

06/2010

# Petfood Industry WATT

[www.PetfoodIndustry.com](http://www.PetfoodIndustry.com)



Paws with  
a cause

Advances in  
nutrigenomics

Changing  
pet retail  
landscapes

Feature company

## THREE DOG BAKERY BOUNDS INTO STORES

Scott Ragan of  
Three Dog Bakery, p. 20

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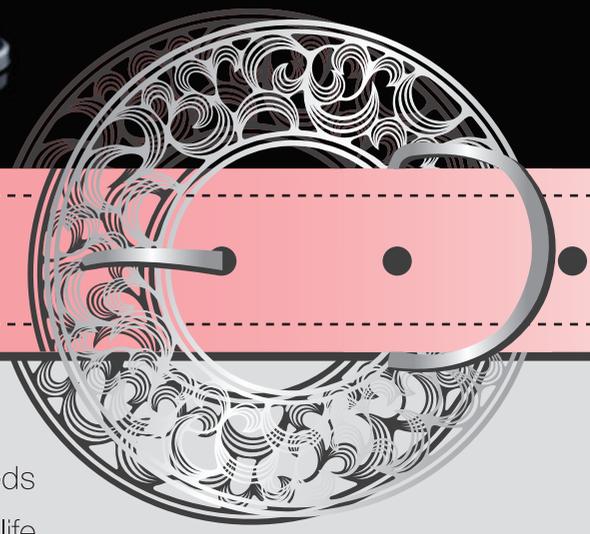
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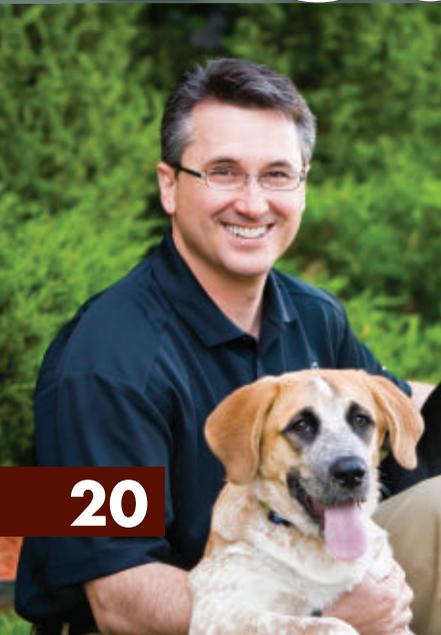


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On the cover: Scott Ragan, president and "chief dog lover" of Three Dog Bakery, with Lela at the company's headquarters in Kansas City, Missouri, USA.

Photo by Blaine Fisher Photography, Kansas City; courtesy of Three Dog Bakery.



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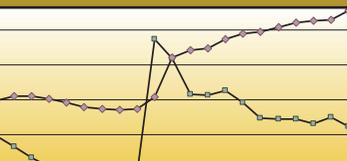
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### Petfood-Connection: Top phone apps for pet lovers

<http://www.petfood-connection.com/profiles/blogs/top-phone-apps-for-pet-lovers>

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[www.youtube.com/user/petfoodindustrytv](http://www.youtube.com/user/petfoodindustrytv)

## Online exclusives

### Q&A: More news from Three Dog Bakery

Read the entire interview with Scott Ragan of Three Dog Bakery and find out why he likes the pet industry so much. Visit [www.petfoodindustry.com/ThreeDogQandA.aspx](http://www.petfoodindustry.com/ThreeDogQandA.aspx).

### PowerPoint: Nutrigenomics: Recent advances in dogs and cats

Watch Dr. Kelly Swanson's Petfood Forum 2010 presentation, "Nutrigenomics: Recent Advances in Dogs and Cats," at [www.petfoodindustry.com/NutriPPF.aspx](http://www.petfoodindustry.com/NutriPPF.aspx).

### Research: What's in store for pet retail

To read more of Dr. Mukund Parthasarathy's insights on the changing petfood retail market and how it affects petfood manufacturers large and small, go to [www.petfoodindustry.com/RetailChanges.aspx](http://www.petfoodindustry.com/RetailChanges.aspx).

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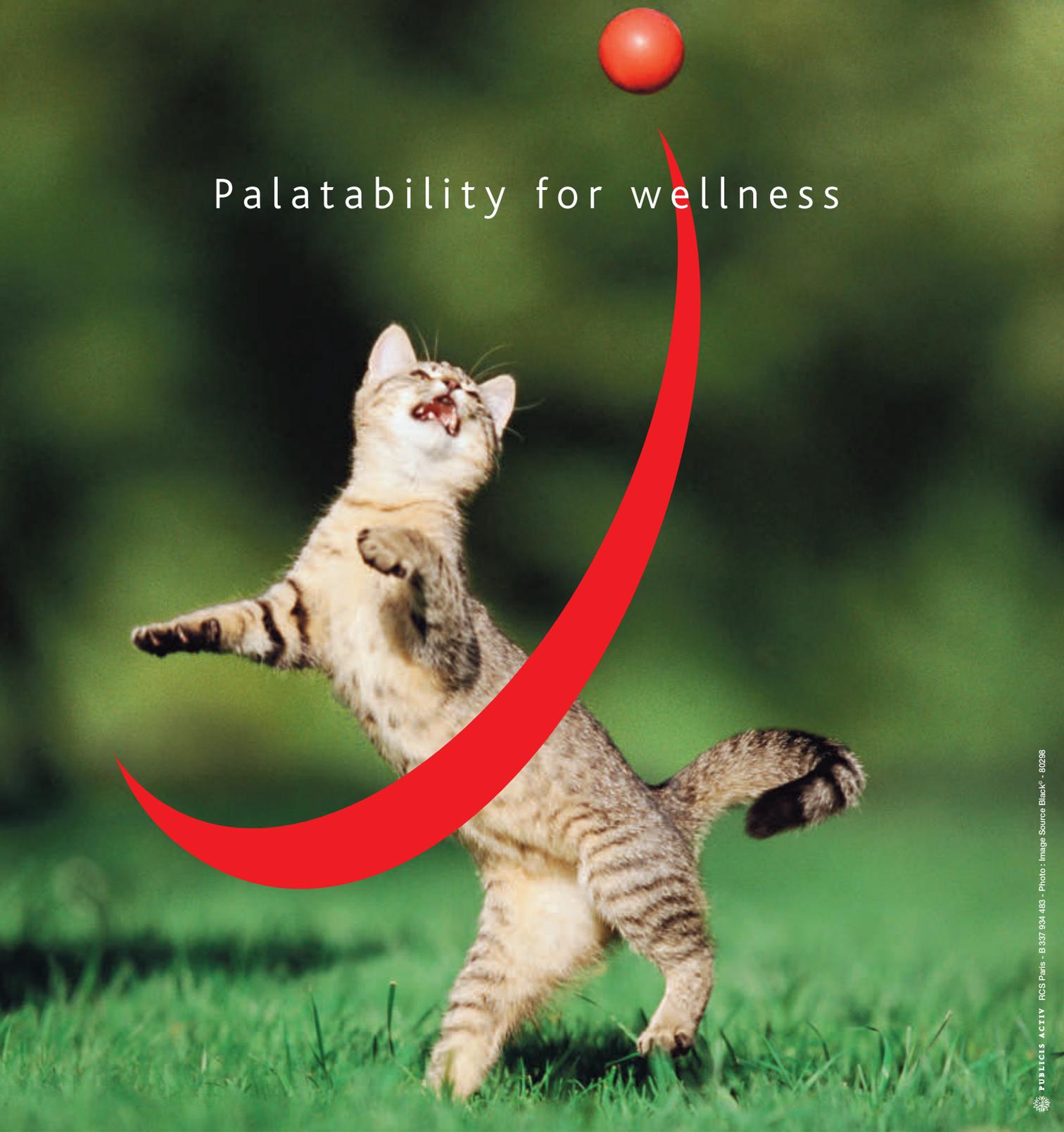
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A photograph of a tabby kitten jumping on a green lawn towards a red ball. A large, thick red swoosh graphic curves from the bottom left towards the top right, framing the kitten and the ball. The background is a soft-focus green field.

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## Something to Chew On

Debbie Phillips-Donaldson

### Find more

See other examples of sustainability in petfood at [www.petfoodindustry-digital.com/petfoodindustry/200912/#pg22](http://www.petfoodindustry-digital.com/petfoodindustry/200912/#pg22).

# Sustainability comes to petfood



**Results of a Petfood Industry survey on sustainability are similar to those of other studies of global business leaders.**

**A GROUP CALLED** the Social Investment Forum ([www.socialinvest.org](http://www.socialinvest.org)) issued a report earlier this year showing a more than 33% increase in the number of leading publicly traded US companies reporting on their sustainability initiatives. Specifically, 66 of the firms in the S&P 100 in 2008 issued a formal sustainability report with performance data, compared with 49 companies producing such a report in 2007.

