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Q&A: Bravo! for raw petfood

Research: Nutrition-cancer link
Find more opportunities for nutritional studies of companion animal cancer, as well as the references for Dr. Elizabeth Ryan’s article, at [www.petfoodindustry.com/nutritionandcancer.aspx](http://www.petfoodindustry.com/nutritionandcancer.aspx).

Videos: Petfood Forum 2011
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THOUGH THE 2011-2012 APPA National Pet Owners Survey shows an all-time high for pet ownership in the US—72.9 million in 2010, a 2.1% rise since the last survey in 2009-2010—only dogs and cats have enjoyed increases and those are small: 1.5% and 1.8%, respectively. Nearly all other US pets, including birds, small animals, reptiles, horses and freshwater fish, have declined.

Overall, the percentage of US households owning pets has remained stagnant for a decade now. The survey, unveiled by the American Pet Products Association during Global Pet Expo in Orlando, Florida, USA, in March, revealed that in 1994, 56% of households had pets; the figure jumped to 59% in 1996, then climbed a little more over the next few years (to 61% in 1998 and 62% in 2000). Since then, the percentage has been stuck at 62% or 63%.

APPA has previously expressed concerns that demographic shifts in the US don’t portend well for pet ownership, because the fastest growing segments of the population (Hispanics, Blacks, Asians and children) represent lower incidences of owning pets, according to Bob Vetere, APPA president.

So last year the association launched the Human Animal Bond Research Initiative with the goal of producing more research proving the mental and physical health benefits to humans of owning pets. During GPE, Vetere announced progress to date:

- A steering committee comprised of industry heavyweights like Hill’s Pet Nutrition, Sergeant’s Pet Care and Petco;
- An electronic library of information and peer-reviewed references available soon, directed by Dr. Alan Beck of Purdue University; and
- A goal of US$30 million a year in funding, including grants from government agencies and even donations from consumers.

If you’d like to get involved, visit www.habri.org.

DURING GPE, APPA also released its 2010 Pet Spending Figures. The report shows sales for the entire US pet industry reached US$48.35 billion in 2010, a 6.2% increase over 2009, with petfood accounting for US$18.76 billion, a 6.8% rise over the previous year. For this year, APPA projects overall pet spending to grow another 5.1%, to US$50.84 billion, with petfood ending the year at US$19.53 billion (4.1% growth).

Packaged Facts is not quite as bullish. Its latest report, Pet Food in the US, 9th Edition (also released in March), shows 2010 US petfood sales at US$18.35 billion but with only 2.8% growth over 2009. Moreover, Packaged Facts projects US petfood sales to grow just 3% this year (to about US$18.9 billion) and average only about 3.5% annual growth through 2015.

ONE THING THE two groups agree on is that veterinary/healthcare is the fastest growing segment of the US pet industry. It now accounts for a bigger piece of the overall pet spending pie than petfood, 36% vs. 33%. According to Packaged Facts, veterinary services in the US reached US$19.68 billion in sales in 2010, a 7% increase over 2009. APPA breaks down its data differently but still pegs year-over-year growth for veterinary care spending at 8.1%.

Making health-related claims is a tricky business under current US regulations, and some industry professionals speculate the Food Safety Modernization Act could bring more restrictions. But the more pet owners seek the same kind of healthy nutrition for their furry children as they do for themselves, the more it might pay for petfood producers to continue to research and develop functional products or ones with clear health benefits.

Debbie Phillips-Donaldson is editor-in-chief of Petfood Industry magazine. Email her at dphillips@wattnet.net.
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Drying petfood at high temperatures may decrease nutrients, researchers find

Researchers with the Animal Nutrition Group of Wageningen University in the Netherlands studied the effects of petfood drying temperature and time on the food’s physical and nutritional quality indicators.

The researchers conducted two factorial experiments, using four temperatures and two durations, to test the effects of drying variables on extruded canine diets produced using a 4 mm and 8 mm die. The diet was extruded using a single screw extruder at 130 °C and 300 g moisture/kg. The drying temperatures used were 80, 120, 160 and 200 °C, and each diet was dried in draught-forced ovens to 90 or 60 g moisture/kg diet.

Each sample was analyzed for dry matter, nitrogen, amino acids (including reactive lysine) and fatty acid content. Results showed that hardness and specific density of the diets tested were not affected by the drying temperature or time. Canine kibble durability, however, was affected by drying temperature. The highest temperature (200 °C) resulted in decreased durability compared to the lowest temperature (80 °C). Drying time was found to have no effects on the level of individual or total amino acids, or on the proportion of reactive lysine.

In 4 mm kibbles, drying temperature of 200 °C lowered only proline, total lysine and reactive lysine concentrations. Kibble dried at 120 °C had a higher ratio of reactive to total lysine than kibble dried at 200 °C. Drying temperature of 200 °C decreased the concentration of linolenic and linoleic acid and increased that of oleic acid, which may indicate lipid oxidation of 4 mm kibbles during the drying process, according to the research. In 8 mm kibbles, only reactive lysine concentrations were significantly lower with a naturally associated decrease of the kibble durability.

Researchers said that drying petfoods at high temperatures of 160 °C to 180 °C can significantly reduce nutrients or nutrient reactivity.
Cargill granted US patent for petfood cooking process

Cargill was granted a US patent for the exclusive cooking process it developed for making its Loyall premium petfood.

Cargill’s Opti-Cook process, for which the patent was granted, works by using a combined steam and pressure cooking system and near-infrared reflective spectroscopy technology. NIRS uses light waves to measure the chemical composition of nutrients in every cooked batch of Loyall petfood. All nine Loyall petfood formulas use the Opti-Cook process, according to Cargill.

