

# THE 2<sup>ND</sup> NATIONAL BIOSOLIDS SURVEY PRELIMINARY RESULTS, TRENDS AND INTERESTING DEVELOPMENTS



Residuals & Biosolids Annual  
Conference

October 7, 2021

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# AGENDA

- ❖ Project Background
- ❖ Survey Topics
- ❖ Preliminary Results
- ❖ Next Steps

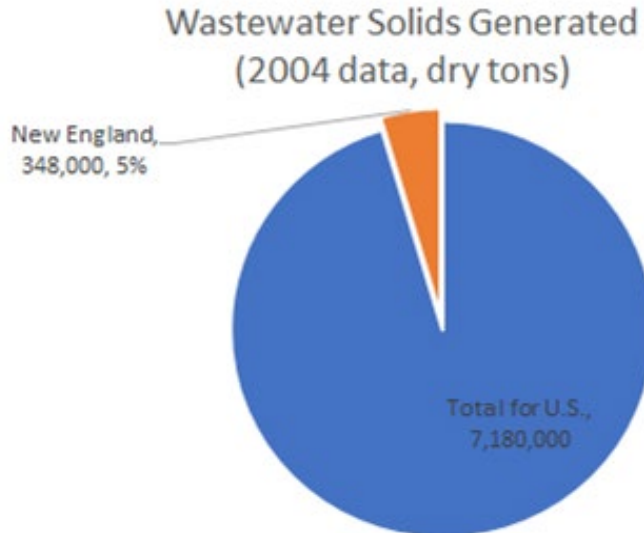
# NATIONAL BIOSOLIDS REGULATION, QUALITY, END USE & DISPOSAL PROJECT

- Reason for 2nd Survey
  - 1<sup>st</sup> Survey 2004 data outdated

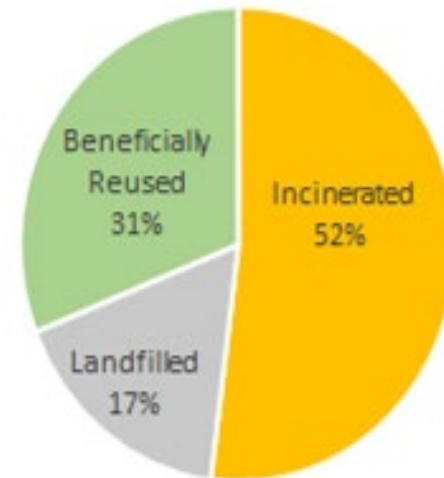


- Comprehensive Biosolids Update Needed
  - Regulation
  - Quality
  - End Use and Disposal Data

# SUMMARY OF FINDINGS FROM 1<sup>ST</sup> REPORT



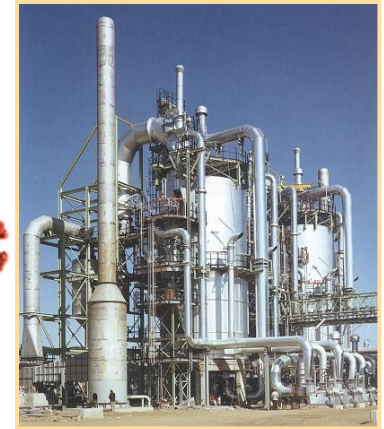
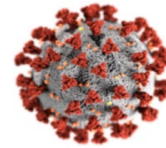
End Uses for Wastewater Solids in New England  
(2004 data)



