CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Nebraska	FIELD OFFICE	Any	DATE	12/27/2011
PRACTICE: Waterspreading 640		Baseline Setting:			
		Appropriate Land Use(s): All Land Uses			

RESOURCES, CONSIDERATIONS AND CONCERNS	**PHYSICAL EFFECTS**	**RATIONALE**
SOIL - EROSION		
Sheet and Rill	Not Applicable	Not applicable.
Wind	Not Applicable	Not applicable.
Ephemeral Gully	Not Applicable	Not applicable.
Classic Gully	Slight Worsening	Because of higher concentration and velocities from water collection.
Streambank	Not Applicable	Not applicable.
Shoreline	Not Applicable	Not applicable.
Irrigation Induced	Not Applicable	Not applicable.
Mass Movement	Not Applicable	Not applicable.
Road, Roadsides, and Construction Sites	Not Applicable	Not applicable.
SOIL – CONDITION		
Organic Matter Depletion	Slight Improvement	The action increases water infiltration and plant uptake, increasing biomass production.
Rangeland Site Stability	Not Applicable	Not applicable.
Compaction	Not Applicable	Not applicable.
Subsidence	Not Applicable	Not applicable.
Contaminants:		
• Salts and other Chemicals	Slight Improvement	Increased infiltration may permit leaching of some salts below the root zone.
• Animal Waste and other Organics - N	Slight Improvement	Increased water availability will allow increased plant nutrient uptake.
• Animal Waste and other Organics - P	Slight Improvement	Increased water availability will allow increased plant nutrient uptake.
• Animal Waste and other Organics - K	Slight Improvement	Increased water availability will allow increased plant nutrient uptake.
• Commercial Fertilizer - N	Slight Improvement	Increased water availability will allow increased plant nutrient uptake.
• Commercial Fertilizer – P	Slight Improvement	Increased water availability will allow increased plant nutrient uptake.
• Commercial Fertilizer – K	Slight Improvement	Increased water availability will allow increased plant nutrient uptake.
• Residual Pesticides	Neutral	Increased soil water availability may increase organic matter tie-up and microbial degradation of pesticide residues.
Damage from Sediment Deposition	Not Applicable	Not applicable.

WATER – QUANTITY		
Rangeland Hydrologic Cycle	Not Applicable	Not applicable.
Excessive Seepage	Not Applicable	Not applicable.
Excessive Runoff, Flooding, or Ponding	Slight Improvement	Reduces runoff, ponding, and increase infiltration.
Excessive Subsurface Water	Slight Worsening	Reduces runoff, ponding, and increase infiltration.
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Slight Improvement	Reduces needed capacity of outlets due to less runoff.
Inefficient Water use on Irrigated Land	Slight Improvement	Water is collected for more efficient use.
Inefficient Water use on Non-Irrigated Land	Slight to Substantial Improvement	Water is distributed for more efficient use.
Reduced Capacity of Conveyances by Sediment Deposition	Not Applicable	Not applicable.
Reduced Storage of Water Bodies by Sediment Accumulation	Not Applicable	Not applicable.
Aquifer Overdraft	Slight Improvement	Increases infiltration for aquifer recharge.
Insufficient Flows in Water Courses	Slight Worsening	Flow is diverted from water courses.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Slight Worsening	The action increases infiltration
• Excessive Nutrients and Organics	Slight Worsening	The action impounds water which has the potential to transport nutrients to groundwater.
• Excessive Salinity	Slight Worsening	The action results in increased infiltration and potential for moving soluble salts to ground water.
• Harmful Levels of Heavy Metals	Slight Worsening	The action results in increased infiltration and potential for leaching soil contaminates.
• Harmful Levels of Pathogens	Slight Worsening	The action results in increased infiltration and potential for leaching soil contaminates.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Slight Improvement	The action reduces runoff.
• Excessive Nutrients and Organics	Slight to Moderate Improvement	The action impounds surface water which reduces the potential to transport nutrients and organics downstream.
• Excessive Suspended Sediment and Turbidity	Not Applicable	Not applicable.
• Excessive Salinity	Slight Improvement	The action increases infiltration, increasing leaching potential and reducing the potential for moving salts to surface water.
• Harmful Levels of Heavy Metals	Slight Improvement	The action increases infiltration and reduces surface runoff.

