

Do You Know What's in Your Dog's Bowl?
A Feasibility Analysis of Premium Dog Food

Prepared for
Jenni Baker
Technical Communications Instructor
University of Massachusetts
North Dartmouth, Massachusetts

By
Jeremy M. Plante
ENL 266-03

April 29, 2008

18 Highland Road
Swansea, MA 02777

April 22, 2008

Jason Birkett
Vice President
Pet Lover Inc.
Swansea MA 02777

Dear Mr. Birkett:

Here is my analysis of the feasibility of feeding a diet of premium dog foods to pets. This report will detail the nutritional benefits provided by a natural diet, in comparison to the health risks associated with feeding low-grade foods. Marketing techniques used by popular brands and a breakdown of the cost difference between the two options is also touched upon.

My research has illustrated remarkably well, the relationship between a healthy dog and his diet. Most commercial dog foods do not provide dogs with their natural dietary needs, causing them to develop serious health risks such as allergies, digestive problems, and cancer. As you know, a simple conversion to a premium diet can cure or at least prevent many of these problems, but the skilled marketing procedures of food manufacturers like Iams, Purina, and Pedigree are extremely effective at ensuring their products are the top sellers, despite their unhealthy natures.

This report clearly details the characteristics of premium diets and their roles in maintaining a healthy companion. Unfortunately, the two main obstacles facing superior foods are their limited availability and their price tags. It is therefore essential that we continue to provide dog owners with a means of obtaining quality foods, as well as informing pet lovers of the virtually non-existent long-term cost difference between the two dietary options. Accordingly, we must intensify our ongoing mission of spreading the truth in order to educate dog owners on the merits of proper nutrition.

I am certain that you will find the results of my research both informative and compelling. If you have any questions or requests based on this report, I'd be more than happy to meet with you in person to discuss my findings.

Sincerely,

Jeremy M. Plante

CONTENTS

Letter of Transmittal	ii
Figures	iv
Informative Abstract	v
Introduction	1
What is a Dog?	2
The Past.....	2
The Present.....	2
What’s Bad?	3
Cheap Grains – Potential Allergens	3
By-Products	3
Meat and Bone Meal	4
Rendering Agents	4
Chemical Preservatives.....	5
Fillers	5
What’s Good?	6
Quality Proteins	6
Omega Fatty Acids	6
Joint Supplements.....	7
Natural Preservatives.....	7
Digestive Supplements	7
The Truth	8
The AAFCO	8
Marketing.....	8
Alternatives	9
The Cost Factor	10
Conclusion	11
Glossary	12
Appendix A: FAR Draft.....	13
Appendix B: The Extrusion Process of Manufacturing Dog Food.....	24
Appendix C: For Cats	27
Works Cited.....	28

Figures

Figure 1 A Dog’s Teeth: Perfect for Meat and Vegetables.....2
Figure 2 The Effects of Omega 3 and 6 Fatty Acids after Only 45 Days ... 6
Figure 3 Beneful’s Packaging and List of Ingredients 9

INFORMATIVE ABSTRACT

A dog's natural diet consists primarily of raw meat and vegetables, and ideally that's what they should be eating. This method of feeding quickly becomes very expensive, and as a substitute, hundreds of commercial dog foods are marketed to provide dogs with proper, calculated levels of protein, fat, and other essential nutrients. With so many brands to choose from, how do you determine which are good and which are bad?

The key to this decision boils down to an analysis of the ingredients. Cheaper brands tend to use cheaper ingredients. Such ingredients, like soy, wheat, and corn can lead to serious allergies including chronic rashes and hair loss. Cheap meat substitutes called by-products can also be included. These might consist of anything from feet to eyeballs to blood, and can lead to serious, sometimes fatal conditions like bloat. Other harmful ingredients can include chemical preservatives which in many cases lead to adverse kidney and liver dysfunction.

The real shock is not necessarily the ingredients, but the brands that use them. Well known companies like Iams, Purina, Hill's, and Pedigree are all guilty of including many of these harmful ingredients in their formulas. The most disheartening part is that too few people know this truth, because these brands have the resources to effectively market their foods to the consumer. Television ads, flashy packaging, and catchy slogans are effectively used to convince you, their potential customer, that their food is perfect for your dog.

By comparison, healthy foods will contain none of the harmful ingredients found in low-grade foods, but will include quality meat sources and a wide array of fruits and vegetables to recreate a natural diet. In addition to quality ingredients, nutritional supplements are often added to ensure optimum nutrition and prevent future food-related problems. Supplements to ease joint pain in older and larger dogs, oils to bring out the coat's shine, and micro-organisms to aid in digestion and the absorption of essential nutrients, can all be found in premium food formulas. The health benefits are enumerable, and provide dogs with the complete nutrition their bodies need.

With such a difference in quality, and numerous advantages for canine health, it is obvious to see that the primary reason such a small number of dog owners aren't feeding a premium diet is the price tag. Quality ingredients are quite a bit more expensive than lower-quality supplies. The initial cost is deceiving though, because the bag or can of food isn't the only thing you are paying for. If an animal gets sick from a low-quality food, the only place to take him is the vet's office, and those visits are never cheap. In thinking of the selection of your dog's food as a long-term investment, consider that a lot of money can be saved by preventing health problems with a premium diet.

Natural dog foods *are* a worthwhile investment. They bring to an animal's body numerous necessities that cheaper commercial or grocery store lines lack. More importantly though, they do not *cause* illnesses as some cheaper alternatives can. The advantages of a natural diet are incalculable and worth the small increase in initial cost if such a simple change can add years to your best friend's life.

Introduction

Do you know what you're feeding your dog? If your answer is "dog food," then chances are you don't.

As a child, my house was always filled with dogs. My grandfather bred and showed Chihuahuas for as long as I can remember. He won numerous ribbons and prizes, and most importantly, he loved his dogs. He always fed the dogs food he could pick up while grocery shopping at the supermarket. This was the same food I saw on television commercials every day. Four years ago, I began to work at a pet store that specialized in healthy, natural dog foods. I wondered why I didn't see any of the brands that my grandfather used on the shelves. As it turned out, I hadn't heard of a single one of the brands we sold. I never saw commercials for Wellness or heard radio ads for Canidae, and as time passed, I learned that every single brand of food I had previously seen or heard of was actually capable of making dogs extremely sick. Over the years I've seen so many dogs develop lifelong skin problems or suffer from kidney failure, and I've heard too many stories of dogs dying as a direct result of being fed a low quality food. My job has made me lucky enough to witness the wonders a simple change in diet can provide for a dog's health. Unfortunately, like my grandfather, most dog owners have never heard of the healthy brands and have no idea of the nutritional advantages they provide. This report will present evidence to support the argument that low-grade dog foods can be detrimental to our best friends' health, while a natural premium diet is a worthwhile investment for years to come.

