

Get The Facts: What's Really in Pet Food

(Information provided by Animal Protection Institute – api4animal.org and Updated May 2007)

Plump whole chickens, choice cuts of beef, fresh grains, and all the wholesome nutrition your dog or cat will ever need.

These are the images pet food manufacturers promulgate through the media and advertising. This is what the \$15 billion per year U.S. pet food industry wants consumers to believe they are buying when they purchase their products.

This report explores the differences between what consumers think they are buying and what they are actually getting. It focuses in very general terms on the most visible name brands — the pet food labels that are mass-distributed to supermarkets and discount stores — but there are many highly respected brands that may be guilty of the same offenses.

What most consumers don't know is that the pet food industry is an extension of the human food and agriculture industries. Pet food provides a convenient way for slaughterhouse offal, grains considered "unfit for human consumption," and similar waste products to be turned into profit. This waste includes intestines, udders, heads, hooves, and possibly diseased and cancerous animal parts.

The Players

The pet food market has been dominated in the last few years by the acquisition of big companies by even bigger companies. With \$15 billion a year at stake in the U.S. and rapidly expanding foreign markets, it's no wonder that some are greedy for a larger piece of the pie.

- Nestlé's bought Purina to form Nestlé Purina Petcare Company (Fancy Feast, Alpo, Friskies, Mighty Dog, Dog Chow, Cat Chow, Puppy Chow, Kitten Chow, Beneful, One, ProPlan, DeliCat, HiPro, Kit'n'Kaboodle, Tender Vittles, Purina Veterinary Diets).
- Del Monte gobbled up Heinz (MeowMix, Gravy Train, Kibbles 'n Bits, Wagwells, 9Lives, Cycle, Skippy, Nature's Recipe, and pet treats Milk Bone, Pup-Peroni, Sausages, Pounce).
- MasterFoods owns Mars, Inc., which consumed Royal Canin (Pedigree, Waltham's, Cesar, Sheba, Temptations, Goodlife Recipe, Sensible Choice, Excel).

Other major pet food makers are not best known for pet care, although many of their household and personal care products do use ingredients derived from animal by-products:

- Procter and Gamble (P&G) purchased The Iams Company (Iams, Eukanuba) in 1999. P&G shortly thereafter introduced Iams into grocery stores, where it did very well.
- Colgate-Palmolive bought Hill's Science Diet (founded in 1939) in 1976 (Hill's Science Diet, Prescription Diets, Nature's Best).

Private labelers (who make food for "house" brands like Kroger and Wal-Mart) and co-packers (who produce food for other pet food makers) are also major players. Three major companies are Doane Pet Care, Diamond, and Menu Foods; they produce food for dozens of private label and brand names. Interestingly, all 3 of these companies have been involved in pet food recalls that sickened or killed many pets.

Many major pet food companies in the United States are subsidiaries of gigantic multinational corporations. From a business standpoint, pet food fits very well with companies making human products. The multinationals have increased bulk-purchasing power; those that make human food products have a captive market in which to capitalize on their waste products; and pet food divisions have a more reliable capital base and, in many cases, a convenient source of ingredients.

The Pet Food Institute — the trade association of pet food manufacturers — has acknowledged the use of by-products in pet foods as additional income for processors and farmers: "The growth of the pet food industry not only provided pet owners with better foods for their pets, but also created profitable additional markets for American farm products and for the byproducts of the meat packing, poultry, and other food industries which prepare food for human consumption."¹

Label Basics

There are special labeling requirements for pet food, all of which are contained in the annually revised *Official Publication* of AAFCO.² While AAFCO does not regulate pet food, it does provide model regulations and standards that are followed by U.S. pet food makers.

The name of the food provides the first indication of the food's content. The use of the terms "all" or "100%" cannot be used "if the product contains more than one

ingredient, not including water sufficient for processing, decharacterizing agents, or trace amounts of preservatives and condiments.”

The “95% Rule” applies when the ingredient(s) derived from animals, poultry, or fish constitutes at least 95% or more of the total weight of the product (or 70% excluding water for processing). Because all-meat diets are not nutritionally balanced and cause severe deficiencies if fed exclusively, they fell out of favor for many years. However, due to rising consumer interest in high quality meat products, several companies are now promoting 95% and 100% canned meats as a supplemental feeding option.

The “dinner” product is defined by the “25% Rule,” which applies when “an ingredient or a combination of ingredients constitutes at least 25% of the weight of the product (excluding water sufficient for processing)”, or at least 10% of the dry matter weight; and a descriptor such as “recipe,” “platter,” “entree,” and “formula.” A combination of ingredients included in the product name is permissible when each ingredient comprises at least 3% of the product weight, excluding water for processing, and the ingredient names appear in descending order by weight.

The “With” rule allows an ingredient name to appear on the label, such as “with real chicken,” as long as each such ingredient constitutes at least 3% of the food by weight, excluding water for processing.

The “flavor” rule allows a food to be designated as a certain flavor as long as the ingredient(s) are sufficient to “impart a distinctive characteristic” to the food. Thus, a “beef flavor” food may contain a small quantity of digest or other extract of tissues from cattle, or even an artificial flavor, without containing any actual beef meat at all.

The ingredient list is the other major key to what’s really in that bag or can. Ingredients must be listed in descending order of weight. The ingredient names are legally defined. For instance, “meat” refers to only cows, pigs, goats and sheep, and only includes specified muscle tissues. Detailed definitions are published in AAFCO’s *Official Publication*, revised annually, but can also be found in many places online.

The guaranteed analysis provides a very general guide to the composition of the food. Crude protein, fat, and fiber, and total moisture are required to be listed. Some companies also voluntarily list taurine, Omega fatty acids, magnesium, and other items that they deem important — by marketing standards.

