

AAFCO FEEDING TRIALS FOR NUTRITIONAL VALIDATION AND SAFETY OF PET FOOD

INTRODUCTION

The American Association of Feed Control Officials (AAFCO) is an association of agencies that propose model regulations through compilation of research and information. AAFCO itself is not a regulatory body; it does not test, approve or certify pet foods, but works to establish the nutritional standards for complete and balanced pet foods by setting nutrient minimums and maximums. Many of these suggested standards, such as ingredient labelling and nutrient guidelines, are adopted and then enforced through state and national agencies.

Within the pet food industry, AAFCO plays a major role in ensuring companies formulate nutritionally safe diets, thus ensuring “safe, effective and useful feeds” (AAFCO, 2017). To ensure nutritional adequacy all pet foods must meet at least one of the requirements from these categories:

- formulation
- animal feeding trial
- family grouping (lead product member of a pet food passes a feeding trial using the AAFCO protocols and a “family member” product deemed nutritionally similar to the lead product by meeting specific nutrient and calorie criteria)

By defining these nutritional adequacy parameters, AAFCO is able to provide guidance to pet food manufacturers and regulators while safeguarding the nutritional health of pets worldwide.

AAFCO FEEDING TRIAL

The standard AAFCO feeding trial methodology sets out basic parameters which are used to assess the nutritional safety of the food. These physiological parameters are assessed to ensure all animals participating in the trial remain healthy and in good condition. Upon completion of an animal feeding test using AAFCO procedures, manufacturers can be assured that their diet is “complete and balanced” and nutritionally safe for

dogs or cats in a certain life stage. Such information is crucial to the manufacturer from a validation standpoint, and offers assurance to consumers and veterinary professionals when choosing a diet for their pets or patients.

The AAFCO standards for nutritional adequacy for maintenance of adult dogs requires participation of a minimum of eight healthy dogs from a validated colony. These animals must be housed in a controlled environment along with a parallel group of the same size and breed distribution to serve as controls. The test diet is to be the animal’s only source of nutrition for a full 26 weeks (AAFCO, 2017). No animal in the test can show signs of dietary excess or deficiency. To assess general health and well-being, as well as body and coat condition, animals are subject to a physical exam by a veterinarian at the start and the end of the trial. Overall health is assessed via blood analyses collected once at the end of the trial. The base parameters measured include the following:

- hemoglobin
- packed cell volume (PCV)
- alkaline phosphate
- albumin

Daily food intake is also recorded, and part of a complete success of the trial depends on no more than 25 per cent of participants, two animals, being removed for poor feed intake or other non-dietary reasons (AAFCO, 2017).

A standard AAFCO feeding trial validates the nutritional safety of a diet through measured daily intake, body weight, body condition score and blood comparisons to the control group upon completion of exclusive feeding for six months. The standard trial is designed to ensure that there are no nutritional deficiencies or excesses and that no undue stress is placed on the animal. However, with broad guidelines and minimal clinical measurements, many critics claim that


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the diet may not be “complete and balanced” and subtle nutritional inadequacies can be missed when using the standard AAFCO requirements.

Champion Petfoods has made a commitment to Pet Lovers everywhere to ensure the safety and nutritional adequacy of our foods. As a result, Champion has custom-designed an AAFCO canine and feline feeding trial with additional blood measurements and urinalysis, to accurately and completely assess our unique, Biologically Appropriate diets.

APPLICATIONS

Upon successful completion of a standard AAFCO feeding trial, the manufacturer can label that food as “complete and balanced” and it is deemed nutritionally adequate. For Champion Petfoods, these custom AAFCO trials provide a better understanding the physiological effects of our high-protein, Biologically Appropriate diets on cats and dogs. Data from these analyzed physiological parameters can be used to validate:

- use of novel ingredients
- high fresh meat inclusions
- safety of nutrients, which differs from the specifications set out in the AAFCO pet food nutrient profiles regulations.

CHAMPION AAFCO FEEDING TRIALS

Champion Petfoods conducts AAFCO feeding trials to confirm the safety, health and nutritional adequacy of our foods. The basic methodology used to conduct our trials is the same as the standard AAFCO feeding trial; however, Champion chooses to include a number of additional metabolic and health measurements in the dog and cat. These additional tests and analyses enable us to achieve a greater understanding of how our Biologically Appropriate foods support the overall health of our beloved companions. A full list of the additional parameters required for completion of a Champion Customized AAFCO Feeding Trial can be found in Table 1.0.

If a company chooses a number of extra tests and the results are deemed unacceptable by the independent study veterinarian, then the diet will fail to comply with the AAFCO requirements for nutritional adequacy. Many conventional pet food manufacturers choose to not examine these additional measurements as it greatly increases the likelihood of discovering subtle nutritional deficiencies and failing the AAFCO feeding trial. For Champion’s enhanced AAFCO feeding trials, blood is taken for analyses every four weeks during the 26-week trial, including week zero and week 26, as opposed to a single blood collection upon completion. Numerous urinary parameters, which are not required in a standard trial, are also analyzed to accurately assess urinary health and protein metabolism (Table 2.0). All lead ORIJEN and ACANA formulations have successfully completed and passed our enhanced AAFCO feeding trials and are defined as nutritionally “complete and balanced” for dogs and cats at maintenance. For inquiries regarding specific diets and average biochemical parameters of animals fed our ORIJEN and ACANA diets, please contact our Customer Care team.

