"Experiences with Nutrient Management and Capture in New York State"

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U.S. Dairy Farm Demographics
Thousands of Cows per State in 2008

In: Hoard’s Dairyman, 2009

This presentation is archived at:
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New York State – Dairy Demographics

• ~5,200 Dairy Farms
• Average farm size = 120 cows
• Largest dairy farm = ~5,000 cows

NY State Dairy Farms & Distribution of Cows (2007 data)

<table>
<thead>
<tr>
<th>Number of milk cows in herd</th>
<th>1 – 29</th>
<th>30 – 49</th>
<th>50 – 99</th>
<th>100 – 199</th>
<th>200 – 499</th>
<th>500+</th>
</tr>
</thead>
<tbody>
<tr>
<td># farms</td>
<td>1,250</td>
<td>1,100</td>
<td>1,900</td>
<td>870</td>
<td>370</td>
<td>210</td>
</tr>
<tr>
<td>% of cows</td>
<td>2.0</td>
<td>7.0</td>
<td>20.0</td>
<td>15.0</td>
<td>18.0</td>
<td>34.0</td>
</tr>
</tbody>
</table>

New York State – Dairy Environmental Compliance

• 300 to 699 cows – Medium CAFO
• 700 or more cows – Large CAFO

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Some Movement to Application of Nutrients to Growing Crops

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NYS Water – Resource & Liability

Reasons for Nutrient Separation/Capture
Increase Duration of Manure Storage

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Reasons for Nutrient Separation/Capture

Ease of Pumping Manure to Satellite Storages

Reasons for Nutrient Separation/Capture

- Focus on applying the right source at the right rate, at the right time, and in the right place (4R approach)
- Concentrate manure nutrients to ease application at remote locations
- Concentrate manure nutrients to facilitate export off-farm → permit farm growth and increase milk production

Reasons for Nutrient Separation/Capture

Increase Flexibility of Crop Planting

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Reasons for Nutrient Separation/Capture
Reduce Cost of Recycling Manure Nutrients Back to Land Base

Reasons for Nutrient Separation/Capture
Reduce Environmental Impact

On a dairy farm, who pays the bills?

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Reasons for Nutrient Separation/Capture

Recycle Manure Nutrients - P
Reasons for Nutrient Separation/Capture
Increase Anaerobic Digestion

Reasons for Nutrient Separation/Capture
Grow Dairy Business ↑Jobs

Distribution of Cropland

Source: FAO (2006)

Source: Bloomberg Businessweek February 4 – 10, 2013

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Summary of Reasons for Nutrient Separation/Capture

• Increase duration of manure storage
• Ease of pumping manure to satellite storages
• Enhance movement to the 4Rs
• Ease application at remote locations
• Facilitate export off-farm

Summary of Reasons for Nutrient Separation/Capture (con't)

• Increase flexibility of crop planting
• Reduce cost of recycling nutrients back to land
• Facilitate other manure processes
• Conserve P, ↑ anaerobic digestion
• Permit farm grow, ↑ production, grow industry

Reasons for Nutrient Separation/Capture

Are NOT mutually exclusive, but rather interrelated.
What is an integrated manure treatment system?

An assembly of manure handling/treatment processes, arranged in a strategic fashion, to accomplish identified farm, water quality, and/or air quality goals and objectives.

Source: D. Kirk, MS
**Take Home Points**

1. Many reasons to separate/capture nutrients from manure
2. More information needed about *all* methods to separate/capture nutrients and about *all* combinations of methods assembled in a strategic fashion before farms will more seriously consider adopting them
3. Insufficient consistent profitability in milk precluding farms from trying options w/out outside help