 3 – MICROBIAL BIOTECHNOLOGY .....	29
PART G – PRODUCTION AND TRADE.....	29
a) PRODUCT DEVELOPMENT .....	29
b) COMMERCIAL PRODUCTION.....	29
c) EXPORTS .....	29
d) IMPORTS .....	30
e) TRADE BARRIERS .....	30
PART H – POLICY .....	30
a) REGULATORY FRAMEWORK.....	30
b) APPROVALS .....	30
c) LABELING AND TRACEABILITY .....	30
d) INTELLECTUAL PROPERTY RIGHTS.....	30
e) INTERNATIONAL TREATIES AND FORUMS.....	31
PART I – MARKETING .....	31
a) PUBLIC/PRIVATE OPINIONS .....	31

**b) MARKET ACCEPTANCE/STUDIES ..... 31**

## **CHAPTER 1 – PLANT BIOTECHNOLOGY**

### **PART A – PRODUCTION AND TRADE**

#### **a) PRODUCT DEVELOPMENT**

France is actively involved in research using genetic engineering and advanced biotechnologies, focusing on plant and animal genomic selection, innovative techniques, and the diverse metabolic properties of plants<sup>1</sup>. However, the country faces challenges in testing and sharing its findings, with some French companies choosing to develop biotech plants for markets outside the European Union.

##### **i. Limited Research in Agricultural Biotechnology**

France's research into genetically modified crops is constrained by public resistance, misinformation, and strict regulations. Since 1981, public funding for domestic research and development (R&D) has been cut in half, further limiting progress. Financial risk aversion and potential sabotage also discourage investment in this field.

Recent innovative agricultural biotechnology projects in France include PlantAlliance (2021–2024), which focused on creating crops that can better withstand climate challenges; ApoStress (2022–2024), which studied natural compounds called apocarotenoids to help plants cope with stress; FunDur (2023–2025), aimed at strengthening grapevine resistance to diseases; PIVERT (2023–2025), working to improve the quality of pea seeds; and ProtectMe (2022–2024), developing ways to protect grapevines from viral infections.

##### **ii. Genomics in Plant Breeding**

Genomic tools are widely used by public research labs and private seed companies in France. Unlike transgenesis, genomic selection faces less public opposition and regulatory scrutiny, making it a more viable area of research. Examples include INRAE's maize genomic selection program (2021–2023), which improved yield and stress tolerance; RAGT Semences' wheat genomic selection project (2024), accelerating the breeding of resilient wheat; and Pôle Génétique Végétale in Toulouse (2023), which used genome-wide studies to enhance rapeseed breeding.

##### **iii. French companies developing biotech plants for non-EU markets**

Some French companies have redirected their efforts toward developing genetically engineered plants

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<sup>1</sup> (In French only) [Chapitre 01.04 : Amélioration des plantes - Semences & variétés | Académie d'Agriculture de France](#)

for non-European markets. For instance, Calyxt, a U.S.-based subsidiary of the French company Collectis S.A., successfully commercialized a gene-edited soybean variety in the United States in 2019, while in 2022, Argentina approved genetically engineered wheat created in partnership with the French seed company Florimond Desprez.

#### iv. **Laboratory research for medical applications**

Genetically engineered plants and plant cells are used in laboratories to produce pharmaceutical proteins, such as insulin and growth hormones, as well as complex molecules for research purposes. However, commercialization of these applications is not expected soon.

Commercialization of new GE plant varieties is unlikely in the near term due to:

- Constraints on public institutions from the absence of field trials and lack of political support.
- High risks and regulatory costs of commercialization.
- Waning private sector interest due to vandalism and EU approval process uncertainties.

#### b) **COMMERCIAL PRODUCTION**

Historically, France planted 4,445 acres of GE corn in 1998, but this dropped to zero during the EU's de facto moratorium on GE crops between 1999 and 2004. Cultivation briefly resumed between 2004 and 2007, peaking at 54,363 acres. During this time, GE crop cultivation in France was minimal; in 2007, GE corn accounted for just 0.7% of total crop production. A GE potato was authorized in 2010 but was never grown in France.

Currently, MON810 Bt corn is the only GE crop approved for cultivation in the European Union, but France has banned its cultivation since 2008. This policy is unlikely to change in the near future. The ban on MON810 maize, a genetically modified corn variety, is based on the precautionary principle, safeguard clauses, and emergency measures outlined in EU Directive 2001/18/EC and Regulation 1829/2003. Additionally, Law n°2014-567, passed on June 2, 2014, specifically bans genetically modified corn varieties. Although the Supreme Court has annulled several decrees related to the ban, the 2014 law remains in place, even though it conflicts with EU regulations.

Since 2015, France has used Directive 2015/412 to request exclusion from the EU's geographical scope of GE authorizations. On March 3, 2016, the European Commission adjusted the authorization scope, officially prohibiting MON810 maize cultivation in France and other regions that requested exclusions.

During his 2017 presidential campaign, President Macron pledged not to allow the cultivation of GE crops, but he has made no other public statements on the matter since then. On October 12, 2021, President Macron announced a 2030 economic recovery plan for France, with a total budget of 30

billion euros. As part of this plan, 2 billion euros will be allocated to advancing digital technologies, robotics, and genetics in agriculture to "accelerate the third agricultural and food revolution." The government is focusing on genetic research programs to develop environmentally sustainable crops and species, but the plan does not mention any production of GE crops.<sup>2</sup> While many agricultural stakeholders, particularly larger industry representatives, support this initiative, environmental groups and smaller farmers have criticized it, arguing that it could pave the way for GE crops. The inclusion of agricultural biotechnology in President Macron's recovery plan marked a significant step in fostering dialogue about the role of technology, genetics, and robotics in ensuring the future competitiveness of French agriculture. Many acknowledge that addressing climate change and food sovereignty will require leveraging science and technology.

Currently, several thousand acres in France are planted with crops developed through mutagenesis, a technique that introduces genetic mutations into organisms. Some herbicide-tolerant varieties derived from mutagenesis, such as sunflower and rapeseed, have sparked public debate, with activists referring to them as "hidden GMOs." Mutated sunflower varieties with high oleic acid content are widely cultivated, making non-mutated sunflowers rare in the market.

As of 2025, France still prohibits the commercial cultivation of GE crops. However, there is ongoing debate across the EU about how to regulate new gene-editing technologies, like CRISPR/Cas9. Some EU countries are pushing for more flexible rules, which could eventually lead France to reconsider its current position.

### c) **EXPORTS**

France does not export any GE plants.

### d) **IMPORTS**

France imports most of its biotech products as whole soybeans and soybean meal from the Western Hemisphere, primarily for use in animal feed<sup>3</sup>. GE products make up about 80 percent of the total animal feed ingredient imports. France also brings in GE rapeseed from Canada and Australia and smaller amounts of GE corn and corn by-products.

