

Manure Irrigation Workgroup Meeting – December 13, 2013
ATTACHMENTS

- Lynn Utesch presentation from 12/13/13
- Regulation summary from other USEPA Region 5 states
- Regulation summary for other non-Region 5 states (NC, NE, and link to national report)
- David Panofsky presentation from 12/13/13



ORGANIC & SUSTAINABLE FARMING

LYNN UTESCH- GRASS BEEF FARMER & STEWARD

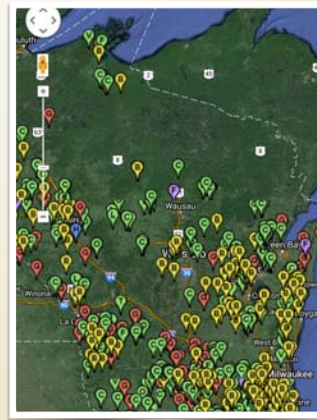
WHAT IS ORGANIC FARMING?

Organic farming refers to ecologically-based production systems used to produce food and fiber. Organic farming may be most widely known for what it is not; however, it is more important to define organic farming by what it is.

Organic farming can be defined by the proactive, ecological management strategies that maintain and enhance soil fertility, prevent soil erosion, promote and enhance biological diversity, and minimize risk to human and animal health and natural resources.

WHO ARE WE?

- Biodynamic
- Grass-Fed
- CSA-Community Supported Agriculture
- Farmer's Markets
- Direct Market
- Farm Stands
- Organic Farming

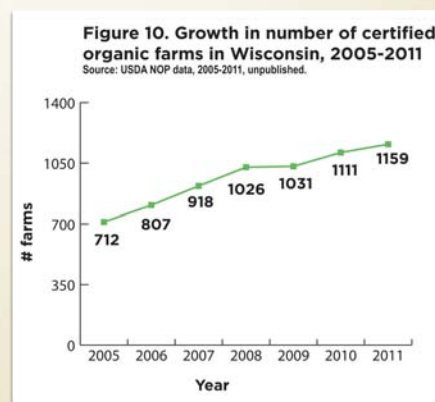


2007 Census of Agriculture reported 1,443 certified and uncertified organic farms in Wisconsin. - DATCAP

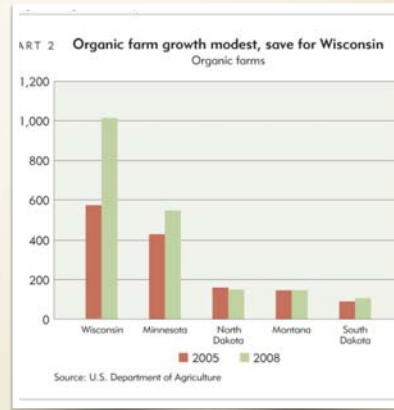
ORGANICS IN WISCONSIN HAS GROWN EXPONENTIALLY

Wisconsin currently has about 1,443 certified organic farms — more than any other Midwestern state and second behind only California — that create \$80.6 million in farm gate sales. And more than one-quarter of the nation's 87,000 organic dairy cows live in Wisconsin.

Source: New North



- Wisconsin consumers spend some \$43 million on local and directly marketed foods, and increasing demand for locally grown organic foods presents an opportunity for Wisconsin organic farmers. (DATCAP)
- How can Wisconsin capture more of the \$26.7 billion spent in the U.S. on organic food and beverages? (DATCAP)
- Wisconsin has seen dramatic growth as our number of certified organic farms has grown from 422 in 2002 to 1,202 in 2007, an increase of 285%. From 2002 to 2011, organic acreage in Wisconsin has increased from 81,026 acres to 195,603 acres, a 241% increase. (UW-extension)

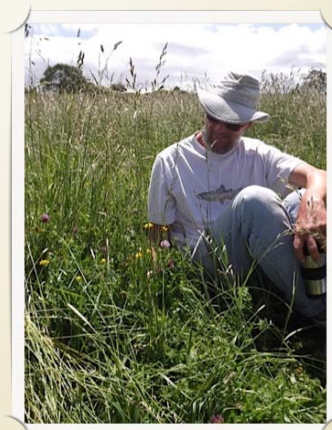


MEASURING THE ECONOMIC BENEFITS OF ORGANIC DAIRY

- Output, the value of an industry's production within the state.
- Gross state product, the incremental economic value that a sector provides to the state's economy.
- Labor income, the proceeds from employment, including wages, benefits, and revenue of self-employed business owners; Increase in employment.
- Increase in employment.