# NORTHEAST REGIONAL SLUDGE GENERATION PROJECT

- Stressors on Sludge Management

- Pandemic
- Aging Infrastructure
- Emerging Contaminants



- Northeast Region Sludge Disposal Options

- Incinerators
- Landfills
- Beneficial Reuse



# NORTHEAST REGIONAL SLUDGE GENERATION PROJECT

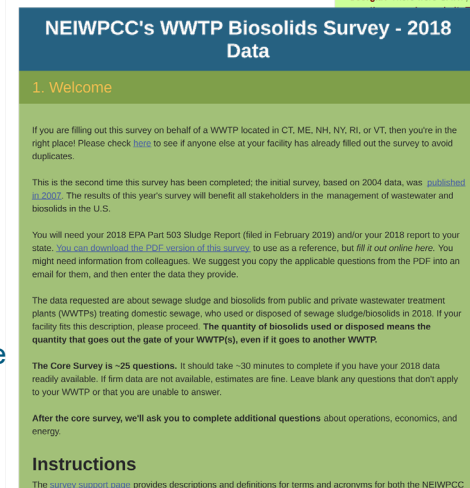
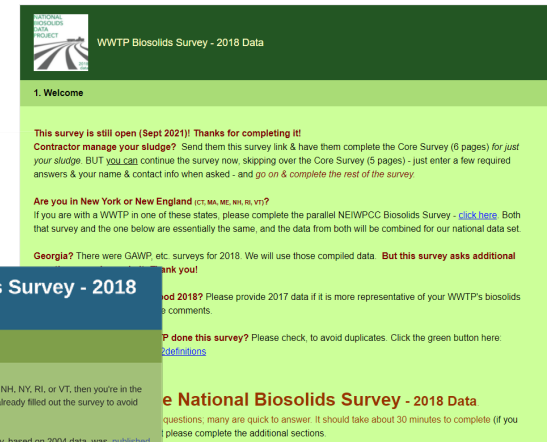
- Issues
  - Local Capacity
  - Regional Capacity
  - Wastewater Treatment Plant Operations
  - State Requests
- Coordinating with National Biosolids Survey #2
  - Administer National Biosolids Survey in NEIWPC Member States
  - Case Studies
- Funded Cooperatively - States and EPA



## NATIONAL BIOSOLIDS DATA PROJECT

- Biosolids Coordinators Survey – 2018 Data\*
  - Spreadsheet
  - Online Survey
- WWTP Survey – 2018 Data\*
  - Online Survey

\*2019 Data for Massachusetts and 2018 & 2019 data for Maine





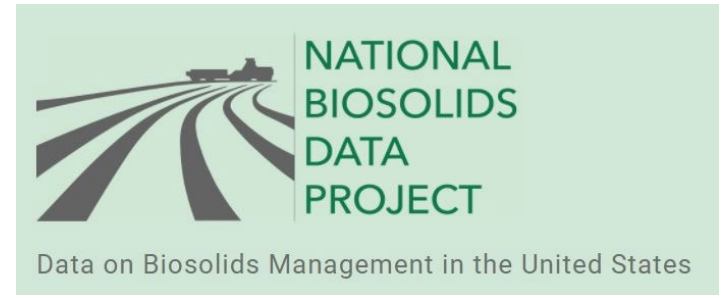
# NATIONAL BIOSOLIDS DATA PROJECT

- WWTP Survey Topics
  - General
  - Sewage Sludge and Biosolids
  - Septage Received
  - Energy
  - Economic Data
  - Trends
  - Top 5 Pressures on Biosolids Management Program