Trade data does not distinguish between conventional and GE varieties, so the graphs in this section include both. Each section also provides a table showing the share of GE crops from France's main suppliers. On average, France imports around 3.5 MMT of soybean products annually, with 80 percent being GE.

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<sup>2</sup> (In French only) [France 2030 : 146 nouveaux lauréats pour investir dans une alimentation saine, durable et traçable | info.gouv.fr](https://www.info.gouv.fr/fr/france-2030-146-nouveaux-laur%C3%A9ats-pour-investir-dans-une-alimentation-saine-durable-et-tra%C3%A7able)

<sup>3</sup> (In French only) [OGM : le cadre réglementaire | Ministère de l'Agriculture, de l'Agro-alimentaire et de la Souveraineté alimentaire](https://www.info.gouv.fr/fr/ogm-le-cadre-reglementaire)

Over the past five years, France has imported an average of:

- 2.9 MMT of soybean meal per year, with GE soybean meal accounting for about 80 percent of total imports.
- 644 TMT of whole soybeans per year on average with an important jump in MY 2024/25, with more than 90 percent of these being GE.

Historically, France’s main soybean suppliers have included Brazil, Ukraine, and the United States. Some French NGOs claim that up to half of Ukraine’s soybeans are GE. Currently, the United States is France’s second-largest supplier, after Brazil. In recent years, Togo has gained market share by exporting non-GE and organic soybeans.

**Table 1 - Share of GE Soybeans in Total Soybean Production**

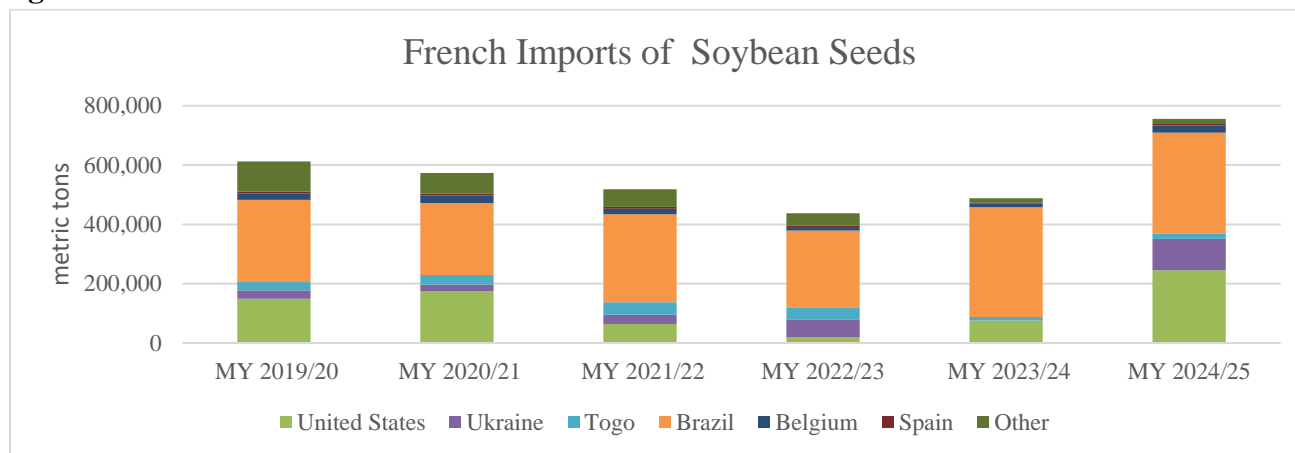
Country	Share of GE Soybeans
Argentina	100%
Brazil	98%
Canada	95%
India	0%
Spain	0%
Togo	0%
Ukraine	estimated at 50 to 65% of exports
United States	95%

Source: [ISAAA 2019](#) and [FAS/Kyiv \(2021\)](#)

France depends on imported soybean products to meet the protein needs of its livestock and poultry feed industry, as domestic production of soybeans and substitutes is limited. In MY2024/25, soybean seed imports grew significantly, not only because of increased feed consumption but also for storage to avoid any potential shortages linked to new trade policies (such as EUDR and new tariffs). French importers typically choose suppliers based on price and, to a lesser extent, protein content.

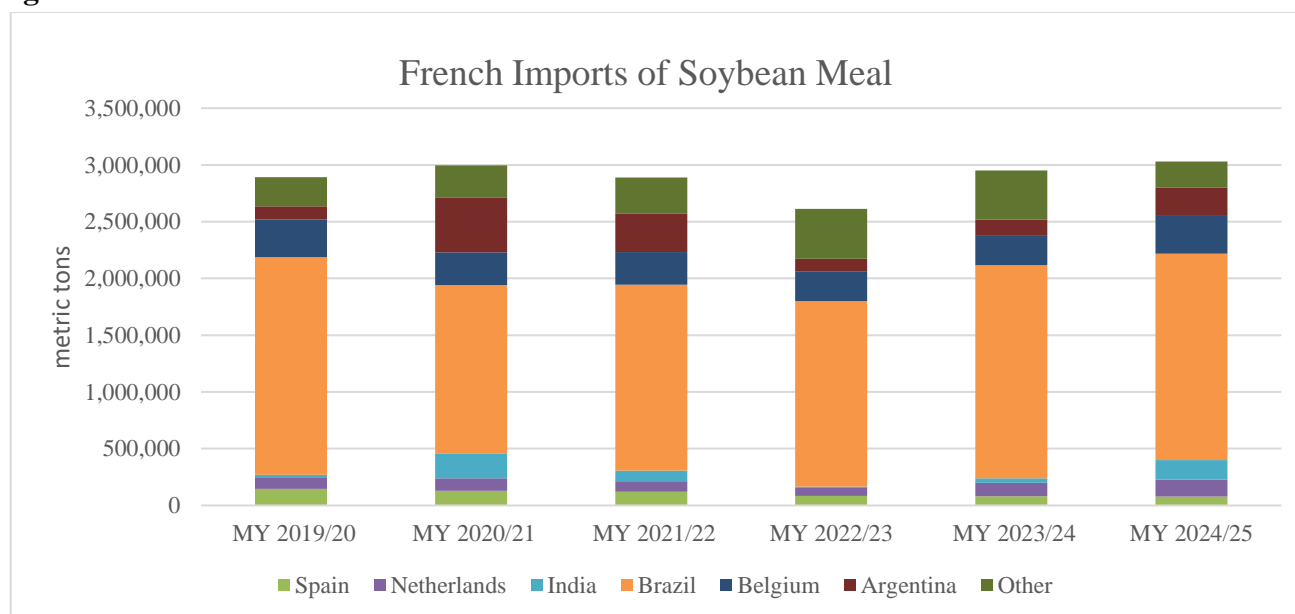
Non-GE soybean meal accounts for about 300 percent of the French market. In addition to non-GE soybeans grown within the EU, France’s main suppliers of non-GE soybeans meal include India and Togo. GE-free soybean meals typically come with a price premium, approximately 260 euros per metric ton more expensive than GE soybean meal. This higher cost is due to limited supply and the added logistical expense of keeping non-GE soybeans meals separated during transportation and storage.

