May 2008

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Big bet on Wet

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Cambrian Pet Foods opens new UK cannery, p. 16 Cambrian Pet Foods L

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Global growth continues A look at feeding trials Embrace sustainable packaging

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Volume 50. Number 5



Big bet on wet

Bv Steve Dubé

Independent manufacturer Cambrian Pet Foods expands with new UK canning plant.

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On the cover: Richard, David and Jonathan Davies of Cambrian Pet Foods, with Ben. Photo by Marlene Davies.

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2. Industry Calendar: www.petfoodindustry.com/ EventCalendar.aspx Is sustainable petfood packaging here to stay or just a passing fad? Discuss this question and others here.

3. Industry News: www.petfoodindustry.com/ViewNews.aspx

Updated regularly to keep you alerted to everything happening in

4. New products:

our industry!

- ► For consumers: www.petfoodindustry.com/ ListConsumerProducts.aspx
- For manufacturers: www.petfoodindustry.com/ ListManufacturerProducts.aspx

Featured this month

1. Learn more about predictive medicine.

Read what Dr. Gail Smith has to say about this topic and how it effects our industry.

www.petfoodindustry.com/ 0805PETpredictive.aspx





2. The future of feeding trials.

Mike Panesevich of Summit Ridge Farms discusses the innovative feeding trial process. www.petfoodindustry.com/ 0805PETfeed.aspx

3. Track booming global markets.

Access a host of extra information and statistics on regions like Brazil, Poland and China from the article "Global growth continues."

www.petfoodindustry.com/ 0805PETglobal.aspx



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INSPIRED MOLECULAR SOLUTIONS

EMIN

Editorial Notes BY TIM PHILLIPS, DVM

Big money in play

his headline is an easy way to get the attention of most business people. But it's also relevant because it relates to a paradigm shift that will change what and how much petfood you sell. This shift is called *predictive medicine*.

Predictive medicine

Predictive medicine uses various tests to predict disease risk and then uses strategies to offset that risk. "The predictive test need not be a genetic test," says Gail Smith, VMD, PhD, professor of orthopedic surgery at the University of Pennsylvania (USA). "It can be one or more of several tests radiographs, ultrasounds, blood tests and others—that have been shown to correlate with the susceptibility to a specific disease."

The logic is the same regardless of the type of testing: Knowing the risk, one can implement measures early to offset that risk. In this context, canine hip dysplasia (CHD) and a hip screening test known as PennHIP (www. pennhip.org) are a good example.

Exhibit A: hip dysplasia

CHD is an extremely common genetic disease that affects millions of dogs and leads to osteoarthritis (OA) of the hip, causing pain and decreased mobility. The pharmaceutical industry manufactures several nonsteroidal anti-inflammatory drugs to treat the pain of OA and many of the leading petfood companies offer premium and

prescription diets with additives aimed at relieving joint discomfort and slowing the rate of cartilage degradation in osteoarthritic joints.

The traditional paradigm for treating hip OA is to start medication or a new petfood shortly after the onset of the pain and disability of OA. But why wait? If there is a test that can predict a pet has a high risk of developing a certain disease, why not start preventive treatment immediately?

The PennHIP test

The PennHIP radiographic test was developed at the University of Pennsylvania in 1983. A large body of research has been published to validate the test's ability to determine the risk for osteoarthritis at an age as young as 16 weeks. It is the only test capable of estimating the risk for hip OA, says Smith. Radiographic OA risk increases as the PennHIP score increases.

With the knowledge that a dog has a risk for a disease such as OA, one is justified to implement early strategies to offset the risk. The net effect to the petfood industry is to lengthen considerably the treatment interval that is, the length of time treatment is used. The advantages to the dog and the dog owner are obvious: later onset of OA and reduced severity of the disease and a better quality of life.

Dr. Phillips is the editor of Petfood Industry magazine. He can be reached at Tel: +1.815.734.5644, E-mail: tphillips@wattnet.net.

Online extra!

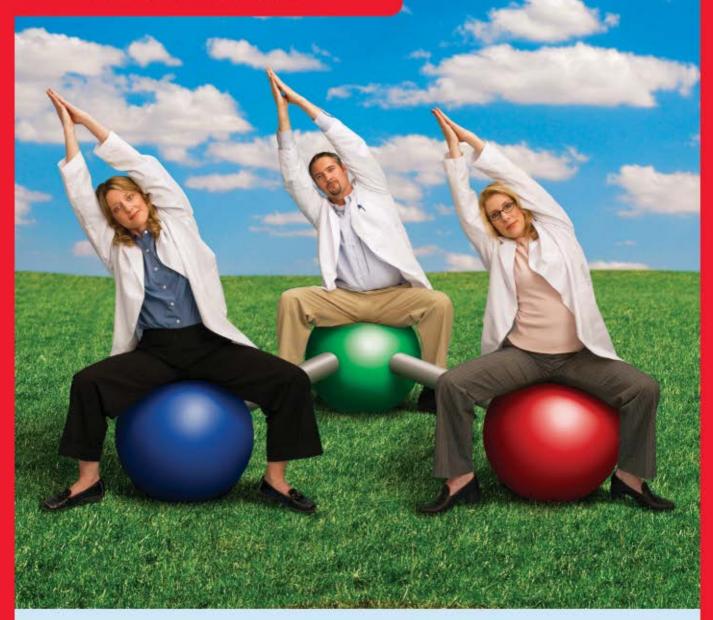
Available online is the full paper by Dr. Gail Smith at www.petfoodindustry. com/0805PETpredictive.aspx.

The German Shepherd breed is one that could definitely benefit from the predictive medicine approach.

Knowing the risk, one can implement measures early to offset that risk.



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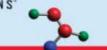
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INSPIRED MOLECULAR SOLUTIONS



Industry News

Quick hits

- Alltech has appointed Aidan Connolly vice president of corporate accounts and Marc Larousse vice president of Alltech Europe.
- Bachelor Controls Inc. has won the 2008 Control Engineering System Integrator of the Year award, presented by *Control Engineering* magazine.
- CSB-Systems announced Terry Mc-Corritson is the new Canadian regional manager.
- Fish4Dogs has hired Erik van Waveren as the European marketing & sales manager.
- Food Safety Net Services announced the promotion of David Bosco to regional manager and Dr. Wendy Maduff was named director of technical services.
- Nano Pet Products LLC signed distributors Superdog Pet Food Co. and Southeast Pet.

Some petfoods still missing from shelves

More than a year after the recalls, though market sources such as the Nielsen Co. show US sales of wet petfood have rebounded. large pet retailers have a different experience to share and say many products are still not on store shelves According to PetSmart, about 20% of recalled products, mostly wet foods, have yet to return and 10% have been discontinued altogether.

While sales of dry food grow, sales of wet are still off about 25% from pre-recall levels, said Dave Bolen, chief merchandising officer at Petco. Both pet store chains say sales of dry petfood have fared much better, especially premium and natural brands, and both chains are devoting more floor space to these



more expensive foods.

Petfood makers of all sizes are working hard to tighten safeguards and boost consumer confidence. Nestlé Purina Pet Care, for

example, no longer imports Chinese wheat gluten and also tests their wheat gluten for melamine. Premium brand Natural Balance not only tests finished products for melamine and other contaminants, but also publishes the results on their website. Companies also say they've stepped up audits of suppliers or stationed quality-control workers in foreign plants.

A recent USA Today/ Gallup Poll of 574 pet owners showed that 30% had less confidence in the safety of petfood than before the recall, 46% had more confidence and 17% had the same level of confidence.

Recalls spark interest in "Made in America" labeling

According to a survey conducted by CMI Market Research, 75% of American consumers are concerned about food safety issues and pay close attention to food packaging. Last year's petfood recalls have made consumers increasingly aware of where their petfood is made, since the majority of the problematic ingredients and food were made outside the US.

Many pet owners, according to a Weath-

erChem report, have lost trust in the brands they may have been using for years and are now more

apt to stop and take a careful look at new petfood products. According to the same report, many consumers will only buy products that are "Made in America," and if the packaging doesn't convey this clearly, then brands are losing important business.

Take the Petfood Industry survey!

Is sustainable petfood packaging here to stay or just a passing fad? Tell us what you think about that and the articles in this issue. Go to www.petfoodindustry.com/monthlysurvey.aspx.

CORRECTIONS

Several incorrect listings appeared in our March 2008 Petfood Forum exhibitor list. *Petfood Industry* regrets the errors.