**THESE DATA ARE** not isolated. Recently the IBM Institute for Business Value released its latest corporate social responsibility (CSR) study, *Leading a Sustainable Enterprise*. In a 2009 survey of 224 business leaders worldwide, IBM found:

- 60% believe CSR has increased in importance from the previous year;
- More than two-thirds of the organizations surveyed include CSR as part of an integrated business strategy to grow new revenue streams and control costs;
- 87% focus on CSR for efficiency, while 69% focus on it for growth;
- Only 30% collect CSR-related data internally or from suppliers; and
- Only 35% believe they have a sound understanding of their customers' CSR expectations.

You can download the study, as well as one from 2008 for comparison, at [www-935.ibm.com/services/us/gbs/bus/html/csr-study-2009.html](http://www-935.ibm.com/services/us/gbs/bus/html/csr-study-2009.html).

**BOTH REPORTS MIRROR** what we at *Petfood Industry* found in a survey of our audience: that more and more organizations and business professionals deem sustainability important and are focusing efforts toward it, but gaps remain in making it a truly effective strategy or program for

business growth and success.

You'll see a full report from our survey, conducted in February and March, online soon on the all-new [PetfoodIndustry.com](http://PetfoodIndustry.com) and in the July issue of the magazine. Meanwhile, here are some key findings:

- A majority of respondents (62%) think consumer demand is the driver for adopting sustainable and "green" practices, while 58% believe their organizations are following such practices because it's the right thing to do;
- 77% believe consumers define "green" petfoods as having natural ingredients, with 60% believing consumers see recyclable packaging as the definition;
- Energy conservation is cited by 55% of respondents as the practice that has delivered return on investment (ROI); and
- Just one-third say they are required to report sustainability measures to shareholders, regulatory bodies, retailers or other stakeholders.

While most specific sustainable practices—for example, retrofitting facilities, substituting renewable materials, changing supply chain structure—fall into the "has potential to deliver" rather than the "already has delivered" ROI column for respondents, some of the practices score high in terms of potential. Production systems, for instance, are chosen by 75%.

**WHAT I FIND** most encouraging is that 77% of respondents believe it's very or somewhat important for their organizations to be leaders in adopting sustainable practices, and 68% think it's very or somewhat likely that increased sustainability will lead to rising long-term profits for their companies.

So, petfood leaders view sustainability very similarly to how leaders of other businesses and industries do. Perhaps our industry could even pave the way to a more sustainable and profitable future. ■

Debbie Phillips-Donaldson is editor-in-chief of *Petfood Industry* magazine. E-mail her at [dphillips@wattnet.net](mailto:dphillips@wattnet.net).

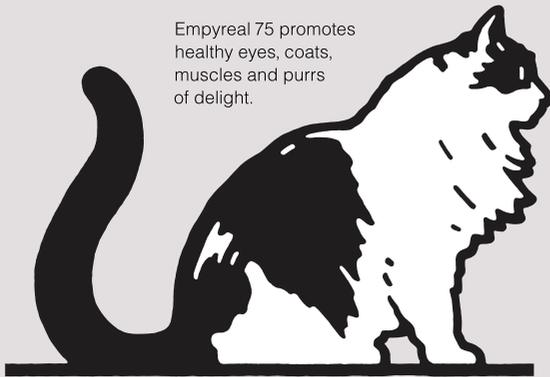


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## Industry News

### Learn more

The latest news and updates are always on [www.PetfoodIndustry.com](http://www.PetfoodIndustry.com).

### Quick hits

- Love-your-dog-food.com released its new e-book, *Solve the Dog Food Puzzle*.
- Floyd Gillis has joined Multivac Inc. as product manager of labeling and printing systems.
- The American Feed Industry Association appointed Kristi Kraffka (Kemin AgriFoods vice president of regulatory affairs, quality assurance and quality control for North America) to vice chair of the Feed Regulatory Committee.
- Central Garden & Pet Co. elected John Ranelli to its board of directors.

### Procter & Gamble to acquire Natura Pet Products

Procter & Gamble (P&G), owner of the Iams and Eukanuba brands of petfood, has signed a deal to acquire privately held Natura Pet Products, based in Davis, California, USA.

P&G, based in Cincinnati, Ohio, USA, says the move allows it to “expand into the attractive holistic and naturals segment of the petfood category,” complementing the company’s current petfood brands and helping advance an overall growth strategy of “reaching more consumers in more parts of the world more completely.”

Natura’s brands include Innova, Evo, Healthwise, California Naturals, Mother Nature and Karma. Its products are sold in pet specialty stores and veterinary clinics, mainly in the US and Canada.

“Its time for the right company to take our brands to the next level of growth. P&G is that company,” says John Rademakers, founder and owner of Natura. “We know that P&G will honor our history as they capitalize on their strengths to build these brands.”

The deal is expected to close in about a month. Share your thoughts about it at [www.petfood-connection.com/forum/topics/are-you-surprised-by-the-pg](http://www.petfood-connection.com/forum/topics/are-you-surprised-by-the-pg).

### Pup-Peroni sponsors survey about dog behavior

Pup-Peroni and Kelton Research company teamed up to conduct a survey about how dogs can pick up on their owners’ feelings and vice versa. The survey found that 75% of people say that by reading their dogs’ body language and facial expressions, they can tell exactly what their dogs are thinking, while over 40% of people agreed their dogs would be more likely to pick up on their bad moods than their best friends would.

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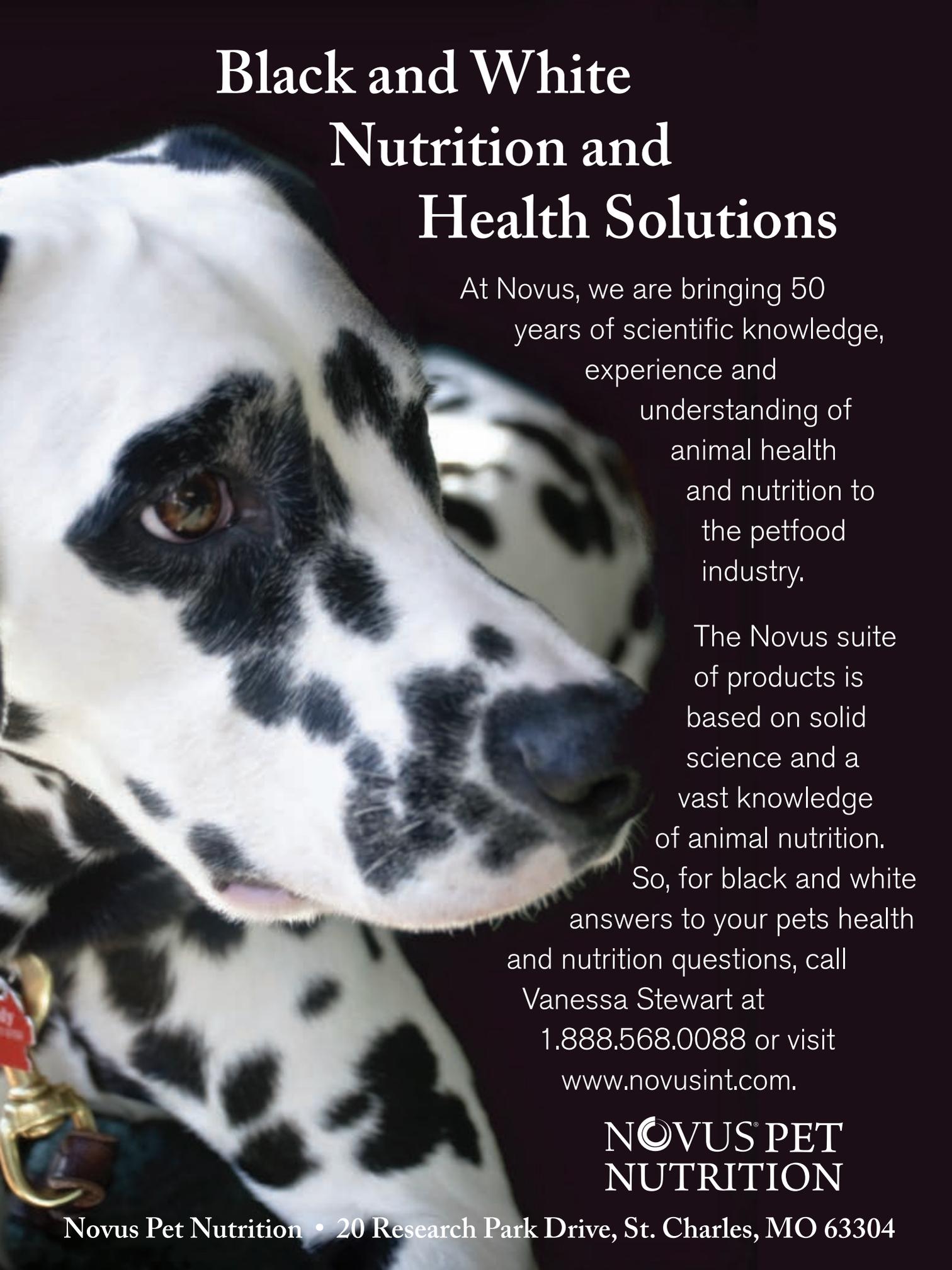


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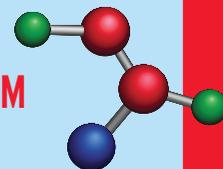
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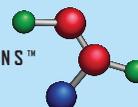
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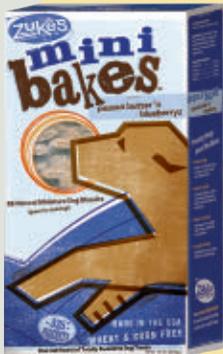


# New Products

## Get more

To feature your new product in *Petfood Industry*, contact Tara Leitner, Tel: +1.815.966.5421, [tleitner@wattnet.net](mailto:tleitner@wattnet.net).

