

Pet food

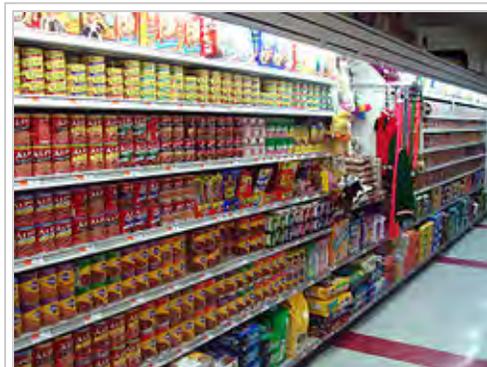
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Pet food is plant or animal material intended for consumption by pets. Typically sold in pet stores and supermarkets, it is usually specific to the type of animal, such as dog food or cat food. Most meat used for nonhuman animals is a byproduct of the human food industry, and is not regarded as "human grade".^[1]

Four companies—Procter & Gamble, Nestlé, Mars, and Colgate-Palmolive—are thought to control 80% of the world's pet-food market,^[1] which in 2007 amounted to US\$ 45.12 billion for cats and dogs alone.^[2]

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A supermarket's pet food aisle in Brooklyn, New York

Industry

Cat and dog food sales exceeded £1.4 billion in the United Kingdom^[3] and US\$14.3 billion in the United States in 2005.^[4] In 2006, the value of the UK pet food market rose to just over £1.6 billion.^[5] The leading exporters of pet food for 2004 were France (\$993 million), United States (\$786 million) and the Netherlands (\$511 million),^[6] while the leading importers were Japan (\$718 million), Germany (\$617 million) and the UK (\$563 million).^[7]

Formulations of mainstream commercial pet foods are generally based on nutrition research and many manufacturers undertake animal nutrition studies. For instance, Mars, Incorporated funds the Waltham Centre for Pet Nutrition, which undertakes scientific research into pet nutrition and wellbeing, sharing its findings in publicly available peer-reviewed journals.

Fish food

Fish foods normally contain macronutrients, trace elements and vitamins necessary to keep captive fish in good health. Approximately 80% of fishkeeping hobbyists feed their fish exclusively prepared foods that most commonly are produced in flake, pellet or tablet form.^[8] Pelleted forms, some of which sink rapidly, are often used for larger fish or bottom-feeding species such as loaches or catfish. Some fish foods also contain additives, such as beta carotene or sex hormones, to artificially enhance the color of ornamental fish.

Bird food

Bird foods are used both in birdfeeders and to feed pet birds. It typically consist of a variety of seeds. Not all birds eat seeds. Suet (beef or mutton fat) is recommended for insect-eating birds such as nuthatches and woodpeckers.^[9] Nectar (essentially sugar water) attracts hummingbirds.^[9]

Cat food

Cats are obligate carnivores, though most commercial cat food contains both animal and plant material supplemented with vitamins, minerals and other nutrients. Cat food is formulated to address the specific nutritional requirements of cats, in particular containing the amino acid taurine, as cats cannot thrive on taurine-deficient food.^[10] Optimal levels of taurine for cat food have been established by the Waltham Centre for Pet Nutrition^[11]

Dog food

Recommendations differ on what diet is best for dogs. Some people argue dogs have thrived on leftovers and scraps from their human owners for thousands of years, and commercial dog foods (which have only been available for the past century) contain poor-quality meats, additives, and other ingredients dogs should not ingest, or that commercial dog food is not nutritionally sufficient for their dogs. However, many commercial brands are formulated using insights gained from scientific nutritional studies^[12] and there is no reliable peer-reviewed evidence that domestic options are superior. Most store-bought pet food comes in either dry form, also known as kibble, or wet, canned form.

Raw feeding

Raw feeding is the practice of feeding domestic dogs and cats a diet consisting primarily of uncooked meat and bones. Supporters of raw feeding believe the natural diet of an animal in the wild is its most ideal diet and try to mimic a similar diet



Bushtits eating suet from a bird feeder



Cat with a bowl of pelleted cat food.

for their domestic companions. They are commonly opposed to commercial pet foods, which they consider poor substitutes for raw feed. Opponents believe the risk of food-borne illnesses posed by the handling and feeding of raw meats would outweigh the purported benefits, and no scientific studies have been done to support the numerous beneficial claims.

Feeding human foods to animals

Prepared foods and some raw ingredients may be toxic for animals, and care should be taken when feeding animals leftover food. It is known that the following foods are potentially unsafe for cats and dogs:^[13]

- Chocolate, coffee-based products and soft drinks^{[14][15]}
- Raisins and grapes^{[14][15]}
- Macadamia nuts^{[14][15]}
- Garlic (in large doses) and onions^[14]
- Alcohol^[15]

Generally, cooked and marinated foods should be avoided, as well as sauces and gravies, which may contain ingredients that, although well tolerated by humans, may be toxic to animals. Xylitol, an alternative sweetener found in chewing gum and baked goods designed for diabetics, is highly toxic to cats, dogs and ferrets.^[16]

Labeling and regulation

In the United States, all pet food is regulated by the Food and Drug Administration (FDA), the United States Department of Agriculture (USDA), and the Federal Trade Commission (FTC). It is further regulated at the state level.^[17] The Association of American Feed Control Officials (AAFCO) establishes standards on which states base their feed laws and regulations, but itself has no regulatory authority.