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www.bliss-industries.com

Specialty Ingredients www.habib-adm.com

Nestlé Romania targets European profitability. This

year, Nestlé aims to integrate the group's petfood unit into its domestic division, Nestlé Romania. Until recently, products have been imported and distributed on the domestic market. The Swiss group hopes to take on rival Mars Inc., the current leader of the Romanian petfood market. According to Paul Nuber, general manger of Nestlé Romania, the company's goal is to develop distribution while also considering partnerships to boost the number of distributors.

Presently, the domestic distributor of Nestlé Purina Petcare is Interbrands Marketing & Distribution, which last year accounted for around 6% of Nestlé's sales in Romania. Last year, Nestlé reported Romanian turnover of about 150 million Euros (US\$235.8 million), up 30% from 2006.

Growing numbers of international exhibitors at Inter-

zoo. The Interzoo trade show, which takes place from May 22-25, 2008 in Nuremberg, Germany, will feature many more exhibitors than two years ago. The trade show is expecting more than 1,400 companies to exhibit at the world's leading trade show for the pet sector. The exhibition area is also being increased this year. The majority of the growth at this year's Interzoo stems from abroad, with a significant increase in exhibition floor space for China, India, Great Britain, Taiwan, Canada, the Netherlands, Denmark, Poland, Spain, France, the Czech Republic and the US.

Pet Fair Asia expected to be a success. Over 300 companies from the pet product sector have registered for Pet Fair Asia. The show will take place September 3-5, 2008, in Shanghai, China. The anticipated number of exhibitors is already 20% up over the last show. Pet medical products and pet medical treatment facilities will be presented in the veterinary products section. In parallel with this, a China Vet Forum will be organized, in which world-renowned veterinary experts and well-known professionals will share their opinions with the attendees, who are veterinarians and pet hospital staff.

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INDUSTRY CALENDAR



Interzoo, May 22-25, 2008, Exhibition Centre Nuremberg, Nürnberg, Germany. Contact: WZF Wirtschaftsgemeinschaft, Zoologischer Fachbetriebe GmbH, Tel: +49.911.86.068640, Fax: +49.911.86.068640, interzoo@nuernbergmesse.de, www.interzoo.com.

A complete listing of 2008 events is available at www. petfoodindustry. com

| June | | | | | | |
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| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
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| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | 30 | | | | | |
| | | | | | | |

International Forum for Transmissible Animal Diseases and Food Safety (TAFS) Conference, June 4-6, 2008, San Antonio, Texas, USA. Contact: Dr. Ulrich Sperling, Tel: +41.31.631.2931, Fax: +41.31.631.2932, contact@ tafsforum.org, www.tafsforum. org.

AFIA Feed Industry

Institute, June 16-19, 2008, Crowne Plaza Chicago O'Hare, Rosemont, Illinois, USA. Contact: Judy Pilgrim, Tel: +1.703.524.0810, afia@afia.org, www.afia.org.

IFT Annual Meeting and Food Expo, June 26-30, 2008, New Orleans, Louisiana, USA. Contact: Institute of Food Technologists, Tel: +1.312.782.8424, Fax: +1.312.782.0045, info@ift.org, www.ift.org.

Menu Foods settles lawsuits over tainted petfood

Menu Foods announced that the parties to a multi-district lawsuit by pet owners in both the US and Canada have reached a "comprehensive, cross-border agreement in principle between the parties, addressing all major terms of settlement." The deal, which still must be finalized and approved by the US District Court for New Jersey, as well as Canadian courts, is scheduled to be filed with the US District Court early this month, the company said. Filing in an as-yet unnamed Canadian court will take place in a similar time frame.

Menu Foods is just one of the defendants named in the suit. The Canadian company, its product liability insurer and other defendants will fund the settlement. The other defendants include Nestlé SA, Procter & Gamble Co., Wal-Mart Stores Inc. and PetSmart Inc. Menu Foods said its recall expenses are unchanged from an estimate last year of C\$55 million (US\$53.8 million).

Kemin acquires Brazilian palatant company

Kemin Industries Inc. has acquired controlling interest in Nord Palatabilzantes do Brasil, which will allow the Des Moines, Iowa, USA-based business to expand its global petfood palatant business into Central and South America. The deal, which was finalized last month, will change the legal name of the acquired company to Kemin Nord Palatabilzantes do Brasil SA.

"The acquisition of Nord further accelerates our vision to improve the quality of human and animal life throughout the world," said Chris Nel-

son, president and CEO of Kemin Industries.

Nord started production in February 2003 and



has grown rapidly in sales of palatants to petfood manufacturers. Kemin will be responsible for the management of Kemin Nord Palatabilzantes do Brasil SA and will market new petfood products under the Palasurance brand to major petfood companies.

Spikes in global commodity prices hit Hong Kong

Global food increases have hit Hong Kong's pets as the cost of food soars, but experts say their owners' devotion means the industry may prove inflation-resilient. Prices for petfoods in the city have jumped by more than 15% in recent weeks, as suppliers are forced to match the international price increases for raw ingredients. According to the English-language newspaper *The Standard*, the cost of a 4.4 lb. bag of dog food has jumped from 145 Hong Kong dollars (US\$19) a month ago to 170 Hong Kong dollars (US\$22). Beyond the higher prices for ingredients, the increased cost of shipping the products has also sent retail prices skyrocketing.

Hong Kong is particularly vulnerable to price hikes as it imports almost all of its food. Rice—not only a staple in the city's human diet, but also a main component in petfoods—has recently been cleared from many store shelves due to worries over a price increase of nearly 20%. The commodity, along with wheat, has seen some of the largest price hikes due to a greater demand in China and India, and reduced crop land due to the increase in growing crops for biofuels, especially in the US. Hong Kong is also hampered by its currency's peg to the US dollar, so the price of any foods imported from Europe, Australia or New Zealand has risen in recent months as the dollar has weakened.

"The petfood industry is going to be impacted like any other in terms of price," said Michael Dillon, an independent consultant. "My guess is that the pet industry will prove to be resilient to inflation as it has been to recession because of cultural changes." **Find more new products** at www.petfoodindustry.com. To submit products, contact Eric Eyberger, Tel: +1.815.734.5612, Fax: +1.815.968.0941, eeyberger@wattnet.net.

New on the Shelves



« Dry Stew

Spot's Stew Dry is Halo's dry version of their original wet petfood for cats and dogs. Spot's Stew Dry tailors to various ages of dogs, including adults and puppies. Likewise, Spot's Stew Dry is offered for indoor cats and cats with sensitive eating habits. According to Halo, its entire line of Spot's Stew Dry allows pets to consume food that's not only nutritious but also easy to digest. www.halopets.com

Reformulated diet dog food >>

Hill's Pet Nutrition has reformulated their Hill's Prescription Diet r/d Canine petfood. According to the company, clinical trials have shown the petfood reduces body fat percentage as well as triglycerides and cholesterol. The active ingredients to promote this reduced weight are lysine and L-carnitine, which help convert fat into energy. www.hillspet.com



« Some fishy treats

Fish Stix, produced by Canine Caviar, is a dog treat made from 100% skate (a cousin of the stingray) tail, according to the company. The exterior of the treat is covered with keratin beads to aid in oral hygiene. The interior is composed of fish cartilage full of chondroitin. Canine Caviar also states that Fish Stix are durable and completely digestible. www.caninecaviar.com

Food topping for dogs >>

Dog Lover's Choice presents Extra Topping, a vitamin-added supplement for dogs. According to the company, the Extra Topping aids in giving dogs nutrition and flavor that may be lost during shipping and product travel. **www.dogloverschoice.com**



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Big bei big be

BY STEVE DUBÉ

usiness has come full circle in one way for David Davies, the managing director of Cambrian Pet Foods. It's been more than 25 years since he shut the doors of his butcher shop in a Carmarthenshire, United Kingdom, village and started to mix by hand his own brand of dried petfood within a small rented factory building.

Davies now heads one of the most progressive independent petfood companies in Britain, with his sons Jonathan and Richard as fellow directors, plus a staff of 76. And all are embarking on a canning venture.

The company has found its niche in an industry dominated in the UK by two large multinationals: Mars and Nestlé Purina. The move into wet food looks to further consolidate and strengthen Cambrian's independent position.