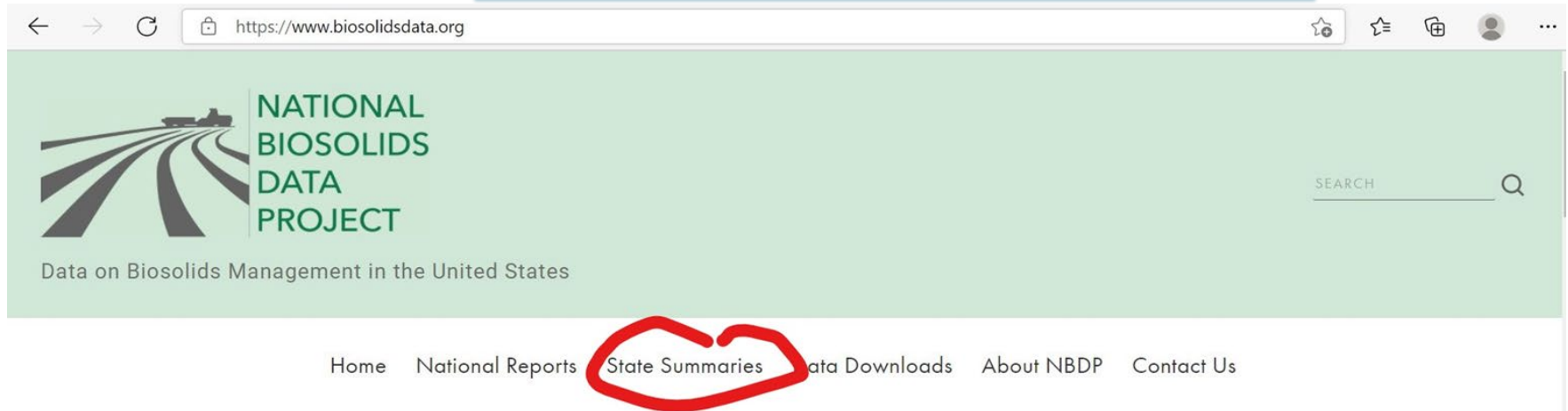


## TRENDS FROM THE NATIONAL DATA SET FROM 2004 TO 2018

- More Class A biosolids being produced
- Decrease in biosolids being incinerated
- More pressures and incentives to divert from landfills
- Decrease in State FTEs



## RESULTS AT [WWW.BIOSOLIDSDATA.ORG](https://www.biosolidsdata.org)



How are biosolids used &  
managed in the United States?



## RESULTS AT [WWW.BIOSOLIDSDATA.ORG](http://WWW.BIOSOLIDSDATA.ORG)

### State Summaries

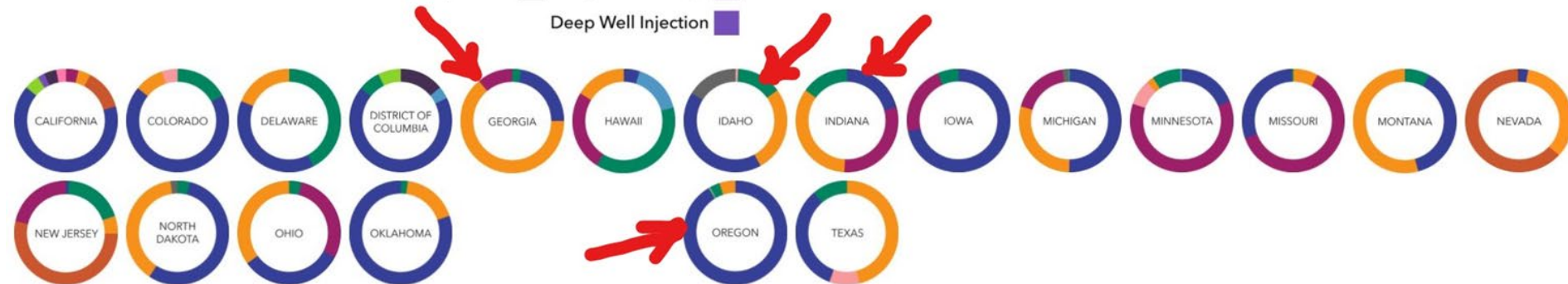
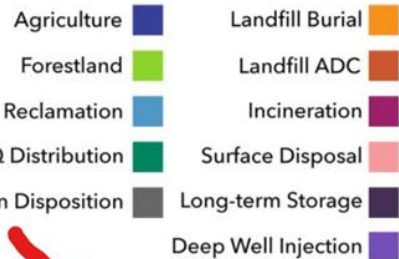
2018 Data 2004 Data

Click on a state below for a summary and details of its 2018 biosolids management.

For state data from 2004, compiled in the first survey on National Biosolids Regulation, Quality, End Use and Disposal, click to Appendix D of that final report (NEBRA et al. 2007).