I'd like to make it perfectly clear that I by no means consider myself an expert on canine anatomy, nor do I mean to imply that I am a highly-qualified nutritionist. This report will not detail the complex biological processes that cause certain ingredients to affect a dog's overall health, nor will it attempt to analyze every single commercial brand of dog food sold in the United States. What it *will* do is present a logical argument backed by decades of research to support my claim. I hope to use factual evidence and statistical data in combination with my own personal input to present a logical analysis of the benefits of feeding a natural diet.

I have compiled dozens of sources that I feel will supplement my argument, including published books on proper canine nutrition, fact sheets from Pet Lover Inc. and Petco Animal Supplies Inc., and an audio recording by renowned animal nutrition expert, Dr. R. L. Wysong. I will reference information from an article published by the organization API for Animals, and nutrition information from the pet retailer training company NexPet Inc. I have collected more than 20 brochures, pamphlets, and ingredients lists of specific brands of dog food as well as testimony from veterinary technician, Caitlin Leclair on the effects of improper nutrition. I will use the evidence from all these resources to defend my assertion that natural foods are a wise choice.

In this report I will first briefly introduce the history of the dog and its natural dietary needs. Secondly, I will present some shocking examples of low quality food manufacturers and the marketing techniques they cleverly implement to sell their products, followed by detailed explanations of what ingredients in those foods make for an unhealthy pet and how they specifically affect your dog's body. I will then present some examples of healthier brands and how their ingredients can improve your dog's overall health, followed by a breakdown of the difference in cost between these two different types of dog food.

My hope is that this report will clearly outline the importance and necessity of a premium diet. I hope that it will help spread awareness about proper dog nutrition and inform some dog owners of the potential dangers associated with giving their best friends the wrong food.

What is a Dog?

How does someone like me get to tell you what's good and what's not as far as dog food goes? What are the guidelines for determining the difference? In order to understand what constitutes a good food, you need to understand what a dog's body needs for survival, and the only way to understand that is with a brief history lesson.

The Past

It is not known exactly which animal can be credited as the ancestor of dogs. Some scientists believe that the jackal is responsible, while others think it was the coyote.(Royal, 19) Still others think it was the wolf.(Royal, 19) Regardless of which animal led to the development of dogs, the important fact to note is that all of these candidates are carnivores. (Royal, 19) They survive primarily on a meat-based diet, feeding on very little else. The same was true for early dogs. (Wysong) Many experts feel that as humans became more civilized, dogs adapted to their lifestyles. (Royal, 20) As a result, their bodies and teeth changed, allowing for an omnivorous diet not only of meat, but vegetables gathered by their human owners as well. (Royal, 20)

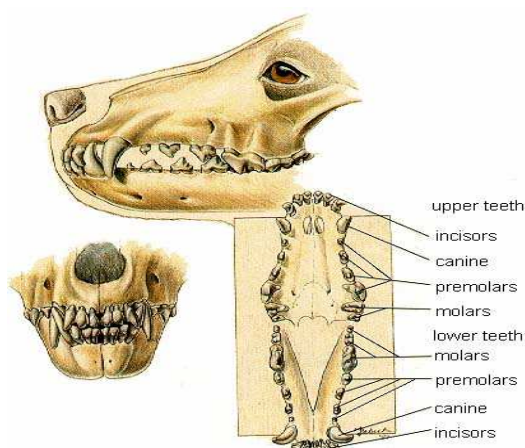


Figure 1: A Dog's Teeth: Perfect for Meat and Vegetables (Canine Mouth)

The Present

Not much has changed since the early days of the dog. Obviously there are too many breeds to count, with new creations coming into existence all the time, but a dog's dietary needs have not altered. The ideal diet for any canine is still a combination of raw meats mixed with fruits and vegetables.(Belanger) Ideally every dog would eat raw foods, but for humans, interaction with uncooked meat can lead to Salmonella and E. coli.(API) This method of feeding is extremely expensive to keep up and rare to come by.(Belanger) As a substitute, commercial foods that mimic a dog's intended diet are marketed to meet their body's dietary needs. (Belanger)

One of the essential requirements for a dog is a healthy supply of fat.(Grandjean, 27) Fats provide dogs with a source of long-term, usable energy. (Grandjean, 27) Most dogs are active and need this energy to stay fit. The most important dietary requirement though, is an ample supply of protein. (Grandjean, 35) Protein is used by the body to grow, strengthen and maintain muscle mass, as well as keep the body's immune system intact. (Grandjean, 35) Fortunately for dogs, the two most common sources of both protein and fat are meats and vegetables, which conveniently enough, happen to make up a dog's natural diet. (Grandjean, 27, 35)

What's Bad?

In order to fully appreciate the benefits of a high-quality dog food, you have to first appreciate the problems that certain ingredients in low-quality foods can cause. Not only do most ingredients in cheaper grocery lines provide no nutritional advantages, but many of them are actually detrimental to the overall health and well-being of dogs.

Cheap Grains – Potential Allergens

In an effort to maximize profit on raw materials used to manufacture foods, many companies search for ways to provide the same guaranteed analysis for less cash.(NexPet, 47) One such case is the quest for cheap sources of protein. Too often, the meat that a dog would naturally eat is replaced by grain products like soy, wheat, corn, or any combination of the three.(API) These particular ingredients all rank in the top three on the list of potential food allergens for dogs.(Belanger) The key word *potential* means that not every canine is going to be affected by their inclusion in the food, but in many cases they do lead to food allergies.(Belanger) Very slowly, the body builds up an intolerance to these grains and the immune system eventually cannot take anymore. Think of it like being exposed to extremely small doses of radiation; a little won't kill you, but if you are exposed every day for four or five years, your body is going to eventually give in.

So what sorts of problems are considered allergies? They might include anything from a little bit of itching or sneezing to chronic rashes and excessive hair loss.(API) Food allergies most directly affect the skin.(Nexpet, 31) This may seem like only a small problem in that there aren't necessarily internal struggles occurring in your dog, but remember that the skin is an organ vital for survival. (Nexpet, 31) It acts as the first defense against disease and infection, but if the skin is unhealthy, it won't be able to protect the rest of the body. (Nexpet, 31) If your dog is itching, scratching, or gnawing on his legs, take a look at the ingredients label on his food; are soy, wheat, and corn listed?

