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THE ORGANIC FEDERATION OF CANADA NEWSLETTER

Countdown to the publication of the 2020 Canadian Organic Standards  
The weekly review



## A compromise about feed supplements and vaccines

As an organic farmer, you want to raise healthy animals by giving them a well-balanced diet. You also want to prevent deadly diseases by vaccinating your livestock. But genetic engineering (GE) biotechnology is now so widespread and adopted by the livestock feed and veterinary industries that it has become almost impossible to find certain essential supplements or vaccines that are manufactured without the use of genetic engineering. The solution: change the standard while waiting for the animal health industry to develop products that either do not contain any GE products or, preferably, are not made using GE at all.

Needless to say, the debate leading to this decision has been intense.

Genetically engineered plants are not permitted in crop production, and products from these are not allowed in livestock forage or in processed organic products, but there are now a few exceptions to the Permitted Substances Lists.

**In terms of the use of amino acids, phytase and vaccines for livestock and the use of vitamins for animal and human consumption, where there is no alternative and the substance is required, organic farmers can use forms of these substances that were made from or contain residues from genetically engineered (GE) products.**

These exceptions reflect difficult decisions. The organic community doesn't want to allow the use of any genetically engineered products, but members of the CGSB Technical Committee on Organic

Agriculture considered these exceptions were warranted to help organic farmers maintain the health of their livestock.

## Amino acids

Ideally, animals will get adequate levels of amino acids from feed and forage. Pasture-raised birds and pigs can get a certain level of amino acids from consuming insects and grubs in the soil. The challenge is getting adequate levels for poultry and hogs when they are not foraging outside. Farmers can supplement their feed with organic insect meal, fish meal and various byproducts of human food production, such as brewer's yeast, corn gluten and spent grains from distillers. However, two essential amino acids – lysine and methionine – are particularly challenging to provide.

Methionine is essential for weight gain, egg production and feather formation in poultry. A grain-based diet low in methionine can result in increased feather pecking and poor growth. When birds are foraging on pasture, methionine is obtained from plant material and insects. During the winter, it has proven difficult to find organic feeds high in methionine, so the standard allows supplements.



Similarly, lysine, an essential amino acid, is required for good growth rates in pigs and poultry. Supplemental lysine is allowed for both pigs and poultry if adequate levels cannot be obtained from other feed sources. The 2020 Canadian Organic Standard (see below) lists sources in preference, but if none of these are commercially available, any source, including a GE source can be used.

If protein levels in the diet are increased to provide adequate levels of lysine and methionine, there can be excessive N excretion which, in turn, is problematic because it can lead to ammonia in the barn and water pollution from the litter. All forms of methionine, including GE forms, are allowed if alternatives are not commercially available. The order of preference is clearly stated in the standard.

## Phytase

Enzymes aid digestion and the absorption of poorly available nutrients. Carbohydrase, for example, increases the amount of energy available in feed by breaking complex carbohydrates down into simpler sugars.

Protein in soybeans, for example, is more available thanks to protease. Enzyme supplements are rarely necessary if high-quality feed is provided, but they can help improve feed efficiency when livestock are fed lower-grade feedstuffs. Most of the permitted enzyme supplements are made

from plants, animals or microorganisms. For example, bromelain can be made from pineapple, catalase from beef liver, and ficin from the sap of fig trees.

**However, the situation becomes more complicated with phytase.**

**Much of the phosphorus (P) in plant tissue is stored as phytate-phosphorus, a form which is difficult for monogastrics, such as pigs and poultry, to digest.**

Phosphorus can be provided by plant foods containing P, such as corn and soybean meal. However, much of the inaccessible phosphorus in these foods is then excreted and causes eutrophication of nearby water bodies.

To avoid this, farmers can supplement the feed with the enzyme phytase that helps break down phytate-P so that the animals can use more of the P in their diet. As of November 2020, genetically engineered sources of phytase will be permitted due to the lack of alternatives and the need for phytase supplements to maintain livestock health while minimizing the environmental impact.

## Vitamins and vaccines



Given the dominance of GE vitamins in the livestock feed supplement market, all forms of vitamins will be permitted, even genetically engineered forms. Also, if there are no commercially available sources of non-GE vaccines, or if these are ineffective, GE sources can be used once the 2020 Canadian Organic Standard is published (November 2020).

## Permitted Substances Lists

**Table 5.2 – Feed, feed additives and feed supplements**

<p><b>Amino acids</b></p>	<p>Organic sources, such as fishmeal, insect meal, brewer’s yeast, potato protein, corn gluten and distillers’ grains, shall be the first preference.</p> <p>When the supplementation with these organic sources does not meet amino acid requirements to produce a balanced feed as per 6.4.1 and 6.4.2 of CAN/CGSB-32.310, then:</p> <p>a) amino acids derived from biological sources by biofermentation and extracted, or isolated, by hydrolysis or by physical or other non-chemical means may be used;</p>
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	<p>b) when such forms of lysine and methionine are not commercially available for use in monogastrics feeding, as an exception to 5.1.2 (32.311) and 1.4 a) of CAN/CGSB-32.310, all sources of lysine and methionine may be used.</p> <p>This annotation will be reviewed at the next revision of the standard. See Table 5.2 <i>Fish meal</i>.</p>
<b>Phytase</b>	<p>Permitted when feed supplementation with phytase is recommended to reduce the phosphorus level in manure and thereby reduce the potential environmental consequence.</p> <p>As an exception, GE-derived sources of phytase are allowed even though they are not compliant to 5.1.2 of CAN/CGSB-32.311 or 1.4 a) of CAN/CGSB-32.310).</p> <p>This substance and annotation will be reviewed at the next revision of the standard.</p>
<b>Vitamins</b>	<p>Permitted for enrichment or fortification.</p> <p>Vitamin formulants that comply with Canadian regulations are accepted. Vitamins not compliant to 5.1.2 of CAN/CGSB-32.311 are permitted.</p>

**Table 5.3 – Health care products and production aids**

<b>Vaccines</b>	<p>Vaccines may be used in prevention of diseases. If vaccines compliant to 5.1.2 of this standard are not commercially available, or are ineffective, vaccines not compliant to 5.1.2 are permitted.</p>
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*Organic production systems: general principles and management standards. 32.310. Draft approved August 4<sup>th</sup>, 2020 by the CGSB Technical Committee on Organic Agriculture.*