

## CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Nebraska	FIELD OFFICE	Any	DATE	2/18/2010
<b>PRACTICE: Seasonal High Tunnel System for Crops 798 (Interim)</b>		Baseline Setting:			
		Appropriate Land Use(s): Crop			
<b>RESOURCES, CONSIDERATIONS AND CONCERNS</b>	<b>PHYSICAL EFFECTS</b>		<b>RATIONALE</b>		
<b>SOIL - EROSION</b>					
Sheet and Rill	Slight to Moderate Improvement		The area under cover has decreased erosion, but the area adjacent may have higher erosion		
Wind	Slight to Moderate Improvement		The area is protected from the wind.		
Ephemeral Gully	Not Applicable		Not applicable.		
Classic Gully	Not Applicable		Not applicable.		
Streambank	Not Applicable		Not applicable.		
Shoreline	Not Applicable		Not applicable.		
Irrigation Induced	Slight to Moderate Improvement		Irrigated water will be applied at lower intensity.		
Mass Movement	Not Applicable		Not applicable.		
Road, Roadsides, and Construction Sites	Not Applicable		Not applicable		
<b>SOIL – CONDITION</b>					
Organic Matter Depletion	Slight Improvement		More productive crops grown.		
Rangeland Site Stability	Not Applicable		Not applicable.		
Compaction	Slight Improvement		Fewer trips with equipment over the soil.		
Subsidence	Not Applicable		Not applicable.		
Contaminants:					
• Salts and other Chemicals	Neutral		Dependent upon water source.		
• 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.		
<b>WATER – QUANTITY</b>					
Rangeland Hydrologic Cycle	Not Applicable		Not applicable.		
Excessive Seepage	Slight to Moderate Improvement		More efficient irrigation system.		
Excessive Runoff, Flooding, or Ponding	Moderate Worsening		Cover will produce more runoff		
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	Slight Improvement		More efficient water use.		

Inefficient Water use on Non-Irrigated Land	Slight Improvement	More efficient water 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 Worsening	May irrigate where not previously irrigated
Insufficient Flows in Water Courses	Not Applicable	Not applicable.
<b>WATER – QUALITY</b>		
In Groundwater:		
• Harmful Levels of Pesticides	Slight Improvement	Less water to leach pesticides and less pesticide added.
• Excessive Nutrients and Organics	Slight Improvement	Slight Improvement
• Excessive Salinity	Slight Improvement	Less water to leach.
• 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 Improvement	Less runoff to transport.
• Excessive Nutrients and Organics	Slight to Moderate Improvement	Less runoff to transport.
• Excessive Suspended Sediment and Turbidity	Slight Improvement	Improvement for the area under cover.
• Excessive Salinity	Not Applicable	Not applicable.
• Harmful Levels of Heavy Metals	Not Applicable	Not applicable.
• Harmful Temperatures	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Not Applicable	Not applicable.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
<b>AIR – QUALITY</b>		
Particulate Matter less than 10 Micrometers in Diameter (PM 10)	Slight Improvement	Cover provides protection against wind erosion.
Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5)	Slight Improvement	Cover provides protection against wind erosion.
Excessive Ozone	Not Applicable	Not applicable.
Excessive Greenhouse Gas:		
• CO <sub>2</sub> (Carbon Dioxide)	Neutral	Some carbon may be lost due to soil disturbance.
• N <sub>2</sub> O (Nitrous Oxide)	Slight Improvement	Nitrogen is added at a very controlled rate.
• CH <sub>4</sub> (Methane)	Not Applicable	Not applicable.
Ammonia (NH <sub>3</sub> )	Not Applicable	Not applicable.
Chemical Drift	Slight Improvement	Tunnel may keep out drift or contain drift.
Objectionable Odors	Not Applicable	Not applicable.
Reduced Visibility	Not Applicable	Not applicable.
Undesirable Air Movement	Not Applicable	Not applicable.
Adverse Air Temperature	Slight Improvement	Tunnel improves air temp for crop growth.
<b>PLANTS – SUITABILITY</b>		
Plants not Adapted or Suited	Slight to Moderate Improvement	Improve air temperature and water control.

<b>PLANTS - CONDITION</b>		
Productivity, Health, and Vigor	Slight to Substantial Improvement	Improve air temperature and water control.
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 to Moderate Improvement	Crops protected from insects and disease with tunnel.
Wildfire Hazard	Not Applicable	Not applicable.
<b>ANIMALS - FISH AND WILDLIFE</b>		
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.
<b>ANIMALS – DOMESTIC</b>		
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.
<b>HUMAN – ECONOMICS</b>		
Land - Change in Land Use		
Land – Land in Production		
Capital – Change in Equipment		
Capital - Total Investment Cost		
Capital – Annual Cost		
Capital – Credit and Farm Program Eligibility		
Labor - Labor		
Labor – Change in Management Level		
Risk - Yield		.
Risk - Flexibility		
Risk - Timing		
Risk – Cash Flow		

Profitability – Change in Profitability		
<b>HUMAN - CULTURAL</b>		
Cultural Resources and/or Historic Properties Present or Suspected to be PRESENT	Slight to Substantial Increase	
<b>HUMAN – ENERGY</b>		
Depletion of Fossil Fuel Resources		
Underutilization of Non-Fossil Energy Resources		

## Human Considerations Explanation

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