

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

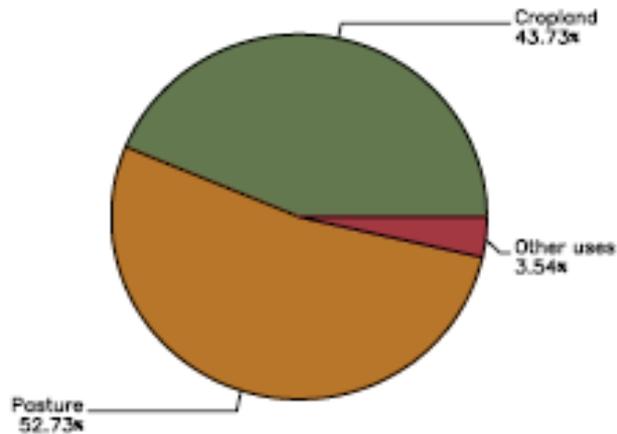
(SD Agricultural Statistics Service)

Animal Type	State Rank
Cattle and Calves (Inventory)	8
Hogs and Pigs (Inventory)	11
Turkeys (Inventory)	12
Milk and Other Dairy Products (Sales)	24
Layers (Inventory)	29

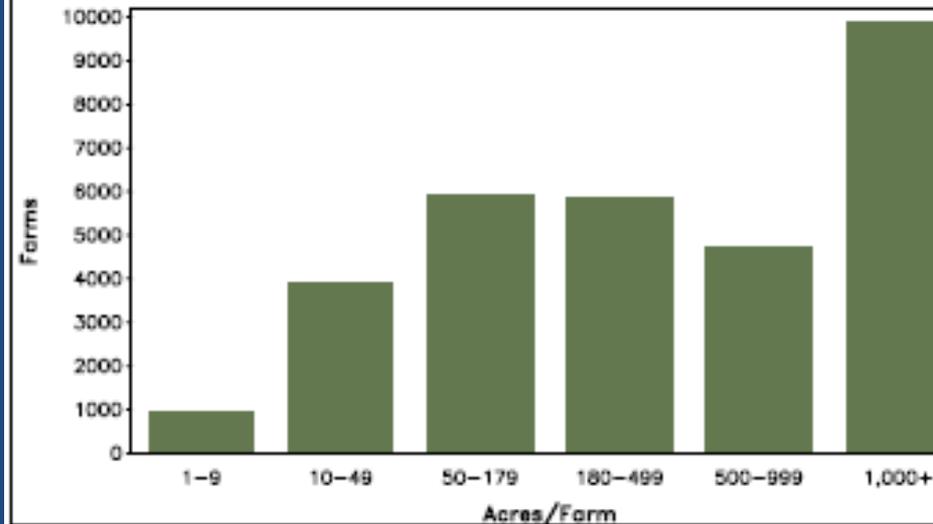
South Dakota Agriculture Characteristics

(SD Agricultural Statistics Service)