“It is well known that in order for cats and dogs to digest the starch in dry pet food, it must be cooked properly,” said Mark Newcomb, technology director for Cargill Animal Nutrition. “If it is under- or overcooked, pets may have digestive problems. But until now, there was no quick way to measure the chemical change that occurs in starch during cooking. With this technology, Cargill does not have long waits for lab results on samples—we can rapidly determine if petfood has been properly cooked and ensure consistent quality in every batch.”
Z-Bones grain-free dental chews
Zuke’s Z-Bones grain-free dental chews are designed to clean teeth and freshen breath for dogs while delivering antioxidants from sources such as spinach, rosemary, alfalfa concentrate and turmeric. Z-Bones have a raised Z Ridge surface that scrapes and polishes the surface of teeth, and the bone’s texture encourages a longer chew time. Ingredients such as clove, vanilla, parsley and fennel aim to freshen breath. The chews are available in Clean Carrot Crunch, Clean Cherry Berry and Clean Apple Crisp.
Zuke’s
+1.866.985.3364
www.zukes.com

Burns Kelties treats
Kelties treats from Burns Pet Nutrition Ltd. are designed to accompany the company’s maintenance diets. The treats are biscuits based on brown rice. Other ingredients include oats, poultry meal, potato flour, fish meal, chicken fat, sunflower oil, seaweed and mixed herbs.
Burns Pet Nutrition Ltd.
+01554.890482
www.burnspet.co.uk

Trial size dog, cat food boxes
The Honest Kitchen’s trial size boxes of dog and cat food hold 4 ounces of dehydrated, whole food ingredients and hydrate to make 1 pound of food. The trial size boxes cater to a meal on-the-go, offer an alternative to frozen raw food and can be a whole food topper to conventional petfood, the company says.
The Honest Kitchen
+1.866.437.9729
www.thehonestkitchen.com

Bonus Bites Treats and Chews
Bravo! offers its Bonus Bites Treats and Chews line in dry-roasted duck feet and freeze-dried North Atlantic lobster meat varieties. The Bonus Bites line of freeze-dried and dry-roasted, all-meat and grain-free treats and chews are made in the US at the company’s US Department of Agriculture-certified plant. No by-products, additives or preservatives are used in the treats. Other varieties include chicken breast strips, turkey breast strips, buffalo liver, venison liver, chicken liver, premium chicken, turkey liver, turkey hearts, salmon and cod.
Bravo!
+1.866.922.9222
www.bravorawdiet.com

Prairie Puppy formulas
Nature’s Variety Prairie Puppy formulas are made with chicken protein and contain no corn, wheat or soy, according to the company. The food is specially formulated with additional ingredients to benefit puppies and ensure proper growth during the first development stage of a dog’s life. Two formulas are available: one for small- to medium-breed puppies and one for large-breed puppies. Both Prairie Puppy formulas are designed to be compatible with Nature’s Variety’s rotation diet philosophy in which pet owners are encouraged to expose their dogs to a variety of other Prairie brand proteins and forms.
Nature’s Variety
+1.888.519.7387
www.naturesvariety.com

For Consumers

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To feature your new product in Petfood Industry, contact Tara Leitner, Tel: +1.815.966.5421, tleitner@wattnet.net.
For Manufacturers

Gourmet Beef Rounds
Dog Gone Jerky Inc. Gourmet Beef Rounds dog treats are US Department of Agriculture approved and made in the US. Made with USDA human grade meat, the ingredients are less than 2% sea salt, collagen casing and meat, according to the company.
Dog Gone Jerky
+1.800.691.6031
www.doggonejerky.com

Petline hamster, rabbit food
Animalzone Petline offers petfood for hamsters and rabbits that includes roasted maize, roasted soybeans, roasted green peas, alfalfa, vegetables and vitamins. Both products contain a mixture of compressed pellets, and the hamster food also is suitable for rats.
Animalzone
+27.21.875.5063
www.animalzone.co.za

Precise Holistic Complete dry cat food
Texas Farm Products Co. Precise Holistic Complete dry cat food in the Adult Chicken Formula is designed to promote a healthy immune system for cats of all lifestages. The formula includes meat, prebiotics and probiotics, cell protectors, balanced omegas, herbas, botanicals, beneficial supplements and natural antioxidants, according to the company. The food is available in 3-, 6- and 15-pound resealable bags.
Texas Farm Products Co.
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www.precisepet.com

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For Consumers

Freezy Pups frozen dog treats
Head of the Pack Freezy Pups frozen dog treats can be made at home and come in four flavors: White Cheddar Cheese, Chicken Soup, Banana Honey and Sweet Potato 'n Maple. Mix a packet with water, freeze and serve. Freezy Pups can be fed frozen or melted and poured into dry dog food for added moisture and flavor. The Freezy Pups Kit includes a bone-shaped tray and a sample packet of each flavor. Refill packets can be purchased separately.

Head of the Pack
+1.949.631.6140
www.freezypups.com

Tricky Trainers treats for dogs
Cloud Star Crunchy Tricky Trainers are bite-sized training treats for dogs, free of wheat and corn, according to the company. The treats offer positive reinforcement and are designed to support a healthy diet. They are available in cheddar, liver and salmon flavors in an 8-ounce resealable bag.

Cloud Star Corp.
+1.800.361.9079
www.cloudstar.com

For Manufacturers

SensiPearl pearlescent pigment line
The Sensient Colors unit of Sensient Technologies offers SensiPearl, a pearlescent pigment line that differentiates food products through luster effects, color shifts and iridescent shimmers. The Food and Drug Administration-approved, mica- and titanium dioxide-based pigments create the effects and are available in a variety of custom colors. The pigment line offers a one-step SpectraCoat pearl dispersion application, designed...
For Manufacturers

for even distribution and to give a high-gloss appearance, also reducing dusting during processing.

