



GM WHEAT UPDATE

“The markets are still closed to GM wheat, regardless of the biotech industry’s endless and unfulfilled promises of ‘environmental’ applications or agronomic miracles.”

– Arnold Taylor, Saskatchewan farmer and Chair, Organic Agriculture Protection Fund, SaskOrganics, November 5, 2020¹

First approval of GM wheat

The first-ever genetically modified (GM or genetically engineered) wheat has now been approved for eating and growing in Argentina and Brazil, and it has been approved for eating in Australia and New Zealand, as well as Nigeria. It is genetically engineered to be drought-tolerant.

The company Bioceres says that it will market its GM wheat in Argentina in 2023, but says it will focus on working with seed “multipliers,” dedicated to increasing seed numbers rather than turning the grain into flour.² The GM wheat needs further testing to adapt the seeds to Argentine and Brazilian growing conditions.

In October 2020, the Government of **Argentina** approved the production and consumption of a genetically engineered (GM or genetically modified) wheat, contingent on its approval in Brazil, which is Argentina’s major market for wheat.

In November 2021, **Brazil** approved the importation of flour from the GM wheat, and in 2023 Brazil approved it for growing.

In 2022, it was approved for import to **Nigeria**, and to **Australia and New Zealand**. In 2023, **Indonesia**, which is the second-largest importer of Argentinian wheat, approved importation for food and animal feed.

In June 2022, the **United States** Food and Drug Administration FDA concluded that the GM wheat is safe for consumption but it is not yet approved for planting in the US.

“The damage to the Argentine wheat market would be irreparable and irreversible, since contamination will spread and segregation is not feasible.”

— The Grain Exchanges of the provinces of Buenos Aires, Bahía Blanca, Córdoba, Chaco, Entre Ríos and the Santa Fe; the Rosario Stock Exchange; the Chamber of Industrial Milling; grain export centres; the corridors centre; the milling industry federation; the collectors; and the four entities of the liaison table (CRA, Coninagro, FAA y Argentine rural society), Argentina.³

Argentina is the sixth largest producer and the fourth largest exporter of wheat in the world. Almost half of Argentina's wheat exports go to Brazil; other key markets are Indonesia, Chile and Kenya.⁴ Bioceres says it has requested approval for its GM wheat in Uruguay, Paraguay, the United States, Colombia, Indonesia, South Africa and Australia.⁵

Argentina and Brazil account for 90% of the area planted with wheat in Latin America.

Argentina's wheat association, ArgenTrigo, said that the approval of GM wheat could lead to **higher costs** for all wheat producers and all parts of the industry, including processors, as many will need to ensure segregation in order to provide non-GM wheat for customers.⁶ The CIARA-CEC oilseed crushing chamber and grains exporters in Argentina, asked the government to **identify the farmers who grow GM wheat**, so that exporters can stop buying from those areas until markets approved it.

Brazil's flour milling association, Associação Brasileira da Indústria do Trigo, or Abitrigo, threatened to **stop buying wheat from Argentina** if Brazil approved the GM wheat. 85% of Brazilian flour millers said they were not in favor of using GM wheat, and 90% were willing to halt purchases from Argentina if the GM wheat was approved.⁷ Abitrigo says it will ask the president's office to order a **review of the decision** and is evaluating **legal options to suspend the ruling**.⁸

Argentina, along with Canada, is a member of the Global Low Level Presence Initiative, which is a group of 15 importing and exporting countries that is **pursuing global acceptance of GM contamination** in trade, referred to as "Low-Level Presence."⁹

History of GM Wheat

In 2004, the company Monsanto withdrew requests for government approval of its GM herbicide-tolerant wheat in Canada and the US because of widespread farmer and consumer opposition in both countries and around the world.

In 2010, in response to a renewed corporate campaign to promote GM wheat development, the Canadian Biotechnology Action Network (CBAN) coordinated a global effort that resulted in 233 groups from 26 countries restating their opposition to GM wheat.¹³

There has been one escape incident with unapproved GM wheat in Canada (discovered in 2018), and four in the U.S (discovered in 2019, 2016, 2014 and 2013).¹⁴

Bioceres' HB4 Wheat

The genetically engineered HB4 wheat (IND-00412-7) is transgenic: the HB4 gene, originally isolated from sunflower, is involved in tolerance to environmental stress.

Bioceres says that field tests showed HB4 seeds increased wheat yields by up to 20% during seasons impacted by drought.¹⁰ However, data from the Ministry of Agriculture in Argentina show yields that are well below average.¹¹

The wheat also has a GM trait for herbicide tolerance, to the herbicide glufosinate.¹²

HB4 wheat was developed by Trigall Genetics, a Bioceres' joint venture with the French company Florimond Desprez.

HB4 is branded as EcoWheat®, and combines other technologies from Bioceres.

Current GM Wheat Experiments

Many genetically engineered product experiments are reported in the media but, historically, few of these have ever made it to market.¹⁵

The John Innes Centre in the UK is conducting (until December 2024) field tests on **high-iron wheat**.¹⁶ The wheat is genetically engineered with the addition of two DNA sequences, also from wheat, that cause an accumulation of iron.¹⁷

A 2021 headline in the Canadian farm newspaper *The Western Producer*, “**Gene editing reduces burnt toast risk**,”¹⁸ refers to a GM wheat that claims to have a reduced concentration of acrylamide after baking. It is being field tested in the UK by Rothamsted Research (until December 2026).¹⁹ Scientists have used CRISPR-Cas to block a gene function involved in production of the amino acid asparagine, by knocking out several copies of a gene. However, it was found that some lines of this wheat had reduced capacity to germinate.²⁰ The scientists are now planning to field test a version of the GM wheat in which fewer copies of the gene have been knocked out.

