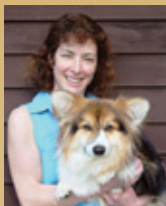




## About the Authors



**Lisa M. Freeman, DVM, PhD, DACVN** completed her DVM degree at Tufts Cummings School of Veterinary Medicine and received a PhD in Nutrition from Tufts Friedman School of Nutrition Science and Policy. After a residency in Clinical Nutrition, she was board-certified by the American College of Veterinary Nutrition. She has been on faculty at Tufts Cummings School of Veterinary Medicine since 1996, where she is currently a Professor in the Department of Clinical Sciences. Dr. Freeman teaches veterinary students about companion animal nutrition and cares for patients that require specialized nutrition for acute and chronic diseases.



**Cailin R. Heinze, VMD, MS, DACVN** earned her VMD degree from the University of Pennsylvania School of Veterinary Medicine. After veterinary school, she worked in private practice for three years before pursuing a residency in clinical nutrition at the University of California, Davis. While at Davis, Dr. Heinze earned a Master's degree in Nutritional Biology. She is currently an Assistant Professor of Nutrition at Tufts Cummings School of Veterinary Medicine. Her professional interests include canine and feline obesity, nutritional management of renal disease, long-chain fatty acids and cancer nutrition.

# DECIPHERING FACT FROM FICTION

Number 3, December 2012

## Much ado about by-products

The term “by-product” has become a dirty word in pet food manufacture, but this characterization actually hides a much less sensational truth



**Q:** Which of the following ingredients are legally allowed to be included in “meat by-products”?

- a. Internal organs
- b. Hooves
- c. Feces
- d. Roadkill



**A:** Of these choices, only **internal organs** can actually be included in meat by-products.

**If you answered anything other than internal organs, you're not alone.** In a recent survey of 852 consumers, most of whom were dog owners and some of whom were veterinarians, over 50% of respondents incorrectly identified animal products that would be included in the term “by-products.”<sup>1</sup>

	% of survey respondents and what they believe is included in by-products	What is actually in by-products
Internal organs	87%	✓
Hooves	60%	
Feces	22%	
Roadkill	13%	

**FIGURE 1** Percent of survey respondents who agreed that the following were included in “by-products” in pet food versus what are actually by-products.

These concerning results reflect the rampant misinformation about this common ingredient. In common usage, a by-product is something that is just that — a side product from the making of another product. By-products are not by definition poor quality. For instance, gingerbread cookies wouldn't be the same without molasses, which is a by-product of sugar manufacture.

In relation to pet foods, by-products are generally parts of the animals that are not the muscle meat preferred by most American consumers. The term refers only to the anatomic parts included, not to the nutritional quality of the parts.

The American Association of Feed Control Officials (AAFCO) defines a meat by-product as “the non-rendered, clean parts, other than meat, derived from slaughtered mammals. It includes, but is not limited to, lungs, spleen, kidneys, brain, livers, blood, bone ... and stomachs and intestines freed of their contents. It does not include hair, horns, teeth and hooves ...”<sup>2</sup>

While many Americans may not be used to eating these animal parts themselves, it is important to realize that in many regions and cultures, these parts are regularly consumed and may even be considered as delicacies (e.g., sweetbreads [thymus], Rocky Mountain oysters [testicles], haggis [sheep heart, liver, lungs and stomach], steak and kidney pie). **Additionally, many of the items included in “by-product” (e.g., organ meats) may be higher in essential nutrients — amino acids, minerals and vitamins — as well as more palatable to pets than the skeletal muscle meat.**

Interestingly, many items that would be appropriately classified under the label of “by-product” (e.g., bully sticks [bull penis], lung, liver, pig ears, tendons, etc.) are popular dog treats. Many pet owners who would not consider feeding a diet containing any animal “by-product” will feed the same ingredients as treats without any concern. In fact, the same survey mentioned in *Figure 1* found that 26% of consumers who said that they avoided by-products fed bully sticks. Ironically, the quality control of these treat items is much less stringent than those of pet foods from reputable pet food manufacturers that include by-products.

In addition to nutritional benefits, inclusion of these ingredients in pet foods reduces waste and likely has environmental benefits as the livestock industry does not have to produce additional animals just to satisfy the needs for muscle meats to feed pets as well as people. Feeding these nutrient-rich, tasty parts to pets may prevent them from being wasted and allows the entire animal to be put to good use.

Much of the consumer confusion and discomfort surrounding by-products most likely stems from the marketing strategies of some pet food brands and perhaps from the ingredient name “by-product” itself. Because of this confusion and discomfort, many manufacturers now advertise their products as not containing by-products, which reinforces consumer misperception of this ingredient. Some companies also provide misleading and illegal definitions of by-products on their websites or in advertisements, presumably to promote inaccurate consumer perception to sell more of their diets. Other manufacturers include ingredients that could be considered by-products — such as liver and kidney — and list them simply as “liver” or “kidney”, to avoid the term. In some cases, these diets may then be marketed as very expensive “natural” or “holistic” foods and may even be advertised as containing no by-products.

It is important to keep in mind that most ingredients in pet foods can vary greatly in quality, and quality cannot be assessed purely on the basis of the ingredient list. Just as not all by-products are the same quality, all muscle meat is not either. There are very high-quality by-products as well as poor-quality chicken and chicken meal (or beef or pork).

**Purchasing food only from reputable manufacturers who are very selective about their suppliers, have full-time, qualified nutritionists and perform analytical testing to ensure that every ingredient, as well as the finished product, meets their exact nutrient specifications, will help avoid problems due to poor quality ingredients.**



## REFERENCES

1. This study is currently in press at Can Vet J and is planned to be published January 2013.

2. Association of American Feed Control Officials. Feed Terms and Ingredient Definitions in 2012 Official Publication, page 354.

***Sponsored through a P&G Pet Care educational grant to provide educational information from leading experts on nutrition to pet owners. For more information on P&G Pet Care, visit [PGPetwellness.com](http://PGPetwellness.com), [lams.com](http://lams.com), [Eukanuba.com](http://Eukanuba.com), [Naturapet.com](http://Naturapet.com).***