Nature’s Variety makes petfood with a purpose

Reed Howlett of Nature’s Variety, p. 20

New product development for future petfood markets

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It seems every day brings notice of a new US petfood recall due to potential Salmonella contamination. Most people in the industry would say this is not because petfood manufacturers are making unsafe products or failing to follow safety protocols. Rather, it’s from the US Food and Drug Administration (FDA) stepping up its inspections (many unannounced) of manufacturing facilities and rules on reporting the findings from those inspections.

With the various strains of Salmonella being the type of organisms that are nearly always present in minute amounts, they’re likely to show up during an inspection, even if nowhere near the raw materials, processing areas or finished products and even if the amount present is nowhere significant enough to cause a problem.

Today’s consumers demand not just the highest levels of safety but also transparency and communication about it. This is especially true in petfood since the massive 2007 recalls. Though those were caused by intentional adulteration with melamine, a substance that should not be anywhere in the vicinity of petfood, the situation made pet owners, especially in the US, keenly aware of how petfood is made.

But are the increasing regulations a case of overkill? One industry member says the business models of many small companies don’t account for the costs of meeting the regulations; and even larger companies that can afford the latest equipment and programs will never recoup their costs.

I believe recent crises like the economic meltdown (fueled by speculation and investment in ultra risky home mortgages and other bogus financial products) and the ongoing oil-spill disaster in the Gulf of Mexico make the case that government oversight is necessary. But regulations should be based on science and enforced in a way that doesn’t penalize companies doing the right things and making safe, healthy products that consumers want and need.

The AP author, Dinesh Ramde, hit the nail on the head with a reference to “regulatory common sense.” If only that didn’t seem such an oxymoron at times.

Debbie Phillips-Donaldson is editor-in-chief of Petfood Industry magazine. E-mail her at dphillips@wattnet.net.
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Call for papers for 2011 Petfood Forum events

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Petfood Forum 2011 is scheduled for April 11-13 and is moving to a larger, newer venue, the Renaissance Schaumburg Convention Center Hotel (near Chicago, Illinois, USA). We’re looking to expand the number of sessions and need more content than ever!

Petfood Forum is also returning to Europe for the first time in four years. It will happen May 4 in Cologne, Germany, in conjunction with Victam International 2011. The theme for the one-day Petfood Forum Europe will be innovation in petfood.


PFI releases new publication

Pet Food Institute (PFI) is releasing a new publication, PFI Monitor. Through the publication, PFI said it hopes to reach out to all segments of the US petfood industry, particularly suppliers, to strengthen ties and reinforce the association within the industry.

The magazine includes feature articles on consumer confidence levels in the industry, the effort PFI is leading to establish international trade rules for petfood under the World Organization for Animal Health, an introduction to the veterinary staff of the APHIS National Center for Import and Export and a preview of PFI’s Feed and Petfood Joint Industries Conference.
Top scoring petfood brands in eco-friendliness ranking

Just three of 30 popular petfood brands received top scores in a ranking of eco-friendliness by Greenopia (www.greenopia.com).

Greenopia collected data from petfood manufacturers and independent sources about many product factors, such as ingredients, packaging, animal testing policies and green building design. The brands were rated on a green-leaf system, with companies receiving extra points for the implementation of environmental initiatives.

Top scoring brands got a four-green-leaf award and included the Karma Organics line from Natura Pet Products, The Honest Kitchen and Raw Advantage. Nearly one-third of the brands evaluated got the lowest, zero-leaf rating.

Boulder, Colorado, USA, leads natural petfood movement

Residents in Boulder, Colorado, USA, lead the movement in feeding natural petfood diets to dogs and cats, according to an article on DailyCamera.com.

Although the price of natural and organic petfoods can be more than traditional food, Boulder residents are willing to pay, the article says. Some pet owners attribute the higher-priced, premium-based foods to their pets’ good health and lower veterinary bills.

“For people in Boulder, it’s not about the money,” said Marty Grosjean, owner of Only Natural Pet Store. “Boulder is on the cutting edge of everything.”

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For Consumers

**Instinct Grain-Free Biscuits**
Nature’s Variety’s Instinct line has Grain-Free Biscuits for dogs. The oven-baked treats are made with meat protein, fruits and vegetables, with no added sugar or salt, according to the company. The biscuits come in four flavors: Chicken Meal, Cranberries and Garlic; Duck Meal, Sweet Potatoes and Cinnamon; Lamb Meal, Carrots and Mint; and Rabbit Meal, Apples and Ginger.

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www.naturesvariety.com

**Old Mother Hubbard dog biscuits**
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www.naturesvariety.com

**PurLuv dog treats**
The PurLuv line of dog treats from Sergeant’s features ingredients like honey, peanuts, tomatoes and carrots.

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**L.I.D. lamb, bison dog formulas**
Dick Van Patten’s Natural Balance L.I.D. Limited Ingredient Diets for dogs are available in Lamb & Brown Rice Formula and Bison & Sweet Potato varieties. The line is designed for dogs with sensitivities to common petfood ingredients. Offerings include dry and wet food and treats.

