



Sources of emission on a dairy	Expected pollutants for each source in order of importance	Suggested BMPs for emissions reduction Tier 1	Suggested BMPs for emissions reduction Tier 2	Suggested BMPs for emissions reduction Tier 3
Housing - Drylot Pens	NH ₃ , PM, Odor, H ₂ S, CH ₄ , VOC, N ₂ O	<p>Spread (harrow) manure frequently (NH₃, PM)</p> <p>Surface moisture content management (NH₃, N₂O, VOC, Odor, CH₄, H₂S, PM)</p>	<p>Remove manure frequently (NH₃, PM)</p> <p>Incorporate wood chips in surface layer (NH₃, PM, Odor)</p> <p>Use straw bedding in drylot pens (NH₃, PM, Odor)</p> <p>Knockdown and remove fence line manure (VOC, Odor)</p>	<p>Urease inhibitors (NH₃, N₂O)</p> <p>Provide shade for cattle (NH₃, PM)</p> <p>Sitting of water trough within pen (NH₃, PM)</p>
Grazing Management	NH ₃ , N ₂ O	<p>Stock appropriate number of animals (NH₃, N₂O)</p> <p>Use rotational grazing (NH₃, N₂O)</p>	<p>Move water and feeding areas frequently (NH₃, N₂O)</p>	<p>Irrigate immediately after grazing (NH₃)</p>
Manure Storage	<p>Liquid: NH₃, H₂S, CH₄, Odor, VOC</p> <p>Solid: NH₃, H₂S, PM, CH₄,</p>	<p>Manure solids separation (NH₃, VOC, Odor, H₂S, CH₄)</p> <p>Properly manage the composting of solid manure (H₂S, Odor, PM, CH₄)</p> <p>Properly manage stockpiled manure (H₂S, Odor, PM)</p>	<p>Lagoon or storage covers (NH₃, H₂S, VOC, Odor, CH₄)</p> <p>Scrub Exhaust of enclosed waste containers (CH₄, Odor, H₂S)</p>	<p>Installation of an anaerobic digester (CH₄)</p> <p>Surface aeration of lagoons (NH₃, H₂S, VOC)</p> <p>Reduce the pH of manure (NH₃, CH₄)</p> <p>Encourage purple sulfur bacterial formation in lagoons (H₂S, Odor)</p>
Land Application	NH ₃ , PM, Odor, N ₂ O	<p>Apply nutrients according to agronomic recommendations based on soil and manure test results (NH₃, N₂O)</p> <p>Inject or incorporate fertilizer into soil within 24 hours of application (NH₃, Odor)</p> <p>Do not over-irrigate (NH₃, N₂O)</p> <p>Apply during cool weather and on still rather than windy days ((NH₃, Odor, PM)</p>	<p>Utilize cover crops (NH₃, N₂O, PM)</p> <p>Apply N fertilizer below no-till residue (NH₃, PM)</p>	<p>Installation of windbreaks or shelterbelts (Odor, PM)</p>