#### BIOSOLIDS USE & DISPOSAL IN 2018

APPENDIX D, STATE-BY-STATE 2004 DATA

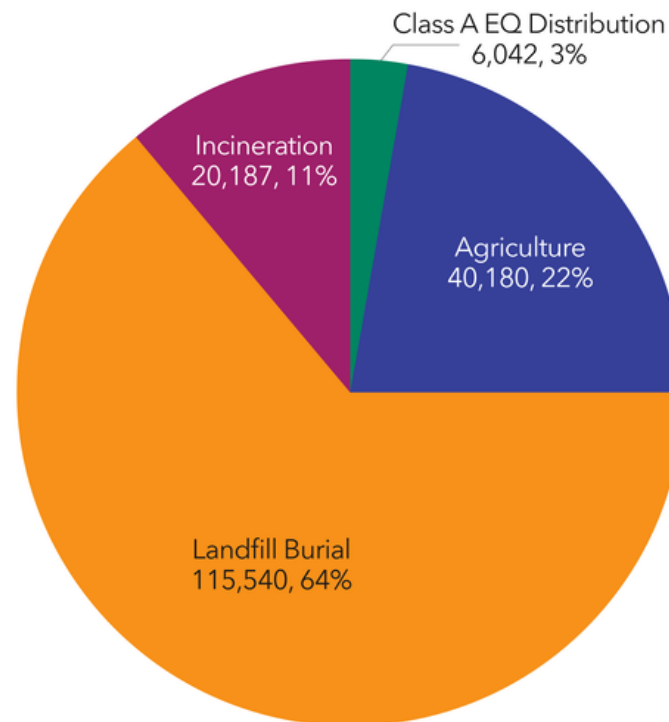


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## GEORGIA

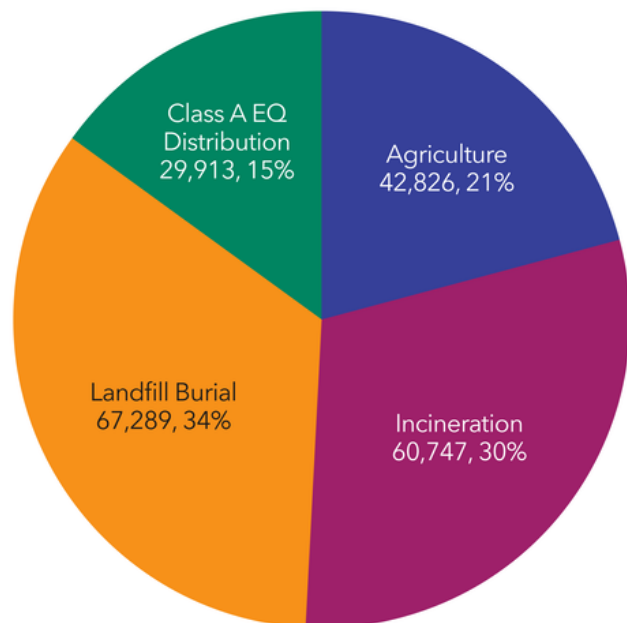
*“Atlanta’s biosolids management story exemplifies how quickly the landscape and economics of biosolids management can change. Utilities that can be flexible and adapt their biosolids management plans will be well prepared to navigate what circumstance throws at them...”*  
(Knight et al., 2020).

Georgia Biosolids Use & Disposal 2018  
(dry US tons, %)  
Total: 181,900



## INDIANA

Indiana Biosolids Use & Disposal 2018  
(dry US tons, %)  
Total: 200,000



Injection of liquid biosolids from the Richmond, IN WRRF increase corn, oats, & soybean yields.  
*Photo used with permission, courtesy Richmond Sanitary District.*



