

Decoding Pet Food

Adulteration, Toxic Ingredients, and the Best Choices for Your Companion Animals



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The Cornucopia Institute is dedicated to the fight for economic justice for the family-scale farming community. Through research and education, our goal is to empower farmers and their customers in the good food movement, both politically and through marketplace initiatives.

Cornucopia's Organic Integrity Project acts as a corporate and government watchdog assuring that no compromises to the credibility of organic farming methods and the food it produces are made in the pursuit of profit. We actively resist regulatory rollbacks and the weakening of organic standards, to protect and maintain consumer confidence in the organic food label.

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Dedication

In Memoriam: Moe Kastel

ABOUT 10 YEARS AGO, I adopted a large gray cat from the Humane Society in Madison, Wisconsin. I named him Moe. I used to call him “the sweetest cat in the world.” He was very large, but incredibly gentle.

About five years ago, Moe had a crisis with a urinary tract blockage. This is not unusual for male cats, and being overweight and eating a dry diet are risk factors.

After a brief hospitalization, Moe was put on a canned prescription diet that was higher in fiber and lower in calories, and he never had another blockage. He lost weight and looked good, but I was concerned about putting him on conventional (non-organic) food.

Then, ironically, just as The Cornucopia Institute began the research for our report profiling the risks of carrageenan in human diets, Moe began having gastrointestinal problems. He lost his appetite and, finally, pretty much quit eating. It was hard to get an exact diagnosis. I looked at his food at that point and discovered it was loaded with carrageenan!

We now know that, based on peer-reviewed, published research, food-grade carrageenan is a potent inflammatory agent that can cause colitis, irritable bowel syndrome, inflammatory bowel disease, and even cancer. (Cornucopia’s report *Carrageenan: How a “Natural” Food Additive Is Making Us Sick* is available at cornucopia.org.)

One of the things the veterinarians wanted to do at that point was to put Moe on a bland prescription diet specifically designed for gastrointestinal problems—and even

that was loaded with carrageenan!

Sadly, there was no way to save Moe from intestinal lymphoma. As a mascot here at Cornucopia, he is still missed by me, my fellow staff members, and his adopted sister, Grete. I might add that Moe is missed by his many friends as well—pretty much everyone he enthusiastically encountered. His closest friend said, “I think everyone who ever met him loved him.”

This report is dedicated to Moe’s memory. Thanks to the efforts of Cornucopia Food and Farm Policy Analyst Dr. Linley Dixon, who authored this report, *Decoding Pet Food* will help other people provide the best quality and safest food for their pets. Together, our cumulative activism and patronage will spur changes in the pet food industry, providing more options for those seeking the very best for their companion animals.



Mark Kastel
Co-founder
The Cornucopia Institute



Moe, beloved Cornucopia mascot



Moe snoozing with his adopted sister, Grete

Executive Summary

PET FOOD QUALITY VARIES SIGNIFICANTLY, and all too often pet food brands include dangerous chemical additives. In many cases consumers get what they pay for, but price doesn't always indicate high quality. The good news is that, with the publication of this report, discriminating shoppers now have a new tool to help them weed through product labels and separate the good from the bad.

The Cornucopia Institute's research into the pet food industry reveals that many complete diet products stray from the natural, wild diets of cats and dogs in terms of protein, fat, and carbohydrate percentages. The majority of both dog and cat food product formulations contain too many grains and starches, including corn, wheat, rice, oats, peas, and potatoes. In addition, many products contain questionable and/or unnecessary ingredients.

As with people in the U.S., the most common causes of death for both cats and dogs include diseases associated with poor diet, such as obesity, cardiovascular disease, gastrointestinal diseases, and cancer.

Our research into the pet food industry resulted in a few broad conclusions:

- The chase for convenience when feeding our pets has resulted in continuous, repeat exposure to potentially harmful ingredients.
- Different brands are all owned by a few multinational corporations, and nearly identical food is merely packaged differently.
- Many premium pet food marketers do not own any production facilities, instead they contract with "co-packers" that produce many low-quality foods as well.
- The desire to maximize profit margins drives money into advertising and packaging rather than high-quality ingredients.
- Legislation and regulatory oversight for pet food is aimed at the feed industry – pet food regulations are lumped in with animal feed.



PHOTO: THINKSTOCK

Your companion animals deserve the very best food. This report will show you which ingredients to avoid when purchasing pet food.

- Pet food is highly processed, resulting in hidden and questionable ingredients.
- An inherent conflict of interest arises when veterinarians get a commission on the sale of food in their veterinary offices.
- Ingredient labeling can be confusing. Often, the first ingredient listed does not make up the majority of the food. A high-quality protein should be the first, second, and ideally third ingredient in a carnivore's food, not a carbohydrate.

The pet food industry is no different than leading marketers of processed human food when it comes to cheap substitutes and false health claims. When it comes to our own health, as humans, many of us choose to look for the USDA organic seal to ensure acceptable quality and safety.

The following report dives into the specifics of how the pet food industry is regulated and specific ingredients to avoid. It details the massive pet food recall in 2007, and instructs how to better feed your pet by choosing wisely at the pet food store and/or preparing their meals at home.

Also included is a web-based buyer's guide depicting what to watch for when companies get creative with marketing ploys and deceptive labeling. Together, these tools are a helpful catalyst to ensure a healthy diet for your companion.



Cornucopia's online shopper's guide can help you choose the best, most nutritious brands of pet food.

Section I: Pet Food Industry Regulations

PET FOOD IS A \$72 BILLION INDUSTRY, the majority of which is controlled by the following leading pet-food manufacturers/marketers: Colgate-Palmolive (Hill's Pet Nutrition), Del Monte (9Lives, Gravy Train, Milk-Bone, and Meow Mix), Mars (Pedigree and Whiskas), and Procter & Gamble (Iams), all based in the U.S., along with Affinity Petcare (Spain), Nestlé (Switzerland), Nutriara Alimentos (Brazil), Royal Canin (France), and Saturn Petcare (Germany).



PHOTO: THINKSTOCK

overseen by two organizations, the Association of American Feed Control Officials (AAFCO) and the Food and Drug Administration (FDA). AAFCO is responsible for writing all regulations that pertain to animal feed and pet food, including those that govern allowable ingredients, labeling laws, and nutrient requirements. Members of AAFCO are voluntary representatives of local, state, and federal agencies, including the Department of Agriculture; however, it is not a regulatory authority. Each year, AAFCO publishes an updated version of recommended pet food regulations in what is known as the “Official Publication.”²

One of the most worrisome regulations within the “Official Publication” is AAFCO Regulation PF7: Nutritional Adequacy, which states, “The label of a pet food or specialty pet food which is intended for all life stages of the pet or specialty pet may include **an unqualified claim**, either directly or indirectly” (emphasis added).

In other words, anything written on a label can be entirely meaningless. For example, words such as “premium,” “healthy,” “optimal health,” and “promotes a long and healthy life” do not have to be backed by scientific data.