Land in Farms
by Type of Land



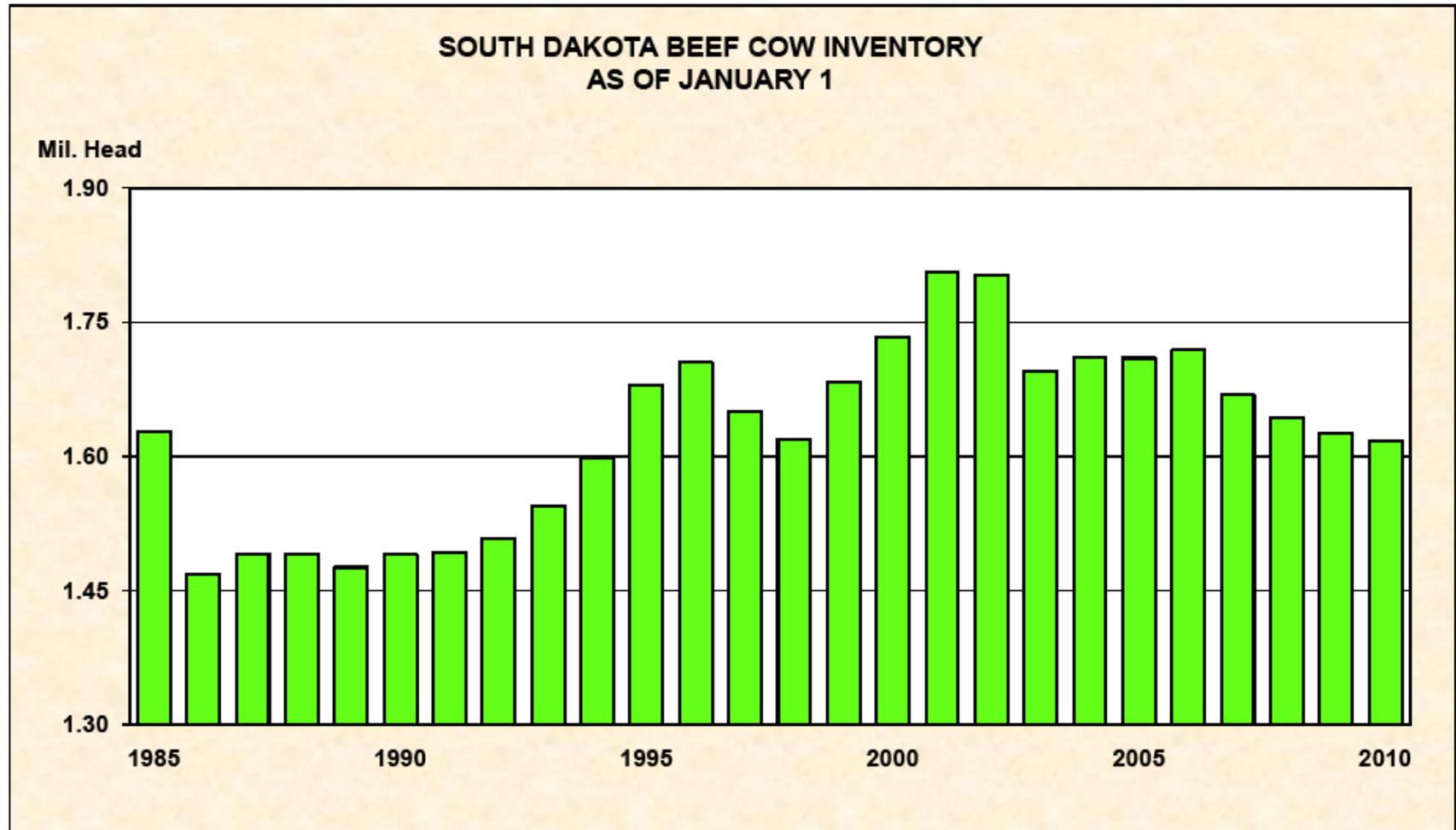
Farms by Size



- Average Farm Size: 1,387 acres

South Dakota Agriculture Trends

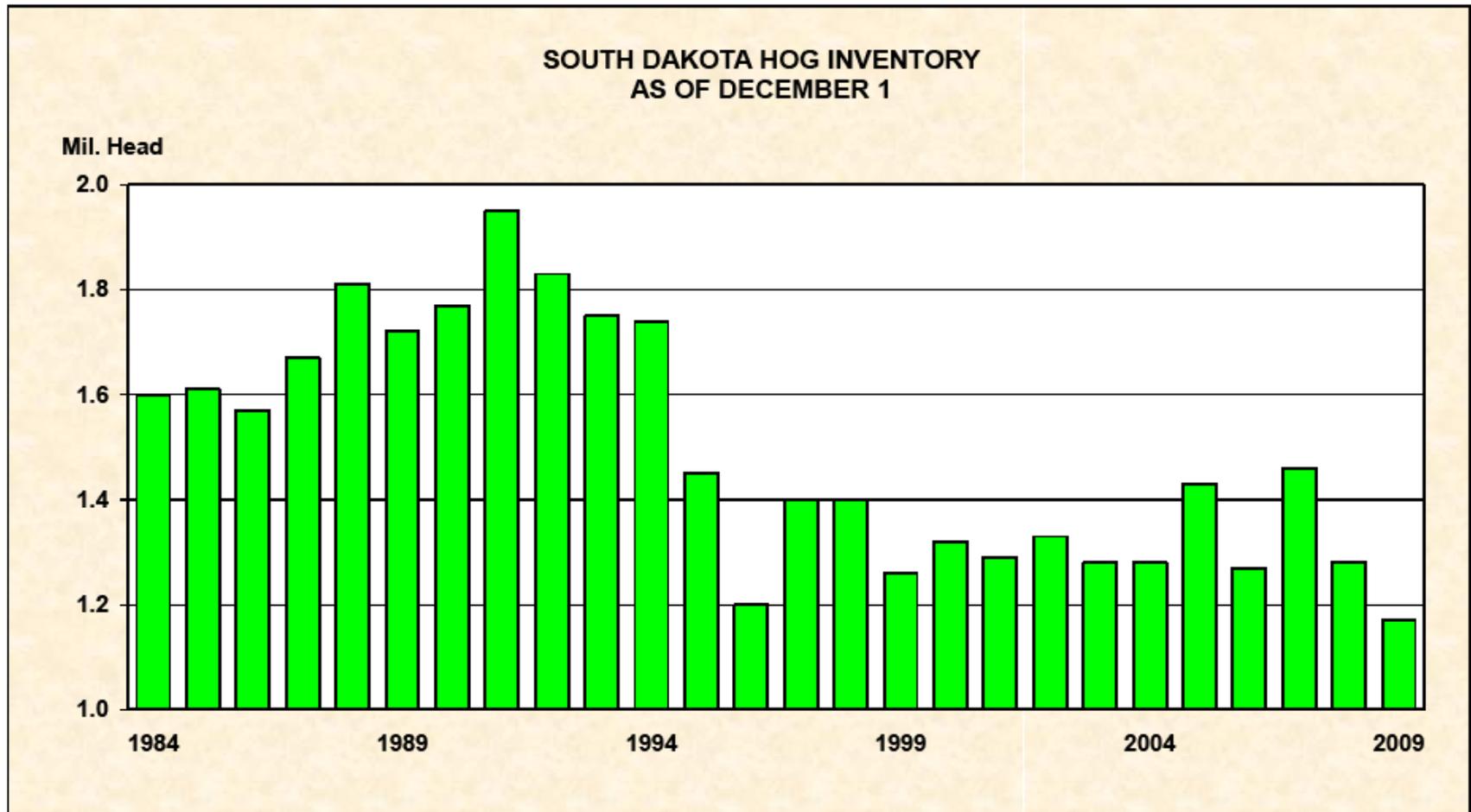
(SD Agricultural Statistics Service)



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

South Dakota Agriculture Trends

(SD Agricultural Statistics Service)

