**Conservation Practice Effects**

|  |  |
| --- | --- |
| **Alley Cropping (Ac) 311**  **Definition: Trees or shrubs planted in a set or series of single or multiple rows with agronomic, horticultural crops or forages produced in the alleys between the rows of woody plants.**  **Major Resource Concerns Addressed: Wind erosion, soil health, wildlife habitat.**  **Benchmark Condition: Small grain, hay crop rotation.**  **Date: October, 2016 Developer/Location: Hal Gordon, OR** | |
| **Positive Effects** | **Negative Effects** |
| **Soil**   * **Sheet, rill, wind and gulley erosion is reduced by vegetation, surface litter, tall vegetation and wind shadow.** * **Roots and vegetative matter from permanent vegetation increases organic matter.** * **Root penetration and organic matter helps restore soil structure and reduces compaction.**   **Water**   * **Runoff, flooding and ponding are reduced, less runoff with increased water infiltration.** * **Seasonal high water table and seeps are reduced with greater plant water uptake.** * **Drifted snow is captured by tree/shrub crowns and deposited between rows.** * **Tall vegetation reduces wind speeds and evapotranspiration allowing more efficient use of available water.** * **Trees and shrubs intercept pesticide drift and take up pesticide and nutrient residues.** * **Nutrients and pesticides in surface and ground water will decrease as plant vigor improves soil conditions.** * **Pathogens and chemicals from manure in surface and groundwater will be reduced in sensitive areas.** * **Sediment in surface water will be reduced.** * **High water temperature will be reduced.** * **Petroleum, heavy metals and other pollutants in surface and groundwater will be reduced.**   **Air**   * **Trees provide windbreak and reduce saltating particles.** * **Vegetation removes CO2 from the air and stores it as carbon in plants and soil.**   **Plants**   * **Crops are sheltered from airborne sediment and chemical drift.** * **Plant productivity will increase.**   **Animals**   * **Fish, wildlife and livestock habitat, food, water, cover and shelter will improve for some species.** * **Wildlife habitat continuity (space) will improve, tall vegetation creates vertical habitat structure.** * **Trees can limit livestock heat stress.**   **Energy**   * **Comparatively energy-efficient.** * **Potential biofuel production.**   **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**   * **Cultural resources may be adversely effected during tree planting.** * **Increased complexity of land use, producing two or more crops.** * **Change to less intense land use, some land converted from crop to tree production.** * **No additional field equipment required.**   **Capital**   * **Site preparation and tree planting costs.** * **Operation and maintenance costs maintaining vegetation and managing pests.**   **Labor**   * **Reduced labor with less intensive agriculture.**   **Management**   * **Increase to manage additional farm enterprise.**   **Risk**   * **Decrease in farm flexibility while following designed cropping pattern around perennial plantings.** * **Cash flow will decrease with less intense agricultural production.** * **Crops must be adapted and managed to account for use of available water by trees.** * **Foregone income from lost production or change in seasonal use.** |
| **Net Effect: Alley Cropping improves soil productivity, reduces erosion at a moderate cost.** | |

**Commonly Associated Practices:** Conservation Crop Rotation, Contour Buffer Strips, Contour Farming, Cover Crop, Forest Stand Improvement, Integrated Pest Management, Multi-Story Cropping, Nutrient Management, 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, Woody Residue Treatment

**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.