



# 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, 2020<sup>1</sup>

## First approval of GM wheat: Argentina

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. The wheat is drought-resistant and herbicide-tolerant.

In September 2021, the Argentinian company that developed the GM wheat, Bioceres, said that farmers in Argentina had planted 55,000 hectares of the GM wheat in what it called “an inventory ramp-up” ahead of “expected pending regulatory approval from Brazil.”<sup>2</sup> In November 2021, **Brazil approved the importation of flour from the GM wheat**. However, Bioceres says it will also seek approval from other key importing countries before going ahead with commercial sales.<sup>3</sup>

**“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.<sup>4</sup>

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.<sup>5</sup> Bioceres says it has requested approval for its GM wheat in Uruguay, Paraguay, the United States, Colombia, Indonesia, South Africa and Australia.<sup>6</sup> It is unknown if Bioceres has asked for approval in Canada and this information is kept confidential by Canadian regulators.

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.<sup>7</sup> 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.<sup>8</sup>

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.<sup>9</sup> 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**.<sup>10</sup>

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."<sup>11</sup>

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## 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.<sup>15</sup>

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).<sup>16</sup>

## 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.<sup>12</sup> However, data from the Ministry of Agriculture in Argentina show yields that are well below average.<sup>13</sup>

The wheat also has a GM trait for herbicide tolerance, to the herbicide glufosinate.<sup>14</sup>

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.<sup>17</sup>

The John Innes Centre in the UK has submitted a request to conduct field tests of a **high-iron wheat**.<sup>18</sup> The research aims to increase levels of iron and zinc in white flour.<sup>19</sup> The wheat is genetically engineered with the addition of two DNA sequences, also from wheat, that cause an accumulation of iron.<sup>20</sup>

A headline from March 2021 in *The Western Producer*, “**Gene editing reduces burnt toast risk**,”<sup>21</sup> 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. 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.<sup>22</sup> 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.

## cban.ca/wheat

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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.



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