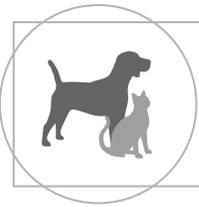


## The Facts About Wheat and Wheat Gluten

- Discovered in the Middle East 11,000 years ago, wheat may well be one of the oldest of the cultivated crops. Wheat stands as number three after corn and rice in total tonnes produced annually. It is the leading source of vegetable protein in human food surpassing both of these other major grains.<sup>1,2</sup>
- Wheat refers to the whole grain and all the nutrients it contains.
- Wheat gluten specifically refers to the protein portion of the grain. To obtain wheat gluten, the flour and the bran components of the whole grain are separated. To release the germ from the gluten, the wheat is first steeped and then ground. Centrifugation separates the gluten and the starch, finally leading to the drying of the gluten to a powdered form. This is the form utilized in pet food.

## Nutritional Value of Wheat and Wheat Gluten

- Wheat gluten is a very valuable protein source in cat and dog food. It has been shown to have 99 % digestibility by the small intestine.<sup>3</sup> This minimizes the delivery of undigested proteins to the large bowel, where they can undergo putrefaction, thereby improving stool quality, reducing fecal odour and flatulence, and avoiding toxic effects on the mucosa of the colon.
- Wheat gluten has an amino acid profile that is complementary to meat protein profiles. Combining these different protein sources enables nutritional precision.
- Apart from being a very good source of protein, wheat gluten is low in saturated fat, cholesterol, and sodium.
- Wheat is low in phosphorus. This supports the formulation of diets with precise calcium and phosphorus levels and ratios for the specific health needs of growing, adult and mature cats and dogs.



## Wheat Gluten and Celiac Disease

Wheat and wheat gluten have come under scrutiny because of the association with celiac disease, an autoimmune disorder found in genetically susceptible individuals who must avoid gliadin, a glycoprotein found in gluten sources such as wheat, rye, barley and oats.

Celiac disease is certainly a serious disease for those affected, but is generally well controlled by avoiding consumption of gliadin. Celiac disease is a relatively uncommon condition, affecting less than 1% of the human population among those who are not at risk. It is more of a concern for those with a genetic predisposition for the disease or those who have other risk factors such as type 1 diabetes mellitus, iron deficiency anemia, etc.<sup>4</sup>

## Gluten-sensitive Enteropathy

In dogs, gluten-sensitive enteropathy is a disorder of the small intestine that results from an intolerance to gliadin, found in wheat, barley and oats. It is not a food allergy to gluten. Consumption of wheat gluten is not a risk factor for developing the disease. It is a very rare condition that only seems to affect certain predisposed breeds, such as Irish Setters.<sup>5</sup> For the rest of the pet population, wheat gluten can serve as a wonderful source of nutrition.

## References:

1. [http://nue.okstate.edu/crop\\_information/world\\_wheat\\_production.htm](http://nue.okstate.edu/crop_information/world_wheat_production.htm)
2. Nutrient Requirements of Dogs and Cats NRC p331, 332, 333.
3. Royal Canin Digestibility and Digestive Tolerance in Dogs (In-house data)
4. Gastroenterology. 2005 Apr;128(4 Suppl 1):S57-67. The Prevalence of Celiac Disease in Average-Risk and At-Risk Western European populations: a systematic review. Dubé C, Rostom A, Sy R, Cranney A, Saloojee N, Garritty C, Sampson M, Zhang L, Yazdi F, Mamaladze V, Pan I, Macneil J, Mack D, Patel D, Moher D.
5. Breed-Specific Intestinal Disease; World Small Animal Veterinary Association World Congress Proceedings, 2004: Edward J. Hall, MA, VetMb, PhD, DECVIM-CA, MRCVS Department of Clinical Veterinary Science, University of Bristol, Langford House, Langford Bristol, England.