Pet Food Standards and Regulations

The National Research Council (NRC) of the Academy of Sciences set the nutritional standards for pet food that were used by the pet food industry until the late 1980s. The original NRC standards were based on purified diets, and required feeding trials for pet foods claimed to be "complete" and "balanced." The pet food industry found the feeding trials too restrictive and expensive, so AAFCO designed an alternate procedure for claiming the nutritional adequacy of pet food, by testing the food for compliance with "Nutrient Profiles." AAFCO also created "expert committees" for canine and feline nutrition, which developed separate canine and feline standards.

While feeding trials are sometimes still done, they are expensive and time-consuming. A standard chemical analysis may also be used to make sure that a food meets the profiles. In either case, there will be a statement on the label stating which method was used. However, because of the "family rule" in the AAFCO book, a label can say that feeding tests were done if it is "similar" to a food that was actually tested on live animals. There is no way to distinguish the lead product from its "family members." The label will also state whether the product is nutritionally adequate (complete and balanced), and what life stage (adult or growth) the food is for. A food that says "all life stages" meets the growth standards and can be fed to all ages.

Chemical analysis, however, does not address the palatability, digestibility, or biological availability of nutrients in pet food. Thus it is unreliable for determining whether a food will provide an animal with sufficient nutrients. To compensate for the limitations of chemical analysis, AAFCO added a "safety factor," which was to exceed the minimum amount of nutrients required to meet the complete and balanced requirements.

In 2006, new NRC standards were published; but it will take several years for AAFCO's profiles to be updated and adopted, let alone accepted by the states.

The pet food industry loves to say that it's more highly regulated than human food, but that's just not true. Pet food exists in a bit of a regulatory vacuum; laws are on the books, but enforcement is another story. The FDA has nominal authority over pet foods shipped across state lines. But the real "enforcers" are the feed control officials in each state. They are the ones who actually look at the food and, in many instances, run basic tests to make sure the food meets its Guaranteed Analysis, the chart on the label telling how much protein, fat, moisture, and fiber are present. But

regulation and enforcement vary tremendously from state to state. Some, like Texas, Minnesota, and Kentucky, run extensive tests and strictly enforce their laws; others, like California, do neither.

The Manufacturing Process: How Pet Food Is Made

Dry Food

The vast majority of dry food is made with a machine called an extruder. First, materials are blended in accordance with a recipe created with the help of computer programs that provide the nutrient content of each proposed ingredient. For instance, corn gluten meal has more protein than wheat flour. Because the extruder needs a consistent amount of starch and low moisture to work properly, dry ingredients — such as rendered meat-and-bone-meal, poultry by-product meal, grains, and flours — predominate.

The dough is fed into the screws of an extruder. It is subjected to steam and high pressure as it is pushed through dies that determine the shape of the final product, much like the nozzles used in cake decorating. As the hot, pressurized dough exits the extruder, it is cut by a set of rapidly whirling knives into tiny pieces. As the dough reaches normal air pressure, it expands or “puffs” into its final shape. The food is allowed to dry, and then is usually sprayed with fat, digests, or other compounds to make it more palatable. When it is cooled, it can be bagged.

Although the cooking process kills bacteria in the ingredients, the final product can pick up more bacteria during the subsequent drying, coating, and packaging process. Some experts warn that getting dry food wet can allow the bacteria on the surface to multiply and make pets sick. **Do not mix dry food with water, milk, canned food, or other liquids.**

A few dog foods are baked at high temperatures (over 500°F) rather than extruded. This produces a sheet of dense, crunchy material that is then broken into irregular chunks, much like crumbling crackers into soup. It is relatively palatable without the sprayed-on fats and other enhancers needed on extruded dry food.

Semi-moist foods and many pet treats are also made with an extruder. To be appealing to consumers and to keep their texture, they contain many additives, colorings, and preservatives; they are not a good choice for a pet’s primary diet.

Wet Food

Wet or canned food begins with ground ingredients mixed with additives. If chunks are required, a special extruder forms them. Then the mixture is cooked and canned. The sealed cans are then put into containers resembling pressure cookers and commercial sterilization takes place. Some manufacturers cook the food right in the can.

Wet foods are quite different in content from dry or semi-moist foods. While many canned foods contain by-products of various sorts, they are "fresh" and not rendered or processed (although they are often frozen for transport and storage). Wet foods usually contain much more protein, and it's often a little higher quality, than dry foods. They also have more moisture, which is better for cats. They are packaged in cans or pouches.

Comparing Food Types

Because of the variation in water content, it is impossible to directly compare labels from different kinds of food without a mathematical conversion to "dry matter basis." The numbers can be very deceiving. For instance, a canned food containing 10% protein actually has much more protein than a dry food with 30% protein.

To put the foods on a level playing field, first calculate the dry matter content by subtracting the moisture content given on the label from 100%. Then divide the ingredient by the dry matter content. For example, a typical bag of dry cat food contains 30% protein on the label, but 32% on a dry-matter basis (30% divided by its dry matter content, $100 - 6\% \text{ moisture} = 94\%$). A can of cat food might contain 12% protein on the label, but almost 43% on a dry-matter basis (12% divided by its dry matter content, $100 - 72\% \text{ moisture} = 28\%$). Dry food typically contains less than 10% water, while canned food contains 78% or more water.

Pet Food Ingredients

Animal Protein

Dogs and cats are carnivores, and do best on a meat-based diet. The protein used in pet food comes from a variety of sources. When cattle, swine, chickens, lambs, or other animals are slaughtered, lean muscle tissue is trimmed away from the carcass for human consumption, along with the few organs that people like to eat, such as tongues and tripe.

