Quality DRIVES innovation

Ingredient safety issues
Building trust with suppliers

Gerard van Krieken, Frank van Zutphen and Anton Beynen of Vobra, p. 18

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On the cover: Gerard van Krieken, Frank van Zutphen and Dr. Anton Beynen of Vobra Special Petfoods, Veghel, Netherlands.

Photo by Jolan Donkers (www.jolandonkersfotografie.nl)
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In mid-July I had the opportunity to question Menu Foods’ CEO Paul Henderson about the recent petfood recalls. Here is how he answered some of my questions. More Q&A with Henderson will appear in our September issue.

**Do things differently?**

In retrospect would you have handled the contamination crisis any differently? Would you have implemented the recall sooner?

Henderson: Recognize that for several weeks, there was conflicting information about whether a problem even existed, let alone what the source of that problem might be. Even in the face of inconclusive data, we acted. We devoted our technical resources to finding out what was going on. Even before wheat gluten was identified as the possible source of problems, we suspended its use out of an abundance of caution. Menu Foods’ first recall was more than two weeks before any other manufacturer initiated their recall.

We cannot stress enough, the entire petfood industry was baffled by the inclusion of melamine and related compounds in petfood ingredients. It is not used in petfood manufacturing. Chinese wheat gluten was removed from Menu’s production on March 7, 2007. All wheat gluten used in production since March 7, 2007 has been tested for the suspected substance and has been confirmed melamine-free.

**New safeguards**

What does the total petfood industry need to do to address petfood safety?

Henderson: The globalization of the food supply system is a fact—and this includes food for humans, pets and livestock. It requires:

- New safeguards,
- The resources to implement these new safeguards and
- A new determination to strengthen our controls.

Such an initiative demands industry-wide cooperation and action. Through the Pet Food Institute, Menu Foods will participate in the National Pet Food Commission to provide oversight and direction in establishing increased safeguards within our industry.

**Keys to recovery**

What are your company’s keys to recovering from the recall crisis?

Henderson: As you might expect, there have been a lot of sleepless nights over the melamine and related compounds recall. Our employees have rolled up their sleeves and are doing everything they can to move the company forward. They are designing and putting in place a series of concrete programs and measures to reinforce customer confidence in Menu Foods.

The vast majority of our customers recognized that we were not responsible for this situation and they have stuck with us through this difficult time. We will recover from this. No one is pretending the road back is an easy one. But we have a lot going for us. We are a strong company in a strong business.

**Menu’s future**

What is the outlook for the future of Menu Foods? Any projections or possible new directions?

Henderson: We will rebuild our business and seek out new growth. For the vast majority of our remaining customers, Menu Foods has either resumed shipment of cuts and gravy products or will do so during the third quarter. For those remaining customers we continue to work to get them as much useful information as quickly as possible so they can make informed business decisions about restarting their business with us. Our lenders have been very supportive. We have every confidence that we can recover from this.

Given the support we’ve received and our employees’ commitment, we intend to continue as a high quality provider and market leader in the petfood industry. We’ll be in business for a long time.

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

New Private Label Manufacturers Association (PLMA) research data showed that private label not only gained market share across Europe last year, but also that the impressive market share increases by retailer brands in recent years are being driven by a fundamental shift in shopper attitudes.

In the advanced markets of Western Europe, private label grew despite strong competitive moves by the top brands. In central and eastern Europe, where modern retailing is rapidly taking root, retailer brands are making their biggest market share gains.

Alternative petfoods report released


As a particular focus, it explores the premise that the recall has positive implications for certain types of petfood that may be purchased or prepared as alternatives to traditional mass produced foods, and that the repercussions of the crisis—especially heightened food safety concerns among consumers—will affect the North American petfood market in ways advantageous to these alternative product types.

Based on information from various sources, Packaged Facts believes that billions of dollars in petfood brand sales are currently up for grabs as a result of the recall and its ongoing effects. Taking the percentages of petfood customers who said they were open to switching brands—which range from a low of 8% in a GfK survey to a high of 27% in a Pet Food Institute survey—and applying those percentages evenly (i.e., not factoring in different price point foods) to 2006 North American petfood sales of US$16 billion suggests a brand shift in the market worth US$1.3 billion to US$4.3 billion in petfood retail sales.

Supporting the reports from individual manufacturers and retailers of alternative petfoods claiming a double-digit spike in sales as a result of the recall, data backing up the shift to alternative petfoods are already beginning to emerge. For more information on the report visit www.packagedfacts.com.

Nestlé Russia to open petfood factory

On August 28, Nestlé Russia will reportedly open a Nestlé Purina PetCare factory to produce petfood in Vorsino, Kaluga Region, said Nestlé’s director general for the Russian market, Bernard Meunier, at a news conference. Investment in the project at the construction stage will amount to US$20 million. The new factory will be the company’s 14th facility in Russia. Nestlé Purina PetCare will produce dry petfood, including Friskies and Darling brands of cat and dog food. The company will use local raw materials and packaging. The factory will annually produce about 40,000 metric tons of products to be sold in Russia and CIS countries, including Ukraine, Meunier said.

Sizoo expects good turnout in September

The international show for pet professionals, Sizoo, is finalizing details for its next show, which will be held September 20-23 this year. The show expects 120 direct exhibitors, representing up to 450 pet care and petfood brands.

Sizoo will host technical sessions for different types of professionals: a session for veterinarians on dermatology; a session for the specialist retail trade to debate how to make a business more cost-effective and face the challenge of franchise chains, among other aspects; and, lastly, a session for breeders focused on reproduction.

Sizoo 2007 will also provide the setting for a wide range of activities and technical sessions, such as the New Products Contest.
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The Pet Festival will be sponsored by the leading companies of the pet care and petfood sector, such as Affinity, Iv San Bernard, Masterfoods and Royal Canin. The Festival will showcase pet products and accessories from over 50 companies. The event, open to the public, expects an audience of over 45,000 people, among professionals, amateurs and pet lovers.

**Vobra signs joint venture**

A Dutch company, Vobra Special Petfoods, and a Serbian company, Veterinary Institute Subotica, have engaged in a joint venture called Activex. Vobra (www.vobra.nl) is a Dutch family-owned company founded in 1932. The company produces petfood at three locations in the Netherlands.

See p. 18 for more about the lines produced by Vobra. The Veterinary Institute Subotica (www.vetzavodsu.co.yu) is a joint stock company founded in 1921. Subotica has five departments, active in pharmacy, biology, plant protection, disinfection and feed production. Dog food production was started in 2005. Activex sells its dog food products under the brand name of Dog’s Favourite.

**Atkins promoted to president of Natura**

Peter Atkins, co-founder and vice president Natura Pet Products, has been promoted to president. In his expanded capacity, Atkins will be responsible for the day-to-day management and leadership of Natura Pet Products, including long-term product development, brand marketing, interaction with retail and distribution partners and overall quality control.

**Hill’s to build new petfood plant in Emporia**

Hill’s Pet Nutrition has announced plans to build a new petfood manufacturing plant in Emporia, Kansas, USA. Hill’s reportedly plans to start construction on the new US$100 million plant early next year and begin production in 2009. More than 100 people will be employed in the Emporia plant. Hill’s will continue to operate its global headquarters, pet nutrition center and canned petfood manufacturing facility in Topeka, Kansas. Hill’s reached agreement with the city of Emporia to build the...
300,000-square-foot plant on an 80-acre site. The agreement is contingent upon a planned rezoning of a small portion of the tract and completion of analysis of the site, said Hill’s in a news release.