**Figure 1**



Source: Trade Data Monitor

**Figure 2**



Source: Trade Data Monitor

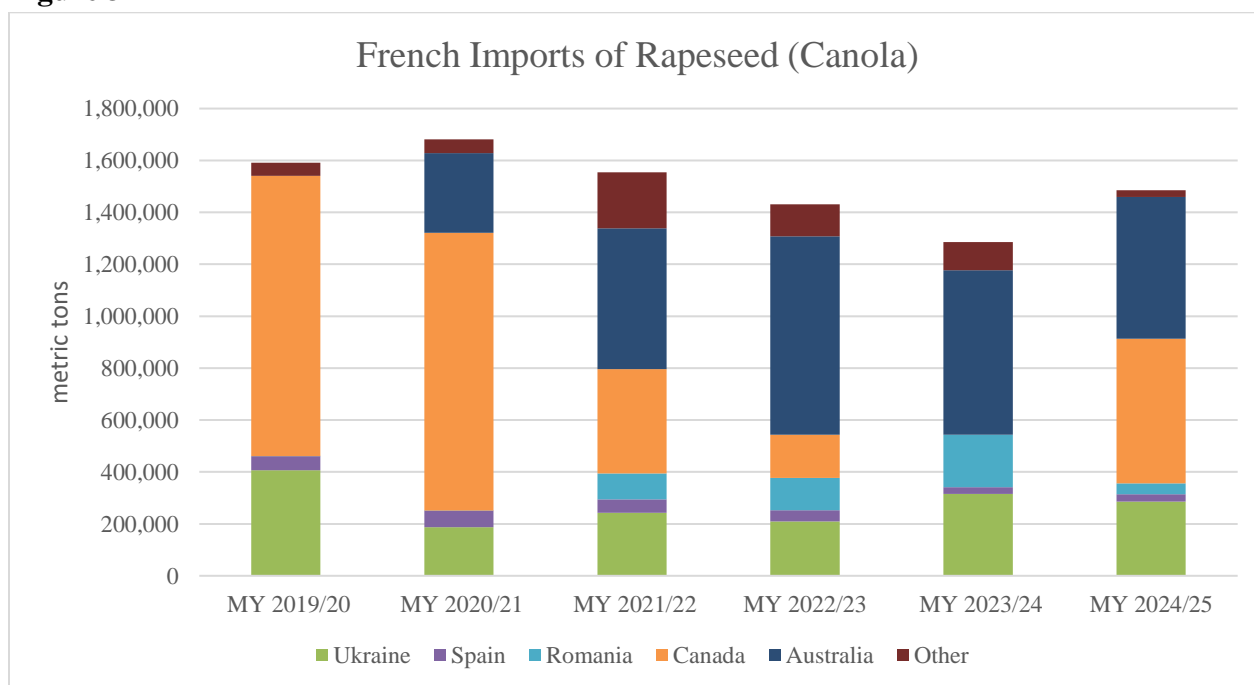
The limited availability of non-GE soybeans has significantly increased costs for many French products with Geographic Indication (GI) status. GI meat and dairy products often require strict use of non-GE feed. To address this challenge, French agriculture is promoting the production of locally grown non-GE protein crops to reduce reliance on imported GE soybeans. With support from subsidies and incentives under the EU Common Agricultural Policy (CAP), France increased its production of non-GE protein crops from 754 TMT in MY 1993/94 to 1,002 TMT in MY 2023/24.

The European Union is also working to boost local production of plant proteins. For more details, refer

to the European Commission’s November 2018 report, *The Development of Plant Proteins in the European Union*. However, it is worth noting that the EU’s final report on its Protein Strategy does not address how restrictions on agricultural biotechnology may hinder efforts to develop more productive and resilient crops that can adapt to the EU’s climate and environmental conditions.

France primarily imports GE-free rapeseed (canola) from Australia, Ukraine, Romania and Spain. Canada remains a very important rapeseed provider for the GE French market.

**Figure 3**



Source: Trade Data Monitor

**Table 2 - Share of GE Rapeseed in Total Rapeseed Production**

Country	Share of GE Rapeseed
Australia	20%
Canada	95%
Romania	0%
Spain	0%
Ukraine	10-12% (estimated)

Sources: [ISAAA 2019](#), FAS and national governments

France imports small quantities of corn from countries that produce GE corn. In the last five years, France imported on average 567 TMT of corn per year. Despite fluctuations in feed demand, the share of GE corn in imports has been trending downward recently.

Table 3 shows that GE-corn imports have been slightly decreasing over the last two years. The main GE corn providers are the United States, South Africa, and Spain.

**Table 3 - Origin of France’s Imports of Corn**

<b>Year</b>	<b>Total World Imports (Metric Tons)</b>	<b>Potential GE Imports (Metric Tons)</b>	<b>Potential GE Imports (%)</b>
2019/2020	675,505	7,752	1.8
2020/2021	463,203	26,932	1.7
2021/2022	482,786	17,767	5.4
2022/2023	690,188	87,518	3.8
2023/2024	308,802	9,957	3.3

*Source: Trade Data Monitor*

**Table 4 - Share of GE Corn in Total Corn Production – 2018**

<b>Country</b>	<b>Share of GE Corn</b>
South Africa	87%
Spain	35%
United States	92%

*Source: ISAAA and FAS (2018)*

France imports small quantities of corn processing by-products from countries that produce GE corn. France imports Distiller’s Dried Grains with Solubles (DDGS) mainly from the Netherlands, Belgium, and Germany. The United States exported only negligible quantities of DDGS to France in the past five years.

**Table 5 - Origin of France’s Imports of DDGS**

<b>Year</b>	<b>Total World Imports (MT)</b>	<b>Potential GE Imports (Metric Tons)</b>	<b>Potential GE Imports (%)</b>
2020	282,463	5,084	1.8
2021	313,057	1,842	1.7
2022	318,354	1,791	5.4
2023	225,812	8,580	3.8
2024	253,295	8,358	3.3

*Source: Trade Data Monitor*

## Growing Imports of U.S. GE Cotton

Parallel to feed imports, France also imports small quantities of cotton. In MY 2024/2025, the United States was France's second-largest supplier after Turkey, with 92 percent of U.S. cotton planted being genetically engineered.

**Table 6 - Origin of France's Imports of Cotton**

Year	Total World Imports (Tons)	Potential GE Imports (Tons)	Potential GE Imports (%)
2020/2021	8,876	1,391	17
2021/2022	8,549	2,006	26
2022/2023	7,368	998	15
2023/2024	7,117	1,157	18
2024/2025	7,949	1,116	15

*Source: Trade Data Monitor*

GE cotton, which does not require special labeling, benefits from wider acceptance, or at least indifference, from French consumers and authorities. Euro banknotes are mostly made from GE cotton.