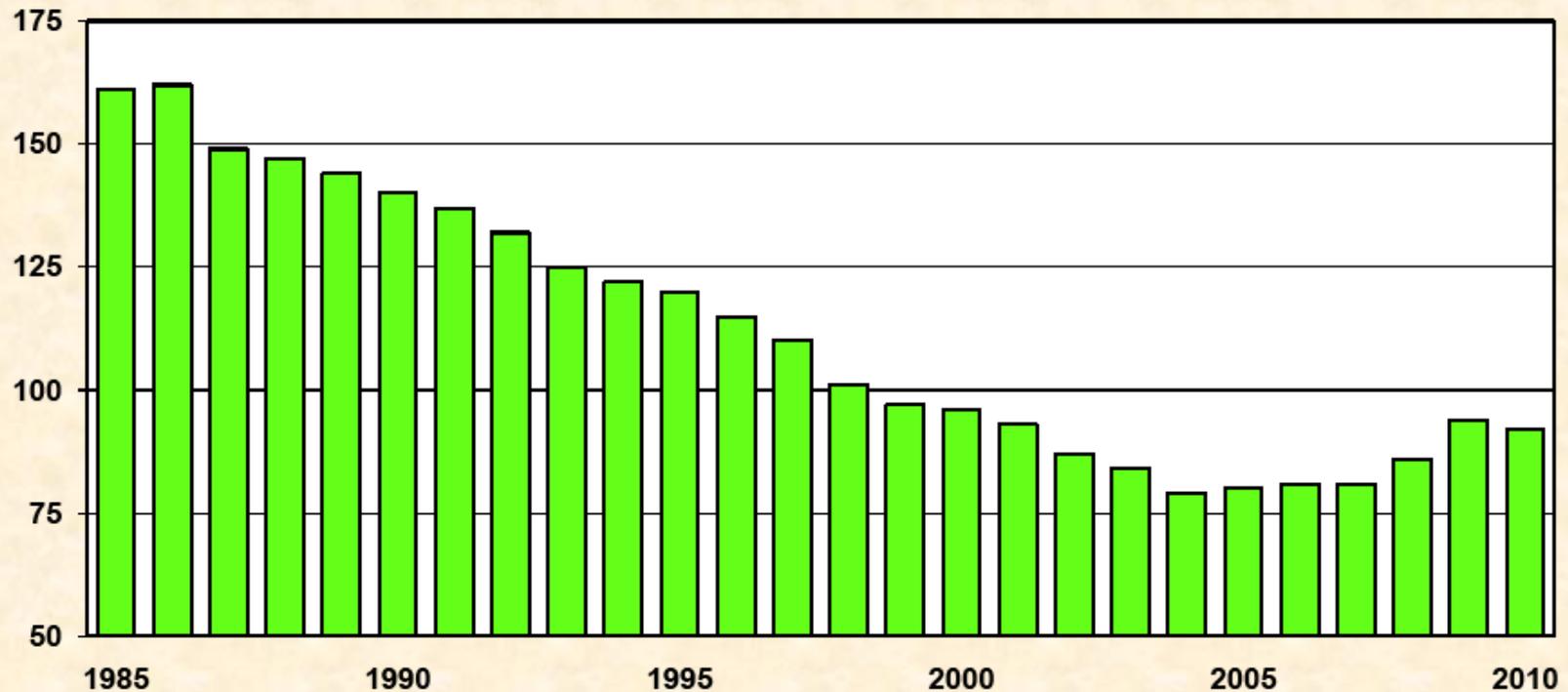


South Dakota Agriculture Trends

(SD Agricultural Statistics Service)

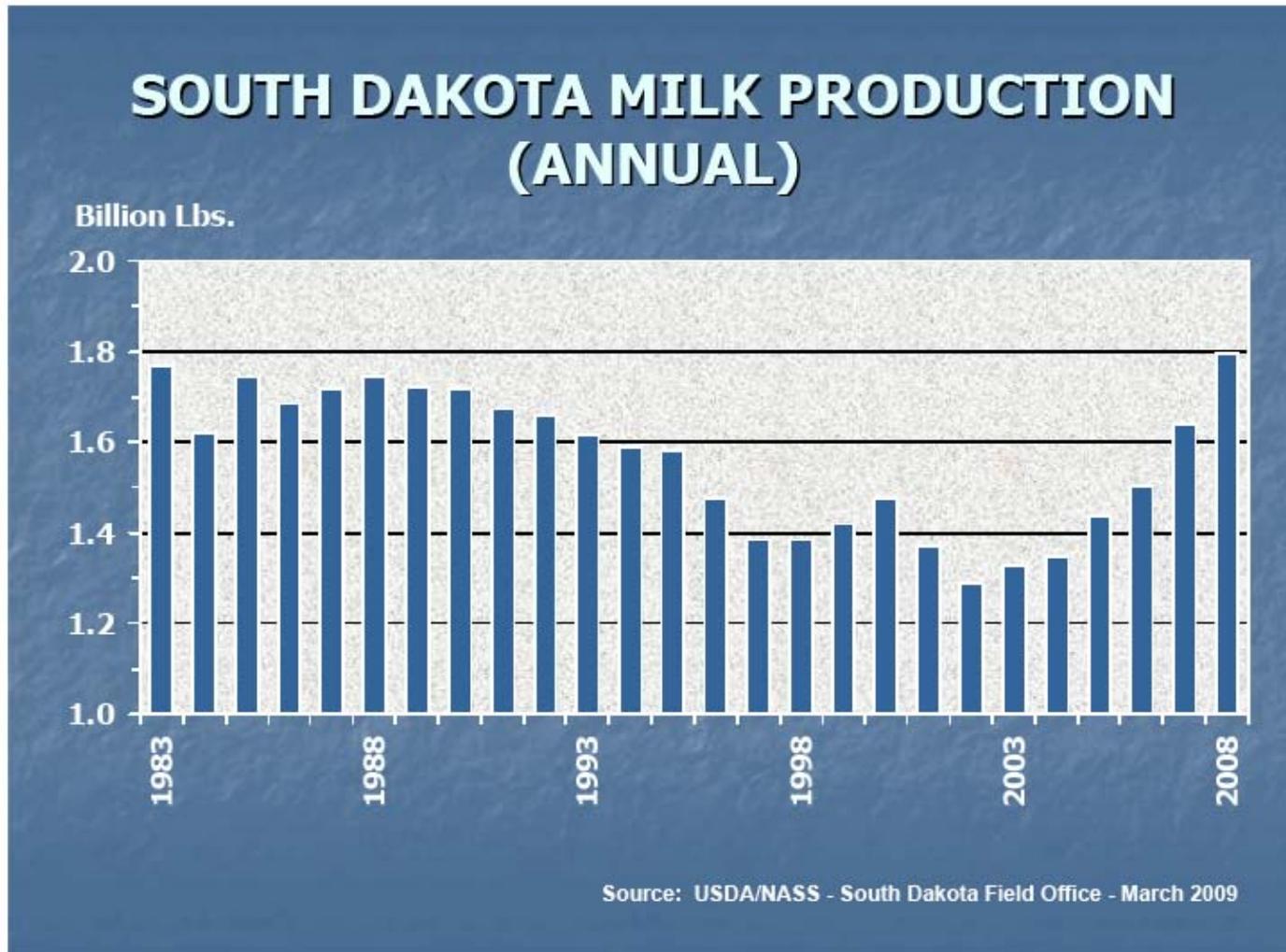
**SOUTH DAKOTA MILK COW INVENTORY
AS OF JANUARY 1**

Thou. Head



South Dakota Agriculture Trends

(SD Agricultural Statistics Service)