Dog and cat foods labeled as "complete and balanced" must meet standards established by the AAFCO either by meeting a nutrient profile or by passing a feeding trial. Cat and dog food nutrient profiles were last updated by the AAFCO's Feline Nutrition Expert Subcommittee (1991–1992) and the Canine Nutrition Expert Subcommittee (1990–1991), respectively. The updated profiles replaced the previous recommendations set by the National Research Council (NRC).^[18] The NRC published new recommendations in 2006; AAFCO is currently (2010) in the process of updating the nutrient profiles.

Products found to be "complete and balanced" by feeding trials bear the label statement "animal feeding tests using AAFCO procedures substantiate that (name of product) provides complete and balanced nutrition." The protocol requires six of eight animals complete a 26-week feeding trial without showing clinical or pathological signs of nutritional deficiency or excess. The cats' or dogs' general health is evaluated by a veterinarian before and after the test. Four blood values (hemoglobin, packed cell volume, serum alkaline phosphatase and serum albumin) are measured after the trial, and the average values of the test subjects must meet minimum levels. No animal is allowed to lose more than 15% of its starting weight.

Products formulated with ingredients to meet the established nutrient profile would include the following statement, "(Name of product) is formulated to meet the nutritional levels established by the AAFCO Cat/Dog Food Nutrient Profiles." There are two separate nutrient profiles - one for "growth and reproduction" and one for "adult maintenance". The nutritional adequacy statement would include

information on the life stage(s) for which the product is suitable. A product labeled as "for all life stages" must meet the more stringent nutrient profile for "growth and reproduction". Products labeled as "intended for intermittent or supplemental feeding" do not need to meet either profile.

The "Family Rule" allows a manufacturer to have a product that is "nutritionally similar" to another product in the same "family" to adopt the latter's "complete and balanced" statement without itself undergoing any feeding tests. The "similar" food must be of the same processing type; contain the same moisture content; bear a statement of nutritional adequacy for the same or less demanding life stage as the lead product; contain a dry matter, metabolizable energy (ME) content within 7.5% of the lead product's dry matter; meet the same levels of crude protein, calcium, phosphorus, zinc, lysine, thiamine (and for cat foods, potassium and taurine) as the lead food; and meet or exceed the nutrient levels and ratios of the lead family product or the AAFCO nutrient profiles, whichever is lower. The label statement on the similar food can be the same as the lead product if the ME is substantiated by the 10-day ME feeding study.^[19]

Critics of the AAFCO standards argue that such requirements are too lax. Generational studies conducted by researchers at University of California, Davis have shown some foods that pass AAFCO's feeding trials are still not suitable for long-term use and estimated that of 100 foods that pass the nutritional analysis, 10 to 20 would not pass the feeding trials.^[20] Although maximum levels of intake of some nutrients have been established because of concerns with overnutrition, many still lack a maximum allowed level and some contains large disparity between maximum and minimum values.^[21] The NRC accepts that despite ongoing research, large gaps still exist in the knowledge of quantitative nutritional information for specific nutrients.

^[22] Some professionals acknowledge the possibilities of phytochemicals and other vital nutrients that have yet to be recognized as essential by nutritional science. With such broad guidelines and loose feeding trial standards, critics argue that the term "complete and balanced" is inaccurate and even deceptive. An AAFCO panel expert has stated that "although the AAFCO profiles are better than nothing, they provide false securities." James G. Morris and Quinton R. Rogers Assessment of the Nutritional Adequacy of Pet Foods through the Life Cycle. *J. Nutr.* 124: 2520S-2534S, 1994. (http://jn.nutrition.org/cgi/reprint/124/12_Suppl/2520S)

Certain manufacturers label their products with terms such as premium, ultra premium, and holistic. Such terms currently have no official definitions. The AAFCO is currently considering defining some of the terms. However, the terms "natural" and "organic" do have definitions; e.g., organic products must meet the same USDA regulations as for organic human food.

