



**Agriculture
and Markets**



**Department of
Environmental
Conservation**

FREQUENTLY ASKED QUESTIONS REGARDING MANURE STORAGE IN NEW YORK STATE



Does New York State regulate farms and manure storages?

The NYS Department of Environmental Conservation (NYSDEC) [protects streams, rivers, and other waterways by comprehensively regulating activities that could impact water quality.](#)

This includes the requirement for livestock farms over a certain size that confine animals for 45 days or more during any 12 month period to obtain a permit by the NYSDEC, known as a [Concentrated Animal Feeding Operation \(CAFO\) general permit.](#) New York State has approximately 500 CAFO-permitted farms, which results in regulating over 50% of the manure produced in the State. The majority of the CAFO-permitted farms are dairy farms with 300 or more cows and associated cropland acres.

If a farm is regulated through a CAFO permit, the farm must follow their current Comprehensive Nutrient Management Plan (CNMP), that is regularly updated (at least annually), and reported upon annually to NYSDEC. CNMPs are developed by an Agricultural Environmental Management [\(AEM\) Certified Planner.](#) An AEM Certified Planner is an individual who is a [Certified Crop Advisor \(CCA\)](#), has attended a 30-hour comprehensive course, submitted three CNMPs for approval by a

panel of state experts, and is subject to continuing education and quality assurance review requirements.

In addition to its specific authority over CAFO-permitted farms, NYSDEC also has broad authority to enforce against any source of pollution, including those from non-regulated farms that cause a Water Quality Standards violation.

Are there industry standards by which manure storages are constructed?

If a farm is operating under a CAFO permit, and/or a farm is receiving State/federal cost share funds, the farmer must retain a [Professional Engineer](#) to design and certify the manure storage system and all other engineering practices, in accordance with [USDA-Natural Resources Conservation Service \(NRCS\) Standards.](#) All manure storages are specifically designed to divert surface and groundwater around the storage, along with the capacity to store manure, and precipitation that falls into the storage. Once built, storages must be used according to operation and maintenance requirements provided with the design, including regular monitoring of manure levels and upkeep of storage components. Such requirements are in place to protect surface and groundwater, as well as to maintain the structural integrity of the storage.

Further, during the construction of manure storages, farmers and contractors must take the appropriate steps to minimize soil erosion from the job site per NYSDEC's construction stormwater requirements. These requirements may include the need to not only address the erosion and sediment risk factors associated with the construction,

but also the need to manage stormwater associated with the project after construction is complete.

Does the State Environmental Quality Review Act (SEQR) apply to manure storage construction?

No. NYSDEC regulations, found within Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR § 617.5(c)(3)), describe agricultural farm management practices, including construction, maintenance and repair of farm buildings and structures, and land use changes consistent with generally accepted principles of farming, as “Type II” actions.

This class of actions has been determined not to have a significant impact on the environment or is otherwise precluded from environmental review under Environmental Conservation Law, Article 8. Additionally, they do not require preparation of an Environmental Assessment Form, a negative or positive declaration, or an Environmental Impact Statement.

Can municipalities regulate farms/manure storages?

The majority of the farms in New York State are located in an Agricultural District, and therefore, protected by New York State Agriculture and Markets Law §305-a which protects farmers against local laws that unreasonably restrict accepted farming practices. These practices include manure storage siting and management. Municipalities that seek to restrict farms within Ag Districts from normal operations, may be found in violation of the law, and required to halt those restrictions.

The NYS Department of Agriculture and Markets may, upon request, conduct a review of any local law with regard to whether it poses “unreasonable restrictions” on farmers. In general, the Department deems that local laws should allow the storage and land application of animal manure for agricultural purposes on farms within an Agricultural District. See the Department’s [guidance document](#) for additional information.

What is the Agricultural Environmental Management (AEM) program?

