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# Nars starts with the pet

Luc Mongeau of Mars Petcare US, p. 24

A dietary treatment for osteoarthritis

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New products, new strategies

Reducing costs in wet petfood production

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Volume 51. Number 11



# Mars starts with the pet

By Debbie Phillips-Donaldson

A passion for pets and 'petcentric' mindset drive all new products and initiatives for Mars Petcare US.

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By Anton C. Beynen, PhD

Gelatin hydrolysate can alleviate symptoms of this canine joint disease.



## **34** New products, new strategies

Research & development conducted on the Internet for new petfood product launches is driving growth and ingenuity.

## **38** Reducing costs in wet petfood production By David Primrose

Savings can often be achieved by optimizing usage of gels and thickeners.

# Something to Chew On By Debbie Phillips-Donaldson



On the cover: Luc Mongeau, president of Mars Petcare US, with Annie. Photo by J.T. Wampler Photography (www. printroom.com/pro/jtwampler)

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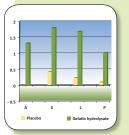
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#### **Online Exclusives**

## Webinar: Dietary treatments for osteoarthritis

Watch Dr. Anton Beynen's presentation from Virtual Petfood Forum. www.wattevents.com





#### **Research: Osteoarthritis sources**

Find references for Dr. Beynen's article on canine osteoarthritis.

www.petfoodindustry.com/ osteoarthritisreferences.com

#### Webinar: Exotic ingredients galore

View Dr. Greg Aldrich's Virtual Petfood Forum presentation. www.wattevents.com



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# Something to Chew On By Debbie PHILLIPS-DONALDSON Filling the gap

ere's some good news, courtesy of a survey recently commissioned by Petco: Nearly 80% of US pet owners say they feel confident their pets' food is healthy and nutritious.

The bad news? Only 43% of respondents say they understand how to evaluate the nutritional value of the food by looking at the ingredients on the label, and only 41% know which ingredients are most nutritious.

Citing a disconnect between confidence in petfoods and owners' ability to evaluate them, Petco is trying to fill the gap by launching a pet nutrition education campaign online and through its more than 950 US retail outlets.

#### In-store "experts"

The survey also showed:

- 83% of respondents consider the nutritional value of their own food to be critical or important;
- 79% place the same level of emphasis on their pets' nutrition; and
- Only 39% say they know the differences among petfoods labeled basic, premium, natural and organic.

That last point is one of the areas Petco attempts to address with its education program. The key component is an army of more than 2,000 "staff nutrition

#### We need your help!

*Petfood Industry* is seeking inputs for two upcoming articles:

- Has your company reached a significant anniversary or other milestone in the past year or two?
- Do you know of a rising star or unsung hero in pet nutrition?

For either, please send a paragraph or two and contact information to dphillips@ wattnet.net by November 23, 2009. There's a disconnect between consumers' confidence in petfoods and their knowledge of pet nutrition.



- Debbie Phillips-Donaldson

experts"—at least two per store—who have received what the retailer calls a comprehensive pet nutrition training and certification course developed by a panel of about 20 internal and external nutrition experts. Members included the staff veterinarian from WellPet, other petfood company executives and Petco executives such as the director of veterinary medicine and Rick Rockhill, VP of merchandise innovation.

The program also includes consumer pet nutrition workshops scheduled for all US Petco stores on November 14 and a library of pet nutrition articles online at www.petco.com/nutritioncenter.

All the materials are based on guidelines the retailer has developed for making petfood purchases:

- Recognize that humans, cats and dogs have very different nutritional needs;
- Understand your pet's unique needs (age, breed, activity level, specific conditions);
- Learn how to evaluate a petfood label;
- Determine the primary ingredients and protein sources; and
- Understand the combination of ingredients is more important than any single ingredient.

#### A positive step

While the online articles come across as fairly simplistic and vague, without

any attribution of sources, I applaud Petco's initiative. For any of us who has encountered an uninformed pet store clerk cluelessly guiding consumers' petfood purchases, any type of training and education is a positive step.

The retail giant is not the only one stepping up. In October Veterinary News Network (www.myvnn.com) launched a website for pet owners called PetDocsOnCall.com. The main features involve owners being able to post questions and receive answers from vets (in some cases for a fee), but the site also includes articles and videos on pet health topics, including nutrition.

#### **Opportunity to engage**

Still, the amount of nutrition content is small, presenting a chance for our industry to engage veterinarians and pet owners. I think the Petco education program provides a similar opportunity. Consumers (and many vets) have wide gaps in their pet nutrition understanding—who better to fill them than experts who live and breathe this knowledge every day?

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







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# **Industry News**

#### Quick hits

- The Petco distribution center in Joliet, Illinois, USA, recently was awarded the 2009 Gold Medal IPM Partner Award.
- NuTEC Manufacturing appointed Michael Blanchette as western regional sales manager.
- Nordenia International had another of its sites certified according to the European standard DIN EN 15593.
- Horizon Systems Inc. has appointed Alex Gordzica its corporate compliance engineer.

#### Early bird deadline for **PetfoodForum** Petfood Forum Asia approaching

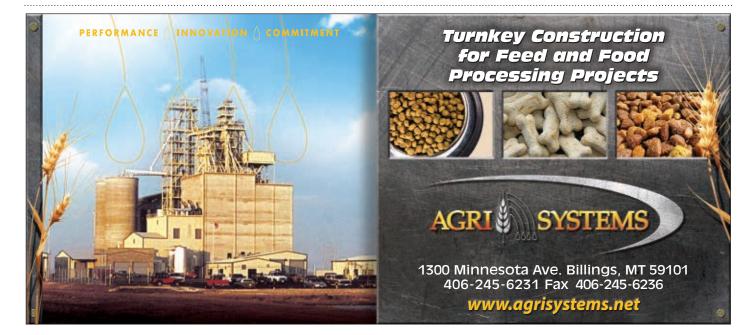
Petfood Forum Asia connects key professionals from around the world in one of the fastestgrowing markets to learn about trends affecting industry growth. Petfood professionals can register now to receive an early bird discount.

Attendees will learn valuable information from industry experts to help them grow their businesses, concentrating on important components such as nutrition, global and Asian market trends, best practices and more.

The speaker and topic line-up for this March 3, 2010, event, sponsored by *Petfood Industry* magazine and held in conjunction with Victam, is dynamic and educational. Get the latest information and research from speakers like:

- Anton Beynen, PhD all-breed vs. breed specific canine diets;
- George C. Fahey Jr., PhD—Fermentable carbohydrates in feline diets;
- Galen Rokey—Impact of process hardware on petfood safety;
- David Thomas, PhD—Effect of nutraceutical ingredients on the immune function of cats.
- Enzhi (Michael) Cheng, PhD, and Will Henry—Critical processing issues in today's production environment; and
- Jim Mann—Ensuring freshness: managing biogenic amines in petfood ingredients.
- Hot industry trends leading petfood growth in Asian and global markets (speaker to come)

For more information or to register for Petfood Forum Asia, log on to www.petfoodindustry. com/petfoodforum.aspx. Register before January 18, 2010, and receive the early bird rate, only US\$245—a 20% savings from the regular US\$295 registration fee.



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#### FDA addresses PFI meeting

The animal-related division of the Food and Drug Administration (FDA) looks at what it can do to prevent a



problem before it becomes a problem, FDA Deputy Commissioner

Joshua Sharfstein told those attending the Pet Food Institute (PFI) annual meeting in Washington, DC.

He said the agency strives to make sure all parties affected



know what the standards are and what they have to do to comply.

He also noted that if there is an issue, FDA needs to know about it. On the topic of generally recognized as safe (or GRAS) clearances, Sharfstein said he finds that area "interesting" but said FDA wants it to work.



**Fressnapf expands in Europe.** Fressnapf, the Krefeld, Germany-based specialty chain for petfood and accessories, opened 13 stores in Germany and 12 more across Europe in the third quarter, increasing the number of Fressnapf stores in Germany to 750 and making a total of 1,051 Europe-wide.

**Rodi Petfood files for bankruptcy.** European petfood manufacturer Rodi Petfood Nettetal filed for bankruptcy. Seventy jobs are expected to be cut.

The company has three segments—Rodi, Rodi Petfood and Rodi Petfood Nettetal—all of which are included in the filing. The company's plant is in Leuth, Germany, where it is one of the largest companies in the town.

**UK pet owners spend more on premium petfood.** According to a Pet Food Manufacturers Association survey, 90% of pet owners know that what they feed their pet affects its health and want to feed their pets the best-quality food. High-quality premium foods are therefore a growing market sector in the United Kingdom.