The result: In both Minnesota and Vermont, increases in organic dairy sales were shown to result in larger positive impacts across all of these metrics than similar increases in conventional dairy sales.

-Union of Concerned Scientist



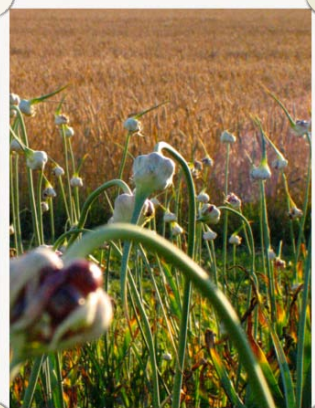
CERTIFIED ORGANIC IS THE BEGINNING, NOT THE FINISH

- soil fertility
- prevent soil erosion
- minimize risk to natural resources
- minimize risk to human & animal health
- promote and enhance biological diversity



WHY DO WE CARE?

Drift of non-permitted substances can disqualify crops from certification. The maintenance of organic integrity to eliminate cross-contamination with prohibited inputs and non-certified agricultural products, and the exclusion of genetically engineered organisms, synthetic fertilizers, synthetic pesticides, preventative antibiotics, growth hormones, and artificial flavors, colors and preservatives. Cross contamination has repeatedly happened in Wisconsin's already growing viticulture industry.



INDUSTRIAL WASTE AND ORGANICS CAN NEVER MIX

The permitted industrial waste in lagoons and digesters creates an improbable relationship between organics and manure irrigation.

A Consumer's Guide to Organic Food

Organic farmers do not use synthetic pesticides or fertilizers on crops and do not use antibiotics with animals. Organic farmers focus on building healthy soils and integrating all farming practices to produce healthy crops and livestock.

Food labeled with the USDA Organic Seal is produced by farmers who are inspected and certified every year to make sure their farms meet national standards for organic production.

CATEGORIES OF ORGANIC FOOD LABELING:

- 100 Percent Organic means all ingredients and processing methods are certified organic.
- Organic may be used on products with at least 95 percent certified organic ingredients. The remaining 5 percent must be approved for use under the USDA organic seal.
- Some with Organic Ingredients may be used on products with at least 70 percent organic ingredients.

For more info: www.ams.usda.gov/farm1/direct

What's important to you? Ask your farmer!

Are you certified organic? If not...

- Do you use synthetic pesticides or fertilizers?
- Do you use antibiotics to treat a sick animal?
- Do you use antibiotics to promote faster growth?
- Do you use synthetic hormones to promote growth or production?
- Are your animals pastured?
- Are they fed grain? (pigs and chickens require grain in their diet; cattle and sheep do not but are commonly fed grain in both organic and conventional systems.)
- Are your chickens cage free? Do they have outdoor access?

Organic farmers are dedicated to environmental stewardship and providing a stable and prosperous local community. The price premium paid for organic food sustains the environment, family farming and healthy rural communities.

Wisconsin Organic Directory Council
http://delta1.org/Farmers/Organic_FarmingDirectory/
July 2013 Edition

Ethical Behavior is doing the right thing when no one else is watching - even when doing the wrong thing is legal.

-Aldo Leopold



WDNR Summary of Manure Irrigation requirements within EPA REGION 5 states (expanded)

Indiana

No response on number of farms using manure irrigation or equipment types. No complaints received related to manure irrigation (e.g., odors, drift, health impacts).

