

Introduction to the AAFCO Collaborative Check Sample Program



Dr. Victoria Siegel
Purdue University
Office of Indiana State Chemist

Association of American Feed Control Officials (AAFCO)

- Goals – Safe, Effective & Useful Animal Feed
- Mechanism for implementing uniform & equitable laws, regulations, standards & enforcement policies for regulating manufacture, distribution & sale
- Regulatory Officials of any :-
 - State
 - Dominion
 - Federal
 - Governmental agency
- Explore problems; develop standards, definitions & policies; cooperate with industry

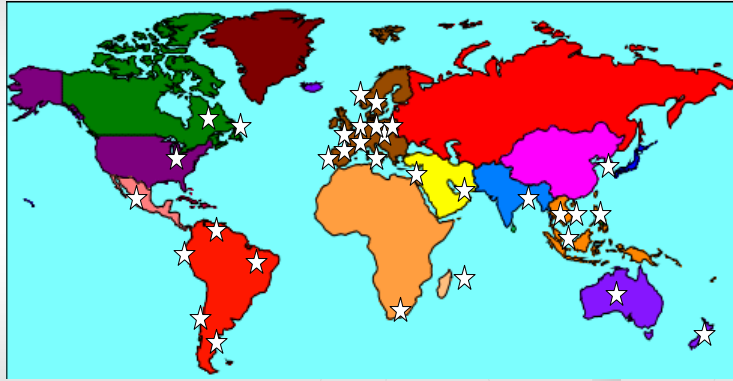
AAFCO Collaborative Check Sample Program

- Goal – Maintain and improve analytical accuracy of feed testing labs
- Mechanism – Supplies monthly samples to member labs & provides assessment of performance relative to other participant labs
- Scope- Commercially manufactured animal feed, supplements or ingredients
- Open to all labs
 - State Regulatory
 - Government
 - Commercial testing
 - Manufacturing
 - Domestic & International
- Flexible analyte reporting
 - AAFCO Method codes

History of the Program

- 1930
 - Association members, AAFCO \$ supported (\$50), moisture, ash, protein, fat & fiber
- 1931 – Industry labs for \$10
- 1940 – Outsourced sample prep & mailing, self-supporting
- 1941 (64) – Committee formed, Chair J.F. King, GA
- 1949 (~100) – B Program for antibiotics & vitamins (\$10)
- 1955 – cut to 6 samples, combined A & B Programs
- 1958-1983 Alfalfa Program (Dr. Quackenbush), \$2-\$5 ea
- 1972 – computer processing, \$50 per lab
- 1979 - \$75 per lab
- 1984 - \$95 per lab
- 1985 – 60 Regulatory labs, 120 Industry, ~35 International
- Currently ~240 active labs (58% US, 30% International, 12% Canada) \$228 / \$276

AAFCO samples are shipped around the World



AAFCO samples are:-

- Typical portion size ~300g
- Pre-ground (pass 0.034" screen) & riffled
- Analyzed "as is"
- Analyzed, single test portion, on two different days
- Reported ~one month after result due date
- Collaborative
- the consensus determines the assigned "true value"

AAFCO samples

- Commercially purchased, medicated, animal feeds
- One dry pet food per year
- One double-sample per year – medicated mineral pre-mix and a feed ingredient (DDGs, poultry meal)
- Special samples – canned pet food
- Plans to blend triple-medicated feeds
- Surplus (Past) samples may be purchased for use as Lab Control samples

Typical AAFCO Label

Feed Sample for Analysis Only – AAFCO Check Sample Program
Dr. Victoria Siegel, Chair, Office of Indiana State Chemist, (765) 494-1565
Analytical Sample(s)/Muestra(s) para Analisis
No Commercial Value/Sin Valor Comercial

0822 – Senior Pig Starter, Medicated Due March 10, 2008

Estimated Analysis

Crude Protein,	min. 19.00%
Crude Fat,	min. 4.50%
Crude Fiber,	max. 3.50%
Calcium (Ca),	min. 0.70%
Phosphorus (P),	min. 0.70%
Salt (from NaCl),	min. 0.25%
Lysine,	min. 1.35%
Selenium (Se),	min. 0.3 PPM
Zinc (Zn),	min. 200 PPM
Carbadox,	min. 0.0055 %

Determine as desired: DL-methionine, choline chloride, L-threonine, Cu, folic acid, Mg, L-Tryptophan, Si, Na, pyridoxine HCl, Biotin, Vitamin A, Vitamin E, Fe, Vitamin D3, Mn, Vitamin B12, riboflavin, thiamine

AAFCO Method Codes

- Allow for reporting of test results by specific methods (AOAC) or general method type (LC)
- Format is XXX.XX eg. 003.11
003 is crude fat; extension of 11 refers to NIR
- Some method codes refer to specific AOAC methods eg. 003.00 is Fat by direct ethyl ether extraction as described in AOAC 920.39
- The unit is also specified in the AAFCO method code document
- Method codes are created at the request of participants and are a good reflection of methods currently in use in labs

NIR Method codes

- 002.11 Protein
- 003.11 Fat
- 004.11 Fiber
- 005.11 Ash
- 010.11 Moisture
- 012.11 Starch
- All instrument types
- All calibrations
- Compare to Reference methods to look for bias

NIR Participation

Sample #	Description	Range of NIR reports	Total lab reports
0721	Pig nuggets	7 - 15	198
0722	Cattle Chow	7 - 8	194
0723	Lamb finisher	1 - 12	202
0724	Chicken starter	7- 12 (3 ash outliers)	205
0725	Cattle Grower	7-13 (4 protein outliers)	203
0726	Senior pig starter	12 - 19	202
0727	Pig grower	9 - 15	196
0728	Lamb starter	11 - 15	200
0729	Beef Chow	7- 10 (4 ash outliers)	204
0730	Lamb grower	12 - 16	194

0726 Senior Pig Starter - Protein

Method Code	Description	# of Labs	Grand Average	SD	Average Range
002.00	AOAC 954.01	4	21.16	0.34	0.2
002.01	Auto Kjel- Foss	11	21.24	0.29	0.17
002.02	semi-auto Auto	10	21.34	0.59	0.2
002.03	Hach	1	20.82	0.11	0.15
002.04	Copper cat	5	21.3	0.79	0.38
002.05	Copper, Boric acid	18	21.25	0.27	0.08
002.06	Combustion N analyzer	110	21.6	0.41	0.16
002.08	Cu/Ti	5	21.32	0.25	0.08
002.09	Selenium catalyst	1	20.51	0.35	0.49
002.10	Block dig / Distillation	6	21.09	0.33	0.09
002.11	NIR	18	20.61	0.45	0.18
002.99	Misc.	5	21.35	0.39	0.09
		194	21.38	0.51	0.19

Statistical Analysis

- Outlier screening, Pass 1 and Pass 2 Grand Averages and SD, Average Range of Duplicates
- Scores based on Accuracy Index (Bias & Precision)
- Letter grades are assigned based on scoring
- Will adopt ISO calculation to be compliant with the IHP (target 2009 Program)

Questions?

- www.aafco.org
News and Information – Check Sample Program
- vsiegel@purdue.edu
- 765-494-1565