INTRODUCTIONS & OPENING REMARKS

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INTRODUCTION

Our team at Micronutrients is pleased to have the opportunity to organize and participate in this important symposium. Our objective in planning this event was to bring together world-class researchers who are probing the frontiers of what is known about the impact of trace metals on the performance of dairy cattle. I'd like to welcome you and express our sincere hope these presentations will add to your understanding on how trace minerals can be best formulated to meet the needs of the clients you serve.

For those that may not be familiar with our company, I'd like to provide a very quick introduction to Micronutrients. We started our journey 20 years ago based on the belief that we had a better idea on how to economically provide supplementary essential trace metals for animal diets. Micronutrients is part of a >$6.5 billion group of privately-owned companies known as The Heritage Group, which is based in Indianapolis. Heritage's size and financial strength have enabled us to pursue the extensive R&D needed to develop a new category of trace minerals and then to explore their biochemical functions in animals. At this point, we have grown to be the 2nd largest manufacturer of minerals for animal feed.

When we started exploring our initial idea, the preponderant sources of metals for animal nutrition were the sulfate salts such as copper, zinc and manganese sulfate. Our review of the literature in the field made it obvious that the sulfates had inherent properties that made them less than ideal for use in livestock diets. Also at that time, some of the newest products on the market gave better performance than the sulfates through a sort of controlled release. This was achieved by combining the metals with organic chemicals to form complexes, some of which have stronger bonds. The question facing animal producers – then and now - is whether the gains in effectiveness could offset the higher costs inherent in manufacturing organometallic compounds.

The idea on which Micronutrients was founded was that suitable controlled release would also result if the essential metals were supplied in the form of hydroxychlorides. In those, hydroxyl groups (oxygen plus hydrogen) provide 75-80% of the electronegativity needed to balance the positive charges of the metals. The hydroxyl groups are obtained from water, and thus are completely natural materials in a diet. The remaining 20-25% of the negative charge comes from chloride which is also a natural and essential element in feedstuffs. Superior performance at attractive economics have supported rapid growth in the use of hydroxychloride minerals at the expense of sulfate sources. That growth has enabled Micronutrients to invest milions of

dollars in research programs to dig deeper into the “hows” and “whys” of how trace metals function in an animal.

IntelliBond Z and M Introduction:

- Launched early spring 2012
- Cows on program for > 1 year now
- >500,000 cows now on IntelliBond

IntelliBond C usage by species:

- > 60% Broilers
- > 60% Turkeys
- > 50% Swine
- > 15% Dairy & Beef Cattle

Since our founding, it has been our goal to provide products that are as pure as any mineral supplements in the world. For that reason, we designed our company so the quality assurance system is the backbone supporting our business management systems and practices.

Today, we have a team of six of the dairy industry’s most experienced professionals in place to support customers in all market segments. In addition, we have a network of experts from both industry and academe available to provide specialized support. Our manufacturing capacity in Indianapolis can supply both domestic and international customers for the foreseeable future.