

A black and white dog, possibly a Saint Bernard, stands on a green lawn. The dog has long, shaggy fur and is looking towards the camera. The background shows a grassy area with some trees and shadows.

LATIN AMERICAN

Economic Growth

Plus
Special Feature:
NICHE DIETS

AND
What Makes a Good
Ingredient Supplier?

WHAT MAKES A GOOD INGREDIENT SUPPLIER?

You must have dependable suppliers that will go the extra mile. **BY ERIC BELL**

This is an interesting question and I'm sure if we sent out a survey I'd see a lot of different answers, and they likely vary by job function within the organization. But one comment I've heard over and over is price: We need the cheapest price. I always prefer when the customer or prospect uses the term best price because really that is what we all want for any purchase we make. The problem with "cheapest" is it does not always represent "best" and may actually be more expensive in the long run if the physical ingredient, supply chain, quality and customer service don't fully meet the needs of our business.

The first rule of thumb in my book is: No ingredient is good if you don't have it, and having suppliers you can depend on – and that will go the extra mile to make sure your inventory needs are met – is a must. The next consideration is quality. Our brands and businesses are just too valuable to take chances that may permanently damage our reputation. Building a reputation and brand takes a

lifetime, whereas destroying a reputation only takes one bad shipment. The other focus around quality is consistency. Let's face it: While our suppliers may provide some impressive information about average values and performance of their products, we don't really care what the average is when we receive something that is outside of our tolerances. And finally, while we've built tools to make the decision making process analytical and not emotional, we still have to rely on people and relationships to get things done, whether it's a routine activity like invoicing, asking for a favor such as an extra shipment, or responding to a crisis.

Selecting an ingredient supplier is no easy task. There are many considerations that must be made before you can even start to think about who has the best price. Knowing your supplier is a must. Ensuring that expectations and capabilities have



Multiple components are involved in choosing a good ingredient supplier.

been discussed and are clear with both parties will go a long way in building trust and confidence in the relationship. All organizations should be focused on meeting sales commitments. Make sure you take the time to ensure your supplier will support the sales commitment. We know that our ingredients are not a fit for every company or application, but for those of you who buy and need ingredients like Empyreal® 75 and Lysto™, we will work hard to gain your trust, meet your needs and be a great ingredient supplier and partner to your business.

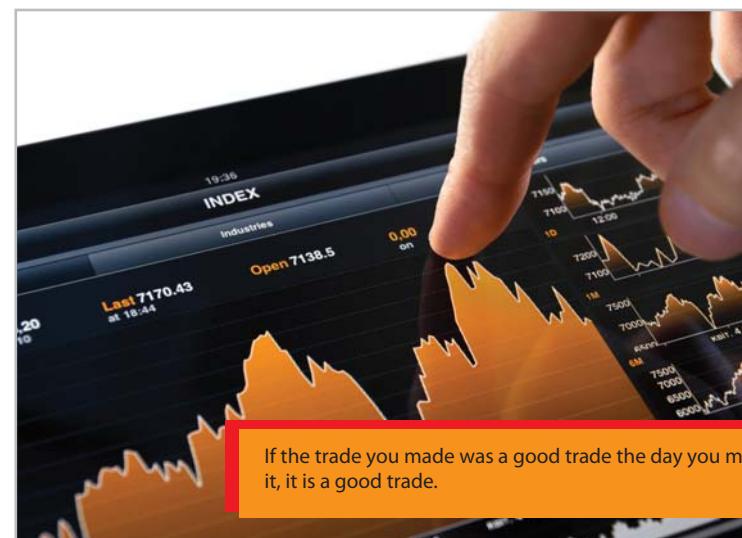
MARKET COMMENTARY

The importance of knowing how to manage through price fluctuations and positioning yourself accordingly. **BY LEE BOHLING**

A According to Webster's, the definition of a market is: 1: the act or process of selling or purchasing in a market 2: a meeting together of people for the purpose of trade by private purchase and sale and usually not by auction (2): the people assembled at such a meeting.

You might be wondering: Why does this matter? Many times I get asked: When is the right time to buy or what should I do? I have always taken the approach to express my opinion on what I am seeing in the marketplace and to express what I would do. I feel it is my duty to help the customer buy at the appropriate times and minimize their pricing exposure. I will be the first to admit that I make mistakes and that my opinion can be wrong, as the markets can move quickly. This then leads us into: Why is the market price never the price I want? Consumer satisfaction is hard to define and even harder to measure. An economist would tell you that consumer satisfaction is derived from the amount of economic utility or form, time, place and possession utility that the goods and services provide. Human nature directs us to always want to get the best price and the cheapest price when we are buying products. Unfortunately, we never know what that price is until after the fact. It is important then to know how to manage through those times and position yourself accordingly.

