

Executive Committee
Board of Health
Land & Water Conservation Committee
Planning and Zoning Committee
Solid Waste Committee

January 30, 2023 Joint Meeting



Summary to Date

- 2021 to 2022- Development of Q&A document (80 pages) of questions to state agencies from elected officials and members of the public.
- July 2022 - Joint Committee Education session related to CAFOs and agriculture regulation
- Oct 2022 - Committee Review - worked with five committees to identify and focus on potential priority of potential focus
- Oct 2022 - Jan 2023 - Staff researched five action items as directed by committees
- Jan 2023 - Presentation of five action items for discussion and potential action of next steps

Action Items from Committees

Motions:

- Establish a process for LWCD to report on manure complaints.
- Research the County's authority on regulating high-capacity wells.
- Research on developing composting ordinances (manure & mortalities).
- Research aerial spreading of manure and other waste products.
- Research on developing a erosion control and stormwater ordinance(s)

Requests: more community outreach and education

Manure Complaints

Status: Task Completed

Manure Complaints

- LWCD created a manure complaint report (handout)
- Presented to Land & Water Committee - December 2022
- Reports will be presented to Land & Water Committee twice a year
- Only include complaints/issues with LWCD involvement
- 24 complaints in 6 years
 - 10 involving CAFOs, 14 not involving CAFOs
 - 13 of the 24: compliant with standards/rules
 - 11 of the 24: non-compliant with standards/rules
 - 8 - achieved compliance
 - 2 - working on compliance (DNR & County involved)
 - 1 - compliance handled by DNR

Manure Spills

- LWCD is sometimes involved – included on manure complaint report
- Emergency Management – receives manure spill reports from DNR
- Spill reports presented to Local Emergency Planning Committee
- 2017–2022: total of 10 manure spills
 - 4 included on LWCD manure complaint report
 - 9 are closed and 1 is still open (LWCD is working with farm)

Manure Complaints

- Land and Water Conservation Committee
 - reviewed report & was satisfied with ongoing plan for updates

High Capacity Wells

Status: Task Completed

High Capacity Well Regulation

Regulated by Wisconsin Statute section 281.34 and section 280.21. The Wisconsin DNR is the approval and enforcement authority. Counties have the authority to adopt an ordinance regulating private wells if such ordinance is in strict conformity with Wisconsin Statutes (section 280.21 Wis. Stats., and section 59.70 Wis. Stats.) However, this authority specifically excludes a County's ability to regulate high capacity wells. As a result, the DNR is the exclusive authority to regulate high capacity wells (NR 845.02)

High Capacity Well Regulation

PERMIT APPLICATION:

Department of Natural Resources is required to consider the environmental impact of a proposed high capacity well when presented with sufficient concrete, scientific evidence of potential harm to waters of the state; upon what evidence, and under what circumstances, that duty is triggered is a highly fact-specific matter that depends upon the information submitted by the well owner in the well permit application and any other information submitted to the DNR decision makers while they are reviewing that permit application. *Lake Beulah Management Dist. v. State Dept. of Natural Resources* (2011) 799 N.W.2d 73, 335 Wis.2d 47.

“Aerial Spraying” of Manure & Industrial Waste

Status: Ongoing- Additional Input Requested

Spray Irrigation

- Concern: aerosolization of contaminants that could cause health impacts
- Spray Irrigation Definition (State Admin Code NR 243)
 - Spray irrigation means 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.
- Request: use the term “spray irrigation” and not “aerial spraying”

Spray Irrigation of Industrial Waste

- Regulated by DNR
- Local authority to prohibit or require a license to conduct spray irrigation of manure using nuisance or public health as a basis

