

**MEMORANDUM OF GUIDELINES
EMERGENCY LAND APPLICATION OF MILK
UNDER COVID-19 Temporary Suspension
April 17, 2020
UPDATED MAY 27, 2020**

Pursuant to the Temporary Suspension of certain manure and waste land application regulations authorized by Governor Wolf on April 17, 2020, the following guidelines and notices should be followed by dairy operations needing to address the need to manage excess milk as a result of market and supply chain disruptions during the COVID-19 emergency. These limited guidelines implementing the Temporary Suspension expire on June 1, 2020 at which time, the Temporary Suspension will terminate and any land application of milk cannot be done unless in compliance with an existing Manure Management Plan (MMP) or Nutrient Management Plan (NMP) which complies with applicable regulatory requirements. If the COVID-19 emergency's impact on the milk supply chain ends before June 1, 2020, any land application must be conducted pursuant to an existing and compliant MMP or NMP. Before June 1, 2020, DEP will post a notice on its website reflecting either termination or extension of the Temporary Suspension.
[Update, May 27, 2020: the Temporary Suspension is extended to August 7, 2020.]

Land application of milk not currently authorized in an NMP or MMP is a temporary solution to a critical constant supply and market demand disconnect situation caused by the COVID-19 emergency. *If land application outside of an approved NMP or developed MMP can be avoided, it should be avoided.*

Farms with excess milk should follow the guidelines in this Memorandum and consider the following:

- (1) Create and maintain records, which is a requirement for conducting the activities described herein;
- (2) Move milk to other on-site or nearby storage facilities, if possible;
- (3) Utilize milk as animal feed, under permit or by waiver from the Pennsylvania Department of Agriculture at (717) 772-5215;
- (4) Consider other means of disposal, including seeking authorization to discharge all or some produced milk to a wastewater treatment facility until demand can be connected to supply in the supply chain.

If land application is determined to be the necessary option for a dairy producer:

- Move excess milk to a manure storage facility, if feasible, maximizing available storage to allow for better land application planning and timing;
- Obtain the necessary equipment to pump the excess milk into a liquid manure spreader;
- Give preference and priority to land application of a mixture of manure and excess milk, wherever possible;
- Identify fields best suited for the land application, considering the nutrient content and other properties of the liquid milk;

- Review and adhere to the specific guidelines below, including the maximum application charts and setback requirements.

Significant Safety Concerns & Risks

- As the milk is degraded when mixed with manure, gaseous by-products can be expected to form. ***Workers should remain aware that increased gas production can be harmful and can displace oxygen, causing asphyxiation and death.***
- ***Milk should not be placed into manure storage facilities located under animal housing.*** The potential for deadly gases and a long-term odor issue will be detrimental or deadly to both animals and humans.
- Milk is expected to be more susceptible to runoff and must always be managed properly to prevent runoff.
- Milk and manure/milk mixtures should not be land applied, except by injection, where rainfall is predicted within 12 hours before or after land application.
- All required land application setbacks for manure must be followed when land applying milk or a manure/milk mixture.¹
- Land application should be made only on fields high on the landscape and far from water bodies, sinkholes and any surface conduits to water (including road ditches).
- Any fields that receive manure/milk or milk applications should have their preplanned nutrient allocations, in their previously developed MMP or approved NMP, reduced to avoid excess nutrients being applied to the field.

Violations & Pollution

- The unpermitted discharge of pollutants (including milk, manure, and/or agricultural process wastewater) is NOT authorized to any waters of the Commonwealth, including road ditches. Such discharge constitutes pollution and is unlawful.
- As required by 25 Pa. Code § 91.33, in the event that land application of excess milk or a manure/milk mixture, due to rainfall, unanticipated runoff, or otherwise, results in pollution or creates a danger of pollution to waters of the Commonwealth, the producer and/or landowner must immediately notify DEP by telephone of the location and nature of the danger and, if reasonably possible to do so, notify known downstream users of the waters. The instructions for notifying DEP are available at <https://www.dep.pa.gov/About/ReportanIncident/Pages/default.aspx>. As further required by 25 Pa. Code § 91.33, the producer and/or landowner must immediately take steps necessary to prevent injury to property and downstream users.
- Anyone land applying excess milk or manure/milk mixture onto agricultural fields should be aware of any wellhead protection areas and shall NOT land apply this material within a wellhead protection area
- Where DEP determines that pollution from excess milk or manure/milk mixture has occurred and identifies the field(s) and/or dairy source(s), those fields and those dairy

¹ Operators should use the “Comparison of Land Application Setback Requirements for Various Regulatory Programs in PA” factsheet for further information and guidance, which is offered as a reference at the end of this document.

sources are no longer authorized to land apply pursuant to the Governor's temporary suspension referenced herein. All land application of excess milk or manure/milk mixture by those sources and on those fields must immediately cease.

