

EMPYREAL®

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Plus
The foundation of
an effective HACCP
program



UNITED PULSE TRADING
joins Empyreal to market pulse protein line

April 2013

www.empyreal75.com

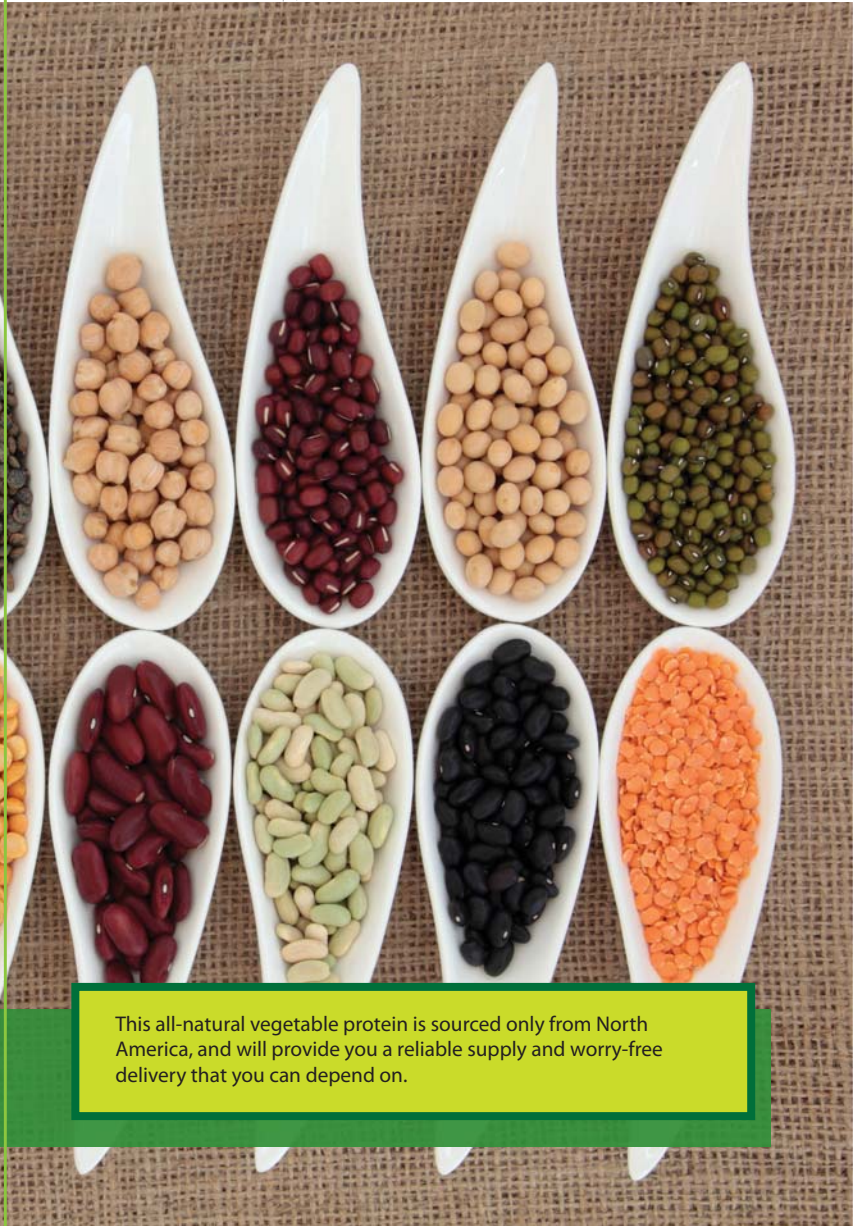
UNITED PULSE TRADING JOINS EMPYREAL TO MARKET PULSE PROTEIN LINE

The NuPulse line offers vegetable proteins sourced from sustainable pulse crops.