M&S Pet Insurance highlighted figures from online retailer and pharmacy BestPet, tracking a 30% rise in premium food sales over the past 12 months.

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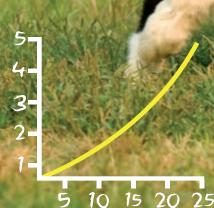
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#### **Petfood Industry seeks your input for articles**

We need your help to gather information for two articles upcoming in 2010:

- 1. Celebrating milestones—has your company (or one you do business with) celebrated a significant anniversary or another milestone with the past year or two? We're compiling a list and need to the add to the few we already have. Please send the name of the company, the milestone and contact information for someone we can follow up with.
- Rising stars in nutrition—have you worked with any upcoming stars or unsung heroes in companion animal nutrition? Someone you think is doing cutting-edge work

in reaching new understandings of companion animal nutrition, finding or developing the use of new petfood ingredients or taking formulation to the next level? Please send the name of the person and a paragraph or two about why you think he or she is a rising star or unsung hero. (Again, contact information for following up would be greatly appreciated.)

Please send information for either article to dphillips @wattnet.net no later than November 23, 2009. Or, simply leave a comment at www.petfood-connection. com/profiles/blogs/petfood-industry-seeks-your. Thank you for your help!

For information on future events in the pet industry, visit www.petfoodindustry.com/EventCalendar.aspx. Want your event promoted? Send information to Jessica Taylor at jtaylor@wattnet.net.



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As part of Victam Asia 2010, Southeast Asia's largest agrifeed event, Petfood Forum Asia will draw petfood manufacturers from all over the world, to learn about:

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- Nutraceuticals and immune function:
- · Fermentable carbohydrates for cats;
- Best practices in food safety;
- How to save energy and reduce waste in processing;
- And more!

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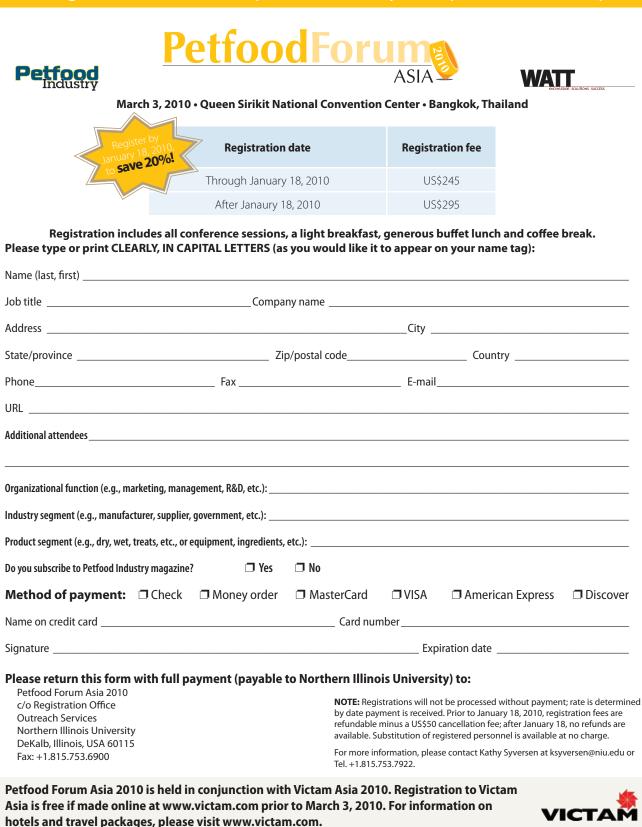
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#### Mars' Waltham Centre explores human-pet interaction



The Eunice Kennedy Shriver National Institute of Child Health and Human Development is partnering with Mars' Waltham Centre for Pet Nutrition in England to look for studies on how interactions between children and animals affect typical development and health and whether they have therapeutic and public-health benefits, according to *The New York Times*.

The Waltham Centre is conducting its own research on human-pet interaction, according to Catherine E. Woteki, global director of scientific affairs for Mars Inc.

"We are a petfood company and pet care company," Dr. Woteki said in the article, "and we're interested in seeing that that relationship stays a strong one."

#### Report reviews growing segments of pet market

Senior, weight management and special needs pet products may make significant developments in the current market, according to Bharat Book Bureau (www.bharatbook. com).

The US dog and cat population age 6 or older is increasing, according to the American Veterinary Medical Association.

Dogs 6 and older increased from 42% in 1996 to 44% in 2006, and cats of the same age rose from 37% to 44%.

Similarly, the Association for Pet Obesity Prevention said 44% of dogs and 57% of cats were overweight or obese as of 2008, up since 2007. And older animals had an even higher incidence of obesity.

To offer insight, the report discusses the following market segments:

- Petfood, including nutraceutical treats;
- Prescription pet medications;
- Devices and other non-food assistance products; and
- Pet supplements.

#### Online extra!

You can always find the latest news at www.PetfoodIndustry.com

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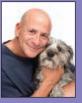
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# Keynote speaker and topic list announced for Petfood Forum 2010

Join Joel Silverman, the keynote speaker for Petfood Forum 2010, to learn why relationships are what make dog training work and help the petfood industry keep growing. Register at www.petfoodindustry.com/



petfoodforum.aspx February 15, 2010, to up to 15%!

Besides being a dog trainer for many years, for the past 10 years Silverman has been hosting *Good Dog* 

*U* on Animal Planet and has sold over 500,000 dog training videos. He's also author of the recently released book *What Color Is Your Dog?* His keynote address at Petfood Forum 2010 will describe his philosophy about the "colors" of dogs' temperaments and how that can help owners first develop a relationship with their dogs.

Petfood Forum will be full of sessions on how the bond between owners and pets is driving market growth—along with much more information on:

- Nutrition and ingredients;
- ► Market trends;
- ► Sustainability;
- ► Food safety;
- Production advances;
- ► And more.

Petfood Forum is the place where the industry comes together to network, do business, learn from one another and enjoy the company of fellow petfood professionals. Some of the topics and speakers for this upcoming event include:

- Update on nutrigenomics— Kelly Swanson, PhD, University of Illinois;
- Impact of process hardware on

**petfood safety**—Galen J. Rokey, process technology manager, Wenger Manufacturing;

- Survey: state of the animal supplement, functional ingredient and treats market— Patrick Rea, publisher and editorial director, *Nutrition Business Journal*;
- Dry petfood manufacturing and the carbon footprint—Jacques Wijnoogst, consultant;
- Profitable moisture control— John Robinson, PhD, Drying Technology Inc.;
- HACCP: where did we go wrong?—David Rosenblatt, DVM, director, Sher Consulting and Training;
- Controlling contaminants using high pressure processing—
   James Marsden, PhD, and Harsh-



## PetfoodWorkshop

vardhan Thippareddi, Kansas State University;

- Marketing petfood with a higher purpose: harnessing the niche nation —Bob Wheatley, CEO, Wheatley & Timmons;
- Mycotoxin control in grain based petfood ingredients— Gene Peters, PhD, and Don Shandera, PhD, Cargill; and
- ► US regulatory update—David Dzanis, PhD.

Registration includes access to all conference sessions, the exhibit hall and all meals (except dinner) and receptions.

If you also register for the followup symposium, Petfood Workshop: Hands-on Nutrition, you'll save 20%! Find more information at www. petfoodindustry.com/workshop2010. aspx.

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Cardinal Laboratories, manufacturer of dog and cat care products, including dog treats, officially converted its plant into a 100% solar-powered facility in Azusa, California, USA, on October 29.

Undertaken with the Solar Partnership Program of the City of Azusa, the conversion has taken Cardinal Laboratories off the power grid; the company is harvesting enough power from its solar collection system to send electricity back to its local utility.

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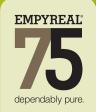
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# New on the Shelves

<image>

#### K Low-carb petfood

Natura Pet Products offers EVO Weight Management Adult dog and cat foods. The grain-free formulas feature protein-rich, low-carbohydrate petfood with lower levels of fat. The varieties contain at least 80% turkey, chicken and dairy ingredients and at least 17% fruit and vegetable ingredients. EVO is designed to minimize carbohydrate intake while maximizing concentrations of protein. **www.naturapet.com** 

**Find more new products** at www.petfoodindustry.com/ ListConsumerProducts.aspx. To submit products, contact Tara Leitner, Tel: +1.815.966.5421, Fax: +1.815.968.0941, tleitner@wattnet.net.