Sensient Technologies
+1.800.558.9892
www.sensient-tech.com

Ever Extruder VR Series 2 line
The Ever Extruder VR Series 2 line features a cutter blade, cutter drive hub, carbide die plate, carbide protected screws, shaft support system and rear seal system. The cutter blade is designed to increase productivity and efficiency, with 6-blade to 30-blade configurations, and the cutter drive hub is designed for precision and accuracy. The carbide die plates aim to maintain die cavity shape and size, and carbide protected screws eliminate the need to constantly adjust and maintain extruder equipment. The shaft support system optimizes the concentricity of the shaft and barrel of the extruder to prevent surging and eliminate restriction, according to the company. And the rear seal system is equipped with stainless steel and carbide technology for a long life.

Fischbein LLC’s Empress Series 100-2 two needle plain sew head is designed to produce two parallel stitch lines that create a secure, sift-proof bag closure. The unit’s pressurized, self-lubricating system aims to protect moving parts and ensure maximum productivity with low maintenance. The 100-2 can close multi-wall paper, woven and laminated woven polypropylene and jute bags. There is an adjustable operating speed of 35 to 55 linear feet per minute and an adjustable stitch length of 2.25 to 3.25 inches.

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Modular Tru-Balance sifter/screener

The Great Western Manufacturing Modular Tru-Balance sifter/screener was designed for reliable performance and sanitation features when conditions do not dictate stainless steel construction or require complex separations. The nest-together sieves and lift-out screen frames allow the sifter to be dismantled in minutes for inspection or screen changes, according to the company. The sifter utilizes four to nine sieves, each with a net screen area of 3.9 square feet. Up to three separations can be obtained.

Great Western Manufacturing
+1.913.682.2291
www.gwmfg.com

Südpack Verpackungen packaging

Südpack Verpackungen offers Multi Peel Flow Wrap, co-extruded flexible and rigid films and heat-resistant co-extrusion films. Multi-Peel Flow Wrap, a resealable film for flow wrap applications, does not require aids such as stick-on labels or zips, according to the company. For co-extruded flexible and rigid films, the company manufacturers both blown and cast film, providing tailored product solutions and multi-layer composite films. Südpack also has heat-resistant co-extrusion films, including SteamSolution, designed to reduce cooking time, and EcoVent, designed to increase temperature during heating.

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“You can’t sell” raw until you really know raw, so education is a large part of what we do at Bravo!, says Bette Schubert, co-founder of the petfood company. “Knowing how important this component is, we’ve hosted a series of educational seminars for retailers at both trade shows and the store level geared toward teaching them about all of the benefits of feeding raw, so our retail partners can better educate their customers.” This emphasis on retailer and consumer education shouldn’t come as a surprise to most—the raw category of petfood is still considered a new and risky segment. Being new and different doesn’t bother the company’s other co-founder, David Bogner, however.

“With raw diets only representing 3% or less (ours and the industry’s best guesstimate) the upside is huge,” explains Bogner. “We don’t see the shift to raw and all-natural reversing direction because when it comes down to it, a quality, healthful diet is better for overall well-being and longevity of the animal. Continuing to support and serve the enthusiasm and passion of our customers with the right products is our biggest opportunity.”

“We have grown from a small, entrepreneurial company uncertain of whether Bravo! is headquartered in Vernon, Connecticut, USA, and has two more facilities in Manchester, Connecticut, and New Zealand.
raw would take off quickly or build slowly, to a fast-growing company certain of its future,” continues Schubert. Only five years ago, the future of raw petfood and treats and Bravo! as a company was a shaky one, but now Bogner can say confidently, “We are a multimillion dollar business that is committed to grow by a minimum of 20% or more per year. Like any other business moving quickly up the growth curve, you are always challenged to find the best people and enough capital to fuel growth. So far, we are doing just fine on both fronts.”

The keys to Bravo!’s rapid growth, according to Bogner, have been:

■ Top quality, no compromises products—Currently there are more than 125 Bravo! SKUs on the market, which include Bravo!’s four basic product lines, in addition to its Bonus Bites Treats, Bravo! Training Treats, Bravo! Bag-O-Bones (fresh-frozen bones) and the Bravo! Chews line;
■ Offering the industry’s broadest range of protein types—Bravo!

Besides retail education programs, Bravo! has also published consumer guides for feeding cats and dogs a raw diet and offers a short training video on its website that teaches pet owners how to prepare, store and feed a raw diet;
■ Word-of-mouth from consumers— “The ‘seeing is believing’ factor of the results raw feeders see in their pets has been a pretty powerful thing, especially when they pass that information along to other pet owners,” Bogner says; and
■ Great distributor, manufacturer and retail partners—The company has manufacturing partners in New Zealand, where it gets lamb and beef. “We source these proteins from New Zealand because the lamb and beef is grass-fed, free range, lower in fat, higher in protein and we can use whole carcasses,” explains Bogner. “Our products can be processed on-site with less freezing and shipping.

“In short, like any successful business, we have a singular focus on the needs of our customers and their companion animals,” he says.

“Our core product line is the Bravo! Original Blends, which contain the four building blocks of a sound raw diet: meat, bone, organ meat and vegetables,” explains Schubert of the company’s product line. For customers who want to customize their pets’ diets, Bravo! Basics are either just meat and bone, or meat and bone with organ meat, no vegetables.

Next, there are Bravo! Boneless products, which are just pure meat without any other ingredients, according to Schubert. Finally, there is
Bravo! Balance Raw Diet blends that have added vitamins and minerals to the formulas for consumers looking for the convenience of an all-in-one formulation that meets the Association of American Feed Control Officials standard for complete and balanced product for all lifestages.