BY MICHAEL KLAPPERICH, INGREDIENT SALES

Earlier this year, a formal announcement was made between Alliance Grain Traders wholly owned US subsidiary, United Pulse Trading Inc., and our feed group that we entered into a binding agreement to market pulse proteins. This means the E75 team will be the exclusive sales and marketing agent of pulse protein ingredients to the animal feed industry, including pet food, in North America, while UPT will be the exclusive supplier of pulse proteins to the E75 team. We are pleased to introduce NuPulse, as our new line of vegetable proteins sourced from sustainable pulse crops. The first ingredient we will offer from the NuPulse family is pea protein. This all-natural vegetable protein is sourced only from North America, and will provide you a reliable supply and worry-free delivery that you can depend on. In addition to being grain-free, gluten-free and non-GMO, it also provides additional health and wellness benefits. Pulse crops, such as peas, are a sustainable rotation crop that naturally fix nitrogen in the soil and require less fertilizer for future crops, while at the same time requiring much less water to grow.

Recently members of our team were able to make a trip out to Minot, N.D., to get a tour of the UPT facility that will produce NuPulse, and we were very impressed with what we saw. This state-of-the-art food



This all-natural vegetable protein is sourced only from North America, and will provide you a reliable supply and worry-free delivery that you can depend on.

UNITED PULSE TRADING JOINS EMPYREAL TO MARKET PULSE PROTEIN LINE

continued

grade facility is scheduled to start up in April and ramp up to full production on its first line by June. UPT is also in the process of getting FSSC 22000 certification at its Minot facility, which should help make ingredient supplier approvals and au-

ery is for ingredients that are currently in the market on such a limited basis. Many times, pet food companies are forced to look overseas and import ingredients, which can create extra risk to their business such as timely delivery and product



We believe NuPulse will be able to take the hassle out of your business and give you an ingredient that you can rely on.

ditions go smoothly as NuPulse gets incorporated into your diets. This site will have the capability to load 50-pound bags, totes, and eventually in bulk to be flexible to your needs for delivery. Furthermore, the Minot facility has the capacity to expand more lines of production and create new and unique proteins in the near future to continue down the path of innovation for the pet food industry.

As the demand for unique and novel ingredients continues to grow to meet the needs of niche pet food diets, we understand how important a reliable supply and worry-free deliv-

erty is for ingredients that are currently in the market on such a limited basis. Many times, pet food companies are forced to look overseas and import ingredients, which can create extra risk to their business such as timely delivery and product quality. We believe NuPulse will be able to take hassle out of your business and give you an ingredient that you can rely on, while promoting the use of ingredients that come from sustainable crops and are friendly to the environment. Our partnership with a strong food company such as UPT that has valuable expertise with pulse crops worldwide will allow us to innovate new products for the pet food industry further down the road. We are excited to bring on NuPulse and all that it can provide for you.

DON'T OUTSOURCE THE PROBLEM

Good customer service begins with thinking about how to better serve the customer. **BY ERIC BELL, COMMERCIAL MANAGER - FEED INGREDIENTS**

It seems like we live in a world where, increasingly, business is outsourcing its problems to us, the customer. I suppose it's the easy thing to do; in many cases we either must, or feel as though we must, accept our supplier's problem and make the best of it. It would only be fair to tell you that as I write this I am on a US commercial flight traveling with my wife. You could call me bitter; however, I prefer to think of it as being inspired by the airline to think about what the customer service experience could be like.

When my wife Jean and I boarded the plane, all the normal announcements were taking place about how it's a full flight, please find your seat quickly, and save all the space in the overhead bins for roller bags. Anything smaller should be placed on the floor under the seat in front of you. As usual, I did not believe this applied to me as both Jean and I checked our bags, and so I placed my laptop bag in the overhead bin since it was only item between the two of us. Turns out I was wrong. That space, as I was informed by the flight attendant, was reserved for the people who didn't check their bag. We bag checking people aren't entitled to any of it since we did not bring a large roller bag. As it turns out,



Photo by Michaeldb | Dreamstime.com

DON'T OUTSOURCE THE PROBLEM

Continued

the problem the airline has created by charging for checked bags now belongs to the passenger in terms of comfort, timely departure and, most importantly, increased frustration.

This makes me think of one of my other pet peeves when I travel: Rental cars. I'm sure most of you have had this experience: You land at your destination, go to the rental car area and pick up your vehicle. Everything seems perfect until you try to put a wad of keys and remotes the size of a softball in your pocket or purse.

Does the rental car company really believe it will be helpful for me to have two set of keys and remotes? I don't think so. I'm guessing they just did not think about a solution other than to make what to do with the second set of keys the customer's problem.