No specific manure irrigation setbacks. 100 ft setbacks for surface waters, conduits to surface waters, tile inlets, wells, sinkholes (same as Federal CAFO requirements or dept approved alternative). 10 foot setbacks when vegetative buffer established. No application within grassed waterways or swales that are conduits to surface waters

Indiana CAFO permit: <http://www.in.gov/legislative/iac/T03270/A00160.PDF> - page 27 setbacks
This link returns message: "ARTICLE 16. CONFINED FEEDING OPERATIONS (REPEALED)
(Repealed by Water Pollution Control Division; filed Feb 6, 2012, 2:58 p.m.: 20120307-IR-327090615FRA, eff Jul 1, 2012)."

New Link: <http://www.in.gov/idem/files/cfomanual.pdf>

Any land used for spray irrigation must have no less than 20 inches of soil over bedrock. Spray irrigation of manure or wastewater in a floodplain is not recommended. If it is conducted however, it must meet the following: The setback from surface waters increased to 200 feet (43).

Land Application setbacks for manure and waste water land application are based on those within table 3 of the Indiana NRCS Conservation Practice Standard # 633: Waste Utilization, October 2007. See chart below. Setback Distances are listed in feet.

Liquid Surface <or = to 6% slope or residue cover:

- Public water supply wells & public water supply surface intake structure: 500
- Surface Water, Sinkholes, Wells and Drainage Inlets: 200
- Property Lines and Public Roads: 50

Liquid Surface > 6% slope or residue cover:

- Public water supply wells & public water supply surface intake structure: 500
- Surface Water, Sinkholes, Wells and Drainage Inlets: 100
- Property Lines and Public Roads: 50

Michigan

Only a few CAFO's use manure irrigation (permanent center pivots). Complaints received for manure irrigation as well as other methods of manure application include: odors, flies, hydrogen sulfide poisoning, drift. No confirmation of chronic or acute public health impacts from complaint investigations.

No specific manure irrigation setbacks. 100 ft Setbacks for surface waters, conduits to surface waters, tile inlets, wells, sinkholes -(same as Federal CAFO requirements or dept approved alternative). 35 foot setbacks when vegetative buffer established. No application within grassed waterways or swales that are conduits to surface waters

http://www.michigan.gov/documents/deq/wb-npdes-cafo-generalpermit-MIG019000-2010_316373_7.pdf

Minnesota

Only a few CAFO's use manure irrigation method; permanent pivots and mobile guns are used. No complaints received related to manure irrigation (e.g., odors, drift, health impacts).

10 counties in MN have passed ordinances prohibiting spray irrigation (permanent or mobile) and at least 9 other counties have ordinances that don't ban spray irrigation, but instead require manure mechanical incorporation of manure within 24 hrs.

CAFO's have specific spray irrigation manure setbacks - No surface application within 300ft lakes, streams, inter streams, wetlands, waterways w/o berms, wells.

Smaller farms also have spray irrigation setbacks (cant spray wider than 50ft within special protection areas (e.g. Lakes streams, inter streams, wetlands, waterways w/o berms, wells). If spray is less than 50ft spray irrigation allowed in special protection areas.

<http://www.pca.state.mn.us/index.php/view-document.html?gid=3530>

Iowa

Some confinement feeding operations use manure irrigation method; permanent pivots and mobile guns are used. Complaints related to odors, drift, concerns about health have been received. Public health impacts have not been confirmed.

Manure irrigation requirements include:

General

- Equipment shall be operated in a manner and with an application rate and timing that does not cause runoff of the manure onto the property adjoining the property where the spray irrigation equipment is being operated.
- For manure from an earthen waste slurry storage basin, earthen manure storage basin, or formed manure storage structure, restricted spray irrigation equipment shall not be used unless the manure has been diluted with surface water or groundwater to a ratio of at least 15 parts water to 1 part manure. Emergency use of spray irrigation equipment without dilution shall be allowed to minimize the impact of a release as approved by the department.

Setbacks

- *Required separation distance from a residence* not owned by the titleholder of the land, a business, a church, a school, or a public use area is 750 feet, as specified in Iowa Code section

459.204. The separation distance for application of manure by spray irrigation equipment shall be measured from the actual wetted perimeter and the closest point of the residence, business, church, school, or public use area.