Also of concern is AAFCO Regulation PF5 requiring that “[a] reference to quality or grade of the ingredient does not appear in the ingredient statement.” This regulation makes it illegal for the highest-quality pet food manufacturers to differentiate their ingredients from those of poorer quality on the label. For example, human-grade ingredients are USDA-approved cuts of meat, whereas “feed grade” may include meat that is expired, diseased, or contaminated with drugs. By law, a company that purchases only human-grade meat (rather than feed grade), cannot state so on the ingredient label (although they can state so on other parts of the label). It is clear this regulation protects the interests of companies that use lower-quality ingredients.

Baffling pet food regulations also exist within the FDA. Section 402 of the Food Drug and Cosmetic Act (FD&C Act), which regulates both human and pet food, provides

High-quality protein should be the first ingredient in your pet's food.

The top four importers of pet food are Japan, Canada, the European Union, and the U.S. At the same time, the U.S. is the second-highest exporter of pet food globally. The leading exporter of pet food is China, which supplies over half of the U.S. import market.¹ One might wonder why the U.S. imports so much pet food from China while acting as a leading global exporter. China also supplies ingredients that go into pet food made in the U.S. and Canada, including pea protein, soy protein, vitamins, and minerals. This begs the question: Do cheaper imports result in a lower-quality product at the cost of our pets' health?

A better understanding begins by taking a look at how pet foods are regulated. The pet food industry in the U.S. is



FDA testing has revealed euthanizing drugs in pet food.

the definition of adulterated food as: “(a) **Poisonous, unsanitary, or deleterious ingredients** (a)(5) if it is, in whole or in part, the product of a **diseased animal** or of an **animal which has died otherwise than by slaughter**” (emphasis added). This is a clear regulation stating that federal law does not allow poisonous, unsanitary, or deleterious ingredients, or animals that have died otherwise than by slaughter, into human or pet food. Unfortunately, the Compliance Policy Guides (CPG) for the FD&C Act override the above law with respect to pet food.

Regarding “Canned Pet Food,” CPG Section 690.300 states: “The pet food canning industry utilizes undecomposed animal and marine tissues from various sources. These include products of the rendering industry such as various meat, poultry, and bone meals; **meat scraps** and offal from **packing house waste**, freshly boned-out animals; and **occasionally meat from animals that may have died otherwise than by slaughter**” (emphasis added).

The exception for pet food in CPG Section 675.400 also reads: “No regulatory action will be considered for animal feed ingredients resulting from the ordinary rendering process of industry, including those using animals which have died otherwise than by slaughter, provided they are not otherwise in violation of the law.”

Are there reasons for concern that animals that “have died otherwise than by slaughter” are allowed in pet foods? Cornucopia believes there are. For one, the FDA has found sodium pentobarbital, the drug used to euthanize animals, in pet food.³ Sodium pentobarbital remains intact throughout the rendering process and has been found in at least 30 different pet foods. Testing is not required and rarely done.⁴ The long-term effects of consuming sodium pentobarbital are unknown; however, short-term feeding studies show liver damage at low doses.⁵

A 1998 report on feed safety from the United States Animal Health Association (USAHA) states, “Over the years CVM [Center for Veterinary Medicine] has received sporadic reports of tolerance to pentobarbital in dogs.”⁶ Animal fat and meat and bone meal (MBM) are the ingredients in pet food most likely to correlate with the presence of sodium pentobarbital.

Another cause for concern surrounding pet food containing “animals that have died otherwise than by slaughter” is the introduction into pet food of cat and dog meat from animal shelters. The pet food industry denies that this happens; however, there are many verbal and written testimonies to the fact that cats and dogs are rendered and used in pet food.^{7, 8} In fact, the two largest companies that pick up carcasses from shelters and clinics, D&D Disposal, Inc. and Koefran, Inc. are both owned by rendering companies (West Coast Rendering and Reno Rendering, respectively). Reports from numerous shelters and investigations conclude that deceased animals are in fact picked up and taken to rendering plants.⁹ The temperatures at which rendering occurs destroys DNA, making it impossible to determine the animal species present in pet food from the product itself.

Individual state regulations also allow for road kill, restaurant grease, and spoiled meat to enter rendering facilities. For example, Michigan’s “Bodies of Dead Animals Act” provides regulations governing how to transport animal carcasses, including road kill, to rendering facilities.¹⁰ Since these materials are processed at very high temperatures, their nutritional value is degraded compared to fresh meat that would qualify for human consumption. Research has demonstrated that carcinogenic heterocyclic amines and polycyclic aromatic hydrocarbons are formed when muscle meat is cooked at high temperatures.¹¹

The use of meat from “animals that have died otherwise than by slaughter” in pet food raises concerns over the possibility of spreading transmissible spongiform encephalopathy (TSE) agents. TSE agents include prions (misfolded proteins) that cause degenerative neurological diseases, and they are known to survive rendering processes. Rendered MBM was the ingredient found to cause recent outbreaks in bovine spongiform encephalopathy, more commonly known as mad cow disease.¹² Cats are known to be susceptible to a form of TSE called feline spongiform encephalopathy.¹³

Effective April 2009, the FDA restricted body parts of ruminants that are at high risk for TSE, also known as specified risk materials (SRMs), from entering animal feed. These restrictions apply to the brains and spinal cords of select cows, generally 30 months of age or older.¹⁴ However, this is only enforced for SRMs of ruminants, rather than all animals entering the rendering process, including cats and dogs.

Despite the final ruling prohibiting SRMs in animal feed and pet food, it is clear that the FDA Compliance Policy

Guides allow for a legal work-around, neglecting regulations for non-ruminant animals. Susan Thixton, pet food expert and author, states, “The FDA allows pet foods that contain illegal ingredients sourced from diseased animals or animals that have died otherwise than by slaughter (labeled by FDA as ‘suitable for use in animal feed’) to be marketed/sold to unknowing pet owning consumers as ‘premium’, ‘choice’, and a long list of pleasing terms.”¹⁵

The allowance of “adulterated” ingredients into pet food can be seen throughout FDA legal jargon clearly specifying certain food unfit for “people food” or “human food,” but not unfit for animal food. For example, the FDA website states, “Cows that are unable to walk or that show other signs of disease are not used to make food for people.” But, the Compliance Policy Guides clearly allow for these potentially diseased animals to enter pet food.¹⁶

The primary reason why “adulterated” ingredients from dead and downer animals have not been prohibited from pet and animal feed in the U.S. is economic. Due to the cost of their disposal, and the environmental and human health risks of improper disposal, there is economic incentive for the use of these materials. Economic analyses by independent entities estimate that lost sales by the rendering industry would total approximately \$192 million if dead and downer cattle were restricted from animal food.¹⁷

Should dead and downer cattle be prohibited from entering the animal food chain, the cost of landfilling this material would fall on the livestock producers, amounting to approximately \$100 per ton for landfilling, in addition to the costs associated with transportation and labor. Garth Merrick of Merrick Pet Food wrote a letter to the FDA in defense of the use of dead stock in animal feed stating, “Our country is looking at the enormous challenge of annually disposing of billions of pounds of cattle.”¹⁸

