



Food Animal Chemical Residues – Issues for Diagnostic Laboratories

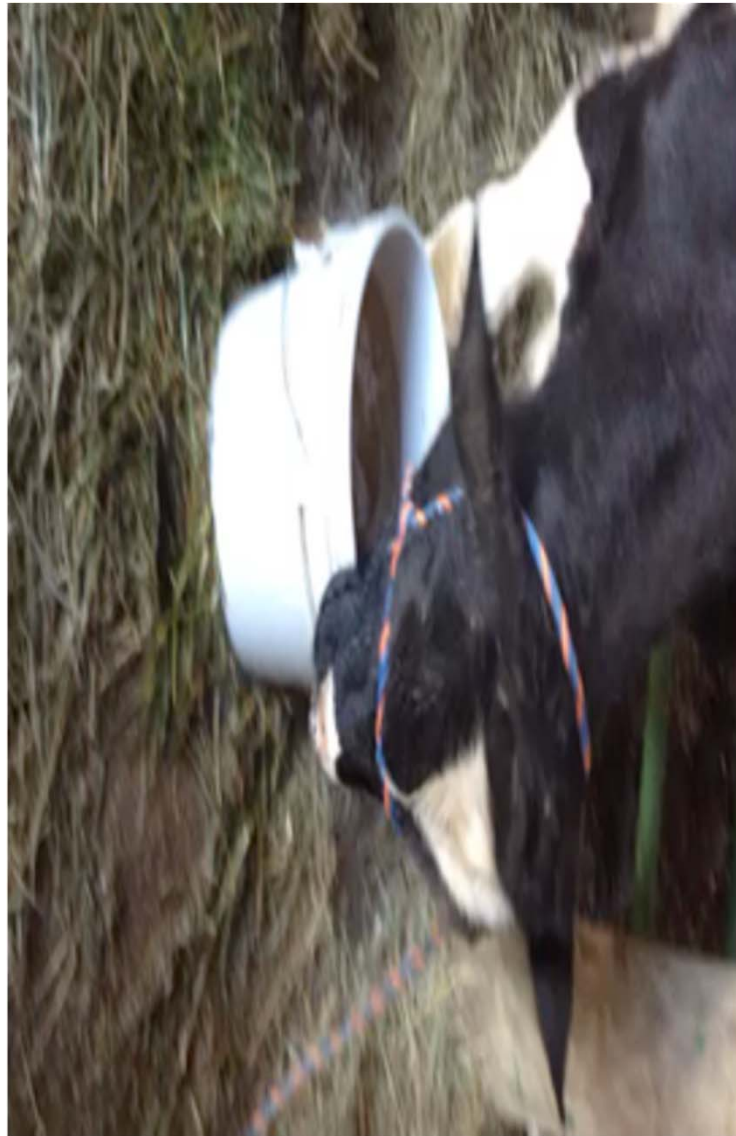
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Veterinary Diagnostic Laboratory**

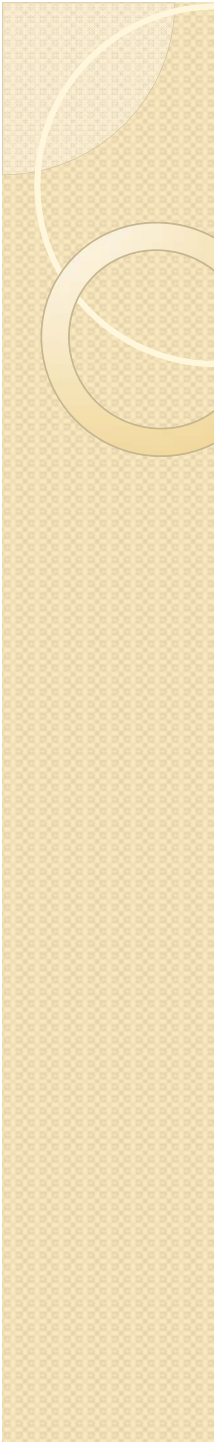


Regulations for Chemical residues in food animals

- **Difference between states**
 - Some have meat inspection programs; others do not
 - Province differences?
- **Very difficult to find people at the federal level to assist**
 - No policies or procedures developed for these cases.