Everyone has a different opinion and tolerance to risk aversion. What works for one individual might not work for another. What



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I have found to work best for me is to always look forward and never get too tied up in your mistakes, but to learn from them and move on. If the trade you made was a good trade the day you made it, it is a good trade. If it was a bad trade the day you made it, it was a bad trade. What is important from all this is: How do you make a good trade even better and how do I minimize the impact of a bad decision? We offer a variety of marketing strategies from flat price, futures, ratio and option contracts to help you manage your pricing of Empyreal75®. Ingredients that can be

MARKET COMMENTARY

Continued

hedged allow you to offset your flat price risk in the marketplace by taking an opposing position in the futures market. You can also utilize options to help position yourself in the marketplace. An option strategy can allow you to still participate in the market while locking in a max price. All of these strategies have a cost associated with them, just as buying the product outright does, as well, if the market moves against you. Please contact me to discuss what strategies you would like to know more about.

When we quote Empyreal75® we are always doing our best to forecast where we think the market will be. While the market may seem much more volatile in other ingredients, we do our

best to take some of this out by trying to not react daily to what is happening in the marketplace. Some of you have noticed that we seem to lag behind the various market factors when things are moving lower. This is true, because we have also taken the same approach to when the market is trending higher. Meaning we are slower to react to the upside as well.

Please let me know if you have any questions, as I am always willing to discuss the market and how it can impact you. I am confident that by working together we can find a solution to fit your needs.

QUESTIONS? COMMENTS?

Contact us with your feedback about this issue of *Empyreal*.
Email Betty McPhee at betty_mcphee@cargill.com

On the humorous side, do you ever wonder why the food stamp program, part of the United States Department of Agriculture, is pleased to be distributing the greatest amount of food stamps ever? Meanwhile, the Park Service, also part of the Department of Agriculture, asks us to “please do not feed the animals” because the animals may grow dependent and not learn to take care of themselves. – Author Unknown

MARKET COMMENTARY

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LATIN AMERICA ECONOMIC GROWTH

The regions larger economies have become more politically and socially stable over the last decade. **BY ZACH LONGHINI**

Since the beginning of the recent economic crisis, the world has witnessed the widespread destabilization of the former world economic powers of Europe and North America while economies in the developing world have achieved significant, historic improvements. Over the last decade, even predating the current macroeconomic situation, this rise of the developing world was led by the countries of the BRIC (Brazil, Russia, India and China), however, more recently the ranks of developing countries with rapidly growing economies has swelled. While this economic growth has been dispersed throughout the developing world, much of it has occurred in the region of Latin America.

The term Latin America is, at best, loosely defined in the minds of most, for our purposes it refers to those countries located within the Americas where the predominant language spoken is Latin-based (primarily Spanish and Portuguese). These areas include Central America, South America and the Caribbean. Given the complexity inherent to managing business with any given geography, I will only focus on those countries within Latin America with the largest economies where 2010 GDP exceeded USD 50 billion (which effectively eliminates Central America, save Mexico and all but the Dominican Republic in the Caribbean). This leaves us with Argentina, Brazil, Chile, Colombia, the Dominican Republic, Ecuador, Mexico, Peru and Venezuela. The accompanying figure compares real annual growth rate as a percentage of GDP. While the BRIC countries still lead the



LATIN AMERICA ECONOMIC GROWTH

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way in economic growth, they are followed closely by the larger economies in Latin America that are growing at a significantly faster rate than the world's more developed economies.

In addition to the economic growth potential in Latin America, the U.S. also enjoys very good relationships with most Latin countries. The U.S. currently has active free trade agreements in place with 17 countries worldwide, and of these countries, nine are in Latin America (Chile, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Peru). In addition to the active free trade agreements currently in place, the U.S. has also finalized free trade agreements with Panama and Colombia that should enter into force soon. The U.S. does not currently have free trade agreements with any of the BRIC countries, many of which have protectionist barriers that severely limit the competitiveness of imported products. The economies in the BRIC countries have primarily relied upon large populations, extensive natural resources and trade surpluses to fuel their growth. All of these drivers of economic growth, with the exception of population, put limitations on the competitiveness of businesses wanting to pursue sales expansion in these countries, which is why they have primarily become manufacturing and service providers rather than markets for finished products.