## For Consumers



### Mini dog biscuits

Mini Bakes from Zuke's are miniature dog biscuits that come with more than 325 biscuits per box and 5 calories per treat. Each variety is based on ground oats and a protein source. Flavors include Chicken 'n Cherry, Peanut Butter 'n Blueberry and Turkey 'n Taterz.

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[www.zukes.com](http://www.zukes.com)

### Fruit-flavored dog treats

ecoPure Naturals offers its line of dog treats, which are oven-baked and bone-shaped, formulated without artificial colorings, flavorings or preservatives, according to the company. The treats are available in Blueberry Pomegranate, Raspberry Pumpkin, Pear Cranberry and Apple Peanut Butter.

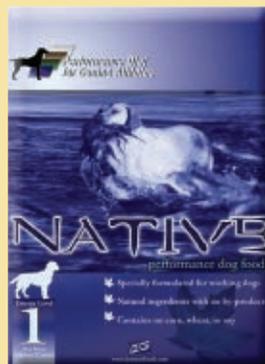
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### Big dog treats

Sojos Big Dog treats from Sojourner Farms are available in Beef Stew and Biscuits & Gravy flavors. As with the company's other treats, Big Dog treats are wheat and corn free. The large treats can be fed to dogs of any size, according to the company.

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Freshfetch Real Meals are unprocessed meals with gently cooked proteins, according to the company. No grains, added water, dried ground bone or other fillers are included. Dishes include beef, chicken, salmon, lamb, turkey and meatless. The meals come frozen.

Freshfetch  
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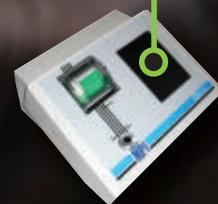
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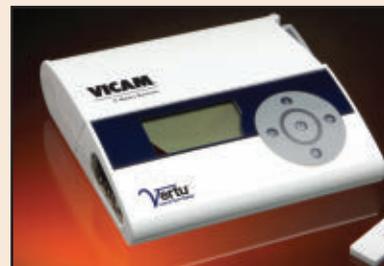
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system that weighs bulk materials discharged from bulk bags or manually dumped from sacks, boxes and other containers and empties the batch into mobile-storage bins. The sanitary system consists of a bulk bag unloading frame, two hoppers and two flexible screw conveyors that feed a central gain-in-weight hopper under automated control.

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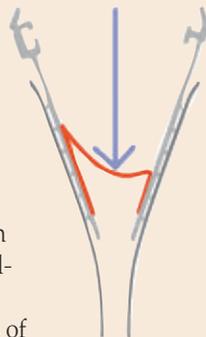
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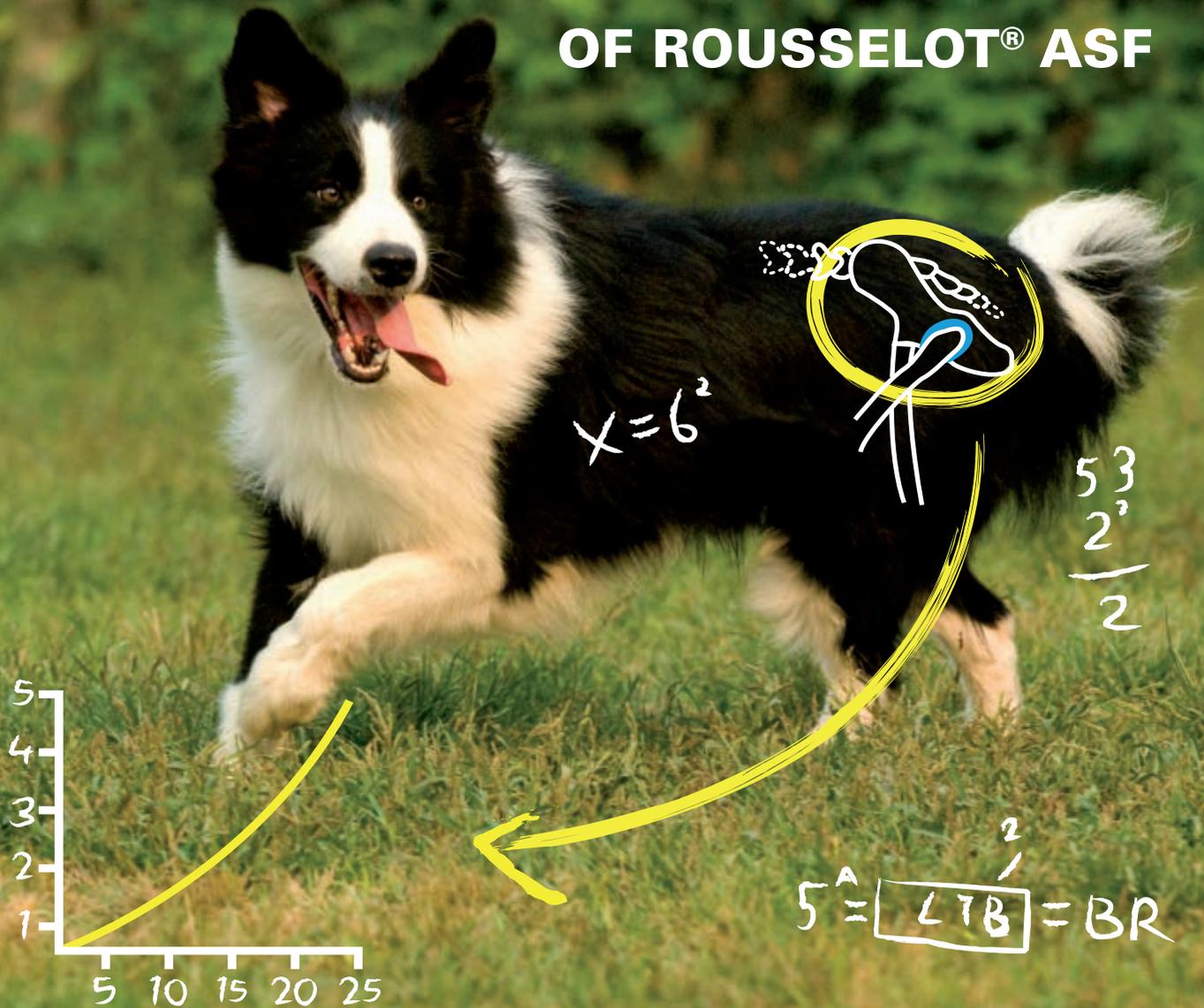


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**sonac**

Scott Ragan, president and “chief dog lover” of Three Dog Bakery, says on most days the company has up to 15 dogs on site, from a 9-pound Yorkie-Poo to a St. Bernard-Lab mix. “At any given time, it can turn into recess here!”

### Online extra!

Read the entire interview with Scott Ragan of Three Dog Bakery and find out why he likes the pet industry so much. Visit [www.petfoodindustry.com/ThreeDogQandA.aspx](http://www.petfoodindustry.com/ThreeDogQandA.aspx).

## JUST THE FACTS

**Headquarters:** Kansas City, Missouri, USA

**Officers:** Scott Ragan, president/chief dog lover; Jeanne Mathiesen, VP/chief financial dog; Rocky Kristek, VP/chief production dog; Brad Allen, VP/general manager

**Sales:** Privately owned company does not divulge sales; has grown 30%+ a year since 2006

**Brands:** Three Dog Bakery (bakery franchises and treats), Bake to Nature (dog kibble), Gracie’s Gourmet (wet dog food)

**Distribution:** Bakeries in the US, Canada, Hong Kong and Japan; treats and dog foods will be available in independent pet stores throughout the US

**Facilities:** Baking and packaging plant in Kansas City

**Employees:** About 60 and growing

**Website:** [www.threedog.com](http://www.threedog.com)



# Three Dog Bakery bounds into pet stores

By Debbie Phillips-Donaldson

The company builds on its boutique bakery business with new baked dog food and treats for the pet specialty channel

**“I ALWAYS JOKE** with our employees: It’s not the best business model to say no to people who want to buy your products.” That’s how Scott Ragan, president and

“chief dog lover” of Three Dog Bakery, explains the impetus for the company’s first foray into selling its baked foods and treats outside its bakery franchises.

"We've been in business for over 20 years, but our focus up to this point has really been on uniquely serving our small boutique network of retail bakeries," Ragan says. "Over the years we've had people contact us very regularly and ask if we would sell them our products. And we've always said, 'No thank you.' We're a small company, we're privately held, we've always been focused on quality and it's not necessarily been about scale."

