Controversial for You, but It's Downright Awful for Your Pet

Even this federal agency warned the veterinary community against this health snare. Pets can't break it down because they lack the necessary enzyme. What's more, it binds minerals and leaches them out of your pet's body. So why are food makers so thrilled with this new disaster?

Analysis by Dr. Karen Shaw Becker

STORY AT-A-GLANCE

- The processed pet food industry recently published a study showing that a limited amount of biologically inappropriate fava beans can be fed to dogs without causing digestive upset
- This result, coupled with the fact that fava beans can withstand the extrusion process, makes this ingredient a winner in the eyes of pet food producers
- However, fava beans are an inappropriate ingredient for dogs because they contain substances the canine body can't digest, that also interfere with mineral absorption, and can cause GI issues as well
- An additional concern with the liberal use of legumes and other starches in grain-free formulas is a potential link to diet-related heart disease in dogs

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A study published not long ago in the Journal of Animal Science and promoted in a pet food industry publication suggests that fava beans (also called faba and broad beans) are an "effective ingredient for use in a commercial dog diet."[1] One of the study co-authors, Greg Aldrich, Ph.D., a Kansas State University grain science professor and PetfoodIndustry.com contributor reports the happy news:

> *"It appears fava beans were well tolerated at all levels tested and only influenced digestibility at higher levels. The dehulled fava beans in our study processed well in extrusion. They would be a solid contributor as an ingredient choice in modern pet foods."*[2]

This is just one more example of a pet food industry "scientific study" designed to see how much of a biologically inappropriate ingredient dogs can ingest before it interferes with their digestion in an immediately measurable way. Apparently, the 12 beagles in the study didn't develop noticeable tummy troubles until they were subjected to "higher levels" of fava beans.

This is a considered a good thing by the processed pet food industry, because they now have yet another inexpensive, plentiful, plant-based (i.e., biologically inappropriate) ingredient they can use to inflate the protein percentage in their formulas, and also potentially use to replace meat protein in vegetarian or vegan dog foods.

Fact: Most Dog Food Studies Are Not for the Benefit of Dogs

Also good news for pet food producers is that fava beans "processed well in extrusion." Extrusion, as we know, is a manufacturing method that has been used by the pet food industry for decades. About 95% of dry pet diets are produced using the extrusion process.

Batches of raw ingredients are mixed, sheared and heated under high pressure, forced through a spiral-shaped screw and then through the die of the extruder machine. Extrudate is the result — a ribbon-like product that is then knife-cut and dried.

The high temperature used in extrusion (nearly 400 degrees Fahrenheit) and the short time frame to process (under five minutes) creates continuous chemical and physical alterations to the ingredient mixture. This not only changes the molecular activity of the food, but also potentially contributes to a heavier carcinogenic load. So to review, the pet food industry's takeaways from the study are:

- Fava beans in moderate amounts can be tolerated by dogs
- Fava beans hold up well in the extrusion process
- Fava beans can be used to boost the protein percentages (misleadingly, in my opinion) in dog food formulas

My takeaway: Canine biology aside, the simple fact that an ingredient such as fava beans must be tested in dogs to see how much they can tolerate is all the proof anyone should need that dogs didn't evolve to eat fava beans. Therefore, the intent and result of this "scientific study" is 100% for the benefit of processed pet food producers and 0% for the benefit of the dogs who will at some point be fed kibble containing fava beans.

Fava Beans Are a Pulse Crop

Pulse crops, also called pulses or legumes, are plants with a pod. "Pulse" is the term used to identify the edible seeds of legumes, and is derived from the Latin word puls, meaning thick soup. The Food and Agriculture Organization of the United Nations (FAO)[3] recognizes 11 primary pulses:[4]

- Dry beans (kidney, lima, azuki, mung, black gram, scarlet runner, ricebean, moth and tepary)
- Lentil
- Dry broad beans (fava, horse, broad, field)
- Bambara groundnut
- Dry peas (garden, protein)
- Vetch
- Chickpea
- Lupins
- Dry cowpea
- Minor pulses (lablab, jack, winged, velvet and yam beans)
- Pigeon pea

Because they are high in fiber, folate, iron (when eaten with a source of vitamin C) and complex carbohydrates, and are also low in fat, pulse crops are considered nutritious for humans by some nutritionists, and not by others. The reason some experts advise keeping legume intake minimal is the same reason I recommend avoiding feeding these foods to pets — the presence of phytates and lectins that are naturally found in legumes.