A less common problem with using grains instead of meat for protein is mold.(API) "Modern farming practices, adverse weather conditions, and improper drying and storage of crops can contribute to mold growth."(API) These molds contain very dangerous toxins called mycotoxins which can make an animal, or human for that matter, very sick.(API) "Pet food ingredients that are most likely to be contaminated with mycotoxins are grains such as wheat and corn."(API)

By-Products

There is an extremely convenient term for food manufacturers that don't want to disgust consumers and alienate their customers: By-product. The meat that humans eat comes from the muscle tissue of slaughtered animals, but what happens to the other 50% of the animal? Pet

food.(API) These left-over parts can include almost anything: beaks, feet, tails, eyeballs, lungs, bones, blood, intestines, and even unborn fetuses.(API)(Belanger) It's very easy to see why manufacturers prefer to use the generic term by-product.

Other than being almost unbearable to think about, what do by-products actually do? Nothing. They do not contain meat, and therefore provide no nutrients.(API) These parts aren't always digestible, and as a result, they can lead to a condition in dogs called bloat.(Petco) As stomach acids digest the by-products, poisonous gasses are formed which can build up inside the dog's stomach and can ultimately be fatal.(Petco)

If these gasses don't get trapped inside the body though, they must come out. Most people assume that bad breath is just something that dogs always have. Little do they know that doggy breath can be caused by gastric odors resulting from undigested by-products.(NexPet, 32) It may not be fatal, but doggy breath sure isn't a sign of a healthy dog.

While fat shouldn't be considered a by-product, an ingredient labeled as "animal fat" should.(API) Of course you know it's fat, and fats provide long-term energy for dogs, but what animal does it belong to? If you expected me to answer that question, you're out of luck; it comes from an animal, and that's all either you or I know.

Meat and Bone Meal

At least with chicken or turkey by-products, you know specifically which animals these parts are coming from. Even with poultry by-products, you can still count on the source being some sort of fowl. By-products from mammals get their own special name: Meat and Bone Meal.(API) So, what type of animal is in your dog's food? I can't answer that, nor can your ingredient label.

Meat and bone meal can actually be animal meat.(API) Not sounding too bad so far, but there's a catch. If it's meat, then it may be coming from what is referred to as a "4D" animal.(Belanger) 4D stands for Dead, Dying, Diseased, or Disabled.(API) Any sick animal can be slaughtered and included in your dog's food.(API) Besides being revolting, this inclusion is downright dangerous. "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."(API) Bacteria like these can be deadly.

Diseased, rotting animals are nasty enough, but that's not all that's in meat and bone meal. Some manufacturers have actually admitted to using road-kill in dog foods.(API) If it's dead and on the road, it definitely fits into one of the 4Ds. Obviously, this is enough to turn any pet owner away from meat and bone meal, but it gets worse. "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."(API) Euthanized pets are allowable in pet food. I guess it really is a dog-eat-dog world after all.

Rendering Agents

So how are these animal parts allowed? Government policy states that meat and bone meal ingredients must be rendered before being used in foods.(Belanger) The rendering process "sanitizes" the ingredients, and eliminates most bacteria and viruses.(API) The process itself

alters or eliminates what little protein might be found in the meat and bone meal, rendering the ingredient even more worthless than it already was.(API)

I used the word “sanitize” to describe the result of rendering, but believe me when I say I use that term very loosely. Sure, most of the toxins are eliminated, but the ingredients actually used for rendering are far worse than any germs. The two most commonly used rendering agents are carbolic acid and creosote.(Belanger) Carbolic acid can be found in numerous antiseptics, so it obviously works at eliminating bacteria.(MedLine Plus) Unfortunately, it can also be found in a list of fatal poisons.(MedLine Plus) Obviously, only minute amounts of the poison are being used during rendering, but every time a dog takes a bite of rendered food, he’s taking in more and more carbolic acid. Creosote was formerly used as a coating on ships and telephone poles to protect the wood from harsh weather.(ATSDR) “Animals fed large amounts of wood creosote had convulsions and died, while those fed lower levels had liver and kidney problems.”(ATSDR) Creosote is also a carcinogen, and “Long-term exposure...to low levels of creosote has resulted in *skin cancer*.”(ATSDR) Meat and bone meal is “sanitized” with a carcinogen!

Rendering certainly serves the purpose of eliminating most harmful micro-organisms, yet it seems to result in dog foods resembling poisons and cancer-inducing toxins.

Chemical Preservatives

Now that allergens, by-products, and rendering agents are mixed into the food, how do we keep it fresh? The food needs to be preserved to prevent spoilage.(API) Preservatives are a must, but which ones are most commonly used?

Butylated hydroxyanisole, or BHA, is used in dog foods to preserve fats.(Helmenstine) Butylated hydroxytoluene, or BHT, is also used to preserve fats, as well as odor and flavor. (Helmenstine) FDA tests suggest that these preservatives can lead to the development of tumors and even cancer.(Helmenstine) BHT and BHA can also be detrimental to kidney and liver health.(Belanger, 1) Additional evidence suggests that an inability to metabolize BHT and BHA can lead to unexpected changes in behavior and unwanted aggression.(Helmenstine) Propylene Glycol is also commonly used as a preservative in dog foods.(NHIC) Interestingly enough, it is also used as a form of automotive antifreeze.(Belanger) One should “avoid skin contact with propylene glycol as this strong skin irritant can cause liver abnormalities and kidney damage.”(NHIC)

Similarly to rendering agents, these chemical preservatives serve their own purpose, and they can also endanger the health of a dog’s body, and cause organ failure. On a positive note, at least the food stays fresh for a year.(API)

Fillers

If the goal is cheap materials and maximum profit, one strategy employed by manufacturers is the inclusion of cheap ingredients to act as fillers.(NexPet, 43) What do they do? They fill up the food and they fill up the dog. (NexPet, 43) They provide no nutritional value whatsoever, but they do prevent a dog from feeling starved. (NexPet, 43) In fact, fillers are used in foods designed for weight loss to trick a dog into thinking he’s eating what he would be if he were eating a regular adult formula. (NexPet, 43) These fillers aren’t without their faults though.

I've already mentioned that corn is used as a cheap protein source, but it's also commonly used as filler. (NexPet, 43) As with humans, corn goes straight through a dog's body without being broken down very much. Fillers aren't digested by the dog, but simply pass right through from one end to the other. To put it plainly, this means more poop. (NexPet, 43) As a dog owner, the last thing you want to have to do more often is pick up poop. With lower quality foods containing fillers like corn, there's a very good chance that's exactly what you'll have to do.