### e) **FOOD AID**

France provides food aid in various forms, including food, money, equipment, seeds, and veterinary services, explicitly excluding GE products. This aid is offered both as planned assistance and emergency relief during crises, whether climatic, economic, social, or political. The distribution channels for this aid are:

- international organizations: Over 75 percent of the total budget, including entities like the World Food Program and the International Committee of the Red Cross.
- non-governmental organizations (NGOs): 15-20 percent of the total budget, with organizations such as Action Against Hunger.
- direct aid: 5-10 percent of the total budget.

For the period 2021-2027, France's food aid budget is 869 million euros, reflecting a 48 percent increase from the previous budget period to address the heightened demand due to the COVID-19 crisis.

Since the beginning of the conflict in Ukraine, France has provided diverse food aid: rations and prepared meals, seeds and plant seedlings to support local production, and support for school canteens through the "Solidaires du peuple ukrainien" program.

## f) **TRADE BARRIERS**

In 2015, the European Commission proposed a regulation allowing EU member states to restrict or ban the use of already authorized genetically engineered (GE) crops or products for reasons beyond those assessed at the EU level. France opposed this proposal, arguing that it contradicted the principles of the single market and could conflict with international trade agreements. French policymakers are cautious about imposing additional restrictions, as the livestock and poultry sectors already face difficulties sourcing non-GE feed ingredients.

As a result, France has taken a mixed approach to GE products, neither fully banning nor fully accepting them. FNSEA, France's largest farm union, also opposes the opt-out proposal, advocating for consistent rules across the EU market, but supports a clear legal framework for NGTs as recognition of science and innovation in addressing agricultural and environmental challenges.<sup>4</sup>

Meanwhile, anti-biotech activists criticize the proposal, claiming that member states would struggle to justify restrictions in ways that comply with EU laws and international trade obligations.

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<sup>4</sup>(In French only) [fnsea.fr](http://fnsea.fr)

## PART B - POLICY

### a) REGULATORY FRAMEWORK

#### i. Table of legal terms

Legal Term (in official language)	Legal Term (in English)	Laws and Regulations where term is used	Legal Definition (in English)
Organisme génétiquement modifié (OGM)	Genetically Modified Organisms (GMO)	<u>Code de l'environnement</u> , articles L. 125-3, L. 531-1 à L. 537-1, D.531-1 à R. 536-11 <u>Code rural et de la pêche maritime</u> , articles L. 250-1 et suivants, L. 251-18-1, L. 663-1 à L. 663-4, D.663-1 à D. 663-6.	- organism, excepting human beings, in which the genetic material has been altered in a way that does not occur naturally by mating and/or natural recombination. - an organism (animal, plant, bacterium) whose genetic material has been modified using a technique known as "genetic engineering" to confer a new characteristic.
Les nouvelles techniques génomiques/de sélection <sup>5</sup>	New genomic techniques (NGT/NBT)	Judgment of the Court of Justice of the European Union (CJEU) of 25 July 2018- <a href="#">CURIA - Documents</a>	-methods for precisely modifying an organism's genetic material, including targeted genome editing (such as CRISPR-Cas9), gene expression regulation through RNA-dependent DNA methylation, and gene transfer within the same species

European regulations mandate that a GE product cannot be placed on the market or released into the environment without prior authorization, following a case-by-case risk assessment for health and environmental impacts, requiring monitoring, traceability, and labeling. France adheres to the EU biotechnology regulatory framework.

Key regulatory texts include:

<sup>5</sup> (In French only) [Les nouvelles technologies de sélection | Ministère de l'Agriculture, de l'Agro-alimentaire et de la Souveraineté alimentaire](#)

- Directive 2001/18/EC: On the deliberate release of GE crops into the environment.
- Regulation (EC) No 1829/2003: On genetically modified food and feed.
- Regulation (EC) n°1830/2003: Concerning the traceability and labeling of GE products.
- French national legislation on GE crops and products is encapsulated in the Environmental Code and the Rural and Maritime Fishing Code.

France, together with the other EU member states, have been negotiating mandates for NGT's at the European level since 2023. At the national level, the National Assembly demonstrated its interest in this topic by sharing the Information Report "A New European Regulation for Plants Derived from New Genomic Techniques" in June 2025.<sup>6</sup>

## ii. **Responsible government ministries and their role**

The French Ministry of Agriculture & Food and the Ministry for Economy & Finance, through the Fraud Control Office (DGCCRF), enforce GE products commercialization and cultivation regulations. Controls include:

- Crops: Ensuring compliance with the GE crops cultivation ban.
- Seeds: Checking for GE presence and labeling compliance.
- Foodstuffs and Animal Feed: Verifying the absence of unauthorized GE products and labeling compliance.

The Ministry of Higher Education, Research and Innovation issues approvals for GE use in research, development, and teaching. The Ministry of Health and the Ministry of Ecological Transition have advisory roles regarding health and environmental issues linked to GE.

## iii. **Role and membership of the biosafety authority**

Before 2022, the High Council for Biotechnology (HCB) and ANSES were responsible for monitoring and assessing the risks of GE products. However, the HCB was dissolved on January 1, 2022. Its scientific responsibilities were transferred to ANSES, while its socio-economic and ethical functions were divided among ANSES, the French Economic, Social and Environmental Council, and the French government's advisory council on bioethics.

In early 2024, ANSES called for updated regulations on New Genomic Techniques (NGTs), particularly in plant variety development. To support ongoing discussions about changes to European GE regulations, ANSES assessed NGT-related issues. The agency recommended a case-by-case