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**Planet Dog EATS dog treats**

Planet Dog offers the EATS line of dog treats. The treats are designed for tartar control and are perforated to break into smaller pieces for portion control. EATS are wheat, corn and soy-free and contain no wheat gluten, according to the company. They come in Salmon Seafood Chowder, Pumpkin Pear Ginger and Peppermint Cranberry Crunch.

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August marks the debut of the all-new PetfoodIndustry.com—not just a digital companion to this magazine but also the most comprehensive information source for petfood professionals worldwide.

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- A new product search function for manufacturers to find and compare equipment, ingredients, packaging materials, testing and other services, plus new retail petfoods and treats to see what your peers (and competitors) are offering;
- The ability to comment on any article or product;
- Updated blogs by editor-in-chief Debbie Phillips-Donaldson plus guest blogs from industry professionals;
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Read more about Nature’s Variety’s purpose and the activities that support and derive from it. Visit www.petfoodindustry.com/NaturesVariety.aspx.

Since joining Nature’s Variety in 2006, CEO Reed Howlett has used his background in the ice cream industry to work with distributors and retailers on attractively presenting and maintaining the quality of frozen products, such as the company’s raw diets.

JUST THE FACTS

Headquarters: St. Louis, Missouri, USA
Officers: Reed Howlett, CEO; Aaron Grimm, CFO/VP of supply chain; Stephanie Arnold, VP of sales; Steve Carstensen, VP of operations; Ed O’Neill, senior director of technical services/quality; Laura Duclos, PhD, director of R&D
Sales: Privately owned company does not divulge sales; double-digit growth in 2010
Brands: Instinct (raw and grain-free dog and cat food, plus biscuits); Prairie (natural dog and cat food); Sweet Spots, Raw Frozen Bones and Slow Roasted Treats (all dog treats)
Distribution: Pet specialty stores and veterinary clinics in the US and Canada
Facilities: Headquarters and administrative offices in St. Louis; plant and warehouse in Lincoln, Nebraska, USA
Employees: 100+
Website: www.naturesvariety.com

August 2010

Nature’s Variety makes petfood with a purpose

By Debbie Phillips-Donaldson

The maker of raw and holistic diets seeks to help transform pets through its products, philosophy, education and research

A brand should have a purpose, a reason for being, says Erin Mulligan Nelson, VP/chief marketing officer for Dell computers, in an article for Advertising Age. “It should make a difference in the world in some way.”

Perhaps no other company has embraced that philosophy more than Nature’s Variety. “We spent a lot of time over the last 15-18 months examining our purpose: Why are we here as a company?” explains Reed Howlett, CEO since July 2008. “Obviously, we need to grow, we need to provide a return to our shareholders, but that’s not the main purpose why people are here and why they come to work every day excited about what they do. It’s because they work in an industry they’re passionate about, and we felt it was important to articulate what it is about our company that unlocks that passion.”

What is that key? Nature’s Variety’s purpose is to empower people to transform the lives of pets. And the many initiatives the company has undertaken over the past 12-plus months have happened with an “eye toward bringing that to life,” Howlett says.

That includes extensive consumer research that has driven changes such as new products, new packaging and
positioning for its brands, new safety processes and scientific research on raw petfood, the category Nature’s Variety is best known for. Its products in that segment include frozen and freeze-dried raw as well as Raw Frozen Bones.

While the company is focused on continuing double-digit growth rates for all its products—which also include Instinct grain- and gluten-free dry and wet foods and biscuits, natural dry and wet foods under the Prairie brand, SweetSpots frozen treats and Slow Roasted Treats—Howlett believes much of the growth will be driven by the raw category.

“There’s no place we feel more passionate about pursuing growth than through raw, because it delivers every day in such meaningful ways,” Howlett says. “The testimonials we receive, the recommendations that consumers make to one another, what we see on social media like Facebook—it’s really compelling. As the leader in that category, I think we’ve got unique responsibilities to grow it.”

To that end, Nature’s Variety partners with the University of Nebraska’s Food Sciences Department near the company’s plant in Lincoln, Nebraska, USA. The university has also helped with the company’s quality assurance program, base research on safety technology and nutritional training for field sales and demonstration staff, who educate retailers and consumers about raw and Nature’s Variety products.

At Global Pet Expo in March, Nature’s Variety presented a recent study by Kelly Swanson, PhD, and his team at the University of Illinois Department of Animal Sciences on the palatability, digestibility and safety of raw dog food. “As we relaunched our raw business under the Instinct brand name, we wanted to be able to talk from more of a fact-based standpoint about why raw delivers nutritionally on the promises we make,” Howlett says.

Another factor that sets Nature’s Variety apart from its competition is its rotational philosophy: “We believe feeding a variety of foods overall supports an animal’s health and rotating different types of proteins and forms is very beneficial to the pet,” Howlett explains. “We recognize not all consumers can feed raw all the time. So our philosophy is it’s OK to mix dry with raw, and we formulate our foods in a way that encourages consumers to do that.

“When we think about how our brands are positioned for growth and we look toward our purpose,” he adds, “yes, raw is definitely the tip of the spear, but this overall rotational philosophy is a very important part of the message we’re sending to retailers and consumers.”