Spray Irrigation of Manure – What It Is

Center Pivot Systems



All photos from DNR presentation: Joe Baeten and Mark Borchardt

Spray Irrigation of Manure - What It Is

Traveling gun



All photos from DNR presentation: Joe Baeten
and Mark Borchardt

Spray Irrigation of Manure – What It Is Not

Liquid Manure Injection into Soil



Liquid Manure Surface Application



Solid Manure Surface Application

Manure Spray Irrigation - Benefits

- More effective crop fertilization
 - Irrigation typically done when crop is actively growing
- Reduced surface water & groundwater contamination
 - Longer time frame for application (during growing season)
 - Reduced application volumes
 - Increased nutrient uptake of plants
 - More holding capacity of upper soils
 - Reduced nutrient losses

Manure Spray Irrigation - Benefits

- Reduced groundwater contamination
 - Longer time frame for application
 - Reduced application volumes
 - Application during growing season
- Reduced manure vehicle trips on roads
 - Reduced vehicle emissions
 - Reduced wear and tear on roads
 - Increased road safety
- Increases flexibility for manure management

Manure Spray Irrigation - Concerns

- Groundwater quantity
 - Dilution of liquid manure with groundwater
 - But could reduce reliance of groundwater solely for irrigation
- Odors
- Airborne fine particulate matter and pathogens
- Emerging contaminants
- Human exposure leading to gastrointestinal illness

Microorganism Movement

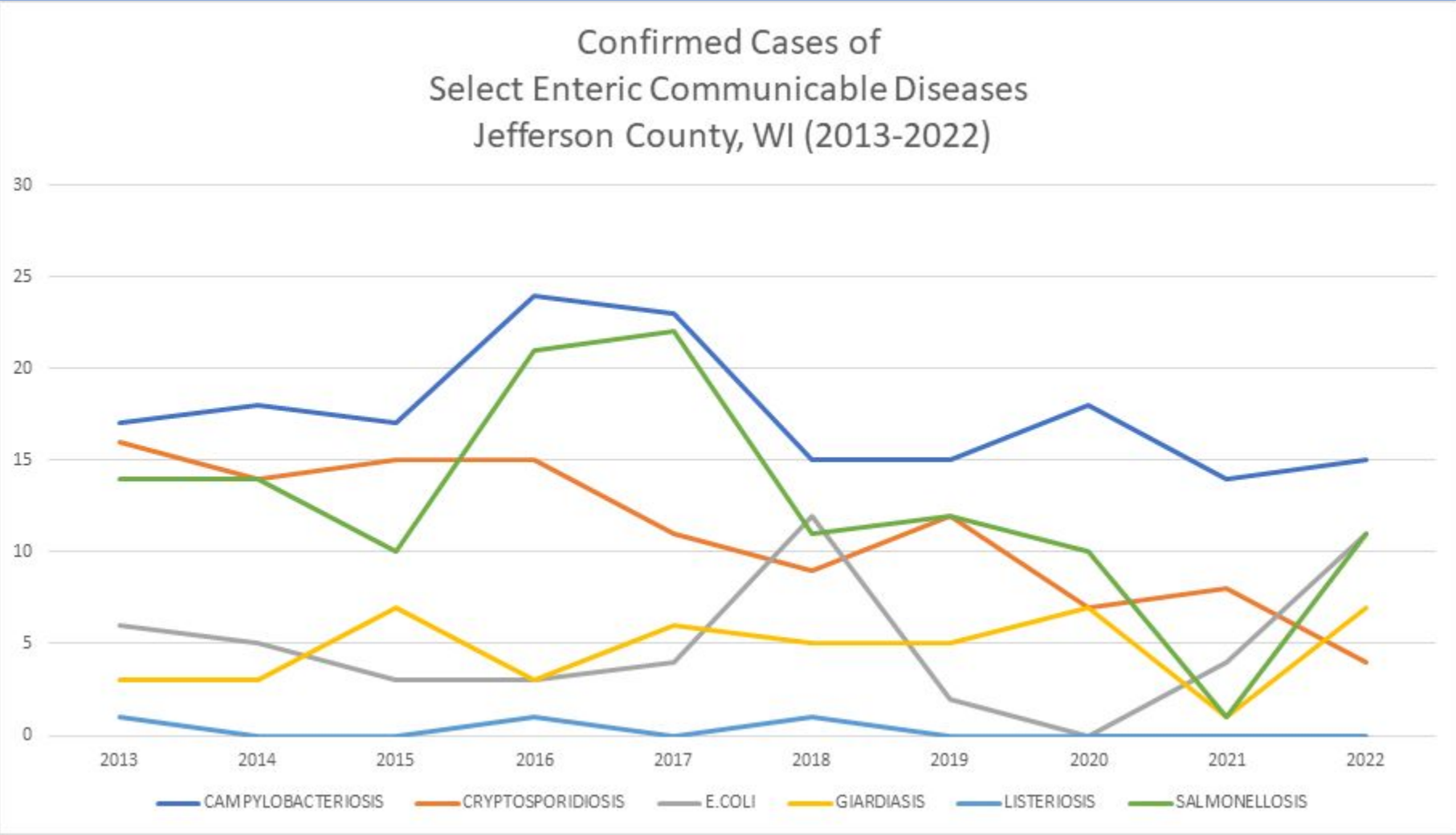
- Liquid is released from irrigation
- Liquid droplets settle to the ground or are aerosolized
- Once aerosolized, droplets are inactivated or taken by wind
- Exposure occurs from:
 - Inhalation or touching of the pathogens that have settled on objects which is then ingested
 - Garden food
 - Vector (insects or pets that were subjected to the released manure)

