IAMP-Reduced tillage from conventional (NRCS Code 345)

Description: Limiting soil-disturbance from tillage by modifying methods to those that limit inversion tillage operations such as moldboard plowing and harrowing with chisel or similar implement. Alternative conservation tillage methods acceptable under this practice include strip-till, ridge-till, mulch-till, and vertical/shallow-till methods. Fewer passes, strip-till, etc. minimize soil disturbance by implementing less intensity, shallower depth, and area disturbed. This practice also includes the management of crop residue to protect soil surfaces (or taken directly from NRCS 345).

Benefits: Reduce erosion, increase water holding capacity, improve soil health, increase organic matter, reduce off-site losses and availability of easily transported nutrients, reduces pressure from some pests, reduces expenses associated with tillage operations.

Soil Health Benefits: Improve soil carbon retention by reducing exposure of soil organic matter (SOM) to oxygen (O_2) and allowing SOM to stabilize.

Considerations for Success: May require equipment not currently owned. Rental equipment may be available through your soil and water conservation district or other local sources.

IAMP Preferences/Considerations: The IAMP project incentivizes practices that improve soil health and long-term agronomic productivity. To sustain improvements in soil organic matter, tillage reduction should be adopted permanently throughout the cropping rotation. Plowing after reduced till can expose labile SOM to O_2.

Specific Practice Details: IAMP has several requirements to document that the reduced-tillage practice was implemented correctly and to document the effectiveness of the practice from the current cropping strategies employed in the field. *The cost of analysis of any required soil sampling and analysis will be covered by the IAMP project*. For an overview of all required sampling for each IAMP practice, see IAMP Crop/Soil Sampling Matrix. Practice requirements are described below:

1) **Erosion limits**: Planned tillage activities must meet the following NRCS criteria.
    a. The soil tillage intensity rating (STIR) value equivalent calculated using ARS spreadsheet tool or RUSLE2 based on planned is no greater than 80. The STIR value shall include all field operations that are performed during the crop interval between harvest and termination of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods).
    b. Soil erosion rates are less than soil tolerance levels (T).
2) **Producer Supplied Field Management Information**:
    a. Annual operation data including crop yield.
3) **Soil Carbon Sampling**: Soil samples must be collected from the enrolled field at the start of the project to track changes in soil carbon over the project duration. Refer to the IAMP Soil Sampling Protocol for details.
4) **Soil Nutrient Sampling**: Soil samples may be collected from the enrolled field to provide potentially beneficial marketable information. If a producer elects to do so, sampling would optimally occur both prior to planting and after harvesting, at one-foot intervals to a depth of 2 feet. This sampling assesses the practice's impact on available soil nitrogen and identifies any

nutrient deficiencies or benefits resulting from implementation. Refer to the IAMP Soil Sampling Protocol for details.

Verification required prior to payment:

- Uniformly distributed residues over the entire field (Removing residue from the row area prior to or as part of the planting operation is acceptable).
- Direct measurement of ground cover (through analysis of images or direct measurement) following tillage.

Incentive Payments: $40/acre/year of implementation.

Stacking or Companion Practices: Reduced tillage is compatible with other incentivized IAMP practices: Biochar, Cover crops, Conservation crop rotation (>2 crops), Intercropping, Nutrient management (Basic, Enhanced and Precision), Prescribed grazing, Soil carbon amendment.

Sources:

NRCS: Residue and Tillage Management, Reduced Till (345)

Also see NRCS Soil Health

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