Grasping the opportunity

The company's new location, a former creamery on a 17-acre site at Llangadog in the picturesque Towy Valley of Davies' native Carmarthenshire, is just a short drive from the company headquarters in Pencader, UK. The headquarters includes a dry plant that underwent a major expansion in 2005. It produces premium petfoods under the brand name Gelert.

"With the wet products, my past experience within the meat trade is an advantage because I can help source and select the best raw materials from meat processors that we know," Davies says. "As with any product, it's is only as good as the raw materials; if you get them wrong, then the basis simply isn't there."

The closure of the Llangadog creamery—which had its own canning plant for custards and rice puddings and processed 210 million liters of milk per year, from the UK's largest milk field—was a major blow to the economy of an area once renowned for its dairy products.

But for Davies and his sons it was

Business basics

Headquarters: Glantwelly Farm, Pencader, Carmarthenshire, United Kingdom

Brands: Gelert Country Choice, Gelert Natural Choice and, soon to be introduced, Gelert Holistic Choice (wet). The company also produces private label petfoods

Officers: David Davies, managing director, and sons Jonathan and Richard, directors

Plants: Pencader (dry) and Llangadog, Carmarthenshire (wet)

Employees: 76, including 24 at the new wet factory in Llangadog

Website: www.gelert-petnutrition. co.uk The 17-acre site of Cambrian's new wet petfood facility is set in the historic and beautiful Towi Valley in the United Kingdom.

the opportunity they had been looking for. "It was always in our minds that if the opportunity became available we would grasp it," Davies says. "We are now one of only four petfood canneries in the mainland UK, the only one in Wales and the first to be set up in the UK since 1987."

On their own

Cambrian bought the site in January 2006. Besides the canning plant, the factory had a large cold storage facility, its own effluent treatment plant, water supply from five on-site boreholes, of-fices and a large warehouse—all the facilities, utilities and infrastructure needed to run a wet petfood operation, with plenty of room for expansion.

"But we were on our own. No independent company had put a petfood cannery together in the UK for 20 years, so this project certainly took us all out of our comfort zone!" says Richard Davies, who along with David and a small team drove the project at Llangadog while also managing the growing dry food side of the business with Jonathan.

"We had bought some equipment as part of the creamery deal that we thought may have been suitable for our application, but there was no one to ask to obtain further clarification and confirmation," Richard continues. "We had to learn as we went along to put the plant together. For instance, the four rotary cookers that we had purchased with the site were not suitable for the manufacture of chunk in jelly products because they would degrade the product."

The site was a mix of buildings reflecting the expansion of the factory through the 1940s, 1950s and 1960s. "There were a lot of poor areas, including the canning hall, so we demolished it completely," says Richard. "We started from scratch. Money was an issue, and it would have been the cheaper option to use existing buildings and refurbish. But we knew that to achieve the standards that the industry and pet owners rightfully expect, we really had to build a canning hall designed to human food grade standards. All key equipment was also purchased brand

Staying local

The Davies family operates its business with a determination to do all it can to boost the local economy.

Cambrian's new canning operation lies in the valley of the river Towy, neighboring the headquarters in Pencader, Carmarthenshire, UK. The family, which speaks Welsh as its first language, is proud of its roots.

"We're using meat from local abattoirs and poultry producers, which means we're returning revenue back into the area, and we really do know our suppliers," says David Davies.

Gelert, the company's registered brand, is the name of a legendary dog associated with the village of Beddgelert (translated in Welsh as Gelert's Grave) in Gwynedd, northwest Wales. The story of Gelert is a variation on a well-worn folktale, the Faithful Hound, which even in modern times lives on as an urban legend (www.gelert-petnutrition. co.uk/story.html.)



new. And by applying previous lessons learned, we made sure we built the hall large enough to accommodate our next two phases of expansion."

With the assistance of a Welsh government grant, the company constructed a 60,000 square foot canning hall. It took most of two years to get the plant operational, but it was up and running by July 2007. By the start of this year production was settling in at around 300 cans a minute on a line with a capacity of 450 cans per minute.

Fit for humans

Cambrian's wet petfood is made with Category Three ingredients—meaning fit for human consumption—sourced from European Union-approved abattoirs in Wales and the rest of the UK.



The company furnished its new canning plant with all new equipment, including three PLC controlled retort cookers.

From these raw materials the company manufactures products in four wet formats: chunks in jelly, loaf in jelly, chunks in gravy and all meat.

After careful inspection and metal detection, mincing and emulsifying of the raw materials, jelly and minerals are added. The mixture is then pumped through a steam tunnel and cut into chunks. Gravy or jelly mix is added before the cans are sealed and then cooked for one and a half to two hours. The plant has three brand new PLC controlled retorts and space for four more. The can handling system is fully automated.

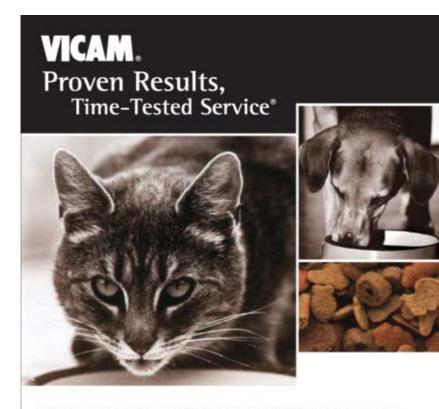
"Aside from building the new canning hall and investing in the best equipment, one of the best decisions we took was to employ two high caliber product development people-former Nestlé and Pedigree personnel," David says. "This decision was critical because it really shortened the learning curve, which reduced our R&D time by up to 12 months. That knowledge is now safely transferred onto our people, and the net result is that we have brought great quality products to the market far quicker than would otherwise have been possible." These include Gelert branded products as well as private label ones.

Pouches, holistic in the future

Future plans include increasing capacity at Llangadog threefold. "We have learned from experience to look ahead for the next five years," says Richard. "We are looking to go to 1,200 cans a minute initially on the cannery side and then look at the viability of investing in a soft can/pouch operation. One of the key benefits of this site was its scalability; all the utilities are here to run a far larger operation."

"A lot of people said the dry petfood

market would just keep on increasing at the expense of cans," Jonathan Davies says. "We don't believe this to be the case anymore, and while we actively continue to profitably grow our dried food business at Pencader, there is definitely, in the UK at least, a trend back to wet foods in particular for health and



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holistic nutrition products.

"Our on-site laboratory at Llangadog is doing R&D work on an innovative health-type product," Jonathan adds. "People are looking for better, healthier products for their pets. Humanization has been the buzzword now for a few years, and we believe wet foods lend themselves better to innovative, humanized petfoods."

We are now one of only four petfood canneries in mainland UK.

David Davies looks back with satisfaction on the company's progress and is proud of how his sons have acquired the expertise to help the company grow after starting out from very humble beginnings. "It was a stern apprenticeship but a very good one," he says. "We have re-invested all profits back into the business. We have grown within our capabilities and have received sound and prudent advice. We have excellent staff and the unstinting support of our loyal customers, local people, communities and the Welsh Assembly Government. We are very fortunate and grateful to all these people.

"We want to do the same in Llangadog as we have done at Pencader—focus on quality and providing the best possible pet nutrition products."

Steve Dubé is farming editor of the Western Mail, the national newspaper of Wales, UK.

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Continues

Highlights of key growth regions and countries show why the global petfood market is booming

COMPILED BY DEBBIE PHILLIPS-DONALDSON

orldwide retail sales of dog and cat food topped US\$45 billion in 2007, according to Euromonitor International. That figure represents a total growth of nearly 43% from the 2002 amount of US\$31.57 billion.

Though Euromonitor projects the global growth rate to decrease to 15% by 2012—still a very healthy gain, resulting in sales of US\$52 billion—some regions of the world will continue to grow at an even faster clip. Here we look at some of those areas, as well as more mature petfood markets like Western Europe.

Online extra!

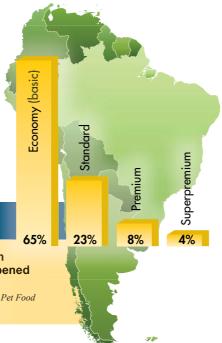
For information on the North American petfood market, visit www. petfoodindustry.com/0805PETNA.aspx.