Zoonotic Pathogens causing Enteric Illness

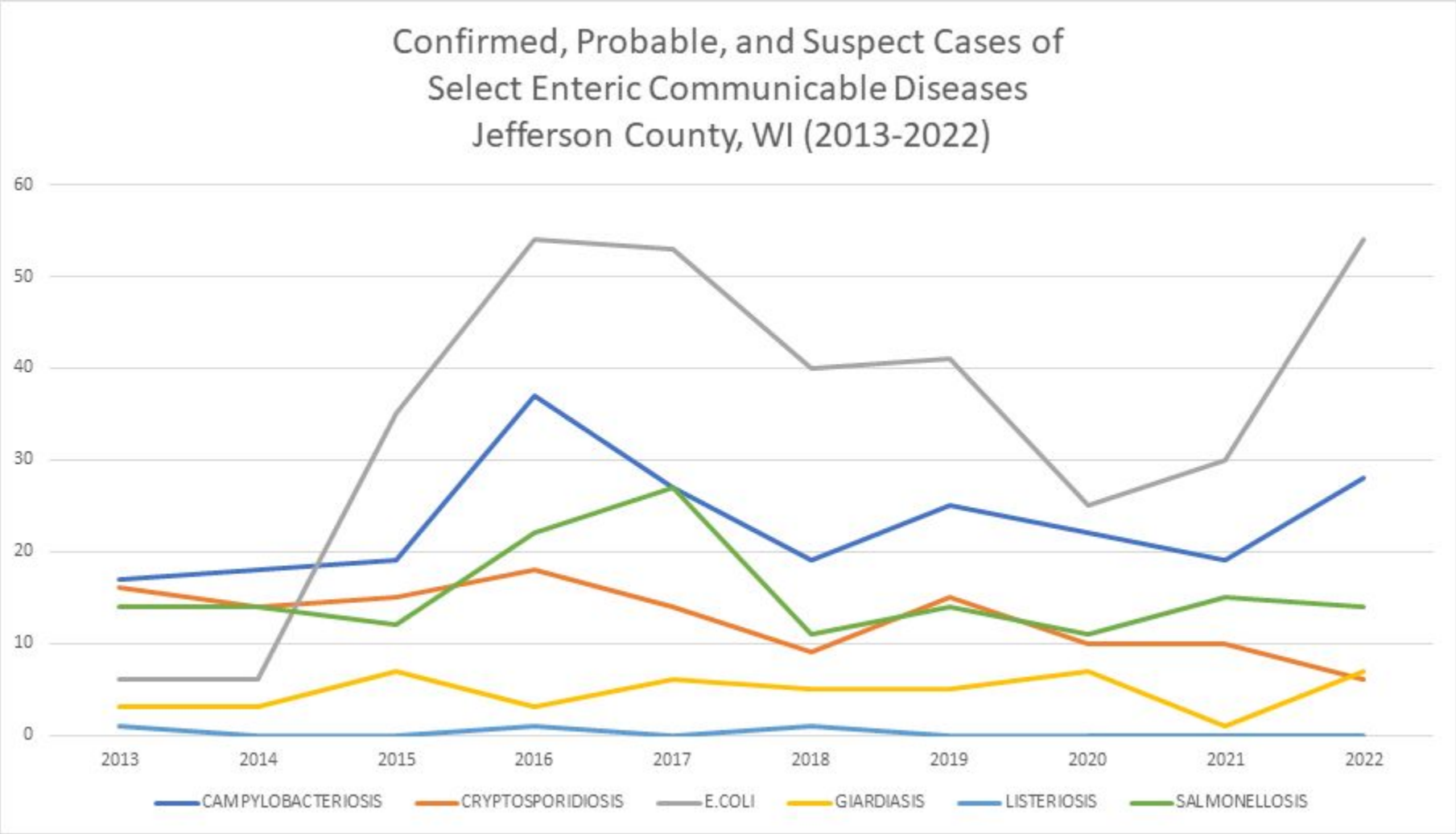
- *Campylobacter jejuni* (Campylobacteriosis)
- *Enterohemorrhagic Escherichia coli* (E. Coli)
- *Salmonella spp* (Salmonellosis)
- *Giardia lamblia* (Giardiasis)
- *Listeria monocytogenes* (Listeriosis)
- *Cryptosporidium parvum* (Cryptosporidiosis)