NRCS Practices for a AWMS

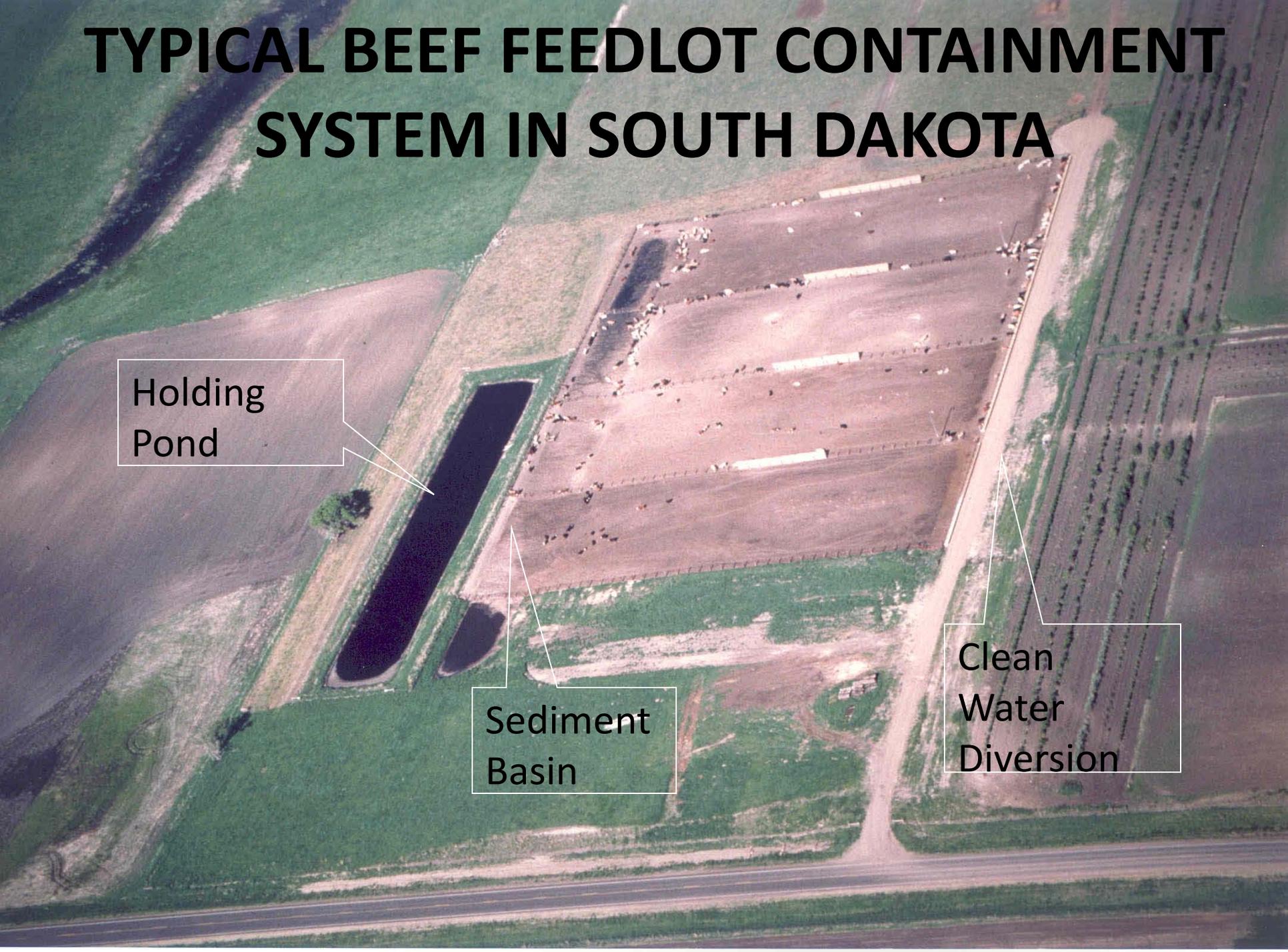
- Waste Storage Facility (313)
- Sediment Basin (350)
- Diversion (362)
- Waste Transfer (634)
- Fence (382)
- Critical Area Planting (342)
- Nutrient Management (590)
- Windbreak/Shelterbelt (380)
- Vegetated Treatment Area (VTA) (635)
- Animal Mortality Facility (316)