• Harmful Temperatures	Neutral	Diverted water does not generally return to surface water source.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• Harmful Levels of Petroleum	Slight Improvement	Increases infiltration
AIR – QUALITY		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Not Applicable	Not applicable.
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Not Applicable	Not applicable.
Excessive Ozone	Not Applicable	Not applicable.
Excessive Greenhouse Gas:		
• CO_2 (Carbon Dioxide)	Not Applicable	Not applicable.
• N_20 (Nitrous Oxide)	Not Applicable	Not applicable.
• CH_4 (Methane)	Not Applicable	Not applicable.
Ammonia (NH_3)	Not Applicable	Not applicable.
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Not Applicable	Not applicable.
Reduced Visibility	Not Applicable	Not applicable.
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Not Applicable	Not applicable.
PLANTS – SUITABLIITY		
Plants not Adapted or Suited	Not Applicable	Not applicable.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Slight to Moderate Improvement	Site modification to improve irrigation application enhances the health and vigor of desired species.
Threatened or Endangered Plant Species:		
• Plant Species Listed or Proposed for Listing Under the Endangered Species Act	Not Applicable	Not applicable.
• Declining Species, Species of Concern	Not Applicable	Not applicable.
Noxious and Invasive Plants	Slight Improvement	Improved soil moisture facilitates improved health and vigor of desirable vegetation therefore reducing invasion of noxious weed.
Forage Quality and Palatability	Not Applicable	Not applicable.
Wildfire Hazard	Not Applicable	Not applicable.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Slight to Moderate Improvement	Improved soil moisture may increase plant diversity and production as food for wildlife.
Inadequate Cover/Shelter	Slight to Moderate Improvement	Improved soil moisture may increase plant diversity and production used as cover for wildlife.
Inadequate Water	Slight Improvement	Spreading temporarily concentrates natural precipitation.

Inadequate Space	Not Applicable	Not applicable.
Habitat Fragmentation	Not Applicable	Not applicable.
Imbalance Among and Within Populations	Not Applicable	Not applicable.
Threatened and Endangered Fish and Wildlife Species:		
• Fish and Wildlife Species Listed or Proposed for Listing Under the Endangered Species Act	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
• Declining Species, Species of Concern	Neutral	Activities are designed, installed, and mitigated to an extent to maintain or enhance species of concern.
ANIMALS – DOMESTIC		
Inadequate Quantities and Quality of Feed and Forage	Moderate to Substantial Improvement	Production will be improved with uniform and consistent application of water.
Inadequate Shelter	Not Applicable	Not applicable.
Inadequate Stock Water	Not Applicable	Not applicable.
Stress and Mortality	Not Applicable	Not applicable.
HUMAN – ECONOMICS		
Land - Change in Land Use	Negligible to slight.	
Land – Land in Production	Slight Increase	Negligible to slight increase.
Capital – Change in Equipment	Slight Increase.	
Capital - Total Investment Cost	Substantial.	Substantial.
Capital – Annual Cost	Slight increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight to moderate increase.	
Labor – Change in Management Level	Slight increase.	
Risk - Yield	Slight to Moderate Decrease	Slight to moderate decrease due to water distribution.
Risk - Flexibility	Moderate Increase	Moderate increase due to design criteria.
Risk - Timing	Not applicable.	Not applicable.
Risk – Cash Flow	Slight to Moderate Increase	Slight to moderate increase because of construction costs.
Profitability – Change in Profitability	Situational	Slight increase or decrease.
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Increase	Construction impacts (mechanical).
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources	Not Applicable	Not Applicable
Underutilization of Non-Fossil Energy Resources	Not Applicable	Not Applicable

Human Considerations Explanation

Considerations	Physical effects indicate:
Land - Change in Land Use	The degree to which implementing the conservation practice is expected to cause a change from one land use to another.
Land - Land in Production	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of land in production.
Capital - Change in Equipment	The degree to which implementing the conservation practice is expected to cause an increase or decrease in the amount of capital equipment required for farm or ranch operations.
Capital - Total Investment Cost	A qualitative measure of the increase in total investment dollars required in order to implement the conservation practice.
Capital - Annual Cost	A qualitative measure of the expected change in annual capital costs required in order to operate and maintain the conservation practice.
Capital - Credit & Farm Program Eligibility	Included to make conservation planners aware of the potential availability of funding for implementing conservation practices.
Labor – Labor	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of overall farm or ranch labor required for operations.
Labor - Change in Management Level	The degree to which implementing the conservation practice is likely to cause an increase or decrease in the total amount of required active management on a farm or ranch.
Risk – Yield	The degree to which risk, as related to crop or livestock yields, is expected to increase or decrease as a result of implementing the conservation practice.
Risk – Flexibility	The degree to which risk, as related to the flexibility of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice. For example, converting from flood irrigation to a sprinkler system gives a farmer an increase in flexibility of irrigation, which results in a decrease in the level of risk associated with inflexibility of operations.
Risk – Timing	The degree to which risk, as related to the timing of farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
Risk - Cash Flow	The degree to which risk, as related to cash flow in farm or ranch operations, is expected to increase or decrease as a result of implementing the conservation practice.
Profitability - Change in Profitability	The degree to which farm or ranch profitability is expected to increase or decrease as a result of implementing the conservation practice.
Cultural Resources and/or Historic Properties Present or Suspected to be Present	The degree to which implementation of the conservation practice is expected to increase or decrease the risk of cultural resource disturbance, degradation, or loss.
Depletion of Fossil Fuel Resources	Inefficient use of fossil-originated energy sources (diesel, gasoline, propane, natural gas, coal), lubricants, and other materials.
Underutilization of Non-Fossil Energy Sources	Available and cost-effective alternative energy sources (solar, wind, biofuel, hydroelectric, geothermal) are not being used or are being used inefficiently.