**Conservation Practice Effects**

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| **Windbreak/Shelterbelt Establishment (Ac) 380**  **Definition: Windbreaks or shelterbelts are single or multiple rows of trees or shrubs in linear configurations.**  **Major Resource Concerns Addressed: Wind erosion, energy savings.**  **Benchmark Condition: Exposed cropland and headquarters.**  **Date: October, 2016 Developer/Location: Hal Gordon, OR** | |
| **Positive Effects** | **Negative Effects** |
| **Soil**   * **Sheet, rill and gully erosion is reduced by vegetation across the slope and surface litter reduces erosive water energy.** * **Wind Erosion is reduced by tall vegetation that creates a wind shadow, reduces erosive wind velocities and provides a stable area which stops saltating particles.** * **Roots and vegetative matter and its breakdown increases organic matter.** * **Root penetration and organic matter helps restore soil structure and reduces compaction.**   **Water**   * **Reduction in seeps as trees/plants uptake excess water.** * **Runoff, flooding, or ponding is reduced as trees or shrubs increase infiltration and retard flood water movement.** * **Water table and soil moisture is restored as plants uptake excess water.** * **Snow is captured within and downwind of tree/shrub rows increasing soil moisture.** * **Tall vegetation reduces wind speeds and evapotranspiration allowing more efficient use of available water.** * **Sheltered crops intercept pesticide drift.** * **Plants and soil organisms’ uptake nutrients and improve surface and ground water quality.** * **Vegetation traps sediment preventing it from being deposited elsewhere.**   **Air**   * **Reduced particulate emissions associated with wind erosion and filtering particulate matter, CO2 and ammonia from the air.** * **Vegetation will reduce wind movement and intercept fine particulates, dust and reduce odor.**   **Plants**   * **Crops are sheltered from airborne sediment and chemical drift.** * **Reduced crop damage.** * **Vegetation is installed and managed to control undesired species.**   **Animals**   * **Improved plant diversity and quality and quantity of vegetation provides food, cover and space for wildlife.** * **Livestock feed and forage in is enhanced by improving the microclimate.** * **Tall vegetation provides shelter for wildlife and livestock.**   **Energy**   * **Reduced heating and cooling around farmsteads.** * **Potential biomass as fuel source.**   **Human**   * **Increase yields/reduce costs as land becomes more productive.** * **Create sustainability of natural resources that support your business.** * **Increase the property value (real estate) of your property.** * **Create open space and improve habitat for wildlife.** * **Conserve soil and water for periods of drought and future use.** * **Prevent off-site negative impacts.** * **Comply with environmental regulations.** * **Save time, money and labor.** * **Promote family health and safety.** * **Make land more attractive and promote good stewardship.** * **May be eligible for cost share.** | **Land**   * **Change in land use and land in production.** * **Historic landscapes may change.**   **Capital**   * **Materials, planting & installation costs.** * **No additional field equipment required.** * **Annual operation and maintenance costs to maintain vegetation and manage pests.** * **Forgone income.**   **Labor**   * **Increase in labor during planting.**   **Management**   * **Management change from previous crop.**   **Risk**   * **None** |
| **Net Effect: Reduced wind erosion, improved soil productivity at a moderate cost.** | |

**Commonly Associated Practices:** Access Control , Brush Management, Conservation Crop Rotation, Cover Crop, Cross Wind Trap Strips, Dust Control from Animal Activity on Open Lot Surfaces, Fence, Field Border, Firebreak, Herbaceous Weed Control, Herbaceous Wind Barriers, Integrated Pest Management, Mulching, Residue and Tillage Management-Mulch Till, Residue and Tillage Management-No Till/Strip Till/Direct Seed, Residue and Tillage Management-Ridge Till, Residue Management-Seasonal, Tree/Shrub Establishment, Tree/Shrub Pruning, Tree/Shrub Site Preparation, Upland Wildlife Habitat Management, Watering Facility, Windbreak/Shelterbelt Renovation.

**Note:** This worksheet contains general talking points for the conservation planner to discuss with the land user. It is the first step towards an economic or financial analysis. The second step would include identifying a specific site for analysis at the farm or field level, editing the template for local conditions, adding units and quantities of farm inputs and outputs. The third step in the economic analysis is to place a dollar value on as many variables as possible, put all units in the same time frame, using amortization ($/Acres/Year) or net present value ($/Acre), so benefits and costs can be compared. The fourth and final step would be to combine several conservation practices into a conservation system, which is how most conservation practices are applied at the field level. Data for the worksheet comes from the land user, conservation planner, technical specialist and local agricultural supply vendors and contractors. See Economics Technical Note: TN 200-ECN-1, Basic Economic Analysis Using T-Charts (August 2013) for more information.