

**Association of American Plant Food Control Officials**  
**Terms & Definitions Committee**  
**2017 Summer Annual Agenda**  
**Bellevue, WA**  
**August 7, 2017**

**Committee Objectives**

- Review list of tentative terms and definitions previously brought before the committee and vote to retain them in tentative status, move to official status, or delete them.
- Review and discuss new agenda items brought before the committee

**CALL TO ORDER**

1. **Welcome, roll call of committee members and introduction of guests.** (5 minutes)

Facilitator: James Bartos

2. **Agenda review and approval** (5 minutes) Chair

3. **Annual Meeting Report Review and Approval** (5 minutes) Chair

4. **Items in the OP which are the wrong version**

Basalt

Biochar

5. **AAPFCO Membership Voting Items at Summer Annual 2017, Terms and Definitions can act on these depending on the outcome of the Membership vote.** Available to delete, stay tentative, official. (20 minutes) Chair

**T-70 Enhanced Efficiency Fertilizer** – Describes fertilizer products with characteristics that allow increased nutrient availability and reduce potential of nutrient losses to the environment e.g., gaseous losses, leaching or runoff when compared to an appropriate reference product.

*Membership voting to stay Tentative Summer Annual 2017*

**T-71 Slow Release Fertilizers** - are solid or liquid fertilizer products that release (*convert to a plant available form*) their nutrients at a slower rate relative to a “reference soluble” product. This may be accomplished by biodegradation and/or by limited solubility and/or by hydrolysis or other recognized chemical or biochemical means. Some examples include solid fertilizers such as: methylene urea (MU), Magnesium Potassium Phosphate and bio-solids, and liquid fertilizer such as Triazone.

*Membership voting to stay Tentative Summer Annual 2017*

**T-103 Controlled Release Fertilizers** - are solid fertilizer products that release nutrients at a controlled rate relative to a “reference soluble” product. The controlled rate of nutrient release is achieved by modifying readily available nutrient forms with recognized physical mechanisms such as coatings, occlusions or other similar means. Some examples include Polymer coated N-P-K fertilizers, Polymer Coated Urea (PCU) and occluded fertilizers.

*Membership voting to stay Tentative Summer Annual 2017*

**N-62 Feather Meal** – Ground and dried poultry feathers.

*Membership voting to stay Tentative Summer Annual 2017*

*Working Group to review AAFCO Terms and submit another example: Matt Pearson, David Dressler, Doug Smith, Gregg Cunningham*

Working Group Recommendations:

**N-62 Feather Meal** – A product from poultry processing, consisting of ground and processed (hydrolyzation, pressure, heat and/or other methods that aid in nutrient availability and provides pathogen reduction) bird feathers.

**Ca-25 Calcium Gluconate** – Is a calcium complex of gluconic acid, and is commonly expressed as Ca gluconate.

*Membership voting to stay Tentative Summer Annual 2017*

**Mg-6 Magnesium Gluconate** – is a magnesium complex of gluconic acid, and is commonly expressed as Mg gluconate.

*Membership voting to stay Tentative Summer Annual 2017*

**Mn-20 Manganese (II) Gluconate** – is a manganese (II) Chelate of gluconic acid, and is commonly expressed as Mn gluconate.

*Membership voting to stay Tentative Summer Annual 2017*

**Fe-25 Iron (II)Gluconate** – is an iron(II) Chelate of gluconic acid, and is commonly expressed as Fe gluconate.

*Membership voting to stay Tentative Summer Annual 2017*

**Zn-22 Zinc (II) Gluconate** – is a zinc (II) Chelate of gluconic acid, and is commonly expressed as Zn gluconate.

*Membership voting to stay Tentative Summer Annual 2017*

*Working Group to review Gluconates, Glucobephtonates, and Amino Acid Complexes: Toby Primbs, Dale Woods, Luç Roa, Wei Wu, Steve McMurry, James Bartos, James McFadden, John Peters, Dietmar Walch, Michelle Schott, Krystal Pierce, Amy Serafin, Dereje Bezabih, Tim Cartwright, Eric Johnson*

Working Group Recommendation:

**Fe-26 Iron HBED** – is an iron (III) chelate of bis(2-hydroxybenzyl)ethylenediamine diacetic acid, and is commonly expressed as FeHBED.