However, about 50% of every food animal does not get used in human foods. Whatever remains of the carcass — heads, feet, bones, blood, intestines, lungs, spleens, livers, ligaments, fat trimmings, unborn babies, and other parts not generally consumed by humans — is used in pet food, animal feed, fertilizer, industrial lubricants, soap, rubber, and other products. These “other parts” are known as “by-products.” By-products are used in feed for poultry and livestock as well as in pet food.

The nutritional quality of by-products, meals, and digests can vary from batch to batch. James Morris and Quinton Rogers, of the University of California at Davis Veterinary School, assert that, “[pet food] ingredients are generally by-products of the meat, poultry and fishing industries, with the potential for a wide variation in nutrient composition. Claims of nutritional adequacy of pet foods based on the current Association of American Feed Control Officials (AAFCO) nutrient allowances (‘profiles’) do not give assurances of nutritional adequacy and will not until ingredients are analyzed and bioavailability values are incorporated.”³

Meat or poultry “by-products” are very common in wet pet foods. Remember that “meat” refers to only cows, swine, sheep, and goats. Since sheep and goats are rare compared to the 37 million cows and 100 million hogs slaughtered for food every year, nearly all meat by-products come from cattle and pigs.

The better brands of pet food, such as many “super-premium,” “natural,” and “organic” varieties, do not use by-products. On the label, you’ll see one or more named meats among the first few ingredients, such as “turkey” or “lamb.” These meats are still mainly leftover scraps; in the case of poultry, bones are allowed, so “chicken” consists mainly of backs and frames—the spine and ribs, minus their expensive breast meat. The small amount of meat left on the bones is the meat in the pet food. Even with this less-attractive source, pet food marketers are very tricky when talking about meat, so this is explained further in the section on “Marketing Magic” below.

Meat meals, poultry meals, by-product meals, and meat-and-bone meal are common ingredients in dry pet foods. The term “meal” means that these materials are not used fresh, but have been rendered. While there are chicken, turkey, and poultry by-product meals there is no equivalent term for mammal “meat by-product meal” — it is called “meat-and-bone-meal.” It may also be referred to by species, such as “beef-and-bone-meal” or “pork-and-bone-meal.”

What is rendering? As defined by *Webster's Dictionary*, to render is "to process as for industrial use: to render livestock carcasses and to extract oil from fat, blubber, etc., by melting." In other words, raw materials are dumped into large vat and boiled for several hours. Rendering separates fat, removes water, and kills bacteria, viruses, parasites, and other organisms. However, the high temperatures used (270°F/130°C) can alter or destroy natural enzymes and proteins found in the raw ingredients.

Because of persistent rumors that rendered by-products contain dead dogs and cats, the FDA conducted a study looking for pentobarbital, the most common euthanasia drug, in pet foods. They found it. Ingredients that were most commonly associated with the presence of pentobarbital were meat-and-bone-meal and animal fat. However, they also used very sensitive tests to look for canine and feline DNA, which were *not* found. Industry insiders admit that rendered pets and roadkill were used in pet food some years ago. Although there are still no laws or regulations against it, the practice is uncommon today, and pet food companies universally deny that their products contain any such materials. However, so-called "4D" animals (dead, dying, diseased, disabled) were only recently banned for human consumption and are still legitimate ingredients for pet food.

Vegetable Protein

The amount of grain and vegetable products used in pet food has risen dramatically over time. Plant products now replace a considerable proportion of the meat that was used in the earliest commercial pet foods. This has led to severe nutritional deficiencies that have been corrected along the way, although many animals died before science caught up.

Most dry foods contain a large amount of cereal grain or starchy vegetables to provide texture. These high-carbohydrate plant products also provide a cheap source of "energy" — the rest of us call it "calories." Gluten meals are high-protein extracts from which most of the carbohydrate has been removed. They are often used to boost protein percentages without expensive animal-source ingredients. Corn gluten meal is the most commonly used for this purpose. Wheat gluten is also used to create shapes like cuts, bites, chunks, shreds, flakes, and slices, and as a thickener for gravy. In most cases, foods containing vegetable proteins are among the poorer quality foods.

A recent fad, “low-carb” pet food, has some companies steering away from grains, and using potatoes, green peas, and other starchy vegetables as a substitute. Except for animals that are allergic to grains, dry low-carb diets offer no particular advantage to pets. They also tend to be very high in fat and, if fed free-choice, will result in weight gain. Canned versions are suitable for prevention and treatment of feline diabetes, and as part of a weight loss program, as well as for maintenance.

Animal and Poultry Fat

There’s a unique, pungent odor to a new bag of dry pet food — what is the source of that smell? It is most often rendered animal fat, or vegetable fats and oils deemed inedible for humans. For example, used restaurant grease was rendered and routed to pet foods for several years, but a more lucrative market is now in biodiesel fuel production.

These fats are sprayed directly onto extruded kibbles and pellets to make an otherwise bland or distasteful product palatable. The fat also acts as a binding agent to which manufacturers add other flavor enhancers such as “animal digests” made from processed by-products. Pet food scientists have discovered that animals love the taste of these sprayed fats. Manufacturers are masters at getting a dog or a cat to eat something she would normally turn up her nose at.

What Happened to the Nutrients?

Cooking and other processing of meat and by-products used in pet food can greatly diminish their nutritional value, although cooking increases the digestibility of cereal grains and starchy vegetables.

To make pet food nutritious, pet food manufacturers must “fortify” it with vitamins and minerals. Why? Because the ingredients they are using are not wholesome, their quality may be extremely variable, and the harsh manufacturing practices destroy many of the nutrients the food had to begin with.

