South Dakota Overview
Multi-State CNMP Symposium
November 30 – December 1, 2010

• State Characteristics
• Engineering Practices
• CNMP Planning and Implementation
• Partnerships
• EQIP for animal agriculture
• State Permit Facts and requirements

USDA is an Equal Opportunity Provider and Employer
## South Dakota Agriculture Characteristics
*(SD Agricultural Statistics Service)*

<table>
<thead>
<tr>
<th>Animal Type</th>
<th>State Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle and Calves (Inventory)</td>
<td>8</td>
</tr>
<tr>
<td>Hogs and Pigs (Inventory)</td>
<td>11</td>
</tr>
<tr>
<td>Turkeys (Inventory)</td>
<td>12</td>
</tr>
<tr>
<td>Milk and Other Dairy Products (Sales)</td>
<td>24</td>
</tr>
<tr>
<td>Layers (Inventory)</td>
<td>29</td>
</tr>
</tbody>
</table>
• Average Farm Size: 1,387 acres
South Dakota Agriculture Trends
(SD Agricultural Statistics Service)

SOUTH DAKOTA MILK COW INVENTORY
AS OF JANUARY 1

Thou. Head

Source: USDA-NASS South Dakota Field Office - January 2010
South Dakota Agriculture Trends

(SD Agricultural Statistics Service)

SOUTH DAKOTA MILK PRODUCTION
(ANNUAL)

Source: USDA/NASS - South Dakota Field Office - March 2009
NRCS Practices for a AWMS

- Waste Storage Facility (313)
- Sediment Basin (350)
- Diversion (362)
- Waste Transfer (634)
- Fence (382)
- Critical Area Planting (342)
- Nutrient Management (590)
- Windbreak/Shelterbelt (380)
- Vegetated Treatment Area (VTA) (635)
- Animal Mortality Facility (316)
TYPICAL BEEF FEEDLOT CONTAINMENT SYSTEM IN SOUTH DAKOTA

Holding Pond

Sediment Basin

Clean Water Diversion
Animal Waste Management Systems

- Open Feedlot
- Sediment Basin
- Dairy Barn
- Holding Pond for Dairy Barn Manure
- Holding Pond for Open Feedlot Runoff
- Open Feedlot
Vegetative Treatment Systems (VTS)
Good Alternative for Smaller Operations
Vegetative Treatment System (VTS) for 450 head

Sediment Basin to Stop/Store Solid Manure

Vegetated Treatment Area (VTA) to Filter Runoff Water
Mono-Slope Metal Buildings and Hoop Barns are Both Viable Options
Deep Pit Concrete Storage
Mortality Composting Facilities
CNMP Planning and Implementation
Current Format & Elements Included in SD Comprehensive Nutrient Management Plans (CNMP)

1. Manure Handling and Storage
2. Nutrient Management
3. Record Keeping
4. Land Treatment Practices
5. Feed Management
6. Other Options
SD Comprehensive Nutrient Management Plans (CNMP)

- Software used for NMP is the SD-CPA-63 “Nutrient Management Tool” which was developed in house by NRCS, SDSU, & DENR
SD Comprehensive Nutrient Management Plans (CNMP)

- CNMP’s are created within an electronic workbook to save time and improve consistency. Once completed, they are stored electronically on each FO F:Drive.
CNMP Philosophy in SD

• Make the CNMP easy to understand and user friendly and producer’s & agencies will be much more likely to actually use them (and not just as a door stop).
SOIL SAMPLING
Follow SDSU Guidelines
0-6” N,P,K + 6-24” for Nitrate
Manure Sampling
Spreader Calibration
Proper Application Is Very Important!
LAND TREATMENT; Need more filter strips, waterways, etc...
Land Treatment Options
(Filter Strips; CRP Big Asset in SD)
Cover Crops (Prevent Nutrient Loss, Improve Soil Quality, Provide Forage!!!)
Lakes, Rivers, Streams, Conveyances, Non-Cropped Wetlands = 100’ setback or 35’+ grass filter strip
Economics of Manure ($219 Worth of Nutrients / Load!!!!!!)
• **Manure Sampling Grant** – Goal is to encourage producers to sample manure and then set rate according to yield goal, manure analysis, and soil test. We pay for manure analysis.
Partnerships in South Dakota

- Producer Hired Technical Service Providers: Over 175 animal waste projects designed and constructed since FY 2005
- SD NRCS Animal Nutrient Management Team: Co-Funded through NRCS and the SD Association of Conservation Districts to complete animal waste engineering designs and nutrient management plans
- 319 Watershed Projects: Funding of small and medium animal waste projects (usually co-funded with NRCS EQIP funding) in targeted watershed areas
Members of the SD Agricultural Nutrient Management Team

Jay Cobb
NRCS
State Engineer

John Lentz
NRCS
Resource Conservationist

Joy Cordier-Jensen
NRCS
Civil Engineer

Justin Bonnema
NRCS
Agricultural Engineer

Tom Schumacher
ACES
Soil Specialist

VACANT
NRCS
Agronomist

VACANT
SDACD
Agronomist
NRCS EQIP funding

- In Fiscal Year 2010, the Waste Storage Facility (313) practice payment (cost share) for open feedlots was:
  - For less than 500 animal unit sites: regular payment = $110 per animal unit (au), historically underserved payment = $130 per au
  - For 500 – 1,000 animal unit sites: regular payment = $80 per au, historically underserved payment = $90 per au
  - For greater than 1,000 animal unit sites: regular payment = $60 per au, historically underserved payment = $70 per au
NRCS EQIP funding