#### Boxed, dry petfood >>

Healthy Pet Foods Inc. offers Lick Your Chops dry dog and cat food in boxes, as opposed to traditional bags. The boxes are designed to keep food fresh with a resealable inner bag and are also recyclable. Varieties offered in the boxes are Healthy Medley with Chicken and Healthy Medley with Lamb for dogs, and Healthy Medley with Chicken and Healthy Medley with Salmon for cats. www.healthypetfoodsinc.com







#### Kaw, dry combo petfood

Wysong Optimal Performance formula for dogs combines a minimum of 40% protein, 18% fat, vitamins, minerals, prebiotics, probiotics, enzymes and antioxidants, according to the company. The formula uses raw meat and kibble. The diet is designed for animals engaged in high performance activities, growth and convalescence, and varieties for cats also are available. www.wysong.net

#### Halal cat formula >>

Golden Acres Pet Food Partners offers Muezza Pure Halal cat food. Designed with Muslim cat owners in mind, the formula contains Halal chicken, ensuring the cat's saliva is clean and free from haram (unclean) foodstuffs. **www.goldenacres.co.uk** 



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call 905.456.3660 email sales@peelplastics.com visit www.peelplastics.com In September Mars Petcare US opened a new plant in Fort Smith, Arkansas, USA, that it says is the first sustainable petfood manufacturing facility in the world. After the ceremony, president Luc Mongeau greeted a visitor from the local humane society.



#### **Business basics**

#### Headquarters: Franklin, Tennessee, USA

Officers: Luc Mongeau, president; Debra Crew, general manager, grocery store brands; Rena Crumplen, general manager, Mars Petcare Canada; Serge Dube, general manager, store brands; Debra Fair, director, corporate affairs

**Sales:** Company does not divulge **Brands:** Cesar, Pedigree, Whis-

kas, Goodlife Recipe

Distribution: All of North America

Manufacturing facilities: 20 across the US

Employees: about 3,000

Websites: www.cesar.com, www. pedigree.com, www.whiskas.com, www.thegoodliferecipe.com

n the current economic environment, the opening of a new manufacturing facility is worth celebrating. Add in that the plant has received Leadership in Energy and Environmental Design (LEED) certification and it will manufacture a new but

# Nars starts with the pet

A passion for pets and 'petcentric' mindset drive all new products and initiatives for Mars Petcare US

#### BY DEBBIE PHILLIPS-DONALDSON

already successful line of products, and you can understand why plant owner Mars Petcare US is proud.

But the driving force behind all this is something simple and fundamental to millions of people around the world: a passion for pets, according to president Luc Mongeau. "We're pet lovers," he says. "We're always working feverishly to ensure that we leverage top-notch science and superior nutrition knowledge to deliver amazing products and make the world a better place for pets."

That phrase—"make the world a better place for pets"—is one Mongeau uses often. It represents the ultimate goal of the company's latest initiatives, including product innovation and sustainability. "For us, it's about what we're doing here with this facility, but it's as well taking the latest knowledge to make sure we create products that will allow pet owners to share more meaningful moments with their pets."

#### Everybody wins

In just a year on the job (after stints in other divisions such as Mars Canada Snackfood, Food and Petcare), Mongeau has presided over much growth and change, capped off (for now) by the opening of the new plant in Fort Smith, Arkansas, USA. Environmentally friendly features such as water recycling, energy reduction and protection against erosion and light pollution earned the facility the LEED gold certification from the US Green Building Council. Mars says the plant is the first petfood manufacturing facility worldwide and the first building in Arkansas to achieve such recognition.

"We're so excited about this plant, not only that it's LEED-certified, but it's using resources much more efficiently," Mongeau says. "This allows us in return to deliver more value to the consumer, either with better products or ones that are more affordable. Everybody wins in that equation."

The 305,000-square-foot facility features a linear production flow-

Quality is a big thing for the entire industry, a challenge we're all facing together.

ingredients come in one end, finished products go out the other—and bestin-class equipment to maximize efficiency, energy use and the 40 current employees. It includes plenty of room to add to the two existing processing lines and could eventually employ 200.

Another major development for Mars Petcare US is its Center for Excellence, a multimillion-dollar, state-of-the-art R&D, testing and training facility at the company's plant in Kansas City, Missouri, USA. The center will soon support all 20 Mars plants in the US and is key to the company's efforts to continually improve the quality and safety of its products.

#### Quality first

Benches across the front of the new Arkansas plant display what Mars defines as its five principles: quality, responsibility, mutuality, efficiency and freedom. Mongeau says quality is always first across all Mars US facilities. But he also acknowledges a continual learning curve, and not just for his company.

"The industry's changing extremely "Manufacturers, fast." he says. regulatory bodies are customers, learning every single day. In the last few years we've invested tens of millions of dollars to continually upgrade our plants so we meet the latest food safety standards. And we're doing a major investment to ensure our quality and safety teams have the latest training. So somebody joining Mars in safety will go through six weeks of training before being deployed in the plant.

"Quality is a big thing for the entire industry, a challenge we're all facing together," Mongeau continues. "As part of our commitment to pets and pet owners, it is our highest pledge to ensure we're delivering products that day in and day out they can trust. Not only trust that we'll be delivering the right nutrition but that they'll be safe."



Mars' new Pedigree+ line of wet products feature functional ingredients. Canine Bistro Entrees will be manufactured at the new Arkansas plant.

#### Leading edge

The new plant will manufacture the Cesar Canine Cuisine brand of dog food, which recently expanded with Bistro Entrees. "These products are at the leading edge of nutrition, leveraging the key trends right now," Mongeau says. "We see the dog population moving to smaller breeds, and the consumer recognizes Cesar as a brand that understands the relationship the owner has with a

#### **Adoption ambassadors**

It should come as no surprise that employees at Mars Petcare US headquarters in Franklin, Tennessee, USA, show their passion for pets by bringing their four-legged companions to work—at least their dogs. According to president Luc Mongeau, the company is so committed to that culture, they're working to find

a way to include cats. "We're a dog food and a cat food company, so we really want to make sure we have cats as well as dogs in the office," he says.

Employees at all company facilities show their passion by holding pet adoption drives, such as one in Columbus, Ohio, USA, that led to nearly 200 adoptions. Another in October at the headquarters involved seven animal rescue organizations, says Debra Fair, director of corporate affairs, describing how Mars associates volunteer to organize, publicize and operate the drives. "They've become adoption ambassadors," she adds.

In keeping with the company's support of adoption, it donated US\$5,000 to the Sebastian County Humane Society dur-

ing the opening of its new plant in Fort Smith, Arkansas, USA. (An additional US\$5,000 donation went to the Arkansas Earth Day Foundation.)



Luc Mongeau, president of Mars Petcare US, presents a donation to the Sebastian County (Arkansas) Humane Society. small dog. Consumers trust Cesar to deliver top-notch nutrition with the best ingredients, and Bistro builds on that with a humanlike product."

Debra Fair, director of corporate affairs, adds that with the Bistro line, the packaging innovation is just as important as the product. "The flex tray is what Cesar is known for, and when you walk down that grocery aisle, it's very prominent," she says.

Mongeau agrees: "Our first principle of quality includes packaging that delivers the freshest product out there. With Bistro the clear trays really allow you to see the quality of ingredients. You see the pasta, you see the vegetables, you see the chunks of meat and the high quality of the gravy." He and Fair say so far the Bistro line is doing very well in the marketplace.

#### Desire to do better

AR-200 ROBOTIC PALLETIZER

Mars has also added to its Pedigree brand with the Pedigree+ line of wet

#### Where Nutro fits in

Mars Inc. bought Nutro Products Inc. in 2007 and moved its headquarters from California to Franklin, Tennessee, USA (near Nashville), in 2008. Franklin is also where Mars Petcare US is headquartered, but the two US-based companies have separate buildings, executives and management teams. "Nutro remains a totally separate legal entity and operates as a subsidiary of Mars Inc.," says Luc Mongeau, president of Mars Petcare US. "Yes, we do collaborate when we see efficiencies and synergies but really want each organization to have its separate identity."

products. "It's all about humanization," Mongeau says. "Either it's about ingredients that look very much like what pet owners eat or it's about capitalizing on human health trends. For example, Pedigree+ adds glucosamine to improve joint function as well as omega-3 fatty acids to deliver a shinier skin and coat."

How do ideas for new Mars products originate? "We spent an entire day recently doing an ideation session about what we can bring out in the multiple categories that we're in," Mongeau says. "We talk about humanization, but what's really important for us is to be petcentric. If it doesn't make a difference in the life of the pet, we will not do it. It's really important for us to start with the pet."