Proteins are especially vulnerable to heat, and become damaged, or “denatured,” when cooked. Because dry foods ingredients are cooked twice — first during rendering and again in the extruder — problems are much more common than with canned or homemade foods. Altered proteins may contribute to food intolerances, food allergies, and inflammatory bowel disease.

Additives in Processed Pet Foods

Many chemicals are added to commercial pet foods to improve the taste, stability, characteristics, or appearance of the food. Additives provide no nutritional value. Additives include emulsifiers to prevent water and fat from separating, antioxidants to prevent fat from turning rancid, and artificial colors and flavors to make the product more attractive to consumers and more palatable to their companion animals.

A wide variety of additives are allowed in animal feed and pet food, not counting vitamins and minerals. Not all of them are actually used in pet food. Additives can be specifically approved, or they can fall into the category of "Generally Recognized as Safe" (GRAS).

- Anticaking agents
- Antigelling agents
- Antimicrobial agents
- Antioxidants
- Color additives
- Condiments
- Curing agents
- Drying agents
- Emulsifiers
- Essential oils
- Flavor enhancers
- Flavoring agents
- Grinding agents
- Humectants
- Leavening agents
- Lubricants
- Palatants
- Pelleting agents and binders
- Petroleum derivatives
- pH control agents
- Preservatives
- Seasonings
- Spices
- Stabilizers
- Sweeteners

Texturizers

Thickeners

Chemical vs. Natural Preservatives

All commercial pet foods must be preserved so they stay fresh and appealing to our animal companions. Canning is itself a preserving process, so canned foods need little or no additional help. Some preservatives are added to ingredients or raw materials by the suppliers, and others may be added by the manufacturer. The U.S. Coast Guard, for instance, requires fish meal to be heavily preserved with ethoxyquin or equivalent antioxidant. Evidently, spoiling fish meal creates such intense heat that ship explosions and fires resulted.

Because manufacturers need to ensure that dry foods have a long shelf life (typically 12 months) to remain edible through shipping and storage, fats used in pet foods are preserved with either synthetic or "natural" preservatives. Synthetic preservatives include butylated hydroxyanisole (BHA) and butylated hydroxytoluene (BHT), propyl gallate, propylene glycol (also used as a less-toxic version of automotive antifreeze), and ethoxyquin. For these antioxidants, there is little information documenting their toxicity, safety, interactions, or chronic use in pet foods that may be eaten every day for the life of the animal. Propylene glycol was banned in cat food because it causes anemia in cats, but it is still allowed in dog food.

Potentially cancer-causing agents such as BHA, BHT, and ethoxyquin are permitted at relatively low levels. The use of these chemicals in pet foods has not been thoroughly studied, and long term build-up of these agents may ultimately be harmful. Due to questionable data in the original study on its safety, ethoxyquin's manufacturer, Monsanto, was required to perform a new, more rigorous study. This was completed in 1996. Even though Monsanto found no significant toxicity associated with its own product, in July 1997 the FDA's Center for Veterinary Medicine requested that manufacturers voluntarily reduce the maximum level for ethoxyquin by half, to 75 parts per million. While some pet food critics and veterinarians believe that ethoxyquin is a major cause of disease, skin problems, and infertility in dogs, others claim it is the safest, strongest, most stable preservative available for pet food. Ethoxyquin is approved for use in human food for preserving spices, such as cayenne and chili powder, at a level of 100 ppm — but it would be very difficult for even the most hard-core spice lover to consume as much chili powder every day as a dog would eat dry food. Ethoxyquin has never been tested for

safety in cats. Despite this, it is commonly used in veterinary diets for both cats and dogs.

Many pet food makers have responded to consumer concern, and are now using “natural” preservatives such as Vitamin C (ascorbate), Vitamin E (mixed tocopherols), and oils of rosemary, clove, or other spices, to preserve the fats in their products. The shelf life is shorter, however — only about 6 months.

Individual ingredients, such as fish meal, may have preservatives added before they reach the pet food manufacturer. Federal law requires fat preservatives to be disclosed on the label; however, pet food companies do not always comply with this law.

Danger Ahead

Potential Contaminants

Given the types of things manufacturers put in pet food, it is not surprising that bad things sometimes happen. Ingredients used in pet food are often highly contaminated with a wide variety of toxic substances. Some of these are destroyed by processing, but others are not.

- **Bacteria.** Slaughtered animals, as well as those that have died because of disease, injury, or natural causes, are sources of meat, by-products, and rendered meals. An animal that died on the farm might not reach a rendering plant until days after its death. Therefore the carcass is often contaminated with bacteria such as *Salmonella* and *E. coli*. Dangerous *E. Coli* bacteria are estimated to contaminate more than 50% of meat meals. While the cooking process may kill bacteria, it does not eliminate the endotoxins some bacteria produce during their growth. These toxins can survive processing, and can cause sickness and disease. Pet food manufacturers do not test their products for bacterial endotoxins. Because sick or dead animals can be processed as pet foods, the drugs that were used to treat or euthanize them may still be present in the end product. Penicillin and pentobarbital are just two examples of drugs that can pass through processing unchanged. Antibiotics used in livestock production are also thought to contribute to antibiotic resistance in humans.
- **Mycotoxins.** Toxins from mold or fungi are called mycotoxins. Modern farming practices, adverse weather conditions, and improper drying and storage of crops can contribute to mold growth. Pet food ingredients that are most likely to be contaminated with mycotoxins are grains such as wheat and corn, and fish meal.
- **Chemical Residue.** Pesticides and fertilizers may leave residue on plant products. Grains that are condemned for human consumption by the USDA due to residue may legally be used, without limitation, in pet food.
- **GMOs.** Genetically modified plant products are also of concern. By 2006, 89% of the planted area of soybeans, 83% of cotton, and 61% of maize (corn) in the U.S. were genetically modified varieties. Cottonseed meal is a common ingredient of cattle feed; soy and corn are used directly in many pet foods.
- **Acrylamide.** This is a carcinogenic compound formed at cooking temperatures of about 250°F in foods containing certain sugars and the amino acid asparagine (found in large amounts in potatoes and cereal grains). It is formed in a chemical process called the Maillard reaction.^{4, 5} Most dry pet foods