*Membership voting to Official Summer Annual 2017*

**T-106 Polyhalite** – The naturally occurring mineral from sedimentary marine evaporates, which is a hydrated sulfate of potassium (K), calcium (Ca) and magnesium (Mg) having the formula  $K_2Ca_2Mg(SO_4)_4 \cdot 2(H_2O)$ . Containing not less than thirteen percent (13%) soluble potash ( $K_2O$ ), three percent (3%) Magnesium (Mg), eleven percent (11%) Calcium (Ca) and eighteen percent (18%) Sulfur (S).

*Membership voting to Official Summer Annual 2017*

**N-11 Bat Guano** - is partially decomposed bat excrement. Bat guano has an organic matter content greater than 40%, is a source of nitrogen, and may contain up to 6% available phosphate (P<sub>2</sub>O<sub>5</sub>).  
*Membership voting to Official Summer Annual 2017*

**Ca-26 Calcium Glucoheptonate** – is a complex of glucoheptonic acid and is commonly expressed as Ca Glucoheptonate  
*Membership voting to stay Tentative Summer Annual 2017*

**Mg-7 Magnesium Amino Acid Complex** – is an organic complex of magnesium (II) with an amino acid product and is commonly expressed as the Mg amino acid salt, e.g., magnesium glycinate.  
*Membership voting to stay Tentative Summer Annual 2017*

**Ca-27 Calcium Amino Acid Complex** – is an organic complex of calcium (II) with an amino acid product and is commonly expressed as the Ca amino acid salt, e.g., calcium glycinate.  
*Membership voting to stay Tentative Summer Annual 2017*

**T-34 - Compost** - is the product manufactured through the controlled aerobic, biological decomposition of biodegradable materials. The product has undergone mesophilic and thermophilic temperatures, which significantly reduces the viability of pathogens and weed seeds, and stabilizes the carbon, such that it is beneficial to plant growth. Compost is typically used as a soil amendment, but may also contribute plant nutrients.  
*Membership voting to Tentative Summer Annual 2017*

**T-33 - Composting** - The biological decomposition of organic matter. It is accomplished by mixing and piling in such a way to promote aerobic and/or anaerobic decay. The process inhibits pathogens, viable weed seeds, and odors. (Official 1997)  
*Membership voting to Tentative Summer Annual 2017 with intention to delete per working group recommendation*

DMPSA – Nils Berger, Eurochem (Submitted 6/30/2016, Application on AAPFCO Secure Site)

**DMPSA** - Nitrification Inhibitor consisting of an Isomeric mixture of 2-(3,4-dimethyl-1H-pyrazol-1-yl) succinic acid and 2-(4,5-dimethyl-1H-pyrazol-1-yl) succinic acid), used to treat Ammonia containing fertilizer.  
*Membership voting to Tentative Summer Annual 2017*

Ammoniated Calcium Nitrate – Bill Easterwood, Yara North America (Submitted 11/16/2016, Application on AAPFCO Site)

**Ammoniated Calcium Nitrate** – Consisting of a hydrated double salt of calcium nitrate and ammonium nitrate having the chemical formula [5Ca(NO<sub>3</sub>)<sub>2</sub>·NH<sub>4</sub>NO<sub>3</sub>·10H<sub>2</sub>O, CAS# 15245-12-2]. Both the granulated or prilled product (15.5-0-0) provide water soluble nitrogen and calcium.  
*Membership voting to Tentative Summer Annual 2017*

Yara Recommendations – do not move forward with the definition of Ammoniated Calcium Nitrate but revise the Calcium Nitrate Definition:

N-3 Calcium Nitrate (fertilizer quality) Is chiefly the hydrated calcium salt of nitric acid. It shall contain not less than twelve percent (12)% nitrate nitrogen.