What's Good?

I have demonstrated that some foods are unhealthy by analyzing certain ingredients commonly included in their formulas. In order to fairly assert that a particular food *is* healthy, we must do the same. Most importantly, premium foods will NOT include allergens, by-products, meat and bone meal, rendering agents, chemical preservatives, or fillers.(NexPet) Accordingly, the health risks associated with these ingredients is virtually eliminated.(Belanger) Additionally, many nutritional supplements are added to the foods to ensure a dog's overall well-being.(NexPet, 48)

Quality Proteins

The first ingredient on the label should, without exception be some specific form of meat or fish.(Belanger) I mentioned that meat has always been a dog's primary source of protein, and their food should reflect that. The label should say something like chicken or lamb or trout, and shouldn't include meat by-products.(Belanger) A quality meat source will establish a foundation for a healthy source of protein and energy, giving your dog the best chance possible to stay in shape and stay healthy.(Kerns)

Omega Fatty Acids

About a month after switching from a grocery store food to a premium diet, you will notice a change in the appearance of your dog's coat. His hair will have a new gloss, providing you with the impressive confirmation that he truly is a healthy dog.(NexPet, 43) So what causes this change besides a lack of potential allergens? Omega Fatty Acids.



Figure 2: The Effects of Omega 3 and 6 Fatty Acids after Only 45 days. (Server)

Omega 3 and 6 are found in fish oils and vegetable oils respectively, and intensify the health of a dog's skin and coat.(Grandjean, 25-26) Omega 3 prevents and treats inflammatory disorders, which are identified by skin rashes and diseases.(Grandjean, 25) Omega 3 directly strengthens a

dog's skin, and as I've mentioned before, healthy skin is essential to fighting disease and infection.(NexPet, 31) Omega 6 helps Omega 3 nourish skin, in addition to nourishing hair and fur. (Grandjean, 26) This acid can take a dog who suffers from constant shedding or hair loss, and turn him into a glowing champion.

Joint Supplements

Older dogs, or dogs of larger breeds(German Shepherd, Golden Retriever, Labrador) tend to suffer from joint problems and hip dysplasia later in life.(Petco) As with humans, arthritis is extremely painful for dogs, and not only does it prevent them from feeling young and fit, but it almost always leads to a decrease in physical activity, which in turn leads to obesity, which can in turn cause diabetes or heart problems.(NexPet, 43) There is a simple preventative solution found in most premium dog foods made for larger breeds, overweight dogs, and seniors: Joint supplements.

Often found together, Glucosamine and Chondroitine not only make a dog feel healthier, but can prevent a future struggle with arthritis.(Grandjean, 74) These supplements, naturally found in animal cartilage, can make a huge difference for a dog's joints. (Grandjean, 74) "Glucosamine stimulates cell regeneration in cartilage" while "Chondroitine slows down enzymatic degradation of cartilage." (Grandjean, 74, 76) As the cartilage breaks down, bones begin to painfully rub together, so the healthier the cartilage, the less pain.(Petco) The best way to deal with arthritis and obesity is to prevent them starting from an early age, and one way to do that is to supply your dog with a natural diet containing joint support supplements.(Grandjean, 74)

Natural Preservatives

Chemical preservatives are dangerous ingredients, but without them how do we keep dog food fresh long enough for a dog to finish the bag? Many naturally occurring elements, like vitamins A and C as well as numerous spices may also be used to preserve foods.(API) The benefits are obvious; without harsh chemicals, the possibility of developing liver or kidney problems is virtually eliminated.(Belanger)

Unfortunately, there is a downside to natural preservatives. The shelf life is cut in half, and most natural foods really only stay fresh for about 6 months.(API) This may seem like a long time, but how long has the bag of food you just bought been sitting on the store shelf? And how long before that was it actually packaged?

Digestive Supplements

If you own a dog who suffers from chronic vomiting or diarrhea, his body may be stressed. (Flint) Dogs often become stressed when left alone in a cage, taken to the vet, or when they become ill.(Flint) When the body is stressed, every part of it is stressed, and when the digestive tract becomes stressed, many beneficial bacteria that line it are killed off by "bad" bacteria or antibiotics.(Flint) Many natural foods will contain micro-organisms called Probiotics, or "good" bacteria, which protect the digestive tract from these harmful invaders, and ultimately aid in digestion.(Flint) The healthier the digestive tract, the better it can break down food into essential nutrients, and the more nutrients a dog gets, the healthier it becomes.(Flint)

The Truth

Some food companies use ingredients of a poor quality to make a buck; so what? Surely these producers of low-quality products aren't very reputable and really need the money. Wrong! You've probably heard of almost every brand I'm about to list.

Iams Savory Chicken Dinner canned food contains beef by-products, and actually lists chicken by-products twice!(Iams) "Iams. Good for Life."(Iams)

Purina Puppy Chow includes soy, corn, animal fat, and chicken by-products.(Puppy Chow)
Purina One Chicken and Rice Formula has wheat, corn, animal fat, and poultry by-products.(Purina One)

Ol' Roy's dry formula contains corn, soybean, wheat, chicken by-products, animal fat, BHA, and meat and bone meal all in the first seven ingredients.(Ol' Roy) Veterinary technician Caitlin Leclair calls Ol' Roy "the worst food I have ever seen."(Leclair)

Pedigree Complete Nutrition for adult dogs lists corn twice, wheat three times, chicken by-products, BHT, BHA, animal fat, and meat and bone meal. (Pedigree) What's Pedigree's current slogan? "Pedigree. Really Good Food for Dogs."(Pedigree)

Hill's Science Diet's ingredients include soy and corn (both listed twice), wheat, animal fat, and chicken by-products. Oddly enough, every package of Science Diet says the same thing: "Veterinarian Recommended."(Science Diet)

Remember, this is only a tiny sampling of the unhealthy dog foods sold in America.