contain cereal grains or potatoes, and they are processed at high temperatures (200–300°F at high pressure during extrusion; baked foods are cooked at well over 500°F); these are perfect conditions for the Maillard reaction. In fact, the Maillard reaction is considered *desirable* in the production of pet food because it imparts a palatable taste, even though it reduces the bioavailability of some amino acids, including taurine and lysine.⁶ The content and potential effects of acrylamide formation in pet foods are unknown.

Pet Food Recalls

When things go really wrong and serious problems are discovered in pet food, the company usually works with the FDA to coordinate a recall of the affected products. While many recalls have been widely publicized, quite a few have not.

- In 1995, Nature's Recipe recalled almost a million pounds of dry dog and cat food after consumers complained that their pets were vomiting and losing their appetite. The problem was a fungus that produced vomitoxin contaminating the wheat.
- In 1999, Doane Pet Care recalled more than a million bags of corn-based dry dog food contaminated with aflatoxin. Products included Ol' Roy (Wal-Mart's brand) and 53 other brands. This time, the toxin killed 25 dogs.
- In 2000, Iams recalled 248,000 pounds of dry dog food distributed in 7 states due to excess DL-Methionine Amino Acid, a urinary acidifier.
- In 2003, a recall was made by Petcurean "Go! Natural" pet food due to circumstantial association with some dogs suffering from liver disease; no cause was ever found.
- In late 2005, a similar recall by Diamond Foods was announced; this time the moldy corn contained a particularly nasty fungal product called aflatoxin; 100 dogs died.
- Also in 2005, 123,000 pounds of cat and dog treats were recalled due to *Salmonella* contamination.
- In 2006, more than 5 million cans of Ol' Roy, American Fare, and other dog foods distributed in the southeast were recalled by the manufacturer, Simmons Pet Food, because the cans' enamel lining was flaking off into the food.
- Also in 2006, Merrick Pet Care recalled almost 200,000 cans of "Wingalings" dog food when metal tags were found in some samples.
- In the most deadly recall of 2006, 4 prescription canned dog and cat foods were recalled by Royal Canin (owned by Mars). The culprit was a serious overdose of Vitamin D that caused calcium deficiency and kidney disease.

- In February 2007, the FDA issued a warning to consumers not to buy "Wild Kitty," a frozen food containing raw meat. Routine testing by FDA had revealed *Salmonella* in the food. FDA specifically warned about the potential for illness in humans, not pets. There were no reports of illness or death of any pets, and the food was not recalled.
- In March 2007, the most lethal pet food in history was the subject of the largest recall ever. Menu Foods recalled more than 100 brands including Iams, Eukanuba, Hill's Science Diet, Purina Mighty Dog, and many store brands including Wal-Mart's. Thousands of pets were sickened (the FDA received more than 17,000 reports) and an estimated 20% died from acute renal failure caused by the food. Cats were more frequently and more severely affected than dogs. The toxin was initially believed to be a pesticide, the rat poison "aminopterin" in one of the ingredients. In April, scientists discovered high levels of melamine, a chemical used in plastics and fertilizers, in wheat gluten and rice protein concentrate imported from China. The melamine had been purposefully added to the ingredients to falsely boost their protein content. Subsequent tests revealed that the melamine-tainted ingredients had also been used in feed for cows, pigs, and chickens and thousands of animals were quarantined and destroyed. In early May, scientists identified the cause of the rapid onset kidney disease that had appeared in dogs and cats as a reaction caused by the combination of melamine and cyanuric acid, both unauthorized chemicals. The fallout from this recall is ongoing as of May 2007 so please be sure to [check the FDA website](#) for the most recent updates.

Nutrition-Related Diseases

The idea that one pet food provides all the nutrition a companion animal will ever need for its entire life is a dangerous myth.

Today, the diets of cats and dogs are a far cry from the variable meat-based diets that their ancestors ate. The unpleasant results of grain-based, processed, year-in and year-out diets are common. Health problems associated with diet include:

- **Urinary tract disease.** Plugs, crystals, and stones are more common in cats eating dry diets, due to the chronic dehydration and highly concentrated urine they cause. "Struvite" stones used to be the most common type in cats, but another more dangerous type, calcium oxalate, has increased and is now tied with struvite. Manipulation of manufactured cat food formulas to increase the acidity of urine has caused the switch. Dogs can also form stones as a result of their diet.