Howlett believes education is crucial. “Our greatest challenge is educating consumers and pet nutrition experts, including vets, on the benefits and safety of feeding a raw diet. I think that’s the key to unlocking the growth, social media: powerful stuff

While most manufacturers in the natural and holistic petfood category don’t have the financial means to launch large advertising campaigns, today they have digital and social media, says Reed Howlett, CEO of Nature’s Variety. “It’s a powerful enabler to help this industry grow even more rapidly, because there are so many low-cost ways for us to get the message out now.”

Nature’s Variety has nearly 3,500 fans on Facebook (www.facebook.com/NaturesVariety) and almost 1,000 followers on Twitter (http://twitter.com/NaturesVariety), which it uses to promote retail events involving its products. “On Facebook our fan base continues to grow very rapidly because I think the quality of what we’re seeing there, not just the content we provide but the content our consumers provide, is very high,” Howlett says. “People are coming back and suggesting that other people go there.”

A member of Nature’s Variety’s staff is responsible for these social media activities. “It’s so important to have the right voice, the right tone, in responding to questions you get online,” Howlett explains. Nature’s Variety also participates on a few blogs and has just upgraded its website, which receives over half a million visitors a year, he says.

“The number of consumers we’re touching and we’re accessible to through digital and social media is very exciting, because it’s a way to build on our message and quickly further our purpose as a company,” he says. “If we’re doing that and maybe five other companies in natural and holistic foods are building category awareness, when you put that together it’s very powerful stuff.”
having consumers view the product as safe and convenient.”

Earlier this year, Nature’s Variety issued a voluntary recall of some of its raw frozen diets because of potential Salmonella contamination. As a result, the company expanded its use of high-pressure pasteurization (HPP), a process that kills pathogenic bacteria, which it had begun applying to its freeze-dried raw products in November 2009. “When we had this issue come up, we were fully prepared to put HPP in place for all our raw products; we had done all the research about its effect on palatability and nutritional value, and we became very comfortable with HPP in both regards,” Howlett says.

After undergoing HPP, all the raw diets are held while they’re tested to ensure no pathogens remain. Nature’s Variety also uses HACCP and other GMPs, Howlett says.

“As I think about the development of the industry, at least our part of it, I absolutely see nutritional education as the biggest opportunity to catalyze even more rapid growth in independent pet specialty,” Howlett says. “Pet parents who have become educated and seen a transformation from feeding a higher-quality food are so excited. There are so many products that don’t deliver on their promise that when you see foods like ours and others that do, that’s something consumers just stand up and take notice of.”
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Petfood Industry announces their second online, interactive forum focused on innovations in the petfood manufacturing industry.

WHAT IS AN “ONLINE FORUM”?*
- A one-day educational event put together by the Petfood Industry editorial team for global petfood manufacturing professionals held in a “virtual environment” on the Internet. Attendees can enter and leave the event as their schedule allows.

WHO SHOULD ATTEND?
- Petfood manufacturers, petfood packaging professionals, petfood nutritionists and ingredient professionals, technical consultants, manufacturers of petfood health products and petfood marketing professionals.

WHY ATTEND?
- Live, educational presentations on the latest issues impacting petfood nutrition and health, packaging, marketing and manufacturing and processing.
- Live question and answer sessions with top industry experts.
- Networking opportunities with your peers from around the world.
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- FREE to attend and you can log-in from the comfort of your office or home.
- It’s fun and you have a chance to win prizes!

Can’t make Virtual Petfood Forum: Innovation the day of the live event? Not a problem. Register now and you can visit the archived Virtual Petfood Forum for ninety days after the live event.

Learn more by taking the “virtual tour” on www.WATTevents.com.

“THE ULTIMATE ONLINE EXPERIENCE PLATFORM FOR THE GLOBAL PETFOOD COMMUNITY TO INTERACT”
Greg Watt, President/COO, WATT

PRESENTATIONS AND SPEAKERS...

INNOVATION IN NUTRITION & INGREDIENTS
by: Serge Boutet, agronomist and manager of petfoods and nutrition for Mondou Ltd.

INNOVATION IN MARKETING:
EXPLORING SOCIAL AND ONLINE MEDIA
by: Julie Lenzer Kirk, CEO and chief muse of Path Forward International.

INNOVATION IN PETFOOD PROCESSING
by: Mian Riaz, PhD, director of the Food Protein R&D Center at Texas A&M University.

INNOVATION IN PETFOOD PACKAGING
by: Scott Whiteside, PhD, associate professor of the Department of Packaging Science and associate director of the Center for Flexible Packaging, both at Clemson University in South Carolina, USA.

Virtual Petfood Forum: Innovation will also include a session on innovation in petfood safety. More information will be available soon.

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INNOVATION HAS BECOME a key business process and is seen as essential for business growth and development. "The aim of the innovation/new product development process is to start with a collection of many ad-hoc ideas and finish with a selection of a few defined ideas to present to the marketplace," explained John Adams of Adams Developments in his Petfood Forum 2009 presentation on new product development.