• In Fiscal Year 2010, the Vegetated Treatment Area (635) practice payment (cost share) for was:
  ➢ For leveled VTAs: regular payment = $2,500 per acre, historically underserved payment = $3,000 per acre
  ➢ For non-leveled VTAs: regular payment = $1,600 per acre, historically underserved payment = $2,000 per acre
  ➢ For sprinkler VTAs: regular payment = $7,700 per acre, historically underserved payment = $9,200 per acre
NRCS EQIP funding

• On animal waste projects, the producer also can receive practice payments (cost share) for the following practices:

  - Sediment Basin (350)
  - Diversion (362)
  - Waste Transfer (634)
  - Fence (382)
  - Critical Area Planting (342)
  - Windbreak/Shelterbelt (380)
  - Animal Mortality Facility (316)
South Dakota DENR’s Animal Feeding Operation Regulations

SD DENR Permitted CAFOs - July 1, 2010

- 40 Mature Dairy Cattle - 77,141 head
- 156 Beef and Other Cattle - 489,103 head
- 113 Swine - 542,342 head
- 6 Poultry - 4,074,500 head
- 64 Multi Animals - 3,198,688 head
- 18 Livestock Auctions
- 3 CAFOs Located in Another State with Land Application Areas in SD

400 Total Permits
The mission of the Department of Environment and Natural Resources is to protect public health and the environment by providing natural resources assessment, financial assistance, and regulation in a manner that promotes a successful business climate and exceeds the expectations of our customers.

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Feedlot Group
Regulatory Program

1. State Laws
2. Financial Assistance for Existing Operations
3. General Permit
1. State Laws

- SDCL 20-9-30. Livestock owners - Control by another person
- SDCL 34A-2B-2. Environmental livestock cleanup fund - Sources of funding
- SDCL 1-40-27. Rejection of applications for certain environmental protection, mining, oil and gas permits
1. State Laws

- SDCL 1-40-38. Promulgation of rules governing inspection of certain concentrated animal feeding operations
- SDCL 34A-3A-24. Certain animal feeding operations prohibited from locating over shallow aquifer
- SDCL 34A-2-36.2. Permit for concentrated animal feeding operations.
- SDCL 34A-2-125. Fee on certain concentrated animal feeding operations.

http://legis.state.sd.us/statutes/index.aspx
2. Financial Assistance for Existing Operations

Efforts that provided financial assistance to existing operations to help them get permitted by September 30, 2005:

- DENR and Department of Agriculture awarded more than $1.13 million cost share to complete 125 manure management system designs;
- Since livestock auctions not eligible for USDA funding, DENR set aside $2.5 million to assist them.
3. General Permit

• October 20, 2003 – the current general permit incorporating the new state rules was effective

• 2008 - DENR administratively extended general permit

• Permit can be found at:
  http://denr.sd.gov/des/sw/IPermits/AllAnimalGPermit.pdf
Permit Requirements

• Location Standards
• Containment Structure Design Requirements
• Surface Water Protection
• Ground Water Protection
• Nutrient Management Plan
• Training and Education
• Producer Inspection and Reporting Requirements
Nutrient Management Planning

- Initial Plan
- Annual Plan
<table>
<thead>
<tr>
<th>Soil Test Phosphorus ppm</th>
<th>Soil Loss – Erosion, Sheet and Rill Number (Tons per Acre)</th>
<th>Greater than 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less than 4</td>
<td>4 to 6</td>
</tr>
<tr>
<td></td>
<td>100 Foot Vegetated Buffer</td>
<td>100 Foot Vegetated Buffer</td>
</tr>
<tr>
<td>Olsen Bray-1</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>0-25</td>
<td>Nitrogen need</td>
<td>Nitrogen need</td>
</tr>
<tr>
<td>26-50</td>
<td>Nitrogen need</td>
<td>Nitrogen need</td>
</tr>
<tr>
<td>51-75</td>
<td>Nitrogen need</td>
<td>Phosphorus crop removal</td>
</tr>
<tr>
<td>76-100</td>
<td>Phosphorus crop removal</td>
<td>Phosphorus crop removal</td>
</tr>
<tr>
<td>Greater than 100</td>
<td>Greater than 150</td>
<td>No application</td>
</tr>
</tbody>
</table>

¹Phosphorus crop removal is the amount of phosphorus a crop removes in a one year crop rotation.
Initial Nutrient Management Plan

- Requires an estimate of years it will take to raise each field to a phosphorus soil test level over 50 ppm using Olsen test and 75 ppm using Bray-1 test
Annual NMP
Soil and Manure Testing

- 0-2 foot soil samples from all fields
- 2-4 foot samples also from fields over shallow aquifers or pre and post harvest 0-2 foot sampling
O&M Inspections

- Current Animal Population
- Copy of Permit & NMP
- Soil Samples
- Manure Samples
- Rate Calculations / application records
- Inspection records
- Precipitation records
- Site observation
Common Problems Found During Inspections

- Over application
- Applying to land not in NMP
- Missing records
- Improper or incorrect rate calculations
- Not communicating the calculated application rate to applicator
- Pond maintenance issues, mowing and being able to locate markers
Goal is to prevent water pollution!
For more information contact DENR at (605) 773-3351