- **Kidney disease.** Chronic dehydration associated with dry diets may also be a contributing factor in the development of kidney disease and chronic renal failure in older cats. Cats have a low thirst drive; in the wild they would get most of their water from their prey. Cats eating dry food do not drink enough water to make up for the lack of moisture in the food. Cats on dry food diets *drink* more water, but the *total water intake* of a cat eating canned food is twice as great.⁷
- **Dental disease.** Contrary to the myth propagated by pet food companies, dry food is not good for teeth.⁸ Given that the vast majority of pets eat dry food, yet the most common health problem in pets is dental disease, this should be obvious. Humans do not floss with crackers, and dry food does not clean the teeth.
- **Obesity.** Feeding recommendations or instructions on the packaging are sometimes inflated so that the consumer will end up feeding — and purchasing — more food. One of the most common health problems in pets, obesity, may also be related to high-carb, high-calorie dry foods. Both dogs and cats respond to low-carb wet food diets. Overweight pets are more prone to arthritis, heart disease, and diabetes. Dry cat food is now considered the cause of feline diabetes; prevention and treatment include switching to a high protein, high moisture, low-carb diet.
- **Chronic digestive problems.** Chronic vomiting, diarrhea, constipation, and inflammatory bowel disease are among the most frequent illnesses treated. These are often the result of an allergy or intolerance to pet food ingredients. The market for “limited antigen” or “novel protein” diets is now a multi-million dollar business. These diets were formulated to address the increasing intolerance to commercial foods that pets have developed. Even so, an animal that tends to develop allergies can develop allergies to the new ingredients, too. One twist is the truly “hypoallergenic” food that has had all its proteins artificially chopped into pieces smaller than can be recognized and reacted to by the immune system. Yet there are documented cases of animals becoming allergic to this food, too. It is important to change brands, flavors, and protein sources every few months to prevent problems.
- **Bloat.** Feeding only one meal per day can cause the irritation of the esophagus by stomach acid, and appears to be associated with gastric dilation and volvulus (canine bloat). Feeding two or more smaller meals is better.
- **Heart disease.** An often-fatal heart disease in cats and some dogs is now known to be caused by a deficiency of the amino acid taurine. Blindness is another symptom of taurine deficiency. This deficiency was due to inadequate amounts of taurine in cat food formulas, which in turn had occurred due to decreased amounts of animal proteins and increased reliance on carbohydrates. Cat foods are now

supplemented with taurine. New research suggests that some dog breeds are susceptible to the same condition. Supplementing taurine may also be helpful for dogs, but as yet few manufacturers are adding extra taurine to dog food.

- **Hyperthyroidism.** There is also evidence that hyperthyroidism in cats may be related to diet. This is a relatively new disease that first surfaced in the 1970s. Some experts theorize that excess iodine in commercial cat food is a factor. New research also points to a link between the disease and pop-top cans, and flavors including fish or "giblets." This is a serious disease, and treatment is expensive.

Many nutritional problems appeared with the popularity of cereal-based commercial pet foods. Some have occurred because the diet was incomplete. Although several ingredients are now supplemented, we do not know what ingredients future researchers may discover that should have been supplemented in pet foods all along. Other problems may occur from reactions to additives. Others are a result of contamination with bacteria, mold, drugs, or other toxins. In some diseases the role of commercial pet food is understood; in others, it is not. The bottom line is that diets composed primarily of low quality cereals and rendered meals are not as nutritious or safe as you should expect for your cat or dog.

Pet Food Industry Secrets

Co-Packing

The 2007 Menu Foods recall brought to light some of the pet food industry's dirtiest secrets.

Most people were surprised — and appalled — to learn that all Iams/Eukanuba canned foods are not made by The Iams Company at all. In fact, in 2003 Iams signed an exclusive 10-year contract for the production of 100% of its canned foods by Menu.

This type of deal is called "co-packing." One company makes the food, but puts someone else's label on it. This is a very common arrangement in the pet food industry. It was first illustrated by the Doane's and Diamond recalls, when dozens of private labels were involved. But none were as large or as "reputable" as Iams, Eukanuba, Hill's, Purina, Nutro, and other high-end, so-called "premium" foods.

The big question raised by this arrangement is whether or not there is any real difference between the expensive premium brands and the lowliest generics. The recalled products all contained the suspect ingredient, wheat gluten, but they also all

contained by-products of some kind, including specified by-products such as liver or giblets.

It's true that a pet food company that contracts with a co-packer can provide its own ingredients, or it can require the contractor to buy particular ingredients to use in its recipes. But part of the attraction of using a co-packer is that it can buy ingredients in larger bulk than any one pet food maker could on its own, making the process cheaper and the profits larger. It's likely that with many of the ingredients that cross all types of pet foods, those ingredients are the same.

Are one company's products — made in the same plant on the same equipment *with ingredients called the same name* — really "better" than another's? That's what the makers of expensive brands want you to think. The recalled premium brands claim that Menu makes their foods "according to proprietary recipes using specified ingredients," and that "contract manufacturers must follow strict quality standards." Indeed, the contracts undoubtedly include those points. But out in the real world, things may not go according to plan. How well are machines cleaned between batches, how carefully are ingredients mixed, and just how particular are minimum-wage workers in a dirty smelly job going to be about getting everything just perfect?

Whatever the differences are between cheap and high-end food, one thing is clear. The purchase price of pet food does not always determine whether a pet food is good or bad or even safe. However, the very cheapest foods can be counted on to have the very cheapest ingredients. For example, Ol' Roy, Wal-Mart's store brand, has now been involved in 3 serious recalls.

Menu manufactures canned foods for many companies that weren't affected by the recall, including Nature's Variety, Wellness, Castor & Pollux, Newman's Own Organics, Wysong, Innova, and EaglePack. It's easy to see from their ingredient lists that those products are made from completely different ingredients and proportions. Again, the issue of cleaning the machinery out between batches comes up, but hopefully nothing so lethal will pass from one food to another.

Animal Testing

Another unpleasant practice exposed by this recall is pet food testing on live animals. Menu's own lab animals, who were deliberately fed the tainted food, were the first known victims. Tests began on February 27 (already a week after the first reports); animals started to die painfully from kidney failure a few days later. After the first media reports, Menu quickly changed its story to call these experiments "taste

tests." But Menu has done live animal feeding, metabolic energy, palatability, and other tests for Iams and other companies for years. Videotapes reveal the animals' lives in barren metal cages; callous treatment; invasive experiments; and careless cruelty.

