



ALERT ON GMO GREENS

December 2024

BAYER TO LAUNCH GM NON-MUSTARDY MUSTARD GREENS

Bayer (formerly Monsanto) is getting ready to sell genetically engineered (genetically modified or GM) salad greens in the US and Canada in early 2025.¹

These GM greens (*Brassica juncea*) are **mustard greens that are gene-edited to not taste like mustard greens** and could be on the market as “mixed leaves, bunched, baby and teen leaf.” They will likely be grown and sold by a few large greens producers in the US and Canada, but Bayer also says they are seeking a major home garden supplier to **sell GM seeds to home gardeners and market gardeners.**

If sold, these GM leafy greens would be the first gene-edited vegetable in North America (produced using CRISPR), and only the second genetically modified vegetable grown in Canada (after GM sweet corn).

The GM greens will likely be marketed as being more nutritious than lettuce.² The spicy mustard flavour was removed so they could be advertised as “leafy greens that don’t bite back! (a mustard green that eats like a lettuce).”³ It is unlikely that companies will voluntarily label them as genetically engineered.

Bayer is planning on bringing up to ten varieties of GM greens to the North American market.

Bayer has licensed this technology from the US biotechnology company Pairwise, which briefly sold the GM greens in the US under the brand “Conscious Greens” in 2023. Pairwise launched the GM greens but then said they did not have the resources to market them effectively and wanted to concentrate on developing other gene-edited foods.⁴

TAKE ACTION

If you are a market gardener, home gardener or greens producer, **please tell us where you purchase your seeds.** Share your information and comments, and subscribe for updates.



CBAN.CA/GREENSSURVEY



Gene editing is new genetic engineering

Gene editing is a collection of **new genetic engineering (genetic modification or GM) techniques** that alter the genetic material (usually DNA) of plants, animals and other organisms, to create genetically modified organisms (GMOs). These techniques aim to insert, delete or otherwise change a DNA sequence at a specific, targeted site in the genome. (The genome is the entire set of genetic material in an organism, including DNA.)

How does it work?

Gene editing, generally, uses DNA cutters that are guided to a location in an organism's DNA, to cut the DNA. This cut is then repaired by the cell's own repair mechanism, which creates DNA "edits" that change the organism. The most frequently used gene editing technique is called CRISPR but other techniques follow similar principles.

- Until now, genetic engineering created new DNA sequences by inserting new genes that became a permanent part of the GMO (transgenics). With gene editing, genetic material is inserted to **perform "edits"/ make changes** to the genome (delete DNA, for example) but this genetic material does not

need to be incorporated into the final GMO and is often removed. This is why GMOs created through gene editing are genetically engineered but may not have any "foreign DNA" (DNA from other species).

- Gene editing is often said to be more precise than earlier GM techniques because, unlike other techniques that insert genes at random locations in

the genome, almost all gene editing techniques insert genetic material that is **guided to a specific target site in the DNA** to perform "edits." However, gene editing is also known to cut at additional "off-target" sites.

Unexpected and unpredictable effects

Gene editing can be imprecise and, just like other genetic engineering techniques, cause unexpected and unpredictable effects.

Gene editing can create genetic errors in the GMO. These effects can lead to unexpected and unpredictable outcomes, such as changes in protein composition.

- The CRISPR system can make unintended edits to the host's DNA at unexpected places, not just the target location.
- Gene editing can cause extensive deletions and complex re-arrangements of DNA.
- Unwanted DNA can unexpectedly integrate into the host organism during the genome editing process.

cban.ca/gene-editing

CORPORATE SELF-REGULATION OF GENE EDITED GMOS IN CANADA

In 2022/2023, the Canadian government removed government safety assessments for gene edited plants that have no foreign DNA (no remaining DNA from other species). This means that many gene edited plants and foods can enter our food system and environment without any independent science or government oversight, and no notification to farmers or consumers.

1 CBAN correspondence with Bayer, September 2024.

2 Pairwise Press Release, Pairwise and Bayer Expand CRISPR Leafy Greens Market through Licensing Agreement, May 28, 2024. <https://www.pairwise.com/news/pairwise-and-bayer-expand-crispr-leafy-greens-market-through-licensing-agreement>

3 Bayer, Instagram post, "Summer Salad Starter Pack" June 28th, 2024 [Bayer \(@bayerofficial\)](https://www.instagram.com/p/C8xuua4Ma49/) • Instagram photos and videos <https://www.instagram.com/p/C8xuua4Ma49/>

4 Elizabeth Crawford, Exclusive: Pairwise stops marketing gene-edited Conscious Greens to focus on new high-value, gene-edited crops, FoodNavigator USA, February 13, 2024