The trust garnered by Pet Lovers through our commitment to safe nutrition is important to us. We are continuously working on the science behind our Biologically Appropriate philosophy, and our custom feeding trials are only one of the many ways in which we achieve this. ORIJEN and ACANA are very unique compared to the traditional market, making the nutritional validation extremely important and relevant to Champion Petfoods and Pet Lovers worldwide.

REFERENCES

2017 Official Publication. Association of American Feed Control Officials Incorporated 2017

Reference guides: Serum biochemical reference ranges. In Kahn, CM, Line, S, eds. The Merck veterinary manual. 10th ed. Whitehouse Station, N.J: Merck & Co., Inc, 2010; 2826.


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APPENDIX 1

Table 1.0
Required Blood Parameters for Champion Petfoods' Customized AAFCO Feeding Trial

PARAMETER TESTED	REASON FOR TESTING**
Albumin (required)*	Assess kidney and liver function.
Alkaline phosphatase (required)*	Abnormal levels of ALP in the blood indicate a problem with liver or bones. Damaged liver cells release ALP. This test can also detect a Vitamin D deficiency relating to bone conditions.
Cell pack volume (required)*	Can be used as early detection for possible diseases.
Hemoglobin (required)*	Can be used as early detection for possible diseases. Detects animals that are anemic, which can be related to specific disease, conditions, or dietary causes.
Total plasma protein	Assess protein metabolism and balance (nutritional status), and can screen for liver and kidney disorders.
Globulin	Elevated levels can indicate certain metabolic diseases and allergies.
A/G ratio	Can detect kidney disease or autoimmune diseases.
AST	Stored in muscles and liver. Damage to either will release this enzyme into bloodstream. Not as specific as ALT.
ALT	Stored in liver cells, released into blood when damage to the liver occurs. Quite specific to the liver.
Total bilirubin	By-product of red blood cell breakdown. Excreted in the bile. Rises when bile duct is blocked.
Urea nitrogen	High levels of blood urea nitrogen can suggest kidney disorders, such as diseases or failure.
Creatinine	By-product of muscle metabolism that is excreted by the kidneys into urine. Kidneys are the only organ to excrete this substance.
BUN/Creatinine ratio	Evaluates the function of kidneys.
Phosphorus	Assess phosphorus balance and evaluate kidney function.
Glucose	Evaluate blood glucose level, where abnormal levels can indicate diabetes, kidney disease, pancreatitis and other metabolic disorders.
Calcium	Assess calcium balance and retention, evaluate kidney function.
Magnesium	Assess magnesium balance and evaluate kidney function.
Sodium	Assess sodium balance (any possible retention).
Potassium	Assess potassium balance (any possible retention) and evaluate kidney function.
Chloride	Assess chloride balance (any possible retention).
Cholesterol	Examine cholesterol level changes due to diet.
Triglycerides	Evaluate changes in blood triglycerides and fat metabolism.


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Table 1.0 (Continued)

Required Blood Parameters for Champion Petfoods' Customized AAFCO Feeding Trial

PARAMETER TESTED	REASON FOR TESTING**
WBC	Assess a possible immune response
RBC	
Hematocrit	
MCV	
MCH	
MCHC	
Platelets	
Absolute Polys	
% Polys	
Absolute Bands	
% Bands	
Absolute Lymphs	
% Lymphs	
Absolute Monos	
% Monos	
Absolute Eos	
% Eos	
Absolute Basos	
% Basos	
Blood ammonia	

* Minimum requirements for a standard AAFCO trial - blood pull is taken once at the end of the trial whereas CPF Tests the additional parameters listed above (not bolded) and blood is pulled every four weeks during the 26-week trial, include a pull at week zero and week 26

** All reasons cited from Merck veterinary manual, 2010


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Table 2.0

Urine Parameters for Champion Petfoods' Customized AAFCO Feeding Trial

CHAMPION CUSTOMIZED AAFCO FEEDING TRIALS	REASON FOR TESTING**
pH	Gives insight into how the diet may affect crystal development, alkaline, neutral or acidic.
Specific gravity	Values can give insight to hydration status or certain disease states such as diabetes mellitus, renal failure or hyperadrenocorticism.
Glucose	Positive results can indicate diabetes mellitus or other kidney disorders.
Bilirubin	Small amounts can be normal- is normally excreted in urine by dogs but not cats. High abnormal values may indicate liver disease.
Ketones	Positive results can indicate uncontrolled diabetes mellitus.
Blood	Generally indicative of bladder or kidney infections.
Protein	Positive results can be indicative of renal disease or lower urinary tract disorders.
Leukocytes	Assess a possible immune response.
Nitrates	High, abnormal values can indicate a urinary tract infection.
Urea	
Creatinine	Monitored in tandem to evaluate kidney health.

** All reasons cited from Merck veterinary manual, 2010


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