The larger economies in Latin America have become much more politically and socially stable over the last decade. Colombia has made major strides in its efforts to combat the FARC and ELN guerilla groups. The presidency of Alberto Fujimori in Peru ushered in an unprecedented era of economic expansion and made significant blows to the Shining Path terrorist group in Peru which has been all but eradicated. And Ecuador has now held a president for four years, which hadn't occurred since the early 1990s. This is not to say that there aren't certain exceptions, the drug war in Mexico has resulted in an extreme wave of targeted violence, and Hugo Chavez continues to make doing business in Venezuela difficult due to his repeated nationalization of foreign businesses and their assets. This is why any business to be undertaken in the developing world (not solely Latin America) must be done with the appropriate amount of deliberation, preparation and prudence.

There are a number of options available that can help to reduce the risk involved with developing business in new countries, such as international trade insurance, establishing local agents or partners, and working with government agencies such as the U.S. Commercial Service. While the annual GDP growth of the U.S. and Europe has slowed to little more than a crawl, the potential reward for successfully entering these developing economies far outweighs the risks associated with doing so.

NICHE DIETS – ARE THEY HERE TO STAY?

These diets account for about one to two percent market share growth. **BY MICHAEL KLAPPERICH**

As pet owners continue to treat their pets more like a part of their family, there is a demand in the marketplace for pet food companies to create more niche diets to serve various consumer wants and needs. Over the past five to 10 years there have been numerous niche diets introduced in the pet food market, ranging from no-byproduct meals to raw meat and anywhere in between. The most recent popular trend, in North America particularly, has been moving toward grain-free diets for dogs and cats, which has had some decent growth over the past few years. Although this is the new buzz for pet food, it only accounts for about one to two percent market share growth in the overall pet food industry. I believe that niche diets, such as grain-free will be around for quite awhile and will continue to evolve over time, but only on a limited basis. Niche diets allow you to choose from a smaller pool of

ingredients that are relatively low in supply and costly to implement in formulas, even though you have to meet the same nutritional specifications as the competition. At the same time, certain niche diets don't allow suppliers the ability to use some ingredients that are very nutritious and beneficial for pets in order to meet the guidelines of their niche diet and marketing. All these factors combined will most likely inhibit significant growth of niche diets over time, but will still maintain a presence regardless. Niche diets are here to stay and will only become more complex for manufacturers to manage as we move forward.



Certain niche diets don't allow the use of some ingredients that are nutritious and beneficial in order to meet the guidelines of their niche diet and marketing.

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UNDERSTANDING MYCOTOXINS

Agriculturally important mycotoxins are produced primarily by three genera of fungi. **BY DR. DONALD SHANDERA**

A previous newsletter article on the topic of sustainability discussed the tightening global supply of protein. In response to a tightening supply of quality animal proteins, an increasing number of commercial pet and aquafeed diets are formulated with higher levels of grain-based materials. Customers inquire about the presence of mycotoxins in these plant-based ingredients. Although mycotoxins can be produced on any food source that has been infected with fungal growth by a wide array of fungal species, the agriculturally important mycotoxins are produced primarily by three genera of fungi: *Aspergillus*, *Penicillium* and *Fusarium spp.*

Perspectives on the risks and regulations for mycotoxins vary substantially globally in spite of concerted efforts by the scientific community to address their risk, presence and control. As plant-based ingredients are increasingly used due to economic and market pressures on feed compounders to produce economical and sustainable alternatives, informed judgment on management of risk is necessary in a rapidly changing nutritional environment.

A common question posed, is: At what level do mycotoxins become a problem in rations/diets? While the question of safe mycotoxin levels is a valid and vital one, it cannot easily be answered. Factors such as animal species, gender, age, stage of production, duration of exposure, stress levels and immune



Perspectives on the risks and regulations for mycotoxins differ widely around the world.

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status make it difficult to determine safe levels of individual mycotoxins. Availability of research data to help identify maximum safe mycotoxin levels in animal diets is limited, as toxicity studies carried out under good laboratory practice conditions are time consuming and very expensive.