- *Separation distance for spray irrigation from property boundary line.* Spray irrigation equipment shall be set up to provide for a minimum distance of 100 feet between the wetted perimeter as specified in the spray irrigation equipment manufacturer's specifications and the boundary line of the property where the equipment is being operated. The actual wetted perimeter, as determined by wind speed and direction and other operating conditions, shall not exceed the boundary line of the property where the equipment is being operated. For property which includes a road right-of-way, railroad right-of-way or an access easement, the property boundary line shall be the boundary line of the right-of-way or easement.
- The separation distance specified above shall not apply if any of the following apply:
 - The liquid manure is injected into the soil or incorporated within the soil not later than 24 hours after the original application.
 - The titleholder of the land benefitting from the separation distance requirement executes a written waiver with the titleholder of the land where the manure is applied.
 - The liquid manure originates from a small animal feeding operation.
 - The liquid manure is applied by low-pressure spray irrigation equipment
- *Distance from structures for low-pressure irrigation systems.* Low-pressure irrigation systems shall have a minimum separation distance of 250 feet between the actual wetted perimeter and the closest point of a residence, a business, church, school or public use area
- *Manure application on land adjacent to water bodies* - Unless adequate erosion controls exist on the land and manure is injected or incorporated into the soil, manure application should not be done on land areas located within 200 feet of and draining into a stream or surface intake for a tile line or other buried conduit. No manure should be spread on waterways except for the purpose of establishing seedings.

<http://www.iowadnr.gov/afo/files/sepdstb4.pdf>

[http://search.legis.state.ia.us/NXT/gateway.dll/ar/iac/5670_environmental%20protection%20commission%20_5b567_5d/0650_chapter%2065%20animal%20feeding%20operations/_c_5670_0650.xml?f=templates\\$fn=default.htm](http://search.legis.state.ia.us/NXT/gateway.dll/ar/iac/5670_environmental%20protection%20commission%20_5b567_5d/0650_chapter%2065%20animal%20feeding%20operations/_c_5670_0650.xml?f=templates$fn=default.htm)

The law limits liquid manure application from Dec. 21 to April 1 if the ground is snow-covered. If manure can be properly injected or incorporated, it can be land applied during this time. Snow-covered ground is defined as soil having one inch or more of snow cover or one-half inch or more of ice cover.

(<http://www.iowadnr.gov/DesktopModules/AdvancedArticles/ArticleDetail.aspx?ItemId=1135&alias=www.iowadnr.gov&ModuleId=2822&TabId=464&PortalId=3>)

Setback distance from designated areas: sinkhole, abandoned well, cistern, drinking water well, designated wetland, or water source. No setback required if injected or incorporated the same day.

- 200 ft. (50 ft. with buffer).

Buffer Definition: consists of an area of permanent vegetation cover, including filter strips and riparian forest buffers, which exists for 50 feet surrounding the designated area other than an unplugged ag drainage well or surface intake to an unplugged ag drainage well. Do not apply manure in the vegetative buffer. (http://www.iowadnr.gov/Portals/idnr/uploads/afo/fs_sepdstb4.pdf)

Ohio

Manure irrigation is limited to a few farms . Permanent pivots and mobile guns are used. Fecal drift does not appear to be a large issue (odor is the issue). Limited number of manure irrigation complaints received.

Required setbacks specify distances from various water and land features (e.g. wells) to be followed when land-applying manure application methods. The setbacks range from 100 feet to 300 feet.

Land application restrictions also specify considerations for determining the appropriate timing, location, and methods for land application of manure, including considerations for soil types and field conditions, weather conditions and seasonal considerations, location of subsurface tile drains, and the like. [Part VII of individual permits](#) [PDF 113K] contain the standard language CAFOs must comply with.

http://epa.ohio.gov/dsw/cafo/land_app.aspx

http://epa.ohio.gov/Portals/35/cafo/CAFO_NPDES_PARTVII.pdf

<http://www.lakeimprovement.com/sites/default/files/manure-management-guide.pdf>

See pages 54-57, 82-84, 96-97, and 110 for manure irrigation and pathogen information. Also see Table 15 below.

