

# DASHBOARD

## United States Biosolids Statistics

Data Quality & Methods	2018	explanations & sources
<p><b>Quality &amp; Confidence in U.S. data:</b> Data sources &amp; methods: U.S. biosolids generated, as reported in 2018 EPA ECHO data (%)</p>	<p><b>Moderate</b> <i>See NBDP final report &amp; methods.</i> 76% % of total biosolids reported in ECHO (corrected from &gt;8 million dmt due to errors (see explanation at right) to 4,402,000) vs. the total presented here by NBDP (5,823,000 dmt)). ECHO data for 2018 are from 2,307 WRRFs reporting.</p>	<p>ranking by NBDP survey team based on information provided in state surveys (options: High, Moderate, Low, None)  <a href="https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual_-">https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual_-</a> The EPA ECHO data for 2018 adds up to &gt;8 million dmt because of several data errors, including a small CT WRRF reporting more than 3 million dmt and double-counting of solids when separate preparers also report in ECHO, as is the case in the CA ECHO data.</p>
<p><b>Demographics &amp; Wastewater</b> U.S. population (sum of state populations reported in NBDP state spreadsheets) Total land area in state (acres): Population density (persons/square mile): Total number of WRRFs reported in state surveys (nationwide total): total number of WRRFs permitted/reported elsewhere: number of WRRFs in EPA ECHO reports for 2018: Average population served per WRRF:  Average daily wastewater flow nationwide (MGD, NBDP): <b>Average wastewater flow nationwide (MGD, Seiple):</b> <b>Sum of the number of WRRFs that treat &gt;75% of each state's flow:</b> <b>% of population served by on-site (septic) systems:</b> <b>Biosolids used or disposed / person in 2018 (lbs):</b></p>	<p>330,912,941 2,280,471,631 93 14,718 15,008 2,305 incomplete data sum of state-by-state report estimates; data not available for 14 states &amp; territories, making this a low number 24,000 <b>34,369</b> <b>1,435</b> <b>24%</b> <b>37</b> based on sum of estimates for 49 of 53 states &amp; territories weighted average of all states</p>	<p>U.S. Census estimate for July 1, 2018 <a href="https://www.census.gov/newsroom/press-kits/2018/non-estimates-national-state.html">https://www.census.gov/newsroom/press-kits/2018/non-estimates-national-state.html</a> calculated NBDP state-by-state survey responses Seiple et al., 2017, based on CWNS 2012+ <a href="https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual">https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual</a> calculated NBDP state-by-state survey responses 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</p>
<p><b>Biosolids Application</b> Agricultural land cropland in the U.S. (acres): <b>% of national area in cropland:</b>  Number of farms with that cropland: % cropland to which biosolids were applied: <b>Application rate if all U. S. biosolids were applied to cropland (dry tons/ac.):</b> <b>% cropland needed if all U. S. biosolids were applied at typical rate (~3 dt/ac):</b></p>	<p>sum of acreages reported state-by-state in NBDP spreadsheets, based on USDA data 396,955,343 <b>17%</b> sum of numbers reported state-by-state in NBDP spreadsheets, based on USDA data 1,503,068 incomplete data <b>0.01</b> <b>0.49%</b></p>	<p><a href="https://quicksats.nas.usda.gov/results/0CB8A084-6032-3776-A8B-674D88825822">https://quicksats.nas.usda.gov/results/0CB8A084-6032-3776-A8B-674D88825822</a> calculated <a href="https://quicksats.nas.usda.gov/results/F56563D1-C9CD-30FF-9774-2F91CC0640EC">https://quicksats.nas.usda.gov/results/F56563D1-C9CD-30FF-9774-2F91CC0640EC</a> calculated calculated calculated</p>
<p><b>Nutrient Sources - Comparison</b> Nitrogen (N) in all U.S. biosolids (metric tons, 2018):  N in all U.S. animal manures (metric tons):</p>	<p>279,504 6,174,812 based on total of 5,823,000 dmt biosolids sum of tons reported state-by-state in NBDP spreadsheets, based on U.S. EPA data</p>	<p>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></p>