UNDERSTANDING MYCOTOXINS

Continued

Establishment of safe levels or limits for certain mycotoxins is further confounded by variations and limitations for sampling and measurement across all feedstuffs. Cautionary levels are prompted by the risks dependant on both the hazard and frequency of exposure. The hazard posed by a mycotoxin(s) is probably similar worldwide, but exposure is not the same because differences in levels of contamination, spectrum of infection and consumption patterns vary globally. As a result, different countries have enforced different thresholds to limit the passage of mycotoxins along the food chain pertinent to their local risks.

The number of countries with feedstuff regulations for mycotoxins, other than aflatoxins, is expected to grow significantly in the coming years. The World Health Organization reports that since around 1970 when the first mycotoxin limit was established, the number of countries with mycotoxin limits has grown from about 31 in 1981 to 56 in 1987, 77 in 1995 and 99 in 2003. The U.S. and Canada have had mycotoxin regulations in place for many years, and implement standardized, advanced techniques for sampling and analysis. The major Latin American agricultural crops (maize, wheat, coffee, soybeans, barley, sunflower, nuts and cocoa) are highly susceptible to fungal contamination and mycotoxin production (Pineiro, 2004).

Growth of mycotoxin limitations globally

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UNDERSTANDING MYCOTOXINS

Continued

As compared to other regions of the world, Europe has the most extensive and detailed regulations for mycotoxins in food, and further expansion of EU-harmonized mycotoxin regulations may be expected for foods and feeds. Harmonization of tolerance levels is also taking place in some free-trade zones (EU, EFTA, MERCOSUR) and harmonization efforts are being undertaken for goods moving in international commerce (Codex Alimentarius). However, harmonization is a slow process as differences not only exist for which mycotoxins are regulated, but some countries have many regulations specifying different tolerated levels for individual foods and feeds, while others have set only one tolerated level for all feeds.

Not all mycotoxins have similar toxicity, and many mycotoxins have different analogs of their chemical structures with differing resulting risk for toxicity. Aflatoxin was the first mycotoxin discovered (in 1960) and widely regulated, and it is often reported as a sum of all four types (B1, B2, G1 and G2), but Aflatoxin B1 is the most important of the aflatoxins, considered from both the viewpoints of toxicology and occurrence. The toxicity of Fumonisin B1 was discovered in the late 1980s, and U.S. regulations have detailed tolerance levels for the sum of the Fumonisins B1, B2 and B3 in a wide variety of maize products. It may be the only country known to have limits for the sum of these three fumonisins. Canada has established tolerances for the percentage of

Mycotoxins limited or under review for limitation by the global community:

- Aflatoxin - B1, B2, G1, G2
- Fumonisin - B1, B2, B3
- Deoxynivalenon
- Ochratoxin A
- Zearalenone
- Nivalenol
- Diacetoxyscirpenol
- T-2 toxin and HT-2 toxin
- Agaric acid
- Ergot alkaloids,
- Phompsins
- Sterigmatocystin

Fusarium-damaged kernels in wheat and also limits exist for the percentage of ergot in various crops. Deoxynivalenol is increasingly regulated as it has been in a monitoring program and among regulatory authorities since the late 1990s. Many countries have set a limit for Ochratoxin A in cereals, many others for limits in cereal products, and various countries have set separate limits for grains or products. Zearalenone, an estrogenic mycotoxin, is now regulated in a handful of

UNDERSTANDING MYCOTOXINS

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countries with limits varying from 50 to 1,000 ppb in maize and other cereals. Other mycotoxins are being reviewed in several countries, including nivalenol, diacetoxyscirpenol, T-2 toxin and HT-2 toxin, agaric acid, ergot alkaloids, phomopsins and sterigmatocystin. Additionally, provisional maximum tolerable daily intake amounts of many toxins based on bodyweight have been recommended by the Food and Agriculture Organization and World Health Organization Expert Committee on Food Additives.

Key challenges will arise as awareness and discovery of mycotoxins and their impacts on animals continues while the world population grows and the demand and pressures for quality foodstuffs increases. Mitigation of mycotoxins in our food supply requires a multifaceted approach from agronomic practices in pre-harvest to post-harvest storage strategies

and controls. Global advancement will come through modernization of agriculture and improvements in localized practices. As a society, we have made significant headway to the identification, prediction, detection and control of mycotoxins in our food supply. A zero tolerance is not yet available or seemingly feasible. Prudent judgment based on fact will be our most rational pursuit in responses to this challenging topic.