PetSmart worked with Edison Nation in 2009 to invite new pet product ideas from pet owners and other consumers. Del Monte developed the product in its Snausages line, Breakfast Bites, using input from a social network of dog owners it formed.

"This is focus group R&D in the digital age and Web 2.0 era. Besides providing relatively inexpensive ways to get ideas and feedback from target customers, these new strategies and programs offer speed to market," said Petfood Industry editor-in-chief Debbie Phillips-Donaldson in a Petfood-Connection.com discussion. "Are these just isolated experiments with social media and other new platforms? Just fads? Or are they the wave of the future?"

NEW PRODUCT DEVELOPMENT of pet products can be mapped out in the following steps:

1. Concept idea generation
2. Definition of concept/principle
3. Development, prototype and testing
4. Implementation marketing and launch

In the initial stage of developing a product concept, a large number of ideas are considered against near and future key drivers of new product development for petfood and pet treats changing?

DIG DEEPER ONLINE!
To read John Adams’ extensive information on new petfood product development, the future of global markets and new R&D technologies and strategies, check out www.petfoodindustry.com/NPD.aspx.
strategic market needs to decide which are worth exploring. The most fruitful ideas are often sourced from interacting with customers and encouraging involvement from employees, research has found. Idea generation requires an open listening culture, with good feedback—an example of why social networking has become so crucial, allowing in-house research to be replaced by a public forum.

Projects selected to go into development are decided on the basis of business need, potential market acceptability, risk/reward criteria and the availability of the required resources (people, facilities and money). Progress to market depends on satisfactory feedback on the prototype, an assessment of the competitive response and deliverable strategies on sourcing, marketing and pricing/margins.

The beginning of 2008 saw owners and shareholders of companies expecting a further year of market and company growth. New products entering both the human food and petfood markets were focusing on messages of natural, organic and environmentally friendly in both their ingredients and their labeling.

But by the end of 2008, many pet-based businesses were changing their immediate strategies from one of targeting growth to one of how to operate in a recession. “In times of low or no business growth, opportunity comes by seeking new things that will work, based on new needs,” says Adams. “In a recession there...
will always be opportunities because people will still buy and sell, it is just that they may buy with different requirements.” As the past couple years have proven, pet parents still need their petfood but also need to see the products on the shelves differently.

Sustainable innovation in petfood—which remained a market driver throughout the recession—is not just about new concepts. It is about commercialization of technologies, products and services, plus entrepreneurship. It can also be about the adoption of new processes and systems at societal level. “Green” innovation is the creation of novel and competitively priced goods, processes, systems, services and procedures designed to satisfy pet parents’ needs and provide a better quality of life for not only their pets, but the environment as well. “Finding solutions to environmental problems through eco-innovation has been, and is likely to remain, the primary focus for sustainable innovation while aiming to achieve social benefits,” says Adams.

While trends like sustainability, “eco-friendly” labeling and humanization will continue to drive growth in US and Europe, there are still areas of the globe that remain virtually untapped. It is projected there will be a global population of 8.04 billion for the year 2025 and 9.37 billion for 2050. The population of the developed countries as a group will have increased by less than 350 million between 1950 and 2050. The developing countries will have an estimated 6.8 billion people more—almost quintupling their 1950 population. Focusing efforts on bringing new products to these developing markets may be the key to growing an already successful petfood brand or strengthening an already impressive market share.
CentreFocus, LLC is a leading advisory organization with expertise in the pet food industry.

The main challenge of any organization is the clarity of their mission — Where are we going? What is our role? Why are we doing this? — These are all questions that CentreFocus, LLC can assist in answering.

We work with top management to assess their current requirements and make recommendations that will generate a substantial and lasting financial impact.

The pet food industry has had many new requirements pushed upon it with more to come. The recent recall has brought great attention to this sector and the regulations continue to tighten. Plus, with the idea of a pet as part of the family becoming more prevalent, the pet food industry is set for an exciting future with many new ideas coming to market.

If your needs are with production, marketing, logistics, nutrition, labeling or any other segment, our team of experts will use their unique comprehensive background to provide direction with great transparency throughout the process.

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Online extra!
View a PowerPoint presentation from Pulse Canada to discover why pulses may be the best sustainable ingredient for petfoods. Visit www.petfoodindustry.com/PulseCanada.aspx.

As people and pet populations grow, it’s increasingly important to minimize the need to change the planet’s wildlife habitat and other fragile lands to use for petfood production.

Bringing sustainable ingredients to petfood
By Jessica Taylor

Companies like The Honest Kitchen, Pulse Canada and Mars Petcare are making “green” ingredients a top priority.

FOR THE ENVIRONMENTALLY conscious consumers who have done it all, from greening their homes to decarbonizing their travel, there’s a new frontier: greening their pets. In June, Petfood Industry conducted a survey of our petfood professional readers and asked them about their thoughts on sustainability and the pet market. A majority of respondents (62%) thought 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. A whopping 77% of respondents believe consumers define “green” petfoods as having natural ingredients, and the same percentage believe it’s very or somewhat important for their organizations to be leaders in adopting sustainable practices.

