AAFCO LM&SC Fat Soluble Vitamins Working Group

Vitamin A Team & Vitamin E Team

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Round-Robin Study

- Survey Vitamin A and E methods for possible collaborative study
- 9 Samples chosen to cover a wide range
- 11 Methods for Vitamin A (7 submitted data)
- 8 Methods for Vitamin E (6 submitted data)
# Samples

<table>
<thead>
<tr>
<th>Matrix</th>
<th>Vit A (kIU/kg)</th>
<th>Vit E (IU/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Feed</td>
<td>15</td>
<td>88</td>
</tr>
<tr>
<td>Concentrate</td>
<td>35</td>
<td>54</td>
</tr>
<tr>
<td>Vitamin Premix</td>
<td>4400</td>
<td>17500</td>
</tr>
<tr>
<td>Animal Feed</td>
<td>7</td>
<td>40</td>
</tr>
<tr>
<td>Concentrate</td>
<td>75</td>
<td>55</td>
</tr>
<tr>
<td>Mineral Premix</td>
<td>240</td>
<td>2059</td>
</tr>
<tr>
<td>Animal Feed</td>
<td>7</td>
<td>55</td>
</tr>
<tr>
<td>Animal Feed</td>
<td>20</td>
<td>110</td>
</tr>
<tr>
<td>Dry Pet Food</td>
<td>15</td>
<td>460</td>
</tr>
</tbody>
</table>
Results

Problem with:

• Reproducibility (% RSD between laboratories) – significant error

• Repeatability (% rsd within the laboratory) - high error
Vitamin A (results difference vs. sample weight)

Sample 1

Sample 2

Sample 3

Sample 4
Vitamin A (results difference vs. sample weight)
Vitamin E (results difference vs. sample weight)

Sample 1

Sample 2

Sample 3

Sample 4
Vitamin E (results difference vs. sample weight)

Sample 5

Sample 6

Sample 7

Sample 8

Sample 9
How to Proceed?

• Suggestions resulting from the conference call

Use more homogenous samples for the next step of the study:

• Infant formula
• Cheese product (e.g. Velveeta)
• Sample with naturally occurring Vitamins A and E (poultry liver)
Action Items

• Send your input or your interest in participating in the discussion to working group leaders
  ✓ H. Dorota Inerowicz – inerowic@purdue.edu
  ✓ Ken Riter – ken.riter@purina.nestle.com

• Thanks to all of the participating labs

• Thanks to ADM and the AAFCO Check Sample Committee for donating study samples