Table 15. Minimum Recommended Setback Distances from Sensitive Areas.

Minimum Setback Distances for the Application of Manure and Other Organic By-Products.			
Type of Sensitive-Setback Area	Setbacks Based on Methods of Manure Application		
	Surface Application	Winter Application Frozen or Snow-Covered Soils⁵	Surface Incorporation Within 24 Hours OR Direct Injection
Residences/Private Wells down slope from the application area.	100 ft.	200 ft.	100 ft.
—Sinkholes	300 ft.		100 ft.
—Pond or Lake	35-ft. Vegetative Barrier ¹ , with the remaining 100-ft. setback in non-vegetative setback ²	35-ft. Vegetative Barrier ¹ , with the remaining 200-ft. setback in non-vegetative setback ²	35-ft. Vegetative Barrier ¹
—Streams —Ditches —Surface Inlets	35-ft. Vegetative Barrier ¹ , OR 100-ft. setback in non-vegetative setback, OR 35 ft. in non-vegetative setback ³	200 ft.	None
Grassed Waterway	35 ft.	200 ft.	None
Field Surface Drains	35 ft. ⁴	200 ft.	None
Public Wells	300 ft.	300 ft.	100 ft.
Developed Springs	300 ft. upslope	300 ft. upslope	300 ft. upslope
Public Surface Drinking-Water Intake	300 ft.	300 ft.	300 ft.

Source: Ohio Natural Resources Conservation Service (NRCS) *Field Office Technical Guide*, Section IV, Standard 633. Used by permission.

Footnotes:

- ¹ Permanent vegetation consisting of grass, grass/legume mix, trees/shrubs, or trees/shrubs and grass/legumes. Measured from top of bank.
- ² Includes 100-ft. total setback. The setback must include a minimum of 35 ft. of vegetative cover from top of bank with the remainder of the 100 feet with no vegetative requirement. The setback is measured from the top of bank.
- ³ Applies if the manure application area has at least 50% vegetation/residue cover at the time of application.
- ⁴ No setback required for field surface drains if the manure is incorporated.
- ⁵ A more detailed estimate can be obtained by using the Purdue Manure Management computer program available through the Natural Resources Conservation Service.

Comments:

- a. CAFO's must follow the setbacks defined in the Ohio Department of Agriculture (ODA) rules regarding manure application (Rule 901:10-1-14: Land Application Restrictions and Setbacks).
- b. Excludes sludge that is regulated by the Ohio Environmental Protection Agency (OEPA) and septage regulated by the Ohio Department of Health.
- c. See "Application of wastes to frozen and snow-covered soil" in this chapter for additional criteria to minimize runoff from frozen and snow-covered soils.

Illinois

Manure irrigation of manure is limited to a few farms. Permanent pivots and mobile guns are used. Fecal drift does not appear to be a large issue (odor is main complaint/problem). Dept. of Ag rule requires a 1/4 mile (1320 feet) setback from any residence for spray irrigation, except if the operation was doing it before 1997, they are exempt from the setback, or if they are spreading on frozen or snow-covered ground, they are exempt.

Illinois Waste Management Plan Regulations

- Livestock waste applied within ¼ mile of any residence not part of the facility shall be injected or incorporated on the day of application. However, livestock management facilities and livestock waste handling facilities that have irrigation systems in operation prior to May 21, 1996, or existing facilities applying waste on frozen ground, are not subject to the provisions of this subsection (o) [510 ILCS 77/20 (f)(5)];
- Livestock waste may not be applied within 200 feet of surface water unless the water is upgrade or there is adequate diking and waste will not be applied within 150 feet of potable water supply wells [510 ILCS 77/20(f)(6)];
- Livestock waste may not be applied in a 10-year flood plain unless the injection or incorporation method of application is used [510 ILCS 77/20(f)(7)];
- Livestock waste may not be applied in waterways. [510 ILCS 77/20(f) - for the purposes of this Part, a grassed area serving as a waterway may receive livestock waste through an irrigation system if there is no runoff, the distance from applied livestock waste to surface water is greater than 200 feet, the distance from applied livestock waste to potable water supply wells is greater than 150 feet; the distance from applied livestock waste to a non-potable well, an abandoned or plugged well, a drainage well, or an injection well is greater than 100 feet; and precipitation is not expected within 24 hours