**EntreMetrix launches K-9 Genetics**

EntreMetrix Inc. recently announced the launch of a new portfolio investment within the ultra-premium dog food and treats industry. The new portfolio company, K-9 Genetics, will develop personalized wellness programs that include Personalized Chow and Personalized Treats, “functional foods that are nutritionally balanced to meet the exact needs of each unique dog.” “With the assistance of EntreMetrix, we’re using the latest developments in science and technology to offer functional personalized diets,” said Thomas McCarthy, founder and CEO of K-9 Genetics Corp.

**Acetaminophen fears unfounded**

The American Society for the Prevention of Cruelty to Animals (ASPCA) has announced that it has been in close touch with veterinary toxicologists at the University of California (Davis), who have conducted independent tests on cat food to analyze for acetaminophen. Their findings reportedly corroborate those of the US Food and Drug Administration (FDA). As such, the ASPCA has stated it believes that fears of widespread contamination of petfood with acetaminophen are unfounded.

Dr. Robert H. Poppenga, a board-certified veterinary toxicologist and who runs the Toxicology Section of the California Animal Health and Food Safety System (CAHFS) at UC Davis’ School of Veterinary Medicine, explained: “A few weeks ago, CAHFS received three cans of cat food supplied to it for testing by an individual pet owner. We were told that this was the same food that had tested positive for acetaminophen and cyanuric acid at a private laboratory in Texas. Further, the cat in question had been diagnosed with acute renal failure, but there was no evidence of liver failure, which is what we see with acetaminophen poisoning. We immediately began conducting our own rigorous tests on these foods, which are in line with nationally accepted guidelines for such testing. All the samples came back negative for this type of contamination.”

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**News of Pet Food Recalls Got Her Down?**

**Let’s face it—she’s depressed. Her favorite dog food isn’t on the shelf anymore.**

She’s not the only unhappy one. Pet food companies are feeling the pain, too. And who wouldn’t be glum when suffering from the emotional and financial fallout of recalls. Regular mycotoxin testing can help.

Smart companies ensure their reputations and profitability by testing for mycotoxins. Mycotoxins are mold toxins prevalent in pet food ingredients—such as wheat, corn, and rice. The U.S. Food & Drug Administration (FDA) has set strict toxin limits for animal and human foods. Testing protects your customers and your business—and it’s mandated by law.

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Concerns about raw article

Our association represents petfood manufacturers in Australia. We were concerned to read the article “Raw: the next best thing?” in your March 2007 edition.

Our concern is the prominence you have given the subject and message that in our view does not fairly represent scientific facts and may lead to consumer misconceptions about the wholesome nutrition offered by properly formulated and tested diets generally available in the marketplace.

Dr. Ian Billinghurst is a well-known opponent of prepared petfood. While we accept his right to a view, we do not believe it is commonly accepted by most pet owners in Australia who continue to purchase safe and reliable products manufactured by our members.

We are also surprised that you failed to contact our association for comment prior to publication or to check Billinghurst’s credentials and notoriety. We are always happy to provide our advice and opinions on matters concerning the Australian market.

John Morkunas, president
Pet Food Industry Association of Australia Inc.

Feedback on new website

I just wanted to send you a quick note to compliment you on your new website (PetfoodIndustry.com).

It looks great, and my initial trip through it indicates that it will be easy to navigate. Congratulations on a job well done.

Rick Smith, marketing
Bachelor Controls Inc.
Have you visited PetfoodIndustry.com, the new global online community for petfood professionals? Check out the site and take a look at the Discussion Board—one of the best ways to get questions answered and hear what’s going on in the industry from other professionals.

To get started, just go to www.petfoodindustry.com and click on “General Forum” in the right-hand column under the heading Discussion Board.

Anyone can view the forum topics and their discussion threads. However, to participate in the discussions and take full advantage of this communication vehicle, please register. Registration is quick, easy and free—simply click the “Register” button at the top right of the page to get started:

You’ll be asked to fill out some basic information about yourself including your name, company, title, E-mail address and mailing address. The form will look something like this:

Once that’s finished, click Register at the bottom of the page (please note that your E-mail address will also be your login username). Now that you have an account, click on General Forum to begin communicating with other professionals! It will look something like this:

You can click on any of the topics to see what people are saying about those issues, or you can start a new discussion by clicking on the “New Topic” button. Instead of scrolling through all the entries one by one for information, you can click on the “Search” button to find exactly the information you’re looking for.

Don’t forget to check the forums frequently as new discussions and replies will be posted all the time!
DR. ISABELLA ROTBERG
Senior Research Associate, Product Development

Leader of the team that discovered and refined a new petfood ingredient using marigold extract to help support the immune system.
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If it’s possible to have a green thumb in chemistry, Dr. Isabella Rotberg is blessed with the mythical digit. In early 2002, scientific literature suggested that Lutein, which comes from marigold petals, may help boost immune response in pets. Kemin had already unearthed the health benefits of this powerful antioxidant for the human market and patented the extraction method. Isabella was charged with leading the Kemin scientists assigned to cultivate the formulation for pet food. The trick was finding a formula made to withstand the perils of extrusion, high temperatures and storage.

Well, they didn’t just stop and smell the flowers. For over a year, they studied, analyzed, and agonized until they developed CUATROXAN. Since then, this novel ingredient has become a vital addition in petfood products and treats around the world. And, it’s all harvested from custom-grown Kemin fields.

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Isabella digs her job because it really makes things better for pets. As the proud owner of a Standard Poodle, she takes her science very personally. Maybe that’s why she didn’t stop with one ground-breaking discovery. She’s working to harness the power of a new probiotic molecule.

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www.championpetfoods.com

Dogswell fortified treats
Fortified jerky treats from Dogswell LLC come in flavors like chicken breast, beef liver, duck breast and lamb. Designed to provide functional benefits for dogs, they are available in formulas like Happy Heart, Happy Hips and Mellow Mut. The treats contain no hormones, antibiotics, by-products, flour, wheat, corn or added salt, according to Dogswell. 
www.dogswell.com

Advanced formula oral care treats
White Bites oral care dog treats, which are designed to aid in the breakdown of plaque to help clean dogs’ teeth, now use Arm & Hammer Baking Soda to help freshen breath. The treats are chewy and abrasive, produced in a single-step process and supplemented with milk protein, according to the company. 
www.jakkspacific.com

Treat designed to boost energy
An easy to consume dog treat, Vigorate contains the same micronutrients found in the human dietary supplement Juvenon, which claims to sustain energy levels and promote cellular health. Vigorate is the first and only daily dog treat based on patented anti-aging research from the University of California, Berkeley, according to the company. 
www.juvenon.com
Natural treat for the joints
Sasha’s Flexi Bites are a natural treat developed for active, aging or arthritic cats and dogs. Meant to promote joint function and relieve arthritic symptoms, the Bites are bacon flavored. According to the company, Sasha’s Flexi Bites have no grains, fillers or preservatives, and are made with marine concentrates, antioxidants and venison. [www.interpath.net.au](http://www.interpath.net.au)

Certified organic petfood line
Wenaewe Organic Pet Food has the USDA Organic seal and includes a range of cat and dog food in dry formula, canned food and treats. According to the company, the Wenaewe brand is made with free-range beef, organic broccoli, beets, carrots, brown rice, crude unheated, unrefined oils and has no by-products. The brand is sold exclusively through specialty pet stores and certified organic retail stores. [www.dellanaturapet.com](http://www.dellanaturapet.com)

Whole foods in dry diets
According to Nature’s Logic, their canine dry diets are the only commercially produced dry petfoods that source all nutrients from all natural whole foods. Each dry diet is high in meat or poultry content, low in carbohydrates and gluten free. Canine dry diets are available in chicken, duck with salmon, lamb and venison. [www.natureslogic.com](http://www.natureslogic.com)
Making quality petfood begins with quality ingredients and production methods. By continually keeping up with technological advances, Vobra Special Petfoods BV has brought itself into the forefront of the dry petfood production arena in northern Europe. Vobra is part of the Vobra Group and is an independent family-owned operation headquartered in the Netherlands.

