IAMP—Carbon Amendment with Compost (within NRCS Code 336)

Description: Compost is a carbon rich amendment that can be used to increase or maintain soil organic matter, enhance soil carbon stocks, improve soil aggregate stability, and improve habitat for soil organisms. Compost is generated through the aerobic microbial decomposition and stabilization of organic matter and has more labile carbon and a more active microbial community than biochar. A producer may prefer compost over biochar because compost provides additional short-term benefits such as nutrient supply, enhanced soil biological activity, and a readily available way to recycle organic nutrients sustainably. IAMP adopts the NRCS definition of compost and requires that compost meets the US Composting Council's Seal of Testing Assurance Program (STA) or meets the criteria identified by NRCS conservation practice standard practices (Code 336) based on the Test Methods for the Examination of Composting and Compost (TMECC) recognized methods.

Benefits: Compost provides benefits from increased organic matter but also provides nutrients and can enhance microbial activity. It can improve soil structure and increase soil moisture retention, potentially minimizing nutrient leaching losses, and possibly increasing crop yields.

Soil Health Benefits: Compost improves soil health through enhancements in water retention, soil structure, microbial activity, and aggregate stability.

Considerations for Success:

- Compost decomposes with time and depends on the type of carbon and nutrient composition.
- Not all compost is the same and therefore needs to be tested to understand its physical and chemical characteristics and how they may impact the soil when applied.
- Compost must meet NRCS requirements with evidence that the compost meets standards described in (Code 336).
- Do not apply compost when a phosphorus risk assessment indicates a high or very high risk for phosphorus transport. Consider manufactured compost products that are low in soluble phosphorus.

Options: See NRCS Soil Carbon Amendment (Code 336).

IAMP Preferences/Considerations: The IAMP project incentivizes practices that improve soil health and long-term agronomic productivity. It is in the best interest of IAMP to improve and maintain long-term sustainability of farming across Idaho and encourages buying compost from local sources which helps alleviate excessive nutrients from dairies and other animal operations and provide a rich source of carbon and nitrogen to cropland producers. IAMP encourages producers to document impacts of compost on productivity and quality of the commodities grown to enhance marketing opportunities.

Specific Details:
IAMP has several requirements to document the compost practice was implemented correctly and to document the effectiveness of the practice from the current cropping strategies employed in the field. Each of these requirements is described below.

1) Soil Sampling:

   a. Prior to application: a composite soil sample should be taken from the top 1 ft and analyzed for pH, organic matter or organic carbon, extractable phosphorus and potassium.
   b. One year after application: a composite soil sample should be taken from the top 1 ft and analyzed for soil organic matter or organic carbon, extractable phosphorus, and pH.
2) Compost sampling: A compost sample will be sent in for analysis prior to application each year, see the IAMP Crop/Soil Sampling Matrix for information on where to send the sample. Specifically, the compost analysis must include the comprehensive list of attributes listed in the carbon amendment NRCS conservation practice standard (Code 336) by a certified lab.
3) Compost application rates must not exceed phosphorus crop removal rates. Use the following NRCS spreadsheet 590_ID_GD_Nutrient_Management-Spreadsheet.xlsx to analyze removal rates.
4) Do not use compost produced from:
   - Crop residues that could otherwise be left on the field to provide soil protection and improve soil organism habitat, or
   - Woody residue needed to sustain forest health and wildlife habitat referenced in NRCS CPS Forest Stand Improvement (Code 666).
5) Producer supplied field management information (collected during annual reporting):
   a. Annual operation data including crop yield.

Soil Organic Matter and Biomass Sampling: Soil organic matter changes slowly and therefore sampling the same location once every 5 to 10 years is encouraged. Measuring total biomass production following amendment application can also be useful to document potential increases in overall biomass returned to the crop rotation. For an overview of all suggested sampling protocols for each IAMP practice, see IAMP Crop/Soil Sampling Matrix.

Verification Required Prior to Payment:

- Inspection by an implementing partner. Producers will provide a record of the compost application rate and timing and the source of the compost. Confirm that at least 3 ton/ac (6.7 Tonnes/ha) of compost was applied.
- Certification that compost source is approved and meets the practice standard as described above.
- Certified lab analysis of a compost sample taken prior to application, including the attributes required under Code 336.
- Certify the compost was not produced from prohibited feedstocks (crop residues needed for soil protection or woody residue needed for forest health per Code 666).
- Pre-application soil test results (top foot: pH, organic matter or organic carbon, extractable phosphorus, and potassium).
- The completed Idaho Phosphorus Site Index worksheet for the field, showing the risk was not high or very high.
- The 590_ID_GD Nutrient Management spreadsheet showing the application rate did not exceed crop phosphorus removal.

Incentive Payments: $225/acre in the year of application, with a minimum required application of 3 tons/acre (6.7 tonnes/ha). The per-acre payment increases by $30/acre for each additional 1 ton/acre of compost applied, as follows:

- 3 tons/ac (6.7 tonnes/ha) — $225/ac
- 4 tons/ac (9.0 tonnes/ha) — $255/ac
- 5 tons/ac (11.2 tonnes/ha) — $285/ac
- 6 tons/ac (13.5 tonnes/ha) — $315/ac
- 7 tons/ac (15.7 tonnes/ha) — $345/ac
- 8 tons/ac (17.9 tonnes/ha) — $375/ac
- 9 tons/ac (20.2 tonnes/ha) — $405/ac
- ≥10 tons/ac (≥22.4 tonnes/ha) — $435/ac

Payment is made at defined steps; verified extent is rounded down to the nearest step and no payment is made for partial progress between steps.

Stacking or Companion Practices: Compost amendments are compatible with other incentivized IAMP practices. Cover crops, Conservation crop rotation (>2 crops), Intercropping, No tillage from conventional, Reduced tillage from conventional, Nutrient management, and Prescribed grazing.

Sources:

NRCS Soil Carbon Amendment (Code 336)

This material is based upon work supported by the U.S. Department of Agriculture, under agreement number NR233A750004G038. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the U.S. Department of Agriculture. In addition, any reference to specific brands or types of products or services does not constitute or imply an endorsement by the U.S. Department of Agriculture for those products or services. The Innovative Agriculture and Marketing Partnership (IAMP) is funded with a five-year, $59 million grant through the U.S. Department of Agriculture's Advancing Markets for Producers program, award No. NR233A750004G038. The total project funding is $59,240,577, of which 99.84% is the federal share. USDA is an equal opportunity provider, employer, and lender.