According to a report prepared for the National Rendering Association, there is a potential environmental impact associated with alternative methods of disposal.¹⁹ The risk of environmental contamination with disease organisms (*Campylobacter*, *E. coli*, *Listeria*, *Salmonella*, *Bacillus anthracis*, *Leptospira*, and *Yersinia*) and hazardous agents such as methane, disinfectants, dioxins, and particulates greatly increases when this material is buried, composted, and incinerated, as opposed to rendered.²⁰ Without the rendering industry, it would be necessary to discard or dispose of animal byproducts and mortalities in community landfills, compost piles, burial sites, incinerators or, worse, left in illegal dumping places, causing a potential public health hazard.²¹

There is no denying that there are environmental challenges surrounding the disposal of SRMs, and dead and downer animals. But putting this material into animal food to increase the profitability of rendering plants, livestock producers, and pet food companies is clearly not an ethical solution to the problem.

Changing our farming practices to preventatively reduce the number of dead and downed animals would have a huge impact on the amount of adulterated waste material produced in the first place. It is well documented that properly maintained pasture systems have fewer sick animals when compared to concentrated animal feeding operations (CAFOs), commonly referred to as “factory farms” or “feedlots.” The USDA National Organic Program (NOP) states that, “Pasture-based systems have been shown to reduce hock lesions and other lameness, mastitis, veterinary expenses, and cull rates.”²²



PHOTO: THINKSTOCK

Concerns exist about the allowance of meat from sickly “downer” cows in even the most premium pet foods. Foods containing rendered products that are not species specific, such as “meat meal” or “meat and bone meal,” are problematic for many reasons.

The Cornucopia Institute hopes that increased consumer awareness about the rendering process and its impact on pet food will lead to market impacts, more informed choices in the grocery aisles, and, ultimately, a call on producers to abstain from using these contaminants in their products. Our pets deserve food that is free of drugs and microbial toxins from adulterated food, not the byproducts of convenience measures taken to dispose of waste products from our conventional, unsustainable farming practices.

Section II: Pet Food Ingredients to Avoid

WHILE MOST OF US CARE DEEPLY for our four-legged friends, we may or may not be accustomed to carefully reading ingredient labels on the food we feed them from day to day. And, even if we do consider ourselves conscientious consumers, we may not realize that our pets' food often contains some of the same chemicals we try to avoid in human food products.

While this section does not cover all dangerous and/or poor quality ingredients, it is an extensive list of the potentially harmful additives currently found in pet food brands across the spectrum, from the cheaper brands to those advertised as “premium.” Familiarize yourself with these toxic additives so you can avoid products containing them the next time you purchase pet food.

Carrageenan

You may be unknowingly harming your pets by feeding them wet food, even from the most expensive, “premium” brands — despite care taken to find formulations high in the best-quality animal-based proteins, low in carbohydrates, and even USDA certified organic.

Many of these brands, even including some prescription diets designed for pets that are suffering from gastrointestinal disease, contain carrageenan.

Carrageenan is a non-nutritive food additive extracted with alkali from different red seaweed species (*Rhodophyceae*). It is used as a thickener, stabilizer, and emulsifier in some dairy products, sandwich meats, infant formulas, dairy substitutes (e.g. almond and soy milk), frozen pizza dough, and wet pet food, among other products.

Cornucopia's research found that more than 70% of canned pet foods contain carrageenan. Extensive peer-reviewed and published research indicates that food-grade carrageenan causes intestinal inflammation with the potential to lead to cancer, even in small doses.

Carrageenans are highly sulfated polysaccharides with different molecular structures. The most common types added to food are kappa, iota, and lambda carrageenans, which are found in varying combinations in different red seaweeds and during different life stages of the various red algal species. The types of carrageenan differ in “degree of sulfation, extent of branching, solubility, cation binding, and ability to form gels under different conditions.”²³



PHOTO: DOLLAR PHOTO CLUB

Carrageenan is a common ingredient in canned pet food. Certain types of carrageenan are used to induce inflammation in laboratory animals. Alarmingly, this inflammatory type is also present in varying percentages in food-grade carrageenan.

There is much misinformation surrounding the safety of carrageenan, largely generated by its manufacturers and the processed food companies that use it. Low molecular weight carrageenan, known as *poligeenan*, is classified by the International Agency for Research on Cancer as a “possible human carcinogen” (Group 2B). Poligeenan is widely used in cancer research to give test animals inflammation cancer, for testing cancer treatments and anti-inflammatory drugs.

While poligeenan has well-documented inflammatory and carcinogenic properties, food-grade carrageenan was thought to be “high molecular weight” and safe to eat. However, the viscosity requirement to qualify carrageenan as food-grade does not exclude the presence of low-molecular-weight poligeenan. In fact, the carcinogenic low-

molecular-weight poligeenan is found naturally, in varying percentages, in all food-grade carrageenan, and exposure to heat, acid, digestive enzymes, and bacteria (i.e., digestion) increases the amount of poligeenan detected.²⁴ Meanwhile, industry-funded propaganda often fails to point out that food-grade carrageenan does in fact contain dangerous poligeenan in varying amounts, usually around 5%.

The European Commission requires that carrageenan for use in food must not contain more than 5% poligeenan (more specifically, 5% molar mass with molecular weight less than 50,000 Da).²⁵ However, the industry's own studies show a failure to reliably measure amounts of poligeenan.²⁶ The fact that food-grade carrageenan contains poligeenan in any amount should be enough to ban its use in both human and pet food, considering its well-documented carcinogenic properties, even at small doses.²⁷

For over 20 years, independent research has demonstrated that food-grade carrageenan increases free radicals, disrupts insulin metabolism, and induces inflammation, a precursor to cancer. Studies funded by the American Diabetes Association have linked the consumption of food-grade carrageenan to insulin resistance and glucose intolerance.²⁸ Meanwhile, industry-funded studies assure that it is safe.²⁹



PHOTO: THINKSTOCK

Adulterated ingredients and nutritional imbalances can lead to inflammatory bowel disease, and worse, in cats and dogs.

mice, indicating that it is likely to cause a similar reaction in all mammals, including cats and dogs.

The mechanism by which food-grade carrageenan contributes to colon carcinogenesis is also well documented.³⁴⁻³² Carrageenan interrupts a homeostatic signaling pathway that enables uncontrolled proliferation and tumorigenesis to occur, with the potential to lead to polyp formation and colorectal cancer in mouse and human colonic epithelial cells. The research concludes that “because carrageenan is a common food additive, widely used in the Western diet, the current studies may be highly relevant to disease, and exposure to carrageenan may be a risk factor for development of colorectal cancer.”