The company was founded in 1932 by Piet van Krieken. Initially, only livestock feeds were produced. In 1963 Piet’s son, Gerard, took over the company and changed the company name to Vobra (Voederfabriek Oost BRAbant). The third generation is currently running the company (as of 2000). Vobra is focused on providing superpremium quality and is trying to gain a good foothold in the high-quality petfood market. Its branded products are sold in pet shops and professional channels. Over 500 private label product lines are manufactured for over 100 clients worldwide. The company exports product to 22 countries across Europe and beyond (see “Business basics” box).

Production facilities

The company has three production facilities: two located in Loosbroek and one in Veghel, Netherlands. van Krieken’s plant in Loosbroek was first established in 1932 as a flour mill. Beginning in 1973, the first dog food was produced at this site. In 1984 a new plant was built. The total current capacity of this plant is approximately 18,000 tons of extruded petfood per year. A second plant in Veghel with warehouse facilities was added in May 2002 to meet growing demand.
In 2006, the Wielco plant, also located in Loosbroek, was acquired by the Vobra group.

I recently toured the Vobra five-level facility in Veghel and was able to learn more about the latest technologies that have been implemented here (see sidebar). In the beginning stages at this plant, there was one production line producing conventional petfoods. Recently, they set up a second production line with stainless steel components. According to Vobra CEO Frank van Zutphen, there are currently three shifts per day working at the Veghel plant. The total production capacity is 35,000 tons of extruded petfood per year.

Veterinary diets and private label, too

Vobra produces its own branded petfood products as well as many private label lines for clients worldwide. Its own superpremium dog and cat foods carry the brand name Casa-Fera. The premium products are Carocroc and Carocat. Vobra also produces premium quality dinners under the brand name Trixi.

Most recently, Vobra developed a veterinary/therapeutic line of petfoods for dogs and cats with health problems called Sanimed. With this line, Vobra focuses on the evidence-based production of petfood, taking into account available scientific information. Emphasis is put on the production of petfoods that contribute to the prevention or treatment of disease in the case of veterinary diets.

The development of these products was done by Vobra’s head of R&D and former Utrecht University professor, Dr. Anton Beynen. The Sanimed foods are only available by prescription from a veterinarian. The new therapeutic diets are performing above expectation so far, according to Vobra. A large number of countries, including Asian countries, have apparently shown serious interest in importing the Sanimed veterinary diets.

Private label production is an important part of Vobra’s business. It incorporates manufacture, packaging and distribution of petfood products as well as many private label lines for clients worldwide.

Tour of the Veghel plant

When Vobra needed to add a second production line, Dinnissen Process Technology’s new Magi-Next extruder line was installed in December 2006. According to Dinnissen, the line reduces energy consumption primarily by recovering heat from the dryer outflow of air and using gravity as an important driver for transport. In addition, the precision of the production method ensures that the product is never heated or treated any longer than necessary, resulting in energy savings.

The plant in Veghel, Netherlands, is an impressive five-story structure with a massive warehouse space stacked many levels high with finished product. The tour started at the top of the structure where the new stainless steel dryer components reside. This vertical set-up allows gravity to help the production process in a less expensive, smaller footprint.

In the facility, materials travel upward only two times in the production process. The first time is to enter the hammermill and the second time is to go into the dryer/cooler. According to Dinnissen (www.dinnissen.nl), the Magi-N.ext line has easy-access panels throughout for open inspection and cleaning, which reduces downtime. A cleaning process blows hot air in to dry equipment at 90°C for four to 10 minutes to reduce the risk of bacterial contamination. A continuous twin-shaft preconditioner also has easy-open areas for inspection and quality checks and is fed with an accurate feeder on load cells. A new flow control process measures the retention time more accurately, as well as the amount of moisture in the preconditioner.

The single screw extruder from Almex has an in-line drive with frequency-controlled AC motor to be able to work with different RPM speeds) of the extruder shaft. The extruder is executed with two die plate assemblies that allow for shorter downtime and greater efficiency at product change. This new set-up also allows for decreased maintenance costs. The capacity of this extruder is six tons per hour. Overall, the plant can produce a total of 11 tons of product per hour.

High-efficiency PLC-controlled Pirouette dryers are the newest in drying technology from Dinnissen. Digest and enzymes are added to the kibble after the dryer to prevent their loss in the production process. A vacuum cooker at the end of the line allows for the weighing and dosing of precise amounts of fat, liquid and powdered flavor enhancers, vitamins, enzymes and other additives, as well as the exact control of various production variables such as temperature, mixing speed and product residence time. The end result is a precise and homogenous distribution of the ingredients.

The entire production line is fully automated and requires only five people to run the line per shift in an efficient manner from the control room. The plant is HACCP and GMP+ certified. An in-house QA lab handles the over 250 recipes (and still growing) produced by Vobra.

A new warehouse was recently built to hold all the finished product and ingredients.
offers tailor-made production of relatively small batches of dog and cat food and provides its customers a full-service concept. Vobra strives to be known for high-quality private label products, as well as flexibility and partnership, allowing its clients the ability to influence the formulation of their products.

Vobra and a Serbian company, Veterinary Institute Subotica, have engaged in a joint venture called Activex. In Serbia, Activex produces extruded dog and cats foods under the brand names Dog’s and Cat’s Favourite. Vobra does not produce pet treats and does not have any plans to do so in the future. Vobra’s joint-venture partner in Thailand, World Synergy Trading, currently produces pet treats.

The future outlook for Vobra is strong, with promising sales of its own brands in the Netherlands (up 10% in the first six months of 2007) and a further increase in exports expected. Vobra also expects to become a significant player in the veterinary therapeutic diet market. The recent establishment of the joint ventures in Serbia and Thailand is expected to open up further markets for Vobra.

Vobra’s opportunities lie in consolidation of its evidence-based production of petfoods with its long-term partnership with private label customers. The most difficult challenge in the future will be the advancement of controlled growth, according to the company.
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With the recent petfood recall fresh on the mind of the industry, food safety testing is a topic of interest to just about everyone involved in petfood production. Petfood Industry asked several analytical laboratories their opinion on the top safety issues today in petfood production. We also asked them to give us some insight into the most current testing technologies available.

According to Lars Reimann, chief scientific officer for Eurofins Scientific Inc., three main groups of top ingredient safety issues face petfood manufacturers today. These issues are:

- Adulteration/mislabeling (GMOs, diluting more expensive products with less expensive products, natural/organic versus regular products);
- Known toxic residues (allergens, heavy metals, pesticides, drug residues, dioxins, microbial contamination); and
- Unknown residues (melamine, acetaminophen, bioterrorism toxins, unknown toxic by-products formed during the manufacturing process such as heat-generated toxins like acrylamide, benzene, furans and 3-monochloropropane-1,2-diol).