Other General Considerations Related to Excess Milk at Farms

- Use the NMP or MMP to determine the best places to apply the milk or manure/milk mixture to meet the nutrient needs of this year's crop and adjust other planned nutrient applications to account for the nutrient content of the milk. See Act 38, NMP Guidance below.
- While direct land application of milk is possible, it is recommended that milk be mixed with manure prior to being land applied. There are several reasons to mix milk with manure prior to land application, including the reduction of odors and fly propagation.
- The nutrient value of milk is expected to be higher than dairy manure, containing about 44 pounds (44 lbs.) of nitrogen (N), 18 pounds (18 lbs.) of phosphorus (P), and 15 pounds (15 lbs.) of potassium (K) per 1,000 gallons of milk.
- Milk should not be sent to a septic tank or vegetated treatment system below a spreader pipe or sprinkler head. The system will fail and will need to be cleaned out or totally replaced.
- Milk can be added to manure digesters, but the farmer should first contact the digester's manufacturer since the introduction of milk may shift a digester's microbial community. The farmer should also review the digester's permit conditions to determine if any restrict the amount of milk that may be added.
- Milk should not be added to the closed loop or recycling stages of waste storage systems that separate sand. Only add storage outside of the closed loop system, otherwise the milk solids will adhere to the sand particles increasing curing time and odors. If no other storages are available, consider mixing milk with a partially filled manure tanker prior to land application.

RESOURCES FOR LAND APPLICATION OF EXCESS MILK

Act 38, NMP Guidelines [Ch. 83]

- 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."
- Use the NMP to determine the best places to apply the milk or manure/milk mixture to meet the nutrient needs of this year's crop *and* adjust other planned nutrient applications to account for the nutrient content of the milk (see below).
- Mixing milk with manure is expected to 'dilute' the milk N & P values which could make the manure/milk rate increase.

	N	P ₂ O ₅	K ₂ O
Dairy Manure Nutrient Content Book Value (pounds per 1000 gallons)	28	13	25
Milk Nutrient Content (pounds per 1000 gallons)	44	18	15
Change Expected when Adding Milk to Manure (content in pounds per 1000 gallons)	Increase N	Increase P	Decrease K

- Below are the *Maximum Application Rates Allowed*:

% Manure	% Milk	Manure Incorporation Timing					P ₂ O ₅ /1000gal	K ₂ O/1000 gal	Maximum Allowable Rate
		Same day	Within 1 day	2-4 days	5-7 days	>7 days			
		Available N/1000 gal							
100	0	14	11	10	8	6	13	25	follow NMP/NBS/MMP
90	10	17	14	13	12	9	14	24	9,000 gallons per acre
80	20	20	18	17	16	13	14	23	8,000 gallons per acre
70	30	23	21	20	19	17	15	22	7,500 gallons per acre
60	40	26	24	23	23	21	15	21	6,500 gallons per acre
50	50	29	28	27	26	25	16	20	6,000 gallons per acre
40	60	32	31	30	30	29	16	19	5,500 gallons per acre
30	70	35	34	34	33	32	17	18	5,200 gallons per acre
20	80	38	37	37	37	36	17	17	5,000 gallons per acre
10	90	41	41	41	40	40	18	16	4,700 gallons per acre
0	100	44	44	44	44	44	18	15	4,500 gallons per acre

- Apply milk or manure/milk mixture to fields that have the lowest risk of groundwater or surface water contamination.**
- Apply to fields with a perennial crop, such as grass hay, or those recently seeded, which increases the opportunity for plant uptake of the nutrients applied.
- Consider making multiple applications with less volume per application to reduce the risk of nutrient losses through runoff.
- Consider injecting or incorporating land-applied milk to reduce the risk of runoff to surface waters.