“The regulations enacted for mycotoxins in food and feed, and those under development, should be the result of sound cooperation between interested parties, drawn from science, consumers, industry and policy makers. Only then can realistic protection be achieved,” according to the Food and Agriculture Organization/ World Health Organization: Worldwide Regulations for Mycotoxins in Food and Feed from 2003.

ANIMAL FEED SAFETY

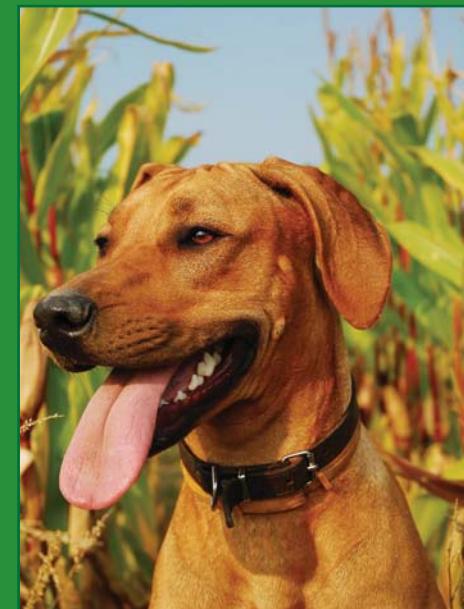
There is a general consensus around the world that the organization producing food ingredients or products is responsible for the safety of its product. **BY STEPHANIE ADAMS**

It is the organization's responsibility to develop and implement systems to ensure food safety of its product. Requirements, sometimes called prerequisite programs or good practices should be put in place to ensure safe food for animals and humans. These prerequisite programs are specific to the industry to which they are applied. Government, on the other hand, plays a necessary oversight role establishing regulations, provisions, inspections and enforcement when needed.

Examples of prerequisite programs are pest control, construction and layout of facility, warehousing, transportation, cleaning and sanitizing. After prerequisite programs are in place, a hazard analysis is conducted to determine if there are any remaining health hazards that are "reasonably likely to occur." If the answer is yes, then a HACCP plan must be deployed to effectively mitigate the hazard in question unless a subsequent step in the supply-chain takes on this responsibility.

A publicly available standard for the manufacture of animal food is now available, PAS 222:2011 *Prerequisite Programs for Food Safety in the Manufacture of Food and Feed for Animals*. The specification was developed to help animal food manufacturers establish preventative measures to ensure the safety of their products and to assure customers that a comprehensive food safety system is in place. PAS 222 is consistent with FAO, CODEX and good practices in the manufacture and distribution of animal food from around the world.

PAS documents are utilized all over the globe in other areas, including food manufacture and packaging and many times in conjunction with ISO 22000 under audit schemes like Food Safety System Certification 22000 (FSSC 22000). PAS 222 can be utilized as a standalone document or in conjunction with a management system as part of a *Global Food Safety Incentive* audit



The PAS 222 standard is consistent with FAO, CODEX and good practices in the manufacture and distribution of animal food from around the world.

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scheme. Certifying bodies are working toward being able to certify animal food organizations in the near future.

ANIMAL FEED SAFETY

Continued

Food safety of all Empyreal® and LYSTO® products is top priority. Our animal food safety management systems involve a detailed HACCP plan based on science and risk of potential hazards, implementation of prerequisite programs and good hygiene principles from PAS 222, CODEX and ISO 20000. We address physical, chemical and biological hazards in our plan. We

believe every employee at all levels of our business is responsible for food safety. Because we touch the global food safety supply chain in so many ways and in so many places, we take a broad, comprehensive approach to ensure the safety and integrity of our products. Food safety is fundamental to our success and the success of our customers.

A free copy of PAS 222 can be downloaded from BSI's website, at www.bsigroup.com/en/sectorsandservices/Forms/PAS-2222011-free-download

QUALITY VS. QUANTITY

Both are equally important **BY JERED ANDERSON**

As anyone who has been in a production role before knows, someone always wants to ensure you are focusing on the right priorities. Often the question is asked: Which is more important, the quality or the quantity of the ingredient produced? My answer to that question is simple: Both. The execution of that is much more complex, and sometimes it is difficult to maintain that standard. Many people may think that my answer to the quality vs. quantity question is a cop out, but with where we are in Empyreal production, that's exactly the answer.

Quality is one of the most important attributes of Empyreal. I think it goes without saying that our customers, as well as our team, expect that every shipment of Empyreal will meet the specification range and be consistent with the previous shipment. To accomplish this takes a great deal of focus and effort by all components of the Empyreal team. Currently, our team is demonstrating that by hitting 100 percent First Pass Quality for the fourth consecutive month. That's proof that quality is at the forefront of what we do.

