

Manure Irrigation Wisconsin Rules and Regulations

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What is Manure (Spray) Irrigation?

- NR 243.03(62): The application of liquid manure or process wastewater to cropland using equipment that discharges manure into the air via a single nozzle or multiple nozzles or hoses and disperses the manure over distances greater than could be achieved using typical moving vehicle or manure hauling equipment.

What is Manure Irrigation?

- Center Pivot Systems



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Photo by Mark Borchardt

What is Manure Irrigation?

- Center Pivot Systems



What is Manure Irrigation?

- Traveling Gun



Photo by Mark Borchardt

What is Manure Irrigation?

- Tanker with Nozzle(s)



Potential Benefits

- Timing of manure application
 - Surface and groundwater protection
 - Less risk for manure surface runoff
 - Reduce leaching below root zone
 - Reduce entry in drain tiles
 - Recycle water / manure treatment
 - More precise nutrient management
- Road safety and reduced road damage
- Farm management
- Economic benefits

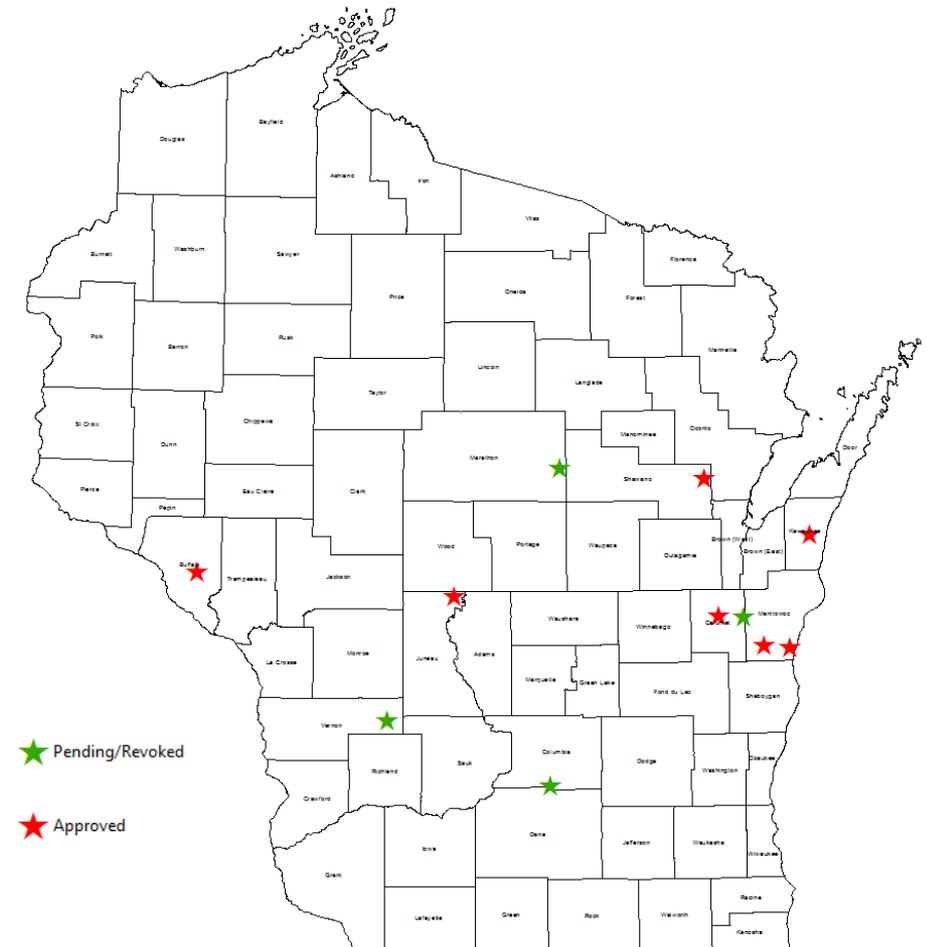


Potential Concerns

- Public health risk from airborne pathogens and other contaminants
 - Inhalation
 - Deposition on surface
- Drift or overspray
- Odor and air emissions
- Surface and groundwater contamination
- Implementation and compliance issues

Prevalence of MI at CAFOs

- 7 Approved
- 4 Pending or Temporarily Revoked
- WDNR does not track or regulate manure irrigation at non-CAFO farms.



590 Manure Irrigation Requirements

Current Manure Irrigation Setbacks for Farms with 590 NMPs		
<i>Restrictive Feature</i>	<i>Setback</i>	<i>Code Reference</i>
Community Public Water Supply Well	50 feet**	NRCS 590 V.A.2.(3)
Non-Community Water Supply Well	50 feet**	NRCS 590 V.A.2.(3)
Inhabited Dwelling	None	
Depth to Groundwater & Bedrock	None	
Direct Conduit to Groundwater*	200 feet**	
Navigable Waters & Conduits*	None	
Wetland*	None	

*Manure shall not be spread on these features.