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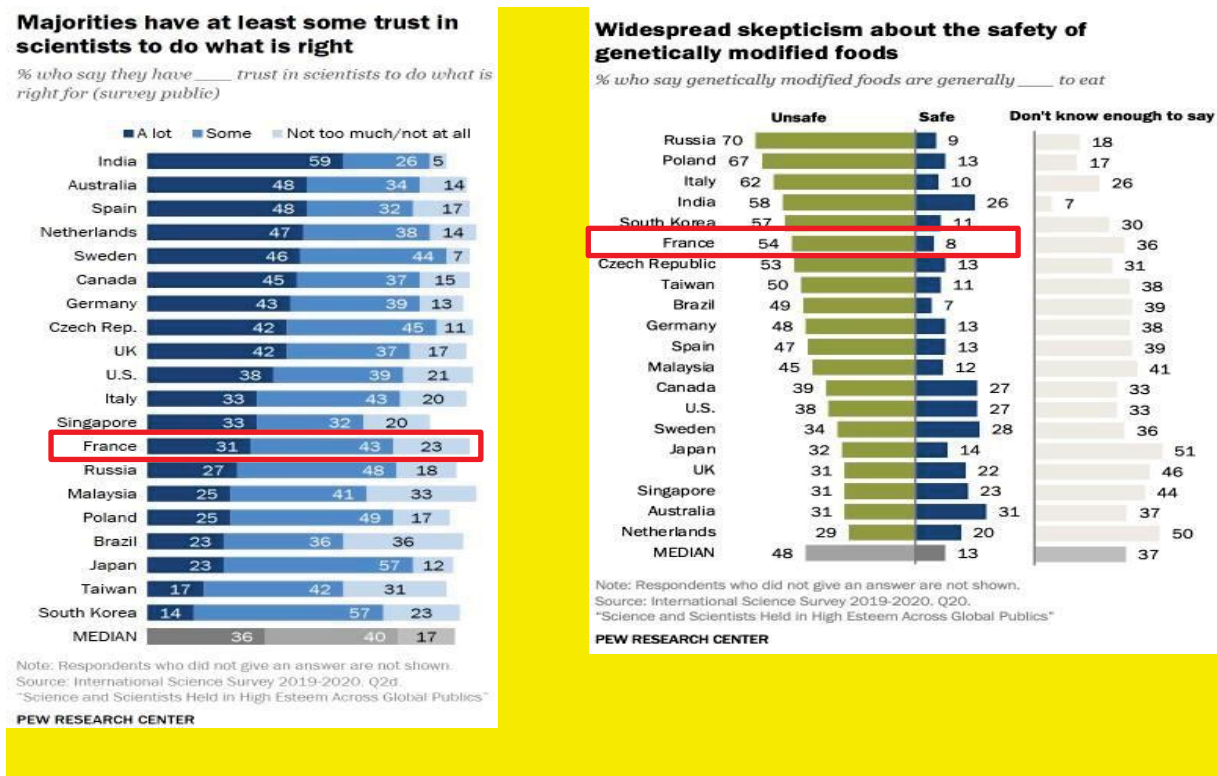
<sup>6</sup>(In French only) [Rapport d'information "Un nouveau Règlement européen pour les plantes issues des nouvelles techniques génomiques" \(M. Pierre Henriet\), n° 1576 - 17e législature - Assemblée nationale](#)

evaluation approach and proposed a robust monitoring system to ensure proper oversight.<sup>7</sup>

#### iv. Political factors influencing regulatory decisions

Opponents of biotechnology have successfully influenced public opinion, shaping political and regulatory decisions through fear and misinformation. In the last couple of years, the agrifood sector faced major challenges, including droughts, heatwaves, and the impacts of the war in Ukraine. These events highlighted the importance of food sovereignty and the potential benefits of agricultural technologies, including NBTs (New Breeding Techniques). President Macron, reelected in April 2022, expressed support for NBTs, emphasizing their role in improving productivity and resilience in agriculture.

Figure 4



<sup>7</sup>(In French only) <https://www.anses.fr/fr/content/nouvelles-techniques-genomiques-lanses-appelle-une-reglementation-adaptee>

## vi. **Distinctions between regulatory treatments**

France allows the import of genetically engineered (GE) products to meet the demand for protein-rich animal feed but prohibits research and cultivation of biotech crops. While the European Union oversees the approval process for biotech products, France can enforce its own regulations as long as they align with EU rules. However, despite EU approval, France has banned the cultivation of MON810 corn.

## vii. **Legislation and regulations affecting U.S. trade**

U.S. trade is affected by France's national ban on GE crop cultivation and its non-biotech labeling system. (See Labeling and Traceability section below.) During its EU Council Presidency in 2022, France pushed for "mirror clauses" requiring imported food and agricultural products to meet EU production standards in order to ensure the competitiveness of domestic fruits and vegetables. These clauses could impact GE products entering the EU market. During the 29th plenary meeting of the Joint Committee on Fruit and Vegetables held in Paris in November 2024, Spain, Italy and Portugal joined France in promoting "mirror clauses". The "mirror clauses" are still an ongoing debate at the EU level.

## viii. **Timeline for approvals**

European Directive 2001/18/EC and Regulation (EC) No 1829/2003 establish the process for approving the release and market authorization of GE plants. For further details, consult the USDA EU-28 Agricultural Biotechnology Annual report.

### **b) APPROVALS**

All genetically engineered (GE) events approved for feed and food use under Regulation EC 1829/2003<sup>8</sup> are authorized in France. The complete list of these products, including those pending authorization, is available on the European Commission's website. MON810 corn remains the only GE plant approved for cultivation in the EU, but its cultivation is banned in France under national law and Directive (EU) 2015/412.

### **c) STACKED OR PYRAMIDED EVENT APPROVALS**

EU regulations, specifically Regulation (EU) No 503/2013, Annex II, apply to France. The risk assessment for stacked events must include:

- Stability of the events
- Expression of the events
- Potential interactions between the events

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<sup>8</sup> (In French only) [EUR-Lex - Official Journal of the European Union](#)

Applicants must provide a risk assessment for each single event or refer to previously submitted applications.

#### **d) FIELD TESTING**

In France, the deliberate release of a GE plant into the open environment, even for research, requires prior approval from the Ministry of Agriculture.<sup>9</sup> The Ministry considers the High Council for Biotechnology (HCB)'s opinion on potential public health and environmental risks before granting authorization<sup>10</sup>. Additionally, the Ministry must hold a public consultation and notify local authorities about the location of test plots. Authorizations can be amended or suspended based on new information.

Twenty years ago, there were nearly 800 field experiments, but the last open-field test occurred in 2013. Currently, no field tests are conducted in France due to the risk of sabotage by anti-GE activists. These activists have destroyed property and launched media campaigns to intimidate biotechnology research. The lack of punitive action against such sabotage has discouraged both public and private research organizations. Consequently, some French laboratories conduct GE plant field tests in other countries.

#### **e) INNOVATIVE BIOTECHNOLOGIES**

On July 25, 2018, the European Court of Justice (ECJ) ruled that organisms created through genome editing techniques are to be regulated as GE products in the EU. On November 8, 2019, the Council requested the European Commission study the status of novel genomic techniques under the EU law and propose actions if necessary. On April 29, 2021, the European Commission published a report concluding that the 2018 ECJ directive is not suitable for newer biotechnology products (New Breeding Techniques) and recommended targeted policy action. The report noted that genome editing could contribute to the European Green Deal's Farm to Fork and Biodiversity Strategies. The 2018 ECJ ruling and its 2021 dismissal by the European Commission have caused confusion in France. Environmentalist lobbies have pushed for mutagenesis bans based on the 2018 directive, leading to legal challenges.

The French State Council sided with environmentalists, making it compulsory for the government to ban mutagenesis, despite potential internal market disruptions and sanctions. On October 27, 2022, the First Advocate General of the Court of Justice of the European Union ruled that random mutagenesis applied in vitro must be excluded from EU GE regulations. The French government has not officially responded, leaving France's stance on mutagenesis unclear.