Pets that eat primarily wet food containing carrageenan will consume daily doses in amounts known to cause inflammation and cancer.³³ In fact, inflammatory bowel disease (IBD) in cats is the most common cause of vomiting and diarrhea.³⁴ Dr. Joanne Tobacman, M.D., associate professor of clinical medicine at the University of Illinois at Chicago, states, “It is likely that carrageenan exposure in pet food can cause inflammation and contribute to illness, since carrageenan is well-known to cause inflammation.” Unfortunately, policy changes are often years behind the latest scientific research due to corporate lobbying and industry-funded studies that conflict with independent research.

Veterinary doctors agree. “If one does a PubMed search of carrageenan, they will find many references to ‘carrageenan-induced inflammation’, disturbing in light of how common IBD is in cats,” states Dr. Lisa A. Pierson, DVM. “Animal studies have repeatedly shown that food-grade carrageenan causes gastrointestinal inflammation and cancer at lower doses than the average daily intake. Given the high rates of colon cancer in both dogs and cats, I highly recommend removing carrageenan from your pet’s diet,” says Dr. Michael Dym, DVM.

PHOTO: THE CORNUCOPIA INSTITUTE



Reading ingredient labels is important to avoid carrageenan. While both of these formulas are USDA certified organic, the formula on the right contains carrageenan while the one on the left does not.

Independent research at the Jesse Brown Veterans Administration Medical Center in Chicago, using both human and mouse epithelial cells, further demonstrates the mechanism by which inflammatory responses occur after exposure to food-grade carrageenan in doses less than the anticipated average daily intake (50 mg/30 g mouse vs. 250 mg/60 kg person).³⁰ This research confirms that carrageenan-induced inflammation occurs in both humans and

The frequency of inflammatory bowel diseases in cats and dogs raises concerns about conventional pet food and its effect on the gut, including changes in the gut microbiota.^{35, 36} Dr. Ron Hines states that “IBD is probably a group of diseases with similar symptoms but a variety of causes. Like a complex computer program, anything that causes your cat’s immune system to make an error and get out of whack is a possible cause. Scientists and veterinarians speculate that perhaps sensitivities to food ingredients, the chemical products of harmless intestinal bacteria, or toxins in the pet’s environment could all be responsible. The high carbohydrate/grain content of most commercial cat foods may also be involved.”

Some pet food brands are now advertising that they do not include carrageenan, such as Zignature dog food and Weruva cat food. Meanwhile, Hill’s Science Diet contains carrageenan despite the label stating the brand is “veterinary recommended.” Many brands contain some formulations with carrageenan and others without it, so it is important to check the label. Carrageenan can easily be replaced by safer alternatives in pet foods, including tomato paste, guar gum, potato starch, pea starch, tapioca, and garbanzo bean flour.

If your pet’s canned food contains carrageenan, call the manufacturer and ask to see the independent, peer-reviewed science (not that which is funded by the carrageenan industry) proving the safety of the ingredient. Write to The Cornucopia Institute and let us know what they say.

For an independent review of the scientific literature on food-grade carrageenan, please see Cornucopia’s report, *Carrageenan: How a “Natural” Food Additive Is Making Us Sick*, under the Reports tab at cornucopia.org.



PHOTO: DOLLAR PHOTO CLUB

Avoid synthetic preservatives in pet food such as BHA, BHT, ethoxyquin, and propylene glycol.

Synthetic Preservatives

Synthetic preservatives approved for use in commercial pet foods include butylated hydroxyanisole (BHA) and butylated hydroxytoluene (BHT), propyl gallate, propylene glycol, and ethoxyquin. Due to the addition of these preservatives, the shelf-life of some pet foods is up to 25 years—longer than the life of your pet!

BHA and BHT are waxy solids used as preservatives in food, packaging, animal feed, medicine, cosmetics, rubber, and petroleum products. They are added to fats to prevent rancidification. The National Institute of Health reports that both BHA and BHT are carcinogens, based on animal experimentation. When administered in high doses, both compounds impair blood clotting. BHA causes papillomas and squamous cell carcinomas of the fore-stomach, and BHT causes tumors in the liver. In contrast to BHA and BHT, vitamin E, which is structurally similar and also acts as a preservative, is not carcinogenic.³⁷ Although research indicates that the doses at which humans and pets are exposed to BHA and BHT in their diet likely do not cause harm, vitamin E is a safer alternative.

Ethoxyquin, developed and manufactured by Monsanto Company (USA), is used to prevent lipid peroxidation, a process by which free radicals degrade lipids and damage cells.³⁸ Despite tests done by Monsanto demonstrating the safety of ethoxyquin, harmful effects in animals and humans occupationally exposed to it were observed. It has been associated with liver, kidney, and thyroid damage, as well as allergic reactions, skin and hair abnormalities, reproductive dysfunction, embryonic mutations, and carcinogenic effects.³⁹ The carcinogenicity of ethoxyquin is connected to its ability to induce reactive oxygen radicals that cause DNA damage.

Keeping track of whether or not your pet food contains ethoxyquin is difficult, because it is often added as a component of an ingredient and therefore is not required to be on the label. It is most often used to preserve fish meal.



PHOTO: THE CORNUCOPIA INSTITUTE

Weruva promotes some formulas as “carrageenan free” while selling others that contain the additive.

Ethoxyquin is not permitted for use in human food (except to preserve the color of spices such as chili powder and paprika), but it can pass from feed to farmed fish, poultry, and eggs, so humans can be exposed to it at low levels.⁴⁰

Naturox (produced by Kemin Products) is a natural preservative containing a mix of naturally occurring tocopherols and is an FDA-approved alternative to ethoxyquin. If the food you are feeding your pets contains fish meal, chances are it contains ethoxyquin. Because it is impossible to know from the label what preservative is used in individual pet food ingredients, the only option is to call up your pet food company and hope they tell you the truth about what their suppliers are using.

Propylene glycol is another preservative and humectant, used to help retain water, in soft, moist pet foods. It was FDA approved for use in human and animal food, but has since been prohibited in cat food because it causes Heinz body formations (clumps of proteins) within red blood cells. These altered red blood cells have reduced survival time and are more susceptible to oxidative damage. This preservative is still allowed in dog food, despite the fact that dogs are more sensitive to propylene glycol than other animals (LD50 of 9mL/kg for dogs compared to LD50 of 20mL/kg). The Environmental Working Group has ranked propylene glycol at the highest level of concern with regard to its effects on blood; consumption on a regular basis should be avoided by both humans and pets.⁴¹

Rendered Meat Byproducts

Livestock that are dead, diseased, disabled, or dying (the four Ds) are often rendered and used in pet food. Rendering is a process that simultaneously dries whole animal tissue and separates the fat from the bone and protein. The resulting byproducts, to be avoided in your pet food, are listed in the ingredient label as meat and bone meal (MBM), animal fat, animal digest, and/or blood meal.

Pet food manufacturers don't advertise the fact that pet food is composed primarily of food industry waste, which is not problematic in itself. However, animal fat and MBM not specified as belonging to a particular animal species are low-quality pet food ingredients. They are also often products of rendering a mix of different animal species, some which did not die by slaughter. Potentially harmful ingredients in rendered MBM include expired grocery store meat, animals that died of unknown causes on the farm, and restaurant scraps, including used grease from deep-fat fryers.

