Overview of Manure Management Alternatives

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PRO-DAIRY

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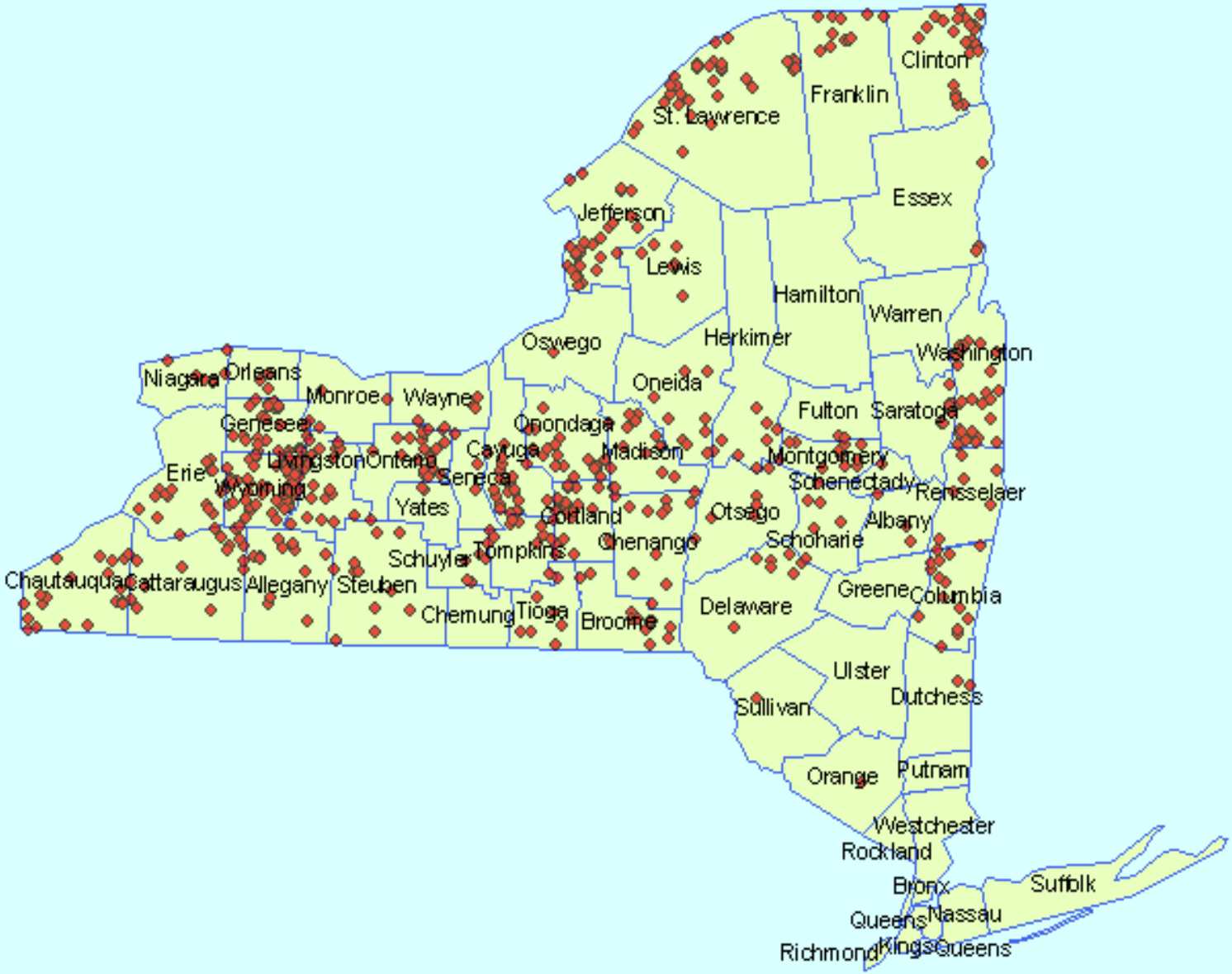
Future Predictions

All farms will have to consider environmental impacts of their operations

Environmental considerations will become more and more detailed


Clinton
Franklin
St. Lawrence
Essex
Jefferson
Lewis
Hamilton
Warren
Washington
Herkimer
Oswego
Oneida
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Fulton
Saratoga
Genesee
Onondaga
Cayuga
Madison
Montgomery
Livingston
Ontario
Seneca
Erie
Wyoming
Schenectady
Rensselaer
Yates
Otsego
Albany
Cortland
Chenango
Schoharie
Schuyler
Tompkins
Chautauqua
Cattaraugus
Allegany
Steuben
Greene
Columbia
Chemung
Tioga
Broome
Delaware
Ulster
Sullivan
Dutchess
Orange
Putnam
Westchester
Rockland
Bronx
Suffolk
Queens
Nassau
Richmond
Kings
Queens

NYSERDA Objectives:

Improve:

- **Environment**
- **Economics**
- **Energy**

Incorporation of Manure

- Environment
  - Preserves Ammonia
  - Balances N:P ratio
  - Controls Odors
  - Reduces Pathogen loss
- Economics
  - Less compaction
  - More timely
- Energy
  - Reduced fuel use