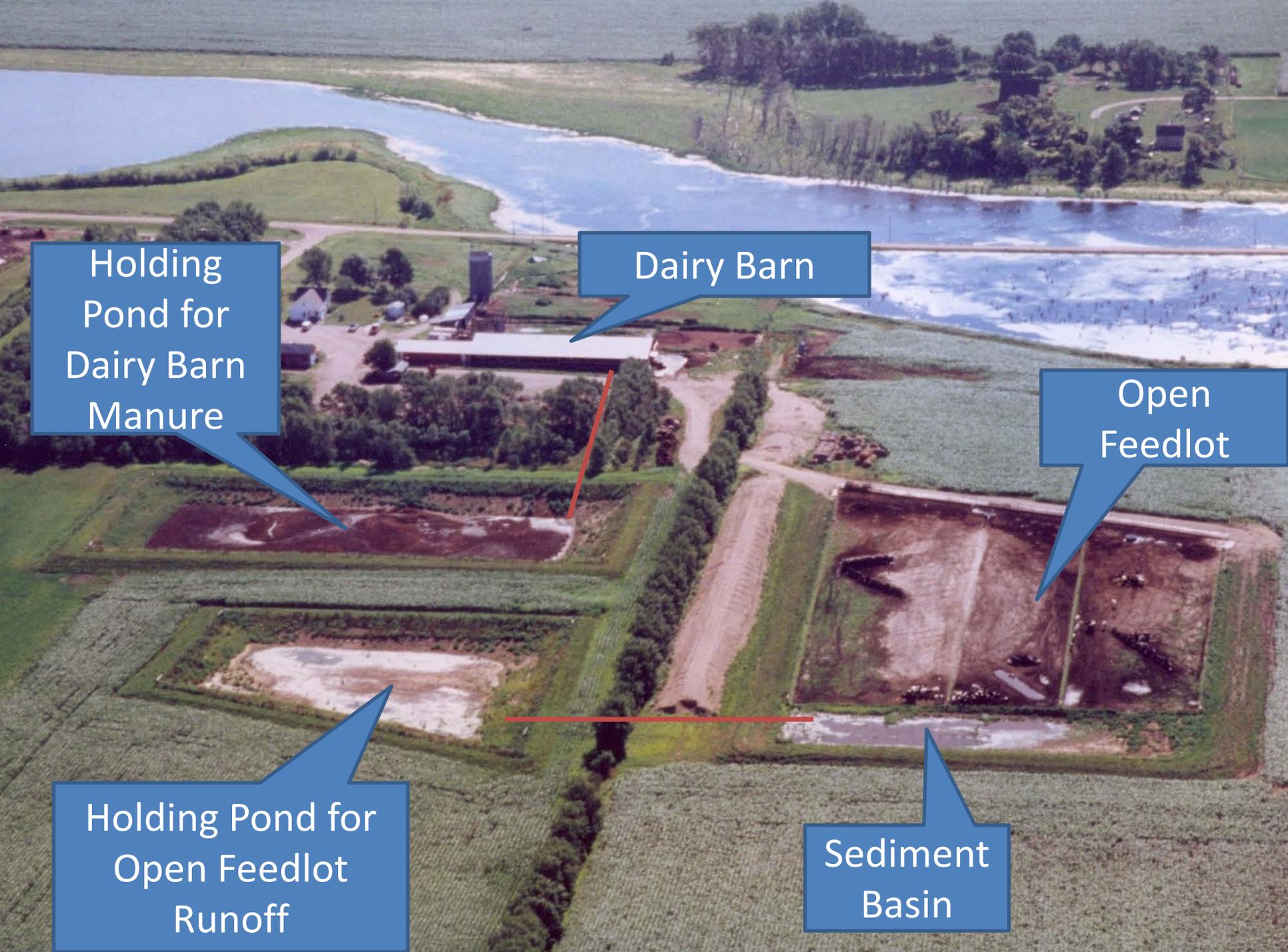
TYPICAL BEEF FEEDLOT CONTAINMENT SYSTEM IN SOUTH DAKOTA

Holding
Pond

Sediment
Basin

Clean
Water
Diversion





Holding Pond for Dairy Barn Manure

Dairy Barn

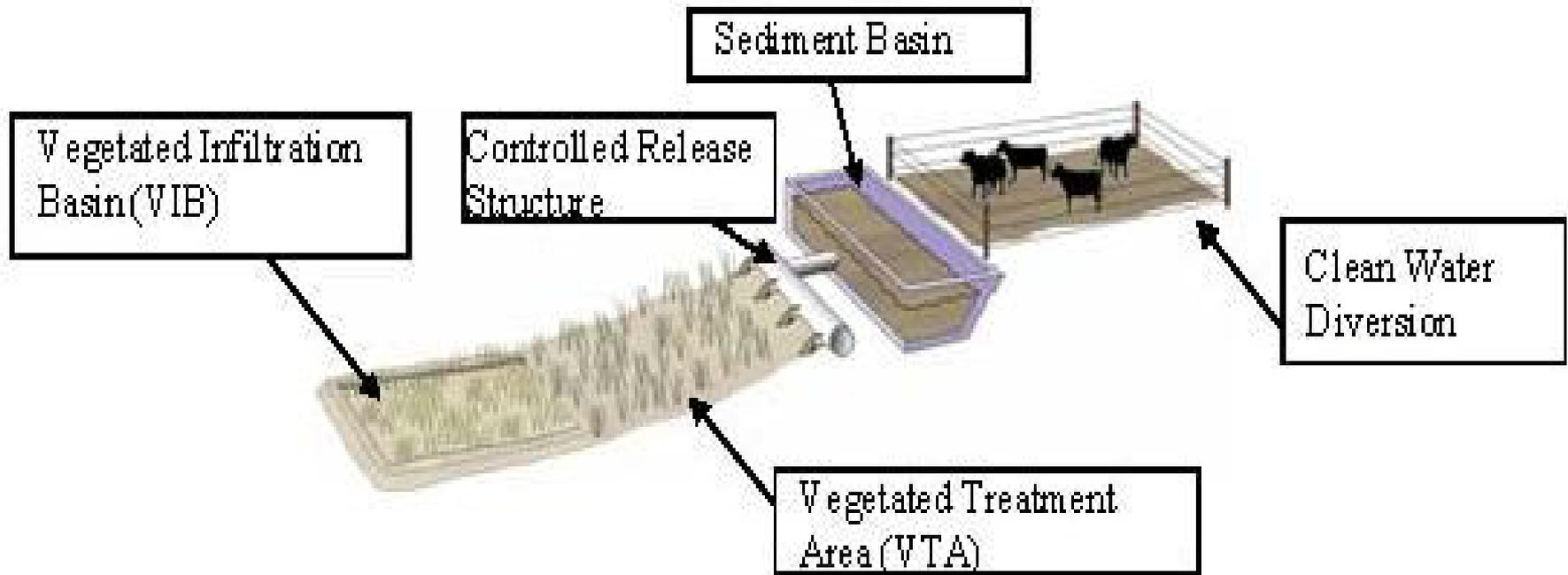
Open Feedlot

Holding Pond for Open Feedlot Runoff

Sediment Basin

Vegetative Treatment Systems (VTS)