What does “sustainable petfood” mean, anyway?
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Pet nutritional needs are becoming increasingly similar to human needs, and this is why offering natural ingredients makes the difference when supplying healthy foods. Biorigin has a 100% natural product line that contributes for animal health and welfare.

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SUSTAINABLE INGREDIENTS

Century, sustainability has four goals:

■ Satisfy food, feed and fiber needs, and contribute to biofuel needs;
■ Enhance environmental quality and the resource base;
■ Sustain the economic viability of agriculture; and
■ Enhance the quality of life for farmers, farm workers and society as a whole.

THE PETFOOD INDUSTRY is often overlooked as a major source of fish consumption. According to a study that appeared in the Journal of Agricultural and Environmental Ethics in October 2008, our industry uses about 2.48 million metric tons of forage fish each year to produce wet cat food. (That excludes fishmeal used to produce dog food, dry cat food and fish food.) So how can we balance cats’ dietary needs with protecting the oceans? Several manufacturers have recently begun to answer that question.

MARS PETCARE—MAKERS OF Whiskas and Sheba brand cat food—announced its commitment in Europe to introduce petfood certified by the Marine Stewardship Council by the end of 2010. The company is working in conjunction with the World Wildlife Fund (WWF) to develop its fish sustainability commitment, which will roll out across all its petfoods by 2020.

Mark Johnson, the UK general manager of Mars, said people were increasingly aware of the importance of sustainability. “We are now the first pet company to make a commitment to sustainable fish, and we hope that will act as a catalyst for the whole industry.”

The program’s goals are to use only fish from 100% sustainable wild catch and sustainable aquaculture sources, to replace all wild catch whole fish with sustainable fish products. Mars Petcare, maker of Whiskas and Sheba branded cat foods, announced its commitment in Europe to introduce petfood certified by the Marine Stewardship Council by the end of 2010. The company is working in conjunction with the World Wildlife Fund (WWF) to develop its fish sustainability commitment, which will roll out across all its petfoods by 2020.

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WORLÉE NATUR-PRODUKTE, producer and processor of raw materials for the petfood industry, prides itself on using sustainable herbs, dried fruits and vegetables.
fish filet with sustainable fish by-products and sustainable aquaculture and to use only sustainable alternatives to marine fish ingredients.

The Honest Kitchen announced similar products with the launch of the cat treat Wishes (Made From Fishes) which consist of 100% Icelandic haddock, which is more sustainable than haddock in US waters, according to the company. The stock has risen dramatically in the past five years around that country, which means more fish, but they are “wild caught” so it’s less invasive, thus more eco-friendly, to catch them that way. The Honest Kitchen is also an approved member of Green America, which places a high priority on sustainability, “green” business and fair-trade.

Agricultural-based ingredients, which make up the bulk of most manufactured petfoods, need to be sourced sustainably, and Pulse Canada says it’s time for our industry to give peas a chance. How are we helping the environment and pets by using products that include pulse crops?

Pulse crops, which include beans, peas, lentils and chickpeas, are among the small group of crops that draw their own nitrogen fertilizer directly from the atmosphere. “When products are made using pulse crops, you are making the environmentally friendly choice because less fossil fuel is used to grow the plants and less carbon dioxide (CO2) is emitted as a result,” explains Pulse Canada literature. “Pulse crops use less nonrenewable energy inputs, reducing overall greenhouse gases in the atmosphere.”

Vegetable protein sources like pulses are one of the few ways to accommodate increasing protein needs while minimizing people’s and pets’ environmental footprint, according to the organization. As people and pet populations grow, it’s increasingly important to minimize the need to change the planet’s wildlife habitat and other fragile lands to use for petfood production.

Get more online!
To learn more about The Honest Kitchen’s Green America membership and for a full listing of its ingredients, visit www.thehonestkitchen.com/knowledge/our-ingredients.

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IT’S NO SECRET that bacteria have a bad rap. With constant marketing of hand gels, soaps, wipes and other personal antibacterial products, it’s not surprising that most of the non-scientific public fears bacteria. However, maintenance of the proper microbes in the intestinal tract allows animals to gain nutrients from their food that they cannot absorb from their own digestion. In fact, with over 1 billion bacteria in our intestine, the bacteria outnumber our own cells 10 to 1.

Bacteria present in dogs and humans are similar, which is not surprising given our similar predispositions for eating what is available at any given time. The cat’s microbiome is still being determined. The microbial community of any animal is a dynamic population.

The possibilities of probiotics in petfood

A scientist from Kemin Nutrisurance explains the benefits of “good” bacteria and their potential as supplements and antioxidants in petfood
WE ARE WHAT we eat, but are microbes also indicative of where we’ve been? In some ways, they are. Animals that are raised exclusively indoors have different bacteria present in their intestines than those raised with exposure to an outdoor environment (Mulder, 2009). Dogs that run outside frequently could have a different variety of bacteria present in their intestine than more sedentary indoor animals.