That leads him back to the company's passion: "It's really our love for pets, our desire to do better, combined with our strong sense of responsibility for the environment. That's the culmination of this plant opening, and we're very proud of putting this facility on the ground and allowing us to produce more great product."

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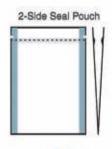
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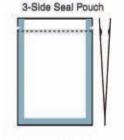


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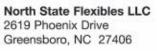


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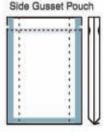
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Osteoarthritis may affect more than 90% of dogs over 5 years old and, in severe cases, can cause chronic pain, lameness and disability.

Budsberg and Bartges, 2006; Henroitin et al., 2005).

#### The ideal nutraceutical

Nutraceuticals are dietary supplements in a purified or extracted form that are safe and have health and wellness benefits. In clinical trials, an effective nutraceutical must provoke better effects than a placebo and do so through a likely mechanism of action. For a nutraceutical to have a scientific basis in the treatment of canine osteoarthritis, it should be possible to explain in molecular terms how it inhibits inflammation and/ or breakdown of the cartilage matrix. In

# A dietary treatment for osteoarthritis

# Gelatin hydrolysate can alleviate symptoms of this canine joint disease

BY ANTON C. BEYNEN, PHD

anine osteoarthritis is a joint disease commonly seen in veterinary practice. It may affect more than 90% of dogs over 5 years old (Bennet, 1991, Servet *et al.*, 2006). In severe cases, it can cause chronic pain, lameness and disability.

This degenerative, inflammatory condition involves a loss of cartilage matrix associated with a release of pro-inflammatory cytokines. Since the disease cannot be cured, management aims at pain relief by reducing inflammatory reactions and further breakdown of cartilage. Non-steroidal anti-inflammatory drugs are a treatment option but can cause side effects such as vomiting and diarrhea.

Various nutraceuticals are administered as supplements or incorporated into commercial dog foods to treat osteoarthritis. However, their efficacy can be questioned because studies have highlighted the use of inappropriate experimental designs or have equivocal results (Aragan *et al.*, 2007; Beynen, 2008;

#### **Online extra!**

Find complete references for this article at www.petfoodindustry.com/ osteoarthritisreferences.com.

addition, the nutraceutical should have a statistically significant, positive effect in randomized, double-blind, placebocontrolled trials.

#### Gelatin hydrolysate

Gelatin hydrolysate is a purified, enzymatically treated protein derived from collagen in bone and skin of swine and cattle. The protein has a typical and unique amino acid composition: It is rich in glycine, proline and hydroxyproline.

Used in many human foods, gelatin hydrolysate is generally considered safe. Within the European Union, gelatin hydrolysate from ruminant or non-ruminant origin is approved for all species. It can be used in dry dog foods; it is heat stable and thus can be added to the ingredient mixture prior to extrusion.

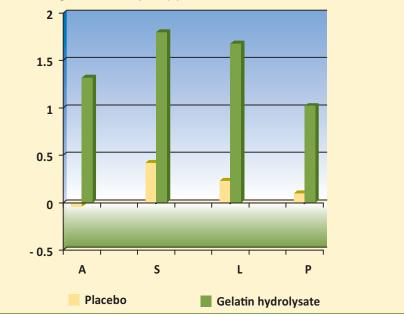
#### Proving efficacy

Weide (2004) studied the possible beneficial effect of gelatin hydrolysate in 20 osteoarthritic dogs, who received 20 g with their regular diet. After four months, there was a significant decrease in the severity of lameness—the score fell from an initial value of 1.73 to 0.84 on a 0-4 scale—but because of the open nature of the study and the absence of a placebo group, the decrease cannot be taken as proof of a beneficial effect.

My colleagues and I conducted a double-blind, placebo-controlled trial with privately owned dogs earlier this year to assess the efficacy of gelatin hydrolysate in the treatment of osteoarthritis. The owners used a questionnaire to evaluate their dogs' clinical signs. For

#### Figure 1. Improved clinical signs

The increase (improvement) in score (on a 0-10 scale) as induced by gelatin hydrolysate versus a placebo was statistically significant (P < 0.05) for activity (A), stiffness (S) and lameness (L), but failed to reach statistical significance for pain (P).



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eight weeks, 15 test dogs received 10 g of gelatin hydrolysate daily (Rousselot ADF from Vion Ingredients); another 15 dogs received the placebo, soya protein isolate. The supplements were mixed with same dry food for all dogs.

The administration of gelatin hydrolysate significantly improved the signs

#### **Online exclusive!**

For other dietary treatments of canine osteoarthritis, check out Dr. Beynen's presentation from Virtual Petfood Forum: Target on Nutrition at http://www.wattevents.com/. Register for free to view this archived event through January 28, 2010.

of activity (vitality), stiffness and lameness (Figure 1, p. 29). Interestingly, the effect on lameness seen by Weide when transformed to a 0-10 scale is similar to that presented in Figure 1. This indicates 10 g of gelatin hydrolysate per day could be as equally effective as 20 g.

Though Weide's trial by itself cannot be taken as evidence of a beneficial effect, that data combined with our results point to efficacy of gelatin hydrolysate in treating canine osteoarthritis. Also, studies in humans with osteoarthritis have shown a reduction in pain and functional improvement after oral administration of gelatin hydrolysate (Barnett *et al.*, 1998; Moskowitz, 2000).

#### Mechanism of action

Collagen in the cartilage matrix and gelatin hydrolysate share a similar amino acid composition. Research in mice has demonstrated that after oral administration of radio-labeled gelatin hydrolysate, the radioactivity was specifically found in cartilage (Oesser *et al.*, 1999). Also, there are indications that the amino acids in gelatin hydrolysate stimulate the synthesis of collagen in cartilage (Lippiello *et al.*, 1977).

The decrease in severity of lame-

ness in Weide's trial was associated with increased blood concentrations of glycine, proline and hydroxyproline and a lowering of the plasma content of matrix metalloproteinase-3 (MMP-3). MMP-3 is involved in the degradation of collagen molecules in the cartilage matrix. This suggests the positive effect of gelatin hydrolysate is caused, at least in part, by inhibiting the degradation of collagen in the cartilage matrix. Inhibiting collagen breakdown might help reduce inflammation and pain.

In our study, dogs weighing on average 32 kg each were given 10 g of gelatin hydrolysate per day. The dogs would require about 450 g of dry food daily, indicating a dose of about 2.5% in dry food would benefit dogs with osteoarthritis.

Anton C. Beynen, PhD, is head of R&D for Vobra Special Pet Foods, Veghel, the Netherlands.





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Social networking sites, web-based product ideas, contests and online forums seem to be the future of new pet product development.

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New products, new strategies

Research & development conducted on the Internet for new petfood product launches is driving growth and ingenuity

#### Video online!

See the Advertising Age video describing the marketing and developing of Del Monte's new Snausages line, Breakfast Bites, at http://adage.com/brightcove/single. php?title=24149973001.

arlier this year, *Petfood Industry* editor-in-chief Debbie Phillips-Donaldson posted a blog on Petfood-Connection.com, asking

#### BY JESSICA TAYLOR

members of the social networking site what they thought about the latest R&D strategies for the release of new petfoods, treats and supplements. Besides providing relatively inexpensive ways to get ideas and feedback from target customers, these new strategies and programs offer speed to market. Here is what some of you had to say:

Jeffrey Michael Bond (Winnipeg, Manitoba, Canada)—"I do not believe that these are just fads. I am hearing of other industries and companies, including a large soup company, doing the same thing ... The challenge is in asking the right questions to elicit the responses that are of use."

Edgar Islas (Queretaro, Mexico)— "I remember the experience of focus group research; I often remained suspicious, because the results sometimes had a lot to do with skills of the moderators. This is a new era where



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What's happening in the industry now? How are social networking sites acting as the new web-based focus groups? Is this the most effective way to approach developing new products for pets?

#### Petco uses consumer surveys

Recently released survey results from Petco indicate consumers want to feed their pets the same level of healthy, nutritious food that humans enjoy, but they don't really understand how to choose a healthy food for their pets. In response, the company has teamed up with its own experts, suppliers and



Del Monte focused on a core group of pet-obsessed consumers who, when asked what their dogs would like to have for breakfast, overwhelmingly answered, "Bacon and eggs."

external pet nutrition experts to launch an educational effort for store personnel and consumers based on understanding premium pet nutrition.