Figure 1: Petfood in Brazil by product segment

Much of the 4.26% growth in Brazilian petfood sales from 2006 to 2007 happened in the largest segment, economy, or basic, products. *Source: ANFAL Pet (Brazilian Pet Food Manufacturers Association)*

Latin America

Sales of dog and cat food in Latin America grew a whopping 107.2% from 2002 to 2007, to a total of US\$5.04 billion, Euromonitor says. Regional growth is expected to continue at 26.5% to a total of US\$6.37 billion by 2012. Hot growth countries for petfood include Mexico and Brazil,



which together account for 78% of the Latin American pet market.

Spotlight on Brazil

In 2007 petfood sales increased in Brazil by 4.26% over 2006, to US\$3.07 billion. That fell short of the expected 11% growth, according to Associação Nacional dos Fabricantes de Alimentos para Animais de Estimação (ANFAL, or Brazilian Petfood Manufacturers Association). Yet the industry hopes to grow by at least 5% in 2008, for a total of US\$3.22 billion.

The lower growth came from raw material price increases and high taxes, which make it more difficult for consumers to buy nutritionally improved products. This also reduces competitiveness abroad, ANFAL says.

All 2007 sales growth occurred in the economy priced, or basic, product segment, which accounts for 65% of the market. Sales in the standard segment, with a 23% market share, have remained steady, while the premium segment— 8% of the market—and superpremium segment—4% market share—have been decreasing (Figure 1).

Online extra!

For an in-depth look at petfood in Brazil, see www.petfoodindustry. com/0805PETBrazil.aspx.

In 2007 the Brazilian petfood industry produced 1.8 million tons of petfood. ANFAL believes the potential of the market is much greater; its 31 million dogs and 15 million cats represent a potential petfood consumption of 3.96 million tons per year. Currently only 45% of pets are fed prepared petfoods.

Western Europe

BY RITA BUFFAGNI AND STEFANIA PES

Euromonitor figures show total Western European cat and dog food sales at US\$14.47 billion in 2007, up from US\$10.16 billion in 2002. Growth is projected to continue at 7.6% between now and 2012, to a total of US\$15.57 billion. France, Germany and the UK combined represent 60% of the Western European pet market.

Northern and central Europe are more sophisticated and saturated petfood markets. Southern Europe (Italy, Spain, Portugal, Greece) is a little behind and still experiences faster growth than the rest of Western Europe. In the northern area the expenditure per shopper has increased and driven market growth (Figure 2), while in the southern area it has been the penetration rate in households. Dry petfood is progressively expanding its share throughout Western Europe.

Pets' changing role toward family member status makes humanization one of the strongest trends here. Another important factor is private label production. This includes a clear premiumization trend, but there is also a significant segment of consumers who need affordably priced petfoods.

Online extra! Find more about Western Europe, including France, at www. petfoodindustry.com/0805PETWEurope. aspx. Increasingly heavy price competition has reduced growth of overall petfood sales in the grocery channel, but it still performs well thanks to the escalating entrance of premium petfoods. In 2007 they recorded 2% growth in Western European grocery and pet specialty stores, Euromonitor says.

Spotlight on Germany

Germans consider pets part of their families and transfer their own expectations for food onto their pets. The petfood market is mature but growing, characterized by high polarization:

- ➤ Sales of premium and superpremium petfood are increasing, reaching €830 million (US\$1.29 billion) in 2007, according to Euromonitor.
- ➤ Economy priced products are also performing well with 2007 retail sales of €267 million (US\$417 million).

Growth of economy petfood is due to the tight budget of many German households, who are compelled to buy reached $\notin 2.4$ billion (US\$3.76 billion) in 2007, a 0.4% increase over 2006. Growth is being fueled mainly by sales increases in cat food, with dog food sales remaining stable.

Supermarket chains (including drugstore and discount stores) continue as the main sales channel for petfood, with a share of 68% and sales of \in 1.5 billion (US\$2.34 billion), IVH says.

Spotlight on the UK

Humanization is quite evident in the UK market. With pet obesity reaching record levels, this market is seeing increasing success with health-focused, multi-functional foods featuring ingredients such as omega 3 and 6 fatty acids and marketing claims such as gluten-free, hypoallergenic and organic.

The UK is the largest market for pet healthcare and dietary supplements in Europe, Euromonitor says, with retail sales approaching \notin 220 million

France

€118 (USS186) €120 (USS189)



the cheapest products (especially for dry cat food) and from private label sources. Because of the polarization, mid-priced products are stagnant. Germans are also shifting from wet to dry petfood for convenience and pet health; dry food is often considered more nutritionally complete.

Still, Euromonitor projects the German petfood and pet care products market to grow 3% by 2012, to a total of \in 3.2 billion (US\$4.99 billion).

According to IVH (the German association of pet product manufacturers), the country's petfood market (\$US343 million) in 2007, a 14% increase over 2006. There is also an influx of lifestage and lifestyle petfoods.

2006

€61 (USS%) Ital

2007

€62 (USS98)

Premium and superpremium products, particularly cat food, have predominated, with a total growth rate of 10% in 2007. Overall cat food has been growing about 2% a year, according to the UK's Pet Food Manufacturers Association, while dog food sales have increased about 3%. Major grocery and pet superstore chains have taken over a greater proportion of the UK pet market in recent years. Pet superstores especially have grown due to the humanization trend and increasing demand for superpremium products. Garden centers have also become important; in the last five years the number of pet departments within UK and Irish garden centers has increased 77%.

Eastern Europe

One of the fastest petfood growing markets, Eastern Europe increased sales nearly 200% from 2002 to 2007, and Euromonitor projects it to grow another 56% between now and 2012. That would put total retail sales for cat and dog food at US\$3.95 billion, up from US\$2.54 billion in 2007.

Influencing factors include increasing levels of disposable income, changing perceptions of pets, increased demand for prepared petfood (particulary economy and mid-priced products), rising urbanization and improved distribution infrastructure. The outlook is especially positive for Poland and Russia, which comprise 64% of the market. Other countries coming on strong in petfood include Hungary and Romania (Figure 3).

Spotlight on Hungary BY I EMUEL V. CACHO

Demographic and lifestyle changes are driving the growth of Hungary's petfood market. "The rise in singleperson households has increased the need for companionship," says Lee

Figure 3: Petfood sales—Hungary, Poland and Romania

Retail sales of cat and dog food are projected to continue to grow in Eastern Europe, especially in these countries. Source: Euromonitor Linthicum, Euromonitor anaylyst. "Pets are increasingly treated as family members, with the number of pet owners willing to purchase prepared petfood increasing rapidly."

Since the collapse of the Soviet Union, a new consumer class has emerged who can afford to spend part of its disposable income on pets. "The

Polanc

\$489.24 \$525.70

Hungan

\$286.97

\$314

2007

JS millior

Romania

\$151.83

2008 (projected)

\$207.70

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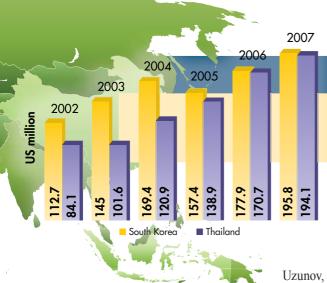
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emerging, affluent urban middle-class is

increasingly drawn to new status symbols, such as purebred animals," Linthicum says. "This trend has boosted sales of petfood and pet care products."

It's not surprising that multinational companies are capitalizing on these developments. According to Euromonitor, the industry is dominated by global marketers such as Nestlé Purina Petcare Hungary, Masterfoods Magyarorszag and Vitakraft Aqua Food. A domestic company, Babolna Takarmanyipari, operating under the name Tendre Takarmanyipari, also holds a substantial market share.

Supermarkets and hypermarkets have become vital venues for petfood and pet care products; originally pet specialty stores dominated.

Given Hungary's considerably large population, the potential for growth is

Online extra!

Find information on the Polish petfood market at www.petfoodindustry. com/0805PETPoland.aspx.

higher than in other European countries, provided steady consumer demand and demographic changes continue, Euromonitor says.

Spotlight on Romania BY DAI JIALING

Petfood sales in Romania have been growing at more than 20% annually as the number of pet owners increase and

Figure 4: South Korea and Thailand petfood sales

Retail sales for cat and dog food in millions of US\$ for 2002 through 2007. Sales in both countries are projected to continue to increase through at least 2012. *Source: Euromonitor International*

supermarket chains rapidly expand. "Consumers in Romania are buying more prepared foods for their pets," says Ivan Uzunov, an analyst in the Vilnius,

Lithuania, office of Euromonitor. The growth starts from a low

base. "The spending per person for petfood and pet care products in Romania is US\$7.91 per person, while in Poland it is US\$10.47 per person," Uzunov says.