In the lab, the growth curve of bacteria may be easily manipulated by changing the media provided for nutrition. Simple sugars are used quickly, and when they are used up the bacteria dies. More complex prebiotic fibers may give the desired beneficial bacteria a prolonged growth curve. In the animal, this gives the commensal bacteria a survival advantage. Products that contain specific prebiotics that target the probiotic are known as synbiotics (Figure 1, p. 36).

PROBIOTICS, which are live bacterial products, have become popular for their proposed benefits to humans. This popularity has now spread to our pets as well. There are many things to consider when deciding how to choose the bacterial species included in a supplement or petfood diet, such as:

■ Will the bacteria survive food processing and through the stomach of the animal so they reach the intestine?
■ Do the bacteria give a desired benefit to the animal?
■ Is the target dose of the live bacteria still known at the time of feeding?
When fed, live bacteria elicit a different immune response than when they are dead. In a 2009 study, Van Baarlen and colleagues investigated the differences in immune response when a probiotic strain of Lactobacillus was fed to mice when the culture was live and harvested when actively
growing vs. a killed preparation of the same bacteria. They found that while the live bacteria stimulated intestinal cell proliferation, the dead bacteria stimulated the immune system of the mouse, causing an inflammatory response characterized by TNF cytokine excretion.

Similar results were found in a study conducted by Kemin Nutrisurance with the probiotic Subactil. When fed to mice at live doses from 10 million to 10 trillion bacteria/gram, the Bacillus organism did not elicit an inflammatory response, but a killed dose of the bacteria increased circulating levels of pro-inflammatory cytokines.

**WITH ONLY ONE** layer of cells between the intestine’s microbial population and the rest of the body, it is important to have a friendly relationship with our intestinal bacteria. When searching for a probiotic to maintain that relationship for pets, there are many considerations to contemplate, including lifestyles and nutritional challenges.

Sara Cutler, PhD, is R&D manager of the functional ingredient and supplement group for Kemin Nutrisurance, www.kemin.com.
Save the Dates!

Join us next year for these learning and networking events

PetfoodForum
April 11-13
Chicago, Illinois, USA

PetfoodWorkshop
April 13-14
Chicago, Illinois, USA

In 2011 Petfood Forum and Petfood Workshop move to a new location: the Renaissance hotel and convention center in Schaumburg, Illinois, close to Chicago and O’Hare airport. Only five years old, this venue has plenty of space and is located in an area with more than 70 restaurants, a large shopping destination (Woodfield Mall) and plenty of other activities.

Check it out at www.renaissancechaumburg.com.

Petfood Forum and Petfood Workshop offer the latest information and knowledge from leading petfood industry experts. Plus, you’ll enjoy many opportunities to network with colleagues and visit with key suppliers.

Interested in being considered as a speaker for any of these events?
Find the call for papers at www.petfoodindustry.com/petfoodforum.aspx.

Petfood Forum returns to Europe!

May 4
Cologne, Germany
(in conjunction with Victam 2011)

Petfood Forum Europe moves to beautiful and historic Cologne for a day of learning and networking. You can also visit many petfood and agrifeed exhibits as part of Victam 2011 (www.victam.com).

Watch for Petfood Forum updates on www.petfoodindustry.com
I was very pleased to be invited to speak at the American College of Veterinary Internal Medicine Forum, held in Anaheim, California, USA, in June. My topics were carbohydrate-related claims for both horse feeds and pet foods.

Attending the meeting gave me the opportunity to learn from other speakers. Particularly interesting were presentations on feline idiopathic cystitis (FIC) and how the understanding of the role of diet in its pathophysiology and treatment has changed.

I am especially intrigued by how the terminology has evolved. In my early days working for a veterinarian, this condition was simply called cystitis, a very general term referring to inflammation of the urinary bladder.

While I was in veterinary school, the disorder was renamed feline urological syndrome (FUS), intended to refer (albeit vaguely) to a particular set of urinary tract signs. Later, the preferred nomenclature became feline lower urinary tract disease (FLUTD). Today, though, the vocabulary appears to have come full circle, with the predominant terminology again including the word cystitis.

FIC is typically characterized by frequent urination, straining and blood in the urine. It is diagnosed by ruling out other potential causes of similar signs (e.g., infection, bladder stones). While signs often resolve within a week, recurrence is common. In the most serious cases, the urethra becomes obstructed and the cat is totally unable to urinate, which if left untreated, leads to kidney failure and death. Because of these potentially serious consequences, it is of extremely high concern to cat owners, even though it affects only a small percentage of all cats.

The term idiopathic means the cause is unknown. However, many potential causative factors have been implicated over the years, most often related to a dietary component (see sidebar). Some purported causes have subsequently been discounted—for example, high ash content.

Dry food is still often considered a factor, but since by one estimate up to 99% of cats receive dry food or a mixture of dry and wet, it is hard to pin the blame on that alone. US Food and Drug Administration policy for allowing “helps maintain urinary tract health” claims assumes neutral to alkaline urine pH and, to a lesser degree, high magnesium content, to be major predisposing factors.

The most recent theory is that FIC is caused by stress. In fact, the hypothesis is that it is not a urinary tract disease at all but rather a neuroendocrine disorder manifested by urinary signs. Thus, while many cat foods on the market have overt or implied claims relating to urinary tract health, the food per se may have little relevance.