In addition, animal fat and MBM are the ingredients in pet food most likely to correlate with the presence of sodium pentobarbital, the drug used by veterinarians and shelters for euthanasia. These ingredients may contain fungal and bacterial toxins, pathogens that are not destroyed in the rendering process (such as prions), and carcinogenic free radicals commonly found in used oil.

While funneling food industry waste into pet food provides one solution to major environmental contamination, surely there must be better ways to recycle these potentially harmful waste products than feeding them to our pets. Meat and bone meal should be avoided when shopping for pet food. Instead, look for meals from a specific animal species to avoid these issues.

Bisphenol A (BPA)

BPA is a synthetic chemical used to make plastics and epoxy resins. Because of their poor solubility in water, epoxy resins containing BPA are used to line the inside of food cans, including wet cat and dog foods. BPA is leached from the lining of cans into food.^{42, 43, 44} Due to the molecular similarity of BPA to estradiol, the primary female sex hormone, BPA exhibits hormone-like properties, mimicking the effects of natural estrogen. Low-dose BPA exposure in lab animals contributes to changes in cell proliferation and apoptosis (cell death), thereby contributing the development and progression of cancer. BPA is involved in multiple cancer-related signal transduction pathways, including STAT3, MAPK, and PI3K/AKT. Specifically, BPA is associated with hormone-associated cancers such as breast, ovary, and prostate cancer. BPA exposure has also been linked to cardiovascular disease and diabetes.^{45, 46, 47}

PHOTO: THINKSTOCK



Rendered MBM can include expired grocery store meat, animals that died of unknown causes on the farm, and restaurant scraps.

When reviewing pet food labels, look for natural antioxidants including tocopherols, vitamin C, and flavonoids. These are better choices over synthetic preservatives such as BHT, BHA, propylene glycol, and ethoxyquin. When it comes to avoiding synthetic preservatives in pet food, the best choice is a certified organic product, in which many of these materials are banned or their prohibition verified under the auspices of the USDA.



Choose BPA-free cans when possible and contact companies directly to find out if they use BPA-free linings.

More than 2 billion pounds of BPA is used annually in the U.S., placing it on the High Production Volume Chemicals list produced by the international Organization for Economic Cooperation and Development (OECD). Because of its widespread use in plastics, linings, and inks, humans and animals experience continuous low-level exposures through diet and contact.

In 2006, 38 BPA experts reviewed several hundred studies and issued the Chapel Hill Consensus Statement, which stated “BPA at concentrations found in the human body is associated with organizational changes in the prostate, breast, testis, mammary glands, body size, brain structure and chemistry, and behavior of laboratory animals.” They also concluded that the average BPA levels measured in humans are above those which cause harm in laboratory animals, and that BPA has the potential to bioaccumulate during pregnancy, and in semen. Neural and behavioral effects raised the most concern, in addition to accelerated puberty.⁴⁸

The canning processes for both human food and pet food often involve heating the food after it is canned to high temperatures, allowing greater quantities of BPA to leach into the food from the lining. PET (polyethylene terephthalate) is a safer, BPA-free alternative laminate used to line aluminum and steel cans. Some pet food companies have made the switch to BPA-free; however, BPA-free cans have only recently become available larger than 5.5 ounces, so most dog food cans still present a threat. If you feed your pets canned food, be sure to check for BPA-free linings.

Sodium Selenite

Selenium is an essential trace element used by animals for antioxidant defense, fertility, thyroid hormone metabolism, immune response, and muscle development. Fish, meat, poultry, whole grains, and dairy are common sources of this essential nutrient. Grains used in pet food naturally contain varying levels of selenium, depending on the amount of selenium in the soil where the grain was grown. Likewise, different meat ingredients contain varying levels of selenium based on differing selenium levels in grass and feed.

Selenium deficiencies occur in pets (and humans) because they are not eating high quality grass-fed meats. In fact, “white muscle disease” is a degeneration of muscle in cattle foraging on selenium-depleted soils. Keshan disease is a cardiac muscle degeneration disease in humans with selenium deficiencies. In the 1980s, the lack of selenium in artificial feeding solutions caused patients on long-term artificial feeding to die from cardiomyopathy.⁴⁹ In addition, there is an inverse correlation between soil selenium, selenium intake, selenium blood levels, and cancer incidence.⁵⁰

Supplementation is beneficial if the amount of selenium that occurs naturally in an animal’s diet is deficient. Selenium is added to pet food primarily in the form of inorganic sodium selenite, rather than a naturally occurring, organic form. AAFCO and the FDA approved sodium selenite for use in animal feed and pet foods because “only the inorganic selenium salts (sodium selenite and sodium selenite) were available at a cost permitting their use in animal feed,” according to the *Journal of the American College of Nutrition*.⁵¹

However, selenium toxicity can also occur. The maximum safe single oral dose of selenium is suggested as 0.05 mg Se/kg body weight. Selenium toxicity can cause severe gastrointestinal and neurological symptoms, respiratory issues, heart attack, hair loss, muscle tenderness, tremors, lightheadedness, facial flushing, kidney failure, and, in rare cases, death.

Si Silicon 355	P Phosphorus 30.973762	Sulfur 32.065	35
Ge Germanium	As Arsenic 74.9216	Se Selenium 78.96	Br Bromine 79.904
51	Sb Antimony	52	Te Tellurium
53	I Iodine 126.90447	83	5

Selenium is an important mineral for optimum health. However, too much from the wrong sources can be toxic.

In cases of excess selenium in the diet, inorganic sources of selenium, such as sodium selenite, have shown to be more toxic than organic sources, such as selenium yeast.⁵² An independent researcher at the Centre for Nutrition and Food Safety, School of Biomedical and Molecular Sciences, University of Surrey concludes, “Of about one dozen supplementation studies, none has shown evidence of toxicity [from selenium yeasts] even up to an intake level of 800 microg Se/d over a period of years. It is concluded that selenium yeast from reputable manufacturers is adequately characterized, of reproducible quality, and that there is no evidence of toxicity even at levels far above the EC tolerable upper intake level of 300 microg Se/d.”⁵³

Since pet foods do not test basal selenium levels in their product, excess selenium from supplementation is possible. The federal government’s 2010 Dietary Guidelines notes, “Nutrients should come primarily from foods. Foods in nutrient-dense, mostly intact forms contain not only the essential vitamins and minerals that are often contained in nutrient supplements, but also dietary fiber and other naturally occurring substances that may have positive health effects.”⁵⁴ Many pet foods have sodium selenite in them. When shopping for your pet, keep in mind that he/she would benefit the most from a high-quality, naturally occurring diet.

Food Dyes

PHOTO: DOLLAR PHOTO CLUB



Pet treats made with synthetic food dyes should be avoided due to their health risks.

