

DASHBOARD

Minnesota State Biosolids Statistics

Data Quality & Methods	2018	explanations & sources
<p>Quality & Confidence in this state's data:</p> <p>Data sources & methods:</p> <p>State biosolids included in 2018 EPA ECHO data</p>	<p>HIGH</p> <p><i>State has had a robust regulatory program for decades & closely tracks land application through annual reporting. Coordinators provided thorough help with this survey.</i></p> <p>90% % in ECHO vs. the total presented here</p>	<p>ranking by survey team based on information provided in survey (options: High, Moderate, Low, None)</p> <p>https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual</p>
<p>Demographics & Wastewater</p> <p>State population:</p> <p>Total land area in state (acres):</p> <p>Population density (persons/square mile):</p> <p>Total number of WRRFs reported in state survey:</p> <p>total number of WRRFs permitted/reported elsewhere:</p> <p>number of WRRFs in EPA ECHO reports for 2018:</p> <p>Average population served per WRRF:</p> <p>Average wastewater flow statewide (MGD, NBDP):</p> <p>avg.wastewater flow statewide (MGD, Seiple):</p> <p>Number of WRRFs that treat >75% of state flow:</p> <p>% of population served by on-site (septic) systems:</p> <p>Biosolids used or disposed / person in 2018 (lbs):</p>	<p>5,611,179</p> <p>50,961,280</p> <p>70.5</p> <p>736</p> <p>202</p> <p>62</p> <p>5,337</p> <p>466</p> <p>502</p> <p>20</p> <p>30%</p> <p>57</p>	<p>U. S. Census estimate for July 1, 2018 https://www.census.gov/newsroom/press-kits/2018/pop-estimates-national-state.html</p> <p>calculated survey response by state expert Seiple et al., 2020; state experts, etc. https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual</p> <p>calculated survey response by state expert</p> <p>Seiple et al., 2020 https://doi.org/10.1016/j.jenvman.2020.110852</p> <p>Seiple et al., 2020 https://doi.org/10.1016/j.jenvman.2020.110853</p> <p>survey response by state expert calculated</p>
<p>Biosolids Application</p> <p>Agricultural land cropland (acres):</p> <p>% of state area in cropland:</p> <p>Number of farms with that cropland:</p> <p>% cropland to which biosolids were applied:</p> <p>Application rate if all state biosolids were applied to cropland (dry U.S. tons/ac.):</p> <p>% cropland needed if all state biosolids were applied at typical rate (~3 dt/ac):</p>	<p>21,786,756</p> <p>43%</p> <p>61,686</p> <p>0.07%</p> <p>0.01</p> <p>0.2%</p>	<p>https://quickstats.nass.usda.gov/results/FCB8AD84-6032-3776-A9B-624D8875822</p> <p>calculated</p> <p>https://quickstats.nass.usda.gov/results/F56563D1-C9CD-30EE-9774-2B91CC0640EC</p> <p>calculated</p> <p>calculated</p> <p>calculated</p>
<p>Nutrient Sources - Comparison</p> <p>Nitrogen (N) in all this state's biosolids (metric tonnes, 2018):</p> <p>N in this state's animal manures (metric tonnes):</p> <p>N in this state's purchased fertilizer (metric tonnes, 2011):</p> <p>If all state's biosolids applied, what % of state's applied N would come from biosolids?</p> <p>Phosphorus (P) in this state's biosolids (metric tonnes, 2018):</p>	<p>7,021</p> <p>211,302</p> <p>666,979</p> <p>1%</p> <p>2,925</p>	<p>calculated assuming avg. 4.8% biosolids https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure</p> <p>https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased</p> <p>calculated</p> <p>calculated assuming avg. 2% biosolids F</p>

P in this state's animal manures (metric tonnes):	68,684	https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure
P in this state's purchased fertilizer (metric tonnes, 2011):	130,734	https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased
If all state's biosolids applied, what % of state's applied P would come from biosolids?	1%	calculated

State Regulatory Involvement Biosolids oversight agency / division: Permitting.... of biosolids programs: ...of land application sites: FTEs: state biosolids regulatory program: Biosolids program FTEs per million population: Enforcement: Inspections of biosolids facilities & field sites in 2018: Formal violations issued: Amount of state regulations beyond Part 503: Amount of state regulation of nutrient management & phosphorus: Accessibility of biosolids data to public: State encouragement of biosolids recycling to soils: Voluntary additional protections by land appliers known & reported by state coordinator:	Environment agency - water / wastewater program through general and specific NPDES permits site approvals for any specific fields In 2018 the MPCA had one FTE. In 2019, 1 0.5 FTE was added to the program. 0.18 as of 2018 5 2 Moderate Low Low High Low; 3 WRRFs hold NBP EMS Certifications	survey response by state expert calculated survey response by state expert survey response by state expert rankings by survey team based on information provided in survey (options: High, Moderate, Low, None)
---	---	---

Trends New land application activity, 2018 - new permits & acreage, acres applied: acres applied in 2018: Local regulations & their impacts?: details... Legislative & state regulatory actions in 2018 & their impacts?: details... Biosolids beneficial use increasing... ..in 2018?:in 2020?: details...	High 14,884 Some no activity in 2018 None no activity in 2018 No No it's staying about the same	rankings by survey team based on information provided in survey (options: High, Moderate, Low, None)... With quotes of survey responses by state expert(s) survey response by state expert survey response by state expert
---	--	--

Changes in Biosolids Use & Disposal Change* in solids reported used or disposed (in units used by state): Beneficial Use - percentage point increase or decrease (-): Landfill & surface disposal - % point increase or decrease (-): Incineration - percentage point increase or decrease (-): Class A - percentage point increase or decrease (-): Class B - percentage point increase or decrease (-): No class or not known - percentage point increase or decrease (-):	9,272 -3% -1% 5% 0% -2% 2%	*Change may be due to population increase/decrease, change in treatment at a large WWTP, and/or different systems of data tracking and reporting. calculated comparing these 2018 data to 2004 data compiled by the same survey team (NEBRA, 2007)
---	--	---

Pressures on biosolids, 2018 1 PUBLIC INVOLVEMENT- concerns of neighbors, environmental groups, and others 2 MANAGEMENT ISSUES - the hassle of biosolids recycling/land application 3 COST - disposal options are least expensive 4 AGRICULTURAL ISSUES - declining farmland due to less agriculture or due to development, sprawl, seasonal restrictions, or competition with manures, etc. 5 REGULATIONS ON BENEFICIAL USE- strict EPA and/or state regulation and enforcement	survey response by state expert
--	---------------------------------