Enteric illness signs and symptoms include diarrhea, abdominal pain, fever, nausea, and vomiting which can progress to systemic infections

Jefferson County Communicable Disease Statistics



Jefferson County Communicable Disease Statistics



Communicable Disease Follow up

- Labs reports reviewed
- Risk/exposure period determined
- Data collected based on exposure period
- High-risk work environment assessment conducted
- Disease education provided
- Exclusion
- Follow-up/notification
- Surveillance and investigation of trends and outbreaks

Manure Spray Irrigation - Regulations

- Towns in Wisconsin
 - Most have no rules/ordinance associated with manure spray irrigation
 - Some prohibit use of center pivot
 - Some require conditional use permit
- Town of Ixonia
 - Only Town in Jefferson County with an ordinance
 - “The use of all center pivot manure distribution systems or other spray irrigation systems for the spreading of animal manure and lagoon wastewater and other liquid by-products of animal manure within the town is hereby prohibited.”

Manure Spray Irrigation - Regulations

- Counties in Wisconsin
 - Adams County – Conditional Use Permit (signage before/after irrigation)
 - Bayfield County – prohibits spray irrigation (sprinkler system, traveling gun, center pivot)
 - Kewaunee County – Conditional Use Permit
 - Require operation plan
 - Set standards on pressure, size of nozzles, height of nozzles
 - Operational standards related to drift, wind speeds, etc.
 - Application standards related to depth to bedrock
 - Setback guidelines - 500 feet with ability to be permitted for 250 feet from homes, occupied buildings, property lines of rec areas, schools, playgrounds
 - Record keeping

Manure Spray Irrigation - Regulations

- State Rules - All Farms
 - Nutrient Management Plan Standard 590
 - No manure applications in certain sensitive areas
 - Setbacks from wells (50-1,000 ft), depth to groundwater & bedrock (1-1.7 ft), direct conduit to groundwater (50-300 ft), navigable waters & conduits (300-1,000 ft, 0 ft as long as certain practices followed)
- State Rules - Farms $\geq$ 1,000 Animal Units (CAFOs)
 - Nutrient Management Plan = 590 + additional regulations (NR 243, NR 214)
 - Setbacks from wells (100-1,000 ft), inhabited dwelling (500 ft), depth to groundwater & bedrock (5 ft), direct conduit to groundwater (100 ft), navigable waters & conduits (25-100 feet as long as certain practices followed), wetlands (25 ft)