Treating FIC depends on the severity of signs. If the cat is obstructed, emergency medical or surgical procedures are indicated. Otherwise, most times the signs dissipate in five to seven days regardless of medical or dietary treatment. Preventing recurrence seems key to long-term health, but an effective strategy remains elusive.

If stress is the cause, relieving it may be the answer. The Indoor Cat Initiative at Ohio State University advocates multimodal environmental modification (MEMO): changing the cat’s environ-
ment to mitigate activation of the stress response system. This may include changes to the housing and litter box, use of toys, increased human interaction and even music!

**Food is a** part of MEMO. Changing from dry to wet food is often advised. The increase in water intake may help, but also the mouth feel of wet food and the increased owner interaction achieved by the ritual of meal feeding are thought to positively affect the cat’s neurobiology. Feeding treats may also increase human-cat interaction.

While food is important to treating/preventing FIC, the presentations I attended didn’t give any indication that specific dietary aspects such as effect on urine pH or magnesium content are important, at least not to the degree once thought. In fact, it has been found that most cats with FIC already produce urine in the acidic range (<6.5 pH). This may be because the bulk of cat foods today are formulated to produce acidic urine, whether or not the company has pursued substantiation of a claim.

If further investigation finds merit with the stress theory, the presumed role of diet and risk of FIC may be lessened to where claims for cat foods regarding urine pH or other dietary factors may be deemed to be unsubstantiated.

**Further information**


Indoor Cat Initiative: IC Diet Management, [wwwvet.ohio-state.edu/2361.htm](http://wwwvet.ohio-state.edu/2361.htm)

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Internet claims have led some pet owners to doubt the safety and utility of this natural functional ingredient.

To the hard-core chemist, citric acid is 2-hydroxy-1,2,3-propane-tricarboxylic acid. It might sound a bit ominous, but this compound occurs naturally in nearly all plant and animal tissues. In our food supply, it is most abundant in citrus fruits like lemons and limes (5-8%).

Commercially, citric acid is produced by fermentation of crude sugars from a special strain of Aspergillus niger fungi. The commercial grade ingredient is a white crystalline powder produced in various locations where raw material streams, such as molasses, are abundant. In addition, depending on region and season, some citrus- and pineapple-extracted citric acid is also available.

As an ingredient, citric acid is water soluble but virtually insoluble in ether, alcohol, fats and oils. In foods and pharmaceuticals, it is used:

- To modify pH;
- As a reactant in effervescent applications;
- To synergize phenolic antioxidants;
- To chelate ionic forms of transition metals; and
- In flavor additives to promote tartness in jams, jellies and beverages.

It also has some applications in industrial acid-base reactions in such things as ink and dye color development, electroplating, biological sample preparation for analytical chemistry and medically as a component in anticoagulant solutions.

The confusion between citric acid and ascorbic acid has most likely occurred due to their common origin—both compounds are found naturally occurring in their highest concentration in citrus fruits. While ascorbic acid, aka vitamin C, is an essential dietary component for many mammals (humans, primates, guinea pigs, but not dogs or cats) where it functions as a key component of collagen synthesis, citric acid doesn’t possess this vitamin status nor is it a dietary requirement for companion animals.

But, citric acid is important to normal physiology. It lies at the very crossroads of glycolysis and the tricarboxylic acid cycle (also called TCA cycle, citric acid cycle or Krebs cycle), which converts dietary sugars into energy (ATP). In the “entry reaction” from glycolysis to the TCA cycle, citrate synthase catalyzes the reaction of acetyl-CoA and oxaloacetate to form citrate. In other words, citric acid (citrate) occupies the initial piece of the machinery in the most important biochemical cycle in the conversion of sugar to energy.

Bloat, or GDV, is an acute and often fatal disease that more commonly affects deep-chested large and giant breed dogs. It is characterized by gas accumulation resulting from a malposition of the stomach. There have been several published research papers on the topic, and the general conclusion has focused on the dogs’ genetic
Citric acid got implicated in this because of a research summary from a clinical case-control study that has in various forms circulated the Internet. One conclusion from the study stated, “The risk of GDV significantly increased three-fold (or 200%) in dogs that consumed dry foods containing citric acid as a preservative” (Raghavan et al., publication date unknown).

However, in the subsequent peer-reviewed veterinary journal article, it was concluded in part that there was a 2.4-fold greater risk of GDV associated with fat as one of the top four ingredients on the food label (Raghavan et al., 2006), but the article made no mention of citric acid. Whether the authors retracted this statement following additional scrutiny or published these conclusions elsewhere is not known.

**Currently citric acid** is generally recognized as safe (the so-called GRAS status) and is widely used in human food and petfood applications without harm. There are no required warning statements or stated maximum tolerable levels for its use. Toxicity testing with dogs showed no adverse effects when fed at high dosages for extended periods.