So again, because the rental car company has created a problem by not figuring out what to do with the second set

of keys, it is now the customer's responsibility to deal with a massive wad of keys, higher cost of loss and increased frustration.

I could go on and pick on other industries outside of travel, but I think the point is made. It seems that when businesses do not think about how their problems affect the customers, many times they are simply passed on to the customer and create frustration and a poor customer experience. We make no claim to be perfect, and I know we have some issues from time to time, but our goal is to remove the frustration points in our service to you and your business. Know that we are thinking about how we can better serve you to provide a better customer experience.

MINI-SIZED: A TAIL OF GLOBAL PET TRENDS

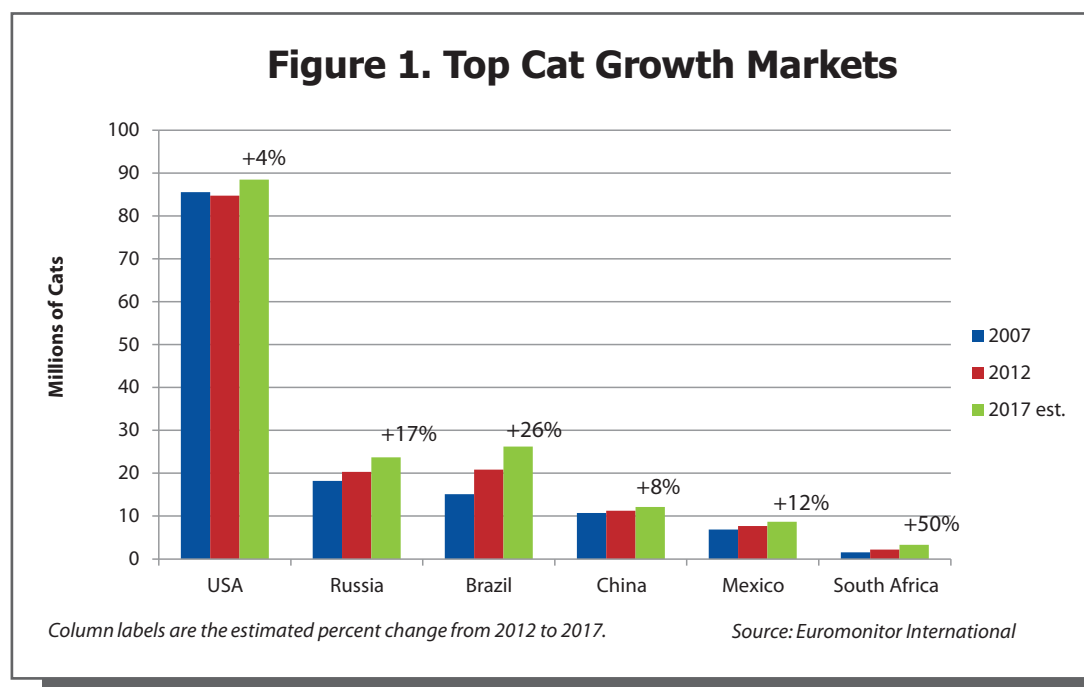
Cat and small dog ownership is gaining popularity in emerging economies.

BY JAMES BROWN, DEMAND ANALYST AND PLANNER

Smaller is better, according to recent global pet trends. Global pet ownership is on the rise, driven largely by higher disposable incomes in emerging economies such as Brazil, Russia and China. However, recent trends show many pet owners in emerging and developed economies alike are favoring cats and small dogs over large dogs.