**BUT, AS RAGAN** points out, continually saying no is not usually a path to success. So, to complement its bakery network, the company is shipping three new lines to independent pet stores across the US this month:

- Bake to Nature, a complete range of baked kibble products for dogs;
- Gracie's Gourmet, a wet line named after one of the company's canine founders; and
- Baked treats under the Three Dog Bakery brand.

The kibble is an all-natural superpremium that hews closely to the company's philosophy and business model built on oven baking. This slower, controlled process locks in vitamins and ingredients, naturally enhancing palatability, the company says. Since protein is not diminished in the process, its bioavailability is high, increasing nutritional value and digestibility.

"I think there are a lot of fine companies in the petfood industry,

but that's not the business we're in," Ragan says. "They make petfood. We've always defined ourselves as a bakery that makes food for pets."

## "They make petfood. We've always defined ourselves as a bakery that makes food for pets."

**RAGAN CHARACTERIZES THREE** Dog Bakery's new product development as a completely different orientation from most companies. "When we sat down to talk about our new line, we wrote

### Three dogs and two guys

Three Dog Bakery began in 1989 with five founders: a couple two-legged ones—Dan Dye and Mark Beckloff—and three of the four-legged variety—Dottie AKA Spots Galore, Sarah Jean the Biscuit Queen and Amazing Gracie. All three dogs are deceased; their legacy lives on in the company name.

Gracie also inspired the name for a new wet dog food line and a foundation, soon to be relaunched as the Three Dog Bakery Foundation, which awards

Gracie Grants to organizations and dogs in need. "Gracie was a partially blind, partially deaf albino Great Dane, a wonderful albatross of a dog," current president Scott Ragan describes her.

The human founders began to focus on their publishing endeavors in 2006. Their book *Amazing Gracie*, about the company and its canine founders, has sold so well, Ragan says, that the authors are now doing a 20-city media tour.



Amazing Gracie, a partially blind, partially deaf albino Great Dane, was one of the company's three founding dogs.

on the big whiteboard, 'What would Thanksgiving dinner look like for your dog?' Immediately people put cranberries and sage on the list. It had to focus

on the aroma. And we don't do any extrusion because we think oven baking is better. It's the way you would cook for your family. No one extrudes things in their kitchen."

The home kitchen metaphor carries through to the type of ingredients and equipment used. "We always describe it as 'from grandma's cupboard,' so whether that's wheat, molasses, honey or eggs, it's things you can read and pronounce, all grown and made in the US," Ragan says, "Then we do boutique or hand mixing. We have a big dough mixer that looks like—it would surprise you—it's just a much bigger version of the Kitchen Aid mixer you have on your counter."

**OVEN BAKING CAPS** the products' creation, says Brad Allen, VP/general manager. "Baked is not the way most foods are made, and the reason why is it takes longer and it's simply more expensive. Most companies focus on how big they can get. We certainly desire to grow, but our focus is on doing the highest quality food."

Because of this focus, Ragan believes consumers have turned to Three Dog Bakery since the 2007 petfood recalls. "We've had more interest in not just the ingredients but where our products are made and how they are made," he explains. "So today on our packaging, we talk a lot about oven baking and its benefits: more natural aroma, more natural taste; we don't have to add preservatives or artificial colors; we don't put any arti-

**THREE DOG**

ficial tastes or sprays on afterward.

"I think a lot of consumers have embraced us because of that," Ragan continues. "They see us doing for pets like they do for other members of their family. They embrace that notion:

'You're a company that gets me. You get that I want to take care of my four-legged family members just like my two-legged family members.'"

**THANKS TO THIS** acceptance, the

company has grown more than 30% a year since Ragan and his partners took over in late 2006; he says they enjoyed their best quarter ever the beginning of 2010. With the aggressive new products strategy, Three Dog Bakery is expanding its facility in Kansas City, Missouri, USA, investing and hiring up to 110 more employees over the next five years, according to the *Kansas City Business Journal*.

The company may eventually develop a cat food line and distribute to Canada and other parts of the world. For now, Ragan says, they're focusing on this launch



Bake to Nature is the company's new line of dog kibble, billed as a superpremium, all-natural product produced via oven baking.

while continuing to slowly grow the bakery business, which now numbers nearly 50 outlets in the US, Canada, Hong Kong and Japan.

"Our bakeries have always been the foundation and heart of our brand and are really one of the best places to experience our products," Ragan explains. "But we will never be a fast food-like concept. The bakeries will continue to expand at a modest rate. We will complement that in a lot of territories where we probably will not have bakeries with this new line.

"Doing oven baking is not the biggest part of the pet industry," Ragan adds, "but it's unique, it's something we do exceptionally well and we think the next couple years are going to be very exciting."

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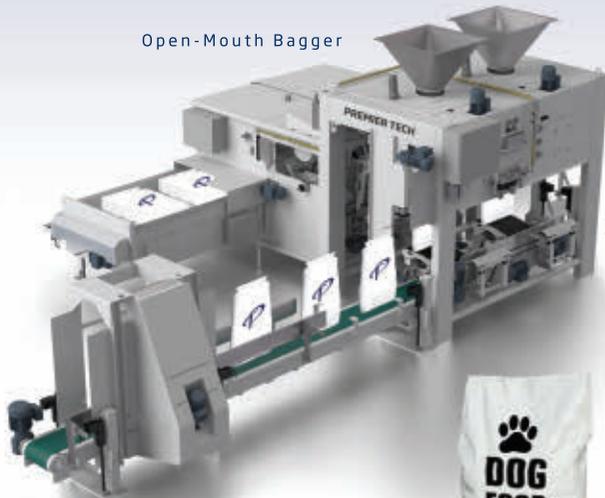
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### More online!

Get the latest news on causes and the petfood companies supporting them (or submit your company's cause marketing campaign) in the Quick-Hits section of

PetfoodIndustry.com at [www.petfoodindustry.com/QuickHits.aspx](http://www.petfoodindustry.com/QuickHits.aspx).

Cause branding is no longer about asking consumers to cut a check or ask for a donation. Look for companies to develop programs that engage pet parents as well as their pets.

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# Paws with a cause

By Jessica Taylor

Petfood companies that promote their support of causes in marketing campaigns are staying innovative in these uncertain times

**ACCORDING TO** A recent article in *Advertising Age* by Mike Swenson, chief marketing officer of ad agency Barkley, throughout 2009 we saw the launch of many national cause-marketing programs despite shrinking marketing budgets. Successful campaigns partnering petfood companies with petfood banks, local shelters, service dogs and non-profit organizations continue to be the trend.

Swenson attests research shows that the majority of Americans care about health, education and their local communities; he expects issues involving homeless pets to garner even more attention in the coming year. Another prediction: Cause branding is no longer about asking consumers to cut a check or ask for a donation. Look for companies to develop programs that engage pet parents as

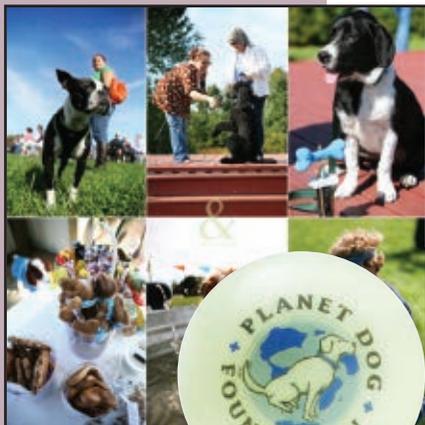
well as their pets. "Smart brands have recognized that consumers expect to hear about what a company is doing to contribute to the greater good," Swenson says. "Educated consumers demand to know every facet of your business—and that includes your causes."

### Online extra!

Learn about more companies—like Bil-Jac Foods and Darford—and how they are lending a helping paw and claw to their own cause campaigns at [www.petfoodindustry.com/PawsCause.aspx](http://www.petfoodindustry.com/PawsCause.aspx).

**AS EVIDENCE OF** the push for cause marketing in petfood, these partnerships, grants and donations all launched or occurred within the past year:

■ Late in April 2010, Halo Purely For



Each time a pet parent buys a Planet Dog product, a percentage is donated to the Planet Dog Foundation.

Pets and the US Postal Service teamed up to unveil 44-cent stamps featuring photographs of five cats and five dogs from animal shelters. The 2010 stamps were created in hopes that they will raise awareness of the need to adopt shelter animals, according to a press release. The stamps were introduced to the public on

### Watch online documentary!

Interested in Milk-Bone's Good to Give program? The company has also partnered with PBS to support the Canine Assistants program and has a documentary series, *Through a Dog's Eyes*, available for download at [www.pbs.org/dogs-eyes](http://www.pbs.org/dogs-eyes).

the Ellen DeGeneres Show. The Postal Service has been working with DeGeneres and the holistic pet care company she co-owns to promote the stamps and the campaign, which includes posters featuring DeGeneres in post offices nationwide and an internet presence at [www.stampstotherescue.com](http://www.stampstotherescue.com).

