CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

STATE	Nebraska	FIELD OFFICE	Any	DATE	10/10/2008
PRACTICE: Forage Harvest Management 511		Baseline Setting:			
		Appropriate Land Use(s): Crop, Hay			

RESOURCES, CONSIDERATIONS AND CONCERNS	**PHYSICAL EFFECTS**	**RATIONALE**
SOIL - EROSION		
Sheet and Rill	Slight to Substantial Improvement	Maintaining a vigorous vegetative cover will reduce soil detachment by water.
Wind	Slight to Substantial Improvement	Maintaining a vigorous vegetative cover will reduce soil detachment by wind.
Ephemeral Gully	Slight to Moderate Improvement	Maintaining a vigorous vegetative cover will reduce soil detachment by water.
Classic Gully	Not Applicable	Not applicable.
Streambank	Not Applicable	Not applicable.
Shoreline	Not Applicable	Not applicable.
Irrigation Induced	Slight Improvement	Improved protective vegetative cover
Mass Movement	Not Applicable	Not applicable.
Road, Roadsides, and Construction Sites	Not Applicable	Not applicable.
SOIL – CONDITION		
Organic Matter Depletion	Slight Improvement	There will be an increase in vegetative cover and deeper root systems that may increase soil organic material.
Rangeland Site Stability	Not Applicable	Not applicable.
Compaction	Moderate to Substantial Improvement	There will be improved root development, litter accumulation, increased biological activity and decrease number of mechanical operations.
Subsidence	Not Applicable	Not applicable.
Contaminants:		
• Salts and other Chemicals	Slight Improvement	Infiltration and plant uptake will increase due to improved cover and plant vigor.
• Animal Waste and other Organics - N	Slight to Moderate Improvement	There will be a greater use of N by more vigorous plants.
• Animal Waste and other Organics - P	Slight to Moderate Improvement	There will be a greater use of P by more vigorous plants.
• Animal Waste and other Organics - K	Slight to Moderate Improvement	There will be a greater use of K by more vigorous plants.
• Commercial Fertilizer - N	Slight to Moderate Improvement	There will be a greater use of N by more vigorous plants.
• Commercial Fertilizer – P	Slight to Moderate Improvement	There will be a greater use of P by more vigorous plants.
• Commercial Fertilizer – K	Slight to Moderate Improvement	There will be a greater use of K

		by more vigorous plants.
• Residual Pesticides	Slight to Substantial Improvement	Improved vegetative cover and vigor of desired plants that hinder pests invasions reduce need for additional pesticide applications.
Damage from Sediment Deposition	Slight Improvement	Increased vegetative cover will reduce runoff and sediment yield.
WATER – QUANTITY		
Rangeland Hydrologic Cycle	Not Applicable	Not Applicable
Excessive Seepage	Slight to Moderate Improvement	There is potential for a decrease in seep flow because of increased utilization of soil moisture, however there may be slight worsening due to increased infiltration, especially during dormant season.
Excessive Runoff, Flooding, or Ponding	Slight to Moderate Improvement	Runoff will be reduced and infiltration increased.
Excessive Subsurface Water	Slight Improvement	There will be an increase in plant uptake.
Drifted Snow	Not Applicable	Not applicable.
Inadequate Outlets	Slight Improvement	Improved plant cover decreasing runoff.
Inefficient Water use on Irrigated Land	Slight Improvement	Improved forage management improves water use efficiency.
Inefficient Water use on Non-Irrigated Land	Slight Improvement	Improved forage management improves water use efficiency.
Reduced Capacity of Conveyances by Sediment Deposition	Not Applicable	Not applicable.
Reduced Storage of Water Bodies by Sediment Accumulation	Slight Improvement	Slight improvement because of decreased sediment load.
Aquifer Overdraft	Slight Improvement	Improved vigor of plant community increases infiltration rate.
Insufficient Flows in Water Courses	Slight Improvement	Forage Management will increase cover and improve infiltration, enhancing interflow.
WATER – QUALITY		
In Groundwater:		
• Harmful Levels of Pesticides	Slight to Moderate Improvement	Managing for desirable plant health and vigor reduces the need for pesticide applications.
• Excessive Nutrients and Organics	Slight to Moderate Improvement	The action improves plant vigor and increases nutrient uptake.
• Excessive Salinity	Slight Improvement	Improved management and plant health and vigor may increase uptake of salts.
• Harmful Levels of Heavy Metals	Slight Improvement	Improved management and plant health and vigor can increase uptake of heavy metals.
• Harmful Levels of Pathogens	Slight Improvement	Improved management, plant health and vigor improves soil

