



*AAVLD-AAVCT Bovine Liver
Proficiency Test Results*

Jeffery O. Hall, D.V.M, Ph.D., D.A.B.V.T.

October 18, 2013

Sample History

- *Lactating Dairy Cow Died Unexpectedly*
- *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*
- *Costs absorbed by Ut. Vet. Diag. Lab.*

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??*



■ *Questions*