The AAFCO

Evidence proves that certain ingredients found in the above foods are detrimental to canine health, so why aren't these companies being stopped? Isn't there some sort of government regulation on pet food? The American Association of Feed Control Officials (AAFCO) is a division of the FDA and serves as the liaison between feed producers and the federal government.(API) The AAFCO does not regulate the pet food industry, but it does set minimum standards and regulations known as nutrient profiles that are generally adhered to by food manufacturers.(API) This means that as long as certain levels of protein, fat, etc. are accounted for, it doesn't necessarily matter what the food sources are.(Wysong)

Marketing

With such poor ingredients, how do these companies manage to rope you into buying their products? Firstly, these foods are available almost anywhere, from the supermarket, to grocery stores, to pet stores.(Belanger) The easier it is to find a food, the more likely a customer is to buy it. It's extremely convenient to pick up a bag of food while you're already out shopping for yourself. In addition to convenience, the majority of these low-quality foods are extremely cheap, and a lower price means more people are willing to buy the product.(Wysong)

In the past week alone, I have seen television commercials for four of the five brands listed above. These Commercials included images of running puppies and happy dogs playing with

their owners. Advertising is very effective when it comes to dog food. Science Diet has one of the best marketing plans as every bag says explicitly, “Veterinarian Recommended.”(Science Diet) How can they say that? Hill’s corporate website’s homepage lists a number of scholarship opportunities for prospective veterinarians. Hill’s actually pays for students to go to school, and provides some vets with free supplies of Science Diet for sale in their offices.(LeClair)

Some of the best sales techniques involve the product itself. Many manufacturers cut pieces of food into specific shapes or dye them with multiple colors.(Belanger) These manipulations are not for the dog’s benefit, but they are used to lure customers into finding the foods more appealing.(Belanger) Companies may take similar liberties with the actual packaging of the food. Iams colors each of its bags a solid color, unique for every flavor.(Iams) Customers have previously asked me if my pet store sold the blue bag or the red bag, but they couldn’t remember the name of the brand. Purina Beneful depicts images of whole chunks of beef, fresh carrots, and peas on the bag, implying that these are the primary ingredients in the product, but closer inspection to the list of ingredients shows that this is not the case.(Purina Beneful)



INGREDIENTS

Ground yellow corn, chicken by-product meal, corn gluten meal, whole wheat flour, animal fat preserved with mixed-tocopherols (form of Vitamin E), rice flour, beef, soy flour, sugar, sorbitol, tricalcium phosphate, water, salt, phosphoric acid, animal digest, potassium chloride, dicalcium phosphate, sorbic acid (a preservative), L-Lysine monohydrochloride, dried peas, dried carrots, calcium carbonate, calcium propionate (a preservative), choline chloride, added color (Yellow 5, Red 40, Yellow 6, Blue 2), DL-Methionine, Vitamin E supplement, zinc sulfate, ferrous sulfate, Vitamin A supplement, manganese sulfate, niacin, Vitamin B-12 supplement, calcium pantothenate, riboflavin supplement, copper sulfate, biotin, garlic oil, thiamine hydrochloride, pyridoxine hydrochloride, thiamine mononitrate, folic acid, Vitamin D-3 supplement, menadione sodium bisulfite complex (source of Vitamin K activity), calcium iodate, sodium selenite.

Figure 3: Beneful’s Packaging and List of Ingredients. (Purina Beneful)

This small deception really works. As recently as April 13 of this year, a family friend came into the shop looking for something to stop his dog from shedding. As usual, I asked what brand of food he was feeding. He named a natural food we sell, but also said he was giving the dog Beneful, solely for the vegetables. These companies spend a lot of money on marketing, and it definitely pays off.

Alternatives

In selling dog foods, I’ve always conformed to one line of thought; if you’ve heard of it, don’t buy it. As I mentioned earlier, when I first began working at a pet store, I hadn’t heard of any of the brands of food we carried. Never once did I see a single commercial for any of our brands. The more money companies put into getting you to buy their product, the less they’re spending on quality. I’m going to present you now with a short list of some of the healthiest, most

effective brands on the market and specific reasons to choose that food. I'll bet you haven't heard of most of them.

Active Care is formulated for dogs with extreme cases of arthritis or hip dysplasia. (Active Care) It contains high quantities of cartilage, and therefore lots of glucosamine and chondroitine to ease a dog's pain.(Active)

Canidae uses four protein sources (chicken, lamb, turkey, and menhaden fish) to provide optimum nutrition for larger, more active breeds. (Canidae) It is also good for all life stages of a dog, meaning it can be fed the same bag of food as a puppy, adult, and senior dog.(Canidae)

Merrick dog foods are great for smaller dogs that tend to turn their noses up to their dog food. Many people feed their pets table scraps, which ultimately lead to a fussy dog who will wait for that juicy piece of steak rather than eating the bland kibble placed before him. Merrick uses whole chunks of meat in savory sauces to stimulate the palate, while providing the nutrition that only a natural dog food can.(Merrick)

Pinnacle contains a hypo-allergenic formula.(Pinnacle) Any dogs that develop skin problems can benefit from the formulation of Pinnacle, which uses trout and sweet potatoes as its main ingredients.(Pinnacle) Dogs are typically not allergic to either of those ingredients, and it is my first recommendation for dogs with food allergies.

Wellness contains all the nutrients that a natural food should.(Wellness: Natural) It takes its vitamins directly from fruits and vegetables that have been mixed directly into the food. (Wellness: Natural) Wellness bags specifically advocate the fact that they leave out certain ingredients. "No meat by-products, No rendered animal fats, No corn, soy or wheat."(Wellness Super5Mix)

The Cost Factor

In analyzing the ingredients of both high and low-quality foods, the difference in nutritional benefits is obvious. Cheaper brands can lead to innumerable health risks including death, whereas premium brands can substantially improve a dog's overall health. So given this information, why don't more people use the healthy brands? I gave you the answer earlier in this paragraph; the low-quality foods are cheaper.(NexPet, 41) In many cases, dog owners cannot afford to feed their animals a proper diet, and in other cases, people don't feel like forking over the extra cash.(LeClair) To give you an idea of the difference in cost, a typical 50lb bag of Ol' Roy costs about \$15, whereas a 30lb bag of Wellness now costs more than \$40.(Ol' Roy)(Wellness Super5Mix) As a matter of fact, a 5lb bag of Wellness costs \$14, almost the same as that 50lb bag of Ol' Roy! Obviously, the difference in cost is substantial, but manufacturers of healthy foods have to pay for their high-quality ingredients, and in order to pay for them, they need the money from their customers.

