**Conservation Practice Effects**

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| **Multi-Story Cropping (Ft) 379****Definition: Existing or planted stands of trees or shrubs that are managed as an overstory with an understory of woody and/or non-woody plants that are grown for a variety of products.****Major Resource Concerns Addressed: Soil productivity.****Benchmark Condition: Annual cropland.****Date: October, 2016 Developer/Location: Hal Gordon, OR** |
| **Positive Effects** | **Negative Effects** |
| **Soil*** **Sheet, rill, gully and streambank erosion is reduced by vegetation and surface litter reducing raindrop impact, slowing runoff water and increasing infiltration.**
* **Wind erosion is reduced by trees or shrubs creating turbulence, reduced wind velocities and stable areas which stops saltating particles.**
* **Biological activity, root depth/density and organic matter cycling increases.**
* **Compaction is reduced and soil structure improved.**
* **Canopy cover and organic matter provide soil buffer during extended tropical droughts to reduce organic matter oxidation and loss.**
* **Plants may take up some salts, and increased root penetration improves infiltration that may lead to increased leaching.**
* **Water**
* **Runoff, flooding, ponding, high water table and seeps are reduced with increased infiltration, evapotranspiration utilizes water, and increased soil organic matter holds water.**
* **Management of mixed multistoried crops reduces need for chemicals to manage pests. Pesticide degradation may be improved by interception of drift by varied canopy layers. Surface and ground water are improved.**
* **Permanent vegetation and soil organisms’ uptake nutrients and surface and ground water are improved.**
* **Varied canopy layers and surface cover and organic matter increases infiltration and reduces need for irrigation or chemical inputs and reduces harmful pathogens.**
* **Reduced sediment-laden runoff from reaching surface water conveyances.**
* **Air**
* **Permanent vegetation traps air and slows movement of air, reducing wind velocities and wind stress on crops while providing a stable area to intercept air particles.**
* **Emissions of greenhouse gases are reduced and stored as carbon.**
* **Plants**
* **Increase in crop yield with more effective use of nutrients and plant protection.**
* **Plants are selected and managed to maintain optimal productivity, health and to control plant pests and undesired species.**
* **Management of multiple layers and surface organic matter reduce ladder fuel load buildup.**
* **Animals**
* **Fish and wildlife habitat, cover and shelter will improve.**
* **Changes in stand structure and composition may create habitat diversity and edge conditions favored by some wildlife.**
* **Energy**
* **No change.**
* **Human**
* **Opportunity to produce two or more sources of income.**
* **Decrease in labor with land taken out of annual crop production.**
* **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.**
* **Increased profitability in the long run.**
 | **Land*** **Cultural resources may be damaged during tree planting.**
* **Increased intensity of land use, producing two or more crops.**

**Capital*** **Additional field equipment required to produce two crops.**
* **Materials, installation and management costs.**

**Labor*** **Labor for additional field operations.**

**Management*** **Increase in management to take soil test, calibrate equipment and keep records.**

**Risk*** **Reduced agricultural operation flexibility and timing with less annual crop and more perennial vegetation.**
* **Crops must be adapted and managed to account for use of available water by trees.**
* **Changes in stand structure and composition may interrupt continuity of habitat for certain wildlife species.**
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| **Net Effect: Improves soil productivity at a moderate cost.** |

**Commonly Associated Practices:** Access Control , , Brush Management, Firebreak, Forage and Biomass Planting, Forest Stand Improvement, Forest Trails and Landings, Herbaceous Weed Control, Integrated Pest Management, Nutrient Management, 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.