Sales in urban areas are a major growth driver, says Regina Maiseviciute of Euromonitor. "Consumers with higher incomes and more dynamic lifestyles are purchasing more prepared petfoods." These are mainly young professionals, living alone or in two-person households and increasingly concerned about their pets' health.

Romania's rapid growth is also due to the renewed construction of infrastructure, which is allowing people to buy prepared petfood more easily. This includes hypermarkets and supermarkets located mainly in urban areas, along with pet shops.

"Multinationals like Mars and Nestlé, and others like Hill's in the premium sector, are dominating the market," Uzunov says. "At the same time, many smaller local producers are switching toward production of petfoods under private labels for supermarket and hypermarket chains."

Asia

Asia is a tale of two petfood markets: developed countries like Japan, South Korea and Singapore, or developing areas like China, India and Vietnam. Countries such as Thailand fall somewhere in between.

The developed markets are char-

acterized by aging consumers, people staying single or childless longer, busy lifestyles, pet owners willing to pay a premium and shorter product lifecycles as consumers demand variety, innovation, convenience and healthier offerings. In developing countries, consumers have rising but still low disposable incomes, so price remains key.

As a region Asia-Pacific has grown 21% in cat and dog food sales over the past five years, to a total of US\$4.41 billion, and is projected to grow at the same rate until 2012, reaching US\$5.33 billion then, according to Euromonitor.

Spotlight on South Korea BY WANG FANGQING

South Korea is seeing a spike in demand for premium petfoods, as pet owners increasingly look to buy highquality products. Lee Linthicum of Euromonitor says pet owners now have a different outlook.

"A survey done by a local newspaper showed about 95% of owners think of their pets as family members," Linthicum says. "That is a huge cultural change from before: Dogs and cats were kept outside and fed leftovers." Buying expensive petfood is also seen as a sign of social status, especially among younger South Koreans.

Son Ji-hui, a spokeswoman for the Seoul-based CJ Group (one of the largest domestic petfood manufacturers), says expensive functional petfoods, including ones with organic, natural and Chinese medicinal ingredients, are gaining popularity.

Son also says food safety could be driving Korean pet owners toward premium brands. "Recently, many accidents related to petfood safety have occurred in foreign countries, including the US recalls last year, and these have invoked the Korean consumer's

Lonza

concerns," she says.

Linthicum predicts the South Korean petfood and pet care market will reach US\$815.6 million by 2012. In 2007, retail petfood sales reached US\$512.8 million, up from US\$464 million in 2006 (Figure 4). Dog foods predominate; there are 2 millions dogs in Korea compared to 100,000 cats.

Spotlight on Thailand BY WANG FANGQING

Socio-economic changes, including higher disposable incomes, are leading to a rise in the number of pet owners in Thailand, driving petfood growth.

Thailand's petfood and pet care market is expected to reach US\$392.3 million by 2012, from the current US\$234.6 million, at an annual growth

Online extra!

For information on the Chinese petfood market, visit www. petfoodindustry.com/0805PETChina.aspx.

rate of 10.8%, according to Euromonitor. "With increasing incomes and households expected to become smaller, we predict many people will continue to seek the company of a pet," Lee Linthicum of Euromonitor says.

Varayuth Viriyachart, a spokesman with Bangkok-based petfood manufacturer Perfect Companion Co. Ltd., says the behavior of pet owners has changed. "Previously, owners fed their dogs leftovers or cooked food, but recent changes like an increasingly aging population and a declining number of newborns are causing the number of pets to rise and the petfood industry to continuously grow," he says. "Thai pet owners are also paying more attention to their pets' health, which is why dry petfood is becoming more popular."

Currently, 10 major companies are competing in Thailand, including CP, Nestlé Purina Petcare and Effem Foods, according to Euromonitor, which also predicts mid-priced and economy petfood products will see increasing demand due to the unstable economic situation in the country.



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Embrace sustainable packaging

It can save you money, help your image and reduce government intervention

BY TIM PHILLIPS, DVM

know you've heard it all before—and it's not sexy or exciting. I also know the idea of package sustainability (recycling) has come and gone before. But, thanks to the efforts of companies like Wal-Mart, this time it's an idea that's here to stay. It's an idea that can save you money, help your image—and help reduce government intervention.

The following "What is sustainable packaging?" list blends broad sustainability goals *and* business criteria for performance and cost:

- Is beneficial, safe and healthy for individuals and communities throughout its life cycle;
- Meets market criteria for performance and cost;
- Is sourced, manufactured, transported and recycled using renewable energy;
- Maximizes the use of renewable or recycled source materials;
- Is manufactured using clean production technologies and best practices;
- Is physically designed to optimize materials and energy; and

7 ways to improve packaging sustainability

- 1. Make rigid packaging more lightweight.
- 2. Change a rigid package to a flexible package.
- 3. Down gauge flexible packaging for source reduction.
- 4. Redesign a package to minimize eco-system impact.
- 5. Redesign a material to provide improved processablility and increased manufacturing.
- 6. Redesign packaging extrusion equipment to increase efficiency.
- Share best practices for reduction of energy consumption and minimization of waste generation.

Source: Petfood Industry webinar sponsored by Alcan and Packaged Facts, October 30, 2007.

Is effectively recovered and utilized in biological and/or industrial cradleto-cradle cycles.

Wal-Mart's scorecard

In 2006 Wal-Mart announced its new Sustainable Packaging Scorecard, which is working toward a 5% packaging reduction across its global supply chain by 2013. Wal-Mart's ultimate goal, according to *Brand Packaging*, is to become "packaging neutral" by 2025.

This would mean a savings of US\$3.4 billion for the retailer, 213,000 fewer truckloads of merchandise, 67 million fewer gallons of diesel fuel and 700,000 fewer tons of carbon dioxide emissions. Wal-Mart's ultimate goal is to have all of the packaging that flows through its distribution chain recyclable, reusable, compostable or recoverable for future use.

Sustainability mantra

The mantra of sustainable packaging advocates is: reduce, reuse, recycle and renew. These ideas are worthy of your sincere attention. **Reduce.** Removing excess packaging and reducing the overall packaging footprint are steps that go a long way toward sustainability, notes Tel Mininni, president of Design Force Inc. (www.designforceinc.com). With reduced packaging, more products can be packed into shipping cartons and more cartons onto pallets, resulting in fewer truckloads and harmful emissions. But because the process can reduce energy and material costs, it can also add substantially to profits.

Reuse. Reusing packaging is another key step you can take. Consider how common the practice of reusing milk bottles used to be for local dairy producers. Why not extend the idea of reuse to plastic food packaging, which can be reclaimed after the product is consumed to store other foods? Consumers are already purchasing containers to store their food—why not make a storage container a purchase bonus?

Recycle. In their book, *Cradle to Cradle*, architect William McDonough and chemist Michael Braungart make the case that product and packaging manufacturing should be reconfigured using a closed-loop process. Since the Industrial Revolution, a "cradle to grave" system has been in place where products and packaging end up in landfills at the end of their life cycles.

In a "cradle to cradle" approach, product and packaging materials are perpetually circulated and reused in a closed-loop system.

Renew. Consider renewable material sources. Bioplastics, for example, are made from corn, soy, sugarcane or even microbial sources, which all can be replenished, unlike nonrenewable resources like petroleum.



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www.sustainablepackaging.org.

Online extra!

Check out a webinar sponsored by Alcan and Packaged Facts, October 30, 2007, www.petfoodindustry. com/0805PETpackage.aspx.





A comprehensive look at the feeding trial process

BY JESSICA TAYLOR BOND

mmediate acceptance of offered food is often the pet owner's criterion for nutritional desirability," said

Slobodan Baskot, R&D assistant at BHJ Pet Food, in a March 2007 article in *Petfood Industry*. But what does it take to make tails start wagging and tongues drool when it's feeding time for consumers' cats and dogs? Petfood has to be palatable, healthy, nutrition-rich and above all, safe to eat. That's where our industry's finicky and discerning taste-testers come in, ready to put our culinary offerings to the test.