The Blends, Basics and Boneless together offer a total of 12 protein sources: chicken, turkey, beef, lamb, pork, ostrich, duck, rabbit, elk, salmon, buffalo and venison. “In terms of simplicity, while other raw diet brand foods can have as many as 30 or more ingredients, our formulas are kept super simple by design,” says Schubert. “A turkey product is all turkey, beef is all beef. This simplicity is very helpful for dogs and cats with sensitive digestive systems or allergies. What you see on the label is what you find in the package!”

In the past year, Bravo! has released several new products like Bravo! Training Treats and two new flavors of Bravo! Bonus Bites. Earlier in 2011, the company also completed a major repackaging of its entire Bravo! Bonus Bites line.

As for the future of the company, both founders plan on continuing to protect and grow their position in the fresh/frozen market by promoting their products to the next wave of consumers making the move to raw diets. They will also continue to serve their existing customers and new users by offering a wide range of formulations and protein types while focusing on product quality and safety.
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When asked to give buzzwords to describe trends in the petfood and treat market, many people—regardless if they are industry experts or pet parents—would answer with words found on many petfood packages: natural, organic, corn-free and human-grade. But perhaps the biggest trend is not what list of ingredients pets are getting from their owners, but where those pet owners are getting those popular niche food and treats. Much like consumer are going online to find electronics, books and jewelry, passionate pet owners are finding online retailers to be far more accommodating than the local pet store, often offering a much wider selection of high quality items than smaller, mom-and-pop retailers provide.

Although the sluggish economy has been a miti-
gating short-term factor, relative to in-store retail sales, Internet sales have been doing well, including in the case of pet supplies, according to the Packaged Facts’ report *Pet Food in the US, 9th Edition*. According to Forrester Research, online retail sales of pet supplies are expected to grow 76% from 2010 to 2014, from US$2.1 billion to US$3.7 billion, posting steady double-digit annual increases and significantly outpacing almost all other Internet categories. Helping to drive sales on the pet market side is the trend whereby more smaller marketers and retailers are turning to the Internet as a sales medium, as well as the above average (and still increasing) likelihood of pet owners to shop via Internet and rely on it for information, says Packaged Facts.

**The Internet is** especially well-suited as a sales venue for “info-centric” health products like natural/organic and health-related products. This includes petfoods with holistic claims, due to the medium’s ability to communicate product benefits and detailed product information, both through product and e-tailer websites and via chat groups, blogs, email and social media. Rather than offering direct sales online, most petfood marketers still find that selling through a third-party website is a more convenient and cost-effective option. The two largest petfood and supplies e-tailers are Petsmart.com and Petco.com, with other leading pet-specific e-tailers including PetFlow.com, PetFoodDirect.com, PetFoodExpress.com, PetSupermarket.com, PetlandDiscounts.com and PetsnMore.com. There are also many third-party e-tailers specializing in natural, organic and holistic petfood products, including EarthlyPets.com, AllAmericanPet.com and SitStay.com. Trailblazers like Smartpak Canine, an animal health focused catalog and web retailer, launched the Proportions Whole Food Nutrition Program in 2010. The program allows dog owners to create a customized meal online and have the food delivered right to their door on a monthly basis. Another sophisticated direct marketer is Drs. Foster & Smith, whose many high-quality private-label products are sold alongside premium brands from other marketers on the company’s website as well as via catalog. Ranking 100 on Internet Retailer’s Top 500 list, the marketer redesigned its website in 2009 to focus on the “Doctor” aspect of Drs. Foster & Smith, highlighting the fact that co-CEOs Race Foster and Marty Smith are both veterinarians. The site also includes a link to Drs. Foster & Smith’s new pet blog and The Doctors’ Information Center, which lists pet care videos, articles and other related information. In addition, following in the path of human catalog marketers, in 2008 Drs. Foster & Smith teamed up with Target to offer its products via a bricks-and-mortar retail channel for the first time, according to Packaged Facts.

Overall, these online pet retailers are more sophisticated in their web design and ecommerce, reaching their target audience via website usability, SEO, paid search and word of mouth via blogging and discussion boards. These websites are still in the minority of a largely fragmented pet marketplace even in 2011, but this gives a savvy pet marketer an opportunity to stand out from the crowd.
Cancer can be considered a multi-organ, multi-factor, long-latency degenerative and chronic disease that results, in part, from a complex interplay of genetics, diet, lifestyle, inactivity, stress and environmental toxicants. Because carcinogenesis may span up to 10 years or more for certain canine and feline cancers, veterinary researchers have emerging opportunities to seek out dietary chemoprevention strategies to suppress the disease in its early, pre-malignant stages before clinical, invasive disease develops.

Despite significant advancements in companion animal cancer treatment over the last decade, the relationships between nutrition and veterinary cancer control and prevention remain in their infancy. Developing dietary strategies for reducing companion animal cancer incidence and mortality—overall and for specific cancers—will be an exciting and chal-
A challenging endeavor that will take extensive research coordination using evidence-based designs. A number of natural compounds from plants have been studied using laboratory models of cancer control and prevention (Steele and Lubet, 2010). These plant compounds—also known as phytochemicals—are found in spices, fruits and vegetables, traditional Chinese and Ayurvedic herbs. More recently, they have also been discovered in staple foods such as legumes and whole grains (Gullet et al., 2010). Fatty acids and certain oils from fish, palm, rice bran and nuts have also received increased attention for cancer-fighting activities. (For information on rice bran, see http://avmajournals.avma.org/doi/abs/10.2460/javma.238.5.593.) Although the studies have informed us of nutritive/bioactive food components with chemopreventive properties, these components merit continued investigation during canine and feline tumor progression because differences in baseline nutritional status influence host nutrient needs and requirements. Genetics and differences in rates of liver and kidney metabolism may make some cancer types more responsive to dietary/nutrient changes than others.