Information about field tests and commercial releases of some gene-edited GM wheat may be difficult to access in the future, as some governments are removing regulatory oversight over certain gene-edited plants and foods.

cban.ca/wheat

- 1 Taylor, Arnold. 2020. Letter to the editor. *The Western Producer*. November 5. <https://www.producer.com/opinion/letters-to-the-editor-november-5-2020>
- 2 Health, Maximilian. 2023. Exclusive-Bioceres to market GMO wheat in Argentina this year after Brazil win, CEO says. Reuters. March 7. <https://www.msn.com/en-us/news/us/exclusive-bioceres-to-market-gmo-wheat-in-argentina-this-year-after-brazil-win-ceo-says/ar-AA18kZSM>
- 3 GRAIN et al. 2020. Hands off our bread!, November 5. <https://grain.org/en/article/6548-hands-off-our-bread>
- 4 AFP. 2020. Argentina becomes first country to approve genetically modified wheat. October 8. <https://uk.finance.yahoo.com/news/argentina-becomes-first-country-approve-225711654.html?guccounter=1>
- 5 *Agrofy News*, 2021, Cómo sigue el proceso de aprobación del trigo tolerante a sequía de Bioceres?, November 11. <https://news.agrofy.com.ar/noticia/196695/como-sigue-proceso-aprobacion-trigo-tolerante-sequia-bioceres>
- 6 Somwanshi, Rohan. 2020. Brazil's Abitrito warns against Argentina's GMO wheat adoption; some skeptical of move. S&P Global Platts, October 14. <https://www.spglobal.com/platts/en/market-insights/latest-news/agriculture/101420-brazils-abitrito-warns-against-argentinass-gmo-wheat-adoption-some-skeptical-of-move>
- 7 Ibid.
- 8 Donley, Arvin. 2021. Brazil approves imports of GM wheat flour. *World-Grain.com*. November 12. <https://www.world-grain.com/articles/16102-brazil-approves-imports-of-gm-wheat-flour>
- 9 See Global Low-Level Presence Initiative, <https://llp-gli.org/>
- 10 Bioceres. 2020. Press release: Bioceres Crop Solutions Corp. Announces Regulatory Approval of Drought Tolerant HB4® Wheat in Argentina. October 8. <https://investors.biocerescrops.com/news/news-details/2020/Bioceres-Crop-Solutions-Corp.-Announces-Regulatory-Approval-of-Drought-Tolerant-HB4-Wheat-in-Argentina/default.aspx>
- 11 Plataforma Socioambiental – Argentina, 2021. Navidad sin transgénicos ¡No queremos Trigo HB4 en nuestro Pan Dulce! December 10. <https://www.biodiversidadla.org/Recomendamos/Navidad-sin-transgenicos-!No-queremos-Trigo-HB4-en-nuestro-Pan-Dulce>
- 12 United States Department of Agriculture. Global Agricultural Information Network. 2021. Agricultural Biotechnology Annual. AR2020-0044. January 26. https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Agricultural%20Biotechnology%20Annual_Buenos%20Aires_Argentina_10-20-2020
- 13 Canadian Biotechnology Action Network (CBAN). 2022. Wheat. www.cban.ca/wheat
- 14 See Canadian Biotechnology Action Network (CBAN). 2022. Contamination. www.cban.ca/contamination
- 15 Canadian Biotechnology Action Network (CBAN). 2015, *Where in the World are GM Crops and Foods?* www.gmo inquiry.ca/where
- 16 Government of the United Kingdom, Department for Environment, Food & Rural Affairs. 2022. Environmental Protection Act 1990 Sections 111 and 112: Consent to release Genetically Modified Organisms Reference 21/R52/01. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1061555/Environmental_Protection_Act_1990_Sections_111_and_112_Consent_to_release_Genetically_Modified_Organisms_Reference_21R5201.pdf
- 17 John Innes Centre. Application for consent to release genetically modified higher plants for non-marketing purposes. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1039896/21R5201_form_A1_web_ready.pdf
- 18 Arnason, Robert. 2021. Gene editing reduces burnt toast risk. *The Western Producer*. March 3. <https://www.producer.com/news/gene-editing-reduces-burnt-toast-risk/>
- 19 Government of the United Kingdom, Department for Environment, Food & Rural Affairs. 2022. Environmental Protection Act 1990 Sections 111 and 112: Consent to release Genetically Modified Organisms Reference 21/R08/01. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1120421/21_R08_01_variation_signed.pdf
- 20 See Testbiotech. 2021. New GE wheat to be tested in UK field trials. <https://www.testbiotech.org/en/news/new-ge-wheat-be-tested-uk-field-trials>

The Canadian Biotechnology Action Network (CBAN) brings together 16 groups across Canada to research, monitor and raise awareness about issues relating to genetic engineering in food and farming. CBAN is a project on the shared platform of MakeWay Charitable Society.



cban.ca