FORMAL RECOMMENDATION BY THE
NATIONAL ORGANIC STANDARDS BOARD (NOSB)
TO THE NATIONAL ORGANIC PROGRAM (NOP)

Date: __March 18, 2005_____

Subject: ___Proteinated and Chelated Mineral Complexes Used as Feed Additives___

Chair: ____Jim Riddle_____
(sign)

Recommendation

The NOSB hereby recommends to the NOP the following:

Rulemaking Action:	_____
Guidance Statement:	____X____
Other:	_____

Statement of the Recommendation (including Recount of Vote)**:**

The NOSB recommends that the USDA National Organic Program post the following questions and answers as guidance to producers, manufacturers, consumers, and accredited certifying agents.

Q1. Can proteinated and chelated mineral complexes be used in organic livestock production?

A1. Yes. Section 205.237(a) allows the use of synthetic feed additives and feed supplements that appear on the National List. Section 205.603(d)(2) includes "trace minerals, used for enrichment or fortification when FDA approved." The FDA recognizes the list of feed additives published in the Official Publication of the Association of American Feed Control Officials, which is updated annually. (see Addendum A).

§ 205.237 Livestock feed.

The producer of an organic livestock operation must provide livestock with a total feed ration composed of agricultural products, including pasture and forage, that are organically produced and, if applicable, organically handled: Except, That, nonsynthetic substances and synthetic substances allowed under § 205.603 may be used as feed additives and supplements.

§ 205.603(d)(2) Trace minerals, used for enrichment or fortification when FDA approved.

Q2. Can all proteinated and chelated mineral complexes listed by AAFCO be used in organic livestock production?
A2. No, not all formulations of the proteinated minerals may be used. Section 205.105(e) of the NOP Final Rule prohibits use of products of excluded methods (genetic engineering). Section 205.237(b)(5) prohibits the feeding of poultry or slaughter by-products to mammals or poultry. Therefore, proteinated mineral complexes that are derived from or contain products of excluded methods or slaughter by-products are not allowed in organic livestock production.

§ 205.237(b) The producer of an organic operation must not:
(5) Feed mammalian or poultry slaughter by-products to mammals or poultry;

§205.105 To be sold or labeled as "100 percent organic," "organic," or "made with organic (specified ingredients or food group(s))," the product must be produced and handled without the use of:

(e) Excluded methods, except for vaccines, Provided, That, the vaccines are approved in accordance with § 205.600(a).

March 1, 2005 NOSB vote: 12 yes, 0 no, 2 abstain

Rationale Supporting Recommendation (including consistency with OFPA and NOP)**:**

Rationale provided in text of recommendation.

Response by the NOP:

Updated 2/25/05

NOSB Livestock Committee
Recommendation on Proteinated and Chelated Mineral Complexes
Used as Feed Additives
Adopted by NOSB March 1, 2005

Introduction

In 2002, the NOSB was petitioned to allow proteinated and chelated mineral complexes for use as feed additives or supplements in organic livestock production. After a TAP review and supplemental review were conducted, the NOSB has learned that proteinated and chelated mineral complexes are listed by the Association of American Feed Control Officials (AAFCO) as allowed feed additives.

The American Association of Feed Control Officials (AAFCO) has defined the various types of metal chelates/complexes. Metal proteinates (§57.23) are defined as the product resulting from the chelation of a soluble (trace mineral) salt with amino acids and/or partially hydrolyzed protein. Protein sources used in these compounds may be derived from slaughter byproducts, and some may contain products of excluded methods. Such forms are not allowed in organic production.

In order to provide clarity on the status of these materials, the NOSB has developed several questions and answers to provide guidance on proteinated and chelated mineral complexes when used as feed additives or supplements in organic livestock production.

Recommendation

The NOSB recommends that the USDA National Organic Program post the following questions and answers as guidance to producers, manufacturers, consumers, and accredited certifying agents.

Q1. Can proteinated and chelated mineral complexes be used in organic livestock production?

A1. Yes. Section 205.237(a) allows the use of synthetic feed additives and feed supplements that appear on the National List. Section 205.603(d)(2) includes “trace minerals, used for enrichment or fortification when FDA approved.” The FDA recognizes the list of feed additives published in the Official Publication of the Association of American Feed Control Officials, which is updated annually. (see Addendum A).

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§ 205.603(d)(2) Trace minerals, used for enrichment or fortification when FDA approved.

Q2. Can all proteinated and chelated mineral complexes listed by AAFCO be used in organic livestock production?

A2. No, not all formulations of the proteinated minerals may be used. Section 205.105(e) of the NOP Final Rule prohibits use of products of excluded methods (genetic engineering). Section 205.237(b)(5) prohibits the feeding of poultry or slaughter by-products to mammals or poultry. Therefore, proteinated mineral complexes that are derived from or contain products of excluded methods or slaughter by-products are not allowed in organic livestock production.