The stomach normally contains a substantial amount of acid (hydrochloric acid) that could far out-gas citric acid. Second, GDV is more about a relaxing of the stomach ligature and torsion of the gastrointestinal tract, with gas accumulation as a secondary effect. Finally, citric acid and its salts are commonly used in therapeutic applications at much higher doses to inhibit urinary tract formation of calcium oxalate crystals and alkalinize the urine—all without ill effects.

**Citric acid occurs naturally in nearly all plant and animal tissues. In our food supply, it is most abundant in citrus fruits like lemons and limes.**

Citric acid does have a history of involvement in gas production. For example, the reaction of citric acid and sodium bicarbonate is used to produce the effervescence in Alka Seltzer. So, it’s probably not unreasonable that citric acid would be swept up in the initial round of suspects. However, given the amount of citric acid associated with fat preservation is probably on the order of less than 5 ppm in a petfood, the likelihood that it could produce enough CO₂ to be problematic is remote.

First, the stomach normally (1.38 g per kg BW for 120 days, www.inchem.org/documents/sids/sids/77929.pdf). So, given the lack of case reports and causal data, there doesn’t seem to be good reason to exclude the use of citric acid in antioxidant premixes or other food functions. It is unfortunate that it was errantly associated with bloat in large breed dogs. The hope is that a more targeted rationale for this disease condition can be found and citric acid can be restored to its place as a truly functional ingredient in the production of quality petfoods.
**Key concepts**

- **Effect of rendering on animal by-products**
  
  This work studies the effect of rendering on quality of meat and bone meals (MBM) processed in two Spanish rendering plants according to the standard procedure recommended by 96/499/EC Directive for MBM category III. Twelve samples of raw animal by-products and their corresponding meals were analyzed for chemical composition, amino acids content, FDNB-reactive lysine content, pepsin digestibility, protein dispersibility index and fatty acids content.

  The results indicate rendering has negative effects on protein and fat quality of MBM. Variability between and within plants is attributed to differences in raw material, processing conditions and fat removing efficiency. Continuous monitoring is recommended to ensure the quality of each batch before use.


- **High calcium intake in growing dogs**

  Excess dietary calcium may be associated with systematic differences in nutrient digestibility by different breeds of dogs.


- **Determining bioavailability of lysine**

  For heated casein, the rat growth assay significantly underestimated bioavailable lysine as determined in kittens while the *in vitro* method closely approximated this value for the cat.

**Effect of rendering on animal by-products**

The current study was part of a larger investigation (Dobenecker, 2002). The apparent digestibility of protein, fat, nitrogen-free extract (N-free extract) and organic matter as well as energy of a tripe and rice-based diet supplemented either with normal calcium or excess calcium was determined in growing dogs of two breeds, Beagles and Foxhound-Boxer-Ingelheim Labrador crossbred dogs (FBIs).

Apparent energy digestibility was significantly impaired by excess...
calcium in both breeds, with the effect stronger in FBIs than in Beagles. The same was true for organic matter, N-free extract, crude protein and fat. The decrease in protein and fat digestibility was significant in FBIs but not Beagles. By contrast, the apparent digestibility of ash was lower in FBIs than in Beagles.

The results of the current study suggest excess dietary calcium may be associated with systematic differences in nutrient digestibility by different breeds of dogs.

Source: B. Dobenecker et al., 2010. High calcium intake differentially inhibits nutrient and energy digestibility in two different breeds of growing dogs. JAPAN online June 2010. doi: 10.1111/j.1439-0396.2010.00989.x

Determining bioavailability of lysine

Growth assays were performed to determine lysine bioavailability for kittens and rats in untreated and heated casein; these values were compared with estimates obtained with an in vitro method. Body weight, food intake, nitrogen and dry matter digestibility and plasma lysine were determined during an 80-day growth trial with kittens. Body weight and food intake were determined during a 21-day growth trial with weanling rats.

The growth data showed bioavailable lysine to be 102.4% and 100.2% (for untreated casein) and 66.1% and 51.7% (for heated casein) for kittens and rats, respectively. There was no relationship between plasma lysine and dietary lysine concentrations for kittens, nor significant differences in nitrogen or dry matter digestibility among diets for kittens.

Heat treatment of casein resulted in significantly decreased lysine bioavailability as estimated by all methods. For untreated casein, both growth assays showed good agreement with the in vitro method for available lysine. For heated casein, the rat growth assay significantly underestimated bioavailable lysine as determined in kittens while the in vitro method closely approximated this value for the cat.

Source: J.A. Larsen et al., 2010. Bioavailability of lysine for kittens in overheated casein is underestimated by the rat growth assay method. JAPAN online June 2010. doi: 10.1111/j.1439-0396.2010.00988.x

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- 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 or contact wiesmull@chapman.edu.

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

Online Events

- Energy Management: A Practical Approach online seminar will be presented on August 10, 2010. To register, go to www.centrefocusllc.com/online_services/animal_agriculture.

- Mixing and Blending Fundamentals Online Lecture Series is available online until August 31, 2010, at The Powder and Bulk Online Training Center at www.powderandbulk.com/online_training.


- AFIA Webcasts: Controlling Salmonella in Your Facility and Management Considerations for Salmonella/Microbial Control are available for download at www.afiainstitute.org.

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