**200 foot setback only required for upslope areas unless effectively incorporated within 72 hours.

CAFO Manure Irrigation Requirements

Current Manure Irrigation Setbacks for CAFOs		
<i>Restrictive Feature</i>	<i>Setback</i>	<i>Code Reference</i>
Community Public Water Supply Well	1000 feet	NR 214.14(1)(a)
Non-Community Water Supply Well	250 feet*	NR 214.14(1)(a)
Inhabited Dwelling	500 feet*	NR 214.14(1)(b)
Depth to Groundwater & Bedrock	5 feet*	NR 214.14(1)(c)
Direct Conduit to Groundwater	100 feet	NR 243.14(2)(b)8
Navigable Waters & Conduits	25-100 feet	NR 243.14(4)(a)
Wetland	25 feet	NR 243.14(4)(a)

*Greater setback compared to conventional application method.

CAFO Manure Irrigation Requirements

- Additional restrictions and limitations:
 - Ponding or runoff is prohibited,
 - Even distribution over the field,
 - Hydraulic application rate may not exceed 10,000 gallons per acre,
 - Operated in a load/rest cycle,
 - Annual soil testing requirements, and
 - Other conventional application requirements.

CAFO Manure Irrigation Requirements

- Other sections that give DNR authority:
 - Department may require reduced hydraulic application rates or grass buffer strips,
 - Department may restrict irrigation during times of the year (dormant or no crop established),
 - Department may require monitoring of BOD₅, TSS, forms of nitrogen, chloride, metals, or others pollutants,
 - Department may require the installation of a groundwater monitoring well system, and
 - Department may require more stringent requirements than what's in section NR 243.14.

Local Ordinances

Local Municipalities with a Manure Irrigation Ordinance				
<i>Local Government</i>	<i>County</i>	<i>Prohibited/CUP</i>	<i>Justification</i>	<i>URL</i>
Adams County	Adams	CUP	Public Health	http://www.adamscountylwcd.net/Ordinance_Spray_Irrigation.pdf
Town of Marshfield	Fond du Lac	Prohibited	Public Nuisance	http://townmarshfield.com/Files/Ordinances/Public_Nuisance_Manure.pdf
Town of Rosendale	Fond du Lac	Prohibited	Public Nuisance	http://sustainruralwisconsin.net/wp-content/uploads/2012/09/Ordinance-Amendment-Center-Pivots-Town-of-Rosendale-07-17-2012.pdf
Town of Lincoln	Kewaunee	Prohibited	Public Nuisance	http://s3.documentcloud.org/documents/1302564/lincoln-center-pivot-manure-irrigation-ban.pdf
Town of Bradford	Rock	CUP		
Town of Harmony	Rock	Prohibited	Public Nuisance	http://townofharmony.com/uploads/ckfiles/files/Section%204,%20Chapter%201,%20Zoning%20Districts%20%20(rev%20030314)%20calibri.pdf
Town of Johnstown	Rock	Prohibited	Public Nuisance	https://drive.google.com/viewerng/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFBbnx0b3dub2Zqb2huc3Rvd24xfGd4OjEzNmE1NDI3NGQ5ODBIzA
Town of Richmond	Walworth	CUP	Public Health	http://www.codepublishing.com/wi/richmond/
Town of Saratoga	Wood	Prohibited	Public Nuisance	http://www.saratogawisconsin.org/dbfiles/center%20pivot.pdf

This table is not all inclusive of local ordinances related to manure irrigation in the state of Wisconsin.

Manure Irrigation Plan (CAFO)

