

HOT TOPIC

Grains in pet foods



In focus

Grains provide valuable nutrients, but pet owners may believe that grains are “fillers” or that they may be a source of food allergies.

The Purina Institute provides the science to help you take the lead in conversations about nutrition.

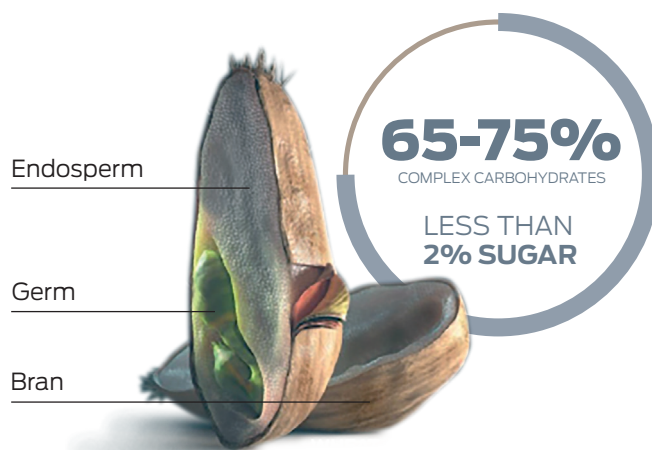
let's
takeback
the conversation.

Learn more about the power of nutrition at
www.purinainstitute.com

Why is there grain in my pet's food?

Grains are a rich source of nutrients for pets. Grains are the seeds of cereal grasses such as oats, barley and corn that help meet the body's crucial need for glucose, an essential source of energy. Whole grains typically contain about 65-75% complex carbohydrates and less than 2% sugar.

They also provide protein, fiber, essential fatty acids, B vitamins and minerals.^{1,2}

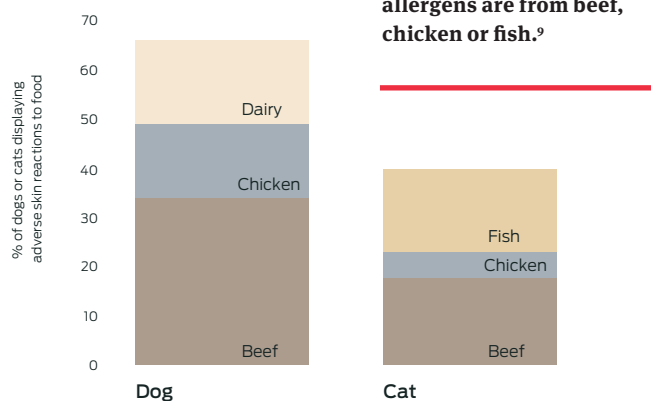


What are the most common triggers of allergic reactions in pets?

Food allergies in pets are less common than environmental or flea allergies, and among food allergies, grains are not typically the source. However, all of these allergies may lead to similar skin and GI symptoms, making a diagnosis difficult.^{7,8}

If an adverse food reaction does occur, studies show the most common sources of food allergens are an individual's specific immune reaction to the size or structure of a particular protein, and to previous exposure response to a protein – not to the carbohydrates in grains.

Grains are not among the most reported food allergens in either dogs or cats.



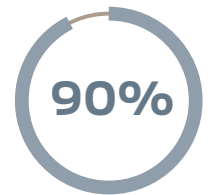
(Adapted from Mueller et al. 2016)

Wild dogs and cats don't eat grains so why should my pet?

Today's dogs and cats can readily digest and use properly cooked grains. As modern dogs evolved from wild canids, genetic studies show that domestic canines acquired more genes that code for enzymes that can help digest grains.³

Although domestic cats are carnivores –like their wild ancestors– and need certain nutrients found naturally in animal tissue, this does not mean that they can only eat meat or should not eat grains.

Even though cats use different metabolic pathways than other species use for digesting carbohydrates, research shows that cats can digest and use grains –with an efficiency greater than 90%.⁴⁻⁶



Can my pet be allergic to gluten?

Glutens are the protein component of grains that may trigger allergies, but not all glutens are alike. The gluten from wheat, barley or rye contains “gliadins” that may trigger adverse food reactions in people with celiac disease.¹⁰

While specific lines of Irish Setters have a heritable form of gluten-sensitive enteropathy that is similar to celiac disease in people, this is not a common health condition in dogs or cats.^{11,12} Gliadin is not found in gluten from corn or rice, so these are unlikely to trigger an allergic response.

References

- Lañandra, D., Riccardi, G., & Shewry, P.R. (2014). Improving cereal grain carbohydrates for diet and health. *Journal of Cereal Science*, 59(3), 312–326.
- USDA Food Composition Databases, Standard reference database, National Agricultural Library v3.9.5.1_ accessed online 2019–01-29
- Axelsson, E., Ratnakumar, A., Arendt, M.L., Maqbool, K., Webster, M.T., Perloski, M.,...Lindblad-Toh, K. (2013). The genomic signature of dog domestication reveals adaptation to a starch-rich diet. *Nature*, 495(7441), 360–364. doi: 10.1038/nature11837
- de-Oliveira, L.D., Carciofi, A.C., Oliveira, M.C., Vasconcellos, R.S., Bazolli, R.S., Pereira, G.T., & Prada, F. (2008). Effects of six carbohydrate sources on diet digestibility and postprandial glucose and insulin responses in cats. *Journal of Animal Science*, 86(9), 2237–2246. doi: 10.2527/jas.2007-0354
- Kienzle, E. (2009). Carbohydrate metabolism of the cat 2. Digestion of starch. *Journal of Animal Physiology and Animal Nutrition*, 69, 102–114. doi:10.1111/j.1439- 0396.1993.tb00794.x
- Tanaka, A., Inoue, A., Takeguchi, A., Washizu, T., Bonkobara, M., & Arai, T. (2005). Comparison of expression of glucokinase gene and activities of enzymes related to glucose metabolism in livers between dog and cat. *Veterinary Research Communications*, 29(6), 477–485.
- Gaschen, F.P., & Merchant, S.R. (2011). Adverse food reactions in dogs and cats. *Veterinary Clinics of North America: Small Animal Practice*, 41(2), 361–379. doi: 10.1016/j.cvsm.2011.02.005
- Olivry, T., & Mueller, R.S. (2016). Critically appraised topic on adverse food reactions of companion animals (3): Prevalence of cutaneous adverse food reactions in dogs and cats. *BMC Veterinary Research*, 13, 51. doi:10.1186/s12917-017-0973-z
- Mueller, R.S., Olivry, T., & Prélaud, P. (2016). Critically appraised topic on adverse food reactions of companion animals (2): Common food allergen sources in dogs and cats. *BMC Veterinary Research*, 12, 9. doi:10.1186/s12917-016-0633-8
- Morón, B., Cebolla, A., Manyani, H., Alvarez-Maqueda, M., Megías, M., Thomas, Mdel C., López, M.C., & Sousa, C. (2008). Sensitive detection of cereal fractions that are toxic to celiac disease patients by using monoclonal antibodies to a main immunogenic wheat peptide. *American Journal of Clinical Nutrition*, 87(2), 405–414.
- Garden, O.A., Pidduck, H., Lakhani, K.H., Walker, D., Wood, J.L., & Batt, R.M. (2000). Inheritance of gluten-sensitive enteropathy in Irish Setters. *American Journal of Veterinary Research*, 61(4), 462–468.
- Hall, E.J., & Batt, R.M. (1992). Dietary modulation of gluten sensitivity in a naturally occurring enteropathy of Irish setter dogs. *Gut*, 33(2), 198–205.