The main components of Petco's nutrition education initiative, according to the company, is educating consumers. The company created a library of educational materials and pet nutrition guidance for consumers online, and its team of experts will hold pet nutrition workshops in every store during the month of November.

### PETSMART

The pet retailer PetSmart worked with Edison Nation to invite new pet product ideas from pet owners and other consumers on its website earlier this year.

#### PetSmart goes directly to the source

Rival pet retailer PetSmart worked with Edison Nation to invite new pet product ideas from pet owners and other consumers on its website earlier this year. "If you've come up with an innovative toy or other product that you know dogs and cats would go nuts for, this is your chance to move it from vision to reality," proclaimed the website posting announcing the call for submissions.

This year's contest was looking for solutions to pet boredom. The contest offered cash and a percentage of the product's profits if it became a PetSmart product. PetSmart and Edison Nation were particularly interested in new toy or interactive play concepts that kept pets entertained and challenged them mentally.

#### The social scope of Del Monte

Del Monte developed the newest product in its Snausages line, Breakfast Bites, using input from a social network of dog owners it formed. According to an *Advertising Age* video and article, Del Monte developed its new Breakfast Bites product in just six weeks with the guidance of the exclusively formed group of pet consumers.

Del Monte focused on a core group of pet-obsessed consumers who, when asked what their dogs would like to

#### have for breakfast, overwhelmingly answered, "Bacon and eggs." Culling information from the group also told Del Monte these consumers were interested in vitamins, minerals and antioxidants in petfoods and treats. Six weeks later, the bacon and eggshaped Breakfast Bites were created, solely off of customer feedback from the group.

#### Use your head!

Virtually anyone in an organization can come up with a moneymaking or moneysaving idea. Employee empowerment used to be the key to this old adage, but more than ever consumer empowerment can cultivate successful ideas. Companies that encourage

#### Online extra!

Check out Debbie Phillips-Donaldson's Petfood-Connection.com blog on new product development strategies at www.petfoodconnection.com/profiles/blog/ list?user=2bvivd1gis8oz.

everyone in the organization to think about new products provide a powerful network of connectivity—so why not use the same approach when handling consumers' ideas, thoughts and questions regarding new products, functional ingredients and the latest supplements?

From the salesperson on the floor of the pet specialty boutique to the nutritionist formulating the petfood flavors, the functionally connected enterprise with a clear vision and mission, and open lines of communication, will maximize its capacity to introduce new products and grow its business.

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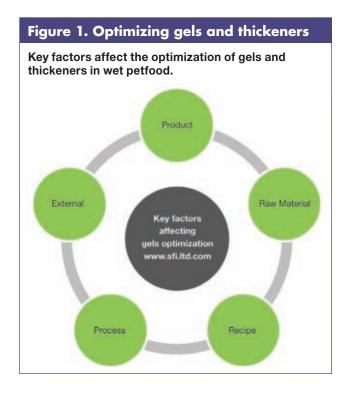


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# Reducing costs

## Savings can often be achieved by optimizing usage of gels and thickeners

BY DAVID PRIMROSE



ith money tight and financial controllers questioning product input costs, there has arguably never been a better time to review recipe costs.

What scope is there to reduce costs in wet petfood? The product developer has to balance other factors, including:

- > Palatability, digestibility and fecal quality;
- Product appearance and texture; and
- Regulatory frameworks—for example, designating the product as a complete diet.

These factors can often limit the scope. However, cost reduction can often be achieved by optimizing usage of gels and thickeners.

#### Gel it, thicken it, stabilize it!

Gels and thickeners (hydrocolloids) fulfill a wide range of process and product roles in wet petfood. Key functionality includes:

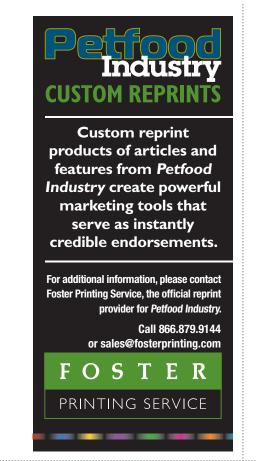
Pre-process viscosity—this is most commonly achieved using thickeners like guar gum, xanthan gum and modified starch. These generate viscosity for filling, before sterilization, and help keep insoluble materials such as minerals Food Safety = Petfood Safety. The safety and quality of your products is the top priority; for your customers, for their pets, for your business and for us. Buhler brings a wealth of knowledge from the human food industry to the petfood industry. With the addition of Aeroglide<sup>®</sup> to the Buhler family, we can now offer one of the most complete lines of process technology available anywhere; from raw ingredient receiving and extrusion through drying and coating. A full line of equipment, combined with in-house process engineering and unrivaled after sale support, equals customized solutions without limits.

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The solution behind the solution.





#### Figure 2. Gel system recipe costs

Optimizing gels using a holistic approach can reduce costs in a typical chunks-in-jelly product (first quarter 2009 market prices).



and chunks in suspension. They can also help minimize packaging seam defects due to gravy spillage.

► Gelled texture—with chunks-injelly and chunks-in-loaf formats, gelling agents like carrageenan, typically in combination with a synergist, have key roles in generating the desired texture.

Meat analog texture—gelling agents can provide a chemically set mechanism for the formation of reformed, meat analog chunks. While other systems have been used, the most

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- A Global Perspective on the Pet Food Market
- A Look at International Ingredient Purchasing & Supply
- International Regulatory Update
- AFIA's Salmonella Control Guidance Document
- FDA's Current Regulatory View of Salmonella Control in Pet Food, Ingredients and Feed
- How to Handle State and Federal Inspections
- Lessons in Feed Ingredient Approvals
- Update on Domestic Pet Food and Ingredient Regulatory Priorities
- Q&A with AAFCO Representatives

for more details.



## The mirror test for your petfood business



#### Do you often look in the mirror and think:

- I have all of the experience I need because I've been in this industry long enough to know that I don't regret any mistake I've ever made!
- I'm certain I have an accurate external view of my business; I don't need any market intelligence because I have all the data I need, PLUS I'm an expert in understanding all of the special nuances associated with doing business in many different geographic or cultural regions of the world.
- I believe through globalisation all consumers are becoming alike, so my way of doing business will be a roaring success in each country I try to enter.
- I've never missed a new opportunity, so unlike others I never have to say: "why didn't I think of that first?"
- My business is running as smoothly as it can, or is it that I usually tune out the things I don't like to be confronted with.
- I 'm certain that I talk to my customers in a way they easily understand and that can fulfil their needs – No one does this better than me and my organization.
- I have my team of internal experts; they know what I need to know.

#### Results of the mirror test for your petfood business:

If all of the above is true, why am I still "part of the pack" rather than "leading the pack?" Perhaps if your mirror reflects the slightest doubt – AND WE HAVE NO DOUBT THAT IT WILL – it's now time to contact us for solutions you can bank on. You have nothing to lose and can satisfy your own curiosity. And, you might find that you'll win big this time around!

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#### Wet food >

common system is based on the use of sodium alginate technology.

- ► Gravy texture—with chunksin-gravy formats, thickeners and starches are used to give post-sterilization texture. Some gelling agent recipes can also be used for this purpose.
- Sauce texture—thickeners and starches (and some gelling agents) generate the texture of sauces used as a coating for dry petfood.
- Stabilization—thickeners and some gelling agents like sodium alginate and carrageenan play vital roles in avoiding phase separation (solids dropping out of suspension and formation of different liquid layers) in products like cat milk drinks.

### The problem with carrageenan

Carrageenan is a great material with some fantastic properties. In the context of wet petfood, the synergistic interaction between kappa-carrageenan (which forms a weak, brittle gel in the presence of potassium ions) with a non-gelling hydrocolloid, a synergist—for example, locust bean gum or cassia gum—to form elastic gels is arguably the most important functionality.

In addition, carrageenan finds a wide range of other applications, but this functionality often comes at a price, especially as there are no cheap alternatives for applications like the synergistic interaction with gums. The problem relates primarily to price variation due to the effects of the naturally occurring phenomenon known as El Niño. During El Niño events, the sea temperature around Indonesia and the Philippines increases. This affects growth of commercial Eucheuma cottonii seaweed—used for manufacturing kappa-carrageenan-and gives rise to shortages.

Although typically used at low inclusion levels, the market price of semirefined carrageenan can have a significant impact on recipe costs. Therefore, optimizing gels and thickeners offers opportunities for cost reduction, bringing with it additional benefits to product quality, palatability and fecal quality.