Over 12,000 farms in the State, including dairy, livestock, row crop, vineyard, fruit, vegetable, and greenhouse operations across a range of sizes, participate in NY’s [Agricultural Environmental Management \(AEM\) framework](#). AEM is a voluntary, confidential, and incentivized program. It provides farmers one-on-one support to make science-based, cost effective decisions to help meet business objectives while protecting and conserving soil, water, and other natural resources.

By participating in AEM, farmers can document their environmental stewardship and further advance their positive contributions to their communities, our food systems, the economy, and the environment. Participation in the AEM program is a requirement for farms who are regulated by New York State.

MANURE MANAGEMENT AND THE ENVIRONMENT

Why do farmers spread manure on cropland?

Dairy and other livestock farms in New York maintain cropland to grow feed for their herds and recycle manure nutrients. The nutrients and organic matter in manure from dairy and other livestock farms in New York, have long been used to improve soil health and as the primary fertilizer source for growing the crops to feed a farm’s herd. The combination crop and livestock farm is the primary model of production used across all sizes of dairy farms in the State.

Farmers actively balance manure nutrient supply and crop nutrient demand, to maintain a nutrient recycling loop that benefits both the environment and farm viability. Use of this recycling loop reduces the need to import synthetic fertilizers to the farm (and watershed), and helps to improve soil health.

For more information on how farmers, conservation partners, and researchers work to improve this balance, see the Cornell University Nutrient Management Spear Program’s Whole Farm Nutrient Balance page

(<http://nmsp.cals.cornell.edu/NYOnFarmResearchPartnership/MassBalances.html>).

How do farmers make decisions about nutrient management?

As discussed, all CAFO-permitted farms must develop CNMPs with an AEM Certified Planner. Non-regulated farms have the opportunity to partner with AEM Certified Planners and/or other agricultural conservation professionals, to develop specific plans to address nutrient concerns. CNMPs are farm specific and reflect the farm's slopes, nearby waterways, soil erosion potential, farmstead facilities, nutrient sources, and other management and environmental risk factors. These factors are taken into account to determine the best practices for nutrient management across farmsteads, fields, and pastures. Also, more farms are taking into consideration when manure is applied to what fields, based on location, days of the week, (weekdays vs. weekends), and any social events that may be happening in a given community.

Why do farms store manure?

Farmers work to apply the **right amounts of the right nutrients at the right time in the right place** for efficient uptake and recycling by crops. Storing manure makes it possible to better achieve those ["4Rs" of nutrient management](#). Manure storage also provides farmers with more flexibility to apply manure when weather and field conditions present a low risk of run-off, and at optimum times after a crop is harvested from the fields, in order to fertilize for the next crop growth.

Farmers that do not have adequate manure storage, may need to apply manure during conditions that pose a higher risk for loss to the environment, such as during rain or snow melt events. In general, the more manure that must be applied on a given day in poor conditions, the greater the chance for nutrient losses from the fields. Inadequate manure storage capacity could result in fewer nutrients for the crops and greater potential for runoff, causing pollution to surface and/or groundwater. Therefore, storing manure allows for improved management of when and where manure is applied.

Why are manure storages sometimes located in "satellite" locations among crop fields, away from the farm's barns?

Locating manure storages near crop fields allows farmers greater flexibility to transport manure from the barns to the satellite storage during times of lower road traffic and farm work demands. Once transferred to the satellite storage and the growing season begins, farmers are able to focus on application of manure to the neighboring crop fields when nutrients are needed the most. In cases where manure transfer pipelines are feasible from an economic and engineering standpoint, farms are able to reduce fuel use and tanker truck miles by efficiently transporting manure from farm to storage. Some farms are using high strength hoses connected to tractor-mounted equipment to pump and apply manure to fields around the storage, reducing energy use, traffic, noise, and soil compaction. This also allows manure to be worked into the soil faster, further reducing odors and conserving nutrients.



Nothing is 100% safe; what if the storage leaks?