Food dyes are often added to pet foods to imitate the color of fruit, vegetables, and meat. Commonly used food dyes in dry kibble include red 40, yellow 5, yellow 6, and blue 2. Dyes are not individual chemicals; rather, they are composed of multiple impurities from manufacturing.

The Center for Science in the Public Interest (CSPI) has provided an in-depth review of each of these dyes, and

summarizes scientific literature that raises concerns over their safety.⁵⁵ Following is a list of these compounds and their alarming effects on health:

- Red 40 is the most commonly used dye. It is associated with immune system tumors in mice, allergic reactions, and hyperactivity in children.⁵⁶ Amaranth is a natural source of red dye (red 2) and is not affiliated with hyperactivity.⁵⁷
- Yellow 5, the second most commonly used dye, is permitted to contain mercury, arsenic, and lead.⁵⁸ Yellow 5 causes an allergic reaction in some individuals and is associated with hyperactivity in children.^{59, 60}
- Yellow 6 also causes an allergic reaction in some individuals and is associated with adrenal tumors in animal testing.^{61, 62}
- Blue 2 has been correlated to a statistically significant increase in brain tumors when compared to controls.⁶³

The majority of safety testing on food dyes is done for each dye separately, despite the fact that food is often consumed with a mixture of dyes and could have compound, interactive effects. Dye mixtures have been associated with allergic reactions, hyperactivity, organ damage and cancer.^{64, 65}

Food dyes are used only to please the consumer—they have no appeal to a cat or dog. Given the questionable safety of many of the dyes, there is no reason to choose pet food that is colored. As with synthetic preservatives, the best way to avoid artificial colors is to choose certified organic products, where their prohibition is verified by the USDA.

Grains and Carbohydrates

Many brands of pet food contain one or more fillers (e.g. corn, wheat, corn gluten meal, soybean meal, and brewers rice) with little to no nutritional benefit. Though grains need not be avoided completely in pet food, cats and dogs are carnivorous and should be given diets primarily based on meat.

Ingredients are listed in decreasing order by weight. This can be deceptive, however, as different types of cereals and grains can be listed separately. Grains may be listed after a meat ingredient, but still make up the majority of the food. For example, an ingredient label containing chicken meal first, followed by ground corn and corn gluten meal, may contain more corn than chicken meal, even though chicken meal was listed first. When the corn ingredients are combined, they may constitute a greater part of the food than the first ingredient.

Like meat byproducts, grains which may no longer be fit for human consumption are still allowed in pet food. Consuming moldy grains is arguably the most detrimental health hazard in pet food ingredients, due to the toxins produced by the molds. Mycotoxins, including aflatoxins (produced

by *Aspergillus* species of fungi), and fumonisins (produced by *Fusarium* species of fungi), are among the most carcinogenic substances known. Many of the more than 300 mycotoxins known to exist are commonly found on corn, sorghum, wheat, rye, barley, oats, and nuts.

The presence of mycotoxins is among the most common causes of pet food recalls.⁶⁶ Though the FDA has protocols for monitoring mycotoxin presence, the frequency of recalls due to mycotoxin presence is not worth the risk of buying dog food containing grains, especially considering grains are not necessary in your cat's or dog's diet.⁶⁷

Pea Protein Meal

Pea protein is a powder that is used to boost the protein content of a food without adding the carbohydrate of the pea. While high in the amino acids lysine and arginine, it is not a complete protein. Pea protein in combination with rice protein does provide a complete amino acid profile. Pea protein is a cheaper way to boost the protein content

of pet food rather than adding meat, eggs, or dairy, all of which are complete proteins.

Pea protein powder is a candidate for adulteration with melamine or other protein-boosting contaminants. Different extraction processes, including physical and enzymatic extractions, cause the final product to vary in quality and composition.⁶⁸ The leading pea protein manufacturers are located in China, including Axiom, Nutri Pea, Cosucra, Roquette, and Jianyuan Foods. Pea protein is often produced in facilities that are not owned by the pet food manufacturers.

Even if companies have learned their lesson from the widespread recalls from past protein adulteration scandals, highly processed ingredients are still suspect and far less nutritious than their whole food counterparts. Whole foods contain all the vitamins, minerals, and antioxidants naturally present, while avoiding the residues and chemical changes that result from extraction processes. Eggs, dairy, meat, or whole peas are all better choices for protein sources than pea protein powder.

THE PET FOOD RECALL OF 2007

The largest pet food recall in history, which began on March 16, 2007, involved more than 100 pet food companies and millions of pounds of food. As many as 18,000 dogs and cats died as a result of the adulteration of wheat flour, due to the use of inexpensive melamine and other compounds, such as cyanuric acid, ammeline, and ammeline. Several Chinese companies sold what they claimed to be wheat gluten, rice protein, and corn gluten, but which actually proved to be wheat flour adulterated with compounds used to inflate the apparent protein content.

The combination of melamine and cyanuric acid is more toxic than either of the individual compounds alone and causes kidney failure. The brands thought to contain the tainted wheat flour included 109 dog food brands and 91 cat food brands, and involved many top-selling brands, such as Iams, Eukanuba, Purina, and Hill's (the makers of Science Diet). The recall also applied to premium brands specifically marketed as "natural," such as Blue Buffalo, Champion Pet Food, Evolve,



PHOTO: DOLLAR PHOTO CLUB

As many as 18,000 dogs and cats died due to the adulteration of wheat flour in the pet food that was ultimately recalled. Mold-induced mycotoxins are among the most common causes of pet food recalls.

Mulligan's Stew, Natural Balance, and Nutro, among others.⁶⁹

The widespread reliance on ingredients from China in the pet food industry, and increasingly in conventional and organic food for human consumption, is disturbing. A few manufacturers represent their products as being made exclusively from U.S. ingredients; however, many vitamins and minerals come exclusively from China, such as vitamin C.

On average, there is one pet food or pet treat recalled every three or four months, usually for bacterial contamination, the presence of toxins caused by the use of moldy grains, or high levels of lead or diethylene glycol.⁷⁰ Given the limited testing, it is wise to avoid pet foods that potentially contain melamine-tainted ingredients such as wheat, rice, corn, and other powdered forms of protein.

Forage Fish

“Forage fish,” also called “bait fish” or “prey fish,” are small fish that feed on plankton and swim in schools in the open water. They include sardines, herring, anchovies, and capelin. Forage fish populations are in decline, a matter of

concern because they play an integral role in the health of marine ecosystems, and make up the diet for larger fish like tuna, swordfish, cod, and marine birds and mammals.

Forage fish are sold to the U.S., and around the world, for canned cat and dog food or as feed for poultry, pigs, and farm-raised fish. Eighty percent of the forage fish caught is marketed for animal consumption, and 2.5 million tons of forage fish catch is consumed by the global cat food industry annually.⁷¹

The number of forage fish has continued to decline since the 1970s, and research indicates that even if fisheries are sustainably managed, forage fish populations will never recover to previous numbers.⁷² Some argue that the premium pet food industry should be restricted to the use of the byproducts of the fish filleting industry rather than using forage fish.⁷³

Much of the forage fish catch comes from the waters off Thailand, where slavery in the fishing industry has been documented, as reported by the New York Times.⁷⁴ The report details horrific violence and punishments that include isolation below deck, murder by casting overboard, and beheadings.