The relationships between nutrition and veterinary cancer control and prevention remain in their infancy. While there has been a dramatic rise in obese and overweight pets, a direct link to increased canine or feline cancer risk with obesity has not yet been conclusively determined but is hypothesized. Dietary exposures are generally known to regulate important cellular metabolic processes that promote growth and proliferation.
while mutations in oncogenes and
tumor suppressor genes also regulate
these pathways during the initiation,
promotion and progression of cancer.

In 1924, cancer cells were discovered to
metabolize glucose in a manner distinct
from that of normal cells. This phenom-
emon, referred to as the Warburg effect,
has helped identify molecular metabolic
signaling pathways that are controlled
by non-essential nutrients, also referred
to as bioactive food components (Kim
and Milner, 2011).

Nutrition-
cancer research
opportunities

Metabolomics is the identification
and characterization of metabolic
products in tissues and body fluids
and can also be applied to the
study of small molecules found in
food. This approach may be useful
to not only identify biomarkers for
companion animal cancer detection
and/or risk but also provides an
immense opportunity to advance
our knowledge of the metabolic
changes that occur following pets’
dietary intake of bioactive food
components.

Dietary chemoprevention
involves the use of chemicals, vita-
mins or other substances in the diet
to prevent or decrease the incidence
of cancer. To our knowledge, no
long-term dietary chemoprevention
studies have been conducted in
companion animals using evidence
based trial designs. Given the
difficulties associated with such
studies, the petfood industry should
be cautious of single-nutrient health
claims in veterinary oncology.

Another promising area is to
study nutritional needs during the
course of cancer treatment, including
surgery, radiation, chemotherapy and
palliative care (Ogilvie et al., 2000).
Determining the efficacy of certain
dietary components during cancer
treatment in companion animals
adds another layer of complexity
to the already complicated set of
interactions but may yield important
information on health outcomes in a
shorter time frame.
Dietary, caloric restriction has demonstrated the most consistent delay in the progression and prevention of tumor development across species, including canines (Lawler et al., 2008). These studies demonstrate that a scarcity or deficiency in calories (i.e., energy intake) adapt cellular metabolism in favor of blocking tumor growth.

On the other hand, an excess of caloric intake leads to overweight body types, and obesity has now been strongly associated with increased cancer risk in humans. Mechanisms implicated in the relationships between obesity and cancer include, but are not limited to, enhanced glucose availability, increased insulin sensitivity, inflammation and oxidative stress (Brawer et al., 2009). While we have seen a dramatic rise in obese and overweight pets, a direct link to increased canine or feline cancer risk with obesity has yet been conclusively determined but is hypothesized (Lawler; German et al., 2010; Basen-Engquist and Chang, 2011).

Unlike drugs, essential and nonessential nutrients work in complex metabolic networks to maintain or regulate homeostatic functions and are therefore difficult to contrast with a true placebo (no exposure) group. Furthermore, the beneficial effects of dietary components may be small and incremental, taking many years to manifest.

Identifying canine metabolic and cancer risk biomarkers to assess favorable responses to a dietary intervention is warranted. Though the principles of randomized controlled trials often yield inconclusive results because the complex network of metabolic changes are often not captured with routine clinical measures, veterinarians, researchers and pet owners may be better served by a nutrition-centered framework with reliable biomarkers suited to assess systemic changes in metabolism that capture a breadth of biological processes. These include inflammation, oxidative stress and glucose metabolism.

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THE PRIVATE EQUITY community has developed a modest fascination with the pet industry over the past five years. Interest has accelerated markedly since 2007, as evidenced by deal volume. Notably, deal volume grew from 2009–2010 in contrast to the broader consumer marketplace, which contracted. 2011 is off to a strong start for the industry, with seven announced deals through March. Petfood and treats account for a large percentage of this transaction volume. The proliferation in channels where petfood and treats are sold, coupled with the increased willingness of consumers to spend on premium items, have pushed the category to impressive heights, with 11 major petfood investments/acquisitions since 2007. The two most talked about transactions took place prior to the recession. In October 2007, Swander Pace Capital, a consumer-oriented private equity firm, sold Eagle Pack Pet Foods Inc. for an undisclosed amount to Berwind Corp. Swander Pace made its initial investment in Eagle Pack in 2004. In August 2008, Berwind followed up its Eagle Pack acquisition by purchasing Old Mother Hubbard Inc. for US$400 million from Catterton Partners, also a consumer-oriented private equity firm. Like Swander Pace, Catterton had made its initial investment in Old Mother

Petfood market: One size no longer fits all

Merrick Pet Care sale may usher in new era of petfood transaction multiples

By Bryan Jaffe

According to the Swander Pace website, the private equity fund recently closed on a new petfood platform acquisition, acquiring Merrick Pet Care Inc., a manufacturer and marketer of wet and dry dog and cat food under the Merrick, Before Grain and Whole Earth Farms brands.
Hubbard in 2004, investing US$45 million for an undisclosed ownership percentage. Berwind ultimately combined the two brands to form WellPet LLC, which is an active consolidator in the petfood/treat space today. These transactions took place in the range of 2.5x-3.0x latest 12 months revenue. The relevance of those multiples was established a year earlier by Del Monte Foods Co. in its acquisitions of The Meow Mix Co. LLC (3.7x latest 12 months revenue) and Kraft Foods Inc.’s Milk Bone Dog Food Business (3.2x latest 12 months sales). Subsequent petfood/treat deals have all involved a comparison to this multiple set, and collectively they have formed the basis for seller expectations.

