

# DASHBOARD

## Michigan State Biosolids Statistics

<b>Data Quality &amp; Methods</b>  <b>Quality &amp; Confidence in this state's data:</b> Data sources & methods: State biosolids included in 2018 EPA ECHO data	<b>2018</b>  <b>HIGH</b> <i>State biosolids coordinator tracks land application closely &amp; compiles data annually in database. Data &amp; summary report reviewed by additional expert in state.</i> 3% % in ECHO vs. the total presented here	<b>explanations &amp; sources</b> information provided in survey (options: High, Moderate, Low, None)
<b>Demographics &amp; Wastewater</b> State population: Total land area in state (acres): Population density (persons/square mile): Total number of WRRFs reported in state survey: total number of WRRFs permitted/reported elsewhere: number of WRRFs in EPA ECHO reports for 2018: <b>Average population served per WRRF:</b> <b>Average wastewater flow statewide (MGD, NBDP):</b> avg.wastewater flow statewide (MGD, Seiple):  <b>Number of WRRFs that treat &gt;75% of state flow:</b> <b>% of population served by on-site (septic) systems:</b> <b>Biosolids used or disposed / person in 2018 (lbs):</b>	9,995,915 36,184,960 176.8 198 393 (Seiple et al; 745 MI EGLE list)  5 <b>6,709</b> <b>no data</b>  1364  <b>13</b> <b>50%</b> <b>57</b>	<b>U. S. Census estimate for July 1, 2018</b> <a href="https://www.census.gov/states/mi.html">national-state.html</a> calculated survey response by state expert Seiple et al., 2020; state experts, etc. <a href="https://echo.epa.gov/facilities/facility-search?mediaSelected=chbioAnnual">https://echo.epa.gov/facilities/facility-search?mediaSelected=chbioAnnual</a> calculated survey response by state expert Seiple et al., 2020 <a href="https://doi.org/10.1016/j.jenvman.2020.110852">https://doi.org/10.1016/j.jenvman.2020.110852</a> Seiple et al., 2020 <a href="https://doi.org/10.1016/j.jenvman.2020.110853">https://doi.org/10.1016/j.jenvman.2020.110853</a> survey response by state expert calculated
<b>Biosolids Application</b>  Agricultural land cropland (acres): <b>% of state area in cropland:</b>  Number of farms with that cropland: <b>% cropland to which biosolids were applied:</b> <b>Application rate if all state biosolids were applied to cropland (dry U.S. tons/ac.):</b> <b>% cropland needed if all state biosolids were applied at typical rate (~3 dt/ac):</b>	7,924,480 <b>22%</b>  40,597 <b>no data</b> <b>0.04</b>  <b>1.2%</b>	<a href="https://quickstats.nass.usda.gov/results/0CBB4D84-6032-3276-AB8B-624D88825822">https://quickstats.nass.usda.gov/results/0CBB4D84-6032-3276-AB8B-624D88825822</a> calculated <a href="https://quickstats.nass.usda.gov/results/F56563D1-C9CD-30EF-9774-2F91CC0640FC">https://quickstats.nass.usda.gov/results/F56563D1-C9CD-30EF-9774-2F91CC0640FC</a> calculated calculated calculated
<b>Nutrient Sources - Comparison</b> Nitrogen (N) in all this state's biosolids (metric tonnes, 2018):  N in this state's animal manures (metric tonnes): N in this state's purchased fertilizer (metric tonnes, 2011): <b>If all state's biosolids applied, what % of state's applied N would come from biosolids?</b> Phosphorus (P) in this state's biosolids (metric tonnes, 2018): P in this state's animal manures (metric tonnes): P in this state's purchased fertilizer (metric tonnes, 2011): <b>If all state's biosolids applied, what % of state's applied P would come from biosolids?</b>	12,316  75,204 200,393  <b>4%</b>  5,132 19,574 21,846  <b>11%</b>	calculated assuming avg. 4.8% biosolids N <a href="https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure">https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure</a> <a href="https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased">https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased</a> calculated calculated assuming avg. 2% biosolids P <a href="https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure">https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure</a> <a href="https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased">https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased</a> calculated

<p><b>State Regulatory Involvement</b>  <b>Biosolids oversight agency / division:</b></p> <p>Permitting.... of biosolids programs:  ...of land application sites:  FTEs: state biosolids regulatory program:</p> <p><b>Biosolids program FTEs per million population:</b>  <b>Enforcement: Inspections of biosolids facilities &amp; field sites in 2018:</b>  <b>Formal violations issued:</b>  <b>Amount of state regulations beyond Part 503:</b>  <b>Amount of state regulation of nutrient management &amp; phosphorus:</b>  <b>Accessibility of biosolids data to public:</b>  <b>State encouragement of biosolids recycling to soils:</b>  Voluntary additional protections by land appliers known &amp; reported by state coordinator:</p>	<p><b>Environment agency - water / wastewater program</b>  An authorized facility must have a valid permit which can be either an NPDES permit, groundwater discharge permit, or a biosolids general permit. Must obtain an approved Residuals Management Program which contains enforceable commitments.</p> <p>4.5  <b>0.45</b>  <b>71</b>  <b>3</b>  <b>Moderate</b>  <b>Low</b>  <b>Low</b>  <b>High</b>  None</p>	<p>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)</p>
<p><b>Trends</b>  <b>New land application activity, 2018 - new permits &amp; acreage, acres applied:</b>  acres applied in 2018:  <b>Local regulations &amp; their impacts?:</b>  details...  <b>Legislative &amp; state regulatory actions in 2018 &amp; their impacts?:</b>  details...  <b>Biosolids beneficial use increasing... ..in 2018?:</b>  <b>....in 2020?:</b>  details...</p>	<p><b>Low</b>  No data  <b>Just One</b>  no activity in 2018  <b>None</b>  formal process  <b>No</b>  <b>No</b>  see above</p>	<p>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</p>
<p><b>Changes in Biosolids Use &amp; Disposal</b>  <b>Change* in solids reported used or disposed (in units used by state):</b>  <b>Beneficial Use - percentage point increase or decrease (-):</b>  <b>Landfill &amp; surface disposal - % point increase or decrease (-):</b>  <b>Incineration - percentage point increase or decrease (-):</b>  <b>Class A - percentage point increase or decrease (-):</b>  <b>Class B - percentage point increase or decrease (-):</b>  <b>No class or not known - percentage point increase or decrease (-):</b></p>	<p>(91,104)  27%  0%  -29%  28%  -1%  -27%</p>	<p>*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)</p>
<p><b>Pressures on biosolids, 2018</b>  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</p>		<p>survey response by state expert</p>