Manure Systems

Operation

Can control many pieces on the system:
- Speed of travel
- Pressure
- Nozzle type
- End gun shut off
- Computerized systems which detect wind speed, etc.
- More specialized application
Drift

- Aerial movement of liquid outside the intended application area
- Different than overspray
- Concerns for surface waters, residences, public areas, other crops, etc.
- No regulations for other manure application methods
- Drift from manure irrigation can be minimized by:
  - Maximizing droplet size
  - Minimizing release height (e.g., drop nozzles)
  - Minimizing wind speeds
  - Using barriers (e.g., tree lines)

Odor

- Odor perception is variable
- Manure odors can be from 300+ compounds
- Great citizen concern for odors produced
- Odor will be generally be greater for manure irrigation systems compared to other application methods
- Odor mitigation
  - Dispersion (winds greater than 5mph)
  - Edge of field barriers
  - Consideration of neighbors
  - Proximity to receptors
  - Manure processing
  - Large droplets

Water Quality

- Concerns for runoff and impact to groundwater
- May decrease runoff and leaching due reduced volume applied for each application period
- Need to apply to current regulations including NRCS CPS 590
- Issues with compliance/monitoring and enforcement

http://passel.unl.edu/pages/informationmodule.php?idinformationmodule=1088801071&topicorder=14&maxto=16

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http://articles.extension.org/pages/21819/chronological-webcast-archive
Air Quality

- Issues of concern include
  - Particulate matter
  - Greenhouse gas emissions
  - Hazardous air pollutants (including ammonia and hydrogen sulfide)
- OSHA Occupational Standards and Wisconsin Ambient Air Standards
- Field concentrations of many hazardous air pollutants are below standards (more of a concern at the farmstead near the manure storage)
- Mitigation techniques
  - Edge of field barriers
  - Large droplets
  - Low release height

Application Timing

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<th>Month</th>
<th>March</th>
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<th>June</th>
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Manure Applications with Conventional Methods

- 4" Tunnel: 2 per year
- 2" Tunnel: 2 per year

Manure Applications with Conventional Methods & Irrigation

- 4" Tunnel: 2 per year
- 2" Tunnel: 1 per year

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