http://web.extension.illinois.edu/clmt/pdf/rules_il-manure-plan-rules.pdf

<http://web.extension.illinois.edu/sfmm/dairy.cfm>

<http://www.epa.state.il.us/water/cafo/>

Manure Irrigation setback requirements in North Carolina

As of December 11, 2013

Andrew Craig: North Carolina Regulations and Approaches for Manure irrigation. I spoke with Christine Lawson of the NC Department of Environment and Natural Resources (DENR) today (12/06/13). Christine confirmed that Big Gun hose reel irrigation is used by > 95% of swine facilities in the state. They have not had any documented public health impacts from this form of application.

Useful Site for 1217 Interagency Guidance Documents:

<http://www.ncagr.gov/SWC/tech/guidancedocuments.html>

Animal Waste Land Application Setbacks: SB 1217 Interagency group (Appendix 8.1)

Updated September 20, 2006

Setback requirements by time periods and legislation:

I. Swine farms sited or expanded before September 30, 1995 are required to have from the outer perimeter of the waste application area the following:

- a) A 25-foot vegetative buffer from perennial water (2H.0217 (h)(iii))
- b) A 200-foot distance to dwelling not owned by the producer (NRCS Standard Code 633)
- c) A 100-foot distance to a well (NRCS Standard Code 633 Standard)

II. Swine farms sited after September 30, 1995 and constructed or expanded before August 27, 1997 must meet items I A, B, and C and have from the outer perimeter of the waste application area the following:

- a) A 50-foot distance to perennial stream/river other than an irrigation ditch or canal (Senate Bill 1080)
- b) A 50-foot distance to a residential property boundary (Senate Bill 1080)

III. Swine farms sited or expanded after August 27, 1997 must meet the requirements of items I A, B, and C and must have from the outer perimeter of the waste application area the following:

- a) A 75-foot distance to a perennial stream/river other than an irrigation ditch or canal (House Bill 515)
- b) A 75-foot distance to a residential property boundary (House Bill 515)

IV. Any swine farm regardless of siting date must meet the 75-foot requirements of item III for any new waste application field put in use after August 27, 1997 which:

- a) As of August 27, 1997, the waste application field was not within the property boundary where the waste was generated or
- b) As of August 27, 1997, the waste application field was not within the property boundary where waste was previously applied from the operation.

Other new waste application fields within the property boundary where the waste is generated or has been previously applied are not required to meet the 75-foot buffer, but must comply with items I and II.

V. All farms renewing NPDES permits after that date must implement one or a combination of the following waste application setbacks from surface waters including streams, lakes, and other surface waters, and conduits to those waters (40 CFR 412.4):

- a) 100-foot setback (no closer than 100 feet to any down-gradient surface waters, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface waters);
- b) 35-foot wide vegetated buffer can be substituted for the 100-foot setback specified in A;
- c) 20-foot wide vegetated setback with water table control structures to trap particulate nutrient losses, or any other compliance alternative approved by the Director of DWQ that provides pollutant reductions equivalent or better than reductions achieved by the 100-foot setback specified in A.

From

http://www.ncga.state.nc.us/EnactedLegislation/Statutes/HTML/BySection/Chapter_143/GS_143-215.10I.html

§ 143-215.10I. Performance standards for animal waste management systems that serve swine farms; lagoon and sprayfield systems prohibited.

(b) The Commission shall not issue or modify a permit to authorize the construction, operation, or expansion of an animal waste management system that serves a swine farm that employs an anaerobic lagoon as the primary method of treatment and land application of waste by means of a sprayfield as the primary method of waste disposal. The Commission may issue a permit for the construction, operation, or expansion of an animal waste management system that serves a swine farm under this Article only if the Commission determines that the animal waste management system will meet or exceed all of the following performance standards:

- (1) Eliminate the discharge of animal waste to surface water and groundwater through direct discharge, seepage, or runoff.
- (2) Substantially eliminate atmospheric emission of ammonia.
- (3) Substantially eliminate the emission of odor that is detectable beyond the boundaries of the parcel or tract of land on which the swine farm is located.
- (4) Substantially eliminate the release of disease-transmitting vectors and airborne pathogens.
- (5) Substantially eliminate nutrient and heavy metal contamination of soil and groundwater. (2007-523, s. 1(a).)