		microbial activity, which competes with pathogens.
• Harmful Levels of Petroleum	Not Applicable	Not applicable.
In Surface Water:		
• Harmful Levels of Pesticides	Slight to Moderate Improvement	Managing for desirable plant health and vigor reduces the need for pesticide applications.
• Excessive Nutrients and Organics	Slight to Moderate Improvement	Improved management and plant health and vigor reduces nutrients and organics used.
• Excessive Suspended Sediment and Turbidity	Slight to Moderate Improvement	Vegetation is managed to maintain health and vigor of plants, protecting soils from erosion.
• Excessive Salinity	Slight Improvement	Dense plant cover will improve infiltration and reduce runoff.
• Harmful Levels of Heavy Metals	Slight Improvement	Improved plant density, health and vigor will marginally improve plant uptake.
• Harmful Temperatures	Not Applicable	Not applicable.
• Harmful Levels of Pathogens	Slight Improvement	Management improves vegetative cover, decrease runoff, and increased soil microbiological activity.
• Harmful Levels of Petroleum	Neutral	Negligible amounts of petroleum products may be dropped from mechnical harvest equipment w/no effect on surface water.
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	Slight to Substantial Improvement	Plants are managed to optimize the composition of adapted and suited species.
PLANTS - CONDITION		
Productivity, Health, and Vigor	Moderate to Substantial Improvement	Plants are managed to maintain optimal productivity and health.
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	Moderate to Substantial Improvement	Improved cover, health and vigor of plant community reduces opportunity for invasion.
Forage Quality and Palatability	Moderate to Substantial Improvement	Management of plant community will increase quality and palatability of forage.
Wildfire Hazard	Moderate to Substantial Improvement	Harvesting reduces fuel load buildup.
ANIMALS - FISH AND WILDLIFE		
Inadequate Food	Slight to Moderate Improvement	Increased quality and quantity of vegetation provides more food for wildlife.
Inadequate Cover/Shelter	Slight to Moderate Improvement	Increased quality and quantity of vegetation provides more cover for wildlife.
Inadequate Water	Not Applicable	Not applicable.
Inadequate Space	Slight to Moderate Improvement	Improved plant cover, health and vigor decrease fragmentation increasing space depending on species of concern.
Habitat Fragmentation	Slight to Substantial Improvement	Improved plant cover, health and vigor decrease fragmentation depending on species of concern.
Imbalance Among and Within Populations	Slight Improvement	Timing of harvest and stubble height support optimum populations.
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	Moderate to Substantial Improvement	Improved management will improve quantity and quality of feed and forage.
Inadequate Shelter	Not Applicable	Not applicable.
Inadequate Stock Water	Not Applicable	Not applicable.
Stress and Mortality	Slight to Substantial Improvement	Improved forage quality and quantity reduces animals illness or death from disease, parasites, insects, poisonous plants, or other factors.
HUMAN – ECONOMICS		
Land - Change in Land Use	Not applicable.	Not applicable.
Land – Land in Production	Not applicable.	Not applicable.

Capital – Change in Equipment	Slight Increase.	
Capital - Total Investment Cost	Not applicable.	
Capital – Annual Cost	Slight increase.	
Capital – Credit and Farm Program Eligibility	Situational.	
Labor - Labor	Slight increase	Slight increase to move livestock to other pastures.
Labor – Change in Management Level	Slight increase	
Risk - Yield	Slight to Moderate Decrease	Slight to moderate decrease from improved health, extended grazing period, improved forage.
Risk - Flexibility	Slight Decrease	Slight decrease due to more effective management capabilities.
Risk - Timing	Substantial Increase	Substantial increase - practice must be applied following a planned, recurring sequence.
Risk – Cash Flow	Slight Decrease	Slight decrease because of higher yields and reduced costs.
Profitability – Change in Profitability	Slight to moderate increase.	Slight to moderate increase.
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 Substantial Decrease	Properly harvested forage produces a higher quality feed for unit energy used.
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.