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<sup>9</sup> (In French only) [La situation des OGM en France | Ministère de l'Agriculture, de l'Agro-alimentaire et de la Souveraineté alimentaire](#)

<sup>10</sup>(In French only) [N° 4618 tome I - Rapport, établi au nom de cet office, sur les enjeux économiques, environnementaux, sanitaires et éthiques des biotechnologies à la lumière des nouvelles pistes de recherche](#)

In 2023, the European Commission proposed a regulation on plants obtained through certain NBTs to modernize the EU's GE framework and provide a clear legal pathway for the release and market authorization of genetically engineered plants. The regulation aims to balance innovation in agricultural biotechnology with the protection of human and animal health, the environment, and the internal market. It classifies NGT plants into two categories: Category 1, equivalent to conventionally bred or naturally mutated plants and exempt from GE legislation with no labeling required, and Category 2, with more complex modifications that remain subject to GE rules, including risk assessment and labeling. The proposal also addresses intellectual property rights, coexistence with organic farming, and the impact of patents on access to plant reproductive material.

The legislative process is ongoing with the European Parliament and the Council of the EU currently reviewing the proposal; the Council adopted its negotiation position on March 14, 2025, and the regulation will enter into force once both institutions reach an agreement.

#### **f) COEXISTENCE**

French legislation aims to limit the spread of GE plants outside designated zones. Cultivation, harvest, storage, and transportation of GE crops are subject to technical rules set by the Minister of Agriculture, including safety zones. When GE corn was grown in France, a buffer zone of 24 rows and 50 meters was enforced. Research programs studied coexistence under real field conditions, and a guide for GE corn cultivation was published.

French legislation mandates nationwide "biological monitoring" to observe plant health and evaluate agricultural practices, including GE use. The Committee for Biological Monitoring of the Territory, created by the 2008 law on GE plants, coordinates this effort and submits annual reports to Parliament. GE crop producers are liable for accidental spread causing economic harm to non-GE crop producers and must obtain liability insurance, though enforcement mechanisms are inadequate.

#### **g) LABELING AND TRACEABILITY**

##### **i. The Voluntary "GE Free" Labeling System**

French labeling regulations comply with EU requirements for labeling food and feed produced from or containing GE products. The French Fraud Control Office (DGCCRF) enforces these regulations. Since 2012, a voluntary "GE Free" labeling system has been in place, with criteria varying based on ingredient origin (plant, animal, or bee).

- Plant Origin: Ingredients can be labeled "GE-free" if derived from raw materials containing a maximum of 0.1% GE product.
- Animal Origin: Products may be labeled "from animals fed without GE products (<0.1%)"

or "from animals fed without GE products (<0.9%)."

- Beekeeping Origin: Ingredients may be labeled "GMO-free within a radius of 3 km" if the distance between hives and GE fields is maintained.

Reference to the absence of GE products will appear most often in the list of ingredients; however, GE free labels can also be printed on the main visual of the packaging should the GE-free ingredient represent more than 95 percent of the food item.

European organic farming regulations strictly prohibit the use of GE products. The 0.9 percent threshold for accidental and technically unavoidable presence, set by general legislation, is in no way a tolerance; it represents a labeling requirement that is not specific to organic farming.

French seed producers welcome the future NGT regulation but warn about the enormous costs of labeling all the way to the final product and the risks associated with patents. Researchers also emphasize the difficulty of traceability, as genetic modifications can be practically undetectable without access to the original sequence.

#### ii. Voluntary Private Initiatives

Food products from animals fed with GE products are not labeled to reflect their GE status. However, there is growing interest in non-GE labeling initiatives from private companies to meet consumer demand for sustainability and transparency.

### **h) MONITORING AND TESTING**

Inspections are carried out by several government agencies, notably the Directorate-General for Competition, Consumer Affairs and Fraud Control (DGCCRF), the Directorate-General for Food (DGAL), and ANSES. These organizations are responsible for monitoring the safety of food products, seeds, and crops, as well as ensuring fairness in commercial transactions.<sup>11</sup> GE product developers must also monitor their products for potential non-intentional effects.<sup>12</sup> The latest reported GE incident in France occurred in 2018 with unauthorized transgenic rapeseed.

#### **i) LOW LEVEL PRESENCE POLICY**

In 2011, the European Commission established a "technical zero" tolerance of 0.1 percent for unauthorized GE products in feed, applicable only to GE products authorized in a non-EU country and pending EU authorization. This tolerance does not apply to food and seeds.

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<sup>11</sup> (In French only) [pncopa\\_2021-2025.pdf](#)

<sup>12</sup> (In French only) [20230126-Avis-AT-Nouvelles-technologies-genomiques-plantes.pdf](#)

## **j) ADDITIONAL REGULATORY REQUIREMENTS**

French law requires GE farmers to notify neighboring farmers and declare GE crop locations to the government, which are entered into a public register. Activists have used this register to sabotage field trials. Penalties for failing to declare GE crop locations include fines and imprisonment, but enforcement has been inconsistent.<sup>13</sup>

## **k) INTELLECTUAL PROPERTY RIGHTS**

France supports the plant certificate system under the International Union for the Protection of New Varieties of Plants (UPOV) rather than the patent system. French law limits the patentability of living organisms, with specific articles in the Code of Intellectual Property addressing this.

Article L611-19 (in French) of the Code of Intellectual Property states that “products obtained exclusively through essentially biological processes, the elements that compose them and the genetic information they contain” are not patentable.

Article L613-2-3 (in French) of the Code of Intellectual Property states that when a plant obtained through essentially biological processes has the same characteristics as a patented biological material, the patent does not apply to this plant.

In December 2018, the European Patent Office (EPO) reversed its 2017 decision establishing that European patents shall not be granted for plants or animals exclusively obtained by means of “essentially biological processes.” The French seed industry deplored this reversal that creates legal uncertainty for plant breeders due to the contradiction between French and EU regulation.

In debates on NBT, patents and plant variety protection serve different purposes. Patents cover specific plant traits, like DNA segments, which can be used across multiple varieties to improve things like disease resistance. These traits aren’t protected by plant variety rights. Because developing such traits through research and genetic modification is costly, companies want patent protection for both the traits and the plant varieties.

The French Association of Plant Biotechnology (FAPB) stresses the importance of protecting innovation while keeping plant genetic resources accessible. They suggest a fair system that supports access to patented tools and materials, maintains seed diversity, and allows the production of crops without patents. The FAPB has shared several ideas to make it easier to identify, access, and use intellectual property and is urging the EU Council to approve the NGT proposal with small clarifications, without including patent rules that they argue haven’t been fully assessed.

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<sup>13</sup> (In French only) [La loi française sur les OGM – Inf’OGM](#)

French seed producers, represented by the French Union of Seed Producers (UFS) who are in favor of the NGT EU regulation proposal, are worried about the proposed ban on patenting NTG1 plants. They say it could make it harder to invest in new seed varieties, slow down innovation, and reduce protection for their work. Without patents, companies might have to rely on trade secrets, which are less secure, and the market could become dominated by a few big players, making it harder for farmers to access diverse seeds.