Revised:

**N-3 Calcium Nitrate (fertilizer quality)** – Is chiefly the hydrated calcium salt of nitric acid. It shall contain not less than twelve percent (12)% nitrate nitrogen in prill or granular form and provides water soluble nitrogen and calcium. Typical Calcium Nitrate products as referred to by the agricultural industry would be one of the following:

- a.) A Decahydrate double salt formulation, CAS# 15245-12-2
- b.) A Tetrahydrate formulation, CAS# 13477-34-4

Carbonaceous Ammonium Nitrate – Bill Easterwood, Yara North America (Submitted 11/16/2016, Application on AAPFCO Site)

**Calcium Ammonium Nitrate (CAN)** – A nitrogenous fertilizer derived from ammonium nitrate which contains a minimum of 20% calcium material (e.g. calcite or dolomite) and a maximum of 27% nitrogen. The material can be substituted with calcium sulfate (gypsum). It is a source of water soluble nitrogen but not a source of water soluble calcium. It may be granular or prilled.

*Membership voting to Tentative Summer Annual 2017*

Yara Recommendations –

**Calcium Ammonium Nitrate (CAN)** – a nitrogenous fertilizer which is a homogeneous co-granulated mixture derived from ammonium nitrate that contains a minimum of 20% calcium material (e.g. calcite or dolomite) and a maximum of 27% nitrogen. The calcium material can be substituted with calcium sulfate (gypsum). It is a source of water soluble nitrogen but not a source of water soluble calcium.

## 6. **Old Business ( hours) Chair** Available to move to tentative, table, or no action

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S 13# Sulfur(S) - Free sulfur (S<sup>0</sup>) in its elemental form. Sulfur particles that are less than 100µ can oxidize over time and are a source of slow release sulfur. If slow release sulfur is claimed, only the portion that is less than 100µ would be considered slow release.

*Working group: Falina Hutchinson, Bill Hall\*, Sharon Webb, James Bartos, Toby Primbs, Tim Jestness  
TJestness@potashcorp.com*

Working Group Recommendation:

## 7. **New Business** –

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Soluble Zn, Fe, Cu, Mn – Bill Hall, (Idea submitted 12/17/2016, waiting on details)

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NZONE MAX, Brandon McMillan, AgXplore, (Submitted 2/17/2017, AAPFCO Secure Site)

NZONE MAX is composed of Aminoethylpiperazine, which is a calcium polymer. This polymer has three nitrogen groups. The tertiary amine group has the affinity to attract a hydrogen molecule to become more stable. Once the hydrogen molecule is attached it gives the compound a positive charge. Because the compound is charged, other ammonia molecules in the soil are attracted to it.

Ammonia in the soil has a lone pair looking for a place to rest. This lone pair wants to rest with the positively charged aminoethylpiperazine. As a result, they share an electron to make a stable environment. This keeps more ammonia in the soil for an extended period of time. The ammonia isn't being converted to ammonium and then eventually to nitrate as quickly because it is occupied by the amine group in aminoethylpiperazine. Calcium that is in NZone Max also helps by displacing other hydrogens in the soil. This displacement of hydrogen causes the element to search for another placement site. The placement site can be found in ammonia nitrogen and this converts into ammonium. As a result there is more ammonium in the soil. This improves nitrogen availability and uptake for crop production and reduction of nitrogen leaching into the soil.

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Inoculum Definitions submitted by Oregon Dept. of Ag. – Don Wolf. Submitted 3/3/2017.

**T-? Mycorrhizal fungal propagules**– are the vegetative reproductive structures of mycorrhizal fungi – hyphae, spores, sclerotia and root fragments colonized by arbuscular mycorrhizal fungi. Only the numbers of spores, sclerotia and colonized root fragments are allowed in product guarantees, as hyphae are too short-lived for product distribution and storage.

**T-? Fungal spore** – a specialized fungal propagule, capable of developing into an adult without fusion with another cell.

**T-? Mycorrhizal fungi** – are fungi that form symbiotic associations between the fungal mycelium and the roots of vascular plants. Depending on the species involved, these associations may range from mutually beneficial to parasitic. In one of the most common beneficial associations the fungi's network of mycelium enhances a plant's access to soil nutrients and water, and in return, the plant provides sugars and other food to the fungus. Mycorrhizal fungi are guaranteed by genus and species or strain and an amount, designated as propagules or spores per gram (for dry products) or milliliter (for liquid products).