Global sourcing expands the issues

Reimann notes that the challenge to the industry is to ensure that the ingredients/products it buys at a good price are sufficiently safe for their intended use. Global sourcing has expanded the issues that need to be considered, as well as reduced the responsibility/trust factor between buyer and seller. However, technologies have also evolved that allow regulators and others to test for an ever-increasing number of residues present with increasingly lower detection limits. The real challenge is to educate the consumer, regulators and the industry itself on what constitutes “real” hazards versus “perceived” hazards, he says.

Reimann believes there are improvements continuously being made on the analytics front. “However, the scope of compounds of concern seems to grow as fast (or faster) than the improvements in analytical instrumentation and processes,” he says.

France and Germany: similar/different issues

Outside the US, perception of the top ingredient safety issues facing manufacturers differs slightly. Michele Lees of Eurofins in France notes that the most pressing issues include adulteration of ingredients; external contaminants; accidental contamination from dioxins, etc.; naturally occurring contaminants (or contaminants formed from nontoxic ingredients); mycotoxins; and toxic chemicals formed by reaction of nontoxic ingredients (benzene, furan).

According to Werner Nader of Eurofins in Germany, ingredient scandals in the feed industry over the past decade have shadowed the petfood industry in that country. Genetically modified ingredients (a politically charged issue in Europe) in petfood are also quite commonly seen due to cross-contamination at the supplier. Because of the common supply...
chain for ingredients for feed and petfood, strict controls on the supply side have to be maintained, he says.

**Mycotoxins still play a role**

Dr. John Richard, a consultant for Romer Labs, sees mycotoxins as a major concern for most petfood manufacturers across the country and internationally. He notes that most petfood companies test for aflatoxins; however, most of them test every ingredient, and that is not necessary as aflatoxins do not occur in all ingredients. “Therefore, many companies are wasting money testing for these mycotoxins,” he says.

Knowing what tolerance levels exist is important, and guidance is available from the US Food and Drug Administration for the major mycotoxins relative to levels of concern in petfood. “Regarding mycotoxin testing, I encourage companies to put some onus on the suppliers of the ingredients to test and certify that the ingredient contains no detectable, or at least acceptable (at or below the tolerance levels), levels of specified mycotoxins,” he notes.

Richard indicates that there are many studies ongoing at present to reduce the levels of mycotoxin contamination in the field. These are most specifically pointed at reducing the levels of aflatoxins in commodities through genetic means (biocontrol and breeding). There are some very rapid, accurate and reliable tests on the market today that allow for testing of a number of mycotoxins within a few minutes, he says.

There are new tests being developed all the time by test kit manufacturers and the effort is to make them as fast as possible but not lose accuracy and reliability, according to Richard. The most recent developments in tests for mycotoxins include lateral flow tests. These tests are rapid and most are semi-quantitative, whereby a cutoff value is associated with the test and running the test on a sample will tell you if it is above or below that cutoff level, he notes.

**Monitoring quality is an ongoing process**

Patricia Jackson, business development manager, diagnostics for VICAM, realizes that in today’s global marketplace, ingredient suppliers face the challenge of providing a consistent and traceable supply of ingredients that will meet the standards of a diverse market. She says that petfood manufacturers do a “fantastic job of monitoring the quality of their ingredients and
finished products,” so the most likely source of safety issues could be from unexpected or unintended components added to an ingredient prior to its delivery.

New technologies and new applications for existing technologies are rising to meet the need for more comprehensive screening of raw ingredients, according to Jackson. Near-infrared spectroscopy (NIR), the electronic nose and high-performance liquid chromatography (with mass spectrometry for increased sensitivity and specificity) are just a few she mentions. Each of these technologies offers advantages in detecting undesirable or foreign components in a feed ingredient. In addition, rapid technologies make it possible to screen ingredients as they arrive at the plant.

Audit programs are key

Dr. Scott Brooks, chief operating officer for Food Safety Net Services, recognizes that robust quality assurance programs to verify the quality and safety of ingredients are of critical importance in the safety of petfoods. According to Brooks, these programs, if executed with skill, address ingredient safety issues systematically rather than attempting to tackle individual issues (e.g., melamine). “Petfood companies need to ensure microbial, chemical and physical specifications are set for all ingredients and establish a program to monitor incoming ingredient quality. The programs should include requirements for certificates of analysis with incoming shipments and, importantly, a sampling and testing program to verify critical specification parameters,” he says.

Analytical companies continue to improve turnaround times.

—Dr. Scott Brooks

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The recent sickening of pets from toxic ingredients blended into petfoods was more a failure of corporate supplier quality programs than a failure of regulatory systems,” contends the American Society for Quality. Put another way, you cannot just rely on government regulators to protect your brand and your petfood sales, it’s up to you.

Sourcing services

With that in mind, I recently talked with Kris Colby, director of strategic sourcing at Ariba Inc. (www.ariba.com)—a company that offers petfood companies procurement services for a wide variety of commodities. “Our company provides ‘spend management’ solutions to organizations throughout the consumer products industry,” says Colby. “The process of spend management provides supply chain transparency and enables companies to gain greater control over supply chain activity. This can be a particularly effective means of driving compliance with government and industry standards,” he says, “as well as preventing problems such as we’ve seen in the recent rash of food contamination episodes.”

The trust imperative

Dr. Doug Powell, the scientific director of the International Food Safety Network, contends, “What consumers see is the brand name. Your name’s on it and if you sell an unsafe product, you’re liable. The lesson is know your suppliers—and this goes way beyond HACCP, checklists and so forth—that’s all paper.”

Powell says you need to have your people on the ground watching to see that suppliers are doing what they say they are doing. “Producers know how to cheat, they don’t like paperwork and they know how to get around it,” says Powell. “You need to build trust with your suppliers.”
Being a good gatekeeper

Colby notes that your procurement officer needs to play gatekeeper. He says, “The role of the gatekeeper is to make sure everything coming into the company—materials, products or services—meets your company’s standards for quality and safety, and exceeds governmental and industry standards for compliance.”

With this process, companies can set a higher standard for safety at the outset of a relationship by making safety procedures a criterion for selection in addition to traditional criteria such as price and service levels. Once spelled out during the sourcing process and in any subsequent contract, these safety standards can then be used as a basis for ongoing supplier performance management. “The procurement officer is in a unique position to do this,” says Colby, “by gaining strategic control over all company spending activity and setting expectations early with potential suppliers.”

When I ask Colby about suppliers falsifying paper work, he asserts that Ariba’s system enables companies to glean accurate and timely information from the procurement function. Having this kind of spend visibility makes it much more difficult to fudge numbers. He went on to say, “While it is impossible to totally ensure contamination will not enter into your supply chain, a structured strategic sourcing process (see sidebar) can do much to inoculate compa-

Safe sourcing checklist

- Ask detailed questions about food safety practices and certifications in the request for information (RFI).
- Include food safety expectations in your documented vendor selection criteria sent to potential suppliers.
- Provide a consistent and structured process via an online system for collecting supplier responses.
- Allow for multi-variant bidding during an online event so bidders can provide bids on price and other factors.
- Develop and implement scoring mechanisms for supplier selection that include food safety attributes. “For example,” Colby says, “decision criteria could be driven 40% by price, 20% by service, 25% by food safety compliance and 15% by quality metrics.”
- Set the expectation early on for product testing, site inspections and certificate renewals.
- Include product warranty clauses in the RFI, request for proposal (RFP) and final agreements.
- Educate potential suppliers about the exact systems and processes that will be used to judge ongoing performance once selected as a vendor for your company.