Palatability testing: CPAP

According to CanCog, palatability is a measure of subjective food preference and depends on taste, texture and odor. Research into the palatability of petfood products has always been important because no matter how well-formulated a petfood may be, all the nutrition in the world won't matter one bit if the animal won't eat it. Testing conducted on the applica-

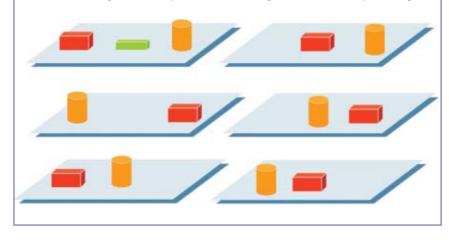
The patent pending Palatability Monitoring System from Summit Ridge Farms collects data for true side-by-side, two bowl palatability testing of group housed cats.

tion of palatant systems and alternative kibble formulations is often the best solution. Canned, semi-moist and dry pet products can be evaluated in terms of palatability, while extruded products can be measured for texture and shape.

Cognitive palatability assessment protocol (CPAP) is the use of associative learning to assess palatability in companion animals. Response choices are indicative of food preference since the preferred stimulus is associated with no reward and the non-preferred stimuli are associated with test foods. A preferred stimulus of three, instead of two, is determined through discrimination testing and reversal, which provides quality assurance (see Figure 1).

Figure 1: Palatability testing CPAP model

In CPAP testing, a preferred stimulus of three is determined through discrimination testing and reversal, which provides quality assurance. Source: CanCog, from the presentation "Cognitive Palatability Testing."



Dogs tested using this method by CanCog showed increased preferences on CPAP, suggesting a learning component. Animals also showed a greater ability to detect differences, particularly when they were not previously exposed to food. The researchers at CanCog concluded that CPAP would be useful for:

- Avoiding confounding food effects (satiety);
- Drug studies and understanding taste mechanisms;
- ► Long-term palatability testing; and
- Testing products consumed in small quantities (treats and pharmaceuticals).

Palatability testing: two pan tests

At Summit Ridge Farms, palatability dogs and cats are chosen by using science and accurate validation procedures, according to the protocol testing facility. The "taste testers" undergo extensive training and validation. The animals are introduced to two bowl feeding stations and then the temperament of each animal is monitored, including its acceptability of two bowl feedings, and the dog's or cat's willingness to make a choice. Panels are periodically validated by presenting the same diets simultaneously to verify a null response. The animals are then offered a highly palatable diet versus a standard diet to verify a positive response.

The patent pending Palatability Monitoring System from Summit Ridge collects data for true side-byside, two bowl palatability testing of group housed cats. The feeding trial

All the nutrition in the world won't matter one bit if the animal won't eat it.

company has developed hardware and software that allows them to provide historical data, as per standard two bowl palatability testing, with the addition of timed-event-consumption data. The system also provides continuous palatability recording in a community environment with data acquisition and analysis that allows Summit Ridge to present data in multiple formats. Up to 40 feeding stations can be used with one central computer via USB connection; the company is currently developing stations that operate wirelessly.

Dental testing

Dental testing feeding trials are the evaluation of products that make dental health claims for acceptance and efficacy. Summit Ridge Farms is one US facility that runs these important trials. The Veterinary Oral Health Council (VOHC) has set stringent guidelines that must be met for a product to maintain the VOHC Seal of Approval. Periodontal disease is the most common disease occurring in dogs and cats, and pet owners have begun to recognize the importance of dental health, often seeking out products with the VOHC Seal.

AAFCO nutritional adequacy testing

When a diet is fed as the sole source of food to a population of companion animals, problems are more readily identified within a controlled environment. According to *Canine and Feline Nutrition–A Resource for Companion Animal Professionals*, testing food through a series of feeding trials is the most thorough and reliable evaluation method available. Summit Ridge also conducts Association of American Feed Control Officials (AAFCO) nutritional adequacy testing.

In 1975, AAFCO developed Policy



"Taste-testers" at the Summit Ridge Farms' feeding trials facility.

Statement 21 (a) and 21 (b), which were to become approved statements for nutritional adequacy. Policy Statement 21 was developed jointly by the Pet Food Institute (PFI) and the AAFCO Pet Food Committee and in 1980 was adopted. This policy statement required that labels show the basis for Nutritional Adequacy Statements.

AAFCO then formed a Canine and a Feline Expert Subcommittee to develop a standard of nutritional adequacy in dogs and cats. The NRC guide was replaced with AAFCO Nutrient Profiles for Dogs in 1991 and for Cats in 1992. The minimum feeding trial protocols were also changed. More recently, AAFCO has assigned a scientific panel of experts to reexamine the nutrient profiles and feeding protocols.

The impact of feeding trials

According to Claire Larose, ethologist at Panelis, an expert center in palatability measurement and feeding behavior study, there are several different aspects that can influence feeding trial results and interpretation. At Panelis, all these parameters are taken into account whatever the methodology. First of all, the protocols are adjusted to dogs and cats feeding behavior as well as to products specificities.

For example, the choice of the panel can have a major impact. The panel should ideally represent the targeted populations. That's why Panelis is established in Europe and Brazil today

Dogs and cats not the only ones tasting petfood

Simon Allison eats petfood for a living and what's more, he enjoys it. Chicken dinners, beef strips or jerky treats—it's all the same to Allison. If it's a dog's dinner or a cat's breakfast, you can bet he eats it. That's because Allison is a senior food technologist for UK company Marks & Spencer (M&S) with a specialized responsibility in petfood. No M&S pet product reaches pet bowls without being tasted by him first.

According to Allison, whose first sampling of petfood was a turkey and cranberry meal in 2006, the taste isn't much to shudder at. "It's quite bland, really," he says. "Dogs enjoy all food universally, while cats can be very choosy about what they will eat. They respond more to aroma than seasoning flavors that you would recognize." Allison even has a favorite pet meal: M&S's organic luxury chicken dinner with vegetables for cats.

The human tester does, however, draw the line at swallowing the stuff and always has a glass of water nearby to wash his mouth out. Afterward, he always remembers to chew gum to prevent "dog breath."

.....

and will soon open a new panel in the US. The panel size is an important parameter as the specific preference of an animal can have a strong impact on the average result if the group is too restricted. The panel size can also have a direct impact on the results, by masking a difference between two products if the number of pets is not high enough. On the other hand, a test designed to give 50/50 ratios can give completely different results if the number of pets is too bow.

When doing a versus test, consumption—not only the consumption ratios and the first choices made, but also the distribution of consumption—need to be noted, says Larose, so no adverse effects occur during testing. This information is important, she stresses, especially before a new product launch.

There is no universal protocol for feeding trials, but essential parameters have to be controlled. It seems best to combine different tools and methodologies, according to targets, since there is so much information available. Above all, the use of animals should be scientifically and ethically justified. Whatever tests you choose to implement should have the goal of having pets barking and meowing, bon appetit!

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Petfood Insights | regulations | BY DAVID A. DZANIS, DVM, PhD, DACVN

Speak now or pay later

s of the time of this writing, the US Food and Drug Administration (FDA) has yet to issue an official Federal Register notice specifying the date and agenda of the public meeting to discuss the impact of the FDA Amendments Act of 2007 on the promulgation of new federal petfood labeling requirements (see *Petfood Industry*, December 2007).

Many in the public and industry are eagerly awaiting the opportunity to hear FDA's plans and/or comment on this matter. In the interim, however, FDA has recently published two notices in the Federal Register where it has requested public input regarding related matters: its Food Protection Plan (FPP) (Docket No. FDA-2008-N-0188); and third-party certification programs for foods and feeds (Docket No. FDA-2008-N-0183). These notices may be viewed at http:// www.fda.gov/OHRMS/DOCKETS/ 98fr/E8-6833.pdf and http://www.fda. gov/OHRMS/DOCKETS/98fr/E8-6705.pdf, respectively.

Food Protection Plan

FDA's plan for protecting the nation's food supply was released in November of 2007 and can be viewed in full at http://www.fda.gov/oc/initiatives/ advance/food/plan.html. Briefly, it is described as a comprehensive strategy to help protect the food supply from both unintentional contamination and deliberate attack. The three major components of the plan are to facilitate improvements in:

Prevention, Intervention and Response.

For each component, the document details the steps needed to implement its objectives in improving food protection, including proposals for new legislation to provide FDA with greater authorities. For example, to aid FDA in responding to contamination incidents, it asks the US Congress for powers to issue mandatory recalls when necessary and to enhance access to company records during emergencies.

FDA asks Congress

for powers to issue

mandatory recalls

when necessary.

