

CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Nebraska	FIELD OFFICE	Any	DATE	10/14/2008
PRACTICE: Anionic Polyacrylamide (PAM) Erosion Control 450		Baseline Setting:			
		Appropriate Land Use(s): Crop, Forest, Grazed Forest, Grazed Range, Hay, Headquarters, Mined, Native or Naturalized Pasture, Natural Area, Pasture, Recreation, Urban, Watershed Protection, Wildlife			
RESOURCES, CONSIDERATIONS AND CONCERNS		PHYSICAL EFFECTS		RATIONALE	
SOIL - EROSION					
Sheet and Rill		Slight to Moderate Improvement		Application aggregates soil particles making them less susceptible to detachment from flowing water.	
Wind		Slight to Moderate Improvement		Application aggregates soil particles making them less susceptible to detachment from wind energy.	
Ephemeral Gully		Slight to Moderate Improvement		Application aggregates soil particles making them less susceptible to detachment from concentrated flow.	
Classic Gully		Not Applicable		Not applicable.	
Streambank		Not Applicable		Not applicable.	
Shoreline		Not Applicable		Not applicable.	
Irrigation Induced		Slight to Substantial Improvement		Pam reduces sediment transport.	
Mass Movement		Not Applicable		Not applicable..	
Road, Roadsides, and Construction Sites		Slight to Substantial Improvement		Pam reduces sediment transport.	
SOIL – CONDITION					
Organic Matter Depletion		Not Applicable		Not applicable.	
Rangeland Site Stability		Not Applicable		Not applicable.	
Compaction		Not Applicable		Not applicable.	
Subsidence		Not Applicable		Not applicable.	
Contaminants:					
• Salts and other Chemicals		Not Applicable		Not applicable.	
• Animal Waste and other Organics - N		Not Applicable		Not applicable.	
• Animal Waste and other Organics - P		Not Applicable		Not applicable.	
• Animal Waste and other Organics - K		Not Applicable		Not applicable.	
• Commercial Fertilizer - N		Not Applicable		Not applicable.	
• Commercial Fertilizer – P		Not Applicable		Not applicable.	
• Commercial Fertilizer – K		Not Applicable		Not applicable.	
• Residual Pesticides		Not Applicable		Not applicable.	
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		Not Applicable		Not applicable.	

Excessive Subsurface Water	Not Applicable	Not applicable.
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Not Applicable	Not applicable.
Inefficient Water use on Irrigated Land	Not Applicable	Not applicable.
Inefficient Water use on Non-Irrigated Land	Not Applicable	Not applicable.
Reduced Capacity of Conveyances by Sediment Deposition	Slight to Substantial Improvement	Pam reduces sediment transport off of the field that otherwise would deposit in conveyance ways.
Reduced Storage of Water Bodies by Sediment Accumulation	Slight to Substantial Improvement	Pam reduces sediment transport off of the field that otherwise would deposit in water bodies.
Aquifer Overdraft	Not Applicable	Not applicable.
Insufficient Flows in Water Courses	Not Applicable	Not applicable.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Slight Worsening	The action increases infiltration.
• Excessive Nutrients and Organics	Not Applicable	Not applicable.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Slight to Substantial Improvement	The action decreases runoff and erosion.
• Excessive Nutrients and Organics	Slight to Moderate Improvement	Because irrigation-induced erosion is reduced, there is less delivery of sediment-attached nutrients to be carried off-site to surface water.
• Excessive Suspended Sediment and Turbidity	Moderate to Substantial Improvement	The action reduces erosion and sediment load
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Slight Improvement	PAM will reduce transport of heavy metals attached to soils.
• Harmful Temperatures	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
AIR – QUALITY		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Slight to Substantial Improvement	The action reduces the susceptibility of soil to wind erosion.
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Slight to Substantial Improvement	The action reduces the susceptibility of soil to wind erosion.
Excessive Ozone	Not Applicable	Not applicable.
Excessive Greenhouse Gas:		
• CO ₂ (Carbon Dioxide)	Not Applicable	Not applicable.
• N ₂ O (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	Slight to Moderate Improvement	Reduce fugitive dust emissions
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Not Applicable	Not applicable.
PLANTS – SUITABILITY		
Plants not Adapted or Suited	Not Applicable	Not applicable.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Not Applicable	Not applicable.
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	Not Applicable	Not applicable.
Forage Quality and Palatability	Not Applicable	Not applicable.
Wildfire Hazard	Not Applicable	Not applicable.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Not Applicable	Not applicable.
Inadequate Cover/Shelter	Not Applicable	Not applicable.
Inadequate Water	Not Applicable	Not applicable.
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	Not Applicable	Not applicable.
• Declining Species, Species of Concern	Not Applicable	Not applicable.
ANIMALS – DOMESTIC		
Inadequate Quantities and Quality of Feed and Forage	Not Applicable	Not applicable.
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	Not applicable.	Not applicable.
Land – Land in Production	Not applicable.	Not applicable.
Capital – Change in Equipment	Situational.	
Capital - Total Investment Cost	Slight to moderate.	
Capital – Annual Cost	Slight increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight increase.	
Labor – Change in Management Level	Negligible to slight increase.	
Risk - Yield	Moderate Decrease	Moderate decrease due to

		increased irrigation efficiency.
Risk - Flexibility	Not applicable.	Not applicable.
Risk - Timing	Not applicable.	Not applicable.
Risk – Cash Flow	Slight Increase	Slight increase due to cost of product.
Profitability – Change in Profitability	Slight to Moderate Increase	Slight to moderate increase depending on increased yields.
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Not applicable.	Not applicable.
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources	Slight to Moderate Decrease	Sediment reduction reduces energy needed to clean out deposition areas and irrigation filtration systems. Less energy is required for pumping with greater water delivery system efficiency.
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.