Pet Food Label Analysis Panel

The pet food label displays an analysis panel with the food's nutrient composition, but the value is limited. Moreover, specific expertise is required to evaluate the analysis panel. Owners may follow the principle that the best judge of a commercial pet food is the animal itself.

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Information regarding the nutrient composition of a commercial pet food is found in the analysis panel on the label. Here, manufacturers declare the concentrations of up to about 10 nutrients, including protein and fat, expressed as percentages in the product. In addition, the added amounts of a few vitamins and trace elements may be presented. There are more than 40 essential nutrients. It is evident that pet food cannot be properly evaluated on the basis of the label only.

Complete pet food cannot be approved unconditionally on the basis of the analysis panel, but it can be disqualified. The exercise requires calculation of nutrient: energy ratios in the food and evaluation of these ratios in the light of the recommended nutrient allowances. For meaningful comparisons of the nutrient profiles of pet foods, the values in the analysis panels also have to be converted into nutrient : energy ratios. Few pet owners are comfortable with the necessary mathematics and with interpreting the results.

Nutrient Percentage

Substance of the analysis panel is determined by law in many countries. Guaranteed analysis panels show minimum and maximum percentages and thus mostly are not reflecting the exact amounts of the nutrients in the food. Typical analysis panels display conforming percentages. Food in a particular package may deviate from the typical composition. Foods with the same label are manufactured over time in different production batches using similar, but not necessarily identical ingredients.

Basic percentages in the analysis panel concern crude protein, crude fat, crude fibre and crude ash. The adjective crude refers to the analytical procedures that yield outcomes with little nutritional relevance. For instance, the protein and fat measurements tell nothing about the amino acid and fatty acid patterns. The crude fibre fraction is poorly characterised.

Nutrient Availability

The amounts of nutrients in foods as determined by chemical analysis are not fully available to the animal. Between foods, nutrient availability can differ. In a study, puppies were fed on one of four dry foods with identical guaranteed analysis panels. Digestibility of crude protein was measured as the percentage of ingested protein not recovered in faeces. Between the four foods, protein digestibility ranged between 69 and 80 percent. Weight gain of the puppies also differed among the dietary groups. Even though two foods have identical or similar analysis panels, the animal's response can differ substantially.

GUARANTEE ANALISYS

Humidity (max.): 13.0% - Raw protein (min.): 21.0% - Ethereal extract (min.): 5.0% - Fibrous material (max.): 5.0% - Mineral material (max.): 15.0% - Calcium (Ca) (max.): 3.0% - Phosphorus (P) (min.): 0.7%

PRODUCT'S BASIC COMPOSITION

Cooked corn, meat flour, soy meal, bi-calcium phosphate, gluten flour, calcium carbonate, salt, fat, mineral and vitamin pre-mixture, wheat meal.

EVENTUAL SUBSTITUTES

Bone flour, rice meal, sorghum, manioc flour.

Guaranteed analysis panel of a complete dog food suitable for all life stages

Qualifying Foods

According to the guaranteed analysis panel shown, the worst-case calcium level of the dry food in question is three percent. The calculated, maximum calcium: energy ratio is 2.5 grams per 1000 kilojoules, which is 3.5 times the recommended allowance for young, growing dogs. Published research indicates that such a high ratio produces disturbances of skeletal development (osteochondrosis) in young dogs. When fed as sole source nutrition to young dogs, the food entails a high risk of skeletal disease. An educated evaluation of the analysis panel can sometimes lead to conditional disqualification of a pet food.

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Comparing Foods

The table illustrates the typical analysis panels for two dry foods with diverging fat contents and for one canned food. The percentage of protein varies between 26 and 10 percent. Which food realises the highest protein intake? Food requirement is determined by energy requirement. Protein intake is determined by the protein: energy ratio in the food. The high water content of the canned food dilutes both the protein and energy contents, but the food has a high protein ratio. The calculations show that the canned food with 10 percent protein leads to the highest protein intake. The dietary percentage of protein as such is not informative.

	Dry Food 1	Dry Food 2	Canned Food
Crude protein, %	26	24	10
Crude fat, %	30	5	4
Crude fiber, %	3	3	0.5
Ash, %	8	8	2.5
Moisture, %	10	10	80
Carbohydrates, %	23	50	3
Energy content, kJ/100 g	1920	1393	366
Energy requirement, kJ/day	5000	5000	5000
Food requirement, g/day	260	359	1366
Protein intake, g/day	68	86	137
Protein: energy ratio, g/1000 kJ	13.5	17.2	27.3

Calculated daily intake of grams of protein (last but one row) by an adult 21-kg dog fed different foods

The dog's energy requirement is set at 5000 kilojoules (1195 kilocalories) per day. The three foods carry the typical analysis panel as shown with yellow background. The percentage of carbohydrates is calculated as residual component. Energy contents of the foods are calculated with the classical Atwater factors.

Dr Beynen will be writing this exclusive column on dog and cat nutrition and nutrition-related items every month.