One thing people fail to realize when comparing prices is that the initial cost is not the same as a long-term investment.(NexPet, 41) In most cases, the cost of an "expensive" food is approximately equal to that of a "cheaper" brand.(NexPet, 42) Remember fillers? They pass straight through the dog's body without being broken down to obtain any actual nutrition. In

natural foods, every ingredient in the bag is included for a specific purpose and the body absorbs every one of them.(NexPet, 41) This means less is passing through, meaning dog's won't need to eat as much to feel full, meaning a bag of natural food will last quite a bit longer than a bag of food from the supermarket.(NexPet, 41) This obviously means that you'll be spending money on dog food far more infrequently with a premium diet.(NexPet, 41)

When your dogs get sick, where do you take them to make them better? Now think about all the health problems caused by cheaper foods including allergies, cancer, liver and kidney failure, and imagine the cost of tests, medications, operations, and prescription diets from your veterinarian.(NexPet, 42) People sometimes spend thousands of dollars at the vet's office merely to find out that their dog suffers from something as simple as food allergies.(LeClair) Avoiding these vet bills is possible if the health risks aren't there, and this means buying a more expensive food can save you hundreds or even thousands of dollars. Initial cost may be more, but without extremely high levels of luck, you aren't saving yourself any money buy picking up the cheapest food money can buy.(NexPet, 42)

Conclusion

Before reading this report, how much did you know about popular brands of dog food like Iams and Purina? Did you know that they contain ingredients that can potentially lead to the development of rashes, hair loss, chronic digestive problems, kidney failure, liver failure, tumors, and cancer? The problem is that most people aren't aware of this fact, and succumb to the brilliant marketing strategies utilized by these companies. A dog's natural diet would consist almost entirely of raw meats and vegetables, so why feed yours a food that has neither of those essential ingredients in its formula? Premium, all-natural foods *will* contain meat and *will not* contain any harmful ingredients that can ultimately endanger the life of your best friend. Premium diets not only provide proper nutrition, but are always supplemented with ingredients to reduce shedding, eliminate allergies and skin problems, prevent and treat arthritis in older or larger dogs, prevent heart problems, enhance vision, and aid in digestion. The initial cost difference may seem too extreme to warrant the conversion to a natural food, but considering the cost of vet bills, the long-term expenses will be much less than those from a cheap brand of food. Premium dog foods truly *are* a worthwhile investment for the betterment of a dog's health.

I hope that this report has convinced you of the dangers that can result from an improper diet, as well as the advantages natural foods can provide. If Dog truly is Man's best friend, Man should do all he can to make sure his best friend is living a happy and healthy lifestyle. Perhaps it's time to switch your dog's food, or at least research this topic further for the sake of your pet. Whether you begin to feed your dog a premium diet, or you decide that this investment just isn't for you, at least now you know what's in your dog's bowl.

GLOSSARY

The **American Association of Feed Control Officials (AAFCO)** is a division of the FDA and serves as the liaison between feed producers and the federal government. The AAFCO does not regulate the pet food industry, but it does set minimum standards and regulations that are generally accepted and adhered to by food manufacturers. (API)

Bloat is a life-threatening distension of the stomach that occurs when it becomes filled with air and fluid that cannot be expelled. After a few hours, bloat can be fatal. (Petco)

A **Carcinogen** is any substance that has the ability to cause cancer. (ATSDR)

Carnivores are animals that feed on a diet almost entirely consisting of other animals. These animals are typically referred to as “meat-eaters.” (Royal, 18)

Hypoallergenic dog foods are those that have had their protein sources broken down into tiny pieces. These pieces are usually too small for a dog’s immune system to recognize and react to the ingredients, and are therefore used to treat food allergies.(API)

The **Immune System** is a powerful defense mechanism that uses natural antibodies to protect against weather conditions, infection, illness, and stress. (Canine Health)

Mycotoxins are harmful, often fatal substances found in mold or fungi. (API)

Omnivores are animals that feed on a varied diet consisting of assorted fruits, vegetables, and meat. (Royal, 21)

Probiotics are living, beneficial bacteria that protect the digestive system from harmful invaders and aid in digestion. (Belanger)

Protein is the most important nutrient for dogs, as it provides them with energy to grow and maintain almost all bodily functions. (Grandjean, 35)

Supplements are added to foods to provide a dog with additional health benefits, and improve overall health. (API)

APPENDIX A

THE EXTRUSION PROCESS OF MANUFACTURING DOG FOOD

Introduction

Commercial dog food comes in 4 basic forms: raw (meat and vegetables), canned, semi-moist, and dry kibble.(Foster & Smith) The most common process for producing hard kibble is called extrusion, and is used by 90% of pet food manufacturers.(Foster & Smith) The process uses a special machine called an extruder that creates high amounts of friction which generates enough heat to actually cook the food.(Foster & Smith)

The initial stages of extrusion require very low moisture levels, so dry ingredients like cereal grains are essential for the process to be carried out.(API for Animals) Many lines of food intentionally minimize grain content and have to be prepared differently. Extrusion is used by larger companies to manufacture large amounts of food at a time.

The Extrusion process contains 7 steps: grinding, mixing, conditioning, extruding, drying, coating, cooling. (Foster & Smith)

The Process

Grinding is the first stage in the extrusion process. (Foster & Smith) After the food's formula is determined by scientists, nutritionists, and computers, a machine called a hammer mill breaks down the dry ingredients such as the grains and vitamins into powdery particles. (API for Animals) The granules of these powders must be relatively uniform in size to ensure that the nutrients from all ingredients are evenly distributed, and all of the ingredients can be evenly cooked. (Foster & Smith)

Mixing follows grinding, and uses a machine called a ribbon blender to stir the separate powders into an even blend. (Foster & Smith) The mixing process is the backbone of manufacturing as this is the stage that actually formulates the food so that each individual piece of kibble will have almost identical ingredients. (Foster & Smith) The ribbon blender can process as much as a ton of food at a time, but the mixture must be completely dry for an even mix. (Foster & Smith) The powdered food is then transferred to a large silo which steadily empties the mix to the next stage of the extruding process. (API for Animals)

Conditioning adds moisture to the dry compound.(Buschhart and Lucht) Pre-measured quantities of water, broths, and juices are added to the mix.(Foster & Smith) Because meats are typically high in moisture, this is the stage during which they are added. (Foster & Smith) For 45 seconds, the compound is exposed to steam to evenly spread moisture. (Foster & Smith)

Extruding is the step in which the food is prepared. (Foster & Smith) The now doughy mixture of ingredients passes into a machine called the extruder.(API for Animals) The extruder is a long cylindrical tube with what is basically a very large rotating screw inside. (Foster & Smith) The screw breaks up the dough into smaller batches and pushes it along the tube exposing the

food to extreme pressure. (Foster & Smith) The friction between the dough and the tube walls is all that is required to cook the food. (Foster & Smith) Temperatures well over 200°F are reached, and the rotation inside the tube ensures an even cooking. The amount of time and the speed inside the extruder depend on what the food's formula calls for. (Foster & Smith) The end of the extruder has a nozzle, and the heated dough is squeezed through it, much like toothpaste is squeezed out of its tube.(API for Animals) The shape of this nozzle defines the shape of the kibble. If the nozzle is star-shaped for example, when you open the finished bag, all kibble pieces will look like stars. As the kibble exits the nozzle and the pressure decreases, the pieces puff up into their final shape.(API for Animals) A whirling blade chops the shaped dough into small pieces as it exits the extruder.(API for Animals)