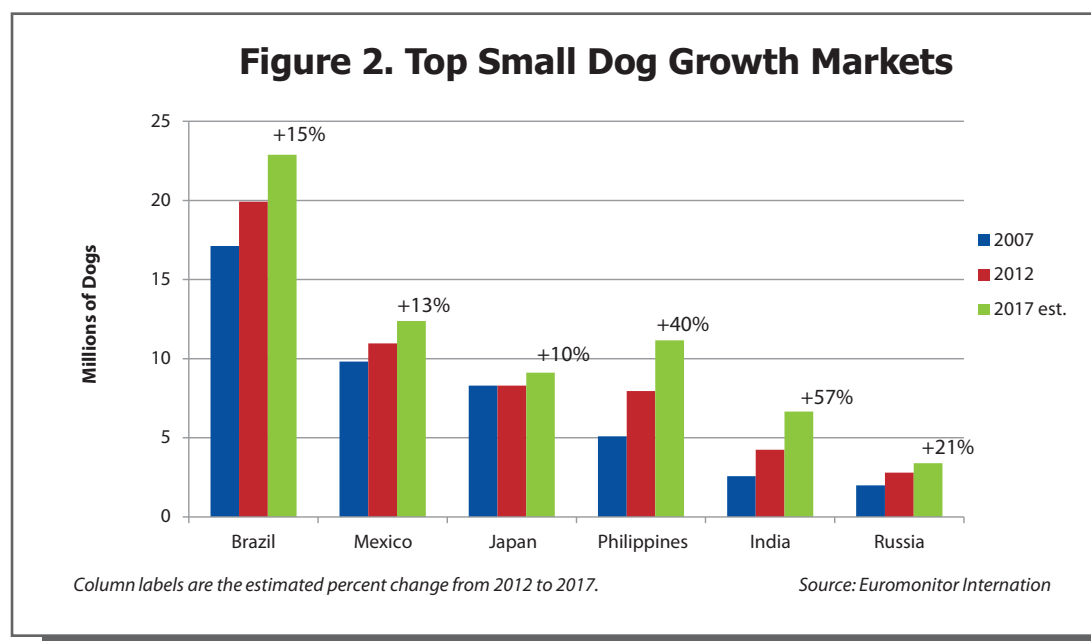
While no studies have quantitatively assessed the causes of these recent trends, economic intuition suggests the causes differ between emerging and developed economies. The trend toward cat and small dog ownership in emerging economies is likely caused by the combination of urbanization and higher disposable incomes. Figures 1 and 2 show trends in the top growth markets for cats and dogs respectively. All emerging economies in these graphs, with the exception of Russia, which isn't experiencing urbanization, have undergone both urbanization

and per capita income growth in recent years. As people move to the cities in these emerging economies, they are able to afford a pet and choose a smaller one to accommodate their space-constrained living arrangements.



MINI-SIZED: A TAIL OF GLOBAL PET TRENDS

Continued



In some markets, economic uncertainty is also making smaller pets more attractive due to their lower cost of care. This is the case in the US, where cat populations are projected by Euromonitor International to increase 4 percent between now and 2017.

able income levels largely driving pet population growth in emerging economies will also increase the share of the pet's nutrition that comes from prepared pet food instead of scraps. When combining all these trends with the consumer's desire for more premium offerings, global pet food manufacturers may find that smaller is better in the world of pets.

Pet food manufacturers have responded to these trends accordingly. With dog and cat food sales accounting for 70 percent of the \$94 billion global pet care industry, they have a lot at stake. Pet food manufacturers around the world have launched premium dog food products targeting the health and nutritional needs of small and toy dog breeds. Similarly, they are offering an increasing number of cat treats with functional properties such as hairball remedies.

The key to capturing the value of these trends is recognizing that the same increase in disposable

WELL EXECUTED FREE TRADE AGREEMENTS ENHANCE THE WORLD ECONOMY

Companies in participating countries of free trade agreements must leverage the new opportunities available to them. **BY ZACH LONGHINI, EXPORT SALES MANAGER - PROTEIN INGREDIENTS**

In laissez faire-style economies, like the US, free trade agreements receive a lot of attention as they represent an opportunity to expand our approach to taxation and trade barriers to our trading partners abroad. These agreements allow for goods to flow between the participating countries with little to no tariffs or other trade barriers. When executed correctly, they allow for strengthened economic ties, heightened competitiveness and efficiency in both parties involved.

The US currently has 20 different free trade agreements in place with a variety of countries: Australia, Bahrain, Canada, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Israel, Jordan, South Korea, Mexico, Morocco, Nicaragua, Oman, Panama, Peru and Singapore. The most recent of these agreements is the US-Colombia Free Trade Agreement that became effective in May 2012. In the US, the North American Free Trade Agreement has received the most attention from the media and economists who have mixed opinions about the impact that it's had on the economies involved, jobs and the environment. It is difficult to assess the true impact of a trade agreement like NAFTA, due to the number of different macro-economic forces already in motion at its inception, as well as

the perpetually dynamic global economic environment.