Premium multiples still attainable

The content of this article is not to say that premium multiples for pet companies are no longer available. In fact, there is ample evidence, based on the Natura Pet Products Inc. and Waggin’ Train LLC transactions, that the 2006–2008 data set remains relevant, but we are no longer looking at a one-size-fits all world in petfood/treats. Rather, premium multiples will be reserved for deals with characteristics common to premium deals in other consumer markets:

- Brand awareness and value;
- Operating leverage and economies of scale;
- Defensible intellectual property; and
- Proven management.

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thereafter. While seller expectations in the petfood/treat space have remained anchored in the past, the general transaction market has undergone significant turmoil. A collapse of the debt market rendered private equity dormant for much of 2009-2010, with market activity bottoming in the second quarter of 2009 and only modestly recovering over the next 18 months.

Without private equity as a foil, public company buyers felt less challenged to pay a premium for attractive properties, and valuation multiples contracted. The net result is a number of petfood/treat deals have died over the anchoring on these historical multiples. In short, sellers’ expectations have not changed with the times, in part due to the belief that the pet industry holds a sacred place in the consumer transaction landscape, a notion that has received considerable validation.

Swander Pace closed on a new petfood platform acquisition in February 2011, acquiring Merrick Pet Care Inc., a manufacturer and marketer of wet and dry dog and cat food under the Merrick, Before Grain and Whole Earth Farms brands. My opinion is that the sale of Merrick Pet Care will mark a meaningful bifurcation in petfood/treat transaction multiples. This parsing of the market is just what private equity has been hoping for in order to unlock transaction volume in the pet industry. From time to time, I expect emerging companies with truly innovative products and defensible market positions in the pet industry to command premium multiples, even in excess of those outlined above. Companies that meet this criterion will:

- Have products that can be sold across the pet channel spectrum, in general mass and in specialty retail environments;
- Meet an emerging need that is not well addressed by existing alternatives, rather than being a new twist on an existing formula;
- Solve a long-term structural industry problem that impacts cash flow; and
- Be led by management teams with proven industry experience.

For all intents and purposes, however, the axis of the pet transaction world was effectively bent by the Swander Pace/Merrick Pet Care transaction and possibly for the better of total transaction volume.

Bryan Jaffe is the senior vice president for Cascadia Capital.

In August 2008, Berwind followed up its Eagle Pack acquisition by purchasing Old Mother Hubbard Inc. Berwind ultimately combined the two brands to form WellPet LLC, which is an active consolidator in the petfood/treat space today.
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Both the American Animal Hospital Association and World Small Animal Veterinary Association have recently published guidelines for the nutritional assessment of pets as part of routine physical examinations. The role of nutrition in animal health has long been a very important but often underutilized component of veterinary medicine. These guidelines recognize the vital role of nutrition in promoting optimal health and response to disease and will help veterinary practitioners use their training and skills in evaluating the nutritional status of their patients.

The interconnectivity of veterinary medicine and nutrition is not a new concept. The American Academy of Veterinary Nutrition, the very first allied association to the American Veterinary Medical Association, was founded in 1956 to facilitate discussions of mutual interest to veterinarians and animal nutritionists. The American College of Veterinary Nutrition was founded in 1988 to advance the specialty area of veterinary nutrition and increase the competence of those who practice in the field.

Of the 60-plus diplomates currently in ACVN, over three-quarters are primarily involved in small animal (particularly dog and cat) nutrition. Most of those are academicians who help train many of the newly graduating veterinarians, but a number are involved in the petfood industry, as well.

The mission of AAHA is to promote and recognize high standards in veterinary practice and quality pet care, primarily in the US and Canada. WSAVA is described as an association of associations, a common global link for many veterinary groups. Its primary purpose is to advance the quality and availability of small animal medicine and surgery all over the world.

Both organizations are involved in many issues relating to veterinary medicine. With such full agendas, it is notable that nutrition has been recognized by both groups as a critical component of overall pet care.

The guidelines of WSAVA were largely based on those developed by AAHA, so they are very similar. Both association task forces that developed the respective guidelines included ACVN diplomates.

The guidelines emphasize a three-prong approach to nutritional assessment as recommended by ACVN in its “Circle of Nutrition” precept. Of course, nutritional assessment must include evaluation of the pet’s food. However, whether or not the food meets certain standards is only one component. Equally important are the individual nutritional needs of the patient and feeding management (i.e., how the food is fed to the animal). A deviation from the norm for any of these components could have significant nutritional implications.
THE GUIDELINES SAY a nutritional screening evaluation through routine history taking and examination should be conducted on every animal. Healthy animals with no nutritional risk factors may not need further evaluation, although animals in more demanding lifestages (e.g., growth, gestation/lactation, senior) or conditions (e.g., very low or high activity, multiple-pet households) may require closer scrutiny.

Specific risk factors in the history of the animal that may require an extended evaluation include:
- Altered gastrointestinal function;
- Ongoing disease or administration of medications;
- Feeding of unconventional diets or supplements; and
- Heavy feeding of treats.

Some factors found on a physical exam that may prompt further evaluation include a low or high body condition score, evidence of muscle wasting, dental anomalies and poor skin or coat.

EVALUATION OF THE animal’s diet looks at all components—not only the mainstay petfood but also treats, table scraps, supplements and chews. This includes review of the label information, particularly the Association of American Feed Control Officials nutritional adequacy statement and other mandatory labeling. Assessment of calorie content is considered a top priority, although it is noted that the labeling may not include this information. (As a side note, AAHA was one of the veterinary organizations that endorsed ACVN’s proposed amendment to the AAFCO calorie content regulations.)

The guidelines advise veterinarians regarding the role of labeling as “advertising” and to be cautious about unregulated terms such as premium, holistic and human grade. Unconventional diets (commercial or homemade) may require extra scrutiny. Veterinarians should also consider the manufacturer’s reputation, history and any objective (non-testimonial) data it provides to support use of the food and be willing to call the company with any questions regarding the product and its formulation, quality control and place of manufacture.