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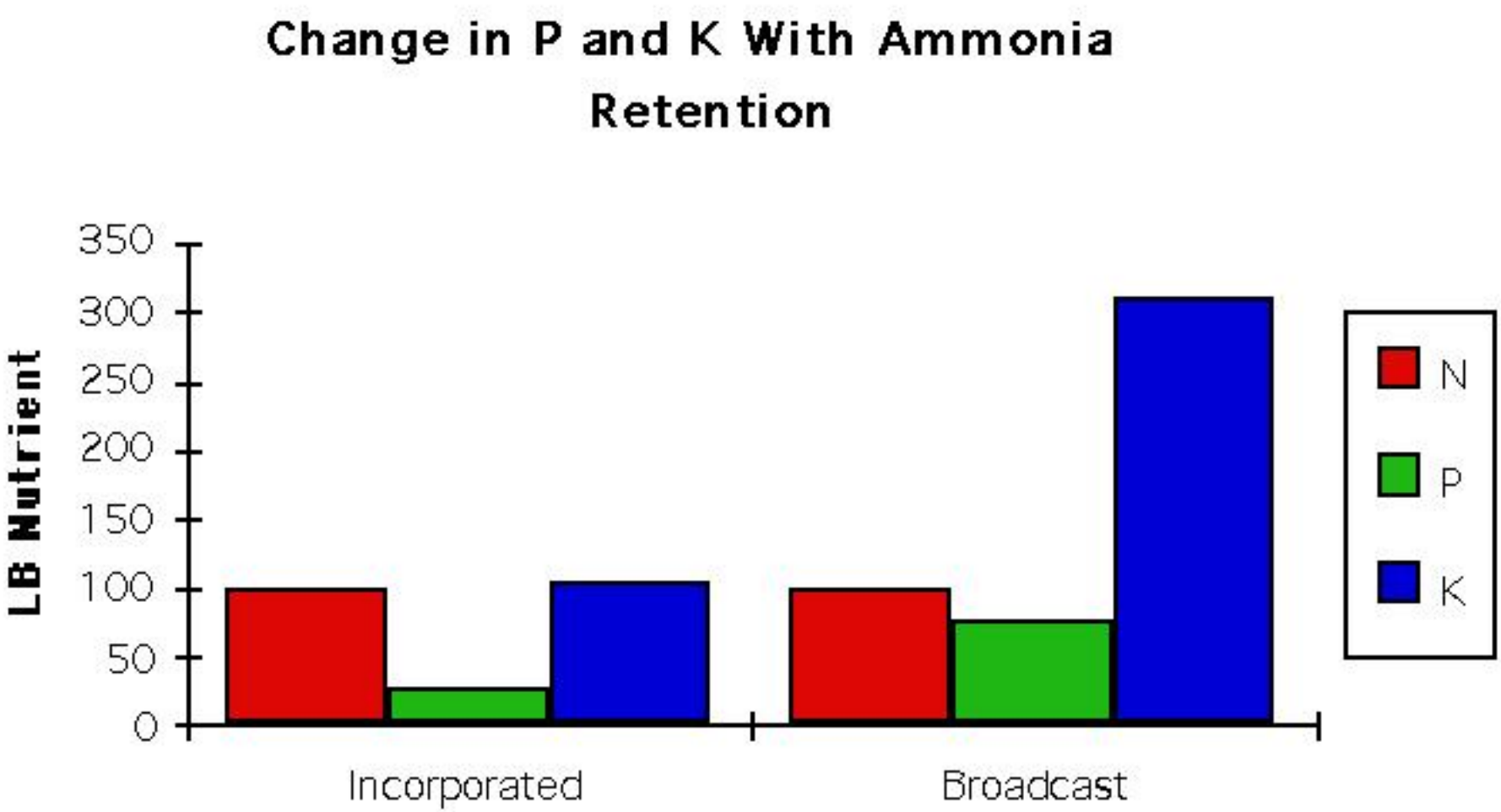
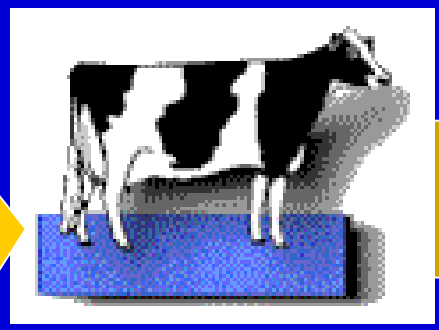
Nutrient Ratios with Incorporation



Manure Treatment

- Composting
- Anaerobic Digestion

Economics to Drive Manure Treatment Technology



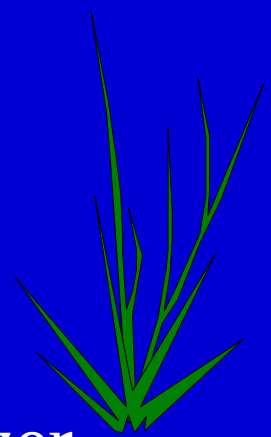
Storage

$500 feed value

$75 NPK value

Treatment

Organics Market



$25 Fertilizer

Application

$504 ($15/cu.yd)

Anaerobic Digestion

- Environmental
  - Reduced odors
  - Reduced emissions
  - Green power
  - Nutrient management
- Economics
  - By-product production
  - Co-digestion
- Energy
  - Use of biogas as heat or electricity


Smith

Synthetic Covers

Rigid (wooden or concrete) or flexible (plastic) covers hold gases and odors inside tank.