Nonetheless, from an economic standpoint, NAFTA appears to have been quite positive since it came into effect in 1994. According to the United States Trade Representative, NAFTA more than tripled intra-North American trade between 1993 and 2007 — a fact even more impressive when one takes into account

The US currently has 20 different free trade agreements in place with a variety of countries.



WELL EXECUTED FREE TRADE AGREEMENTS ENHANCE THE WORLD ECONOMY

Continued


that the free trade agreement was not fully implemented until 2008. However, NAFTA is not necessarily indicative of all free trade agreements due to the proximity of the trading partners (both geographically and politically).

There has been some criticism of the economic impacts of free trade agreements, however these tend to be short-term as economies and companies reorganize in an attempt to address the new, more competitive marketplace. Long-term, though, the agreements tend to have positive effects fostering increased efficiency in both countries as they each work toward leveraging their own competitive advantages. The other negative impact of these one-off, inter-country agreements can be the undermining of larger, multilateral efforts like the WTO's Doha Round. But, given the complexity

of these massive multilateral agreements and the time necessary to work through the details, it's little wonder that countries have opted to fast-track one-off agreements

with their trading partners in order to expedite the process.

There are two potential free trade agreements that currently are being discussed. The first, which is far closer to becoming reality, is the Trans-Pacific Partnership, which includes Australia, Brunei, Chile, Malaysia, New Zealand, Peru, Singapore, Vietnam and, most recently, Mexico and Canada (note that the US already has free trade agreements in place with six of these countries). The other agreement that has just begun to be discussed is the US-European Union free trade agreement, and this will take a number of years to complete as there are several unique issues that need to be addressed. Free Trade Agreements in general take some time to put together with the amount of negotiation and detail involved, and once they are agreed to they also take quite some time to become fully implemented. Nonetheless, they will continue to become more prevalent as time passes, and they provide companies with unique opportunities and abilities to effectively do business and compete in other countries where that might previously not have been possible. Free trade agreements do no good if the companies operating in the participating countries don't effectively leverage the new opportunities available to them. Therefore, when companies are able to take advantage of free trade agreements, not only do they bolster their own economy and those of their trading partners, but they also create a more efficient, effective and competitive world economy.

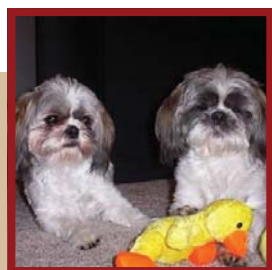


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LEARNING THE ROPES

Exploring new opportunities in aquaculture and building on pet food relationships

BY KATIE HALE, QUALITY MANAGEMENT FEED SPECIALIST



Empyreal's dedication to quality comes from its employees' love of their pets. Seen here from left to right: Molly and Oscar pose with their favorite toy; Gigi nibbles on an ear of corn; Katie Hale's pets, dog Jessi and cat Colt, loved the kibble made with Empyreal on which she took part in working on.

Ten years ago I entered college at Purdue University to study food science with an eagerness and excitement to learn about food chemistry and the food industry. I had a dream to one day work for a company that would make a difference in the world through food. I was one of the lucky ones who were able to get a job and work for a company that does just that — nourishes the world with its products.

That company is Cargill and as the Quality Management Feed Specialist I have been given the opportunity to make products and ingredients that change how we feed our animals. In June, Cargill Dayton, in Ohio, will begin manufacturing Empyreal 75, a corn protein concentrate that is used in aqua feed and the pet food industry. This product has no imitators on the market today. After attending both the Pet Food Institute Conference in St. Louis and the World

Aquaculture Society Tradeshow in Nashville, I learned a lot about what our customers like about our product and what the industry is concerned about moving forward.

Both of these experiences have opened my eyes to two industries I didn't know much about; the troubles they face, and what impact our product has on the final customer — the pets we love and adore and the fish and shrimp we eat at our dinner table. Last summer I had the unique experience of working with our Empyreal team to make dog and cat kibble using Empyreal. I was given some of the kibble to take home for my dog and cat, and, despite their spoiled behaviors, they loved it. As we move toward production start up, I look forward to working with new customers in a new world of aquaculture and to build upon the relationships we have with our pet food customers.

PREREQUISITE PROGRAMS: THE FOUNDATION OF AN EFFECTIVE HACCP PROGRAM

Without strong prerequisite programs, a food safety system can crumble.