Plan Compliance & Recordkeeping is Still Required

Recordkeeping

- Records must be created and maintained, for all excess milk handled under the temporary suspension and land applied, documenting at a minimum:
 - the date the excess milk or manure/milk mixture was disposed or land applied,
 - volume of milk or manure/milk mixture disposed or land applied,
 - and a brief description as to how the excess milk or manure/milk mixture was disposed or land applied, accounting for all excess milk volume and manure volume.
- These records should be available for review, upon request.
- These records are required in accordance with the NMP and MMP record keeping requirements.
- If state or federal programs become available to assist farmers with lost revenue during the COVID-19 public health emergency, these records may be beneficial.

Plan Compliance

- Over-application of nutrients is not authorized.
- Operators are permitted to follow the emergency situation guidance on plan update/amended as outlined in **25 Pa. Code § 83.372 Amendments due to unforeseen circumstances.**
 - *“Changes in the implementation of plans due to unforeseen circumstances shall be certified by a nutrient management specialist as meeting applicable requirements of this subchapter and submitted to the district within 30 days of implementation. The amendments called for under this section will not require the review and approval of the [State Conservation] Commission or a delegated conservation district but shall temporarily become part of the plan until normal operations are resumed”.*
- Emergency Nutrient Balance Sheet (NBS) and NMP updates for corrections to existing plans should be submitted to the State Conservation Commission (SCC) or delegated Conservation District (CD) **within 30 days of application.**
- All applicable Act 38 record keeping requirements must be followed.
- Any fields that receive manure/milk or milk application should have their preplanned nutrient allocations, in the operator’s previously prepared and approved NMP, reduced to avoid an excess of nutrients being applied to the field.
- Document the locations(s) of manure/milk or milk application on the farm maps.

CAFOs [Ch. 92a]

- Follow the Act 38, NMP Guidance above, including the Maximum Application Rate Table.
- Submit documentation (the same documentation that is submitted to the CD or SCC) to the DEP Regional office either prior to or within 30 days of application.
- Complete and maintain any additional CAFO record keeping requirements as set forth in the CAFO permit, such as reporting on an annual report.

- If utilizing a new Manure Storage Facility (MSF), a MSF not identified in your CAFO permit, or operating a MSF in a way that is not permitted, **please contact the DEP CAFO Permitting Section at the DEP Southcentral Regional Office *before you begin new storage use.***

Manure Management Plan [Ch. 91]

- Follow the Maximum Application Rate Table and other guidance provided under the Act 38, NMP Guidance section, above.
- Contact a planner to discuss updates to the MMP prior to or shortly after the milk or manure/milk mixture has been land applied.
- Document the location(s) of milk or manure/milk application on the farm maps.
- Records must be created and maintained, for all excess milk handled under the temporary suspension and land applied, documenting at a minimum:
 - the date the excess milk or manure/milk mixture was disposed or land applied,
 - volume of milk or manure/milk mixture disposed or land applied,
 - and a brief description as to how the excess milk or manure/milk mixture was disposed or land applied, accounting for all excess milk volume and manure volume.
- These records should be available for review, upon request.
- These records are required in accordance with the nutrient and manure management plan record keeping requirements.
- If state or federal programs become available to assist farmers with lost revenue during the COVID-19 public health emergency, these records may be beneficial.
- Follow all applicable Chapter 91 record keeping requirements.

Helpful Reference Sources

PSU article on On-Farm Disposal of Bulk Waste Milk:

<https://extension.psu.edu/programs/nutrient-management/news/2020/on-farm-disposal-of-bulk-waste-milk>

Nutrient Management Technical Manual, Supplement 21: Food Processing Waste & Sewage Sludge

<https://extension.psu.edu/programs/nutrient-management/planning-resources/alternative-tech-manual/nutrient-management-technical-manual>

A Comparison of Land Application Setback Requirements for Various Regulatory Programs in PA

<https://extension.psu.edu/programs/nutrient-management/educational/miscellaneous/land-application-setback-comparison>

Considerations for Land Spreading Milk Webinar April 7, 2020

<https://www.youtube.com/watch?v=Gk2aeVl4EoU&feature=youtu.be>

Fly Management in Pennsylvania...When Spreading Manure

<http://paagombudsman.com/wordpress/wp-content/uploads/48659-Fly-brochure-final-FINALPROOF-rfs.pdf>

Handout for Farmers Regarding Fly Control

<http://paagombudsman.com/wordpress/wp-content/uploads/Handout-for-Farmers-regarding-fly-control-PDF-version.pdf>

Manure Haulers and Brokers are Key

<http://lancasterconservation.org/wp-content/uploads/Manure-Haulers-and-Brokers-are-Key.pdf>