#### Getting it right

A prerequisite to reducing the cost of gels and thickeners is a sound understanding of their science and technology. This is applicable to all product formats where these ingredients are used. When lack of fundamental understanding of the gels' functionality exists, it is possible to create a completely gelled texture in a chunks-in-gravy format not what the customer expects!

To minimize risk to product quality, customer satisfaction and your brands, consider a holistic approach covering the whole supply chain from raw material vendor to the feeding bowl. Though this list is not exhaustive (Figure 1, p. 38), key factors include:

- Product design—ingredients, recipe, nutritional specification, palatability, fecal quality, cost;
- Raw material risk management specifications, supplier conformance, supply constraints, cost;
- Processing of the recipe components—meat, chunks, gravy, finished product sterilization, postretort handling;
- External factors—supply chain environment, trade relationships, customer complaints, legislation, regulatory.

These factors provide a framework, applicable to all wet petfood formats, against which producers can evaluate gels and thickeners' cost optimization while minimizing and controlling risks.

If you apply a holistic approach, based on the scientific principles underlying gels, significant cost savings are achievable. An example of a typical chunks-in-jelly product (Figure 2, p. 40) shows the price difference between two recipes based on the use of semi-refined carrageenan in combination with a synergist to generate the desired texture characteristics.

As petfood producers look to ride out the effects of the global economic downturn and save money to reinvest in their products and facilities, arguably there isn't a better time to look at gels and thickeners. Pets can benefit, too, through improved palatability and fecal quality.

David Primrose is an independent petfood consultant based in the United Kingdom.



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Setting the Standard for Pet Food Testing (570) 756-2656 • Fax: (570) 756-2826 4526 SR 2073 • Susquehanna, PA 18847 www.SrFarms.com fter years of deliberation, the Association of American Feed Control Officials (AAFCO) passed its Model Good Manufacturing Practice Regulations for Feed and Feed Ingredients at its annual meeting in August. The new regulations will apply to all commercial feeds, including petfoods. While not currently posted on AAFCO's website, they should appear in the 2010 AAFCO *Official Publication* 

#### **Monitoring production**

due out in a couple of months.

Historically, enforcement efforts pertaining to the adulteration of animal feeds have focused on finished products. For example, states routinely collect samples for laboratory analysis for *Salmonella*, mycotoxins and other potential adulterants in feed or ingredients.

A product found to contain violative levels of a contaminant could be subject to enforcement action as an adulterated feed. However, comparatively little regulatory effort has been made to monitor the

> For example, a feed containing excessive amounts of viable weed seeds may be adulterated under the Model Bill but not under the Model GMP Regulations. Medicated feeds would also be exempt, but as mentioned, GMPs in FDA regulations already apply to those products.

110). GMPs are also required for medi-

cated feeds-animal feeds containing an

approved drug (21 CFR Part 225)-and

manufacturing of canned petfoods (21

CFR Part 113). However, these new

regulations will be the first to apply to all

The new regulations stipulate basic

requirements for the production of feeds

with the objective of minimizing the risk

of adulteration. "Adulteration" is defined

more narrowly than in the AAFCO

Model Bill, focusing on the aspects most

animal feeds and petfoods.

**GMP** requirements

directly related to feed safety.

The requirements stipulated

in the GMP regulations are

necessarily nonspecific.

Aspects of feed production covered by the Model GMP Regulations include:

- Training and hygiene of personnel;
- Construction and design of buildings and grounds;
- Building maintenance and housekeeping;
- Effective pest control;
- Proper use and storage of chemicals;
- Equipment suitability, function and calibration;
- Inspection and handling of incoming ingredients;
- Manufacturing, packaging, labeling, testing, storage and transport of finished product; and
- Adequate record keeping.

The requirements stipulated in the GMP regulations are necessarily nonspecific, since they must apply to a wide range of facilities. For example, the storage and transport of finished product would be very different for a manufacturer of a chemical such as salt or calcium carbonate compared to that for a dry extruded petfood manufacturer.

#### **Impact on petfoods**

The requirements under the Model GMP Regulations reflect what already should be prudent practice. Therefore, petfood manufacturers who already have good process controls in place should be minimally impacted.

### conditions of production that may have

led to the contamination in the first place. The US Food and Drug Administration (FDA) has Good Manufacturing Practice (GMPs) regulations in place for foods for human consumption (Title 21 Code of Federal Regulations, CFR, Part apply to all animal feeds and petfoods. — David Dzanis

 mean for petfood?

 Image: Association of American Feed Control Officials (AAFCO)

These new regulations will be the first to

What do AAFCO GMPs

#### Petfood Insights regulations By David A. DZANIS, DVM, PhD, DACVN

Now, though, what constitutes sound procedures will be subject to review by state feed inspectors. Failure to meet the GMP requirements could be used as *de facto* evidence that a petfood was adulterated and subject to enforcement action, notwithstanding or in lieu of a negative laboratory finding for adulteration.

Because the specific requirements in the regulations are vague, that means they are also potentially subject to various interpretations. What may appear to be adequate handling of incoming ingredients from the company's perspective may be different from what the inspector considers sufficient. Further, it can be expected that different states will use dissimilar criteria in judging compliance. Let's hope AAFCO's plan for a guidance document intended to accompany these regulations will mitigate inconsistencies.

#### Federal GMPs, too?

Like all other AAFCO documents, the Model GMP Regulations do not have enforcement authority in and of themselves. Rather, individual states must adopt these models as part of their own regulations before they can impose them on manufacturers in their respective jurisdictions. The AAFCO membership vote on this matter in August was not unanimous, so it is likely some states will choose not to adopt or enforce GMP regulations, at least not in this form.

One petfood manufacturer commented that some companies may be at a disadvantage solely by having facilities in states with more aggressive enforcement than others. However, it is anticipated that FDA will also propose federal GMPs for petfoods in response to the mandate to institute interstate process control requirements under the FDA Amendments Act of 2007. While they are not yet published for comment, we can reasonably expect FDA's GMPs to mirror AAFCO's.

Dr. Dzanis is a writer and consultant on nutrition, labeling and regulation. Contact him at Tel: +1.661.251.3543; E-mail: dzanis@aol.com. The Extru-Technician The digital magazine for pet food extrusion.

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### Ingredient Issues | *nutrition*

### **Reaching for** the extreme edge

trange, new, exotic ingredients are showing up in petfoods. Sure, new ingredients have been migrating into petfood for years. It wasn't too long ago that ingredients like chicken meal fueled the "no by-product" movement, lamb was a must-have for dermatitis, fish oil and flax were sleek ways to deliver omega-3 fatty acids and beet pulp was the key to consistently firm stools. That was the cutting edge. Now, those "new" ingredients are considered common and passé.

Taking their place are the more "novel" ingredients. These are common ingredients in our own diets but novel for our pets. Products containing these ingredients are often marketed as "holistic" foods and feature meats like venison, rabbit and duck, carbohydrates like sweet potatoes, millet and tomato pomace, fruits like apples, apricots and pomegranates, vegetables like spinach, broccoli, collard greens and alfalfa

**Extracts from various** mushrooms, like the shiitake, have been shown in early testing on lab animals to contain antitumerogenic properties.



enough-some of the ingredients

landing in petfoods can't be classified as

What are these exotic ingredients? The

definition of exotic would suggest they

are "foreign, strange or different in a way

that is striking or fascinating, enticing"

- > Meat, poultry and fish: beaver, brushtail (possum), unagi (eel), wild boar, sea cucumber;
- > Seeds and fruits: chia, quinoa, amaranth, acai berries, saskatoon berries, black currants, goji berries, yumberry;
- Vegetables and roots: bamboo, bok choy, fenugreek sprouts, jicama;
- > Oils: tea tree oil, krill oil, coconut oil, sesame oil, almond oil, cetyl-myristoleate;
- Bacteria, fungi and plankton: coriolus mushrooms, shiitake mushrooms, maitake mushrooms, kefir, plankton; and
- > Herbs, spices and nutraceuticals: hawthorne berries, astragalus, angelica root, milk thistle, olive leaf, pau d'arco, birch bark extract, propolis, slippery elm bark, wild yam root, boswellia serrata, devil's claw, nettles.

**Exotic ingredients** are being added to petfoods to grab attention and capitalize on highgrowth trends.

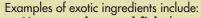


- Greg Aldrich

sprouts and other goodies such as cod-(Webster). That is pretty straightforward liver oil, marigold extract, kelp and shark as definitions go; however, given petfood and its ingredients are a global industry, one's exotic is another's everyday. But apparently novel still isn't

> For example, kangaroo may be exotic in North America but common in Australia. So truly exotic ingredients for petfoods extend well beyond novel and customary, are rare even to human diets and in most cases are uncommon in a particular geography or market.