- The Planet Dog Foundation is the giving arm of Planet Dog, a maker of dog toys, supplies and treats. According to [www.planetdogfoundation.org](http://www.planetdogfoundation.org), the organization is a non-profit, grant-making charity, making an impact through not only grants but also product donations, capacity building and referral services. Each time a pet parent buys a Planet Dog product, a percentage is donated to the foundation. Recently, the foundation announced the recipients of its spring grant cycle. Grants ranging from US\$2,500-US\$7,500 have

been awarded to Texas Hearing and Service Dogs, Thirteen/WNET TV New York, Paws & Think Inc., Therapy Dogs Inc. and HOPE-Animal Assisted Crisis Response.

- Canidae Pet Foods Inc., a manufacturer of all-natural holistic petfoods, expanded its partnership with the Pongo Fund Pet Food Bank in Portland, Oregon, USA, to distribute superpremium petfood to anyone in honest need. Less than a year old, the Pongo Fund ([www.thepongofund.org](http://www.thepongofund.org)) began operations with a donation from Canidae of US\$125,000 worth of petfood. As of this publication, the petfood bank has distributed over 500,000 meals for needy dogs and cats. The distribution of Canidae dog food and Felidae cat food now includes some two dozen non-profit community organizations in Oregon and Washington, many of which are experiencing a decline in donations and need extra assistance.
- Makers of gourmet pet treats and boutique retailers, Three Dog Bakery has a charitable organization called the Gracie Foundation (<http://threedog.com/gracie-foundation.php>), soon to be renamed the Three Dog Bakery Foundation, that provide grants to organizations, shelters and dogs in need. "People treat their pets as family members, and if there are ways they can feel good about not just the products they're buying but about the kind of companies they're doing business with and knowing those companies are focused on quality,

that they do the right thing and I think increasingly that they have charitable elements of their business just gives customers another reason to feel good about making that purchase," says company president Scott Ragan.

- Del Monte's Milk-Bone brand has launched the Good To Give campaign, with a Facebook page, Twitter account, YouTube channel



"Smart brands have recognized that consumers

expect to hear about what a company is doing to contribute to the greater good," says Mike Swenson of ad agency Barkley.

and documentary partnership with PBS. Each time a consumer makes a Milk-Bone purchase, a portion of the proceeds goes to support the Canine Assistants organization. Canine Assistants is a non-profit organization, founded in 1991, that trains and provides service dogs for children and adults. ■

**Research online!**

To read the entirety of Dr. Swanson's nutrigenomic research and for a list of all references for this article, please visit [www.petfoodindustry.com/NutriResearch.aspx](http://www.petfoodindustry.com/NutriResearch.aspx).

# Advances in nutrigenomics

By Kelly S. Swanson, PhD

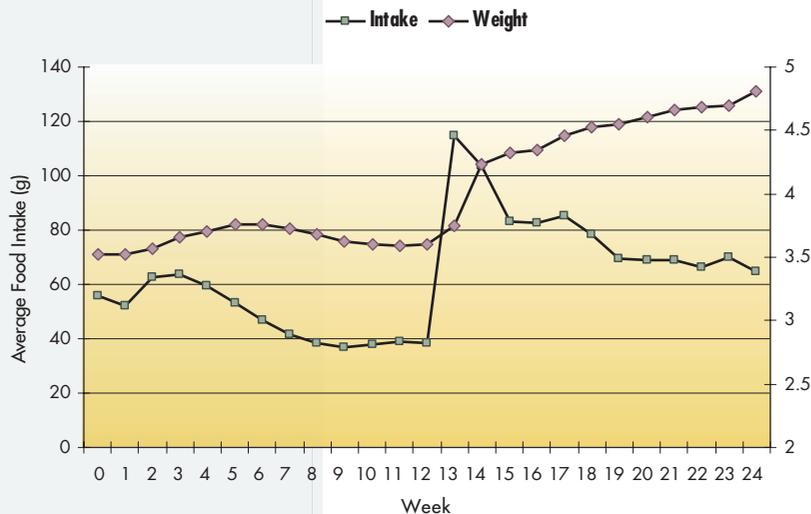
The latest information on the science that combines genetics and nutrition and how it can be used to develop companion animal diets

DNA-based sequencing techniques are being used to characterize the canine and feline gastrointestinal tracts and are providing a strong foundation for future initiatives that may be aimed at studying the microbial profile and metabolic pathways of animals with different health statuses, lifestages, species or dietary regimens.

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## Figure 1. Study of feline weight changes after spay/neuter

According to Dr. Swanson's research, after a cat is spayed its energy and homeostasis are altered, which has a direct effect on weight gain in the animal.



**THE MOLECULAR AGE** is upon us, creating exciting opportunities in the petfood industry. Genome sequence data, high-throughput functional genomics assays and nanotools have several applications to pet health and the petfood industry. Such technology may be used to expand ingredient options (e.g., items enriched in functional nutrients), for petfood testing (e.g., contamination of microbes or toxins, identification of ingredient origin, detection of GMOs) or for molecular-based animal research. Genomic biology may be used to gain a better understanding of dog and cat physiology and how nutrition contributes to health and disease. Because this last point will arguably have the greatest impact on pet health

and the petfood industry, it will be the focus here.

**GENOMIC TOOLS HAVE** greatly changed the landscape of all research fields pertaining to life sciences, including nutrition. In pets, such tools are being used to study microbial populations and gene expression changes in blood and various tissues.

**INTESTINAL MICROBES MAY** be affected by host species, age, health status and location in the gastrointestinal tract. Our laboratory and others have begun using DNA-based sequencing techniques to characterize the canine and feline gastrointestinal tracts (Suchodolski *et al.*, 2008; Middelbos *et al.*, 2010; Swanson *et al.*, 2010; Barry, unpublished data). These initial experiments in healthy adult dogs and cats are providing a strong foundation for future initiatives that may be aimed at studying the microbial profile and metabolic pathways of animals with different health statuses, lifestyles, species or dietary regimens.

Genomic biology is also being used to advance our understanding of nutrient-gene interactions within the dog and cat. The field of nutrigenetics is focused on identifying how genetic background affects the response to a nutrient or diet. In contrast, nutrigenomics is focused on measuring how a nutrient or diet affects gene expression.

**THE FIELD OF** nutrigenomics continues to enhance our understanding of canine and feline metabolism and has broad application to pet nutrition and health. Recently, researchers have applied canine- and

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## NUTRIGENOMICS

feline-specific functional genomic assays to study adipose and skeletal muscle tissue biology, various disease states, the normal effects of aging and diet-induced changes in gene expression. To lay the foundation for future studies in diseased or aged dogs, our lab initially focused on identifying gene expression differences in cerebral cortex (Swanson *et al.*, 2009b), skeletal muscle (Middelbos *et al.*, 2009), adipose (Swanson *et al.*, 2009a), colon (Kil *et al.*, 2010) and liver (Kil, unpublished data) tissues of healthy aged vs. young adult dogs. Biological systems highlighted in these datasets have provided targets of nutritional intervention in future projects focused on improving tissue function and/or longevity.

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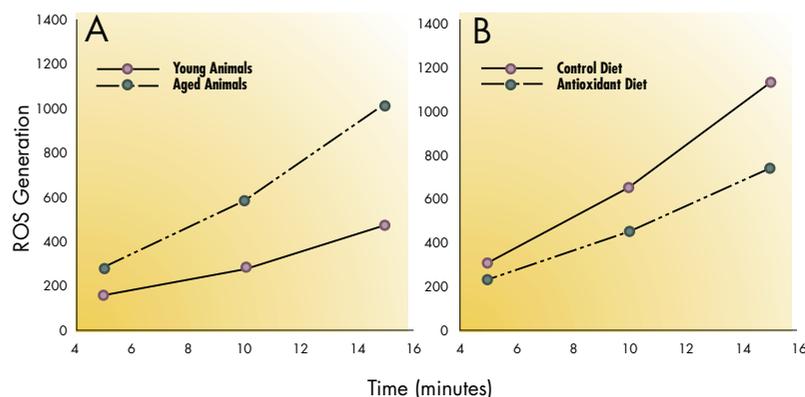
Watch Dr. Swanson's Petfood Forum 2010 presentation, "Nutrigenomics: Recent Advances in Dogs and Cats," at [www.petfoodindustry.com/NutriPPF.aspx](http://www.petfoodindustry.com/NutriPPF.aspx).

like compounds or green tea polyphenols, that may aid in healthy weight maintenance and deserve more attention in future research.

**GENOMIC BIOLOGY IS** rapidly changing the research environment, providing for new and exciting avenues of research geared toward improving the health or longevity of pets. Even though this field is in

### Figures 2 and 3. Study of effects of diet on the aging canine brain

Increased ROS in the brains of aged dogs is partially reversed by dietary antioxidants and mitochondrial cofactors, according to UC-Irvine and University of Toronto research.



Our lab and others have also used genomic biology to identify molecular changes in adipose and skeletal muscle tissues during weight gain/loss, after spay/neuter or in obese cats and dogs (Leray *et al.*, 2008; Belsito *et al.* 2009; Vester *et al.*, 2009a; Vester *et al.*, 2009b). These studies have suggested the potential role of specific nutrients or phytochemicals, such as estrogenic-

its infancy, initial publications have shown great promise, highlighting dietary strategies for further testing or inclusion in petfoods. ■

Dr. Swanson is associate professor of the department of animal sciences at the University of Illinois in Champaign-Urbana, Illinois, USA.