Drying eliminates any excess moisture from the still spongy kibble as it exits the extruder. (Foster & Smith) A conveyor belt slowly passes the pieces through a drying system. (Buschhart and Lucht) Drying is a very scientific process; if dried too quickly, the kibble crumbles into broken pieces, but if it isn't dried thoroughly, it can easily attract bacteria and mold. (Foster & Smith)

Coating is the last step in actually formulating the food. (Buschhart and Lucht) The kibble is now dry and crunchy, but still warm. (Foster & Smith) Pre-measured quantities of oils and fats are sprayed onto the kibble to make it more appetizing for dogs.(API for Animals) Food coloring is also coated onto the kibble to make it more appealing to the consumer buying the finished product.(API for Animals) (Foster & Smith)

Cooling is the final stage in the Extrusion process. (Buschhart and Lucht) For about 7 minutes, the kibble is passed slowly along a conveyor belt cooling to room temperature. (Foster & Smith) This final process limits condensation from the kibble, thereby limiting mold and bacteria growth. (Foster & Smith) Once the kibble is cooled, it can be packaged and sold for consumption.(API for Animals)

Summary

All dry ingredients that are to be used to make the dog food are ground up and mixed into a fine powder, which is then steamed and moistened. (Foster & Smith) Meat products are added, and the whole mix passes into the extruder which cooks and shapes the kibble. (Foster & Smith) From there the food is dried and treated with specialized compounds or chemicals making the food more palatable and appealing. (API for Animals) Lastly, the food is cooled and packaged. (API for Animals) Extrusion allows for quick preparation of bulk quantities of food, effectively maximizing profit. (API for Animals)

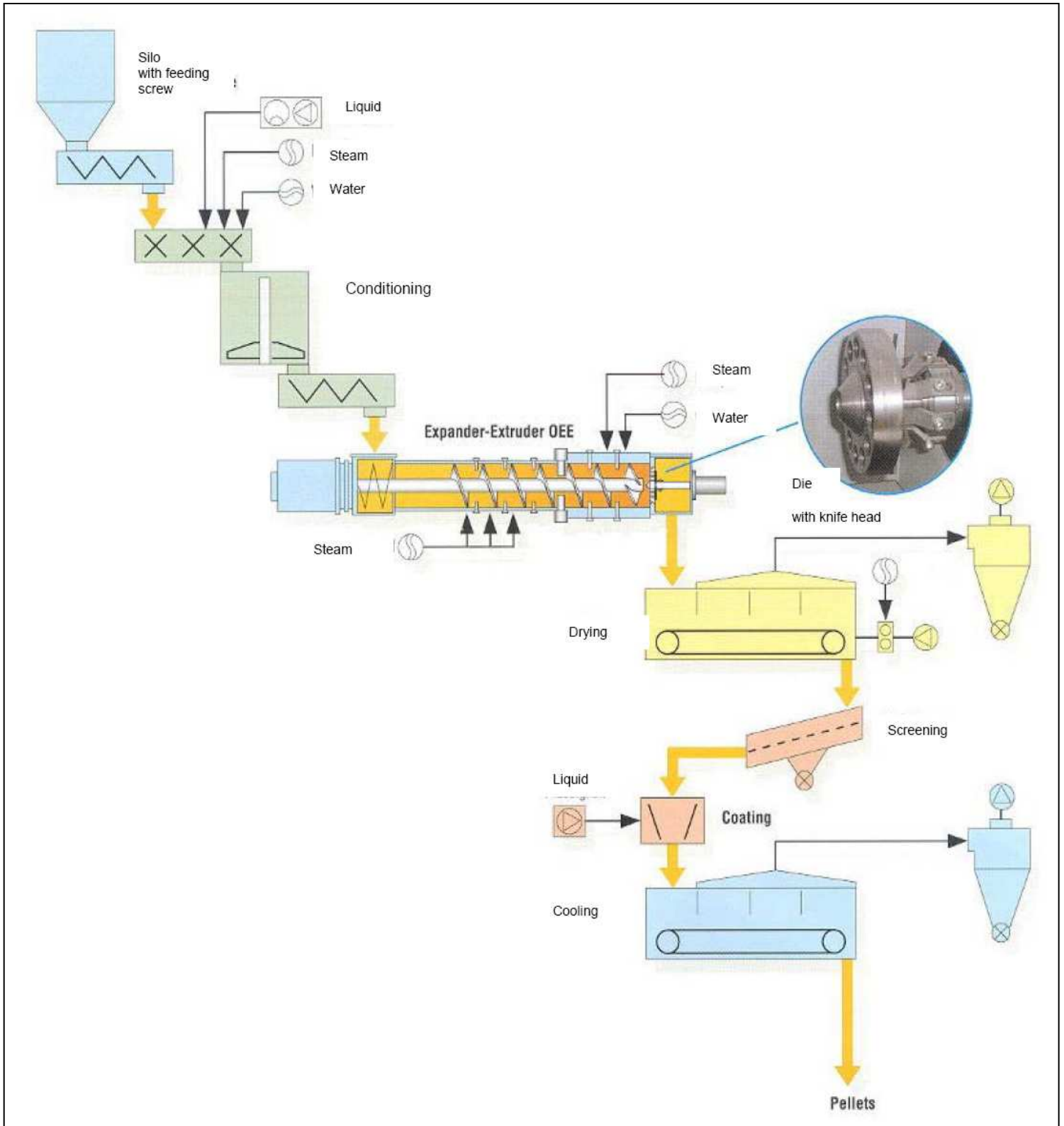


FIGURE A1: A Diagram of the Extrusion Process. Grinding and Mixing are not Included. (Buschhart)

APPENDIX B FOR CATS

During the creation of this report on the health benefits of dog food alternatives, it began to feel irresponsible to leave out useful information about feline health, which isn't too different. Mostly everything I included in the text of this report holds true for cat health as well. Poor nutrition can lead to food allergies, bloat, cancer, and numerous other problems, while a proper diet can provide for cats the same benefits as for dogs.

