

Heavy Metals in Feed & Feed Ingredients

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Laboratory Methods and Service Committee

BSE Cooperative Agreement

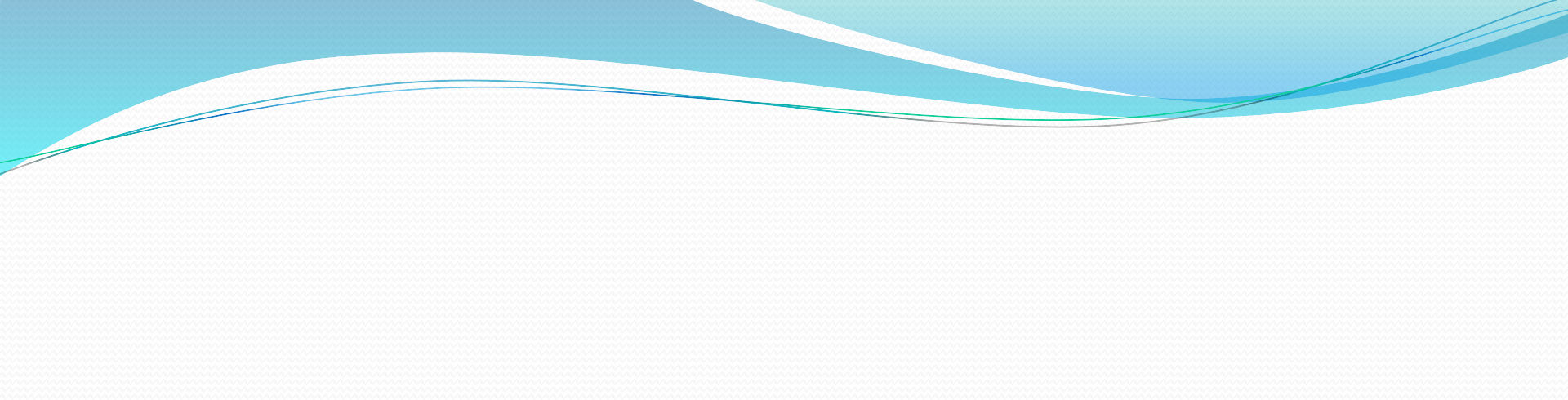
- Enhance feed safety in the Commonwealth of Kentucky
- 3 year
- rt-PCR of prohibitive animal proteins in feeds and ingredients
- Selenium in feed and feed ingredients
 - LOQ 1 ppm
- Heavy metals in feed and feed ingredients
 - Arsenic, Cadmium, Chromium, Lead, & Nickel

Method

- AOAC 2006.03
 - 1 g sample
 - 10 mL of Concentrated TMG HCl
 - Microwave Digestion
 - ICP-OES
- Extension and Modification
 - 1 g sample
 - 9 mL HNO₃, 3 mL HCl
- Mixed Acid Microwave Digestion
- Analysis via ICP-OES

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- In-house Validation a la AOAC Single Laboratory Validation Requirements
 - Same day RSD
 - Not same day RSD
 - Horowitz
 - Two AAFCO samples
 - 10 samples with outside results

2002-30b						
	As	Cd	Cr	Ni	Pb	Se
(in-day) rsd	9.42	4.55	3.54	3.50	20.40	4.64
(Dft day) Rsd	6.40	4.09	4.58	4.82	9.94	3.62
Hor	1.47	1.11	0.77	0.73	2.05	1.28
n=20						



2006-24	As	Cd	Cr	Ni	Pb	Se
(in-day) rsd	24.47	5.11	4.95	3.71	27.08	6.22
(Dft day) Rsd	23.46	6.44	6.95	4.14	29.34	10.33
Hor	1.04	0.79	0.71	0.89	0.92	0.60
n=20						

One method to rule them all

- AOAC 2006.03
 - As, Cd, Cr, Co, Mo, Ni, Pb, and Se
- Extension
 - Ca, Cu, Fe, Mn, Mg, and Zn
- Modification
 - Dual acid to aid in recovery of metals

Samples Tested

- Year one, 25
- Year two, 150
- Year three, 300

Thanks

- FDA, Cooperative Agreement
- Dave Harover, Research Analyst
- Keith Erny, retired Research Analyst
- Dr. William O. Thom, retired Division Director



Questions or Comments