Good Alternative for Smaller Operations

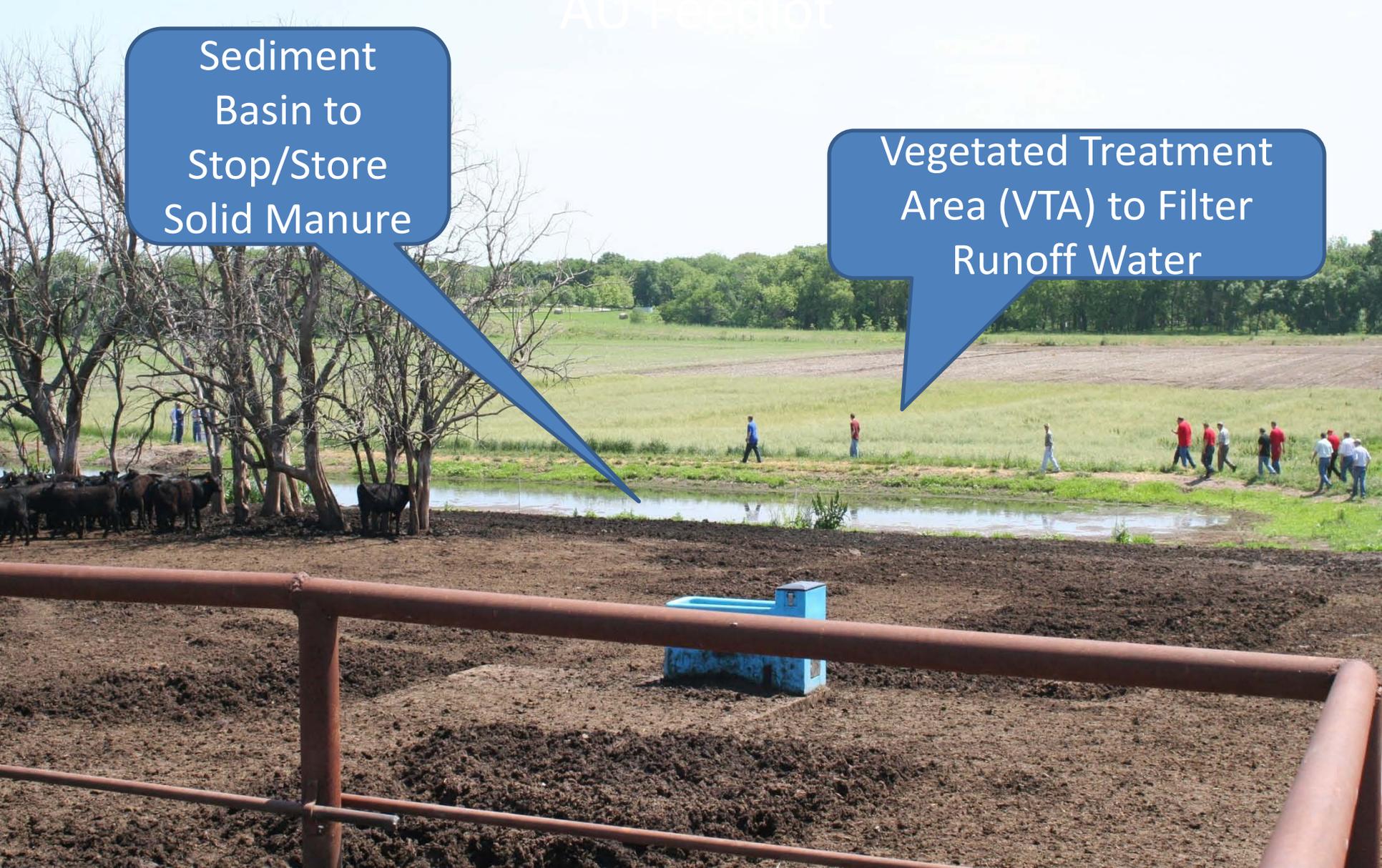


Vegetative Treatment System (VTS) for 450 head

AU Feedlot

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



Concrete Stacking Pads



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...



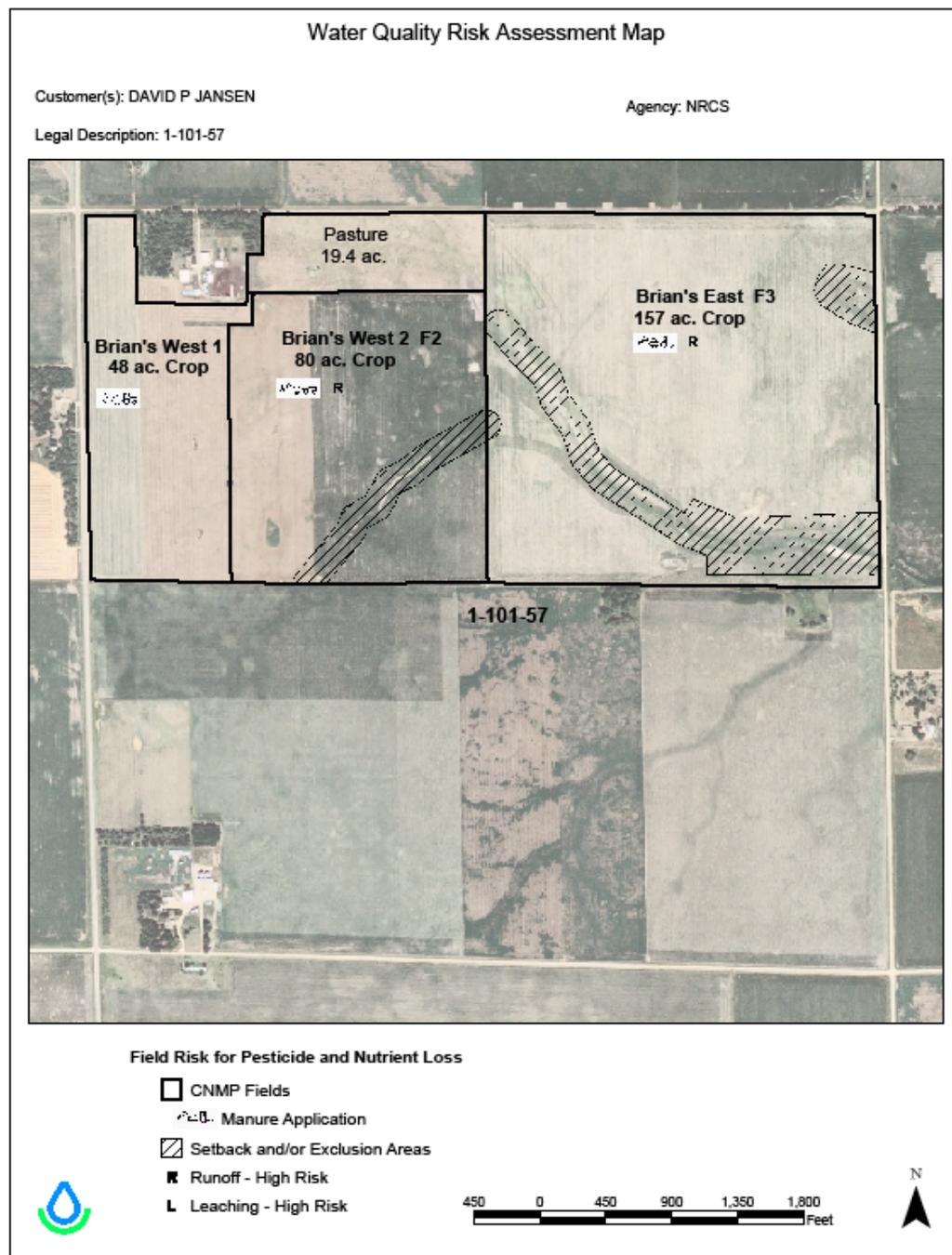
Land Treatment Options (Filter Strips; CRP Big Asset in SD)





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!!!!)