While the document tends to discuss the issue in terms of the human food supply, it is clear to note that the FPP is also intended to apply to animal feeds. FDA understands that ensuring the safety of feeds for food-producing animals has a direct impact on the safety of the final food product derived from those animals, and hence must be an integral part of any viable plan.

This understanding is evidenced by the recent assignment of Dr. Stephen Sundlof as FDA's Director of the Center for Food Safety and Applied Nutrition (which oversees human food safety issues for the agency). As a veterinarian, a toxicologist and the long-time former Director of FDA's Center for Veterinary Medicine, Dr. Sundlof is uniquely qualified to help lead the agency in both food and feed safety matters. Petfoods are not forgotten in the FPP, either. Last year's petfood recall due to contamination with melamine and related compounds is discussed several times within the document as an example of where oversight of the food supply needs fixing.

Third-party certification programs

In its efforts to ensure safety of foods and feeds, FDA inspection personnel simply cannot be everywhere, especially with regard to imported products. One of the proposals within the FPP, but discussed more thoroughly in the second notice, is the possibility for FDA to accredit (or recognize entities that accredit) third parties to conduct inspections and evaluate products and facilities to ensure compliance with FDA requirements. Such third parties could include other federal agencies, state and foreign governments and private companies.

Third-party certification would augment, not replace FDA inspections, and FDA would not be bound by such certification in determining compliance with FDA requirements. However, it would allow FDA to better allocate resources and focus its inspection and surveillance efforts on products, facilities or firms that are of greater potential risk to the food supply.

Implementation of this aspect of the FPP would require new legislative authority. Critical to the success of a

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- David Dzanis

third-party certification program would be rigorous oversight of the accreditation process by FDA. Both FDA and the public must be confident in the competence, integrity and fairness of the third parties performing the certifications. To that end, FDA would have to audit the work of these parties to ensure that FDA requirements were consistently assessed, review their inspection reports and provide ongoing training criteria.

Submission of comments

In both notices, FDA includes a series of specific questions regarding various aspects of the topics at hand. Public comments do not have to address all or any of the questions specifically, and could include comments on aspects not addressed in the questions. However, since the questions posed in the notices indicate the aspects of most concern by FDA, comments that consider the type of information FDA is seeking will help the agency as it further deliberates on these matters.

Comments on either of these matters may be submitted by mail to the Division of Dockets Management (HFA-305), Food and Drug Administration, 5630 Fishers Lane, Room 1061, Rockville, MD 20852. The docket number listed previously should be used in any correspondence. While FDA is no longer accepting comments by e-mail, they can still be submitted electronically through the website http:///www.regulations.gov.

While both notices were published the same day, the deadlines for comments are different. The last day for comment on FPP is July 31, 2008. However, comments on the third-party certification programs must be received by May 19, 2008.

Dr. Dzanis is a writer and independent consultant for the petfood and animal feed industries on veterinary nutrition, labeling and regulation. He can be reached at Tel: +1.661.251.3543, Fax: +1.661.251.3203, E-mail: dzanis@aol.com.

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Ingredient Issues | nutrition | BY GREG ALDRICH, Phd

Are chelated minerals worth it?

n the petfood industry, inorganic forms of essential trace minerals such as iron, zinc, copper, manganese, iodine and selenium have been the staple. In recent years, though, chelated forms of these minerals have found their way into a number of petfoods. The questions are whether they provide additional benefit to the dog or cat and if they have a place in petfood.

What are they?

These so-called chelated trace minerals, also known colloquially as organic trace minerals, are purported to be nutritionally superior to the inorganic sources. What makes them different is their ligand. A ligand is an atom or molecule that forms a coordination complex with a central atom or ion. In this case, the ion is the mineral and the ligand is the compound to which it is bound. In their native form, most trace mineral ions are bound to an inorganic anion like an oxide, sulfate or chloride. But for chelated trace minerals, they are bound in a coordinate covalent bond (chelated) to a carbon-containing organic compound like a polysaccharide, short chain



Chelated minerals are also known as organic minerals

The question is whether they provide additional benefit to the dog or cat.

— Greg Aldrich



fatty acid, protein or amino acid. They are generally synthesized in very strong acid-base reactions under extremes in heat and pressure.

Nutritional superiority?

The rationale for adding chelated trace minerals to the diet is to improve mineral availability and animal health. Because of its bond to an organic ligand, the mineral is supposedly more bioavailable. There are a couple of prominent theories as to why this would be; they each focus on the mechanism for uptake of the mineral in the intestine, as either dissociated or intact. Both theories seem to ignore the notion that mineral absorption and utilization are under endocrine control and (or) the animal's mineral status.

One theory suggests the chelated mineral is more available because it breaks apart into its ionic form to facilitate effective absorption. To do so requires a gut pH near the molecule's pKa (the pH at which $\frac{1}{2}$ the molecule is in the ionic form). The other hypothesis is that the mineral-ligand complex is absorbed intact like a peptide. This theory requires the mineral chelate be taken up by peptide transporters in the gut and it assumes that there is a benefit in efficiency and utilization from pre-formed chelates for cellular functions.

Each theory has been supported with research using model molecules and each has data to support an increased ionic and (or) chelated mineral measured in the circulation. But, does this increase make any difference? Perhaps some. The use of organic trace minerals has been shown to improve markers of hair "health" in dogs and improve puppy litter size. Beyond this, the data in dogs and cats is fairly limited.

Since mineral utilization depends on mineral status, more mineral in the diet doesn't necessarily mean more mineral utilized. For livestock diets in which the emphasis is on cost containment and where mineral fortification may be skirting minimum requirements, a consistent response might be detectable when a more bioavailable form of mineral is provided. However, in petfood applications in which the recommended allowances provide a buffer over minimal needs, and the amount supplied in the food is typically twice the recommended allowance, providing a small increment of a more bioavailable mineral may not necessarily improve the animal's mineral status.

Petfood applications?

There is a broad array of these chelated trace minerals (or metals) from which to choose. According to the American Association of Feed Control Officials, one can use a metal amino acid complex, metal specific amino acid complex, metal amino acid chelate, metal polysaccharide complex, metal propionate or metal proteinate.

Regardless of which type, they are

Under extremes in performance or stress there may be need for the additional level of nutritional support.

most commonly merchandised in 50 lb. bags or drums either as the individual trace minerals, e.g., zinc methionine, or blended into a premix. They are commonly free-flowing with a granular to powder consistency and come in a multitude of colors like blue, black, pink, green and white depending on their own particular chemistry. Even though chelated trace minerals often have a distinctive color of their own, they are not likely to be seen in the finished petfood due to their small inclusion level.

On the other hand, trace minerals can lead to discoloration or spotting in some higher moisture foods (such as canned petfoods). We are also instructed to separate minerals and vitamins to reduce fat soluble vitamin losses in premixes. In both circumstances, the issue is oxidation in which transition metals such as iron and copper are involved. Chelated trace minerals have been proposed as a possible solution to these issues. The over-simplistic premise is that since these minerals are bound, they may be less reactive.

But this is an incorrect assumption. Rather, it depends on the redox potential of the molecule (its ability to reduce or oxidize), which is influenced by the ligand. A more neutral salt of the metal will be less oxidative in a petfood, regardless of whether it is chelated. Some of the chelated trace minerals, such as a metal-proteinate, are more neutral and so are less likely to be involved in this oxidation reaction.

Bottom line

The benefits of chelated trace minerals are increased bioavailability of 5-15% and the resolution of some discoloration issues resulting from oxidation. However, they are one-half to one-third the concentration of inorganic trace minerals, and can be more than five times the cost per unit mineral. So the case for their use in petfoods is not overwhelming. Despite this, some petfood companies promote the inclusion of chelated trace minerals individually or in combination with inorganic sources as insurance against the unexpected times when absorption or utilization may be impaired. Under extremes in performance or stress there may be need for the additional level of nutritional support. So they may impart some small benefit to the pet and possibly peace of mind to the pet owner.

Dr. Greg Aldrich is president of Pet Food & Ingredient Technology Inc., which facilitates innovations in foods and ingredients for companion animals. Tel: +1.785.271.0238, E-mail: aldrich4@cox.net.

Online extra!

Watch a video interview with Greg Aldrich at http://abclocal.go.com/wls/ story?section=news/local&id=6084732.

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Research Notes

Balancing antioxidants

Further research should be conducted to fully explore the role of oxidative stress in health and disease. Although oxidative stress is involved in the pathogenesis of many diseases, its complete annihilation may lead to even worse clinical effects.