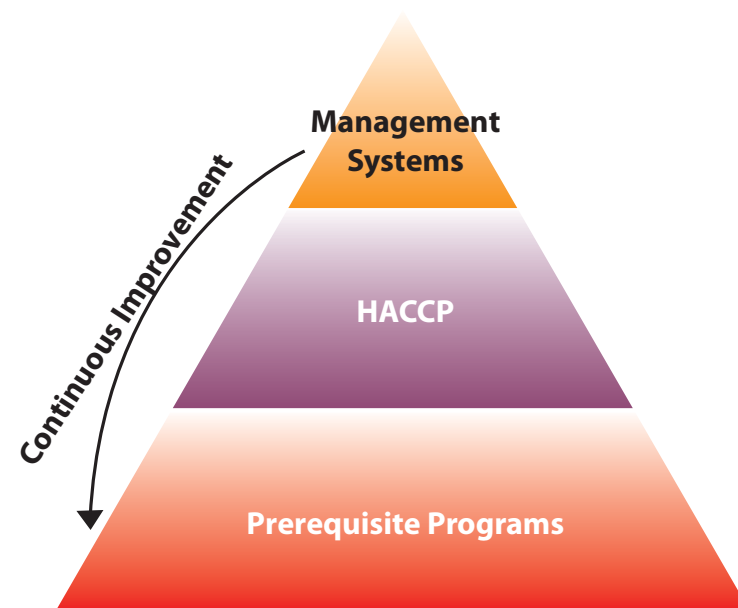
BY STEPHANIE ADAMS, FEED SAFETY AND REGULATORY SPECIALIST

P Prerequisite programs are defined as “practices and conditions needed prior to and during the implementation of HACCP/Food Safety Program and are essential for food and feed safety.” The programs can be, but are not limited to: sanitization, pest control, management of ingredients, utilities, waste disposal, sanitary design, sanitary operation, training, maintenance, bio-vigilance, security and personal hygiene. These maybe programs you implement because it is just good business, but they also play a key role in keeping food and feed hazards out of your product. Our world has also changed making bio-vigilance and security programs necessary to keep animal and human food safe.

THE GOAL: SAFE PRODUCT

Without strong PRPs as a foundation, a food safety system can crumble. The PRPs hold up the other key building blocks of a successful food safety program: Management Systems, HACCP and Continuous Improvement. PRPs are the base for HACCP to be successful in controlling feed and food safety risks.

PRPs are unique to each segment of the food chain. There is no absolute list or regulatory mandate of prerequisite programs that everyone must follow. The PRPs for infant formula are not going to be the same as dairy cattle feed, but both need to produce safe food for the intended user and possible unin-