Manure Spray Irrigation - Regulations

- Manure Irrigation Plan for CAFOs
 - Narrative/Questionnaire
 - Irrigation Specific Restriction Maps
 - Drift Monitoring Log
 - Equipment Specifications
 - Manure and/or process wastewater characteristics (test results)
 - Soil test information for fields planned to be used for irrigation

Manure Irrigation Airborne Pathogen Health Risk Assessment Study

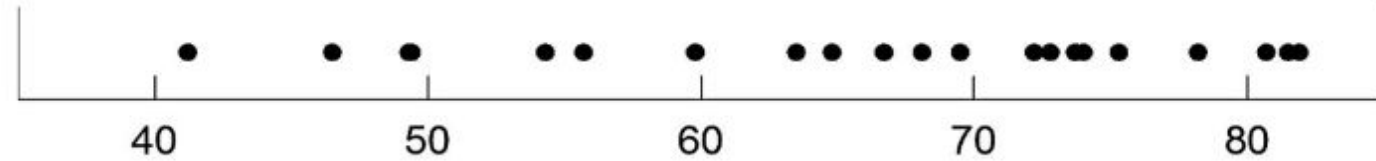
Focus: To identify the relationship between risk of gastrointestinal illness from zoonotic pathogens and the relationship of risk according to distance from irrigation device

- Multi-year study (2012-2014)
- 23 separate irrigation events on 3 different dairy farms in Wisconsin
- Downwind testing done at 100, 200, 350, 500, and 700 ft.
- Recorded meteorological data to evaluate relationships
- Bovine Bacteroides and Gram Negative Bacteria were tested as surrogates

Article linked [here](#)

Weather Conditions during Manure Irrigation Trials

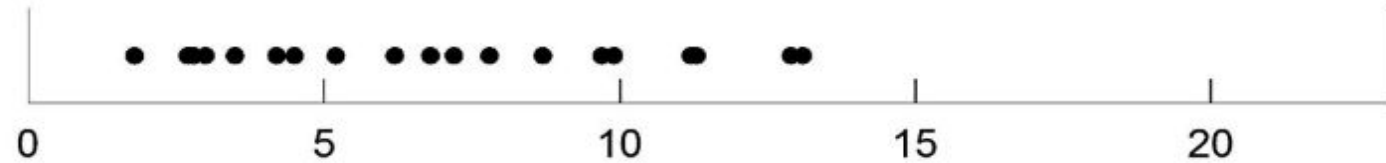
Mean
temperature (°F)



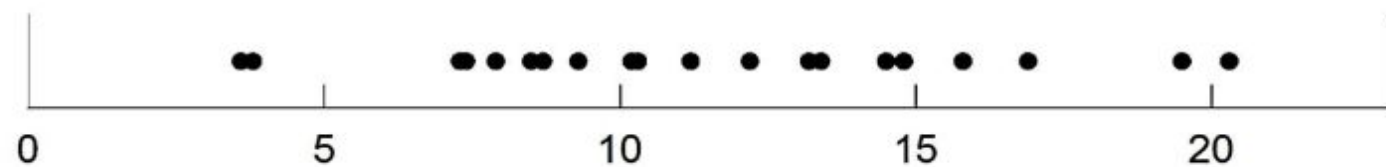
Mean relative
humidity (%)



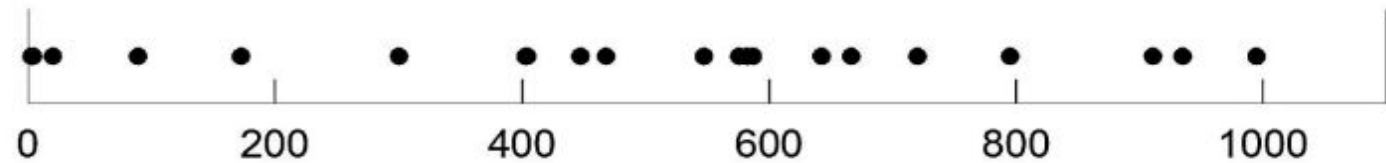
Mean wind
speed (MPH)