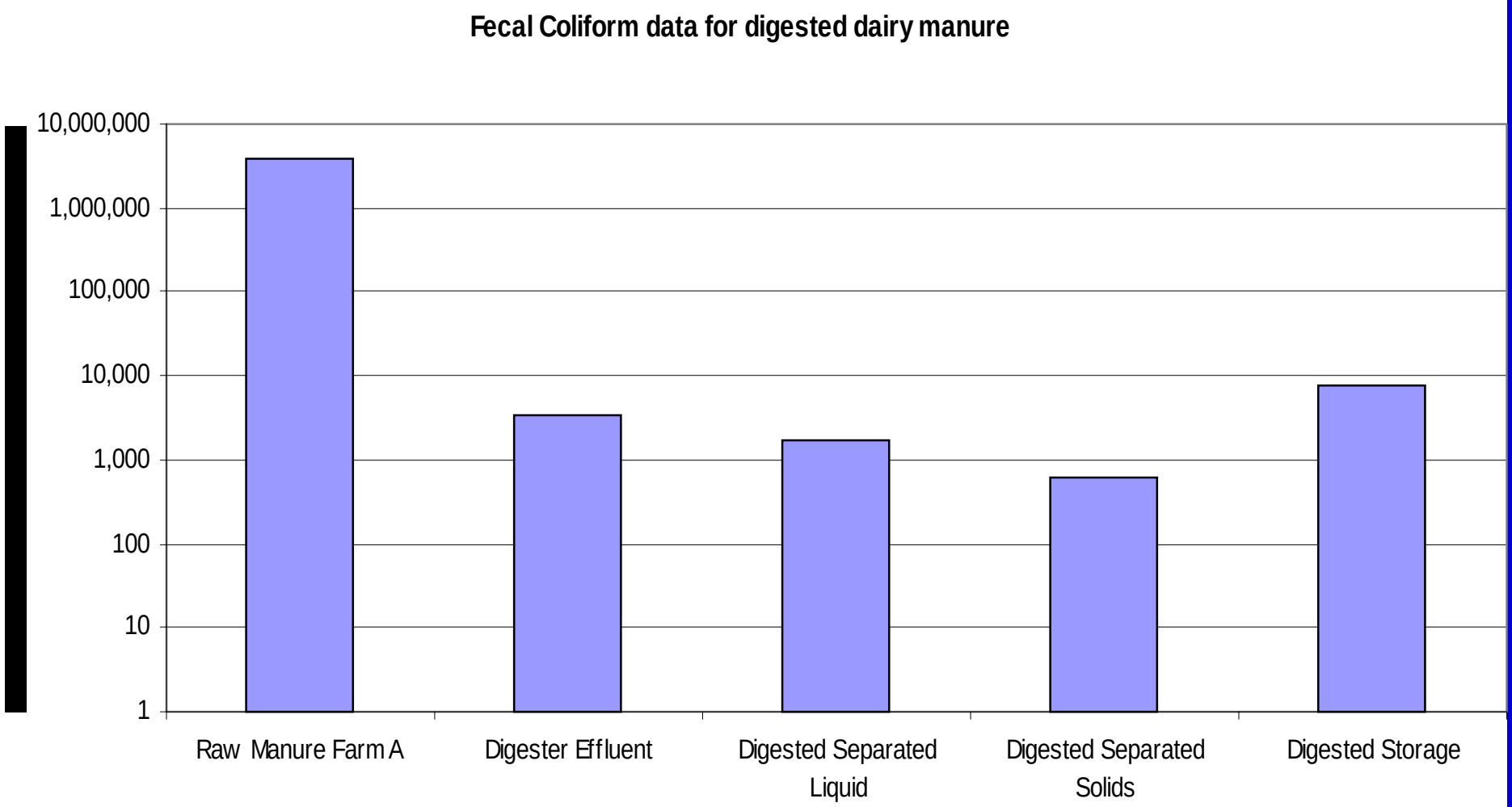
Most flexible covers float on the liquid surface.

Pathogens

Waterborne Pathogens from Agriculture

- ***Cryptosporidium parvum***
- ***Giardia***
- ***Esherichia coli O157:H7***
- ***Campylobacter***
- ***Salmonella***

Digested Manure



What to look for

Systems that may work in your situation

Lessons learned

- Can they be applied to your system
- Can they be turned into opportunities

Cornell Goals

- Document and Evaluate
- Optimize
- Value Added
- Transfer Technology

Conclusions:

Animal Agriculture does affect the environment

There opportunities to control that impact

There are potential Win Win solutions

More research is needed