Re-Building a Sustainable Land Application Program Using Dried Class A Biosolids

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RMI

BUILDING HEALTHY SOILS

Why?

There are more than 14,000 wastewater treatment plants in the US treating approximately 32 billion gallons of wastewater **each day**. (EPA, 2016)

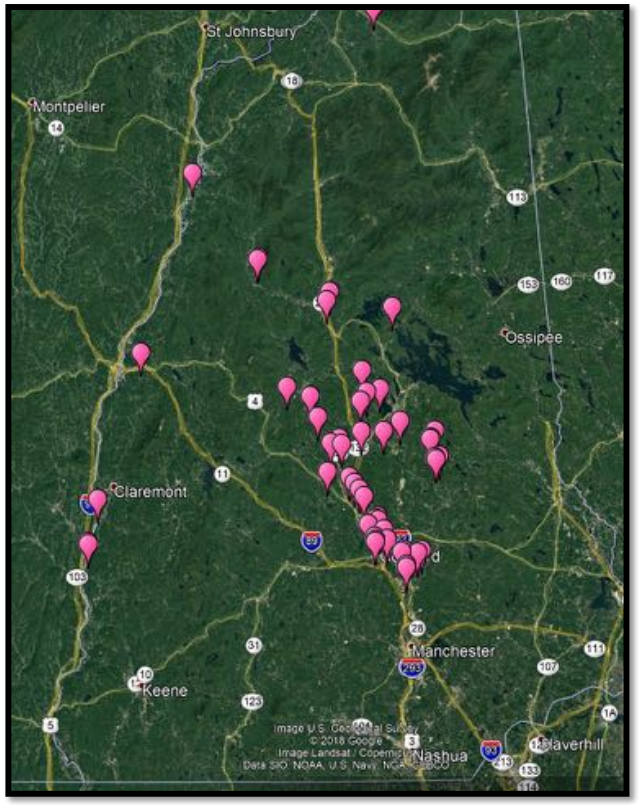
From that volume nearly **8 million** dry tons of biosolids are produced **each year**.

Agriculture is the most widely employed method for reuse of biosolids.

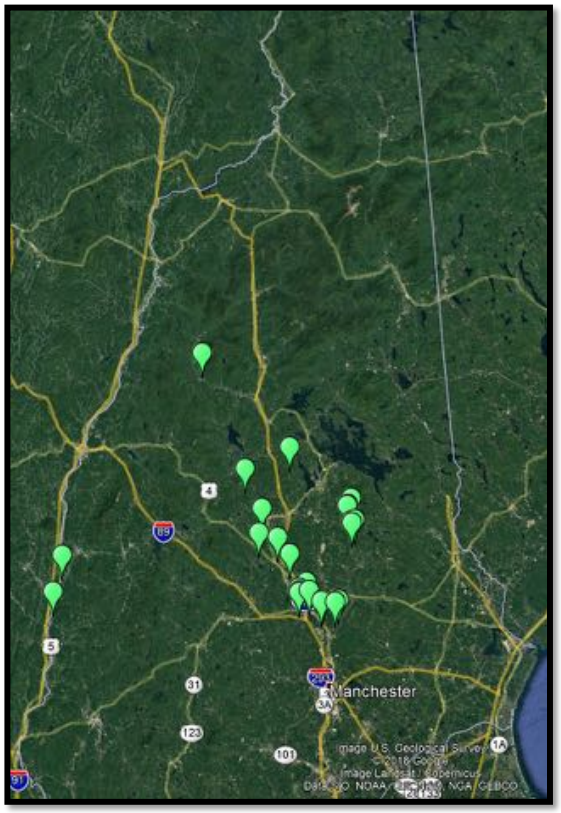
Class B Biosolids vs Dried Class A Biosolids

Is Land Application of Class B Sustainable?

