AAVLD-AAVCT Bovine Liver Proficiency Test Results

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Sample History

- Lactating Dairy Cow Died Unexpectantly
- Backyard Farm with 4 cows
- Second Cow to Die in 1 week
- No Gross or Histologic Lesions
- Diagnosed as lead poisoning
  - Also had selenium deficiency
  - Also had Copper deficiency
Obtaining Sample

- Full Liver from the cow was still available to the local veterinarian
- Liver sent to me for processing
Sample Processing

- Sample was processed at the USDA Poisonous Plant Research Laboratory
  - Freeze Dried, Ground, and homogenized
  - Grinding and homogenizations was repeated 5 times to ensure homogeneity
  - Mixture was sub-samples and analyzed 5 times to verify homogeneity
  - Results indicated < 5% variability among sub-samples for all elements tested
Laboratory Participation

- Twenty-one laboratories
  - Some Labs submitted 2 sets of data from different instruments
  - Two Labs returned no results
- In total 24 sets of data returned for evaluation
- Data sets ranged from a single element (1) to 28 elements (4)
Data Evaluation

- Statistician Evaluated the data sets for each element
- Data sets with less than 5 results were not used to establish SD for Means
- Statistical Outliers were removed from the data sets
- Reported N, Mean, and SD represent the data derived after removal of outliers
Overall Results

- Fourteen Labs had all reported analytes within 3 SD of the means
- Two Labs Failed all analytes reported
- Four Labs Failed 1-2 analytes reported
- Two Labs Failed 3-4 analytes reported
- Two Labs Failed > 5 analytes
Evaluation of Failed Results

- Did not appear to be related to method of analysis

- Did not appear to be related to sample homogeneity
  - Individual lab failures had both high and low failures for the same sample
  - One lab each trended toward all elements being high and all elements being low
Testing Costs

- Shipping – Approximately $350.00
- Sample Processing – 25 hour labor
- Misc. Lab Supplies and verification of homogeneity – Approx. $200.00
Future Testing??

- For those interested in using this liver as an internal QA sample, I still have significant test sample remaining.

- Where do we go from here??

- How would each of you have interpreted these results??