Given the need for greater oversight in the protection of marine resources and human rights, choosing pet food with fish meal byproduct instead of whole fish is the better option as long as it doesn't contain ethoxyquin.

PHOTO: DOLLAR PHOTO CLUB



While foods with *whole fish* on the ingredient label likely contain forage fish that are not sustainably harvested, foods with *fish meal byproduct* may contain the carcinogenic preservative ethoxyquin. Calling your pet food company is the only way to verify whether their fish meal contains ethoxyquin or naturally occurring preservatives such as tocopherols.

Section III: Organic Pet Food

MUCH LIKE THE HEALTHY FOOD CHOICES we make for ourselves, organic options exist for your animal companion. Whether it's an effort to avoid particular allergens, carcinogens, inflammatory ingredients, or to reduce your pet's risk of consuming recalled foods, organic brands offer quality foods made to meet the highest standards available. This section offers a brief history of organic pet food, as well as tips on what to watch out for when reading the labels of your favorite brands.

A Brief History

The USDA's National Organic Program (NOP) announced in 2002 that pet food could be certified organic. The first organic pet food, Organix by Castor & Pollux, was introduced in 2003.

The National Organic Standards Board (NOSB) is the 15-member citizen advisory board Congress mandated to decide which ingredients are allowed in organics and to advise the Secretary of Agriculture. In 2005, the NOSB recommended that an Organic Pet Food Task Force be established to develop recommendations on the labeling of organic pet food.⁷⁵

The industry-dominated Organic Pet Food Task Force, chaired by Brian Connolly, co-founder of Castor & Pollux Pet Works, included representatives from AAFCO, the FDA, the NOSB, the Pet Food Institute (the U.S. trade association for the makers of cat and dog food), and other pet food manufacturers. Recommendations were submitted in the fall of 2006 and were approved by the NOSB in late 2008; they have yet to be adopted by the NOP.⁷⁶

In January 2010, the NOP advised certifying agencies that the vitamins and minerals required by AAFCO for the production of complete diet pet foods were not allowed in certified organic pet food, despite their presence on the National List of materials approved in organics. The NOP's rationale for this statement was that the National List contains items approved for human use, but not necessarily for pets. In response, the Organic Pet Food Task Force peti-

tioned the NOP to approve the inclusion of these essential vitamins and minerals to ensure organic pet foods remain on the shelf.⁷⁷ In 2013, the NOSB passed a motion to list taurine on section 205.603 of the National List for use in organic pet food, but not the other synthetic amino acids. This decision was based on the fact that the complete diet requirement for amino acids other than taurine could be met with organic agricultural ingredients.⁷⁸



At this time, there are no exclusively organic brands of pet food. Look for the organic label on certain formulas to ensure you are buying the best, most nutritious food for your pet.

Marketing Ploys

Pet food offerings are changing all the time, and new formulations such as grain-free and USDA-certified organic offerings are constantly increasing to meet demand. There are no exclusively organic brands, and many companies use deceptive labeling to disguise their non-organic formulas when marketing both.

Perhaps one of the more dubious marketing techniques some companies use is to mimic the USDA Organic logo when the product is, in fact, not organic. For example, Party Animal has a "Made with Love" label that looks nearly identical to the "USDA Organic" seal on their non-organic formulas, strategically placed in the same position (see next page). Such misleading labeling can lead to a lack of trust in a company.

Many organic brands sell "natural" product formulas that are not certified organic. The products labeled "natural" without the USDA Organic seal can contain ingredients that were grown or raised with pesticides, GMO grains, or antibiotics.



Party Animal products display the “Made with Love” label in the same spot on the can as the USDA Organic label on the organic formulas.

Other potentially misleading marketing tactics include the “Made with Organic” label. In this case, generally the only meat ingredient that is actually organic is the first ingredient. The second and third ingredients are often broth, liver, or meal from non-organic meat sources. Alternatively, the second and third ingredients are organic grains, resulting in too many carbohydrates in the finished product. Look for brands with the USDA Organic label containing meat as the first ingredient.

Some pet food brands advertise that their products are “GMO-free” or “made with naturally GMO-free ingredients.” For example, in 2013, Wellness Natural Pet Food announced that all their dry dog foods and dry cat foods were GMO-free. However, the feed given to the meat animals used to produce these pet food products is almost certainly GMO.

More than 90% of the soybean and corn currently produced in the U.S. is GMO. Though pet foods can test to be GMO-free, this does not mean that the meat animals were fed GMO-free grain throughout their life. The USDA Food Safety Inspection Service has only recently approved a non-GMO label for meat, allowed only if that producer is USDA Organic and can prove all the animal feed required to feed the number of animals owned is GMO-free.⁷⁹ The USDA Organic label is currently missing from all Wellness brands, despite GMO-free claims. Only the presence of the USDA Organic label reliably ensures that meat animals were fed GMO-free grain.



The word “Organic” is in bold on certified Cocolicious products (two cans on right) while other marketing terms, such as “Wild Caught,” are in bold in the same place on non-organic products (can on left). Multiple circular labels help to hide the fact that the circular USDA label is missing from some products.

Organic foods should be a safe haven from chemical residues, antibiotics, and questionable synthetic ingredients. Yet many high-end pet foods labeled “natural” and USDA Organic contain carrageenan, including some formulations of Newman’s Own, Castor & Pollux Organix, and Natural Planet Organic. Pet owners need to pay extra attention to avoid this ingredient in their pet’s food because the same brand may sell formulas both with and without carrageenan.

Fortunately, there are a few USDA certified organic wet dog food formulas that do not contain carrageenan, such as Castor & Pollux Organix and Cocolicious. At the time of this report’s publication, Evanger’s and PetGuard are the only USDA-certified organic cat food brands that do not use carrageenan in at least one of their flavors, although not all their formulas are certified organic. Organix cat food shredded chicken flavors, for example, contain carrageenan, although the majority of the brand’s flavors do not. It is important to read each product label, rather than shop for particular brands.



Many companies advertise that their products are “GMO-free,” misleading customers into thinking the animals they source were not fed GMO grain. However, the presence of the USDA Organic label is the best way to ensure that animals were not fed GMO grain.



Organix formulas contain pea protein, rather than whole peas. Some Organix recipes, such as the grain-free shredded chicken formulas, contain other unnecessary ingredients such as powdered cellulose, glycine and dextrose (sweeteners), salt, and carrageenan.



Most of Newman's Own products are not certified organic, but rather "made with organic" ingredients, such as the formulas above. Therefore, the word "Organics" in the brand name on the right may be deceptive. Both of these formulas contain carrageenan.