## OREGON

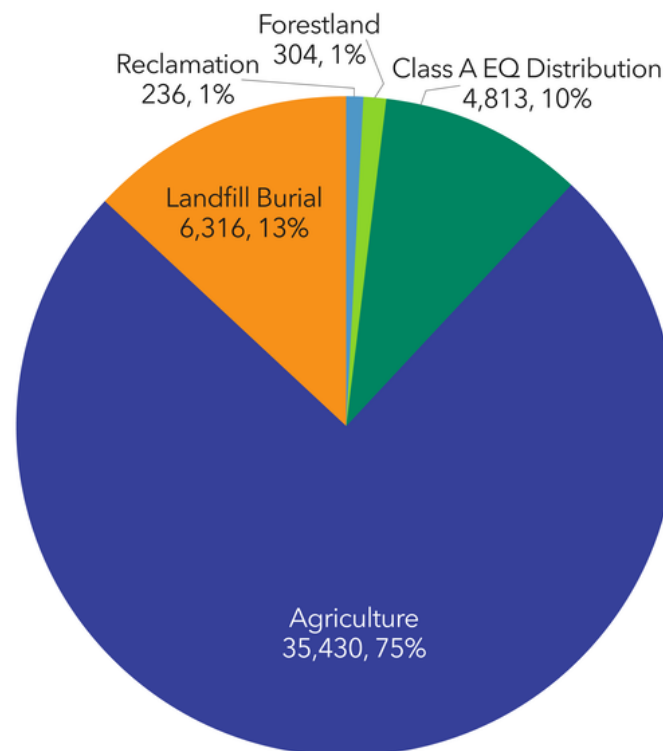
### Demographics & Wastewater

Avg population served per WRRF	7,928
Avg wastewater flow statewide (MGD, Seiple)	416
WRRFs treating >75% WW flow	16
% of population served by on-site (septic) systems	30
Biosolids used or disposed / person in 2018 (lbs)	22

### Biosolids Application

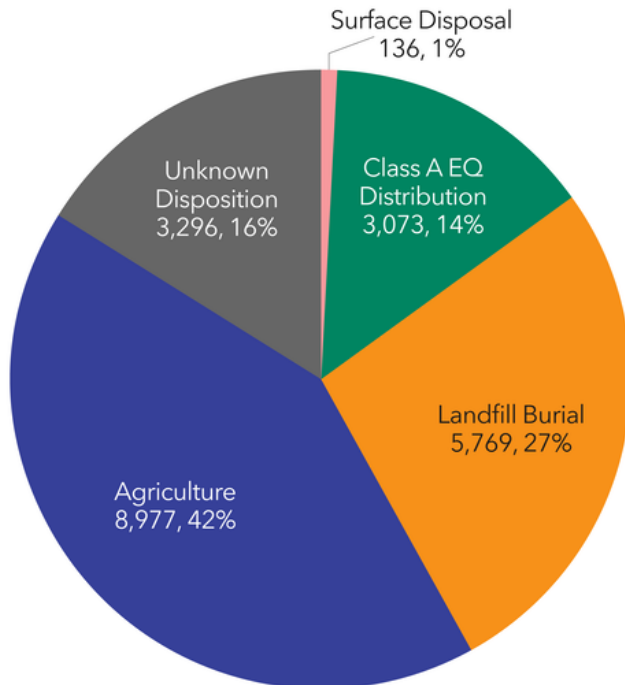
% of state area in cropland	8.00
% cropland to which biosolids were applied	0.44
application rate if all state biosolids were applied to cropland (dt/acre)	0.01
% cropland needed if all biosolids were applied at typical rate of ~3dt/acre	0.33
If all state's biosolids applied, what % of state's applied N would come from biosolids?	0.80
If all state's biosolids applied, what % of state's applied P would come from biosolids?	2.10