Although feeding trials are not required for a food to meet the requirements for labeling a food "complete and balanced," many manufacturers use live animals to perform palatability studies when developing a new pet food. One set of animals is fed a new food while a "control" group is fed a current formula. The total volume eaten is used as a gauge for the palatability of the food. Some companies use feeding trials, which are considered to be a much more accurate assessment of the actual nutritional value of the food. They keep large colonies of dogs and cats for this purpose, or use testing laboratories that have their own animals.

There is a new movement toward using companion animals in their homes for palatability and other studies. In 2006, The Iams Company announced that it was cutting the use of canine and feline lab animals by 70%. While it proclaims this moral victory, the real reasons for this switch are likely financial. Whatever the reasons, it is a very positive step for the animals.

Finally, it is important to remember that the contamination that occurred in the Menu Foods recall could have happened anywhere at any time. It was not Menu's fault; the toxin was unusual and unexpected. All companies have quality control standards and they do test ingredients for common toxins before using them. They also test the final products. However, there is a baseline risk inherent in using the raw materials that go into pet foods. When there are 11 recalls in 12 years, it's clear that "freak occurrences" are the rule, not the exception.

Marketing Magic

A trip down the pet food aisle will boggle the mind with all the wonderful claims made by pet food makers for their repertoire of products. Knowing the nature of the ingredients helps sort out some of the more outrageous claims, but what's the truth behind all this hype?

- **Niche claims.** Indoor cat, canine athlete, Persian, 7-year old, Bloodhound, or a pet with a tender tummy, too much flab, arthritis, or itchy feet — no matter what, there's a food "designed" just for that pet's personal needs. Niche marketing has arrived in a big way in the pet food industry. People like to feel special, and a product with specific appeal is bound to sell better than a general product like

“puppy food.” The reality is that there are only two basic standards against which all pet foods are measured: adult and growth, which includes gestation and lactation. Everything else is marketing.

- **“Natural” and “Organic” claims.** The definition of “natural” adopted by AAFCO is very broad, and allows for artificially processed ingredients that most of us would consider very unnatural indeed. The term “organic”, on the other hand, has a very strict legal definition under the USDA National Organic Program. However, some companies are adept at evading the intent of both of these rules. For instance, the name of the company or product may be intentionally misleading. Some companies use terms such as “Nature” or “Natural” or even “Organic” in the brand name, whether or not their products fit the definitions. Consumers should also be aware that the term “organic” does not imply anything at all about animal welfare; products from cows and chickens can be organic, yet the animals themselves are still just “production units” in enormous factory farms.
- **Ingredient quality claims.** A lot of pet foods claim they contain “human grade” ingredients. This is a completely meaningless term — which is why the pet food companies get away with using it. The same applies to “USDA inspected” or similar phrases. The implication is that the food is made using ingredients that are passed by the USDA for human consumption, but there are many ways around this. For instance, a facility might be USDA-inspected during the day, but the pet food is made at night after the inspector goes home. The use of such terms should be viewed as a “Hype Alert.”
- **“Meat is the first ingredient” claim.** A claim that a named meat (chicken, lamb, etc.) is the #1 ingredient is generally seen for dry food. Ingredients are listed on the label by weight, and raw chicken weighs a lot, since contains a lot of water. If you look further down the list, you’re likely to see ingredients such as chicken or poultry by-product meal, meat-and-bone meal, corn gluten meal, soybean meal, or other high-protein meal. Meals have had the fat and water removed, and basically consist of a dry, lightweight protein powder. It doesn’t take much raw chicken to weigh more than a great big pile of this powder, so in reality the food is based on the protein meal, with very little “chicken” to be found. This has become a very popular marketing gimmick, even in premium and “health food” type brands. Since just about everybody is now using it, any meaning it may have had is so watered-down that you may just as well ignore it.
- **Special ingredient claims.** Many of the high-end pet foods today rely on the marketing appeal of people-food ingredients such as fruits, herbs, and vegetables. However, the amounts of these items actually present in the food are small; and the items themselves may be scraps and rejects from processors of human foods

— not the whole, fresh ingredients they want you to picture. Such ingredients don't provide a significant health benefit and are really a marketing gimmick.

Pet food marketing and advertising has become extremely sophisticated over the last few years. It's important to know what is hype and what is real to make informed decisions about what to feed your pets.

What Consumers Can Do

- Write or call pet food companies and the Pet Food Institute and express your concerns about commercial pet foods. Demand that manufacturers improve the quality of ingredients in their products.
- Print out a copy of this report for your veterinarian to further his or her knowledge about commercial pet food.
- Direct your family and friends with companion animals to this website, to alert them of the dangers of commercial pet food.
- Stop buying commercial pet food; or at least stop buying dry food. Dry foods have been the subject of many more recalls, and have many adverse health effects. If that is not possible, reduce the quantity of commercial pet food and supplement with fresh, organic foods, especially meat. Purchase one or more of the many books available on pet nutrition and make your own food. Be sure that a veterinarian or a nutritionist has checked the recipes to ensure that .
- Please be aware that API is not a veterinary hospital, clinic, or service. API does not and will not offer any medical advice. If you have concerns about your companion animal's health or nutritional requirements, please consult your veterinarian.

Because pet food manufacturers frequently change the formulations of their products and API would not have conducted the necessary testing, we are unable to offer endorsements for particular brands of pet food. Many of our staff choose to make their own pet food or to purchase natural or organic products found in most feed and specialist stores but we cannot recommend brands that would be right for your companion animal or animals.

