



All Vitalis Organic Seeds are Certified Organic.

We are committed to producing the highest quality organic seed, free of contaminants and adapted to the needs of diverse organic agriculture systems worldwide.

We believe in building organic production systems with organically produced seed.

All Vitalis varieties are developed without the use of genetic engineering and meet all organic certification requirements for the EU, US, Canada and Mexico. Certified in compliance with the USDA NOP: 017981 Skal.

PARTNERSHIP WITH ENZA ZADEN At Vitalis, our breeding programs include our own proprietary varieties as well as varieties resulting from collaborations with the extensive breeding programs of our parent company, Enza Zaden, Inc. This collaboration allows us to continually offer new and innovative varieties that are ideally suited to organic agricultural methods.

Combining Enza Zaden's expertise in breeding and seed technology with our experience in organic selection and seed production, results in first-class products, making Vitalis the best choice for the professional organic vegetable grower.

NO GMO POLICY Enza Zaden and Vitalis have non-GMO declarations which state that all varieties currently released for testing and for sale have been developed through conventional breeding work, without using genetic modification techniques.

From breeding to production, no Vitalis seeds are derived from or produced using Genetically Modified Organisms or their derivatives, and all reasonable steps have been taken to avoid any such contamination.

ABOUT CMS "CMS" refers to Cytoplasmic Male Sterility which can occur naturally or as the result of manipulated cell fusion. Historically, CMS has been used in traditional plant breeding programs to assist in hybrid breeding and seed production for crops, such as those in the Brassica family. While seeds produced using manipulated CMS material are currently allowed under the USDA organic regulations, there are some organic certification agencies in the European Union that reject this technique being used in organic systems.

Because Vitalis Organic Seeds strives to meet the needs of diverse organic agriculture systems worldwide, we have chosen not to produce seeds derived using manipulated cell fusion CMS material.

(See Fact Sheet on reverse side for more information.)

CYTOPLASMIC MALE STERILITY FACT SHEET

What is Cell Fusion? Cell Fusion is a general term referring to the combining of two cells to form a single cell. This can occur in natural systems or through human intervention.

What is the history of Cell Fusion in Plant Breeding? Cell fusion has been a part of traditional breeding programs for many years without being considered genetic engineering. Cell fusion methods allow the transfer of traits, including those that are particularly useful in hybrid breeding programs. It also has been used to confer traits of disease and pest resistance in many crops.

What is Cytoplasmic Male Sterility? Cytoplasmic Male Sterility (CMS) is a trait that prohibits the plant from producing viable pollen grains. This allows for the plant to be pollinated by another pollen source, and to produce seeds that have been cross pollinated without the risk of self pollination. CMS can occur naturally but is often achieved through a man-made cell fusion process known as “somatic cell hybridization”.

Why use CMS in Plant Breeding? CMS gives plant breeders a tool to produce hybrid varieties more rapidly, allowing them to respond to changes in crop demands in a timely manner. CMS is commonly used in hybrid Brassica crops such as broccoli and cauliflower to produce a “female” parent line that is male sterile. This line will then be crossed with pollen from a “male” parent line to produce hybrid seed which is harvested off the female line.

What are the USDA organic regulations regarding Cell Fusion and CMS? Some methods of cell fusion are not allowed under USDA organic regulations, these include methods where the donor cells/protoplasts do not fall within the same taxonomic plant family or involve recombinant DNA technology. Cell fusion, including transfer of CMS, is not considered an excluded method by the USDA NOP, when the donor cells/protoplasts fall within the same taxonomic plant family.

Does Vitalis Organic Seeds offer seeds produced using these methods? No, Vitalis has chosen not to sell varieties that have been produced using cell fusion mediated CMS. There has been some dispute over whether these cell fusion techniques should be allowed in organic agriculture and there are some organic certification agencies in the European Union that reject this technique being used in organic systems. In order to provide our customers worldwide with organic seed that meets the highest ethical and biological standards, Vitalis has chosen to not produce products derived using these methods.

What are the alternatives to CMS material? In Brassicas, sterile parent material can be bred using self incompatibility (SI) genetics. This does not require the use of cell fusion. All of Vitalis products are bred without cell fusion mediated CMS.

How do I know if a variety is produced using CMS? Specific identification of crop varieties that have been produced using cell fusion techniques is not always known, and it may be difficult for producers and seed handlers to identify all varieties that may have had some traits incorporated using a cell fusion technique at some point in their breeding history. (Source: USDA NOP PM 13-1 Cell Fusion Original Issue 02 01 13)

When you purchase Vitalis Organic Seed you can be certain that no cell fusion mediated CMS material is used in its creation.



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