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Building trust

nies against contamination, and pro-
provide a paper trail if an incident does
occur.” (It’s also noteworthy that some
companies do feeding trials on every
batch of petfood made. That batch is
held until it passes a feeding trial.)

If a company follows the above pro-
cedures, asserts Colby, it can provide a
shield against liability. In other words,
if suppliers are contracted to follow
certain procedures and meet certain
criteria and then breach the agreement,
the company can provide evidence that
it took all the necessary precautions to
avoid contamination. Also, he says, a
system that enables organizations to

Supply chains are getting
ever longer
and companies
are going to be more
accountable for their supply
chains.

source from multiple vendors can al-
low a company to quickly make the
necessary supply chain changes if
contamination does occur.

Accountability for
supply chains

Finally, when asked how the recent
rash of petfood recalls will affect pet-
food manufacturers’ operations and
marketing, Colby replies: “Supply
chains are getting ever longer and com-
panies are going to be more account-
able for their supply chains, including
those of their suppliers. They are going
to realize they cannot rely on the gov-
ernment to weed out faulty safety pro-
cedures across the supply chain, and
that they will need to be more vigilant
in preventing scandals like the recent
melamine crisis.”

By getting their own house in or-
der, petfood manufacturers will avoid
significant fines and penalties that will
likely result from increased scrutiny
and stricter legislation from the US
government in the near future.

Smart companies will be taking a
serious look at their own supply chains
for potential weaknesses. We’re going
to see the supplier management process
become much stricter. Companies may
make documentation of safe supply
chain practices a regular part of their
marketing activities. By carefully se-
lecting suppliers and setting clear and
enforceable expectations about perfor-
mance and compliance, you can reduce
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Speakers

Julie Lenzer Kirk,
Traceability expert
Interstates Companies

Matt Frederking,
Director of regulatory affairs
Poet Nutrition

An archive of the Petfood Safety Webinar is now available, and absolutely FREE to view.
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A basic element of a petfood safety program is a plant schematic that depicts the flow of people and products. Process and product flows are important considerations in the development, implementation and maintenance of a plant’s HACCP (hazard analysis critical control points) program. Understanding employee and product flow helps identify potential product contamination points and then develop the means to prevent that contamination from occurring.

Food products, including petfoods, typically undergo a process to reduce the presence of pathogens. This process may involve cooking (hence the term cook side vs. raw side), pasteurization, washing and so forth. It is imperative that finished product be protected from cross-contamination (e.g., situations where allergen ingredients, additives or raw ingredients could come into unplanned contact with finished product).

The risk of cross-contamination is greatly reduced through the elimination of product crossovers and backtracking. Ideally, a one-way flow should be maintained so finished products do not enter back into the raw-product side.

**People flow**

Employees can act as vehicles for transporting microbial contamination. This contamination can be carried on their clothing, shoes and tools. For this reason, plant management often segregates employees between the raw side of production and the cooked side of production.

Segregation can more often than not...
Pre-extrusion processing

When designing a pre-extrusion processing system, David Corley of Midwest Process Solutions (www.midwestprocesssolutions.com) recommends that you consider the following points.

1. Be sure to properly receive and store your raw materials prior to blending. Ensure that tramp metal detection and QA systems are monitored frequently to avoid any costly production issues.

2. All storage bins need to be properly designed for first in-first out mass flow and consistent discharge. There are special designs corresponding to materials handled.

3. All coarse grains should be ground using a hammermill into at least four to five pieces so they will act as marbles in the mixer. All other materials need to be properly screened to ensure consistency and uniformity prior to blending.

4. It is extremely important to accurately feed your materials into your mixer. Be sure to utilize properly designed feeders that will feed consistently and not bridge. Most petfood processors utilize loss-in-weight feeders for this purpose.

5. The mixer needs to be designed for process flexibility and speed. Some paddle style mixers can consistently mix major and minor ingredients as fast as 30 seconds per batch. Be sure to consider ease of cleanout and loading when selecting a mixer. Cycle time is an important consideration.

6. Most petfood manufacturers grind with a hammermill after mixing to ensure a uniform mixed meal goes to the extruder. It is important to design the hammermill air system so the meal is not heated more than 10 degrees Fahrenheit over ambient during grinding. It is also important to properly design your feed system to the grinder for consistent hammermill performance. There have been recent advances in hammermill technology that allow for improved consistency in mixed meal granulation.

7. Managing the delivery of dry feed to the extruder is most important for tight ingredient and moisture control. If these key process parameters are not controlled, improper extrusion can result, costing processors significantly in unacceptable product. A high-precision loss-in-weight feeder system is typically used to feed the extruder. Once a predictable dry feed delivery system is utilized, then other ingredient feeds (such as moisture addition, minor ingredients, pigment and alternative liquid addition) can be coordinated with the extruder dry feed system on a ratio basis. Recent advances in loss-in-weight feeder technology include special feeder designs and digital communications to the host processor.

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be achieved through the use of different employee entrances, travel paths and uniforms between the raw and cooked sides of production.

In the absence of employee segregation, other controls such as foot baths, hand washing and uniform change areas between raw and cooked sides of production will help reduce cross-contamination risks.

**Product flow**

Raw materials may be contaminated by a variety of pathogens so they must not make contact with finished product. Ideally, there is segregation between raw material and finished product storage and handling areas. In addition, there should be separate routes for raw material and finished product travel. Any area where these routes cross over should be assessed to determine if cross-contamination is a risk. For example, raw meat traveling in a tote may result in contamination of the floor. If a tote with finished product travels across that same floor, the contaminants will likely end up on the tote’s wheels and subsequently on the product itself.

**It is imperative that finished product be protected from cross-contamination.**

**Using the plant schematic**

A plant schematic diagram that indicates the flows of finished and raw products as well as employee traffic is an essential component of your company’s HACCP program. The schematic must include the flows of all ingredients and packaging materials from the moment they are received through storage, preparation, processing, packaging, finished product holding and shipping. Employee movement throughout the establishment, including change rooms, washrooms and lunchrooms, must also be identified. This diagram should be a plant’s primary tool for identifying potential cross-contamination hazards. Once identified, these hazards can be addressed and controlled through the development of the remaining elements of the HACCP program.

Editor’s note: Thanks to Alan Mannen, pilot plant manager at the Guelph Food Technology Centre (GFTC), for his help with the preceding. Contact: GFTC, 88 McGilvray St., Guelph, Ontario, N1G 2W1, Canada, Tel: +1.519.821.1246, Fax: +1.519.836.1281, gftc@gftc.ca, www.gftc.ca.
China: low cost vs. inadequate quality

The US petfood manufacturing industry includes about 175 companies with combined annual revenue of over US$15 billion. Large companies include divisions of Nestlé, Procter & Gamble, Colgate-Palmolive and Del Monte. It’s a highly concentrated market with the 50 largest companies holding almost 100% of the market. So the profitability of larger companies depends heavily on effective marketing and taking advantage of the economies of scale.

Smaller companies can compete effectively by offering specialized products or by serving a local market. These companies, without large financial resources, often use contract manufacturers, and thus have higher production costs. This is one reason big manufacturers have focused for some time on reducing costs, improving margins and revenue.

The allure of low-cost labor

The rise of emerging markets like China provides what multinational manufacturers have been seeking to grow and become more competitive. China’s ongoing economic transformation has had a profound impact not only on China but on the world. The market-oriented reforms China has implemented over the past two decades have unleashed individual initiative and entrepreneurship. The result has been the largest reduction of poverty and one of the fastest increases in income levels ever seen. China today is the fourth-largest economy in the world. It has sustained an average economic growth rate of over 9.5% for the past 26 years. In 2005 its $2.26 trillion economy was about 15% the size of the US economy.