NEWMAN'S OWN [NOT] ORGANICS



After aggressive legal challenges by The Cornucopia Institute, the USDA finally relented, forcing Newman's Own, and other companies, to remove the word "organic" from labels on products that do not meet certified organic standards. Previously, many formulas marketed by Newman's Own Organics were not certified organic, but rather only "made with organic" ingredients. Some labeling abuses still exist in the marketplace, so consumers should exercise caution.

One of the more cynical approaches to marketing "organic" pet food is exemplified by the brand Newman's Own Organics.

Although they now have a few SKUs (stock keeping units) that are indeed certified organic (95% to 100% meat/no grain varieties), for most of the brand's history all of their products have been "made with organic" ingredients. This

label category means that as much as 30% of a product's ingredients may contain non-organic ingredients.

For example, some varieties of Newman's Own cat food start out with certified organic chicken. That's good. But the second-largest ingredient is (conventional) chicken meal. That's bad. And it gets even worse: the formulas also use conventional liver, the primary detoxification organ, known to accumulate toxic agrichemicals.

The Cornucopia Institute filed formal legal complaints against a number of companies with "organic" or "organics" in their trade name whose product lines were not actually certified organic and therefore qualified to carry the USDA Organic seal. The law prohibits using the word "organic" overtly on the front label unless the ingredients are 95% to 100% certified organic, as required by the federal regulations.

In one case Cornucopia pursued, "Organic Bistro" dodged federal enforcement actions by changing their name to "Artisan Bistro." Another company, Oski Organics, also changed their name, dropping the "O-word." But the USDA took no enforcement action against Newman's Own. They simply closed the case.

However, more than a year later, the USDA issued a policy memorandum warning that the agency will start enforcing the law and companies using the word "organic" in their trade name, for products that are not certified organic, will need to change their labeling.

For Newman's Own, this means they will need to use 95% to 100% organic ingredients or they will have to change their brand name on pet food products. As this report goes to press, it appears Newman's is phasing in the labeling change. However, other companies have yet to take action, so consumers should stay vigilant.

Section IV: Homemade Pet Food

ONE WAY TO ENSURE A HEALTHY DIET for your companion animals is to prepare their food yourself. Many chronic problems such as allergies, vomiting, diarrhea, and skin issues can be solved with homemade meals. The goal is to provide most, if not all, of the nutrients your pet needs in whole-food form. Like people, pets have different optimal nutritional requirements at different stages of their lives, and recipes can be customized based on the specific needs of your pets. Making your own pet food allows you to control the quality of ingredients, and often saves a lot of money. Fresh, real food ensures that your pets' food is lower in artificial and toxic additives.



Preparing your pet's food at home may be the best way to ensure they are getting clean, healthy, and whole diets.

Dogs and cats have different nutritional requirements, and the best homemade diets for your pets are based on research and an understanding of the diets of wild relatives of cats and dogs. In general, the best balance of ingredients for dogs is 75% meat, organs, and bones, and 25% vegetables and fruits.⁸⁰ Though this percentage of vegetables

and fruits is slightly higher than what wild cat and dog relatives may eat, the extra fiber, vitamins, and antioxidants in fruits and vegetables has been shown to be beneficial for long-term health. For cats, who are completely carnivorous in the wild, the best balance of ingredients is 88% meat, organs and bone, and 12% vegetables and fruit.⁸¹

Theoretically, the breakdown should be fairly similar among all animals within the same species. However, the last 200 years of "line breeding" (breeding with relatives to perpetuate specific traits) has created dietary needs specific to certain breeds, particularly for dogs. For example, the hyperactive nature of pointers may require more carbohydrates than other breeds in order to maintain proper weight.

Cats have a harder time switching from dry food, or "kibble," to homemade food. The high salt and fat content of kibble becomes addictive, requiring a transitional weaning process to a homemade diet over a longer period of time. It is important to follow a dietary plan that a veterinarian recommends to ensure that you are getting the proper nutrients to your pet. There are several good books available to help provide recipes and recommendations for supplementation, including calcium and fatty acids.^{82, 83}

Talk to your veterinarian. If he or she is not able to help guide you through the process, you might want to consider finding a veterinarian who is. Nutrition is not emphasized in veterinary school, and it often isn't covered beyond the occasional visits from pet food representatives. There are some ingredients that should be avoided entirely, including garlic and onions (for cats), macadamia nuts, grapes/raisins, avocados, spinach, chocolate, caffeine, milk, and salt. Other concerns involve the dangers of exposure to cooked bones. Pet owners should consult web resources for a comprehensive list.

PHOTO: THINKSTOCK

Conclusion

OVERALL, THE PET FOOD INDUSTRY is failing its customers as a provider of nutritious, wholesome food for our dogs and cats. As a whole, it could be viewed as a waste disposal vehicle for human food manufacturers, exhibiting disregard for the health of its customers. Cheap substitutes and false health claims seem to be the norm. And, unlike humans, who may vary their diets with each meal, dogs and cats are typically fed the same food on a continuous basis, meal after meal, every day for a lifetime. Cumulative exposure to controversial ingredients becomes even more worrisome.



Cornucopia's pet food shopper's guide can help you choose the very best brands for your companion animals. You can view it at cornucopia.org under the Scorecards tab.

It is important for every pet owner to protect the well-being of their loved ones by learning to recognize low quality ingredients and to avoid purchasing products made with questionable materials. Empower yourself by reading labels and choosing high-quality ingredients. The Cornucopia Institute's pet food shopper's guide, available at cornucopia.org, can help you.

PHOTO: DOLLAR PHOTO CLUB

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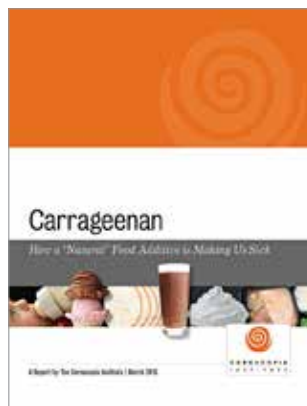
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This report is meant to be an informational guide to assist pet owners in finding high quality pet food. It is not intended to assist in diagnosing illness nor preventing specific disease. Please consult your veterinarian or animal nutritionist for specific dietary recommendations.

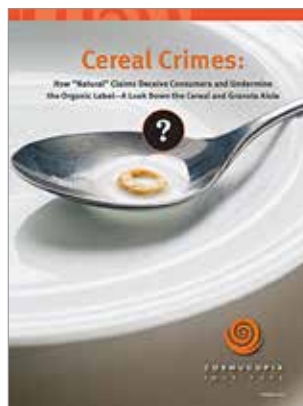
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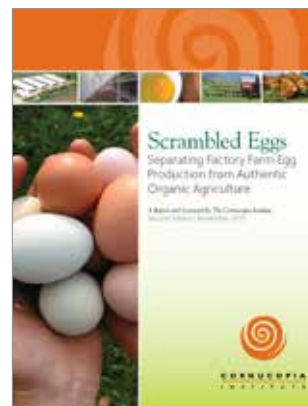
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