## **l) CARTAGENA PROTOCOL RATIFICATION**

France ratified the Cartagena Protocol on Biosafety (CPB) in 2003, ensuring the safe handling, transport, and use of living modified organisms. The competent national authorities include the Ministry of Higher Education and Research, the Ministry of Ecology, the Ministry of Economy, ANSES, and the Ministry of Agriculture.

## **m) INTERNATIONAL TREATIES AND FORUMS**

As an EU member state, France aligns its position with the EU in international organizations such as the Organization for Economic Cooperation and Development (OECD), Food and Agriculture Organization of the United Nations (FAO), European and Mediterranean Plant Protection Organization (EPPO), and Codex Alimentarius. France actively promotes its views on biotechnology in these forums.

## **PART C – MARKETING**

### **a) PUBLIC/PRIVATE OPINIONS**

Public understanding of agricultural biotechnology in France remains limited. Since 2016, mainstream media has focused heavily on the actions of anti-biotech groups, often neglecting to explain the scientific risks or potential benefits of these innovations for agriculture and food production. There is a noticeable division in public acceptance between medical biotechnology (often called “white” biotechnology) and agricultural biotechnology (“green” biotechnology). While medical applications of DNA sequencing and genome editing are widely supported, agricultural applications face skepticism. Despite the relevance of risk and ethical considerations to both fields, agricultural biotechnology rarely receives the same objective coverage as medical advancements.

When French microbiologist Emmanuelle Charpentier and American biochemist Jennifer Doudna won the Nobel Prize for Chemistry in 2020 for their work on the CRISPR-Cas system, the French media celebrated their achievement. However, the use of CRISPR-Cas techniques in agriculture and forestry has generated little public interest.

The French government distinguishes between “first-generation” genetically engineered (GE) plants,

such as herbicide- and insect-resistant crops, which are widely opposed, and “second-generation” GE plants, which offer direct consumer or environmental benefits, such as improved nutritional value, reduced nitrogen use, or enhanced water efficiency. While there is some willingness to discuss second-generation plants, strict regulations remain in place.

A shift in public discourse occurred in 2021 and 2022 due to food and feed shortages caused by the pandemic, the war in Ukraine, and extreme weather events. These crises highlighted the potential benefits of agricultural biotechnology. However, France’s public research network faced criticism for lagging in green biotechnology research and plans to develop genetic selection tools to improve crop varieties for better climate resilience have yet to be formally launched.

Anti-biotech activists continue to oppose research and imports of GE products. Civil society organizations have been fighting agricultural biotechnology since the 1990s, citing risks and advocating for the precautionary principle. These groups view biotechnology as dangerous, offering little public benefit, and driven by profit-seeking corporations. They often discredit regulatory experts by alleging conflicts of interest, while not applying the same transparency standards to their own campaigns. Some activists have even engaged in illegal actions, such as destroying crops and seeds, to further their cause.

Public opinion generally supports these groups, seeing them as defenders of the public good against large corporations. Politicians often adopt neutral positions to avoid political backlash. Since 2013, anti-biotech activists have also destroyed imported products, including seeds and conventional crops. In 2019, activists blocked a shipment of 50,000 tons of GE soy from Brazil at the Port of Sète, citing concerns about Amazon deforestation. In November 2021, activists known as “voluntary reapers” destroyed bags of herbicide-tolerant sunflower seeds. Legal responses to these actions have been inconsistent. Some activists have been acquitted, while others have faced fines or suspended prison sentences.

In April 2021, the European Commission published a study on NBTs, concluding that the existing “GE Directive” was not suitable for regulating NBTs. The study sparked mixed reactions, with some critics labeling NBTs as “New GMOs.” French opponents argue that the European Commission is disregarding the precautionary principle and exposing the public to new risks.

On November 22, 2022, Greenpeace organized protests in 23 French cities, urging supermarkets to pressure the government to mandate labeling for products containing GE, including those developed using NBTs. Greenpeace claims that NBTs pose the same risks as traditional GE crops and reinforce the economic power of multinational corporations, contributing to agricultural industrialization and farmer dependence.

## b) **MARKET ACCEPTANCE/STUDIES**

Acceptance of GE crops in France varies among consumers, retailers, the food industry, and farmers. French consumers generally have negative attitudes toward GE products and try to avoid them.

According to a 2019 Eurobarometer survey on food safety, only 28 percent of French consumers listed “GE ingredients in food or drinks” as a top concern. Media coverage has focused more on pesticides, often overlooking biotechnology’s potential to reduce pesticide use. A 2022 IFOP survey revealed widespread skepticism about GE, with 81 percent of respondents expressing unfavorable opinions and 44 percent believing GE have proven harmful effects.

Price remains the main deciding factor for both consumers and retailers. Since most GE-free products tend to be more expensive, this strongly affects consumer choices. French consumers generally value local and seasonal products and show a preference for organic options. However, despite market growth in recent years, the organic sector remains relatively stagnant and somewhat fragile due to high production costs, policy constraints, and environmental challenges.

A similar dynamic applies to retailers, particularly large supermarket chains. While they often prefer to stock GE-free products, they are likely to switch to GE-based alternatives or reduce their GE-free range if prices are not competitive. This marks a shift from previous years, when demand for GE-free products was much stronger.

The industry is taking steps to limit the use of GE feed in livestock production, and organic farmers take pride in offering GE-free products. However, many report that their profit margins have declined recently. The animal production sector continues to rely heavily on imported soybean products for feed, where GE varieties are widely used and preferred by producers for their higher yields and lower costs.

## **CHAPTER 2 – ANIMAL BIOTECHNOLOGY**

### **PART D – PRODUCTION AND TRADE**

#### a) **PRODUCT DEVELOPMENT**

France uses animal biotechnology and cloning in research to:

- Study diseases by creating animal models of human illnesses using genome editing and genetic engineering.
- Develop tissues or organs from genetically engineered (GE) pigs for xenotransplantation.
- Produce pharmaceutical proteins (e.g., blood factors, antibodies, vaccines) in mammalian

milk, chicken egg whites, or lab-grown animal cells.

- Enhance animal breeding practices.

#### b) **COMMERCIAL PRODUCTION**

No GE animals for food use are commercialized in France.

One company is producing GE larvae for biocontrol purposes in a confined laboratory environment. Created in 2005 as a spin-off of the Natural History Museum and the French National Centre for Scientific Research (CNRS), Watch Frog modifies the genome of amphibians so that larvae emit fluorescence in the presence of certain pollutants. The company is part of the U.S. Environmental Protection Agency's ToxCast program to detect endocrine disruptors.