The commercial petfood market in China is expected to skyrocket by 60% by 2010 as a new culture of pet ownership sweeps middle and upper income Chinese families. With dog food leading the way, premium categories are the most attractive segments for US petfood exporters. Positive consumer perception, slowly developing brand loyalty and lack of domestic competition make this nascent market a fast-growing niche for imports—but one that is already highly competitive. As such, some petfood manufacturers have opened operations in China to reduce costs, especially labor costs. Nestlé Purina, which recently opened its first petfood processing plant in China, invested some US$10.3 million in a factory located in the Tianjin Economic-Technological Development Area.

Artificially low costs

Cost savings associated with opening plants in China have fueled margin growth, but also have highlighted issues of quality. Which raises the question, do larger markets offer better products? The question has implications both for theories of cities and theories of market organization. There is evidence that product quality bears different relationships with market size depending on the process for producing quality.

In some markets where quality is created largely through variable costs, markets fragment as they grow large, and the number of varieties, including levels of quality, increases. Consequently, the number of high-quality products increases as market size increases. This is true of much of the petfood industry.

In other markets where the cost of creating quality is largely fixed with respect to output, markets do not fragment as they grow large, and average product quality decreases with increased market size.

The Chinese market, which is in its infancy, has been pressured by manufacturers that require higher output at cost levels that are kept artificially low. That is changing given the recent quality scares. More stringent controls and the necessary increases in costs to accomplish more appropriate levels of quality will dramatically change the Chinese market.

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In May in Gaithersburg, Maryland, USA, the Center for Veterinary Medicine in the US Food & Drug Administration (FDA) held a public meeting to present progress on its development of the Animal Feed Safety System (AFSS). I saw a mention of the meeting in the popular press that presumed it was convened in response to the recent petfood recalls. However, this meeting was planned well in advance of that incident. In fact, this was the fourth AFSS public meeting over the past several years.

Background information on AFSS and a chronology of its meetings may be found at www.fda.gov/cvm/afss.htm. The most recent meetings have focused on specific aspects of the system. The meeting held in September 2006 primarily dealt with the agency’s methods to determine Health Consequence Scores (HCS) for various potential contaminants of animal feed (see Petfood Industry, November 2006). This meeting concentrated on the methods to determine Exposure Scores (ES) for these contaminants. Copies of the presentations for this latest meeting may be found at www.fda.gov/cvm/afss052207presentations.htm.

Exposure scoring
An ES is a determination of the likelihood that an animal will be exposed to a chemical, physical or biological contaminant by consumption of an animal feed. The first consideration is what ingredients comprise the feed and the potential contaminants each ingredient may contain. For example, corn-based ingredients may be a source of aflatoxin contamination, while poultry-based ingredients may harbor Salmonella. The potential contaminants of each ingredient are considered along with the relative proportions of the ingredients that may comprise the feed, so a picture of what contaminants may possibly be in a feed are determined.

Also considered is the effect of processing and handling on the contaminant, both at the ingredient and final feed levels. For example, many different heat processing methods may decrease the amount of microbiological contamination of the feed, depending on time and temperature of the cooking process and the organism in question. On the other hand, improper handling of the feed post-processing may increase the level of microbiological contamination. In the same vein, some types of processing may destroy or extract chemical contaminants, but other types will merely concentrate them in the processed ingredient or finished feed.

Use of Exposure Scores
The ES doesn’t say much by itself. Just because there may be a high likelihood that an animal will be exposed to a contaminant from consumption of a feed doesn’t mean that it presents a risk to animal or human health, because that contaminant may have a minimal health consequence. Along those lines, a high HCS may be indicative of a significant probability of severe illness upon exposure, but that fact alone doesn’t necessarily mean that the contaminant in question presents a concern because the chance of exposure is low. However, when the ES is considered along with the HCS, an estimate of risk to health from a given contaminant in feed can be determined.

These risk estimates aren’t absolute values, though. Rather, they represent the health risks for a given contaminant relative to that determined for other contaminants. These relative risks can then be ranked to get a clearer picture of which contaminants should be of the highest and lowest concerns. The ranking is a valuable, but not sole-determining factor in how those risks should be managed with the resources at hand.

FDA has indicated that the risk estimates are to be used for internal guidance only, such as to help the agency set surveillance priorities. For example, if this ranking exercise shows that the risks to human and animal health from exposure to pesticides in feeds is minimal compared to that from aflatoxins, FDA could choose to...
spend fewer resources for testing of samples for the former and conduct more testing for the latter. However, this program ultimately affects animal feed and petfood companies, too, so it is prudent for manufacturers to keep apprised of FDA’s priorities and adjust their own procedures accordingly.

The future of AFSS

FDA currently plans at least one more public meeting, tentatively scheduled for February 2008 (www.fda.gov/cvm/updateIII.htm). The intent of this one would be to help tie things together—i.e., explain how the ES and HCS are to be combined to create a rank order of feed contaminant risks. FDA hasn’t ruled out additional meetings if deemed necessary.

Frequently mentioned by FDA is the paucity of data on many aspects of AFSS, which affects its estimates of risks and, ultimately, its ability to manage these risks accordingly. For example, FDA may have only data related to a broad category, e.g., incidence of a particular pesticide in “animal products and by-products,” whereas knowledge of its incidence in a protein ingredient vs. an animal fat source would be of far greater service. Thus, more data on the levels of contaminants in feeds and feed ingredients that are being found by industry are always welcome, with the understanding that such submitted data are potentially releasable to the public.

Also, where data are sparse, expert opinion may help fill the gaps. The latest presentations included several worksheets designed by FDA to help it estimate the effects of processing on contaminants. FDA invites and encourages outside experts to submit these worksheets (filled in as their expertise allows). While the copies of the “expert opinion” worksheets as displayed on the web version of the presentations aren’t very legible, I’m sure FDA would make them available to interested parties upon request (see www.fda.gov/cvm/afss.htm for contact information).

Finally, comments on any aspect of AFSS may be submitted to the public docket. Comments may be sent (in re: Docket Number 2003N-0312) by mail to the Division of Dockets Management (HFA-305), Food and Drug Administration, 5630 Fishers Lane, Room 1061, Rockville, Maryland 20852 USA, or electronically to www.fda.gov/dockets/ecomments.

Dr. Dzanis is a writer and independent consultant for the petfood and animal feed industries on matters related to veterinary nutrition, labeling and regulation. He can be reached at Tel: +1.661.251.3543, Fax: +1.661.251.3203, E-mail: dzanis@aol.com.
Vitamin K3—is it unnecessary and toxic?

Vitamin K is one of those nutrients that we learn of early in nutrition training as an essential fat soluble vitamin that is important in clotting. Beyond that, we seldom discuss it. Recently, however, there has been a concerted effort by a few “pet enthusiasts” to spook petfood manufacturers and well-meaning pet owners into the notion that vitamin K supplementation in the diet, specifically with vitamin K3 (menadione), is unnecessary and potentially toxic to pets. Determining whether they have a valid point warrants a bit of investigation.

Necessity

Vitamin K is known principally for its role in blood clotting, but has also been reported to be involved with osteocalcin and bone formation, along with a number of other biomedical functions. By definition, vitamin K is any of several compounds that are based on 2-methyl-1,4-napthoquinone (also known as menadione) that express anti-hemorrhagic properties (Suttie, 2007). The amount of vitamin K recommended for dogs and cats is approximately 1 part per million of the diet (NRC, 2006).