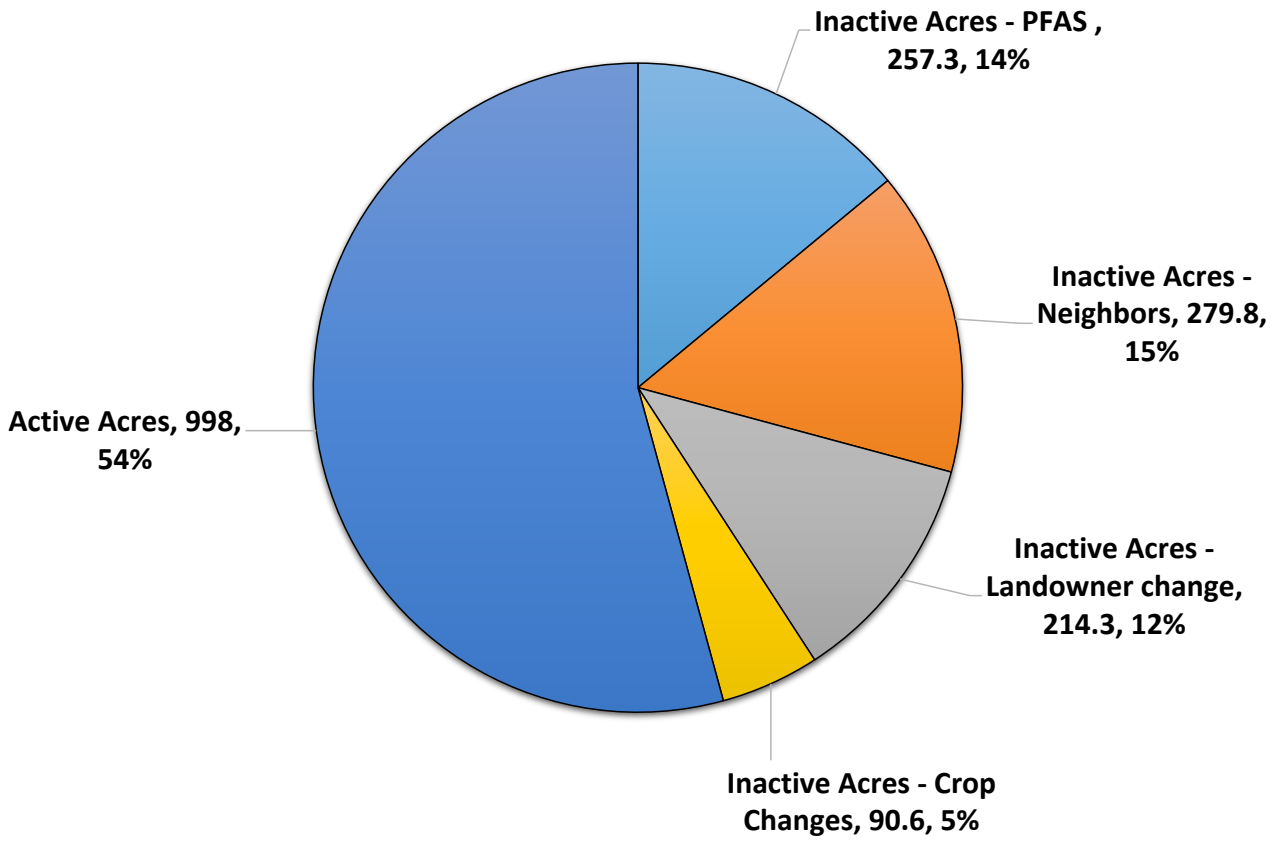
All RMI Class B Permitted Sites



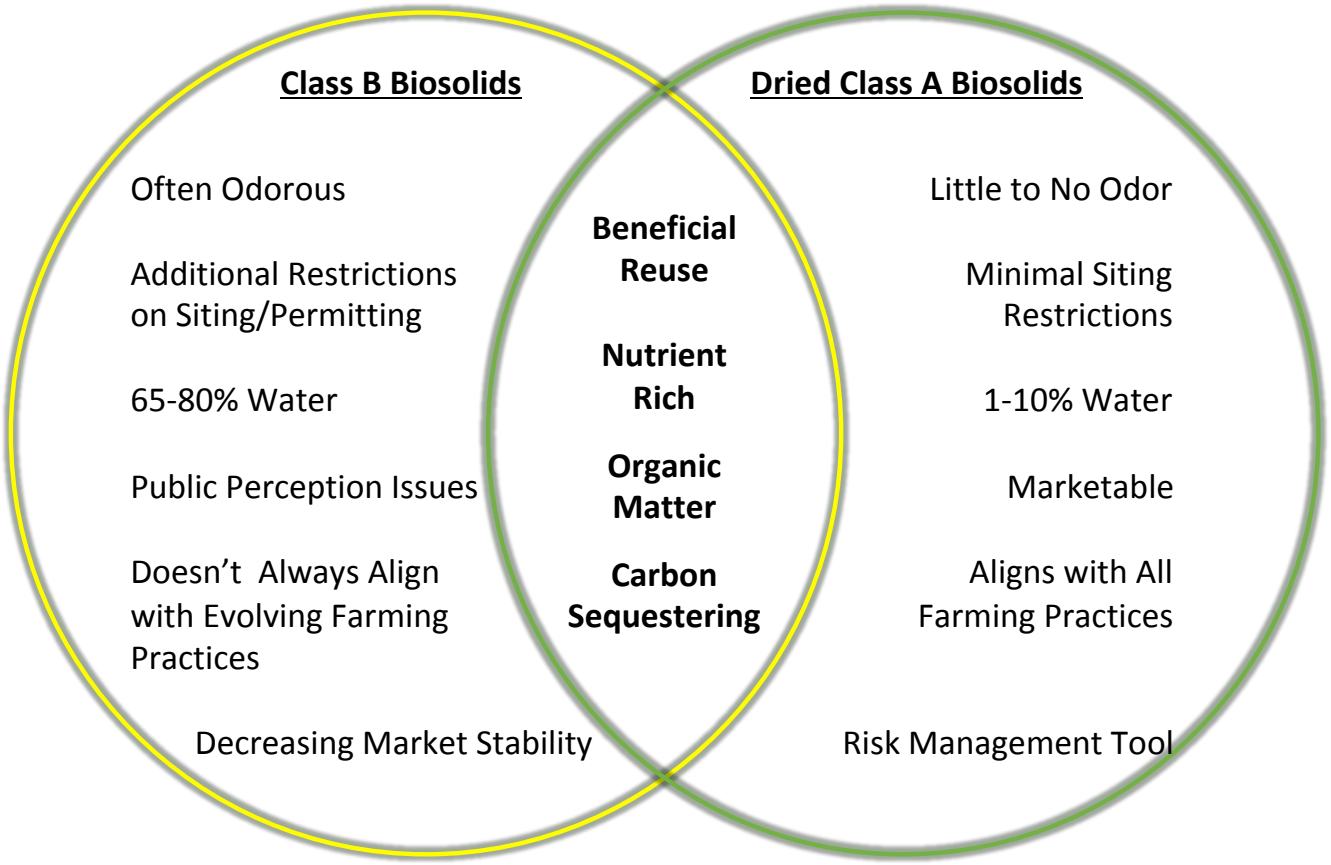
Active Class B Permitted Sites



Distribution of RMI's Class B Biosolids Acreage



Class B Biosolids vs Dried Class A Biosolids



Regulatory Challenges

CLASS B

Site Permitting Requirements

Strict Stockpile Regulations – compliance often requires moving material twice

Local Ordinances ban or severely restrict

Sampling, Analysis, and Numerical Limits for Pollutants

Additional Monitoring, Recordkeeping, & Reporting

30% of employee time for 10% of the tonnage

DRIED CLASS A

Simple Best Management Practices apply

There are a handful of towns that ban or severely restrict **ALL** biosolids land application

Sampling, Analysis, and Numerical Limits for Pollutants

Monitoring, Recordkeeping, & Reporting

Farming practices

CLASS B

Must have permitted acreage in both grass and corn to manage year round

Modern crop rotations – alfalfa or vegetables – reduce the amount of biosolids that can be used

No-till = great for soil, bad for odor and phosphorus

Lime-stabilized class B cannot be used repeatedly on the same field

DRIED CLASS A

More easily utilized mid-season between grass cuts

Can be used with crop rotations that involve crops for human consumption (no extensive waiting periods)

Less odor when topdressed, more suitable for no-till

Will not raise soil pH, can be used indefinitely

Perception challenges

CLASS B

The public wants “Class A” not “Class B”.

Town Meetings and/or Board of Health Review requires lots of education and energy and do not always go well.

Neighbors, Odor, and Trucks, oh my!

DRIED CLASS A

Still challenges, but far less.

Less odorous, less trucks rolling through the neighborhood, smaller stockpiles.