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### More market research online!

To read more of Dr. Parthasarathy's insights on the changing petfood retail market and how it affects petfood manufacturers large and small, go to [www.petfoodindustry.com/RetailChanges.aspx](http://www.petfoodindustry.com/RetailChanges.aspx).



Retailers are optimizing on shelf space, experimenting with multiple formats and looking for velocity and high margin items. The competition for shelf space will be fierce!



# The changing pet retail landscape

By Mukund Parthasarathy, PhD

What does the new economic reality mean for petfood manufacturers, especially small- to medium-sized companies?

**WITH THE DEEPENING** recession, credit crunch and consumers becoming more frugal, retail channels are responding to the new realities. With unemployment reaching double digits and fewer jobs being created, consumers have changed their shopping habits:

- Value and convenience have become very important;
- Discretionary spending has reduced;
- Consumers are making fewer trips to stores;
- Savings in the US have reached an all-time high of 4% of income;

- Consumers are getting smarter;
- "Buy local" movements are getting stronger; and
- Consumers are adopting healthier lifestyles.

Retail formats such as grocers, mass merchandisers (including supercenters like Walmart), drug stores, specialty, dollar stores and club/co-ops are responding to the new realities. The changing retail landscape will have a significant impact on small- and mid-size petfood companies; larger companies will be better able to weather the

storm. The changing consumer habits are here to stay for a long time, so you had better ready your products to meet pet owners' developing needs.

Market growth is stagnating for most goods, though petfood is still growing modestly. Retailers have to compete against each other to offer lower price and higher value. For them, size is the key to survival. Larger national players will acquire smaller regional players, so the number of retailers will decline—this means fewer stores that will carry petfood and pet care items. The competition for shelf space will be fierce.

Retailers look for velocity and high-margin items. They are optimizing shelf space, labor and experimenting with multiple formats. Walmart has a smaller store format; Marketside and other retailers are following suit. These are smaller compact stores that carry fewer SKUs and choices. This will have a major impact on larger petfood manufacturers, who will have to rationalize each SKU since retailers will want to eliminate slower moving ones.

## Small and strong

A clear vision supported by mapped-out strategies and action plans to execute the key objectives are essential for smaller manufacturers. Smaller players are nimble, agile and can come up with unique products to go quickly to market.

Smaller players can compete in the following ways:

- Create new products based on shopper insights;
- Satisfy retailers' needs by providing products that offer value in terms of price, quality and service;
- Present strong visual appeal, pet appeal and owner appeal;
- Create product differentiation by providing customized products for larger retailers;
- Promote health matters with a functional product; and
- Speed to market with creativity, ruthless efficiency and low overhead.



Consumers have become more frugal and are avoiding unnecessary spending. They are constantly looking for price, value and convenience. Walmart, club/co-op stores and value discounters (Aldi) have become stronger players. Larger petfood manufacturers are better positioned to provide value discounters with low-cost items. Smaller manufacturers can gain momentum in the market with grassroots level move-

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**RETAIL** ments like “Be local! Buy local!” Private label brands are growing and are offered at 5-10% cheaper than branded products. This growth in private label may help smaller manufacturers who are in survival mode.

The alternative channels will remain small in the current environment unless the prices come down. Many consumers want healthy products to feed themselves and their pets but cannot afford the high prices.

Retailers are spending on understanding shopper insights and shopper marketing instead of getting the information from manufacturers. Actionable shopper data is creating leadership opportunities for retailers, who are in a better position to dictate to manufacturers the kind of product to be stocked at a saleable price.

Many larger retailers may be willing to work with mid-size and smaller petfood companies by sharing consumer insight data.

Sustainability is also a big theme among retailers, and the largest—Walmart—is leading the way. Leadership in Energy and Environmental Design certification, packaging and waste reduction will figure prominently in all major retailers’ blueprint for success. Petfood manufacturers may have to show their commitment to sustainability programs.

**FOR SMALL AND** mid-size manufacturers, innovation is the key to survival (see “Small and strong” on p. 33). The beauty of innovation is that it has no boundaries and can be implemented in any part of an orga-



nization that adds value in the supply chain. ■

Dr. Mukund Parthasarathy (mparthas2001@yahoo.com) worked for Ralston/Nestlé Purina for 12 years and developed many products for the company.



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## Petfood Insights

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# Good news for good bugs



**CVM recently indicated it may no longer object to the terms “probiotics” and “prebiotics” on petfood labels.**

**THE CENTER FOR** Veterinary Medicine (CVM) in the US Food and Drug Administration (FDA) has long objected to use of the terms “probiotics” and “prebiotics” on animal feed and petfood labeling. However, at the 2010 Association of American Feed Control Officials (AAFCO) Feed Administrator’s Seminar (an annual training program for state regulators), CVM indicated the intent to remove its objection to that verbiage. This should not be inferred to mean that products containing these ingredients will have free rein with regard to labeling in other respects, though.

“PROBIOTICS” IS A term long used to describe live microorganisms delivered orally to the animal for the purpose of intentional colonization of the gastrointestinal tract. Historically, their use often has been associated with claims regarding treatment or prevention of gastrointestinal disorders as well as “competitive exclusion” claims (i.e., claims to reduce the level of *Salmo-*

*nella* or other enteric pathogens in the animal). CVM objected to these claims as drug claims and, in doing so, considered the term probiotic to be a drug claim as well.

That does not mean probiotics have not been allowed in petfoods. A number of microorganisms fitting the general description of a probiotic are sanctioned for use via AAFCO Feed Ingredient Definition #36.14 for direct fed microbials.

Elsewhere in the AAFCO *Official Publication* are requirements for labeling products containing these microorganisms. CVM’s Compliance Policy Guide Section 689.100 outlines the criteria for which CVM would consider probiotics to be acceptable for use in petfood.

Prebiotics are the food on which probiotics thrive in the gastrointestinal tract. Generally, prebiotics are soluble carbohydrates such as oligosaccharides that are indigestible by the animal but fermentable by the microorganisms. The term “prebiotic,” coined to characterize this class of ingredients, came into use much later than probiotics and was not as heavily connected with disease treatment or prevention claims. Still, their close association with probiotics led CVM to consider the prebiotics term a drug claim, too.

**IT’S UNCLEAR WHY** CVM suddenly changed its policy, though I suspect recent prominent use of one of the terms in the labeling and promotional materials of a major petfood company may have forced CVM’s hand. Regardless, it appears to be a prudent, reasonable regulatory position.

In FDA’s draft guidance document regarding complementary and alternative medicine products for human use, it notes (bolding is mine):

*Probiotics are not defined as a regulatory product category under the act or the PHS Act, and products that may be considered to be probiotics **may be foods or drugs** under the act, depending on the intended use of the product.*

### Additional resources

CVM’s competitive exclusion product policy, <http://www.fda.gov/AnimalVeterinary/NewsEvents/CVMUpdates/ucm127971.htm>

CVM’s direct-fed microbial product Compliance Policy Guide, <http://www.fda.gov/ICECI/ComplianceManuals/CompliancePolicyGuidanceManual/ucm074707.htm>

FDA’s complementary and alternative medicine product guidance, <http://www.fda.gov/RegulatoryInformation/Guidances/ucm144657.htm>

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From this it may be inferred FDA does not consider the term probiotic *per se* to be a drug claim. In fact, there are a number of human food products on the market using the term with apparent impunity. If probiotic is not a drug claim, there's no basis to consider prebiotic a drug claim, either.

**AT THIS TIME**, it's unknown whether CVM intends to revise its Compliance Policy Guide or provide other written guidance. Despite this addition of terms to the acceptable labeling lexicon, there's no indication CVM's policy on labeling and claims for products containing these ingredients has changed. So, based on information presently at hand, the following recommendations are made:

- Labels may bear claims such as "with probiotics" or "contains prebiotics";
- Elaboration on these claims, especially with regard to any disease treatment/prevention or effect on structure or function of the body (e.g., prevents *Salmonella*, any discussion of "good bugs" vs. "bad bugs", improvement in digestion or immune function) will still most often be viewed as objectionable drug claims;
- Any probiotic or prebiotic must be an AAFCO-defined ingredient. While not clear in AAFCO definitions, probiotics should be declared in the ingredient list in

the format "Dried (scientific name of microorganism) fermentation product";

- Labels of products containing probiotics must bear guarantees for minimum viable microorganism content in colony-forming units per pound or gram (depending on feeding directions), with asterisks leading to the "not recognized as essential" disclaimer; and
- Labels of products containing probiotics must bear the statement "Contains a source of live (or "viable") naturally occurring microorganisms." ■



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## Ingredient Issues

Greg Aldrich, PhD

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Read Dr. Aldrich's column about vitamin A at [www.petfoodindustry.com/vitaminA.aspx](http://www.petfoodindustry.com/vitaminA.aspx).