Also see from same site: Animal Waste Application Windows For Common Crops Which Receive Animal Waste (Appendix 1.1A)

Here is legal language for Setbacks available from:

<http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environment%20and%20natural%20resources/chapter%2002%20-%20environmental%20management/subchapter%20t/subchapter%20t%20rules.html>

15A NCAC 02T .0506 SETBACKS

(a) The setbacks for irrigation sites shall be as follows:

	Spray (feet)	Drip (feet)
Any habitable residence or place of public assembly under separate ownership or not to be maintained as part of the project site	400	100
Any habitable residence or place of public assembly owned by the permittee to be maintained as part of the project site	200	15
Any private or public water supply source	100	100
Surface waters (streams – intermittent and perennial, perennial waterbodies, and wetlands)	100	100
Groundwater lowering ditches (where the bottom of the ditch intersects the SHWT)	100	100
Surface water diversions (ephemeral streams, waterways, ditches)	25	25
Any well with exception of monitoring wells	100	100
Any property line	150	50
Top of slope of embankments or cuts of two feet or more in vertical height	15	15
Any water line from a disposal system	10	10
Subsurface groundwater lowering drainage systems	100	100
Any swimming pool	100	100
Public right of way	50	50
Nitrification field	20	20
Any building foundation or basement	15	15

(b) The setbacks for treatment and storage units shall be as follows:

	(feet)
Any habitable residence or place of public assembly under separate ownership or not to be maintained as part of the project site	100
Any private or public water supply source	100
Surface waters (streams – intermittent and perennial, perennial waterbodies, and wetlands)	50
Any well with exception of monitoring wells	100
Any property line	50

(c) Achieving the reclaimed water effluent standards contained in 15A NCAC 02U .0301 shall permit the system to use the setbacks located in 15A NCAC 02U .0701(d) for property lines and the compliance boundary shall be at the irrigation area boundary.

(d) Setback waivers shall be written, notarized, signed by all parties involved and recorded with the county Register of Deeds. Waivers involving the compliance boundary shall be in accordance with 15A NCAC 02L .0107.

That language does not seem to be contradicted by the later section: (15A NCAC 02T .0606 SETBACKS).

General Permits for Swine Dairy and Poultry with some irrigation requirements noted in I-1 and II-19 are found at: <http://portal.ncdenr.org/web/wq/aps/afo/perm>

There is a good summary of the rules and regulations that apply to hog farmers in North Carolina here: <http://www.ncpork.org/pages/environment/regulations.jsp>

Nebraska:

Land application requirements for CAFO manure and Domestic or Industrial wastewater.

Univ of Nebraska Extension document on Manure Irrigation equipment, management practices and regulatory requirements

<http://ianrpubs.unl.edu/live/ec778/build/ec778.pdf>

Nebrasks CAFO Manure or Process waste water Regs

Title 119 - Rules and Regulations Pertaining to the Issuance of Permits under the National Pollutant Discharge Elimination

System<<http://www.deq.state.ne.us/RuleAndR.nsf/pages/119-TOC>>

Title 130 - Livestock Waste Control

Regulations<<http://www.deq.state.ne.us/RuleAndR.nsf/pages/130-TOC>>

Summary: 100 ft standard setbacks; no drift or pathogen reduction requirements; backflow prevention requirements for irrigation equipment

Nebraska Land Application of Wastewaters Regs

Title 119 Chapter 12 provides Authorization by

Rule<<http://www.deq.state.ne.us/RuleAndR.nsf/pages/119-Ch-12>> for domestic wastewater treatment plant effluent land application. For these facilities that meet the requirements of the chapter and maintain records in accordance with this chapter, no NPDES permit is necessary.