WatchFrog's testing method received the OECD's seal of approval as the organization considers that, because WatchFrog uses embryos at a very early stage, it does not work with animals but rather with micro-organisms. Following an evaluation, the Ministry of Research granted in 2008, and renewed in 2013, a group I approval for the use of GEXenopus laevis larvae (for detection of polluting or pharmaceutical substances) and medaka larvae (for detection of estrogenic substances). Following an additional evaluation carried out by the HCB, another group I approval was granted "for the flow detection equipment of pollutants or toxic substances by the use of transgenic larvae of class 1."

#### c) **EXPORTS**

A French company was active in exporting cloned horses between 2005 and 2006, but the company ceased operations in 2016.

#### d) **IMPORTS**

It is widely believed that France has imported semen and embryos from cloned animals or their offspring. The specific quantity of these imports is not available. In 2015, an expert report submitted to the European Commission admits that there is a "possibility" that food from clone offspring may be found on the plates of European consumers. This is due to imports of meat and milk from third countries, but also because of imports of live animals and genetic material used for animal reproduction.

#### e) **TRADE BARRIERS**

Public and governmental opposition limits the use of products obtained through animal biotechnology and cloning.

## **PART E – POLICY**

### **a) REGULATORY FRAMEWORK**

No biotech animals are approved for feed or food use in the EU, as no applications have been submitted. Food from cloned animals falls under the "Novel Food Regulation" and requires authorization.

### **b) INNOVATIVE BIOTECHNOLOGIES**

France has no specific regulation for innovative biotechnologies in animals. The HCB and the Veterinary Academy of France have called for updated EU legislation to foster innovation and address the rapid evolution of genome editing technologies.

### **c) LABELING AND TRACEABILITY**

Laboratory animals developed through biotechnology are labeled and traced, with no release into the environment. Cloned sport horses are released. A 2014 incident involved a genetically modified ewe lamb sent to a slaughterhouse was deemed a malicious act but with no health risks.

### **d) INTELLECTUAL PROPERTY RIGHTS**

French regulations align with the EU.

### **e) INTERNATIONAL TREATIES AND FORUMS**

France aligns its position with the EU in international organizations such as the OECD, OIE, FAO, and Codex Alimentarius, actively promoting its views on animal biotechnology.

## **PART F – MARKETING**

### **a) PUBLIC/PRIVATE OPINIONS**

France's livestock industry does not favor the commercialization of GE animals, clones, and their offspring for food or agricultural purposes but shows strong interest in animal genomics and marker-assisted selection for breeding. Cloning could gain acceptance for endangered species and pets, but current legislation prohibits it. Animal rights activism has become more assertive, targeting research facilities, farms, and slaughterhouses. Groups like L214 and DxE influence public opinion against industrial farming and animal biotechnology.

## b) **MARKET ACCEPTANCE/STUDIES**

Market acceptance of GE animals, clones, and their offspring is low among producers and consumers. Public awareness of biotech research on insects is also low.

## **CHAPTER 3 – MICROBIAL BIOTECHNOLOGY**

### **PART G – PRODUCTION AND TRADE**

Obtaining information about the development and production practices of GE microorganisms is challenging both in France and at the European level. Microbial biotechnologies focus on microorganisms used as "tools" in manufacturing, transformation, or degradation processes for industrial purposes. The aim is to develop plant species with improved characteristics to reduce the use of fertilizers and pesticides, making them more resistant to pests and diseases, which should help reduce greenhouse gas emissions. Such plants could be cultivated on polluted soil or irrigated with saltwater, and they would require less water for crops. Microbial biotechnology plays a crucial role in the bio-industry, utilizing various bacteria that produce enzymes.

#### a) **PRODUCT DEVELOPMENT**

Although no transgenic bacteria are currently authorized in food in France, the scientific community recognizes that their use could solve many problems faced by the food industry during manufacturing processes. The Laboratory of Microbial Biodiversity and Biotechnology (USR3579 - LBBM), a joint venture between Sorbonne Université and CNRS, is the main actor in this field.

#### b) **COMMERCIAL PRODUCTION**

There are no officially registered microbial biotech-derived products in France at this time.

#### c) **EXPORTS**

In 2022 French startup Gourmey raised funding and started working cultivated meat and producing artificial foie gras using stem cells from fertilized duck eggs in fermenting tanks, significantly reducing emissions and reliance on animal products. While currently only able to sell in Singapore, Gourmey is working with food safety authorities to gain approval in other regions such as EU.

French startup Vital Meat submitted a dossier to food regulators in England and Scotland in 2024, for its cultivated chicken. Vital Meat, which uses pharmaceutical technology to transform cells from fertilized chicken eggs into cultivated meat, expects to receive regulatory clearance in Singapore.

#### **d) IMPORTS**

No official information concerning microbial biotechnology-based products is available for imports.

#### **e) TRADE BARRIERS**

Public and governmental opposition limits the use of products obtained through any kind of biotechnology product (bacteria included).

### **PART H – POLICY**

#### **a) REGULATORY FRAMEWORK**

France operates under the EU biotechnology regulatory framework. According to Article L230-5 - Rural and Maritime Fishing Code" in effect since August 25, 2021, the French law prohibits cellular meat's use in collective catering services.

Former Prime Minister Gabriel Attal, during his press conference at Matignon on February 1, 2024, called for clear European legislation on synthetic meat, deeming it incompatible with "our French conception of food." However, perspectives have since changed as, according to the interministerial report of June 2024 titled "Prospective for the French Agri-Food Industry by 2040" and published on February 12, 2025, these new products, including cellular meat, are now being considered as a potential component of the future food supply.

The French Senate's Economic Affairs Committee has stated its opposition to cellular foods, arguing that, while the technology shows promise for environmental and animal welfare, it could negatively impact livestock farming.

#### **b) APPROVALS**

There is no national policy specific to approvals of microbial biotechnology.

#### **c) LABELING AND TRACEABILITY**

There is no national policy specific to labeling and traceability of microbial biotechnology.

#### **d) INTELLECTUAL PROPERTY RIGHTS**

French regulations align with the EU.

## **e) INTERNATIONAL TREATIES AND FORUMS**

France aligns its position with the EU in international organizations such as the OECD, OIE, FAO, and Codex. Most biotechnology related trade barriers in France have their origins in EU regulation.

There is no information on any additional biotechnology-related trade barriers that negatively affect U.S. exports of microbial biotech-derived food ingredients or processed food products containing microbial biotech-derived food ingredients.

## **PART I – MARKETING**

### **a) PUBLIC/PRIVATE OPINIONS**

There is little public awareness of microbial biotechnology in France. Since GE microorganisms in France are generally contained and absent in the final product, the French public may not be as averse to the use of this technology, with the possible exception of cellular food such as cultivated meat, which has generated multiple discussions.

### **b) MARKET ACCEPTANCE/STUDIES**

There is no public awareness of microbial biotechnology in France

### **Attachments:**

No Attachments