Phytates are substances that carnivores can't break down because they lack phytase, the enzyme necessary to process phytic acid. Phytates bind minerals (including zinc, iron, calcium and magnesium), leeching them out of your pet's body. Lectins are sticky proteins that when consumed in large quantities may contribute to gastrointestinal (GI) disturbances and leaky gut.

Pet food producers and their ingredient suppliers are aware that many pet parents tend to believe foods that are healthy for humans are also healthy for dogs and cats. In fact, they use pet owners' lack of knowledge about pet food ingredients to create and market biologically inappropriate diets. For example, one of the marketing approaches used to promote pet foods containing bean meal is weight loss.

The nutrient profile in beans may benefit some humans and other omnivores and herbivores, but carnivores thrive on animal — not plant — protein, and they don't benefit physiologically from starch or high levels of dietary fiber. Dogs are facultative carnivores, not omnivores or herbivores, but that pesky little fact certainly hasn't interfered with the pet food industry's relentless drive to make diets for carnivores using ingredients nature didn't design them to eat.

Another Concern: Grain-Free Kibble May Be Linked to Diet-Related Heart Disease in Dogs

It has recently come to the attention of members of the veterinary community, pet parents, the pet food industry and even the FDA that **grain-free diets high in legumes** may be linked to an increase in taurine deficiency-related dilated cardiomyopathy (DCM) in dogs who aren't predisposed to this form of heart disease. From a July alert issued by the FDA's Center for Veterinary Medicine (CVM):

> *"The U.S. Food and Drug Administration is alerting pet owners and veterinary professionals about reports of canine dilated cardiomyopathy (DCM) in dogs eating certain pet foods containing peas, lentils, other legume seeds or potatoes as main ingredients. These reports are unusual because DCM is occurring in breeds not typically genetically prone to the disease."*[5]

Since grain-free dry dog food is relatively new on the market, it's certainly possible there's something about the high-starch (carb) content in these diets that depletes taurine levels and/or makes the taurine less bioavailable. The problem might be related to a chemical reaction (called the Maillard reaction) between taurine and a carbohydrate during the extrusion process that depletes the digestible taurine level in the food.

And while legumes are being singled out as the potential problematic ingredient, grain-free kibble is often higher in both whole carbohydrates and purified starches (e.g., pea starch, potato starch and tapioca starch) than grain-based dry dog food. The higher the starch level in any pet food, the less protein is included.

Research shows that the byproducts of the chemical reaction between amino acids and sugars (carbs) in dry cat food alter the microbiome (gut bacteria), causing degradation of the taurine in the food, reducing its availability to the cat and also preventing the taurine from being efficiently recycled by the cat's body.[6]

Grain-free commercial diets that are low in animal protein are very high in carbohydrates, which displace amino acids. They also contain antinutrients (e.g., saponins, trypsin inhibitors, phytates and lectins) that may interfere with taurine absorption. When you add in the high-heat processing used to manufacture kibble, it's hardly surprising these diets aren't an adequate source of taurine for many dogs.

My recommendation, as always, is to nourish your dog with a fresh, balanced, organic, non-GMO, species-appropriate diet. If you can prepare it yourself, even better.

And until we have more information on the increase in diet-related DCM in dogs, my recommendation is to supplement with high-taurine foods, no matter what type of diet your canine companion is eating. An easy way to do this is to simply mix a can of sardines into your dog's meal once a week.

Sources and References

[1] Journal of Animal Science, Volume 95, Issue suppl_4, August 1, 2017, Pages 110-111

[2] PetfoodIndustry.com, September 5, 2017

[3] Food and Agriculture Organization of the United Nations

[4] FAO, Definition and Classification of Commodities, 4. Pulses and Derived Products

[5] FDA.gov

[6] Journal of Nutrition. 1996 Jan;126(1):195-201