Foods suspected of being the cause of illness should be tested for likely contaminants. Veterinarians are urged to contact the feed control official in their state. The guidelines include links to AAFCO and FDA websites, as well as sites for many other sources of useful information.
Guar gum’s invisible presence in petfood

Found in nearly every brand of wet petfood, this ingredient is a real behind-the-scenes aid to the canning process.

**Guar Gum is** a common, but nearly invisible, ingredient in petfoods. It is found in almost every brand of wet petfood, whether marketed at a farm-and-fleet, grocery, big-box, indie or boutique store. However, you won’t find this ingredient on the shelf by itself at your local grocery, and it has low recognition with consumers.

Usually this degree of unfamiliarity would make it a target for vilification; but, surprisingly, that has not been the case for guar gum. While that could be construed as a good thing, it might still be worthwhile to understand whether this ingredient has any issues and if its presence in our pets’ food delivers some intrinsic value to our animals.

**From a Regulatory standpoint, guar gum** is classified in the US as a substance generally recognized as safe (GRAS) under subpart H-Stabilizers-582.7339 of the code of federal regulations. In the European Union E-number system, it is E412 and falls within the category “natural gums obtained from non-marine botanical sources.”

Guar gum is a naturally derived polysaccharide used worldwide in human and animal foods and personal care items. It has various industrial applications for its thickening, stabilizing and modest emulsifying properties.

In petfoods, the motivation for using guar gum rests solely on its functional properties. In short, it is a thickener used to give the meat batter just the right viscosity and suspending properties during the can filling process. It is effective at very low concentrations and improves particle distribution and uniform filling, without imparting significant influence of its own on the visual outcome of the finished product. In essence, it is a real behind-the-scenes aid to the canning process.

**Guar Gum is** derived from seed-pods of the Indian cluster bean plant (*Cyanaposis tetragonolobus* of the Leguminosae family). This annual legume has been cultivated for centuries in dry arid regions of the Indian subcontinent, where it was once grown as forage for cattle. Now it is cultivated exclusively as a food crop. Most commercial production occurs in India and Pakistan, with more recent production in the southern US. Guar gum became popular as a functional ingredient following shortages of locust bean gum immediately after World War II. It was an effective alternative and remains so to this day.

The guar seed consists of about 40% endosperm, 15% hull and 45% germ. The endosperm is the component of interest. Commercial extraction of guar gum was developed and industrialized in the US in the 1950s and subsequently adopted elsewhere around the globe in the decades thereafter.

In the process of separating the endosperm from the hull and germ, the seed is ground or milled into “splits.” These splits are cleaned via differential density (sifting or cyclone), then soaked to pre-hydrate the ground materials to improve separation. The pre-hydrated splits are flaked, ground and dried. The removed hull and germ are rich in protein, making them a good cattle feed. The remaining guar gum flour is further cleaned and ground to various particle sizes.

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

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**In petfoods, the motivation for using guar gum rests solely on its functional properties.**
sizes depending on the specification of the end user. The final yield of guar gum constitutes about 30% of the starting seed.

What makes guar gum an effective thickener? It is primarily made up of the polysaccharide guaran, which is almost exclusively galactomannans (more than 75%). In the simplest description, guaran is a mannan sugar chain with galactose side units.

For the more technically driven reader, that is a chain of (1→4)-linked β-D-mannopyranosyl units with single α-D-galactopyranosyl units connected to every second main chain by (1→6) linkages. The ratio of D-mannosyl to D-galactosyl is 1.8:1 and has a molecular weight in the range of 150,000 to 1,500,000. This high ratio of side chains gives guar gum more “hooks” to clasp onto other molecules—much like Velcro clasps to a knitted sweater—thereby imparting the characteristic described as a pseudoplastic fluid.

In the food production environment, guar gum is known to produce the highest viscosity of any of the naturally occurring commercial gums. It is soluble in cold and warm water, has a wide functional pH range (pH 4 to 10) and is effective at concentrations as low as 0.25%. However, beyond 1% guar gum can become too thick or viscous for most purposes. It also breaks down or thins at very high temperatures, so the viscosity formed during the food preparation phase disappears at cooking temperatures or following retort.

Incorporating guar gum into the formula can be a little tricky. In most cases, it will require high shear mixing and copious amounts of water to prevent formation of clumps (e.g., gum balls). In addition, the rate of hydration is affected by the salt concentration of the meat batter and the particle size of the guar gum—larger particle sizes take longer to hydrate.

From an animal standpoint, guar gum is an effective soluble fiber. By laboratory analysis, it is greater than 80% total dietary fiber, with the majority of this as soluble fiber (more than 65%) and a small amount of insoluble fiber (about 15%). Guar gum is rapidly fermentable with a pattern of short chain fatty acid production similar to the fructans like FOS or inulin (Flickinger et al., 2000; Bosch et al., 2008).

In dogs fed wet foods, guar gum was shown to improve amino acid digestibility, fecal dry matter and stool scores (Karr-Lilienthal et al., 2002) and was reported to reduce post-prandial plasma insulin and cholesterol (Diez et al., 1998). It may do this by dramatically increasing digesta viscosity (Dikeman et al., 2006), thereby slowing digestion and subsequent nutrient absorption. However, it did not affect fecal bile acid excretion or taurine status in cats (Anantharaman-Barr et al., 1994).

While thermal processes may affect viscosity, they do not affect physiological responses by the animal (Maskell et al., 1994). High levels of guar gum may change the mouth feel of the food and thereby affect palatability; but no data were found to indicate whether this was a significant concern.