As we have seen demand for Empyreal increase over the past several months, we have had to push production rates up to understand our production limitations and work to get every ton of Empyreal out the door. Through this process, it has been important to set the ground rules (one of which is meeting our quality standard) that will determine whether we have



When it comes to quality vs. quantity, why not have your cake and eat it too?

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gone too far on generating the maximum quantity. As long as these ground rules are set prior to heading down the path of maximizing quantity, the outcome should be desirable. If the quantity produced is anything less than the committed volume it really doesn't matter how consistent the quality is because you can't process what you don't have.

So when it comes to quality vs. quantity, why not have your cake and eat it too? Know your boundaries, stay within them and do everything you can to get every ton out the door. Whether you are the customer or the supplier, nothing beats getting what you want, when you want.

THE EMPYREAL TEAM

Lee Bohling **SALES MANAGER – PROTEIN INGREDIENTS**



Bohling graduated from the University of Nebraska, Lincoln with an ag econ degree, and she has been in the agricultural business for 26 years primarily around the grain side. For the last 12 years Bohling has been with Cargill in Blair, Neb., where she manages sales around CGM and Emphyreal75® and other protein ingredients for the seven wet mills within Cargill Corn Milling North America.

Michael Klapperich **INGREDIENT SALES**

A graduate of Iowa State University in 2002, with a Bachelor of Science in agricultural business and international agriculture, Klapperich has worked with the Feed Products group in the Cargill Corn Milling division over the past 10 years, holding various roles in merchandising and sales of feed ingredients.

Zach Longhini **EXPORT SALES MANAGER – PROTEIN INGREDIENTS**



Longhini is a graduate of the University of Minnesota-Twin Cities with a Bachelor of Individualized Studies degree with concentration in international business, Spanish and cultural studies. He began working with Cargill four years ago as a distiller's grains merchant and for nearly three years has been managing export sales and supply-chain activities for Corn Milling's protein feed ingredients.

Eric Bell **COMMERCIAL MANAGER – FEED INGREDIENTS**



Bell is a graduate of South Dakota School of Mines and Technology with a Bachelor of Science and University of Nebraska at Omaha with a Masters in Business Administration. He has been employed by Cargill Corn Milling for the past eighteen years with the first twelve focused on operations management, engineering and construction management. For the past six years he has been involved with product development, business development and his current position as a commercial manager for Cargill Corn Milling feed ingredients. His work experience prior to Cargill was in power production, mining and the U.S. Navy.

Dr. Donald Shandera **RESEARCH MANAGER FEED INGREDIENTS**



Shandera leads feed ingredient development from corn wet milled protein and fiber co-products at Cargill. He has 20 years experience in grain processing and process and product development as a principle research scientist, earning his Ph.D. from the University of Nebraska in food science and technology. He was a vocational agriculture high school instructor prior to achieving his graduate degrees. He comes from a production agricultural background and also farms part time with his family.

Stephanie Adams **FEED SAFETY AND REGULATORY SPECIALIST**

Adams has been with Cargill for 10 years, holding various positions with Wet Mill and Feed Quality management teams in four production facilities. She has been in her current role for almost two years and graduated from South Dakota State University with Bachelor of Science degrees in chemistry and biology. Adams lives in Blair, Neb., with her husband Sam, who also works for Cargill, two sons, Noah and Jacob and two Shih Tzu dogs, Molly and Oscar.

Jered Anderson **PRODUCTION SUPERVISOR**

Anderson started with Cargill in 2005 as a Quality Assurance Chemist at its Memphis location. While there he had the opportunity to work with several product lines ranging from corn syrups, corn oil, to feed ingredients. He joined the Emphyreal team in 2007, prior to startup, to lead the effort of developing and implementing the quality programs for the product line. Over the course of a three-year period he worked to refine and build up these programs before moving to the operations side of the business. In 2010, he became the Production Supervisor for Emphyreal.

Betty McPhee **DIRECTOR OF SALES**



Bringing with her nearly 20 years of pet food industry experience, McPhee supports the Emphyreal and Lysto brands in the pet and aqua industries on a global basis. She has worked with both the manufacturing and ingredient supplier side of the pet food business and has been actively involved with AFIA, PFI and AAFCO.

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MARKET INSIGHT • INGREDIENT UPDATES • REGULATORY NEWS

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