CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Nebraska	FIELD OFFICE	Any	DATE	10/10/2008
PRACTICE: Contour Farming 330		Baseline Setting:			
		Appropriate Land Use(s): Crop, Hay			

RESOURCES, CONSIDERATIONS AND CONCERNS	**PHYSICAL EFFECTS**	**RATIONALE**
SOIL - EROSION		
Sheet and Rill	Slight to Substantial Improvement	Contouring reduces runoff velocities and changes overland flow direction, thus reducing the detachment and transport capacity of over-land flow.
Wind	Not Applicable	Not applicable.
Ephemeral Gully	Slight to Moderate Improvement	Contouring reduces runoff velocities and changes overland flow direction, thus reducing the detachment and transport capacity of concentrated over-land flow.
Classic Gully	Slight Improvement	Reduces runoff causing erosion in the gully.
Streambank	Slight Improvement	Reduces runoff causing erosion.
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 to Moderate Improvement	Reduced soil erosion decreases organic matter loss.
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	Slight Worsening	Farming on the contour can increase infiltration which may increase residual pesticides in the soil
Damage from Sediment Deposition	Moderate to Substantial Improvement	Farming on the contour reduces sheet and rill erosion and the resulting sediment deposition at the foot of the slope or off-site.

WATER – QUANTITY		
Rangeland Hydrologic Cycle	Not Applicable	Not applicable.
Excessive Seepage	Slight to Moderate Worsening	Increases water infiltration that may move laterally to a seep area, particularly during fallow periods.
Excessive Runoff, Flooding, or Ponding	Slight Improvement	Increases water infiltration which will slightly reduce the potential for flooding or ponding.
Excessive Subsurface Water	Slight Worsening	Increases infiltration which could contribute to excess subsurface water.
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	Slight Improvement	Increases water infiltration resulting in improved water storage in the profile.
Reduced Capacity of Conveyances by Sediment Deposition	Moderate to Substantial Improvement	Reduces soil erosion and resulting sediment deposition off-site.
Reduced Storage of Water Bodies by Sediment Accumulation	Slight to Moderate Improvement	Reduces soil erosion and the resulting offsite sediment deposition.
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	Slight Worsening	The action reduces the velocity of runoff, resulting in increased water infiltration which could move nutrients and organics to groundwater.
• Excessive Salinity	Slight Worsening	The action reduces the velocity of runoff, resulting in increased water infiltration which could move salts to groundwater.
• Harmful Levels of Heavy Metals	Neutral	The action may result in increased water infiltration, but this will have a negligible effect on heavy metals in groundwater.
• Harmful Levels of Pathogens	Neutral	Increased water infiltration could move pathogens into the soil.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Slight Improvement	The action reduces runoff and erosion.
• Excessive Nutrients and Organics	Slight to Substantial Improvement	The action reduces sheet and rill erosion and can increase water infiltration, thereby reducing the transport of nutrients and

		organics to surface water.
• Excessive Suspended Sediment and Turbidity	Slight to Substantial Improvement	Contour Farming reduces sheet and rill erosion and slows the velocity of runoff, thereby reducing the transport of sediment to surface water
• Excessive Salinity	Slight Improvement	The action slows runoff, which may increase water infiltration, reducing the potential for transport of salts to surface water.
• Harmful Levels of Heavy Metals	Slight to Moderate Improvement	Contour Farming decreases sheet and rill erosion and slows runoff velocities, thereby reducing the potential for transport of heavy metals to surface water.
• Harmful Temperatures	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Slight Improvement	Contour Farming decreases sheet and rill erosion and slows runoff velocities, thereby reducing the potential for transport of pathogens to surface water
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
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)	Slight Improvement	Vegetation removes CO2 from the air and stores it in the form of carbon in the plants and soil.
• N_20 (Nitrous Oxide)	Not Applicable	Not applicable.
• CH_4 (Methane)	Not Applicable	Not applicable.
Ammonia (NH_3)	Slight Improvement	Proper Carbon/Nitrogen ratios must be maintained
Chemical Drift	Not Applicable	Not applicable.
Objectionable Odors	Not Applicable	Not applicable.
Reduced Visibility	Slight Improvement	Reduce fugitive dust emissions
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	Increased infiltration increases the amount of available water for crop growth.
Threatened or Endangered Plant Species:		
• Plant Species Listed or Proposed	Not Applicable	Not applicable.

for Listing Under the Endangered Species Act		
• 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	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	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	Slight decrease	Slight decrease, corners and end pieces taken out of production.
Capital – Change in Equipment	Negligible	
Capital - Total Investment Cost	Not applicable.	
Capital – Annual Cost	Slight to moderate increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight to moderate increase	Slight to moderate increase, more time required for tillage operations.
Labor – Change in Management Level	Negligible	
Risk - Yield	Not applicable.	Not applicable.
Risk - Flexibility	Slight to Moderate Increase	Slight to moderate increase due to following designed row pattern.
Risk - Timing	Negligible	
Risk – Cash Flow	Slight Increase	Slight increase due to higher fuel and labor requirements.
Profitability – Change in Profitability	Slight decrease.	

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	No Effect	Using field operations on the contour may require extra turn rows but will not use energy associated with uphill plowing. Increased infiltration reduces the amount of irrigation water and associated energy use required.
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.