# Vitamin D: for pets, sunshine isn't enough



**Diets for dogs and cats must be fortified with this essential nutrient.**

**WE READ A** great deal about vitamin D in the popular press these days. Beyond the age-old deficiency diseases, it is now reported that supplemental vitamin D in people has an influence on a wide range of conditions including cognitive function, osteoporosis, fatigue, diabetes, cancer and more.

Part of the reason this has been such a revelation in human nutrition is because vitamin D was classically considered a "conditional requirement." In other words, it wasn't required in the diet if you got plenty of sunshine. However, for dogs and cats, there is a subtle twist to the vitamin D story that makes it a dietary necessity—in short, sunshine doesn't do the trick.

**AS WITH THEIR** human owners, in companion animals vitamin D is involved with calcium and phosphorus homeostasis. It works in conjunction with the peptide hormones calcitonin and parathyroid hormone to regulate body calcium and phosphorus stores. Because calcium and phosphorus are so central to physiology, the effects of vitamin D reach nearly every functional aspect of life (nerve transmission, muscle contraction, bone formation, membrane function, immunology and more).

Given this degree of importance, making sure we have an adequate supply in the diet has always been an important part of nutritional fortification for pets; however, the background information on fortifying pet diets often gets lost in the avalanche of human nutrition "discoveries."

That is somewhat surprising considering the dog and cat were central figures in the discovery of vitamin D as an essential nutrient. In experiments by Sir Edward Mellanby (1919), it was

demonstrated that the debilitating skeletal disease known as rickets could be induced in puppies fed "synthetic diets" and that rickets was prevented with dietary inclusion of cod liver oil and/or butter. What these ingredients contained was an "antirachitic factor" that was named vitamin D by E.V. McCollum in a 1922 research paper. Entire libraries have been written on the topic since.

**WHILE WE SPEAK** today of vitamin D as a singular element, the term actually describes a group of related compounds that chemists refer to as seco-steroids. The two predominate forms are vitamin D<sub>2</sub> (ergocalciferol) and vitamin D<sub>3</sub> (cholecalciferol). Vitamin D<sub>4</sub>, D<sub>5</sub>, D<sub>6</sub> and D<sub>7</sub> also exist.

Ergocalciferol is derived from the plant steroid ergosterol and is the less effective and investigated of the two forms. The more common and heavily researched form is cholecalciferol. To become active, it undergoes two hydroxylation steps in the body: one in the liver (25-hydroxyvitamin D<sub>3</sub>) and a second in the mitochondria of the kidney proximal tubules (1,25-dihydroxyvitamin D<sub>3</sub>). Once active, it asserts its will on the body by binding to steroid receptors homologous to those of estrogen and testosterone.

Because of this close resemblance, the activated form of vitamin D<sub>3</sub> is actually more correctly considered a steroid hormone than a nutrient at this stage. In man and many animals, cholecalciferol is produced by UV radiation in the skin from 7-dehydrocholesterol (a cholesterol metabolite).

Dogs and cats have much the same machinery in place to carry out this reaction, but because they also possess a surfeit of the enzyme 7-dehydrocholesterol  $\Delta^7$ -reductase that converts 7-dehydrocholesterol to cholesterol, this critical intermediate is unavailable

Dr. Greg Aldrich is president of Pet Food & Ingredient Technology Inc.

for conversion to cholecalciferol. In other words, there isn't enough of the starting material left to produce vitamin D<sub>3</sub>. So for dogs and cats, we have to supply it in the diet.

**THE CORE INGREDIENTS** in pet diets may supply a portion of the needed vitamin D<sub>3</sub>. For example, fish liver oils like those from cod or tuna can contain very high levels of vitamin D<sub>3</sub> (>100,000 IU/kg), while fish flesh and fish oils like that of herring and menhaden can provide more moderate levels (10,000 to 50,000 IU/kg).

Of the "terrestrial" ingredients, butter, eggs and various meats possess levels that also contribute to the pet's

multiple steps to form 7-dehydrocholesterol; then, just like what happens in the skin, commercial processes irradiate the 7-dehydrocholesterol with uV light. The resulting "pre-vitamin D" is extracted and concentrated with the help of organic solvents. After going through a thermal rearrangement, it becomes "d-activated animal sterol," also known as cholecalciferol or vitamin D<sub>3</sub>. The outcome is a resin that can be further purified and crystallized.

**LIKE VITAMIN A**, vitamin D is susceptible to oxidation and destruction during food processing. During extrusion and drying, more than 65%

## Like vitamin A, vitamin D is susceptible to oxidation and destruction during food processing.

nutritional needs (500 to 2,000 IU/kg). However, given the typical low inclusion levels of these ingredients, they may not be sufficient to support total dietary needs. In addition, the remaining vegetative components of pet diets such as grains, tubers, vegetables, fruits and nuts are for all practical purposes devoid of vitamin D. Considering the dietary requirements for vitamin D are in the neighborhood of 500 IU/kg (DM), supplementation is generally necessary.

Commercial sources of the ingredient vitamin D<sub>3</sub> can be produced by synthetic processes starting with 1 and 2 carbon compounds. However, partial synthesis starting with cholesterol is more common. Interestingly, all commercial sources of vitamin D<sub>3</sub> used in the petfood industry are derived from cholesterol extracted from wool waxes (also known as lanolin).

You read it right—wool from sheep. The cholesterol is processed in

can be lost and another 15% sacrificed each month thereafter. For that reason, most vitamin D<sub>3</sub> is sold in a partially protected beadlet. However, even with protection and a focus on minimizing the process severity, upward of 25% of the vitamin D<sub>3</sub> that begins the food journey can be lost before it reaches the dog or cat.

To overcome this sacrifice, most nutritionists will "over-fortify" foods. But, one must be cautious since vitamin D can be toxic to dogs and cats. Adding enough but not too much is very important.

In the end, while vitamin D may be a real epiphany to those in the human dietary supplements aisle, for pets it's not a new concept that an adequate dietary quantity is necessary for long-term health. The tricky part is accounting for the variation associated with core ingredients, factoring for the losses during food processing and then fortifying with just enough to fill the gap. ■

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## Market Report

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Get more market information from Packaged Facts from the Petfood Forum 2010 presentation, [www.petfoodindustry.com/LummisForum2010.aspx](http://www.petfoodindustry.com/LummisForum2010.aspx).

# Down economy a plus for private label

**While petfood shoppers continue to show strong brand loyalty, pet products have not been immune to the store brand swing.**

**NOT SURPRISINGLY, CONSUMERS'** heightened value-consciousness gave private label a boost across many categories during the 2009 recession. According to BrandSpark's 2010 Best New Products Awards American Grocery Shopper Study poll, more than one-third (37%) of those who switched to store brands during the economic downturn said they will continue to purchase them once the economy recovers.

Conducted between mid-October and mid-December, the poll of more than 50,000 US grocery shoppers found that the majority completely agree or agree that "private labels are usually extremely good value for the money" (66%) and "private labels are just as good as brand name products" (59%).

Although petfood shoppers continue to demonstrate a high degree of brand loyalty, pet

products have not been immune to the store brand swing. In the US mass market outlets tracked by Information Resources Inc. (IRI), private label sales rose 14% in 2009 to US\$921 million, compared with a total pet supplies market increase of 5%, accounting for 27% of the market's overall dollar gain.

As in the market overall, private label accounted for disproportionate shares of the dog food, cat food and non-food pet supplies sales gains—at 19%, 18% and 119%, respectively—helping offset declining sales of branded products in the latter case. Overall, store brands increased their share of total US pet product sales from 10.4% (US\$809 million) in 2008 to 11.2% (US\$921 million) in 2009, gaining one share point in petfood and two points on the non-food side.

**PETFOOD REPRESENTS A** little over two-thirds—68% as of 2009—of US private label pet product sales in IRI-tracked outlets. Yet private label penetration is considerably deeper in non-food pet supplies, at 16% (US\$299 million) vs. 11% (US\$622 million) for petfood.

Within non-food categories, private label shares range from 14% for non-dog/cat supplies to 30% for rawhide dog chews, which have been moving hard and fast toward private label for a few years now. For petfood, shares for all dog and cat food types are in the 7%-11% range except for the two relatively tiny semimoist categories, where private label is at 14% for dog and 93% for cat. Private label is also significantly stronger and faster growing in food for species other than dogs and cats,

### Figure 1: US private label pet product sales

Data are based on 2008 and 2009 Information Resources Inc. sales tracking of US supermarkets and grocery stores, drugstores and mass merchandisers (including Target and Kmart, excluding Walmart) with annual sales of US\$2 million or more.

Category/segment	Sales 2008 (US\$ millions)	Sales 2009 (US\$ millions)	\$ change vs. 2008	\$ change vs. 2009
Total petfood and non-food	\$808.6	\$921.3	\$112.7	13.9%
Petfood	\$543.2	\$622.1	\$78.9	14.5%
Dog food	\$313.8	\$365.4	\$51.6	16.4%
Cat food	\$158.8	\$178.7	\$19.9	12.5%
Other species' food	\$70.6	\$78.0	\$7.4	10.5%
Non-food pet supplies	\$265.4	\$299.2	\$33.8	12.7%

Source: Packaged Facts, U.S. Pet Market Outlook 2010-2011: *Tapping into Post-Recession Pet Parent Spending*, based on data from Information Resources Inc. InfoScan Review. Material used with permission.

rising from 27% in 2008 to 30% in 2009.