Oregon Biosolids Use & Disposal 2018  
(dry US tons, %)  
Total: 47,100

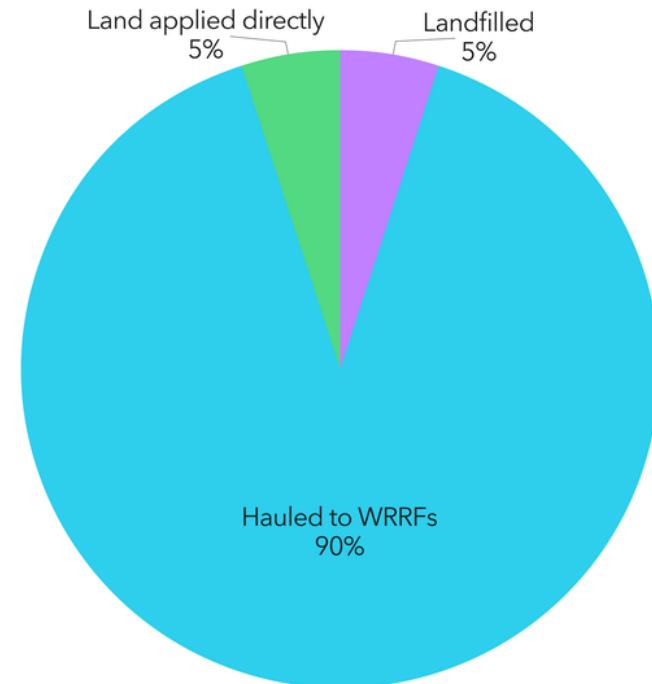


## IDAHO

Idaho Biosolids Use & Disposal 2018  
(dry US tons, %)  
Total: 21,300



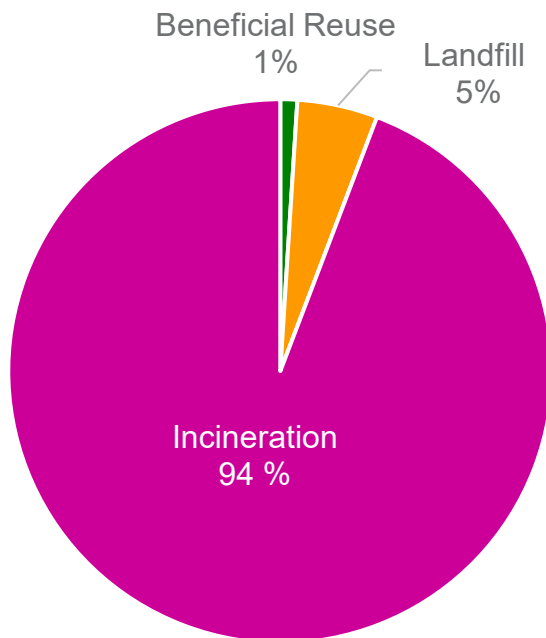
Idaho Septage Management 2018  
(% estimated)  
Total: 6,600,000 gallons