- 3 of 175 calves
- Acute neurologic signs
- One died that night
- Post-mortem at UKVDL

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- **GC/MS analysis of rumen contents:**
 - Aldrin, DDD, DDE, DDT – huge peaks
 - Brain sodium 2120 ppm wet weight
 - **Farm visit to bleed rest of cattle, inspect premise**
 - 175 head of cattle
 - **Found large sink hole filled with old garbage and debris**
 - Hundreds of items
 - Selected most suspicious items to test

Broken glass - Item I

K13005442
04/05/13

Prepared by J. Duress
03-27-13

100 µg/L Ethanol and Internal Standards

1 µg/L Acetaminophen	1 µg/L Scandium
1 µg/L Ibuprofen	1 µg/L Indium
1 µg/L Hydrocodone	1 µg/L Rhodium
1 µg/L Oxycodone	1 µg/L Germanium
1 µg/L Propofol	1 µg/L Bromine

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Blood testing

- **Review of literature and regulatory documents**
 - To determine methods, tolerances, MLQs
 - Help from other vet diagnostic labs
 - No one at state or federal level to help
- **Serum and plasma analysis**
 - GC/MS SIM mode (see Lori for details)
 - 9 animals had 3 or more detectable OC (aldrin, dieldrin, DDE, DDD, DDT) > 10 ppb, or 1 OC >> 10 ppb



Fat biopsies

- **Fat biopsies obtained for animals with blood OC concentrations > 10 ppb**
 - Fat MLQ set at 0.1 ppm – from literature (and later approval from USDA FSIS)
 - Repeated in a month
 - Will repeat again in 3-4 months
- **State veterinarian cleared animals for sale or slaughter based on our tests**
 - We spent days on the phone trying to find the right USDA people to provide input



US National Residue Program

- **2011 document has MLQ information in Appendix II**
 - http://www.fsis.usda.gov/wps/wcm/connect/2c80b168-6c35-4fbe-93ee-017c683ebaeb/2011_Blue_Book.pdf?MOD=AJPERES
- **2012 document**
 - http://www.fsis.usda.gov/wps/wcm/connect/48ef8b4a-d8fe-40ab-9483-3eaf5e1fc997/2012_Blue_Book.pdf?MOD=AJPERES



USDA FSIS Chemistry cookbook

<http://www.fsis.usda.gov/wps/portal/fsis/topics/science/laboratories-and-procedures/guidebooks-and-methods/chemistry-laboratory-guidebook/>

Provides various USDA FSIS approved methods for residue analyses in meat, poultry, egg



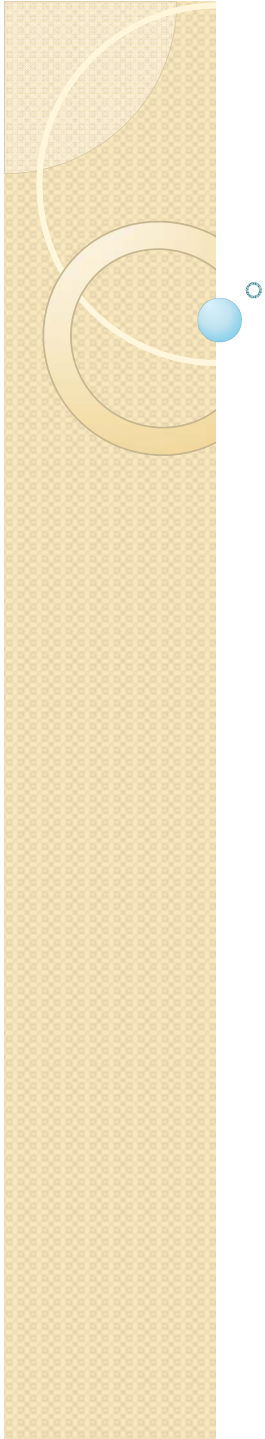
Helpful FSIS people

- **Emilio Esteban – Head honcho from DC**
- **Charles Pixley – Director of lab quality**
- **Joseph Hill – Scientific Advisor**
- **Jim Holterman – Policy division**
- **Louis Bluhm – Lab quality assurance**
- **Catalina Yee – supervisory chemist**
- **Patty Bennet – Public health residue program**



Future direction

- Further discussion later in the meeting
- Get information re: how other states and provinces handle these cases
- Develop possible solutions to dilemma
- Create white paper/recommendations for FSIS



The case of the suspicious toy

K13011301
8-14-13



K1301130L
8-14-13
K13011301
MADE IN CHINA





Metal analyses

- **Black rubber**
 - Small amount of lead (1.73 ppm) and arsenic (0.34 ppm)
 - Zinc: 2590 ppm
- **Yellow fuzz and Print on yellow fuzz**
 - Trace amounts of lead and arsenic
 - Zinc: 73.6 ppm
- **White rubber**
 - Small amounts of lead (9.73 ppm) and arsenic (8.99 ppm)
 - **Zinc: 20,4000 ppm**



- **Company response**

- No regulations other than lead testing required
- Zinc in white rubber was zinc oxide
- Will pull the toys from marketing and collect previously distributed toys
- Will change their policy for testing promotional toys