**Conservation Practice Effects**

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| **Conservation Crop Rotation (Ac) 328**  **Definition: Growing crops in a planned sequence on the same field.**  **Major Resource Concerns Addressed:**  **Benchmark Condition:**  **Date: October, 2016 Developer/Location: Hal Gordon, OR** | |
| **Positive Effects** | **Negative Effects** |
| **Soil**   * **Reduced sheet, rill, wind and gully erosion by maintaining sufficient canopy and residue cover that reduces soil detachment by water.** * **High residue crops can lead to increased root development and increased soil organic carbon.** * **Deep rooted crops in the rotation may reduce compaction.** * **Soil subsidence may be reduced if rotation addresses drainage.** * **Salt tolerant crops with high transpiration rates can increase salt uptake and reduce salt content in the root zone.**   **Water**   * **Improved plant uptake may reduce excessive seepage, runoff, flooding, ponding and seasonal high water table.** * **Crop rotation balances available water with crop needs and may reduce total irrigation requirements.** * **Reduced need for pesticide use by breaking pest lifecycles and improve surface and ground water quality.** * **Nitrogen demanding or deep rooted crops can remove excess nitrogen.** * **Legumes in rotation will provide slow release nitrogen and reduce need for additional nitrogen and improve surface and ground water quality.** * **Reduced erosion and runoff reduces transport of salts, and some crops may accumulate salts, improving water quality.** * **Depending on crop rotation, less erosion and runoff reduces delivery of sediment and pathogens.**   **Air**   * **Crops in the rotation can reduce the generation of fugitive dust.** * **Vegetation removes CO2 from the air and stores it in the form of carbon in the plants and soil.**   **Plants**   * **Increase in crop yield with improved soil quality, fertility and moisture holding capacity.** * **Crop selection will be modified to include species better suited to soils and climate.** * **Crop rotation creates diversity that may reduce weed pressures, break weed life cycles, and provide competition that would slow the spread of noxious plants.**   **Animals**   * **Suitable rotations may provide more food, cover and shelter for wildlife.** * **Increased cover will increase space for wildlife and connect to other cover areas.** * **Crop rotation may be designed to add forage crops and aftermath grazing for livestock.**   **Energy**   * **Legume crops supply nitrogen reducing fertilizer costs.**   **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.** * **Increased profitability in the long run.** | **Land**   * **Cultural resources may be harmed if new deep rooted crops are introduced.** * **Land may be utilized more intensely.** * **No change in land in production.**   **Capital**   * **No additional field equipment required.** * **Crop production costs.**   **Labor**   * **Additional time cultivating crops.**   **Management**   * **Increase time managing crop production.**   **Risk**   * **Decrease in agricultural operation flexibility and timing with required crops in rotation.** * **Forgone income by going to less profitable crops.** |
| **Net Effect: Cover crop improves soil productivity, reduces erosion at a moderate cost.** | |

**Commonly Associated Practices:** Conservation Cover, Contour Buffer Strips, Cover Crop, Critical Area Planting, Cross Wind Trap Strips, Herbaceous Wind Barriers, Integrated Pest Management, Irrigation Water Management, Mulching, 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, Terrace, Spoil Spreading, Stream Habitat Improvement and Management, Streambank and Shoreline Protection.

**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.