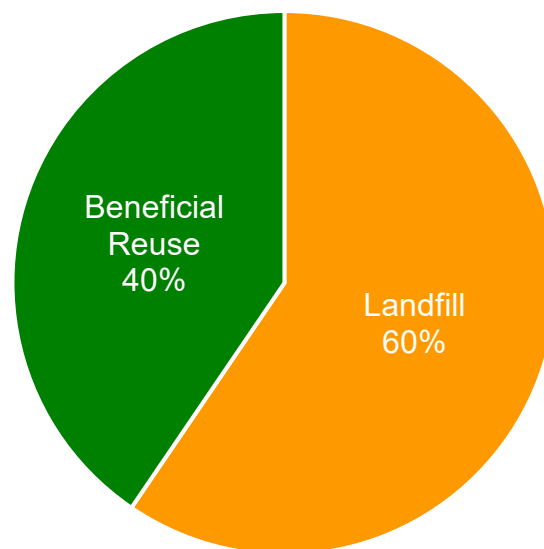


## RHODE ISLAND AND VERMONT

Rhode Island Biosolids Use & Disposal 2018  
Total = 33,100 Dry US Tons

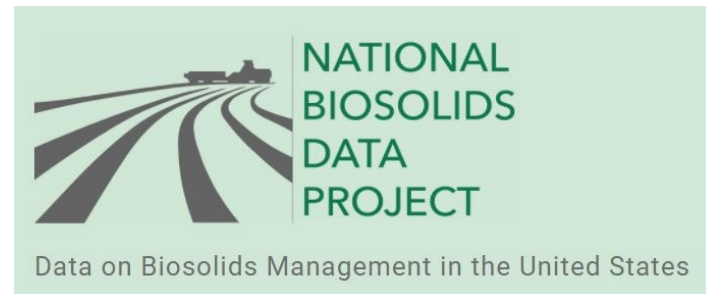


Vermont Biosolids Use & Disposal 2018  
Total = 10,400 Dry US Tons

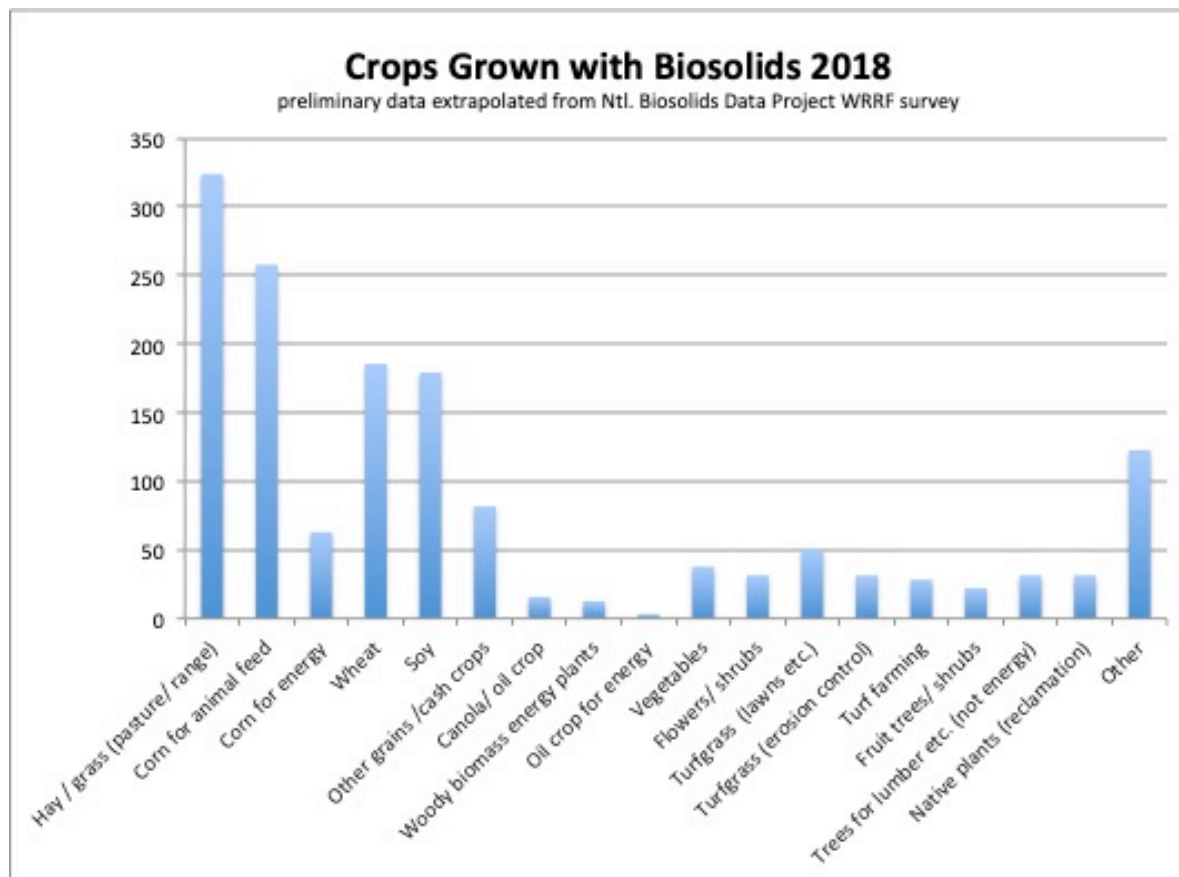


## INTERESTING FACTS & FIGURES

- Average per capita biosolids generation is 42 pounds per year!
- Less than 1% of U.S. cropland needed for land application of all biosolids
- Septage management – Still Not a lot of Data...

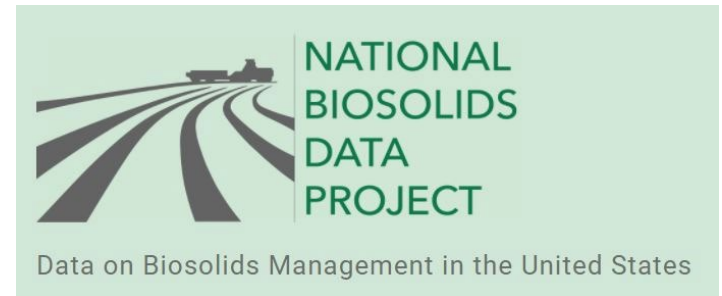


## INTERESTING FACTS & FIGURES



# APPLYING THE DATA

- Assess Capacity Issues
- Understand Local and Regional Markets
- Regional Planning
- Develop recommendations for short-term and long-term actions



# QUESTIONS?

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