Guar gum has near uniform regulatory acceptance around the world, appears to be an effective natural ingredient that possesses functional food thickening and emulsifying properties and provides nutritional value to the pet. Not bad for what some might consider to be an invisible processing aid.

Once grown as forage for cattle, now it is cultivated exclusively as a food crop.
Total ghrelin measurement in dogs

The aim of this study was to validate two commercially available ELISA assays for total ghrelin measurement in dogs: one canine-specific and one originally designed for measuring human ghrelin. The two assays showed intra-assay coefficient of variations (CVs) lower than 10%, while the inter-assay CVs exceeded the 15% limit. Sample dilutions resulted in linear regression equations with correlation coefficients close to 1.

To compare methods and verify ability of the ghrelin assays to differentiate between low and high levels, ghrelin concentrations were measured in plasma samples obtained before and at different times after glucose administration in five Beagle dogs. A statistically significant change in ghrelin after glucose administration was recorded only with assay B.

The human ELISA validated in this study showed a good intra-assay precision, accuracy and, when applied to the glucose injection study, was better at distinguishing high and low canine ghrelin levels than the canine ELISA assay.

Key concepts

- Total ghrelin measurement in dogs
  The human ELISA showed a good intra-assay precision and was better at distinguishing high and low canine ghrelin levels than the canine ELISA assay.
- Use of scFOS and GOS in healthy cats
- Owner perceptions of senior dog diets
- MOS in growing rabbits
  (JAPAN online February 2011. doi: 10.1111/j.1439-0396.2011.01134.x) Mannan-oligosaccharides (MOS) can be used as an alternative to antibiotics during the rabbit’s growth period.

Use of scFOS and GOS in healthy cats

Short-chain fructooligosaccharides (scFOS) and galactooligosaccharides (GOS) are non-digestible oligosaccharides that result in a prebiotic effect in some animal species; however, the cat has not been well studied in this regard. This experiment evaluated scFOS and GOS supplementation on nutrient digestibility, fermentative end-product production and fecal microbial ecology of cats.

Eight healthy adult cats were fed diets containing no prebiotic, 0.5% scFOS, 0.5% GOS or 0.5% scFOS + 0.5% GOS (scFOS + GOS). Apparent total tract crude protein digestibility was decreased with the scFOS + GOS diet compared to the other treatments.

Cats fed scFOS, GOS and scFOS + GOS supplemented diets had greater fecal Bifidobacterium spp. populations compared to cats fed the control diet. Fecal pH was lower for cats fed the scFOS+GOS supplemented diet compared to the control. Butyrate and valerate concentrations were higher when cats consumed the scFOS + GOS diet. Acetate tended to be greater when cats were fed the scFOS + GOS diet, as did total SCFA and total BCFA concentrations.

Low level supplementation of scFOS, GOS and their combination exert positive effects on select indices of gut health in cats.


Owner perceptions of senior dog diets

A survey on dog ownership and opinions regarding senior dogs’ nutritional requirements was completed online by 1,309 adults. Average nutrient analysis for calories, protein, fat, fiber, sodium and phosphorus for senior canine diets was also obtained to determine whether respondent perceptions were consistent with actual profiles.

Of respondents who owned a senior dog, 42.8% fed a senior diet, but only 33.1% did so based on a veterinarian’s recommendation. From the options provided, 63% of respondents reported ingredients were the most important...
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MOS in growing rabbits

To evaluate the effect of mannan-oligosaccharides (MOS) on in vivo performance, nutrient digestibility, fermentation characteristics and caecal microbial populations of rabbits, 144 35-day-old hybrid Hyla were equally divided into three groups: one fed the same diet without additives (control group), one with antibiotics (colistin sulphate, 144 mg/kg; tylosin, 100 mg/kg; oxytetracyclin, 1000 mg/kg) and one with MOS (1 g/kg of diet). Mortality rate, live weight, feed intake and feed conversion ratio were recorded up to 62 days of age.

Rabbits from the control group had a significantly lower body weight while the antibiotic group showed a higher feed intake than the control group. Rabbits from the MOS group had a higher apparent digestibility of cellulose and, as a consequence, a higher level of acetate in the caecal content. Caecal microflora of the MOS group rabbits also had a higher fermentative activity in respect to protein source, as demonstrated by the higher productions of branched chain fatty acids. MOS and antibiotics significantly reduced the colonies of Coliforms.

MOS at 1 g/kg of diet can be used as an alternative to antibiotics during the rabbit’s growth period.


Comparison of 37 commercial senior diets revealed wide variation in nutrient profiles, which were not consistent with respondents’ opinions for all nutrients evaluated. These results highlight discrepancies between perceived needs of senior dogs and actual diet composition.

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Online events

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

The Powder and Bulk Online Training Center is a virtual campus providing online training and lectures on topics such as Pneumatic Conveying, Mixing & Blending and Solids Flow. All of these web-only classes are available at www.powderandbulk.com/online_training.

Mocon Inc. has announced its 2011 Free Webinar Series, which began March 9, 2011, and takes place once a month until December 10, 2011. To view class details and registration information, please visit www.mocon.com/events.php.

Industry Calendar

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Stakeholders summit

Animal Agriculture Alliance’s Annual Stakeholders Summit, May 5-6, 2011. The Westin Arlington Gateway Hotel, Arlington, Virginia, USA. For more information, please go to www.eventfarm.com/stakeholderssummit.

Alltech


The International Grains Program’s Starch Short Course, May 17-19, 2011. The IGP Conference Center, Manhattan, Kansas, USA. For more information on how to register and course fees, please visit www.grains.k-state.edu/igp.

June 2011

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Kansas State University’s Advanced Feed Manufacturing Short Course, June 13-16, 2011, Manhattan, Kansas, USA. Registration is available at www.afia.org.


See more

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