Vitamin K can be supplied to the animal from a combination of sources: vitamins K1, K2 and K3. Vitamin K1, also known as phyloquinone, is found in green leafy vegetables and vegetable oils. Vitamin K2 is produced by gut bacteria and vitamin K3 is chemically synthesized. Vitamins K1 and K2 are “active” upon absorption. However, vitamin K3 must be “alkylated” by gut bacteria or tissue enzymes to become active. This activation involves the addition of isoprenoid side chains, and in some literature this activated form is called menaquinone or designated as MK-4.

While it is true that most of the dietary vitamin K can be provided by vitamin K1 from green leafy plants and vegetable oils, or through stable gut fermentation (supplying vitamin K2), the variability in these sources, effects from processing and gut health of the animal make them less than 100% reliable. Further, not every petfood company considers green leafy vegetables or vegetable oils to be an essential part of a dog or cat diet. So, many petfood companies choose to supplement with a commercial source. These commercial sources of vitamin K3 are produced through industrial synthetic chemistry. The AAFCO Official Publication (2007) lists only vitamin K3 sources as approved for use. They include menadione dimethylpyrimidinol bisulfite (MDPB), menadione nicotinamide bisulfite (MNBS) and menadione sodium bisulfite complex (MSBC).

None of these are explicitly identified for use in petfoods, but no objections have been forthcoming if MSBC is the vitamin K3 source of choice. No forms of vitamin K1 or K2 are approved as feed ingredients, although there is an understanding that no regulatory action will be taken for pre-market approved use of vitamin K1. So, even if a petfood company gave in to these unfounded concerns over vitamin K3, they don’t really have any other option besides vitamin K3 to use as the supplement unless they choose to completely remove it from the formula altogether.

Toxicity

As for the toxicity concerns, there are no reports of nutritional toxicity of any vitamin K sources in dogs or cats readily available in the literature, and certainly no descriptions that could be found showing vitamin K3 (menadione) was harmful to dogs, cats or other domestic animals. The recent Nutrient Requirements of Dogs and Cats (NRC, 2006) and the Vitamin Tolerances of Animals (1987) texts are authoritative reviews on the topic, and they state that toxicity of menadione by nutritional routes is in excess of 1,000 times the requirement. Further, vitamin K3 has been fed to poultry, swine and companion animals for more than 50 years without incident. So, nutritional supplementation with vitamin K3 doesn’t appear to be a smoking gun.

However, the pharmacological or
medical use of vitamin K to combat acute ingestion of anti-clotting agents (e.g., warfarin or coumarin) and bleeding disorders of neonates (human) associated with vitamin K deficiencies is a different story. Under these circumstances and dosages, vitamin K1 (phylloquinone) is the preferred intravenous (parenteral) source of vitamin K. Further, it has been demonstrated that intravenous administration of vitamin K3 at dosages of 100 mg/kg (which is around 100 times the nutritional requirement) may be toxic. One can speculate that this could be due to the lack of "alkylation" that occurs when vitamin K3 is administered through a route other than via the gut.

**Necessary and nontoxic**

While small amounts of vitamin K are required in the diet and might be provided by whole ingredients or healthy gut fermentation, the uncertainty of these sources leads many petfood companies to supplement with commercial vitamin K3 (menadione). To provide this wee bit of "insurance" in the petfood, there is only one form available—the water soluble, stabilized menadione (MSBC). Judicious use of nutritional vitamin K3 is clearly not toxic, so this notion that vitamin K3 as an ingredient in petfoods should not be used is unfounded and should be reversed. Further, it is hoped that through education and communication, consumers can be made aware that not all that is printed on enthusiasts’ websites is correct. Also, radical nutrition positions should be compared and contrasted with current and comprehensive research literature and not just a few, potentially unrelated, experiments.

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

MegaShear disintegrates solids

The Ross MegaShear is an ultra-high-shear in-line mixing, dispersing, emulsifying, homogenizing and particle size reduction device with high-performance rotor/stator mixer technology. Available in flow rates from 1 to 500 gallons/minute, the MegaShear design consists of a high-tip-speed rotor with several stages of semi-cylindrical grooves.

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NuTec’s 725 C-Frame Filling & Portion Depositor fits into existing production lines and can deposit a variety of portions, fillings and toppings. Deposit sizes of up to 1⅛ inches thick can be formed. According to the company, the hydraulic 725 C-Frame System minimizes maintenance, reduces downtime and lowers repair costs.

NuTec Manufacturing Inc.
+1.815.722.2800
www.nutecmfg.com

Magi-N.ext extruder line

The new Magi-N.ext extruder system from Dinnissen allows manufacturers to produce economic/basic, premium and superpremium petfoods in a number of variations. The Magi-N.ext uses the Hamex hammermill, the CZ Sifter, Pegasus vacuum core coater, gravimetric dosage, automated weighing and the Pirouette Dryer.

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Comprehensive safety education catalog

Silliker has released the 2007 Food Safety Education and Training Catalog. The catalog features a public short course calendar with individual course descriptions, topic summaries and course attendee recommendations by job title; a list of Silliker training
videos featuring content summaries, program learning objectives and language availability; and an overview of Silliker Online University courses and curricula. The catalog also has an introduction to Sistem, a group training platform created by Alchemy that can train up to 32 participants at the same time, using remote controls.

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**Versatile portable Lift-Tool**

Southworth’s portable Lift-Tool is an alternative to variable-height workbenches and facilitates a variety of lifting and positioning jobs, requiring a cordless drill to move the platform up and down. Fully raised, the Lift-Tool’s 22-inch x 23-inch platform is 17 3/4 inches high and has a vertical range of 14 1/4 inches. With a load capacity of 300 pounds, it holds 10 times its own weight, which is 32 pounds, and is 3 1/2 inches high when lowered. The Lift-Tool includes options such as an adjustable straddle frame, a turntable and a slanted assembly easel that positions work at 25 degrees.

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Metabolomic approach to antibiotic efficacy

This study investigated the effect of an antioxidant cocktail used to reduce oxidative stress in trained and untrained dogs. The dogs’ diet varied only in the antioxidant cocktail. Forty-eight dogs were randomly allocated to one of four groups (n=12): supplemented/trained, supplemented/untrained, unsupplemented/trained and unsupplemented/untrained. Groups were stratified for age and gender. The dogs were placed on the dietary regimen for six weeks before entry and were fed for an additional 12 weeks before sample collection. Plasma samples were collected immediately (within 10 minutes) after a strenuous exercise bout and at 24 hours after exercise to assess recovery. Samples were subjected to metabolomic analysis using nuclear magnetic resonance (NMR) technology. Statistical analyses included ANOVA, multi-variate analyses, principal components analysis (PCA) and partial least squares for discriminant analysis (PLS-DA), where appropriate.

Significant results were observed in both the untrained and trained dogs on the supplement compared with the unsupplemented dogs. The supplemented/trained dogs had significantly greater recovery as assessed by return to or below baseline values at 24 hours after exercise for many key compounds, including phenylalanine, histidine and lipids. The unsupplemented/trained groups still had elevated tyrosine, phenylalanine, methionine and lipid levels at 24 hours after exercise. Similar results were observed in the unsupplemented/untrained dogs. For example, numerous compounds were below baseline at 24 hours after exercise in the supplemented groups versus the unsupplemented groups.

