2009 SDACD Annual Conference Tour

September 21, 2009
Belle Fourche River Watershed Partnership

A group of local people and organizations coordinating available resources to address concerns associated with the Belle Fourche River Watershed
Belle Fourche River Watershed Partnership

- Started Mid-1990, Formalized 2003
- Nonprofit 501(c)3
- Membership
  - Four voting members
    - Butte, Elk Creek, and Lawrence Conservation Districts
    - Belle Fourche Irrigation District
  - All stakeholders welcomed
    - United States Geological Society (USGS)
    - Bureau of Reclamation (BOR)
    - Natural Resources Conservation Service (NRCS)
    - South Dakota Department of Environment and Natural Resources (SD DENR)
- Over $14 Million Into the Watershed Since 2004
Belle Fourche Irrigation District

- 57,183 Acres
- Over 480 Individual Farmers
- Crops → Alfalfa, corn, wheat, and barley
- Surface Irrigation Dominated
- Annual Water Availability → ~13” Precipitation
  → ~20” Allotted water
Irrigation Delivery

Delivery Improvements

Upgraded Water Order/ Billing System
   Complete

Canal Automation
   27 Units

Canal Lining
   2 Miles

Canal Operational Model
   Complete
Irrigation Application

On-Farm Improvements

Surface to Sprinkler Irrigation
25 Pivots

Open Ditch to Pipe
70,000 feet

Irrigation Scheduling
Inlet Canal Lining

- **Phase I**
  - Completed fall 2007
  - ½ mile lined

- **Phase II**
  - Completed fall 2008
  - ½ mile lined

- **Phase III**
  - Scheduled fall 2010
  - 1 mile lined
Before Lining
After Lining

5,000 Acre-Feet/Year Conserved!!!
Belle Fourche Irrigation District Automated Structures

- 13 Stand-Alone Check Gates
- 8 Real-Time Check Gates
- 17 Real-Time Flow Measurement Structures
- 5 Real-Time Lateral Head Gates
Conservation Innovation Grant (CIG) Project Overview

- **3-Year Project Funded by NRCS**

- **Components**
  - *Extensive weather network*
    - Four weather stations
    - Nine rain gage sites
  - *Soil moisture stations*
  - *Web-based irrigation scheduling consultant for producers (20 total producers)*
    - Easy to set up
    - Accurate, reliable, and adaptable
Calculating a Water Balance

- Available Water = Previous Day Available Water + Rainfall + Irrigation – Evapotranspiration (ET)

- Rainfall – Collected From Installed Rain Gages

- Irrigation – Entered Into System

- ET – Calculated On Site Using Wind Speed, Solar Radiation, Temperature, and Humidity Sensors
Current Readings:
- Site 1 Shallow = 20 cbar
- Site 1 Deep = 22 cbar
- Site 2 Shallow = 175 cbar
- Site 2 Deep = 22 cbar

Current Calculated Soil Moisture = 25%

Edit Soil Moisture
Conservation Innovation Grant Cooperators

- 17 Total Cooperators
- 850 Acres
- Crops
  - Alfalfa
  - Corn
  - Barley
  - Soybeans
  - Wheat
Rangelands and Water Quality
Belle Fourche River Watershed Rangelands

- 74% Native Rangelands
- 15% Public Lands
- Dense Clay Soils
- Western Wheat Grass/Blue Grama
- Primarily Cattle Operations With Some Sheep
Range Planning

- Over 200,000 Acres Planned
- 15,000 Riparian Acres
- 25 Ranch Operations
Range Implementation

- Treated Over 200,000 Acres With 319 Funds
Cooperative Conservation Partnership Initiative (CCPI)

- Prioritized EQIP Funding for the Watershed
- Targeted for Range Improvements
- 3.5 Million Over 5 years
Thank You!!

www.bellefourchewatershed.org