Marketwide, the biggest store brand jump in 2009 was in the non-dog/cat supplies category, where private label increased five points to almost 14%. Conversely, the most resistant categories were dog biscuits/treats and cat snacks; store brand share declined in 2009, suggesting that even though pet owners were cutting back in some discretionary areas, they were continuing to pamper their pets with affordable indulgences featuring reassuring brand names. Bearing this out, dog biscuits/treats and cat snacks posted impressive total sales gains in 2009, rising 8% and 15%, respectively.

**WILL PRIVATE LABEL** petfood continue to chart gains in the US market? Packaged Facts wagers yes. During the 52 weeks ending April 18, 2010, private label sales of dog food rose 10.2% compared with the category's overall 5.5% gain, and the store-brand cat food sales growth rate was more than triple that of the overall category (9.5% vs. 3.0%).

Trends in 2010 and 2011 will include value pricing and product premiumization aiming to tap into consumers' ongoing budget consciousness. We're also likely to see new spins on store brands, including in the form of licensed names that become exclusive to a given retailer—for example, Martha Stewart's upcoming PetSmart-exclusive line.

As the retail and brand competition continues to heat up, marketers and retailers will increasingly join forces in offering brands available in only a single chain or even shop—and nowhere else. ■

Based on information from Packaged Facts ([www.packagedfacts.com](http://www.packagedfacts.com)), and its report *Natural, Organic and Eco-Friendly Pet Products in the US*, 3rd Edition (June 2010).

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## Research Notes

### Key Concepts

- **Effects of medium-chain triglycerides in cats** (AJVR 71:435-440. doi: 10.2460/ajvr.71.4.435) MCT oils are an example of a bioactive dietary lipid that can serve as a useful functional food ingredient for cats.
- **Nutritional secondary hyperparathyroidism in cats** (Vet Comp Orthop Traumatol 23(1):56-61. PubMed ID: 19997669) After introduction of a balanced commercial diet, bone mineralization improved.
- **T-cells in dogs with food hypersensitivity** (AJVR 71: 441-446. doi: 10.2460/ajvr.71.4.441) The intestinal mucosa is not the primary site of T-cell activation that eventually leads to CFH.

### Effects of medium-chain triglycerides in cats

The objective was to determine possible diet aversion and lipid and lipoprotein alterations in cats fed diets containing medium-chain triglycerides (MCTs). Nineteen clinically normal adult female cats were assigned to two groups and fed a low MCT diet or high MCT diet for nine weeks according to body weight.

No diet differences were found for food consumption, body weight, body condition score and metabolizable energy factors. A significant increase in plasma triglyceride concentration was detected for the high MCT diet, but values were within reference ranges. No diet effects were observed for total cholesterol concentrations or lipoprotein-cholesterol distributions, though increases over time occurred.

Inclusion of MCT in diets of cats did not result in feed refusal and had

minimal effects on lipid metabolism. Such diets may be useful for both clinically normal cats and cats with metabolic disorders. MCT oils are a bioactive dietary lipid that may benefit feline metabolism and can serve as a useful functional food ingredient for cats.

Source: L. Trevizan *et al.*, 2010. Effects of dietary medium-chain triglycerides on plasma lipids and lipoprotein distribution and food aversion in cats. AJVR 71:435-440. doi: 10.2460/ajvr.71.4.435

### Nutritional secondary hyperparathyroidism in cats

Two 3-month-old, intact female Abyssinian cats were presented with a history of lameness, constipation and ataxia. The cats had been fed a diet composed almost exclusively of meat. Both showed severe osteopenia and multiple pathological fractures on radiography.

Following euthanasia of the more severely affected cat, postmortem examination revealed changes consistent with nutritional secondary hyperparathyroidism and fibrous osteodystrophy, such as cortical thinning, massive connective

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tissue invasion in the diaphysis of long bones and hypertrophy of the chief cells in both parathyroid glands.

After introduction of a balanced commercial diet to the surviving cat, bone mineralization improved from the baseline value and at subsequent examinations three, six and 22 weeks later, as indicated by bone mineral density measurements.

Source: M. Dimopoulou *et al.*, 2010. Nutritional secondary hyperparathyroidism in two cats: evaluation of bone mineral density with dual-energy X-ray absorptiometry and computed tomography. *Vet Comp Orthop Traumatol* 23(1):56-61. PubMed ID: 19997669

### T-cells in dogs with food hypersensitivity

This study was conducted to determine whether skin-related clinical signs in cutaneous food hypersensitivity (CFH) coincide with immune reactivity in the canine intestine. Eight healthy control dogs and 11 dogs with CFH but without intestinal clinical

signs were fed provocation and elimination diets. Then the duodenal gene expression levels of Th1-, Th2- and Treg-related cytokines and transcription factors were investigated.

The expression of Th1-, Th2- and Treg-related genes in dogs with CFH and control dogs was similar. Although clinical signs disappeared, the elimination diet had no effect on cytokines, transcription factors or cellular phenotypes.

No change in T-cell phenotypes or a distinct Th1-, Th2- or Treg profile was detected in the duodenum of dogs with only cutaneous clinical signs of food hypersensitivity. This suggests the intestinal mucosa is not the primary site of T-cell activation that eventually leads to cutaneous food hypersensitivity.

Source: E. Z. Veenhof *et al.*, 2010. Evaluation of T-cell activation in the duodenum of dogs with cutaneous food hypersensitivity. *AJVR* 71: 441-446. doi: 10.2460/ajvr.71.4.441

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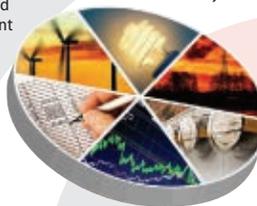
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# Industry Calendar

## See more

Find out what industry events are approaching. Go to [PetfoodIndustry.com](http://PetfoodIndustry.com).

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<b>June</b>			1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30			

- Chapman University Short Course: Better Process Control (Spanish), June 7-10, 2010. Chapman University Campus, Orange, California, USA. To participate in this course, register at [www1.chapman.edu/enhance/FoodScienceMainPage.htm](http://www1.chapman.edu/enhance/FoodScienceMainPage.htm) or contact [wiesmull@chapman.edu](mailto:wiesmull@chapman.edu).



- AFIA Feed Industry Institute, June 14-17, 2010, Hilton St. Louis at the Ballpark, St. Louis, Missouri, USA. For more information, please contact [akeller@afia.org](mailto:akeller@afia.org) or visit [www.afia.org](http://www.afia.org).



- Expo Pack México and Processa 2010, June 22-25, 2010, Centro Banamex, Mexico City, Mexico. For information on this event, please visit [www.expopack.com.mx/2010](http://www.expopack.com.mx/2010) or email [mercadotecnica@expopack.com.mx](mailto:mercadotecnica@expopack.com.mx).

	S	M	T	W	T	F	S
<b>July</b>					1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31

- IFT Annual Meeting and Food Expo, July 17-21, 2010. Chicago, Illinois, USA.



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	S	M	T	W	T	F	S
<b>August</b>	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				

- Chapman University Short Course: Better Process Control (English), August 9-12, 2010. Chapman University Campus, Orange, California, USA. To participate in this course, register at [www1.chapman.edu/enhance/FoodScienceMainPage.htm](http://www1.chapman.edu/enhance/FoodScienceMainPage.htm) or contact [wiesmull@chapman.edu](mailto:wiesmull@chapman.edu).

- ExpoZoo 2010, August 29-30, 2010, St. Hyacinthe, Quebec, Canada. For registration and exhibition information, contact [communications@pijaccanada.com](mailto:communications@pijaccanada.com) or visit [www.pijaccanada.com/en/tradeshow/expozoo](http://www.pijaccanada.com/en/tradeshow/expozoo).



	S	M	T	W	T	F	S
<b>September</b>				1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30		

- AFIA Liquid Feed Symposium, September 14-16, 2010. Grand Hyatt Hotel, San Antonio, Texas, USA. To register, contact [afia@afia.org](mailto:afia@afia.org) or visit [www.afia.org](http://www.afia.org).



- Feed and Pet Food Joint Industries Conference, September 22-24, 2010. Chicago Marriot Downtown Magnificent Mile, Chicago, Illinois, USA. To register for this conference, please visit <http://jointindustriesconference.com> or email [info@petfoodinstitute.org](mailto:info@petfoodinstitute.org).



- 17th Annual Practical Short Course on Aquaculture Feed Extrusion, Nutrition and Feed Management, September 26-October 1, 2010. Texas A&M University, College Station, Texas, USA. For further information, visit [www.tamu.edu/extrusion](http://www.tamu.edu/extrusion) or email [Dr. Mian N. Riaz at mriaz@tamuz.edu](mailto:Dr.Mian.N.Riaz@tamuz.edu).

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