Max wind
speed (MPH)



Mean solar
irradiance (W/m²)



Study Findings

Risk depends on pathogen type, prevalence, downwind distance, and number of irrigation events

- Further the distance, lower the risk
- Faster the wind speed, greater concentration of organisms downwind
- Higher sunshine levels, decreased risk (higher killing rate)
- Initial concentration of microorganisms in manure plays factor
- Pathogen air concentrations downwind from manure irrigation depend on wind speed, pathogen concentrations in manure, and distance

Risk 500 feet down wind is on the order of 1 in 100,000 to 1 in 100 per event

Wisconsin Manure Irrigation Workgroup

- Citizen concerns led the UW-Madison and UW-Extension to develop a workgroup with broad representation to review issues associated with manure irrigation and develop guidance and recommendations.
- Considered findings in human health risk from aerial manure irrigation report.

Wisconsin Manure Irrigation Workgroup Report

- Consensus Recommendations on Operating Parameters
 - steps to minimize drift & ensure no overspray
 - supervise/control equipment
 - determine relevant weather info (wind speed & direction, temperature)
 - prevent backflow to water source
 - no human waste/septage is added
 - drop nozzles on center pivot
 - nozzles & operating pressures set for larger droplets

Wisconsin Manure Irrigation Workgroup Report

- Near Consensus Recommendations on Setbacks

- Setback is distance from wetted perimeter of irrigation to item
- Public forest with no recreational access = 0 ft (consensus)
- Private forest = 0 ft
- Pastureland = 0 ft
- Cropland owned by others = 0 ft
- Road Right of Way = 0 ft
- Public rec area, school, playground property line = 100 ft if wind $\leq$ 10 mph & wind is parallel or away from property
- Dwelling or occupied building = 500-750 ft depending on wind speed/direction (current CAFO requirement = 500 ft)

Manure Spray Irrigation – Jefferson County

- Contacted several CAFOs in Jefferson County
 - None currently use the practice
 - Some want it as an option
 - Some willing to be on a solution-based work group
- Notes
 - High initial cost of irrigation equipment
 - High cost of solid separation equipment (sand bedding)

Considerations for Possible Ordinance

- Staffing and implementation
 - Revenues would be obtained from permit fees
 - All expenses would not be covered by permit revenues
 - More detailed analysis would need to be completed on cost of implementation - including possible additional staff

Manure Spray Irrigation

- Joint Committee Input or Additional Action
 - Should staff continue to do research, and if so what areas?
 - Should the County regulate?
 - If the County regulates, what should they regulate?
 - If the County regulates, how should they regulate?

Manure & Animal Mortality Composting

Status: On-going - Additional Input Requested

Manure & Animal Mortality Composting

Regulated under NR 502 Wisconsin Administrative Code and section 243 Wis. Stats. (Wisconsin Pollution Discharge Elimination System).

Manure Composting - subject to DNR regulation and local ordinances regulating manure storage and shoreland and flood-plain zoning (NR 502.12(4))

Animal Mortality Composting - Regulated by DNR under NR 502.12(4)

Manure & Animal Mortality Composting

- Input from a few farms
 - Farms contract with rendering company to pick up mortalities
 - Only 1 rendering company in area
 - One farm shared cost for mortality pick up: over \$40,000/yr
 - DNR is encouraging farms to consider mortality composting because rendering company may not be an option in the future

Manure & Animal Mortality Composting

- Regulation by State (NR 243) for CAFOs
 - Animal carcasses may not be disposed of in a manner that results in:
 - discharges pollutants to surface water
 - violates of groundwater standards
 - impairs wetland function values
 - Carcasses may not be disposed of in liquid manure or process wastewater storage
 - Carcass storage or treatment facility must be adequately designed to contain and treat carcasses
 - Carcass storage or treatment facility must be approved by the DNR

Manure & Animal Mortality Composting

Joint Committee Input or Additional Action

- Is the concern having to do with composting or with catastrophic mortality?
- What type of composting is a concern? Does it depend on size or type (residential/backyard, business, farm manure, farm mortalities, farm catastrophic mortalities)?
- We need to do additional research including legal authority to regulate.

