



Odor Control

Introduction:

Odor issues are one of the most frequent complaints received by local boards of health. Zoning enforcement officers and local health officials, often get into debates with farmers over odor issues. These disputes are very common throughout the Commonwealth, particularly when farmers are spreading manure near homes. Massachusetts law allows local boards of health to investigate when a nuisance smell appears to go beyond “normal maintenance” on a farm. Often the Department of Agricultural Resources will be called to send a representative to inspect the farm.

Controlling farm odors is not as difficult as you might think. The first step is to follow the four basic control strategies:

Prevent the creation of odors.

Alter strong odors to less intense odor.

Capture odors so they do not escape to surrounding areas.

Disperse odorants once they leave the farm.

Prevention:

Manure is the major source of farmstead odors. Manure is food to bacteria, and bacteria give off odors as they digest manure. You can reduce odors by preventing bacteria from growing in manure. Methods to reduce bacterial growth include killing bacteria with disinfectants, adding lime to raise manure pH, and keeping manure dry. It is difficult to completely stop bacteria from growing. Manure is just too good a meal for them to pass up. A second prevention strategy is to move waste away from trouble spots before bacteria can begin to grow. For example, flushing raw manure from buildings means fewer odors are released into the building by rotting manure. Changing your animal’s diet can also reduce odors. Odors released by manure containing large doses of nitrogen and sulfur are particularly strong smells. If you reduce nitrogen and sulfur content of feed, you might prevent creation of nitrogen and sulfur odors in manure.

Alteration:

The second strategy for controlling odors is to change strong odors given off by decaying manure into weaker odors. For example, raw manure settles to the bottom of a lagoon. Bacteria in the lagoon digest the raw manure and release strong-smelling liquids. The smell will improve if another group of bacteria, living above the sludge, convert the odorous liquids into odorless gas. Masking agents are not usually effective on the farm. Masking agents do not alter odors; they merely try to hide them. The smell of manure is a strong odor, and trying to cover up the smell of manure with a stronger scent just adds to its power.

For further information,
please refer to the
Massachusetts
Department of
Agricultural Resources –
Right to Farm Law
(Article 97) of the
Articles of Amendment

Capture:

The third strategy is to keep odors from escaping. In other words, trap and hold odors before they can leave the place they are created. Hydrogen sulfide is a strong smelling gas associated with manure. Hydrogen sulfide also sticks to iron. If you pass manure odors through a filter made of iron filings, hydrogen sulfide will stay with the iron and not escape to the surroundings. Some of the most effective filters not only capture but alter odors as well. Living filters, sometimes called biofilters, trap odors then use bacteria to eat the trapped odors. Biofilters can operate for a long time without having to be replaced.

Dispersion:

The final strategy uses the environment (wind) to disperse odors once they leave the farm. Plans that include separation distances between farms and residences rely on dispersion to dilute farmstead odors before they reach the neighbors' nose. Trees strategically placed on the farm help the wind mix and dilute odors. You cannot always count on the wind to disperse odors, though. On calm nights, heavy farmstead odors are carried to low spots in the landscape by gravity. You must fall back on other strategies (prevention, alteration, and capture) to reduce odors during windless periods.

Resources:

Hamilton, Douglas. W. Oklahoma State University Extension Service. Strategies to Control Farmstead Odors. Oklahoma State University. Stillwater, OK

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For more information visit www.umass.edu/cdl

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