Summary Data on Toxin Assays

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Special thanks to contributors of information:

David Schmale, PhD, Virginia Tech
Technical team at POET Nutrition
To gain insight into the prevalence of DON and ZEA in DDGS produced in December 2011 and January 2012.

- Two surveys conducted
  - NUTRIQUEST
  - POET Nutrition
NUTRIQUEST Procedure

- DDGS samples were obtained from ILLUMINATE customers during December 2011 and January 2012.
- A total of 141 samples from 83 ethanol plants were analyzed.
- No more than two samples from a single ethanol plant were included.
- Samples were sent to Dr. David Schmale, Department of Plant Pathology, Virginia Tech for DON analysis.
NUTRIQUEST Survey Results
Data Coverage by NUTRIQUEST

Number of Samples per State

Ohio, New York, Michigan, Indiana, Nebraska, Wisconsin, Iowa, North Dakota, Minnesota, South Dakota, Illinois, Missouri
## DON Levels, ppm

<table>
<thead>
<tr>
<th>Item</th>
<th>All</th>
<th>OH</th>
<th>NY</th>
<th>MI</th>
<th>IN</th>
<th>NE</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>141</td>
<td>7</td>
<td>2</td>
<td>5</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>Mean</td>
<td>1.34</td>
<td>10.24</td>
<td>3.43</td>
<td>3.31</td>
<td>1.76</td>
<td>1.53</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>2.44</td>
<td>4.74</td>
<td>0.19</td>
<td>1.46</td>
<td>1.22</td>
<td>0.90</td>
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<tr>
<td>High</td>
<td>16.99</td>
<td>16.99</td>
<td>3.56</td>
<td>4.96</td>
<td>3.24</td>
<td>2.48</td>
</tr>
<tr>
<td>Low</td>
<td>0.04</td>
<td>3.50</td>
<td>3.29</td>
<td>1.81</td>
<td>0.47</td>
<td>0.49</td>
</tr>
</tbody>
</table>
ZEA Levels of DDGS Dec 2011/Jan 2012

ZEA (ppm)

Ohio (7)
New York (2)
Indiana (18)
Nebraska (5)
Wisconsin (9)
Iowa (48)
North Dakota (2)
Minnesota (17)
South Dakota (20)
Illinois (4)
Missouri (4)
POET Survey Results
Data from POET for 2011 crop corn DDGS

- Samples taken 11-1-11 to 3-8-12
  - Western Corn Belt: 53 samples
  - MO: 8 samples
  - IN/MI: 52 samples
  - OH: 80 samples

Measured by HPLC
POET DON Results

ppm

Western Corn Belt  OH  IN/MI  MO

0  2  4  6  8  10  12  14
Comparison of DON Results

- Western Corn Belt
- OH
- IN/MI
- MO

POET
ILLUMINATE
Only DDGS samples from plants in Ohio exceeded the FDA advisory level for swine of 5 ppm DON.

For swine feed DDGS from Ohio should be monitored carefully due to high DON levels and potential zearalenone contamination.

DDGS from other states appear to be less affected by DON and zearalenone.
Thank you!