Erosion Control Ordinance Stormwater Management Ordinance

Status: Research Ongoing - Additional Input Requested

Stormwater and Erosion Control Ordinance

- Reviewed Surrounding Counties (Walworth, Rock, Dodge and Waukesha)
 - All have applicable ordinances
 - Generally, all follow DNR model ordinances. Each County has similarities and differences
- Reviewed Cities within Jefferson County
 - Have ordinances and differ due to municipal stormwater systems
 - Some implementation by city staff, but most work completed by consultant

Stormwater and Erosion Control Ordinance

- Reviewed Towns and Local Building Inspectors
 - Towns do not implement either ordinance
 - Town Building Inspector may regulate Erosion Control with the Town Building Code Permit
 - Only reviewed if a Town Building Permit is required and it is in the Building Inspector's contract
 - Local building inspector believes County ordinances would be preferred
- Some Towns have voiced concerns about lack of erosion control and stormwater management during development

Erosion Control

- What is Erosion Control?
 - Construction Site Erosion and Sediment Control
 - Construction Site: means an area of land disturbing construction activities
 - Erosion and Sediment Control Plan: means a comprehensive plan developed to address pollution caused by erosion and sedimentation of soil particles during construction

Stormwater Management

- What is a Stormwater Management Plan?
 - Post-Construction Stormwater Management
 - Post Construction Site: means construction site following the completion of land disturbing activities and final site stabilization
 - Stormwater Management Plan: means a comprehensive plan designed to reduce the discharge of pollutants from stormwater, after the site has undergone final stabilization

Purpose of Regulating Erosion Control and Stormwater

- Purpose and Goals:
 - Reduce and control runoff and soil erosion during land disturbing activities
 - Protect water resources from sedimentation
 - Prevent pollutants from discharging into the water of the State
 - Control and treat runoff and stormwater from developed sites
- It is estimated that construction site erosion is 10 times greater per acre than cropland erosion
- On average, an acre of construction with no erosion control delivers as much sedimentation at 75 acres of cropland

Wisconsin Regulations

- Wi Stat 59.693: Construction site erosion control and stormwater management zoning
 - Allows County to adopt ordinances for all unincorporated areas of County, unless Town already regulates SW or EC
 - Ordinance would regulate Towns, not Cities or Villages
- Wi Stat Chapter 281: Water and Sewage
 - In-depth regulation of SW and EC
 - State erosion control and stormwater permitting minimum standards

Wisconsin Regulations

- 281.33(3m): County may enact an ordinance regulating the conduct related under this section only if the ordinance strictly conforms with the uniform statewide standards established
- County may adopt more restrictive regulations to control storm water quantity and flooding or to comply with federally approved TMDL (DNR guidance)
- DNR provides model ordinances
 - [ModelOrdinances.pdf \(wi.gov\)](#)

DNR Model Ordinances and Surrounding Counties

- Surrounding Counties utilize the DNR model Ordinances as a starting point
 - Rock County
 - Stormwater ordinance plans for a larger storm event (100 year) rather than 1, 2, 5 or 10 year event due to flooding concerns
 - Drastically increases the size of the retention areas required
 - Interprets agricultural exemptions only for agricultural practices (planting, grazing, etc.) and continues to regulate agricultural construction
 - Walworth County
 - Different permits required for different types of projects (single family, small disturbance, large disturbance, etc.)
 - Waukesha County
 - Requires financial assurance (bond, cash, etc.) be provided as part of permitting process

