

On-Farm Disposal of Bulk Waste Milk

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Possible supply chain disruptions and unknown market demands due to COVID-19 repercussions make it prudent to plan for scenarios where milk must be dumped. The purpose of this article is to briefly summarize farm-level milk disposal considerations. Please do not interpret this article as implication that milk will not be picked up at some time, rather view this as information along the lines of an Emergency Action Plan for uncertain times.

A practical utilization for unshipped milk is land application. While direct land application of milk would be possible it is recommended that the milk be mixed with manure before land application. There are several sensible reasons for this.

The Pennsylvania Act 38 Nutrient Management Plan Technical Guidance, Supplement 21 Food Processing Residual and Nutrient Management, defines Agricultural Waste as “livestock manure, or residual materials in liquid or solid form generated in the production and marketing of poultry, livestock, fur bearing animals and their products, if the agricultural waste is not hazardous.” The same guidance defines Food Processing Waste as “residual materials in liquid or solid form generated in food processing”, which includes milk. In simplest interpretation, if milk does not leave the farm then it will remain Agricultural Waste and not Food Processing Waste. If it remains on the farm and mixed with manure the milk can be considered manure.

The nutrient value of milk is expected to be higher than dairy manure, containing about 44 pounds of nitrogen (N), 18 pounds of phosphorus (P_2O_5), and 15 pounds of potassium (K_2O) per 1,000 gallons of milk. Land application of milk comes with runoff concerns. The nitrogen and phosphorus in milk is expected to have higher availability to plants than in manure and be more susceptible to runoff in soluble forms. Adding a significant amount of milk to manure may mean that Nutrient or Manure Management Plans will need to be revised. The volume of milk can also deplete manure storage capacity. Contingency planning as we move into warmer months should consider when crop land will be available to receive application. Milk has a high Biological Oxygen Demand (BOD), meaning that as microbes in water decomposed the milk, they will consume large amounts of oxygen needed by aquatic organisms. Consider cautious setbacks on lands with good conservation practices for manure application with high milk content. Additionally, milk that is land applied could produce offensive odors and lead to fly propagation. Consider application away from neighbors who could be impacted by odors or flies. It is highly recommended that producers communicate with their plan writer and conservation district if large volumes of milk will be applied.

Milk can be added to manure digesters but consultation with the digester’s manufacturer is wise since it may lead to shifts in the system’s microbial community. Some studies show that milk addition to digesters may increase gas production but not necessarily methane content. However, digestion is attractive as a means to decrease the potential of unfavorable odors.