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Developing Odor Management Plans



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Writing Odor Management Plans

- Template for writing OMP
 - First review components of OMP
 - Second webinar introduce and review the OMP template

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Odor Management Plan Template

- Resources:
 - Michigan Agriculture Environmental Assurance Program (MAEAP) Progressive Planning Fact Sheet
"Odor Management Plan" available:
<http://www.maeap.org/uploads/files/Livestock/Odor-Management-Plan.pdf>
 - Michigan Dept of Agriculture and Rural Development (MDARD) Site Selection GAAMPs - Appendix B
"Example Odor Management Plan" available:
http://www.michigan.gov/documents/mdard/2012_FINAL_SITE_SELECTION_GAAMP_378548_7.pdf
 - University of Minnesota bulletin
"Preparing an Odor Management Plan" available:
<http://www.extension.umn.edu/distribution/livestocksystems/DI7637.html>

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Why an OMP

Odors are a natural factor of livestock production
All livestock farms have some level of odor
Three basic reasons why farmers write OMPs

- Farm may be taking proactive approach
 - Document current odor control measures
 - Consider optional odor technologies
- In response to formal odor complaint
- Part of the plans for new or expanded facilities

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Writing an OMP

Five factors to consider when writing an OMP

- Identify all odor sources on the farm
- Determine the magnitude of odor from each source
- Identify current and potential odor control technologies
- Develop a plan for monitoring odor
- Establish a plan for maintaining a positive image throughout the community

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Farm odor sources

- Animal housing
- Manure collection and storage
- Manure transfer and land application
- Temporary field stacking
- Feed storage
- Feed processing area
- Mortalities

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Establishing magnitude of odor

Animal housing

Manure storage

- Manure collection
- Manure transfer and land application
- Temporary field stacking
- Feed storage
- Feed processing
- Mortalities

Tools such as Odors from Feedlots Setback Estimation Tool (OFFSET) from University of Minnesota assist with establishing the magnitude of odor from housing and manure storage

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Odors From Feedlots Setback Estimation Tool

- Minnesota research determined Odor Emission Numbers for species and housing type provided in chart below
- Odor Emission Number x Sq. feet of facility ÷ 10,000 = Odor Emission Factor
- Within OMP Odor Emission Factors determine the magnitude of odor from each source

Odor Emissions Numbers for Animal Housing With an Average Management Level			
Species	Animal Type	Housing Type	Odor Emission Number (Rate)
Cattle	Beef/ Dairy	Deep Concrete lot	6
		Free Stall, Scrape or Deep Pit	6
	Dairy	Loose Housing	2
		Free Stall, Scrape	2
Swine	Gestation	Deep Pit, Natural or Mech. Vent.	50
		Full Plug, Natural or Mech. Vent.	30
	Farrowing	Full Plug, Natural or Mech. Vent.	14
Poultry	Nursery	Deep Pit or Full Plug	42
		Natural or Mechanical Vent.	34
	Finishing	Deep Pit, Natural or Mech. Vent.	20
		Full Plug, Natural or Mech. Vent.	20
Poultry	Broiler	Deep, Wash, Deep Washed, Scrape	4
		Cargill (Open Front), Scrape, Loose Housing, Scrape, Open Concrete lot, Scrape	11
Poultry	Turkey	Loose	1
		Loose	2

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Odors From Feedlots Setback Estimation Tool

OFFSET also provides Odor Emission Numbers for determining Odor Emission Factors for manure storage structures

The tool also provides Odor Control Factors

Odor Emission Numbers for Liquid or Solid Manure Storages	
Storage Type	Odor Emission Number (Rate)
Earthen Basin, Single or Multiple Cells	13
Steel or Concrete Tank, Above or Below Ground	28
Crusted Solid Manure Stockpiles	2

Odor Control Technology Adjustment Factors	
Odor Control Technology	Odor Control Factor
Boiler on All Exhaust Fans	0.1
Geotextile Cover (1-2, 4mm or 1 inch)	0.3
6" Thick Straw or Natural Crust on Manure	0.5
8" Thick Straw or Natural Crust on Manure	0.9
10" Thick Straw or Natural Crust on Manure	0.9
Impervious Cover	0.3
Oil Sprinkling Inside Sense Barns	0.5

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Example OFFSET

Version: Sept. 7, 2001					
Odor Print for the Michigan					
Prepared by: Jerry May					
Site: Example dairy site					
Animal Type	Building or Manure Storage Type	Area Sq. Ft.	Odor Emission Number	Odor Control Factor	Odor Emission Factor
Dairy	2 free stall barns 66x373	49,236	6	1.0	29.5
Dairy	Dry cow barn 40'x100'	4,000	6	1.0	2.4
Dairy	Dry cow lot 40'x100'	4,000	4	1.0	1.6
Dairy	Heifer barn 60'x80'	4,800	6	1.0	2.9
Dairy	Earth storage 250'x350'	87,500	13	1.0	113.8
Dairy	Earth storage 60'x75'	4,500	13	1.0	5.9
Dairy	Crusted solids 20'x30'	600	2	1.0	0.1
				1.0	0.0
				1.0	0.0
				1.0	0.0
Total Odor Emission Factor =					156.1

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Establishing magnitude of odor

Animal housing
Manure storage

Manure collection

Manure transfer and land application

Temporary field stacking

Feed storage

Feed processing

Mortalities

For other sources the magnitude is established through a "High" "Medium" or "Low" designation

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Document Odor Control Practices

Record practices currently used to reduce odor

- Incorporate manure
- Vegetative buffers
- Naturally forming crusts on earthen storage

Anticipate practices to address future odor concerns

- Establish vegetative buffers
- Cover earthen storage with straw during the summer


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Identify a method for monitoring odor

Everyone has unique reaction to the same odor
 Farm managers are reluctant to make changes based on one individual's concern
 But they are willing to appropriately respond to legitimate concerns

Identify someone unfamiliar with the farm's odor who will be responsible for evaluating odor on an as needed basis

- Family member who works or lives in town
- Feed salesman
- Friend
- Office employee



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Enhancing image within community

Expand circle of connections

- Volunteer for local school activities
- Serve on local government boards or committees
- Coach youth sports
- Join local service organization

Regularly communicate with the farm's neighbors

- Host a picnic
- Provide neighbors a farm item during holiday season
- Stop for a visit

Document these activities in the OMP



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Review of the components of an OMP
 Watch the second webinar on the OMP template
 Complete an OMP for your farm

Questions or concerns email Jerry May at mayg@msu.edu