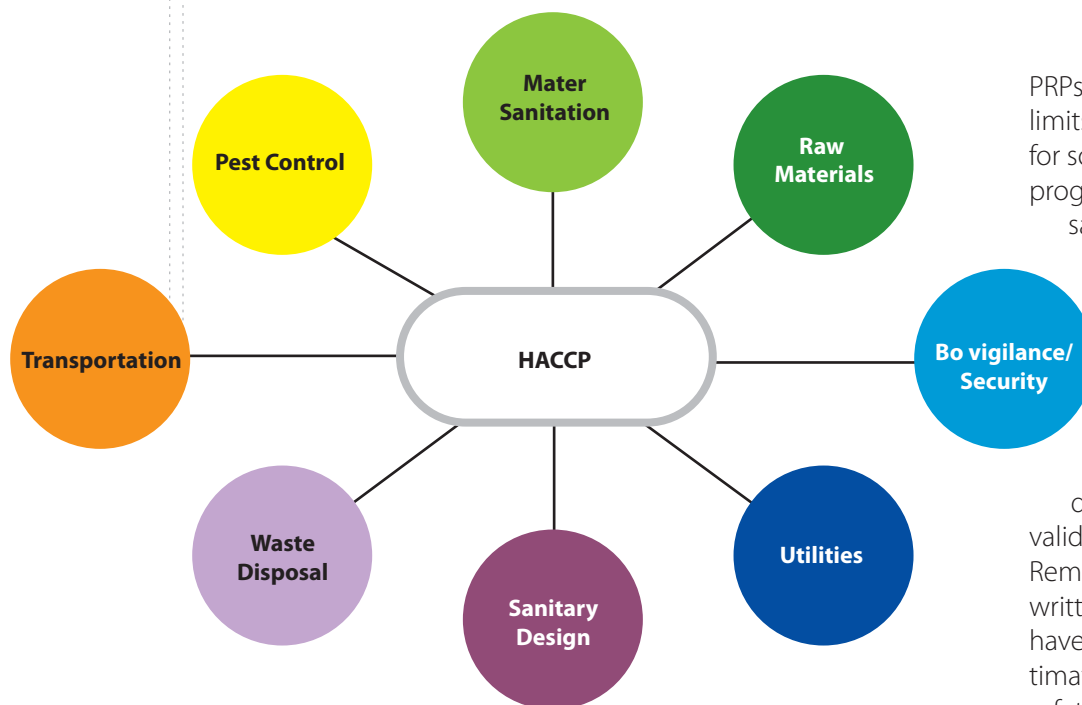


PRPs are the base for HACCP to be successful in controlling feed and food safety risks.

tended user. Each facility food safety team must honestly evaluate the potential hazards for their product and determine which combinations of PRPs are right for them.

THE FOUNDATION OF AN EFFECTIVE HACCP PROGRAM

Continued



Each facility food safety team must honestly evaluate the potential hazards for their product and determine which combinations of PRPs are right for them.

PRPs are not critical control points. They do not have critical limits or clearly defined measurements, which makes it hard for some to understand their full importance. Prerequisite programs support critical control points by preventing food safety hazards from occurring. CCPs remove or reduce a food safety hazard to a safe level.

Successful prerequisite programs will leave a big paper trail of records and documentation. Records of completed activities are evidence that PRPs are being followed, such as cleaning, inspections, validations, training and management food safety meetings. PRP documents will include standard operating procedures, validation studies, standards and knowledge of regulations. Remember though, you can have detailed documentation and written SOPs, but PRPs must be implemented in the field and have records to back up actual PRP activities. Never underestimate the importance of prerequisite programs in your food safety plan. Without active PRPs, you leave your products open to unnecessary hazards and unnecessary risk.

A CASE STUDY

A facility manufactures animal food. They have identified metal foreign material as an animal food safety risk and have thus

THE FOUNDATION OF AN EFFECTIVE HACCP PROGRAM

Continued

installed a foreign material screen, magnet and metal detector on the final product system. They have a prerequisite program for incoming ingredients that includes inspecting the ingredients for foreign material and keeping a record of the inspection. However, the facility has not completed food safety or PRP training, and the PRPs are not viewed or updated by a food safety or management team.

Their metal detector was kicking out a significant amount of final product for metal contamination. No contaminated final product was entering the market place, however, it was costing the company to reprocess and discard product that was contaminated with metal. Metal was not found on the screen but was found on the magnet. A team was formed to investigate the cause of the metal contamination. They determined that the metal was coming from the front end of their process. When they went to review the incoming ingredient inspections, they found that records were not completed on every load. The persons responsible for the inspecting the loads and completing the records had not received training on food safety and only knew that they needed to unload so many loads of ingredients every shift. The operations team felt

the inspections and record keeping slowed them down, and nobody looked at it anyway.

The team could not determine if the metal came from an incoming ingredient or from their process. Their prerequisite programs were not being followed and not reviewed by a management team. The control point caught the food safety hazard but at a large extra cost to the company.

The weak training and ingredient PRPs allowed for a food safety hazard to contaminate the final product. The animal food safety hazard could have been prevented if the facility had completed food safety training and verified and followed their incoming ingredient prerequisite program was being followed.

The facility went back and completed animal food safety and PRP training for all their employees. The facility was then able to quickly determine that a supplier had metal contamination in their product. The facility was able to reject the shipments and work with the supplier to identify and correct the hazard. The PRPs were able to prevent the hazard from entering the process in the first place.

RESOURCES:

WWW.CARGILL.COM
WWW.FSIS.USDA.GOV

WWW.SSAFE-FOOD.ORG
WWW.BSIGROUP.COM

PAS 222:2011 PRP FOR FOOD SAFETY IN THE
MANUFACTURE OF FOOD AND FEED FOR ANIMALS

GRAIN MARKET OUTLOOK

Will the drought extend into 2013? **BY LEE BOHLING, SALES MANAGER – PROTEIN INGREDIENTS**

Many weather experts say the 2012 drought appears to be here to stay. "It would take a tremendous amount of snow and a very long winter to offset this year's moisture deficits in the Midwest. The odds for that type of winter are [20 percent] at best," according to Al Dutcher, Nebraska state climatologist.