<p>N in all U.S. purchased fertilizer (metric tons, 2011):  <b>If all U.S. biosolids were applied to land, what % of N applied to land in the U.S. would come from biosolids?</b>  Phosphorus (P) in all U.S. biosolids (metric tons, 2018):</p> <p>P in all U.S. animal manures (metric tons):</p> <p>P in all U.S. purchased fertilizer (metric tons, 2011):  <b>If all U.S. biosolids were applied to land, what % of P applied to land in the U.S. would come from biosolids?</b></p>	<p>sum of tons reported state-by-state in NBDP spreadsheets, based on U.S. EPA data</p> <p><b>1.5%</b></p> <p>116,460 based on total of 5,823,000 dmt biosolids sum of tons reported state-by-state in NBDP spreadsheets, based on U.S. EPA data</p> <p>1,846,939 sum of tons reported state-by-state in NBDP spreadsheets, based on U.S. EPA data</p> <p>1,713,194 sum of tons reported state-by-state in NBDP spreadsheets, based on U.S. EPA data</p> <p><b>3.2%</b></p>	<p><a href="https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased">https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased</a></p> <p>calculated</p> <p>calculated assuming avg. 2% biosolids P</p> <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></p> <p><a href="https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased">https://www.epa.gov/nutrient-policy-data/commercial-fertilizer-purchased</a></p> <p>calculated</p>
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<p><b>State Regulatory Involvement</b></p> <p><b>Biosolids oversight agency / division in each of the states:</b>  Permitting.... of biosolids programs:  ...of land application sites:</p> <p><b>FTEs: state biosolids regulatory program:</b>  <b>All states' biosolids program FTEs per million people in the U.S.:</b>  <b>Enforcement: Inspections of biosolids facilities &amp; field sites in 2018:</b>  <b>Formal violations issued:</b>  <b>Numbers of states with regulations beyond Part 503 (numbers of states):</b></p> <p><b>Amount of state regulation of nutrient management &amp; P (numbers of states):</b></p> <p><b>Accessibility of biosolids data to public (numbers of states):</b></p> <p><b>State encouragement of biosolids recycling to soils (numbers of states):</b></p> <p><b>Voluntary additional protections by land appliers, reported to NBDP (numbers of states):</b></p>	<p><b>Environmental agency (47 states), Dept. of Health (1 state: HI)</b>  Most (30 states) biosolids program permitting is through NPDES permits; other &amp; additional permitting in some states  Land application sites are permitted in only some states, through the environmental agency and/or NPDES permits.</p> <p>sum of total FTEs reported state-by-state in NBDP spreadsheets</p> <p><b>84.1</b></p> <p><b>0.25</b></p> <p><b>&gt;742</b> 31 states' responses; 326 inspections in VA</p> <p><b>&gt;41</b> 34 states' responses; 9 violations in NM</p> <p><b>13 High/Moderately High</b></p> <p><b>17 Moderate</b></p> <p><b>17 Low</b></p> <p><b>5 None</b></p> <p><b>9 High/Moderately High</b></p> <p><b>9 Moderate</b></p> <p><b>20 Low</b></p> <p><b>12 None</b></p> <p><b>0 High/Moderately High</b></p> <p><b>11 Moderate</b></p> <p><b>37 Low</b></p> <p><b>4 None</b></p> <p><b>14 High/Moderately High</b></p> <p><b>18 Moderate</b></p> <p><b>12 Low</b></p> <p><b>6 None</b></p> <p><b>0 High/Moderately High</b></p> <p><b>1 Moderate</b></p> <p><b>18 Low</b></p> <p><b>29 None</b></p>	<p>survey responses by state experts &amp; NBDP calculated</p> <p>survey responses from 31 states</p> <p>survey responses from 34 states</p> <p>Rankings for each state by NBDP survey team based on information provided in state surveys (options: High, Moderate, Low, None)... Example: Regarding regulations beyond Part 503, there are 13 states with "High" amounts of regulations beyond Part 503 and only 5 that have "None" (no state or territorial regulations beyond Part 503).</p>
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<p><b>Trends</b></p> <p><b>New land application activity, 2018 - indicated by new permits &amp; acreage, acres applied:</b></p> <p>acres applied in 2018:  <b>Local regulations &amp; their impacts?:</b></p>	<p><b>6 High/Moderately High</b></p> <p><b>17 Moderate</b></p> <p><b>21 Low</b></p> <p><b>4 None</b></p> <p>data from just 16 states; includes 83,900 acres applied in FL alone</p> <p>315,000</p> <p><b>0 High/Moderately High</b></p> <p><b>1 Moderate</b></p> <p><b>1 Low</b></p>	<p>rankings by NBDP survey team based on information provided in state surveys (options: High, Moderate, Low, None)</p>
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<p>details...</p> <p><b>Legislative &amp; state regulatory actions in 2018 &amp; their impacts?:</b></p> <p>details...</p> <p><b>Biosolids beneficial use increasing... ..in 2018?:</b></p> <p><b>....in 2020?:</b></p> <p>details...</p>	<p><b>31 None</b> most states report no local regulations &amp; impacts in 2018</p> <p><b>0 High/Moderately High</b></p> <p><b>1 Moderate</b></p> <p><b>0 Low</b></p> <p><b>39 None</b> most states report no legislative or regulatory activity in 2018</p> <p><b>4 Yes</b></p> <p><b>11 None</b></p> <p><b>31 It's staying the same</b></p> <p><b>12 Yes</b></p> <p><b>11 None</b></p> <p><b>22 It's staying the same</b> see details in state reports</p>	<p>survey responses by state experts</p> <p>survey responses by state experts</p>
<p><b>Changes in Biosolids Use &amp; Disposal, 2004 - 2018</b></p> <p><b>Change* in solids reported used or disposed, 2004 - 2018 (dry metric tons):</b></p> <p><b>Beneficial Use - percentage point increase or decrease (-):</b></p> <p><b>Landfill &amp; surface disposal - % point increase or decrease (-):</b></p> <p><b>Incineration - percentage point increase or decrease (-):</b></p> <p><b>Class A - percentage point increase or decrease (-):</b></p> <p><b>Class B - percentage point increase or decrease (-):</b></p> <p><b>No class or not known - percentage point increase or decrease (-):</b></p>	<p>Change due to population increase/decrease, change in treatments at WRRFs, and/or different systems of data tracking and reporting. See discussion in report.</p> <p>(309,000)</p> <p>3%</p> <p>1.7%</p> <p>0%</p> <p>5%</p> <p>-5%</p> <p>0%</p>	<p>calculated comparing these 2018 data to 2004 data compiled by the same survey team (NEBRA, 2007)</p>