Of course being different animals, cats will have different nutritional needs than dogs, but a commercial brand closer to their natural diet is far better than one filled with chemicals and preservatives. These premium brands will also include essential dietary supplements that are added to cure and prevent serious health concerns for cats.

Taurine

As cats get older, their bodies certainly don't get any younger. Many serious conditions can set in later in life including both loss of vision and heart problems.(API) The cause of these troubles is typically a lack of one essential nutrient called Taurine.(API) Naturally occurring in meats, this ingredient promotes heart health, and has actually been known to prevent or correct blindness.(Grandjean, 36) Given that healthy foods promote the use of meat for protein, it's a safe bet that many premium diets include doses of taurine as well.(Grandjean, 36)

Antioxidants

A very common health problem with cats, especially males, is a urinary tract infection (UTI) or the formation of crystals. This particular problem is caused by the fact that most commercial diets increase the acidity of cats' urine.(API) This creates build-ups or blockages in the urinary tract which can become very serious issues if not treated quickly and properly. (API)

Antioxidants, typically found in fruits and sources of vitamin C, cleanse the body of toxins, including crystals in cats' urinary tracts.(Grandjean, 72) Feeding a diet with fruits like cranberries or blueberries can cure and prevent any future UTIs.(API)

Cats by nature are very independent creatures. Many times they will disappear for weeks on end only to show up safe and sound hiding behind the sofa or on top of the refrigerator. Cats don't typically eat on a schedule, but show up whenever they get hungry to pick a bit of food out of their bowls before their next adventure begins. As a cat owner, you ultimately get to choose what your pet eats, so the next time you buy a commercial brand of food for your cat, make sure it includes the essential amino acid taurine, and a varied assortment of fruits and vegetables to keep your loved ones healthy.

WORKS CITED

- Active Care. Irwindale, CA: Breeder's Choice, 2006.
- Agency for Toxic Substances and Disease Registry (ATSDR). "ToxFAQs for Creosote." September 2002. [Atsdr.cdc.gov](http://www.atsdr.cdc.gov). March 19, 2008. <<http://www.atsdr.cdc.gov/tfacts85.html>>.
- API for Animals. "What's Really in Pet Food." May 2007. [Api4animals.org](http://api4animals.org). February 13, 2008. <<http://api4animals.com/facts.php?p=359&more=1>>.
- Belanger, Dathan. Pet Lover Level Chart. 3rd ed. Somerset, MA: Pet Lover Inc., 2007.
- Buschhart, A., H.W. Lucht. "Production of Petfood using the Expander/Extruder OEE." April 2, 2008. <www.akahl.de/inc/opendoc.php?id=179&type=t_documents>.
- Canidae. Maintenance Formula. San Luis Obispo, CA: Canidae Corporation, 2007.
- Canine Health Nutrition: Medium. St. Charles, MO: Royal Canin USA, Inc., 2005.
- "Canine Mouth and Teeth Problems." JustUsDogs.com. April 20, 2008. <http://www.justusdogs.com.au/flex/canine_mouth_and_teeth_problems/651/1>.
- Flint River Ranch. "MSE Microbial Probiotic Pet Supplements." [FlintRiver.com](http://flintriver.com). March 20, 2008. <<http://www.flintriver.com/Probiotics-Overview.htm>>.
- Grandjean, Dominique. Everything You Need to Know About Nutrients to Nourish, to Prevent, to Cure Cats and Dogs. Paris, France: Aniwa Publishing, 2003.
- Helmenstine, Anne M. "BHT and BHA." [About.com](http://about.com). March 20, 2008. <<http://chemistry.about.com/library/weekly/aa082101a.htm>>.
- Iams. Ground savory Dinner with Tender Chicken and Rice. Cincinnati, OH: P&G Pet Care, 2008.
- Kerns, Nancy. "How to Choose Dog Food." 2007. [Whole-Dog-Journal.com](http://whole-dog-journal.com). March 19, 2008. <<http://www.whole-dog-journal.com/sample/food.html>>.
- LeClair, Caitlin. Veterinary Technician at Mt. Hope Animal Hospital. Personal interview. Swansea, MA. 30 March, 2008.
- MedLine Plus Medical Encyclopedia. "Carbolic Acid." March 21, 2006. [Medlineplus.gov](http://medlineplus.gov). March 19, 2008. <<http://www.nlm.nih.gov/medlineplus/ency/article/002890.htm#Definition>>.
- Merrick: Gourmet Entrées for Dogs!. Merrick Pet Care Ltd., 2007.

- Natural Health Information Centre. "Propylene Glycol, Alcohol." Natural-Health-Information-Centre.com. March 20, 2008.
<<http://www.natural-health-information-centre.com/propylene-glycol.html>>.
- NexPet Inc. FlexQuiz Training Program: Volume I. 4th ed. Kearney, NE: Morris Publishing, 2006.
- OI' Roy. OI' Roy Dog Food. Bentonville, AR: Wal-Mart Stores, Inc., 2003.
- Pedigree. Traditional Ground Dinner with Chopped Chicken. TN: Mars Inc., 2008.
- Petco. Canine Health Care Sheet. San Diego, CA: Petco Animal Supplies, Inc., 2004.
- Pinnacle: Superior Canine Nutrition. Irwindale, CA: Breeder's Choice, 2007.
- Purina. Beneful Original. St. Louis, MO: Nestlé Purina PetCare Company, 2008.
- Purina. Puppy Chow. St. Louis, MO: Nestlé Purina PetCare Company, 2008.
- Purina. Purina ONE Adult Lamb & Rice Formula. St. Louis, MO: Nestlé Purina PetCare Company, 2008.
- Royal Canin. Dog Encyclopedia: Small Breeds. Paris, France: Aniwa Publishing, 2003.
- Science Diet. Adult Original. Topeka, KS: Hill's Pet Nutrition, 2008.
- Server, John. "They Sold Me Canidae for Willy." Canidae Testimonial.
<<http://canidae.com/company/customertest/canidae1.html>>.
- Veterinary & Aquatic Services Department, Drs. Foster & Smith, Inc. "How Pet Foods are Manufactured." 2000. peteducation.com. April 2, 2008.
<http://www.peteducation.com/article_print.cfm?articleid=2653>.
- Wellness: Natural Nutrition for Dogs. Tewksbury, MA: Old Mother Hubbard, 2007.
- Wellness. Super5Mix Lamb. Chelmsford, MA: Old Mother Hubbard, 2007.
- Wysong, R. L. "How to Optimize Your Pet's Health." CD-ROM. Midland, MI: Wysong Corporation. 2005.