> For marketing purposes, the more concrete factor is whether the ingredient is part of a new fad or has a



cartilage.

anything but exotic.

the better

The more exotic,

shock value or head-turning quality. If the general consumer would consider this new ingredient a stunt, absurd or just plain strange, it probably qualifies as exotic.

### High volume differentiation

Why are exotic ingredients being added to petfood? Mostly to attract attention. Considering most regulatory agencies have disallowed bold health claims on petfood products and celebrity endorsements have been lackluster at best, the one route that still seems to resonate with consumers are ingredient listings that differentiate one product from the next. The need to be different means the old tried-and-true ingredients no longer qualify.

Plus, the petfood aisle has become quite crowded—new products, new ideas, new nutritional platforms, new fears, new packaging and new technologies. To

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| wade through all this "new" noise takes a   |
|---|
| pretty bold and appealing message. Since    |
| there is a certain amount of mystery and    |
| intrigue surrounding exotic ingredients,    |
| they tend to attract attention. They also   |
| appeal to the curiosity, if not vanity, and |
| the underlying promise of natural contri-   |
| bution to health and longevity makes        |
| them almost irresistible.                   |
|   |

Inclusion of exotic ingredients in a petfood is fully intended to provoke and fascinate. And for good reason the market for ingredient-focused products is growing, albeit from a small base, at a double-digit rate. During the period from 2003-2007, the petfood

#### Online extra!

Watch Dr. Aldrich's presentation on exotic ingredients from Virtual Petfood Forum: Target on Nutrition at www.wattevents.com. Register for free to view the archive of this webinar through January 28, 2010. market was estimated to be growing at an annual rate of approximately 5.3%. However, the natural and organic segments, which account for only a small fraction of the whole (about 6% of the market), were growing at a rate of 24.6% and 48.1%, respectively (Packaged Facts, 2009).

If we assume the segment selecting exotic ingredients matches up with the natural and organic segments, and it garners about 1-2% of the market, we're talking about a segment of US\$170 to US\$340 million with a growth rate exceeding 25%. A decent place to start!

#### Nutrition in the background

Beyond grabbing attention, do any of these exotic ingredients serve a purpose? In general, the underlying story behind each is health or "extra-nutritional" properties—not support of baseline nutrient requirements per se. Exotic meat, poultry and fish ingredients (see

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| Parties   | An and a second          | And Annual Control of the Annual Control of  | 9383<br>9386<br>9386<br>0<br>3247<br>0<br>7753   | 10 1997 1997 1997 1997 1997 1997 1997 19   |
| Parameter<br>Billion Control<br>Parameter<br>Parameter<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistic | An and a second          | And Annual Control of the Annual Control of  | 93%3<br>95%<br>0<br>32,97<br>0   | 1 19971<br>98555<br>9556<br>0<br>2969<br>0   |
| Parameter<br>Billion Control<br>Parameter<br>Parameter<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistic | An and a second          | And Annual Control of the Annual Control of  | 9388<br>9388<br>9386<br>0<br>33247<br>0<br>77753<br>7455   | - 8655<br>- 4630<br>- 0<br>- 2969<br>- 0<br>- 7499<br>- 505  |
| Parameter<br>Billion Control<br>Parameter<br>Parameter<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistic | And a second sec         |  | 9383<br>9386<br>9386<br>0<br>3247<br>0<br>7753   | 10 1997 1997 1997 1997 1997 1997 1997 19   |
| Parameter<br>Billion Control<br>Parameter<br>Parameter<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistics<br>Statistic | And a second sec         |  | 9394<br>9394<br>9304<br>0<br>5797<br>7755<br>7940<br>940<br>0<br>7755<br>7940<br>0   | - 8655<br>465%<br>0<br>296%<br>0<br>3499<br>505<br>0   |
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| Parties   | And a second sec         |  | 9362<br>9362<br>9506<br>0<br>5797<br>0<br>7755<br>966<br>0<br>0<br>888   | - <u>B855</u><br>- <u>B855</u><br>- 4550<br>- <u>D</u><br>- <u>D</u><br>- <u>D</u><br>- <u>D</u><br>- <u>D</u><br>- <u>D</u><br>- <u>D</u><br>- <u>D</u><br>- <u>B36</u>   |
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Cat Palatability Testing

- Large Open Community Housing
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- Enriched Environment For Singles and Groups
- Socialization Activities for all Cats
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Setting the Standard for Pet Food Testing (570) 756-2656 • Fac: (570) 756-2826 4526 SR 2073 • Susquehanna, PA 18847 www.SrFarms.com sidebar) are typically included as part of an exclusionary protein source. Their use goes well beyond supplying nutrients and rests on the premise that dogs and cats have not been exposed to these ingredients previously.

Nutrition is also in the distant background with various exotic seeds such as amaranth and quinoa, which are offered as gluten-free alternatives to classic grains, or chia, which provides an uncommon option to flaxseed for omega-3s. The fruits (see sidebar, p. 46) each contain various potent antioxidant compounds such as anthocyanins, flavanols and carotenoids.

The specialty oils are included for their unique contribution of fatty acids for example, coconut oil contains appreciable quantities of medium chain fatty acids. Some specialty oils bring antioxidant properties, such as sesame oil, which contains the potent antioxidant phenolics sesamol and sesamin.

Extracts from various mushrooms

The need to be different means the old triedand-true ingredients no longer qualify.

have been shown in early testing on lab animals to contain antitumerogenic properties. Most of the herbs that are included (see sidebar) have some medicinal backstory with antifungal, antibacterial, antiinflammatory or anticarcinogenic attributes. These latter two categories, the mushrooms and herbs, are truly focused on medicinal properties rather than nourishment and likely cross the line between food and drug.

Relative to conventional ingredients, all these exotic ingredients are very expensive, so their use is sparing. For exclusionary diets, the meats, seeds and roots may be incorporated at levels exceeding 20%. However, if having the name on the label is all that is desired, the levels may be substantially lower. Fiber sources such as bamboo and specialty oils like krill oil might be included at levels up to 3%. The remainder, such as the fruits, microbials and herbs, are likely to be included in amounts of much less than 3%—more than likely less than 1/10 of a percent-an amount comparable to that for trace minerals and vitamins

#### **Bridging the gaps**

The limited inclusion levels for many of these exotic ingredients may actually be advantageous, given there is little or no validation in the literature relative to animal health. No studies were found in

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## Dru

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APRIL 12 –14, 2010

Hyatt Regency O'Hare

Chicago, Illinois, USA

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- State of the animal supplement, functional ingredients and treats market;
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- HACCP: where did we go wrong;
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- Marketing natural petfood;
- Fighting mycotoxins in grain ingredients;
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| Additional attendees                                  |                        |               |         |                  |          |
|   |                        |               |         |                  |          |
| Organizational function (e.g., marketing, manag       | ement, R&D, etc.):     |               |         |                  |          |
| Industry segment (e.g., manufacturer, supplier, g     | government, etc.):     |               |         |                  |          |
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the publicly available literature on any of these ingredients relating to toxicity, long-term effects, overall effects on metabolism or efficacy in companion animals. Neither palatability nor acceptability tests were available, nor were data on the effects of these ingredients on stool quality or overall post-ingestive tolerance.

Further, no validation tests were found regarding the effect processing had on the active compounds or whether these ingredients had some special properties during processing that would affect the viability of the petfood (e.g., heat penetration, gelatinization).

While the incorporation of many of these exotic ingredients shows real creativity and fortitude, attributes that keep the petfood industry robust and growing, the lack of supporting evidence could be problematic. Each of the exotic ingredients in the sidebar was found on petfood labels for products currently available for sale through retail or online.

#### All these exotic ingredients are very expensive, so their use is sparing.

While some of the ingredients are recognized by the European E number system or may be available at your local grocery, few if any are currently recognized by the official bodies that regulate petfood in various countries.

#### Limiting opportunity?

The petfood industry has continued to grow because of product innovation, maintaining focus on the best interests of the pet and holding pet owner confidence by being open and responsible. Well-intentioned companies promoting petfoods with exotic ingredients that lack pet-specific validation and a legal basis put pets and the industry at risk. This lack of initiative and investment also limits the opportunities to promote truly beneficial ingredients and ultimately limits the opportunity for a few that might really do some good.

Extreme ingredients of the past that were fully evaluated for efficacy and safety have become mainstays of our petfood market today. The hope is that the same level of responsibility will be applied to the current exotic ingredients in the coming years.

