

DASHBOARD

Virginia 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>State biosolids coordinator tracks land application closely & compiles data from WRRF annual reports. ECHO data backs up state data. Only landfill data are estimates.</p> <p>108% % 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>8,517,685</p> <p>25,273,600</p> <p>215.7</p> <p>228</p> <p>228</p> <p>51</p> <p>24,843</p> <p>742</p> <p>416</p> <p>21</p> <p>34%</p> <p>33</p>	<p>U. S. Census estimate for July 1, 2018 https://www.census.gov/newsroom/press-kits/2018/pop-estimates-national-data.html</p> <p>calculated</p> <p>Seiple et al., 2020</p> <p>Seiple et al., 2020 https://echo.epa.gov/facilities/facility-search?mediaSelected=bioAnnual</p> <p>calculated</p> <p>Seiple et al., 2020</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</p> <p>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>3,084,067</p> <p>12%</p> <p>32,091</p> <p>0.73%</p> <p>0.05</p> <p>1.5%</p> <p>VA also receives biosolids from out of state, which, if included, pushes this to ~3+%.</p>	<p>https://quickstats.nass.usda.gov/results/0CBBAD84-6032-3776-4F8B-624D88625822</p> <p>calculated</p> <p>https://quickstats.nass.usda.gov/results/F56563D1-C9CD-30FE-8774-2P91CC0640EC</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>P in this state's animal manures (metric tonnes):</p> <p>P in this state's purchased fertilizer (metric tonnes, 2011):</p>	<p>6,076</p> <p>102,834</p> <p>85,962</p> <p>3.1%</p> <p>2,532</p> <p>30,895</p> <p>12,651</p>	<p>calculated assuming avg. 4.8% biosolids N 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 P 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>If all state's biosolids applied, what % of state's applied P would come from biosolids?</p>	<p>5.5%</p>	<p>calculated</p>
<p>State Regulatory Involvement Biosolids oversight agency / division:</p> <p>Permitting.... of biosolids programs:</p> <p>...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:</p>	<p>Environment agency - water / wastewater program</p> <p>In specific NPDES-type permits; state non-point-source individual permit for generators of EQ and facilities (separate preparers), as well as permits for land application sites</p> <p>VA DEQ issues permits specific to a county, allowing a generator to land apply in that county.</p> <p>9</p> <p>1.06</p> <p>326</p> <p>5</p> <p>High</p> <p>High</p> <p>Moderate</p> <p>Moderately High</p> <p>Moderate</p>	<p>survey response by state expert calculated survey response by state expert survey response by state expert</p> <p>rankings by survey team based on information provided in survey (options: High, Moderate, Low, None)</p>
<p>Trends</p> <p>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?:</p> <p>details...</p>	<p>22,397</p> <p>Moderately High</p> <p>Some no activity in 2018</p> <p>Some in most cases, no... but there municipalities and counties are allowed to impose restrictions related to storage at the local level.</p> <p>It's staying the same. It's staying the same. Coming in the next few years - more thermal hydrolysis systems, such as at WSSC, that will decrease tonnage of biosolids land applied. It is clear that EQ is becoming more prevalent, with a corresponding decrease in Class B biosolids. However, WRRFs that go to landfill are not changing over to beneficial use; the participation in beneficial use remains constant.</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)</p> <p>survey response by state expert survey response by state expert</p>
<p>Changes in Biosolids Use & Disposal, 2004 - 2018</p> <p>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 (-):</p>	<p>(36,749) dry U. S. tons</p> <p>21%</p> <p>-24%</p> <p>3%</p> <p>15%</p> <p>27%</p> <p>-42%</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.</p> <p>calculated comparing these 2018 data to 2004 data compiled by the same survey team (NEBRA, 2007)</p>