

CONSERVATION PRACTICE PHYSICAL EFFECTS WORKSHEET

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| STATE | Nebraska | FIELD OFFICE | Any | DATE | 12/27/2011 |
| PRACTICE: Salinity and Sodic Soil Management 610 | | Baseline Setting: | | | |
| | | Appropriate Land Use(s): Crop, Hay, Pasture | | | |
| 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 | | Not Applicable | | Not applicable. | |
| Mass Movement | | Not Applicable | | Not applicable. | |
| Road, Roadsides, and Construction Sites | | Not Applicable | | Not applicable. | |
| 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 | | Slight to Substantial Improvement | | Salts in the root zone are reduced by leaching, drainage and/or plant management. | |
| • 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 | | Neutral | | 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 | | Slight to Moderate Improvement | | Control of salt improves use of available water. | |
| Inefficient Water use on Non-Irrigated Land | | Slight to Moderate Improvement | | Control of salt improves use of available water. | |
| Reduced Capacity of Conveyances by Sediment Deposition | | Not Applicable | | Not applicable. | |

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| Reduced Storage of Water Bodies by Sediment Accumulation | Not Applicable | Not applicable. |
| Aquifer Overdraft | Not Applicable | Not applicable. |
| Insufficient Flows in Water Courses | Not Applicable | Not applicable. |
| WATER – QUALITY | | |
| In Groundwater: | | |
| • Harmful Levels of Pesticides | Not Applicable | Not applicable. |
| • Excessive Nutrients and Organics | Not Applicable | Not applicable. |
| • Excessive Salinity | Slight to Moderate Worsening | The action requires removing salts from the root-zone. Leaching is one alternative and degree of effect depends on the amount of leaching used and the location of the ground water table. |
| • Harmful Levels of Heavy Metals | Slight Worsening | Leaching salts from the root zone may also leach heavy metals. |
| • Harmful Levels of Pathogens | Slight Worsening | Leaching salts from the root zone may also leach pathogens. |
| • Harmful Levels of Petroleum | Not Applicable | Not applicable. |
| In Surface Water: | | |
| • Harmful Levels of Pesticides | Not Applicable | Not applicable. |
| • Excessive Nutrients and Organics | Not Applicable | Not applicable. |
| • Excessive Suspended Sediment and Turbidity | Not Applicable | Not applicable. |
| • Excessive Salinity | Slight to Moderate Worsening | Salts leached from the root zone by drainage may enter surface water. |
| • 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. |
| AIR – QUALITY | | |
| Particulate Matter less than 10 Micrometers in Diameter (PM 10) | Slight to Moderate Improvement | Preventing or reducing salt accumulation in the soil leads to improved vegetative cover, reducing the potential for soil movement by wind. |
| Particulate Matter less than 2.5 Micrometers in Diameter (PM 2.5) | Slight to Moderate Improvement | Preventing or reducing salt accumulation in the soil leads to improved vegetative cover, reducing the potential for soil movement by wind. |
| 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 | Not Applicable | Not applicable. |
| Undesirable Air Movement | Not Applicable | Not applicable. |

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| Adverse Air Temperature | Not Applicable | Not applicable. |
| PLANTS – SUITABILITY | | |
| Plants not Adapted or Suited | Slight to Substantial Improvement | Management of salts and the use of soil amendments enhances suited and desired species. |
| PLANTS - CONDITION | | |
| Productivity, Health, and Vigor | Slight to Substantial Improvement | Management of salts and the use of soil amendments improves plant productivity and vigor. |
| Threatened or Endangered Plant Species: | | |
| <ul style="list-style-type: none"> Plant Species Listed or Proposed for Listing Under the Endangered Species Act | Not Applicable | Not applicable. |
| <ul style="list-style-type: none"> Declining Species, Species of Concern | Not Applicable | Not applicable. |
| Noxious and Invasive Plants | Not Applicable | Not applicable. |
| Forage Quality and Palatability | Moderate to Substantial Improvement | Proper management and selection of adapted species will increase quality and palatability of forage. |
| 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: | | |
| <ul style="list-style-type: none"> 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. |
| <ul style="list-style-type: none"> 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 | Moderate to Substantial Improvement | Forage vigor and quantity is improved through effective management of soil salinity and sodium. |
| 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 | Slight to substantial. | |
| Land – Land in Production | Slight to substantial. | |
| Capital – Change in Equipment | Slight Increase. | |
| Capital - Total Investment Cost | Not applicable. | Not applicable. |

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| Capital – Annual Cost | Negligible | |
| Capital – Credit and Farm Program Eligibility | Situational. | |
| Labor - Labor | Slight to moderate. | |
| Labor – Change in Management Level | Slight to moderate increase. | |
| Risk - Yield | Slight to Moderate Decrease | Slight to moderate decrease increase due to reduced salt levels. |
| Risk - Flexibility | Slight Increase | Slight increase based on methods used to reduce concentrations. |
| Risk - Timing | Moderate to Substantial Increase | Moderate to substantial increase, depending on level of concentration. |
| Risk – Cash Flow | Slight Increase | Slight increase due to establishment costs. |
| Profitability – Change in Profitability | Situational | Moderate decrease to slight 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 Moderate Increase | This practice requires substantial energy expenditures for control of water. Little change in energy. Control is achieved through better crop rotations to improve water utilization. Energy saved by not tilling saline spots and putting to perennial grass |
| Underutilization of Non-Fossil Energy Resources | Not Applicable | Not Applicable |

Human Considerations Explanation

| Considerations | Physical effects indicate: |
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| 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. |