We have evolved and adapted to symbiotically live with mitochondria and mitochondria-related persistent, yet low-grade, oxidative stress, which in turn may contribute to the physiological functioning of the cell. Thus, reducing oxidative stress to levels below the physiological threshold may trigger intracellular signaling pathways further damaging cellular machinery.

This could represent a critical area for future scientific investigations, with tremendous social implications. Indeed, vitamin supplements are regularly taken all over the world because their prescription is just based on the media-driven assumption that oxidative stress is harmful for health and supplements are beneficial.

Source: Laviano, A, 2007. Never underestimate the power of ROS. *Current Nutr Food Sci*, Vol 4, 2, p. 183.

Dog model remains essential

As a whole, biological research has recently shifted its focus from reductionism to holistic approaches to study complex systems, a strategy often termed "systems biology."

Given the importance of livestock and companion animals as animal models for humans, many of these genomes have been sequenced or are being sequenced by the National Institutes of Health.

There are ongoing projects to sequence the canine genome and create a single nucleotide polymorphisms map. Furtermore, the phenotypic and genotypic similarities and unique breed structure of domestic dogs continue to



> Balancing antioxidants

(Laviano, 2007): When considering antioxidant therapy, it should be remembered that more is not necessarily better.

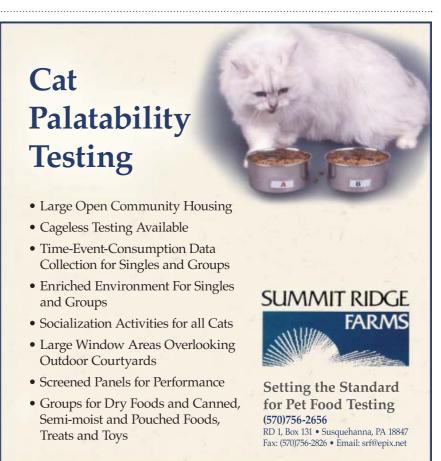
> Dog model remains essential

(Swanson, 2006): For the benefit of dogs and other animals, this paper aims to reiterate the importance of the dog model in gastrointestinal research.

increase the experimental power of the dog model.

While anatomical and physiological similarities have deemed the dog a useful model for gastrointestinal research for decades, economical and ethical concerns have recently decreased their use in this research field. This paper aims to reiterate the importance of the dog model in gastrointestinal research, including the study of prebiotics and aging on intestinal health, analyzing gene expression profiles and performing whole genome association studies.

Source: Swanson, K.S., *et al.*, 2006. Canine nutritional model: influence of age, diet and genetics on health and well-being. *Current Nutr Food Sci*, Vol 2, 2, pp. 115-126.



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residues in milk, according to the company. TetraStar dairy antibiotic test for tetracyclines complements the company's BetaStar test for the betalactam group of dairy antibiotics, which includes amoxicillin, ampicillin, cephapirin, cloxacillin and penicillin. TetraStar produces clear results in six minutes and, like BetaStar, is a simple dipstick test that requires only minimal training and equipment to produce accurate results.

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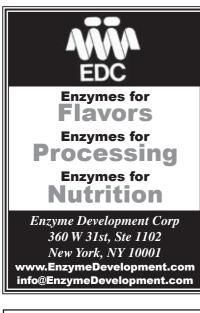
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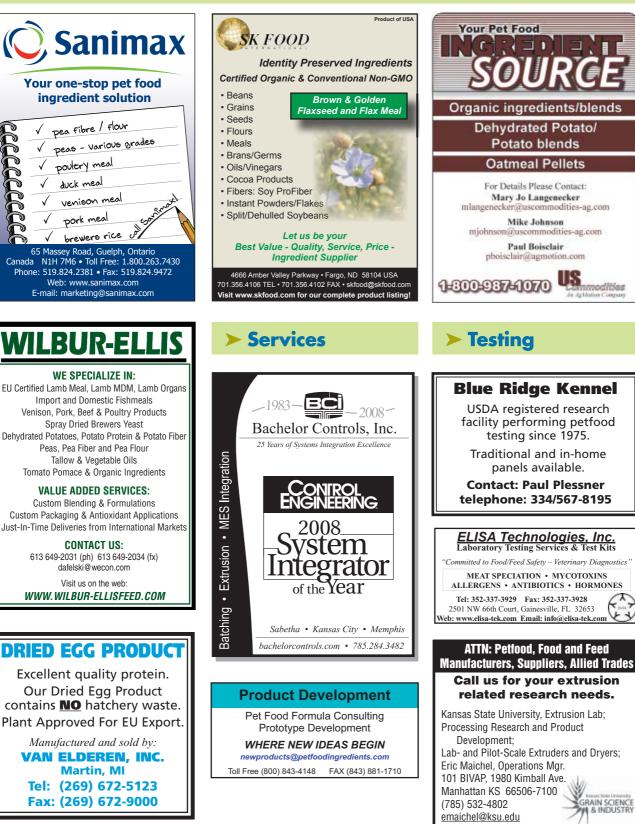
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Something to Chew On <u>comments</u> By debbie Phillips-Donaldson Getting your share of the bounty

etfood manufacturers worldwide have been dealing with soaring prices for ingredients—especially grain-based ones—for a couple of years. Is the situation likely to improve at all this year?

Not if corn is one of your key ingredients. According to the *Prospective Plantings* report from the National Agricultural Statistics Service of the US Department of Agriculture (USDA), US farmers are expected to plant 8% fewer acres of corn this year (Table 1). The 93.6 million acres planted in 2007 was the highest since 1944, as farmers capitalized on the demand—and accompanying high prices—for corn to be used for ethanol production. (See http:// usda.mannlib.cornell.edu/usda/current/ ProsPlan/ProsPlan-03-31-2008.pdf. URL is case sensitive.)

Because of this demand, less corn was available for food and petfood production, and the price for what was available escalated. At the end of March, when the USDA report was released, a bushel of corn was trading on the Chicago Board of Trade for US\$5.60, up from US\$2 a bushel in 2006, according to an article in the *Chicago Tribune*. US corn farmers are expected to plant 8% fewer acres this year what does that mean for petfood?



- Debbie Phillips-Donaldson

The flip side

It's no wonder then, as an April 7 article in *Time* magazine pointed out, that US corn farmers now sell 20% of their crop to ethanol producers. Demand for new food sources from an emerging middle class in developing countries like China and India plays a role, too.

The flip side for farmers is that growing corn is expensive because of the need for intensive fertilization. Those high input costs, along with the need to rotate crop production in their fields, is what will drive US farmers to plant less corn this year, the USDA report says.

Another factor is that prices for other crops, such as soybeans, are also rising. It doesn't hurt that soybeans are less

Table 1: 2008 US crop estimates

According to the US Department of Agriculture, US farmers plan to decrease plantings of corn and oats and increase barley, rice, wheat and soybeans. Acreage numbers are in millions.

| 2007 acreage | 2008 estimate | % change |
|--------------|----------------------------------|---|
| 4 | 4.1 | 3% |
| 93.6 | 86 | -8% |
| 3.7 | 3.4 | -9 % |
| 2.76 | 2.77 | 0.4% |
| 63.6 | 74.8 | 18% |
| 60.4 | 63.8 | 6% |
| | 4 93.6 3.7 2.76 63.6 | 4 4.1 93.6 86 3.7 3.4 2.76 2.77 63.6 74.8 |

expensive for farmers to grow—thus, the projected 18% increase in soybean plantings this year (also in Table 1).

The wild card

Perhaps the most unpredictable yet possibly significant influence on crop production is the weather. In 2007 many parts of the US, including its farmland, were affected by drought. This year the biggest problem is just the opposite: heavy rains and flooding, especially in the Midwestern US, where much of the country's corn is grown.

Despite all these issues and the projected decrease in this year's plantings, the USDA expects corn acreage to remain at historically high levels. Whether petfood producers will be able to get their share—or afford it—remains to be seen.

Phillips-Donaldson is editorin-chief of Petfood Industry magazine. E-mail her at dphillips@ wattnet.net.

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Celebrating its 40th anniversary in 2005, the Wenger Technical Center offers more knowledge and skill in all aspects of extrusion and drying technology than anyone in the industry. It's experience we offer in your quest to plan projects; develop product prototypes; perform laboratory analysis, and engineer processes. No matter where the inspiration begins, Wenger can help put your product on the market ahead of the competition.