Several name brand dried Class A products sold in retail stores successfully (ex. Milorganite, Bay State).

Increasing Wet Weather Events

2019 Wet Weather Events Caused:

- Stockpile Siting Issues
- Delivery Issues
- Spreading Issues

Land Application Cost Savings

10 tons of Class B = 85-100# of nitrogen

2 tons dried Class A = up to 120# N

Trucking Cost Savings

Class B Biosolids Generator:

- 10,000 tons of biosolids in year
- Pay $15/ton to truck away
- $150,000 to truck 80% water

Dried Class A Generator:

- 10,000 becomes 3,000
- $45,000 to truck 0-10% water
- save $105,000 regardless of how the material is managed

Drying as a Risk Management Tool

Biosolids Market Volatility

- Cost per ton over time 3.5-5% traditional annual increase, of 35-55% within the past 6 months, mostly related to recent PFAS uncertainty.
- An increasing number of farmers would rather pay for conventional fertilizer than deal with the scrutiny that can come with using biosolids.
- As a result, alternative management practices (landfill, incineration, etc.) have caused increases in trucking fees, tipping fees, and management fees.

Same great fertilizer with less volume = less inventory liability, less to manage whether land application continues or not.

Anaerobic Digestion + Drying

The two are not mutually exclusive:

Anaerobic Digestion is great for decreasing volume and capturing biogas as an alternative energy source.

At the end, you are still left with 20-30% solids wet cake – which should be dried!

A complimentary relationship - backup solutions when either system is down.

If you are thinking of a solids handling upgrade at your plant…

Skip Class B and go straight to Class A!

Consider a dryer, stop trucking water.

Questions?