Transparency Initiative (TI) Product Information Form[1]	
Administrative Information	
1. Developer name	Pairwise Plants Services, Inc.
2. Contact information	807 East Main Street, Suite 4-100 Durham, NC 27701 USA +1 (919) 321-0820
3. Earliest Entry to Market Date	2023
Information regarding the product	
4. Crop	*Brassica juncea* (mustard greens)
5. Intended use of the product	Food consumption as leafy greens
6. Characteristic(s)	Altered pungency leading to the phenotype of reduced pungency to improve flavor.
7. Technology used to create the new product	CRISPR/Cas
8. Mechanism(s) of action underlying the introduced characteristics	Myrosinase enzymes break down glucosinolates resulting in a pungent flavor. Targeted edits introduced loss of function deletions, insertions, and/or inversions in the myrosinase coding sequences, leading to reduction in myrosinase activity, reduced glucosinolate breakdown, and therefore improved flavor profile.
Rationales for the non-novel status of the product *As per Health Canada Guidance on the Novelty Interpretation of Products of Plant Breeding, a product of plant breeding is considered to be not novel if it meets the criteria of the following five (5)*	

[1] Please provide general terms (i.e., not commercial/trademark terms) when describing products.

categories. Please provide a rationale that supports how your product meets the criteria of each category.	
9. Rationale for Category 1: Foods derived from plants with genetic modifications that do not alter an endogenous protein in a way that introduces or increases similarity with a known allergen or toxin relevant to human health	This product contains loss of function mutations in native gene sequences. There is no hypothesis that a loss of function genetic modification would alter endogenous proteins in such a way that would introduce or increase similarity to known allergens or toxins relevant to human health, as it has been well established within conventional breeding, where allele combinations are rearranged in subsequent generations, these practices do not give rise to new pathways that produce novel compounds (Kaiser et al., 2020). Kaiser, N., Douches, D., Dhingra, A., Glenn, K.C., Herzig, P.R., Stowe, E.C., & Swarup, S. (2020). The role of conventional plant breeding in ensuring safe levels of naturally occurring toxins in food crops. *Trends in Food Science & Technology*, 100:51–66
10. Rationale for Category 2: Foods derived from plants with genetic modifications that do not increase levels of a known endogenous allergen, a known endogenous toxin or a known endogenous anti-nutrient beyond the documented range	This product is a loss of function mutation in a native gene sequence. There is no hypothesis that loss of function genetic mutation would increase the levels of known allergens/toxins/anti-nutrients in the leaves of the plant beyond the documented range as it has been well established within conventional breeding, where allele combinations are rearranged in subsequent generations, these practices do not give rise to new pathways that produce novel compounds (Kaiser et al., 2020). Kaiser, N., Douches, D., Dhingra, A., Glenn, K.C., Herzig, P.R., Stowe, E.C., & Swarup, S. (2020). The role of conventional plant breeding in ensuring safe levels of naturally occurring toxins in food crops. *Trends in Food Science & Technology*, 100:51–66

11. Rationale for Category 3: Foods derived from plants with genetic modifications that do not have an impact on key nutritional composition and/or metabolism	This product is a loss of function mutation in a native gene sequence. There is no hypothesis that loss of function genetic mutation would impact the key nutrients in the leaves of the plant beyond the documented range as it has been well established within conventional breeding, where allele combinations are rearranged in subsequent generations, these practices do not give rise to new pathways that produce novel compounds (Kaiser et al., 2020). Kaiser, N., Douches, D., Dhingra, A., Glenn, K.C., Herzig, P.R., Stowe, E.C., & Swarup, S. (2020). The role of conventional plant breeding in ensuring safe levels of naturally occurring toxins in food crops. *Trends in Food Science & Technology*, 100:51–66
12. Rationale for Category 4: Foods derived from plants with genetic modifications that do not intentionally change the food use of the plant	The plant with genetic modification will be consumed in the same way as plants without the genetic modification, as fresh or cooked leafy greens. The introduced characteristic does not result in a new part of the plant being used as food.
13. Rationale for Category 5: Foods derived from plants with genetic modifications that are not the result of the insertion of foreign DNA that is present in the final plant product	No foreign DNA is present in the final plant product.

14. Please fill out the following table as indicated. This is the information for your product as it will appear on Health Canada's published List of non-novel products of plant breeding for food use. The information in this table is presumed to be free of confidential business information (CBI).

Date	Product Name	Plant	Plant Developer	Technology	Characteristic(s)	Mechanism(s) of Action	Food Use(s)	Earliest Entry to Market Date
2022-11-09	GT22, GT23, GT24, GT28, GT29, GT30	Mustard greens (*Brassica juncea*)	Pairwise Plants Services, Inc	CRISPR/Cas	Reduced pungency to improve flavor	Myrosinase enzymes break down glucosinolates resulting in a pungent flavor. Targeted edits introduced loss of function deletions, insertions, and/or inversions in the myrosinase coding sequences, leading to reduction in myrosinase activity, reduced glucosinolate breakdown, and therefore improved flavor profile.	Same as current leafy green food usage, including but not limited to salad mixes and kits.	2023-07-01