USDA-NRCS is not aware of any major failures among storages that were constructed according to their standards. All storages built according to USDA-NRCS standards are designed to protect surface and groundwater, and require a liner. Earthen storages may be lined with local soils tested to meet clay criteria or with a synthetic liner where local materials aren't adequate. Concrete or glass-infused steel storage tanks provide more options.

While rare, storages can overtop in a major or unexpected rainstorm. The farm's CNMP includes safety volumes designed into the storage to contain these major precipitation events. If an accident occurs, all farms with CNMPs, including CAFO-permitted dairies, have emergency action plans included in their CNMPs to address these circumstances.

How does agriculture impact the environment?

Agriculture is a valued and important sector for New York State's economy, communities, and environment. Working agricultural landscapes preserve habitat for wildlife, absorb stormwater during floods, sequester carbon in soils, and prevent the conversion of lands to other forms of development with much larger environmental footprints. Also, New York's farms provide an abundance of locally produced food.

Agriculture is primarily an outdoor business, and weather is unpredictable. To manage successfully, farmers regularly evaluate and adapt to improve efficiencies, including those that lead to a smaller environmental footprint through improved timings and methods of applying inputs to their crop fields. Like other sectors in our economy, agriculture can also negatively impact the environment when nutrients (fertilizers and manure) and other inputs, leave the farm into the water and air.

What are the unique environmental challenges for dairy farms?

Dairy farmers have unique environmental challenges when managing manure to fertilize their crops, due to a varying range of soil types, field topography, and crops, as well as manure odors and unpredictable weather conditions.

To meet these challenges, farmers are investing in manure management and treatment technologies to further improve options for optimal nutrient recycling, odor reduction, and environmental management. However, the technology is costly, which can be limiting for widespread adoption.

In addition, many farmers are seeking more acres of cropland to maintain or improve the farm nutrient

balance to further reduce losses to the environment. Transporting manure to satellite storages a distance from the farmstead, but near the cropland, can also support the best use of manure nutrients as a fertilizer for growing crops on those acres.

How can farms mitigate methane emissions and odors from manure storages?

On some sites, existing or planted tree windbreaks may be used to intercept winds blowing across storages and reduce odor impacts. Building new storages farther away from neighbors, such as at satellite locations separate from the main barns, may also reduce odors.

While very costly to implement and maintain, covers can be installed on their manure storages and combust the resulting methane. Cover and flare systems can reduce the greenhouse gas footprint of the storage by up to 35 times and increase the storage capacity, by excluding precipitation that falls directly into the storage. Covers can also reduce odors from the manure storage.

Anaerobic manure digesters can be built on farms to capture methane for heat and electricity generation, while reducing odors from manure.

However, they are very costly to implement and operate and given our current energy markets, can be challenging for farms to budget without a significant amount of financial and technical assistance.



Manure storage with a cover and flare system

How does New York State support environmental management on farms?

The [NYS Soil and Water Conservation Committee](#) and [NYS Department of Agriculture and Markets](#) supports farms through a variety of programs, primarily delivered by county Soil and Water Conservation Districts (SWCDs). The [AEM framework](#), described above, helps farmers inventory, assess, plan, implement, and evaluate solutions to mitigate environmental risks on their farms. The [Agricultural Non-Point Source Abatement and Control Program](#) provides competitive, cost share grants for farms to prevent or reduce water pollution, including building manure storage structures. The [Climate Resilient Farming Program](#) provides competitive, cost share grants for farms to reduce their greenhouse gas emissions and enhance their resiliency in the face of a changing climate. “Mini-Grants” are also often available to support specific management practices.

The [Dairy Acceleration Program \(DAP\)](#) from PRO-DAIRY in partnership with New York State also provides support for nutrient management planning, farm business planning, and conservation practice design.

There are also similar federal programs offered by the [USDA](#).

The challenge with these grant programs, is that they are generally oversubscribed, with demand for priority conservation projects far exceeding available grant funds.

Local technical support is available through [County Soil and Water Conservation Districts](#), [Cornell Cooperative Extension](#), [Cornell PRO-DAIRY](#), and [USDA-NRCS](#).