Dr. Greg Aldrich is president of Pet Food & Ingredient Technology Inc., which facilitates innovations in foods and ingredients for companion animals.

- and serve the best treats



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### **Research Notes**

#### > PUFA affect dogs' skin and coat

(JAPAN 93:505-511. doi: 10.1111/j.1439-0396.2008.00832.x) A marked increase in hair cholesteryl ester content was determined, and skin and hair coat scores were significantly improved.

#### Fructan supplements for dogs

(J. Anim. Sci. 87:3244-3252. doi:10.2527/jas.2008-1659) Lowlevel inclusion of inulin or scFOS is effective in modifying key nutritional outcomes in the dog.

#### > Dietary starch and body weight

(J. Nutr. August 19, 2009. doi:10.3945/jn.109.110650) Starches high in amylose can be effective in weight and glycemic control for obese animals.

#### PUFA affect dogs' skin and coat

The objective of this study was

to investigate the role of increased dietary amount and type of polyunsaturated fatty acids (PUFA) on skin and hair coat (SHC) assessments of dogs. Three diets containing increased fat (i.e., 13% total fat) were fed for 12 weeks and compared with effects of a lower fat acclimation diet (i.e., 9% total fat). The higher fat diets varied in polyunsaturated and saturated fat types and amounts, but total fat was kept constant.

Significant improvements were found in hair coat glossiness and softness in all dogs fed the higher fat diets in relation to the acclimation diet. Improvements as a result of fat type were also seen but only at 12 weeks.

A parallel finding was a marked increase in hair cholesteryl ester content determined at the end of the study, at which time SHC scores were significantly



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#### WHO ATTENDED?

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#### WHY DID OVER 600 PETFOOD MANUFACTURING PROFESSIONALS CHOOSE TO BE A PART OF THIS EVENT?

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improved. SHC condition improvements may thus be related to increased cholesteryl ester deposited on the hair shaft surface when high fat diets are fed. While this finding is preliminary, hair lipid analysis, a noninvasive technique with which to help assess dietary effects on canine SHC, may be useful.

**Source:** N.A. Kirby *et al.*, 2009. Skin Surface Lipids and Skin and Hair Coat Condition in Dogs Fed Increased Total Fat Diets Containing Polyunsaturated Fatty Acids. *JAPAN* 93:505-511. doi: 10.1111/j.1439-0396.2008.00832.x

#### Fructan supplements for dogs

Five adult dogs were fed five diets containing cellulose alone or with inulin or short-chain fructooligosac-charides (scFOS) each at 0.2 or 0.4% to determine the effects of fructan type and concentration on nutrient digest-ibility, stool metabolite concentrations and fecal microbiota of the diet.

No differences were observed in ileal pH or ammonia or fecal concentrations of indole or valerate. With inulin supplementation, ileal DM, OM and CP digestibility coefficients, total tract DM and OM digestibility coefficients and fecal concentrations of phenylethylamine increased linearly (P < 0.05), fecal concentrations of phenol decreased linearly (P < 0.05) and fecal concentrations of acetate, propionate and total shortchain fatty acids decreased quadratically (P < 0.05).

With scFOS supplementation, ileal DM, OM and CP digestibility coefficients increased linearly (P < 0.05), fecal phenol concentration decreased linearly (P < 0.05) and total tract DM and OM digestibility coefficients as well as fecal butyrate and isobutyrate concentrations increased quadratically (P < 0.05).

Although a greater level of inclusion is needed to modify gut microbiota populations, low-level inclusion of inulin or scFOS is effective in modifying key nutritional outcomes in the dog.

Source: K.A. Barry et al., 2009. Low-level

Fructan Supplementation of Dogs Enhances Nutrient Digestion and Modifies Stool Metabolite Concentrations, but does not alter Fecal Microbiota Populations. J. Anim. Sci. 87:3244-3252. doi:10.2527/jas.2008-1659

### Dietary starch and body weight

This study comprised two experiments testing the hypothesis that a high-amylose starch diet (AMO) would improve body weight and glycemic control relative to a high-amylopectin starch diet (AMN) in rats with diet-induced obesity. After inducing obesity with a high-fat-and-energy diet (experiment 1), male Sprague-Dawley rats (n = 46) were divided into four groups and given free or restricted access to either an AMN or an AMO diet for four weeks (experiment 2).

AMO led to lower total energy intake, weight gain, fat pad mass and glycemic response but higher insulin sensitivity index than AMN, only when consumed *ad libitum* (AL) (P < 0.05). AMO led to higher glucagon-like peptide-1 and peptide YY responses and mRNA levels, independent of feeding paradigm (P < 0.01). The mRNA levels of key neuropeptide systems involved in the regulation of food intake were affected only by energy restriction.

On the other hand, AMO resulted in higher expression of uncoupling protein-1 in the brown adipose tissue than AMN in rats that consumed food AL (P < 0.05). The effects of AMO appear to be mediated by its high resistant starch content rather than its glycemic index. Starches high in AMO can be effective in weight and glycemic control for obese animals.

**Source:** Alfred A. Azia *et al.*, 2009. Dietary Starch Type Affects Body Weight and Glycemic Control in Freely Fed but not Energy-Restricted Obese Rats. *J. Nutr.* August 19, 2009. doi:10.3945/jn.109.110650

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### **Product News**



#### **Polyester lid**

Rollprint Packaging Products Inc. offers a 100% polyester lid alternative called StreamOne. The structure uses as much as 50% less material. It has been engineered to replace traditional mixed-polymer laminates without sacrificing performance when sealing to polyethylene terephthalate or polyethylene terephthalate glycol trays. StreamOne also represents a down gauge of 50% compared with traditional struc-





#### **Temperature sensor**

Onset's TMC6-HE air temperature sensor is part of the company's line of external sensors for energy and environmental monitoring. The sensor's copperplated probe is designed for accurate measurements and fast response time. It can be attached to water pipes, hot water storage tanks and boilers and is compatible with a number of Onset Hobo U12 USB data loggers.

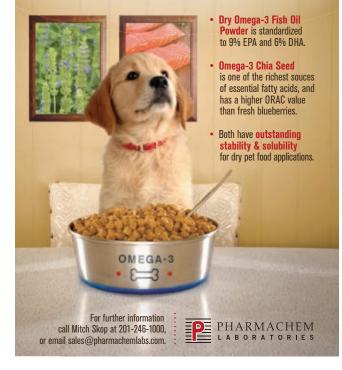
> Onset Computer Corp. +1.508.759.9500 www.onsetcomp.com

#### Spreader-feeder

The recirculating spreader-feeder from Flexicon is designed to evenly distribute powder and bulk coatings onto food products as they pass between the unit's longitudinal



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discharge hopper and its lower collection hopper. The fully mobile unit is positioned so a wire conveyor belt with items to be coated passes immediately above the unit's lower collection hopper as a curtain of the coating material descends from the upper discharge hopper. The system features all-stainless construction including motors and vibrators.

> **Flexicon Corp.** +1.610.814.2400 www.flexicon.com

#### **Food former**

NuTec Manufacturing's 720 allhydraulic, microprocessor-controlled, multi-outlet forming machine is designed



to adapt to changing production requirements with simple tooling changes. The machine features accurate weight control, minimum leakage

and quick changeovers with mobility, according to the company. A vane pump feed system uses a rotating spiral to gently move product to the rotor.

#### NuTec Manufacturing +1.815.722.2800

www.nutecmfg.com

#### Mixer

Dinnissen's compact Pegasus mixer offers increased capacity, energy savings and the ability to add liquid components. The mixer is capable of adding 18 different liquids to dry materials, and the



liquids can be oil-, water- or acid-based. The machine mixes quickly, making it possible to realize energy savings of 30% to 40%, according to the company.

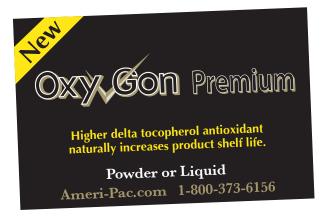
Dinnissen Process Technology +0031.0.77.4673555 www.dinnissen.nl

#### Vacuum tube lifter

A vacuum lift system from Anver Corp. features an articulated extension handle with an air-powered assist mechanism to help an operator position and stack large, awkward loads. The Anver VT series tube lifter is equipped with an aluminum extension beam and vacuum pad attachments with quick-disconnects that accept a range of suction cups.

> **Anver Corp.** +1.800.654.3500 www.gnver.com





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