CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Nebraska	FIELD OFFICE	Any	DATE	10/10/2008
PRACTICE: Amendments for Treatment of Agricultural Waste 591		Baseline Setting:			
		Appropriate Land Use(s): Headquarters			
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		Not Applicable		Not applicable.	
Streambank		Not Applicable		Not applicable.	
Shoreline		Not Applicable		Not applicable.	
Irrigation Induced		Neutral		Some chemicals such as PAM used as amendments could reduce irrigation induced erosion when the waste stream is surface itrrigated	
Mass Movement		Not Applicable		Not applicable.	
Road, Roadsides, and Construction Sites		Not Applicable		Not applicable.	
SOIL – CONDITION					
Organic Matter Depletion		Slight Improvement		Using amendments could create high organic residues that when land applied could increase soil organic matter in excess of the application of untreated manure	
Rangeland Site Stability		Not Applicable		Not applicable.	
Compaction		Not Applicable		Not applicable.	
Subsidence		Not Applicable		Not applicable.	
Contaminants:					
• Salts and other Chemicals		Neutral		Could be slight worsening to slight improvement depending on whether salts are concentrated or removed from the land applied waste stream	
• Animal Waste and other Organics - N		Slight to Moderate Improvement		Using amendments allows the manipulation of the waste stream to reduce nitrogen concentrations	
• Animal Waste and other Organics - P		Slight to Moderate Improvement		Using amendments allows the manipulation of the waste stream to reduce phisphorus concentrations	
• Animal Waste and other Organics - K		Slight to Moderate Improvement		Using amendments allows the manipulation of the waste stream to reduce potassium concentrations	
• 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	Neutral	Some amendments such as PAM could alter the intake rates of soils receiving an altered waste strea,
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Not Applicable	Not applicable.
Inefficient Water use on Irrigated Land	Slight Improvement	Altered waste stream with minumum solids will be compatible with irrigation needs
Inefficient Water use on Non-Irrigated Land	Not Applicable	Not applicable.
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	Neutral	Altered waste stream with minumum solids will be compatible with irrigation needs
Insufficient Flows in Water Courses	Neutral	Altered waste stream with minumum solids will be compatible with irrigation needs
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Slight to Substantial Improvement	Amendments are often used to remove nutrients and organics from the waste stream
• Excessive Salinity	Slight to Moderate Improvement	Amendmentscan be used to alter the waste stream to remove salts, metals, and some pathogens.
• Harmful Levels of Heavy Metals	Slight to Moderate Improvement	Amendmentscan be used to alter the waste stream to remove salts, metals, and some pathogens.
• Harmful Levels of Pathogens	Slight to Moderate Improvement	Amendmentscan be used to alter the waste stream to remove salts, metals, and some pathogens.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Not Applicable	Not applicable.
• Excessive Nutrients and Organics	Slight to Substantial Improvement	Amendments are often used to remove nutrients and organics from the waste stream
• Excessive Suspended Sediment and Turbidity	Not Applicable	Not applicable.
• Excessive Salinity	Slight to Moderate Improvement	Amendments can be used to alter the waste stream to remove salts, metals, and some

		pathogens.
• Harmful Levels of Heavy Metals	Slight to Moderate Improvement	Amendments can be used to alter the waste stream to remove salts, metals, and some pathogens.
• Harmful Temperatures	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Slight to Moderate Improvement	Amendments can be used to alter the waste stream to remove salts, metals, and some pathogens.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
AIR – QUALITY		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Slight Improvement	Some amendments may result in less dust and other particulate matter
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Moderate to Substantial Improvement	Amendments can be very effective in reducing emissions such as ammonia fraction
Excessive Ozone	Not Applicable	Not applicable.
Excessive Greenhouse Gas:		
• CO_2 (Carbon Dioxide)	Slight Improvement	Amendments may have an impact on the release of a number of manure constituents, however, one would not normally use the amendment specifically on this air contaminant
• N_20 (Nitrous Oxide)	Slight Improvement	Amendments may have an impact on the release of a number of manure constituents, however, one would not normally use the amendment specifically on this air contaminant
• CH_4 (Methane)	Slight Improvement	Amendments may have an impact on the release of a number of manure constituents, however, one would not normally use the amendment specifically on this air contaminant
Ammonia (NH_3)	Moderate to Substantial Improvement	A number of amendments are very successful in reducing ammonia emmissions from manure such as chicken litter
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Moderate to Substantial Improvement	A number of amendments are very successful in reducing odor emmissions from manure
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 Improvement	Amendments can alter the waste stream to better meet the needs of the plant
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	Slight Improvement	Amendments can alter the waste stream to better meet the needs of the plant
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	Neutral	Amendments could favorably alter the waste stream to better provide the needs of growing feed and forage, but this would be minor impact
Inadequate Shelter	Not Applicable	Not applicable.
Inadequate Stock Water	Slight Improvement	Some amendments are used to treat the waste stream to the point water can be reused by livestock
Stress and Mortality	Slight to Substantial Improvement	Suppressing emissions of ammonia and other manure constituents may well improve overall animal health and reduce mortality
HUMAN – ECONOMICS		
Land - Change in Land Use	Not applicable.	Not applicable.
Land – Land in Production	Not applicable.	Not applicable.
Capital – Change in Equipment	Negligible to slight increase.	
Capital - Total Investment Cost	Slight to moderate.	

Capital – Annual Cost	Slight to moderate increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight to moderate increase	Situational. Slight to moderate increase, depending on volume of treatment and equipment used.
Labor – Change in Management Level	Negligible	
Risk - Yield	Not applicable.	Not applicable.
Risk - Flexibility	Slight Decrease	Negligible to slight decrease due to environmental and manure-handling benefits.
Risk - Timing	Not applicable.	Not applicable.
Risk – Cash Flow	Slight Increase	Slight increase due to implementation cost.
Profitability – Change in Profitability	Slight to Moderate Increase	Negligible to moderate increase due to potential for lower engery costs related to ventilation requirements and sale of agricultural byproducts.
HUMAN - CULTURAL		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT		
HUMAN – ENERGY		
Depletion of Fossil Fuel Resources		
Underutilization of Non-Fossil Energy Resources		

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.