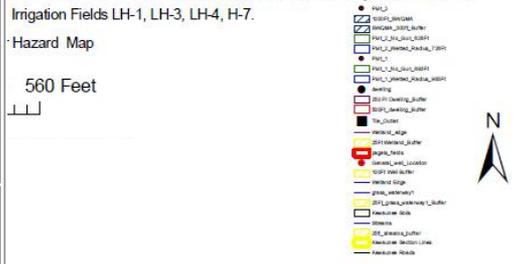
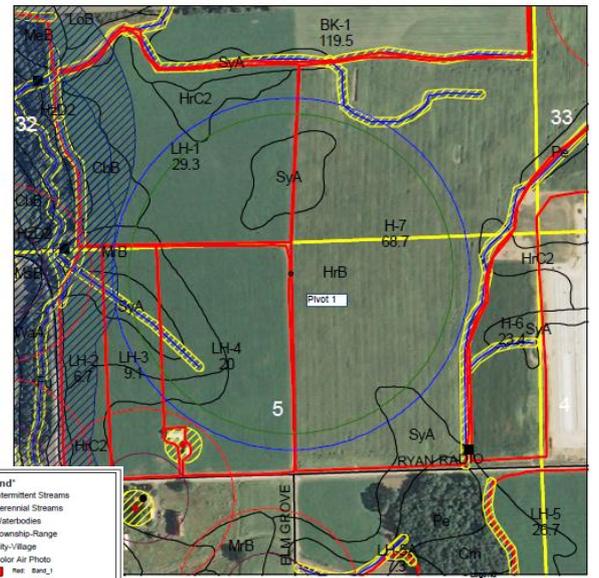
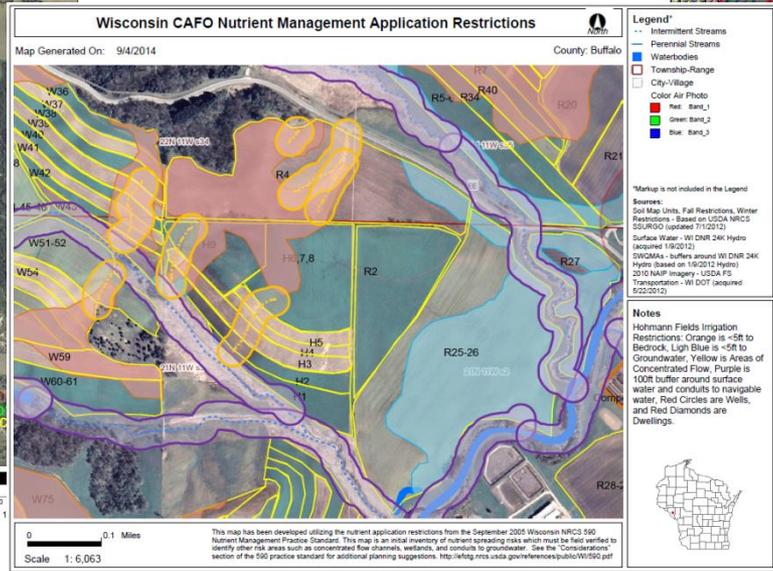
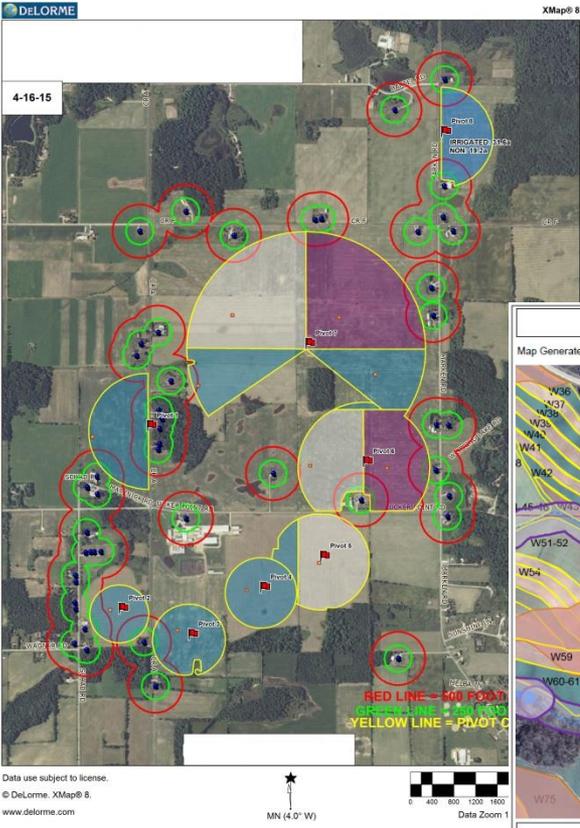
- If a CAFO wants to apply manure and/or process wastewater via irrigation they must develop a manure irrigation plan.
- The manure irrigation plan is part of the farm's NMP.
- A manure irrigation plan consists of.....

Manure Irrigation Plan (CAFO)

- Narrative / Questionnaire
 - Initially developed in April 2013.
 - May be revised once the Manure Irrigation Workgroup and Research is complete.
- Narrative covers:
 - Fields
 - Restriction Maps
 - Manure / Process Wastewater Characteristics
 - Equipment Design
 - Operation, Timing and Methods
 - Drift and Runoff Prevention
 - Response Actions for Drift / Runoff

Manure Irrigation Plan (CAFO)

- Restriction Maps



This map has been developed utilizing the nutrient application restrictions from the September 2005 Wisconsin NRCS 590 Nutrient Management Practice Standards. This map is an initial inventory of nutrient operating risks which must be field verified to identify other risk areas such as concentrated flow channels, wetlands, and conduits to groundwater. See the "Considerations" section of the 590 practice standard for additional planning suggestions. <http://efn14.nrcs.usda.gov/referencepublic/W590.pdf>

Manure Irrigation Plan (CAFO)

- Equipment Specifications
 - Typically this information comes from the manufacture.
 - Specs include:
 - Size of nozzle,
 - Operating pressures,
 - Droplet size,
 - Ability to operate the system in changing weather conditions,
 - Etc.

Manure Irrigation Plan (CAFO)

- Other Information:
 - Manure and process wastewater test results,
 - For manure sources planned to be used for irrigation.
 - Soil test results,
 - For fields proposed for manure irrigation only.
 - Photos of irrigation equipment.



Manure Irrigation Plan (CAFO)

- Department Review
 - Complete Manure Irrigation Plan is submitted to the Department.
 - Currently all plans are reviewed by Nutrient Management Program Coordinator (Joe Baeten).
 - An irrigation request is not a substantial revision.
 - Department denies or approves plan.
 - Approval is conditional.
 - Reporting requirements are done with the Annual Report and/or NMP Update.

QUESTIONS?

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