By contrast, NOAA's authority on El Niño and La Niña says the two are locked in neutral. "It will be a few months before a return to either El Niño or La Niña is possible," according to Klaus Wolter from the NOAA.

Nearly 62 percent of the continental US remains in some stage of drought according to the Drought Monitor, with 43 percent of that area considered to be in a severe, extreme or exceptional drought. The 2012 crop removed roughly 16 inches of water from the topsoil and subsoil, and it will take a long time to regain that lost moisture, according to the climatologists. According to the US Seasonal Drought Outlook forecast, persistent drought is deemed the best bet across central and southern portions of the intermountain region, the Rockies and the Plains.

This year marked the first time in the 13-year history of the Drought Monitor that all 50 states and Puerto Rico experienced drought. In the past few months, it has receded slightly in the Midwest but remains entrenched in the Great Plains. The nation's driest areas have moved to the West since July, according to the Drought Monitor. A weak-to-moderate La Niña (cooler than normal waters in the eastern and central Pacific Ocean) did affect our weather patterns during the first three months of 2012. La Niña was replaced by neutral conditions for the rest of 2012. Neutral

conditions mean a lack of an established weather pattern, likely meaning big temperature and precipitation swings across the country through the winter, which we have seen.

"The Eastern Corn Belt has a better chance of escaping the drought compared to the Western Corn Belt," according to Ken Scheeringa from Purdue's climatology staff. Their research shows that the longest Indiana droughts have lasted about 18 months. The state can have frequent minor droughts, but if they happen in the colder months, the impacts are less than if they happen during the growing season. Since the Western states have no direct path to Gulf moisture, it is harder to break the moisture and jet stream cycle, which in turn causes the length of the drought cycles to last longer.

The past 12 years have ranked among the 14 warmest in the 133-year period of recorded data, according to NOAA's recent Global Climate Summary for 2012. The NOAA data also revealed that 2010 and 2011 were the two wettest years on record, and 2012 saw nearly average precipitation across the globe. The top 10 warmest years from 1880-2012 are:

- | | |
|---------------------------|--|
| 1) 2010 (an El Niño year) | 5) 2002 |
| 2) 2005 | 6) Tie 2006, 2007, 2009 |
| 3) 1998 (an El Niño year) | 9) 2004 |
| 4) 2003 | 10) 2012 (also the warmest La Niña year) |

THE EMPYREAL TEAM



Lee Bohling

SALES MANAGER – PROTEIN INGREDIENTS

Bohling graduated from the University of Nebraska, Lincoln with an ag econ degree, and he 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 he manages sales around CGM and Empyreal75® and other protein ingredients for the seven wet mills within Cargill Corn Milling North America.



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.



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.



Betty McPhee **DIRECTOR OF SALES**

Bringing with her nearly 20 years of pet food industry experience, McPhee supports the Empyreal 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. McPhee studied at Denver University.



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.



James Brown **DEMAND ANALYST AND PLANNER**

Brown is a graduate of Montana State University, with a bachelor's degree in agricultural business and a master's degree in applied economics. He is responsible for forecasting beef and dairy feed demand for Cargill Corn Milling and provides trend analysis and statistical support to its Empyreal team. Brown lives in Blair, Neb., and actively volunteers with many community organizations such as the Red Cross and the local County Extension Service Advisory Board.

THE EMPYREAL TEAM



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.



Katie Hale
QUALITY MANAGEMENT FEED SPECIALIST

Katie Hale has been with Cargill Corn Milling since 2007, in Dayton, Ohio. She was a bench quality chemist for one-and-a-half years before she moved into the Process/Feed Product Line Support Chemist role for four years. She was promoted to Feed Specialist in November 2012. As Feed Specialist she is responsible for all final feed product quality from the Dayton facility, including the Empyrean 75 product line starting in summer 2013. Katie is a graduate of Purdue University with a bachelor's degree in food science. She resides in Kettering, Ohio, with her husband Tom, their dog Jessi and cat Colt.

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