Significant differences were also observed when groups were compared across time. At baseline, supplementation resulted in decreased glutamine in both the trained and untrained dogs. Most notably, supplementation in the trained group resulted in less pyruvate, acetoacetate, phenylalanine, methionine, histidine, free fatty acids and lipoproteins at 24 hours after exercise compared with the unsupplemented/trained group. We conclude that antioxidant supplementation is protective in both trained and untrained dogs.

Metabolomic approach to antibiotic efficacy  
(Nestlé Purina Nutrition Forum): Supplementation resulted in less pyruvate, acetoacetate, phenylalanine, methionine, histidine, free fatty acids and lipoproteins at 24 hours after exercise. Antioxidant supplementation is protective in both trained and untrained dogs.

Nutrient digestibility in African grey parrots  
(JAPAN 91(5-6):210-216): The results of this study suggest that excreta consistency can be improved through larger particle size, without adverse effects on nutritive value of the diet.

Red carrot has lower lycopene bioavailability  
(J Nutr 137(6):1395-400): Results confirm prior studies in humans on the relative bioavailability of lycopene from red carrots and tomato paste and expand them by suggesting the mechanism and determining vitamin A value.

### Key Concepts

- **Metabolomic approach to antibiotic efficacy**
  (Nestlé Purina Nutrition Forum): Supplementation resulted in less pyruvate, acetoacetate, phenylalanine, methionine, histidine, free fatty acids and lipoproteins at 24 hours after exercise. Antioxidant supplementation is protective in both trained and untrained dogs.

- **Nutrient digestibility in African grey parrots**
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**Nutrient digestibility in African grey parrots**

A feeding trial was performed to study the influence of particle size in extruded parrot pellets on apparent digestibility and excreta consistency and pH. Two test diets were alternately provided to eight African grey parrots according to a 2×2 crossover design. Both diets were similar in nutrient content and ingredient composition but differed in particle size of the composing particles of individual pellets.

Apparent digestibility of macro-nutrients was studied using the total collection method. Next, the appearance of the excreta was studied by calculation of weight-surface ratio of individual excrements as an objective measurement of consistency. Last, excreta pH was measured directly on fresh excrements and on homogenized 10% excreta solutions.

Neither apparent digestibility coefficients nor excreta pH values were significantly different in parrots fed the two diets. However, excreta consistency was significantly (P < 0.05) more solid when fed the coarse diet than when fed with the finely ground diet. The results of this study suggest that excreta consistency can be improved through larger particle size, without adverse effects on nutritive value of the diet.


**Red carrot has lower lycopene bioavailability**

Lycopene bioavailability was compared in Mongolian gerbils (Meriones unguiculatus) fed freeze-dried red carrot and tomato paste (Study 1, n = 47) and whole food extracts dissolved in cottonseed oil (Study 2, n = 39). Diets and supplements were equalized for lycopene and intakes did not differ. Both studies utilized negative (oil) and positive (purified lycopene [Lyc]) controls.

In Study 1, vitamin A liver stores (0.68 ± 0.13 µmol/liver) of the red carrot group did not differ from baseline (0.63 ± 0.13 µmol/liver) and were greater than those of the tomato paste (0.43 ± 0.12 µmol/liver), Lyc (0.51 ± 0.14 µmol/liver) and control (0.38 ± 0.17 µmol/liver) groups (P < 0.003). A similar pattern was observed in Study 2.

In both studies, hepatic lycopene was higher in the tomato paste (82.7 ± 26.7 and 80.7 ± 20.2 nmol/liver) groups compared with red carrot groups (59.3 ± 21.9 and 39.5 ± 14.1 nmol/liver, P < 0.0001).

Hepatic lycopene from tomato paste was higher than Lyc in Study 1, but tomato paste extract and Lyc did not differ in Study 2, when both were dissolved in oil. Red carrot maintains vitamin A status, but constituent β-carotene may interfere with lycopene bioavailability.


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➤ Short Course on Aquaculture Feed Extrusion, September 23-28, 2007, Texas A&M University, College Station, Texas, USA. Contact: Dr. Mian Riaz, Tel: +1.979.845.2774, Fax: +1.979.458.0019, mraiz@tamu.edu, www.tamu.edu/extrusion.


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We’ve moved!

Watt Publishing Co., publisher of Petfood Industry magazine and PetfoodIndustry.com, has moved its corporate headquarters from Mt. Morris, Illinois, USA, to Rockford, Illinois, as of July 30. The new address is 303 N. Main St., Rockford, Illinois 61101, Tel: +1.815.734.4171.
As the aftermath of the pet-food recalls continues, pet owners and the organizations they turn to for support and information are coming forth with their own prescriptions for what they see as the ills affecting the industry.

Consider these recent headlines:

> “Petfood ingredients revealed!” (a report rating ingredients, www.newstarget.com/report_pet_food_ingredients_0.html);
> “Trust the hand that feeds you” (in Bark magazine, http://thebark.com/ezine/living_health/trust.html);
> “Commercial petfood is killing your dog” (from ads for www.thedogfoodconspiracy.com and www.dogfoodsecrets.info, posted on several consumer pet sites by a self-proclaimed dog care expert).

The content and tone of the various articles, blogs and ads I’ve read range from thoughtful and well-researched to critical and cynical to personal and even hysterical. But one theme shines through: Pet owners aren’t necessarily content to just sit back and wait to see how the industry is reacting.

Home cookin’

One of the most powerful, early trends appears to be an even greater swing to natural and organic foods than we’ve seen over the past few years, plus a rapidly increasing interest in homemade and “fresh/raw” foods. A new report from Packaged Facts, Product Safety and Alternative Pet Foods, theorizes that billions of dollars in pet-food sales may be in play as some pet owners consider switching brands as a result of the recalls. The beneficiaries may be petfoods chosen as alternatives to traditional brands—especially natural and organic products, but also raw/frozen, refrigerated, homemade, 100% US sourced, locally grown and other smaller-batch petfoods.

In an online survey of pet specialty retailers conducted by Pet Age in late May, 69% reported increased sales of natural/organic petfoods, and more than one-third said sales of fresh/raw foods had risen. (For more information on this trend, watch for an article in the September issue of Petfood Industry.)

The Bark article includes a list of resources and “hands-on help” heavily oriented toward natural and home-prepared diets (http://thebark.com/ezine/living_health/trust_resources.html).

Testing at home, too

Pet owners are also tackling other petfood-related tasks on their own. “Instead of waiting for the FDA or hearing that their food is unsafe from a company recall, many owners have been taking the matter into their own hands and testing their own cat and dog food to see if there are any contaminants in the food,” reads an article on www.itchmo.com. (This is a very active, recall-oriented blog that you should monitor).

This trend seems to be the factor behind the recent—and ultimately unfounded, it seems— scare about acetaminophen showing up in petfoods (see p. 11). An owner whose cat died of kidney failure contracted with a private laboratory to test the cat’s food at his expense, according to reports.

Today you’ll see ads online offering testing packages for melamine, cyanuric acid, aflatoxin and other substances shown to be toxic to pets. The Itchmo article also reports that the University of California, Davis, USA, veterinary school lab relented to demand and tested petfood samples submitted directly by pet owners; its regular practice is to work only with veterinarians.

Continued vigilance

Whether this ends up being the extent of their hands-on involvement, you can be sure pet owners will continue their vigilance of the industry and its products. In surveys many Petfood Industry readers have said they regularly read consumer pet publications and websites. Let’s hope you’re continuing this habit; you might want to step up your own vigilance of how pet owners are staying informed.

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