For Further Reading about Animal Nutrition

The Animal Protection Institute recommends the following books (listed in alphabetical order by author), many of which include recipes for home-prepared diets:

- Michelle Bernard. 2003. *Raising Cats Naturally — How to Care for Your Cat the Way Nature Intended*. Available at www.raisingcatsnaturally.com.
- Chiclet T. Dog and Jan Rasmusen. 2006. *Scared Poopless: The Straight Scoop on Dog Care*. Available at www.dogs4dogs.com. ISBN-10: 0977126501, ISBN-13: 978-0977126507.

- Rudi Edalati. 2001. *Barker's Grub: Easy, Wholesome Home-Cooking for Dogs*. ISBN-10: 0609804421, ISBN-13: 978-0609804421.
- Jean Hofve, DVM. 2007. *What Cats Should Eat*. Available at www.littlebigcat.com.
- Richard H. Pitcairn, DVM, and Susan Hubble Pitcairn. 2005. *Dr. Pitcairn's New Complete Guide to Natural Health for Dogs and Cats*. Rodale Press, Inc. ISBN-10: 157954973X, ISBN-13: 978-1579549732. Note: The recipes for cats were not revised in this new edition and date back to 2000; they may contain too much grain, according to recent research.
- Kate Solisti. 2004. *The Holistic Animal Handbook: A Guidebook to Nutrition, Health, and Communication*. Council Oaks Books. ISBN-10: 1571781536, ISBN-13: 978-1571781536.
- Donald R. Strombeck. 1999. *Home-Prepared Dog & Cat Diets: The Healthful Alternative*. Iowa State University Press. ISBN-10: 0813821495, ISBN-13: 978-0813821498. Note: Veterinary nutritionists have suggested that the taurine and calcium are too low in some of these recipes. Clam juice and sardines are poor sources of taurine; use taurine capsules instead.
- Celeste Yarnall. 2000, *Natural Cat Care: A Complete Guide to Holistic Health Care for Cats*; and 1998, *Natural Dog Care: A Complete Guide to Holistic Health Care for Dogs*. Available at www.celestialpets.com.

The books listed above are a fraction of all the titles currently available, and the omission of a title does not necessarily mean it is not useful for further reading about animal nutrition.

Please note: The Animal Protection Institute is not a bookseller, and cannot sell or send these books to you. Please contact your local book retailer or an online bookstore, who can supply these books based on the ISBN provided for each title.

References

Association of American Feed Control Officials Incorporated. *Official Publication* 2007. Atlanta: AAFCO, 2007.

Case LP, Carey DP, Hiraikawa DA. *Canine and Feline Nutrition: A Resource for Companion Animal Professionals*. St. Louis: Mosby, 1995.

FDA Enforcement Reports, 1998-2007. www.fda.gov.

Hand MS, Thatcher CD, Remillard RL, et al., eds. *Small Animal Clinical Nutrition, 4th Edition*. 2002. Topeka, KS: Mark Morris Institute.

Logan, et al., Dental Disease, in: Hand et al., *ibid*.

Mahmoud AL. Toxigenic fungi and mycotoxin content in poultry feedstuff ingredients. *J Basic Microbiol*, 1993; 33(2): 101–4.

Morris JG, and Rogers QR. Assessment of the Nutritional Adequacy of Pet Foods Through the Life Cycle. *Journal of Nutrition*, 1994; 124: 2520S–2533S.

Mottram DS, Wedzicha BL, Dodson AT. Acrylamide is formed in the Maillard reaction. *Nature*, 2002 Oct 3; 419(6906): 448–9.

Pet Food Institute. *Fact Sheet 1994*. Washington: Pet Food Institute, 1994.

Phillips T. Rendered Products Guide. *Petfood Industry*, January/February 1994, 12–17, 21.

Roudebush P. Pet food additives. *J Amer Vet Med Assoc*, 203 (1993): 1667–1670.

Seefelt SL, Chapman TE. Body water content and turnover in cats fed dry and canned rations. *Am J Vet Res*, 1979 Feb; 40(2): 183–5.

Strombeck, DR. *Home-Prepared Dog and Cat Foods: The Healthful Alternative*. Ames: Iowa State University Press, 1999.

Tareke E, Rydberg P, Karlsson P, et al. Analysis of acrylamide, a carcinogen formed in heated foodstuffs. *J Agric Food Chem*, 2002 Aug 14; 50(17): 4998–5006.

Zoran D. The carnivore connection to nutrition in cats. *J Amer Vet Med Assoc*, 2002 Dec 1; 221(11): 1559–67.

Notes

1. Pet Food Institute. *Fact Sheet 1994*. Washington: Pet Food Institute, 1994.
2. Association of American Feed Control Officials. *Official Publication*, 2007. Regulation PE3, 120–121.
3. Morris, James G., and Quinton R. Rogers. Assessment of the Nutritional Adequacy of Pet Foods Through the Life Cycle. *Journal of Nutrition*, 124 (1994): 2520S–2533S.

4. Tareke E, Rydberg P, Karlsson P, et al. Analysis of acrylamide, a carcinogen formed in heated foodstuffs. *J Agric Food Chem*, 2002 Aug 14; 50(17): 4998–5006.
 5. Mottram DS, Wedzicha BL, Dodson AT. Acrylamide is formed in the Maillard reaction. *Nature*, 2002 Oct 3; 419(6906): 448–9.
 6. Hand MS, Thatcher CD, Remillard RL, et al., eds. *Small Animal Clinical Nutrition, 4th Edition*. 2002. Topeka, KS: Mark Morris Institute.
 7. Seefeldt SL, Chapman TE. Body water content and turnover in cats fed dry and canned rations. *Am J Vet Res*, 1979 Feb; 40(2): 183–5.
 8. Logan, et al., Dental Disease, in: Hand et al., eds., *Small Animal Clinical Nutrition, Fourth Edition*. Topeka, KS: Mark Morris Institute, 2000.
-