Summary: Setbacks from occupied homes, roadways, etc

National Overview:

Link to National Summary of Environmental Regulations related to Livestock Agriculture

Report on Environmental regulations prepared for the United Soybean Board, by CDM Smith, August 2012.

763 pages; 6.9 MB file.

http://tool.animalag.org/stateDocuments/2012/environmental/National_Environmental_Impact_of_Animal_Ag.pdf

Includes both national level overview and state by state summaries.



Air Management Program Perspective

Manure Irrigation Workgroup

WISCONSIN
DEPT. OF NATURAL RESOURCES

Dec 13, 2013



AM Regulatory Framework

- Pathogens are not considered a hazardous air pollutant under federal law or a hazardous air contaminant under state law.
- The Air Management program does not regulate airborne pathogens.

DEPT. OF NATURAL RESOURCES



Regulatory Framework cont.

- Presently, federal air quality rules offer limited applicability for animal agriculture.
- Federal emission factors for animal agriculture have not been finalized.



WISCONSIN
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Regulatory Framework cont.

- 2011 Wisconsin Act 122 (creating s. 285.28, Stats.) exempts state hazardous air contaminants associated with "agricultural waste" from requirements of ch. NR 445, Wis. Adm. Code.
- State hazardous air contaminants emitted from animal agriculture include ammonia and hydrogen sulfide.



Regulatory Framework cont.

- Air permits are required for air pollution sources above permitting thresholds and when federal Clean Air Act requirements apply. e.g.
 - DNR Air Management has issued permits for manure drying operations, diesel or biogas generators, and other “point source” emissions associated with animal agricultural operations.

DEPT. OF NATURAL RESOURCES



Air Quality BMPs

- In 2010, the Air Management Program published a report in coordination with an advisory group which included a list of beneficial management practices (BMPs) that reduce ammonia and hydrogen sulfide air emissions from animal agricultural operations.



BMPs continued

- Practices were evaluated using most recent and appropriate science, as well as the collective knowledge, experience, and professional judgment of Advisory Group members.
- Center pivot irrigation and other forms of manure irrigation were not identified as a beneficial management practice within the report.



BMPs Continued

- At the time, peer-reviewed journal articles and university extension references suggest that as much as 50% or more of initial nitrogen (N) loss may occur through irrigation systems, such as center pivot systems (Rotz 2004, Jokela 2000, Koelsch 1995).
- In general, peer-reviewed science on fate and transport of reactive nitrogen (ammonia) and other pollutants (hydrogen sulfide, volatile organic compounds, particulate matter) with a variety of irrigation techniques – center pivot systems; traveling gun; drip irrigation systems – was unavailable.



Generally accepted air quality concepts

- Airborne contaminant emissions from animal agricultural operations may include gases and particulates.
- Air quality concerns have focused primarily on ammonia (NH_3), hydrogen sulfide (H_2S), odors, particulate matter (PM), and volatile organic compounds (VOC).

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Air Quality concepts continued

- Emissions from animal agricultural operations are difficult to estimate, making off-site air quality impacts difficult to predict. This is due to a number of variables including seasonal and daily weather patterns, species, type of housing, manure handling system, feed type and chosen production methods.

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Air Quality concepts continued

- Based on statewide ammonia emissions inventories, all sectors of animal agriculture account for more than 80% of the estimated ammonia emissions in Wisconsin.



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Air Quality concepts continued

- In addition to primary emissions, secondary air effects associated with animal agricultural emissions include PM_{2.5} or fine particulates (from NH₃) and increased nutrient loading to soils and waters (from NH₃ deposition) causing nitrification and eutrophication.



Air Quality concepts continued

- Retaining nitrogen (ultimately in the soil) as opposed to losing nitrogen via ammonia volatilization can provide economic benefit to farmers.
- We know Wisconsin farmers already implement air quality beneficial practices and production methods based on our 2010 work. How do you think we can generate more awareness of these BMPs?

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Thank You

Questions?

David Panofsky, P.E.
Air Management Engineer
Bureau of Air Management
(608) 267-2016
david.panofsky@wisconsin.gov