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NOSB vote: 12 yes, 0 no, 2 abstain

Addendum A: AAFCO list of proteinated and chelated mineral complexes

57.23 Metal Proteinates:

IFN 6-09-896 Copper proteinate
IFN 6-09-897 Zinc proteinate
IFN 6-26-149 Magnesium proteinate
IFN 6-26-150 Iron proteinate
IFN 6-26-151 Cobalt proteinate
IFN 6-26-834 Manganese proteinate
IFN 6-16-833 Calcium proteinate

57.151 Metal (Specific Amino Acid) Complexes:

IFN Copper lysine complex
IFN Zinc lysine complex
IFN 6-16-294 Ferric methionine complex
IFN 6-19-212 Manganese methionine complex
IFN 6-16-293 Zinc methionine complex

57.150 Metal Amino Acid Complexes:

IFN 6-32-053 Copper amino acid complex
IFN 6-32-054 Zinc amino acid complex
IFN 6-32-055 Magnesium amino acid complex
IFN 6-32-056 Iron amino acid complex
IFN 6-32-058 Calcium amino acid complex
IFN 6-32-059 Potassium amino acid complex
IFN 6-32-060 Manganese amino acid complex

57.142 Metal Amino Acid Chelates:

IFN 6-20-981 Calcium amino acid chelate
IFN 6-20-982 Cobalt amino acid chelate
IFN 6-20-983 Copper amino acid chelate
IFN 6-20-984 Iron amino acid chelate
IFN 6-20-985 Magnesium amino acid chelate
IFN 6-20-986 Manganese amino acid chelate
IFN 6-20-987 Zinc amino acid chelate

57,29 Metal Polysaccharide Complexes:

IFN 8-09-822 Copper polysaccharide complex
IFN 8-09-898 Iron polysaccharide complex
IFN 8-09-899 Zinc polysaccharide complex
IFN 8-19-206 Magnesium polysaccharide complex

Addendum B: Excerpts from Comments on the Feb. 12, 2003 Metal Chelates TAP Supplement

Submitted to the NOSB by Dr. Alfred Walker

• Source of proteins and amino acids for the proteinates

The TAP review states that the "nature and method of production of the protein component of metal proteinates is confidential to the manufacturer and has not been disclosed" and gives no information about the source of the proteins used in these supplements. The exact sources of the protein fraction in these products may be confidential, but the general sources and processes used are well described in the patent literature. There are two main types of protein sources in these products which conform to the AAFCO definition of metal proteinates[1]: (1) metal- amino acid chelates, and (2) loose associations of a soluble metal ion and single or mixture of proteins.

Association between a metal salt and a hydrolyzed protein: The protein in these compounds would be natural. Cost considerations would encourage manufacturers to use waste products from other processes and also to alternate protein sources due to price fluctuations when possible. Anderson, (1969) describes a Zn proteinate which uses the dry residue of yeast fermented corn mash used to produce alcohol (Solulac). The protein source consists of 70 % of soluble and 30 % of grains (yeast bodies and partially fermented corn). The patent also lists the following natural protein sources that could be used to make the Zn proteinate:

Non-antibiotic fermentation residue
Feed grains like corn and soy bean
Livestock and fish by-product meal
Molasses soluble
Whey
Yeast
Feather meal
Corn gluten feed and meal
Dairy by-products
Oil seed meal
Casein.

Erickson and Uhren, 2002 describe a method for making metal proteinates for animal feed from Chromium leather waste (chrome tanned, unfinished leather shavings, scrap, or fleshings). The leather scraps are hydrolyzed and the Cr is precipitated by caustic Hydroxide. The resulting soluble protein is then mixed with a soluble metal salt to form the proteinate. Proteinates can also be produced from soy protein isolate (Johnson, 99).

These protein sources present several potential problems for Organic producers and certifiers. All of these sources would still contain intact or partially denatured proteins from the original organism. Corn and soy bean proteinates could still contain original plant proteins, some of which would be trans-genes. Animal derived protein could be from ruminates, and a decision would be needed to determine if they could be fed to other ruminates. Since the supplement manufacturer does not need to label the protein

[1] A product resulting from the chelation of a soluble salt with amino acids and/or partially hydrolyzed protein.

source, it would be difficult to impossible for certifiers to verify the protein sources. The most workable course would be to allow the use of all metal proteinates, regardless of the source of the protein. However, alternatives to metal proteinates are readily available.

References

Anderson, D. R., 1969, Organic Zinc feed additive & method of making same, USP # 3463858.

Erickson, P. R., and Uhren, L. J., 2002, Method of producing a metal nutrient for an animal feed, USP # 6352714.

Johnson, L. A., 1999, Process for producing improved soy protein concentrates from genetically- modified soybeans, USP # 5936069.