**T-? Mycorrhiza (plural mycorrhizae)** – is a term used to describe the association between a mycorrhizal fungi and a plant root (*mycorrhiza* means “fungus root”). There are multiple types of associations, including ectomycorrhizae, arbuscular mycorrhizae, ericoid mycorrhizae, and others.

**T-? Ectomycorrhizal fungi** – are fungi whose mycelium form around plant roots, but generally do not penetrate cells of the roots. Ectomycorrhizae primarily form relationships with woody species, particularly conifers, oaks, willows, and eucalypts. Many ectomycorrhizae are specialists forming symbiotic relationships with only a closely related group of plants (e.g. *Pinus*). Only about 2% of plants form ectomycorrhizal associations.

**T-? Endomycorrhizal fungi** – are one of the two most common groups of mycorrhizal fungi used as agricultural inoculants. The mycelium of endomycorrhizae colonize plant root cells, increasing the plant's access to nutrients and water. Endomycorrhizae form associations with about 80% of terrestrial vascular plant families.

**T-? Endomycorrhiza(e)** - A mycorrhizal association with intracellular penetration of the host root cortical cells by the fungus as well as outward extension into the surrounding soil.

**T-? Arbuscular mycorrhizal fungi (AMF)** – [also - vesicular arbuscular mycorrhizae (VAM)] are members of the phylum Glomeromycota, one the largest groups of endomycorrhizal fungi. The mycelium of endomycorrhizae colonize plant roots, increasing the plant's access to nutrients and water in return for access to carbohydrates and other plant-produced materials.

**T-? Beneficial bacteria** – are bacteria that promote plant growth, either directly, by colonizing roots and fixing nitrogen, or indirectly, by increasing the availability of nutrients, such as phosphorus, from the soil. Beneficial bacteria may aid with water uptake. Beneficial bacteria are guaranteed by genus and species or strain and an amount, designated as colony-forming units per gram (for dry products) or milliliter (for liquid products).

**T-? Colony-forming unit (CFU)** – is a unit used to quantify the viable cells of bacteria, or yeast in a sample. It is a measure of the number of individual colonies formed when the inoculum is plated using microbiological culture methods appropriate for that organism.

**T-? Trichoderma** – is a genus of fungi, present in all soils and ubiquitous in the environment. Strains of *Trichoderma* have been developed as biocontrol agents against fungal diseases of plants. As fungi, guarantees should be made for the number of propagules.

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Change of MEA to EAHP – Sibok Kim, Stoller (Submitted 3/29/2017, Application on AAPFCO Site)

Proposed changes to the following

**Ca-22 Calcium ~~MEA~~EAHP** – is the chelate of any soluble calcium salt and Ethanol, 2-amino-2-hydroxy-1,2,3-propanetricarboxylate.

**Mg-3 Magnesium ~~MEA~~EAHP** – ....

**Co-1 Cobalt ~~MEA~~EAHP** – ....

**Cu-20 Copper ~~MEA~~EAHP** – ....

**Fe-23 Iron ~~MEA~~EAHP** – ....

**Mn-18 Manganese ~~MEA~~EAHP** – ....

**Zn-21 Zinc ~~MEA~~EAHP** – ....

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DMP – Teresa Tubia, BASF (Submitted 4/4/2017, Application on AAPFCO Secure Site)

**DMP (3,4-dimethylpyrazole)** – is a nitrification inhibitor.

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Maleic – Itaconic Copolymer's – Gary Orr, Verdesian Life Sciences (Submitted 6/7/2017, Application on AAPFCO Secure Site)

**Maleic – Itaconic Copolymer, Sodium Salt** – A substance composed of a partial sodium salt of maleic – itaconic copolymer that when applied to granular phosphate fertilizers increases phosphate availability.

**Maleic – Itaconic Copolymer, Ammonium Salt** – A substance composed of a partial ammonium salt of maleic – itaconic copolymer that when mixed with liquid phosphate fertilizers increases phosphate availability.

**Maleic – Itaconic Copolymer, Calcium Salt** – A substance composed of a partial calcium salt of maleic – itaconic copolymer that when applied to granular urea fertilizers or mixed with liquid ammoniacal nitrogen/urea fertilizers increases nitrogen use efficiency.

8. Next Steps - Assignments and Agenda Items for next meeting