In Canada products that pass the Canadian Veterinary Medical Association (CVMA) Pet Food Certification Program, which involves a feeding trial, carries a CVMA label on their packaging. Participation in the program is voluntary. There are no government regulation of pet food in the Canadian marketplace. The CVMA Program was discontinued at the end of 2007.^[23]

In the European Union, pet food is regulated by the same harmonized standards across the EU, via the *Feeding Stuffs Act*.^[24]

All ingredients used for pet food has to be fit for human consumption according to EU requirements. But regulations require that pet food that contains by-products be labeled as "Not for human consumption" even though such by-products have to be derived from animals declared fit for human consumption. Raw pet food has to be labeled "Pet food only".^[25]

Products meant for daily feeding are labeled "Complete feedingstuff" or "complete petfood" or other EU languages equivalent. Products meant for intermittent feeding are labeled "Complementary feedingstuff or "complementary petfood" while products with an ash content of over 40% are labeled "Mineral Feedingstuff". Ingredients are listed in descending order by weight.^[26]

With the recently released Commission Regulation (EU) No 107/2013, the European Union has set new maximum levels for melamine in canned pet food. According to recent results of an in-depth research of the 2007 pet food crisis, melamine used in coatings for pet food cans can migrate into the food. Therefore, the regular melamine migration limit (SML) of 2.5 mg/Kg for food and feed has been expanded to pet food. This limit is valid for canned wet pet food on an 'as sold' basis.^[27]

2007 recalls

The 2007 pet food recalls involved the massive recall of many brands of cat and dog foods beginning in March 2007. The recalls came in response to reports of renal failure in pets consuming mostly wet pet foods made with wheat gluten from a single Chinese company, beginning in February 2007. After more than three weeks of complaints from consumers, the recall began voluntarily with the Canadian company Menu Foods on March 16, 2007, when a company test showed sickness and death in some of the test animals. Soon after, there were numerous media reports of animal deaths as a result of kidney failure, and several other companies who received the contaminated wheat gluten also voluntarily recalled dozens of pet food brands. Menu Foods recalled almost over 50 brands of dog food,^[28] and over 40 brands of cat food.^[29] Nestlé Purina PetCare withdrew all sizes and varieties of Alpo "Prime Cuts in Gravy".^[30] Some companies were not affected and utilized the situation to generate sales for alternative pet foods.^[31]

By the end of March, veterinary organizations reported more than 100 pet deaths amongst nearly 500 cases of kidney failure, with one online database self-reporting as many as 3,600 deaths as of April 11. As of April 8, Menu Foods has confirmed only about 16 deaths. The U.S. Food and Drug Administration refuses to estimate the amount of sick or dead because there is no centralized government records database of animal sickness or death in the United States as there are with humans (such as the Centers for Disease Control). As a result, many sources speculate that the actual number of affected pets may never be known and experts are concerned that the actual death toll could potentially reach into the thousands.

Overall, several major companies have recalled more than 100 brands of pet foods, with most of the recalled product coming from Menu Foods. Although there are several theories of the source of the agent causing sickness in affected animals, with extensive government and private testing and forensic research, to date, no definitive cause has been isolated. As of April 10, the most likely cause, according to the FDA, though not yet proven, is indicated by the presence of melamine in wheat gluten in the affected foods. The Chinese company behind the contaminated wheat gluten has initially denied any involvement in the contamination, but is cooperating with Chinese and American investigators.

In the United States, there has been extensive media coverage of the recall. There has been widespread public outrage and calls for government regulation of pet foods, which had previously been self-regulated by pet food manufacturers. The United States Senate held an oversight hearing on the matter by April 12. The economic impact on the pet food market has been extensive, with Menu Foods losing roughly \$30 Million alone from the recall. The events have caused distrust of most processed pet foods in some consumers.

See also

- Food safety
- Addiction Foods, manufacturer of hypoallergenic dog food and cat food.

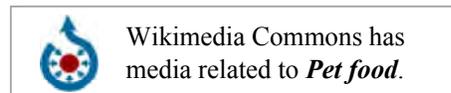
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- Guidance Notes* (<http://www.food.gov.uk/foodindustry/guidancenotes/>) - Food Standards Agency
- EU Pet food Legislation: Pet food Ingredient Requirements (<https://web.archive.org/web/20080501112005/http://useu.usmission.gov/agri/petfood.html#Petfood%20Ingredient%20Requirements#Petfood>) U.S. Mission to the European Union
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External links

- Petfood Industry - news and information for the pet food industry (<http://www.petfoodindustry.com/>)
- The History of The Pet Food Industry (<https://web.archive.org/web/20090524005409/http://www.petfoodinstitute.org:80/petfoodhistory.htm>)
The voice of U.S. pet food manufacturers
- European Pet Product Wholesaler Association (<http://www.eppwa.org>) Non Profit Organization - Directory of Europe's Pet Product Wholesalers and Manufacturers
- Pet food safety center (http://www.hsus.org/pets/pet_food_safety_center/index.html) at Humane Society of the United States
- Interpreting pet food labels (<http://www.fda.gov/cvm/petlabel.htm>) - Pet food labeling according to AAFCO regulations
- Pet Food Ratings (<http://www.petfoodratings.org/ingredient-glossary/>) - Pet food ingredients breakdown
- Get The Facts: What's Really in Pet Food (<http://www.api4animals.org/facts.php?p=359&more=1>) - Animal Protection Institute
- Studies on Fish Food for Pets (<http://nextgendog.com/fish-for-dogs-studies-on-benefits-and-side-effects/>) - Evidence-based Information
- Some people-foods can be toxic to pets, vet warns (http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20100319/pet_foods_120319/20100321)
CTV News News story video interview (2010-03-21)



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