The Golden Spade

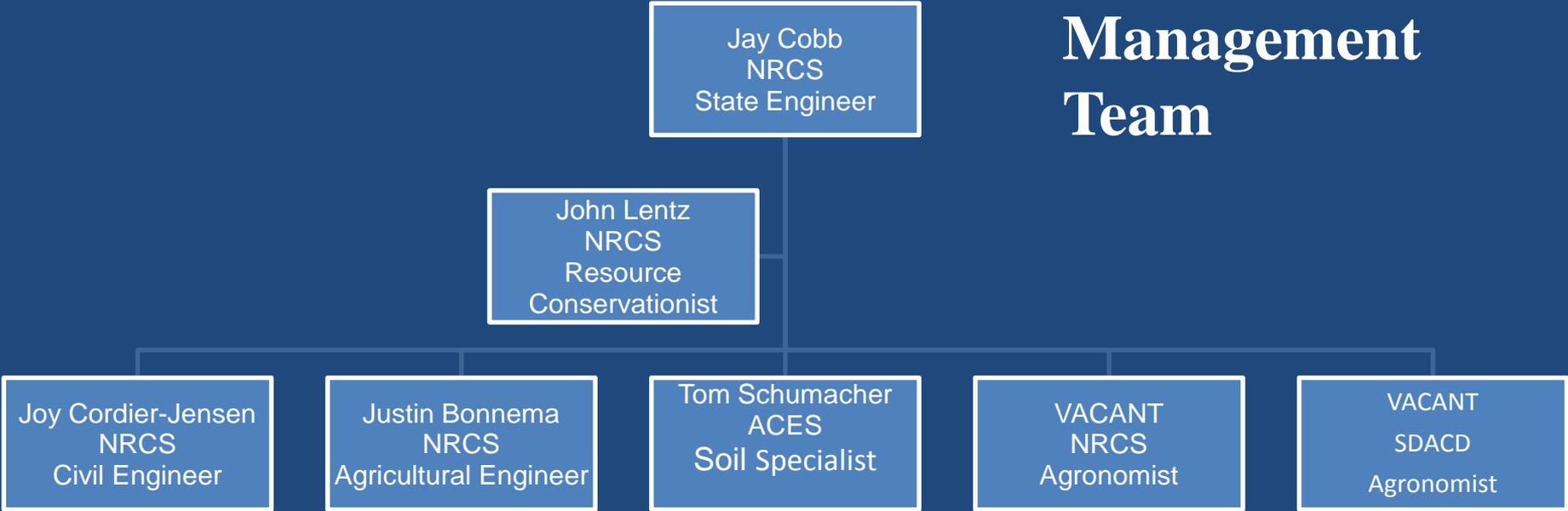


- Manure Sampling Grant – Goal is to encourage producers to sample manure and then set rate according to yield goal, manure analysis, and soil test. We pay for manure analysis.

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



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

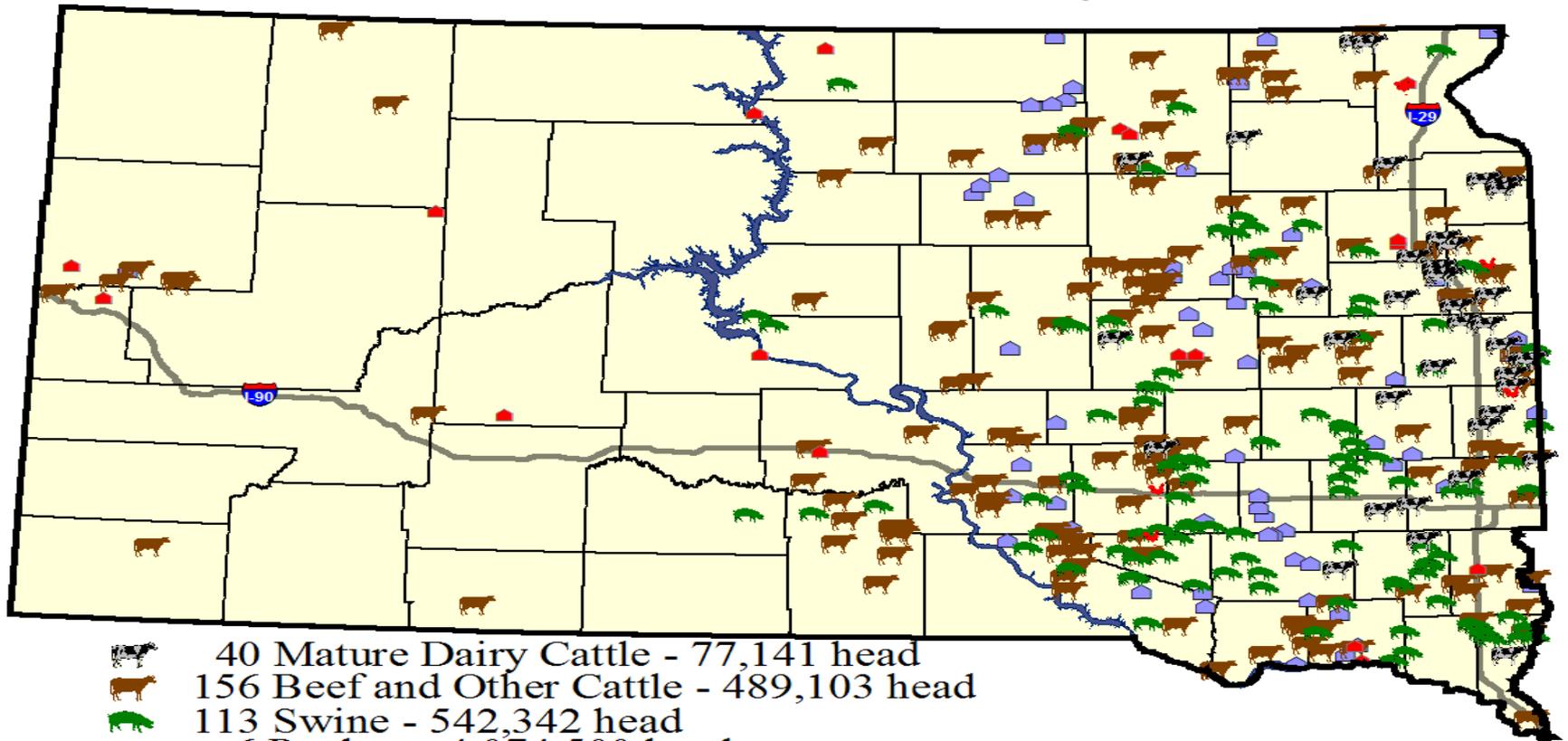
- In Fiscal Year 2010, the Vegetated Treatment Area (635) practice payment (cost share) for was:
 - For leveled VTAs: regular payment = \$2,500 per acre, historically underserved payment = \$3,000 per acre
 - For non-leveled VTAs: regular payment = \$1,600 per acre, historically underserved payment = \$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