Examples of when permits are required

- Erosion Control
 - Permits are required for any development or ground disturbing activities
 - Ex: Permit required for 1,000 sq. ft. of disturbance
- Stormwater Management
 - Permits are required when a larger development is proposed, or a larger amount of land is disturbed
 - Ex: Subdivision development or more than ½ of acre is disturbed
- DNR Permits are required when construction projects disturb one or more acres of land
 - Some agricultural activities are exempt from DNR permitting, but agricultural construction projects are not

Agricultural Exemptions

- Model Ordinances:
 - Agricultural Exemptions: “agricultural facility” and “agricultural practice” are exempt from permitting requirements
 - “Agricultural facility” means a structure associated with an agricultural practice
 - “Agricultural practice” means beekeeping; commercial feedlots; dairying; egg production; floriculture; fish or fur farming; grazing; livestock raising; orchards; poultry raising; raising of grain, grass, mint and seed crops; raising of fruits, nuts and berries; sod farming; placing land in federal programs in return for payments in kind; owning land, at least 35 acres of which is enrolled in the conservation reserve program under 16 USC 3831 to 3836; and vegetable raising.
 - May be able to regulate agricultural development (building, construction, etc.), but not agricultural practices

Legal Authority General Rule – Local governments have limited authority to impose requirements on siting CAFOs per Wis. Stat. §93.90(3)(a).

The legislature expressly withdrew, with limited exceptions, the power of political subdivisions to enforce livestock facility siting standards, to disapprove livestock facility siting permits, and to condition the grant of a livestock facility siting permit on any requirement other than the state standards.

- DNR has the statutory authority to regulate and impose conditions on CAFOs

What Authority Does the County Have?

- Regulate roads such as setting weight limits for vehicles travelling on roads and enacting ordinances penalizing individuals or organizations from leaving manure on the road.
- May enact more stringent local standards which must be based on reasonable and scientifically defensible findings of fact, adopted by the local jurisdiction, which clearly show that the standard is necessary to protect public health or safety
- Zoning ordinances/regulations - CAFOs can only be located in the proper zoning district (A1) • Right to Farm limits county's authority to regulate certain violations.

Considerations for Implementation

- Staffing and implementation
 - Revenues would be obtained from permit fees
 - All expenses would not be covered by permit revenues
 - Realistic permit fees
 - Surrounding counties note that permit revenues do not cover all expenses
 - More detailed analysis would need to be completed on cost of implementation

Considerations for Implementation

- Total number of permits issued in 2022 by Department
 - Sanitary/Septic Permits - 151
 - Zoning and Land Use Permits - 588
- Estimated Number of Permits Requiring Erosion Control and Stormwater Permits
 - Erosion Control
 - Majority of permits issued would require erosion control = 500 - 550
 - Stormwater Permits
 - Assume single family homes and business/industrial require permits = 80

Questions and Considerations

- Do we want to proceed with developing Erosion Control and Stormwater Ordinances?
 - If so, do we adopt the DNR model ordinances or review more restrictive provisions?

Questions and Considerations

- What do we want to regulate?
 - What is threshold that triggers permitting requirements?
 - Erosion Control:
 - All land disturbing activities?
 - Larger than a specific square footage?
 - Located near environmentally sensitive area? (steep slopes, wetland, waterways, etc.)
 - Stormwater Management:
 - All land disturbing activities?
 - Larger than a specific square footage?
 - Located near environmentally sensitive area? (steep slopes, wetland, waterways, etc.)
 - Surrounding Counties: permitting is trigger by size of disturbance, type of development, location, etc.

Community Outreach and Education Request

Status: Ongoing- Additional Input Requested

Community Education and Outreach

- Education provided to all affected Highly Pathogenic Avian Influenza affected farms and employee health monitored
- Educational resources created and dispersed by state agencies
- Educational resources developed by Health Department
- Outreach plan developed

Community Outreach and Education

Joint Committee Input or Action?

Next Steps Slide

- Any additional questions?
- Any additional staff work needed?
 - Involvement of stakeholders
- What are potential priorities?
- Specific committee assignments/policy considerations?