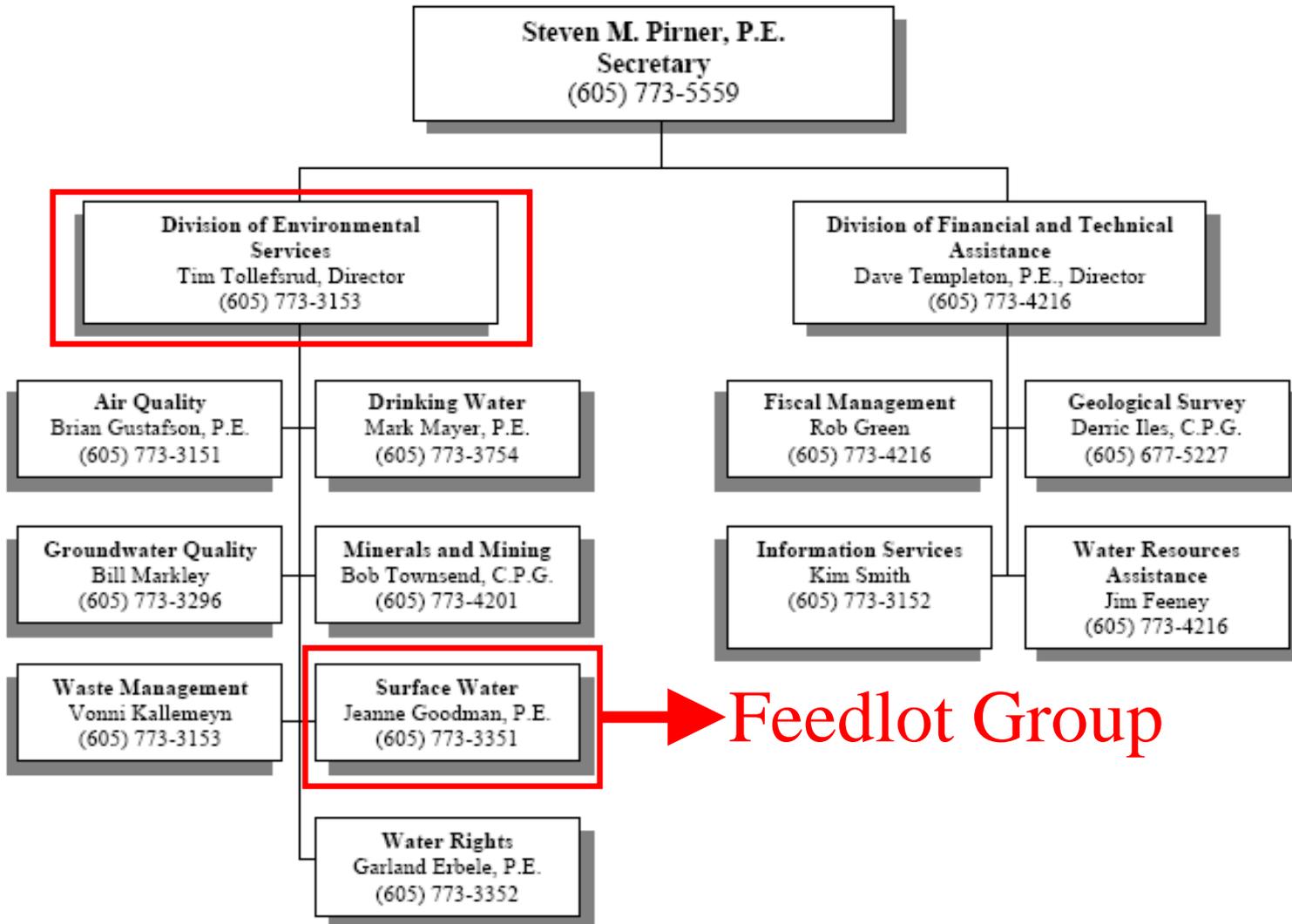
	40 Mature Dairy Cattle - 77,141 head
	156 Beef and Other Cattle - 489,103 head
	113 Swine - 542,342 head
	6 Poultry - 4,074,500 head
	64 Multi Animals - 3,198,688 head
	18 Livestock Auctions
	3 CAFOs Located in Another State with Land Application Areas in SD

400 Total Permits



Department of Environment and Natural Resources

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.



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 20-9-31. Livestock - Contract – Facilities
- 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 2. Nitrogen Need/Phosphorus Crop Removal Manure Application Determination Table

Soil Test Phosphorus ppm		Soil Loss – Erosion, Sheet and Rill Number (Tons per Acre)				
		Less than 4		4 to 6		Greater than 6
		100 Foot Vegetated Buffer		100 Foot Vegetated Buffer		
Olsen	Bray-1	Yes	No	Yes	No	
0-25	0-35	Nitrogen need	Nitrogen need	Nitrogen need	Nitrogen need	No application
26-50	36-75	Nitrogen need	Nitrogen need	Nitrogen need	Phosphorus crop removal¹	No application
51-75	76-110	Nitrogen need	Phosphorus crop removal	Phosphorus crop removal	Phosphorus crop removal	No application
76-100	111-150	Phosphorus crop removal	Phosphorus crop removal	Phosphorus crop removal	Phosphorus crop removal	No application
Greater than 100	Greater than 150	No application	No application	No application	No application	No application

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

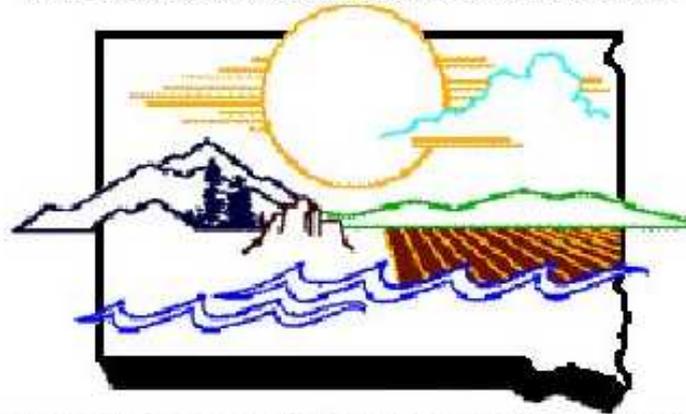
Common Problems Found During Inspections

- 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!



**South Dakota Department of
Environment and Natural Resources**



Protecting South Dakota's Tomorrow ... Today

**For more information
contact DENR at
(605) 773-3351**