Agricultural BMP Verification Protocols for Best Management Practices

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Agricultural BMP

Verification

Agricultural BMP Verification

- The Agriculture Workgroup identified the need to scientifically support the development of an agricultural verification protocol.

  – Technical assistance obtained from Tetra Tech under the direction of the workgroup.

  – A summary verification report will document the findings from a national scientific literature search…

  – …and through interviews with both regionally and nationally recognized verification experts.

Agricultural BMP Verification

- The Agriculture Workgroup has used the BMP verification principles developed by the Water Quality Goal Implementation Team's (WQGIT) BMP Verification Steering Committee.

  - The workgroup considered multiple options for developing an agricultural verification protocol.

  - Both positive and non-positive attributes identified for each option.

Agricultural BMP Verification

- Four distinct options have been considered by the Agriculture Workgroup to establish protocols for verifying agricultural BMPs.

  - Version 1
  - Version 2.1
  - Version 2.2
  - Version 3

Agricultural BMP Verification

- Version 1:
  Create a limited and uniform verification protocol standard for all practices and programs.

  - Not recommended by the workgroup.

Agricultural BMP Verification

- Benefits
  - Simplistic approach.
  - Provides 100% model acceptance of reported practices.
  - Provides 100% of the model BMP effectiveness values.

- Concerns
  - Does not conform to the diversity of agricultural practices and implementation programs across six jurisdictions.
  - A limited verification protocol standard would not offer sufficient capacity for adequate BMP implementation reporting.

Agricultural BMP Verification

- Version 2.1:
  Create diverse verification protocol options and identify the levels of data confidence for each protocol.

  - Limit the units of BMP implementation reported by the degree of relative data confidence
  - Not recommended by the workgroup.

Agricultural BMP Verification

- Benefits
  - Multiple potential verification protocol options reflective of the diversity of agricultural practices and programs.
  - Application of 100% of the model BMP effectiveness values.
- Concerns
  - Produces varying levels of relative data confidence between the protocol options, as well as between practice types within a single protocol.
  - The scientific documentation to assign defensible relative data verification levels is not adequate.
  - Limiting the units of tracked BMPs that could be reported could jeopardize local community support.

Agricultural BMP Verification

- Version 2.2:
  Create diverse protocol options and identify the levels of confidence for each protocol.

  - Limit the model reduction credits for the units of BMP implementation reported by the degree of relative data confidence.

  - Not recommended by the workgroup.

Agricultural BMP Verification

- Benefits
  - Offers multiple potential verification protocol options that are more reflective of the diversity of agricultural practices and programs.
  - Provides 100% model acceptance of reported practices.
- Concerns
  - Produces varying levels of relative data confidence between the protocol options, as well as between practice types within a single protocol.
  - The scientific documentation to assign defensible relative data verification levels is not adequate.
  - Limiting the model credit values of reported BMPs could jeopardize the scientific defensibility of the BMP effectiveness values.

Agricultural BMP Verification

- Version 3:

 Create diverse protocol options and apply a uniform minimum threshold of relative data confidence to all protocols.

  - Recommended by the workgroup on November 29, 2012.

Agricultural BMP Verification

- Benefits
  - Multiple potential verification protocol options reflective of the diversity of agricultural practices and programs.
  - The scientific documentation to assign defensible relative data verification levels is adequate.
  - Provides 100% model acceptance of reported practices.
  - Provides 100% of the model BMP effectiveness values.

- Concerns
  - Produces varying levels of relative data confidence between the protocol options, as well as between practice types within a single protocol.
  - Requires attaining the standard confidence level threshold for reporting any BMP implementation.

Agricultural Verification Protocol Elements

Verification Protocol Elements

- **Verification Protocol Version 3.5 Matrix**

  – <u>Statistical Data Confidence Threshold</u>

    - All BMP data to be reported to and credited by the Chesapeake Bay Program models would be required to meet a minimum documented 80 percent level of statistical data confidence.

    - The figure of 80 percent is based on the mid-point of a range of documented data confidence levels identified by the Tetra Tech research study.

Verification Protocol Elements

- **Verification Protocol Version 3.5 Matrix**

    – <u>Agricultural BMP Verification Protocols</u>
    Identified general categories of verification protocols.

    – <u>Assessment Methods</u>
    Assessment methods and entity that would be collecting and verifying the data.

Verification Protocol Elements

- **Verification Protocol Version 3.5 Matrix**

  - <u>Conservation Practice Category</u>

    – Assessment methods and associated data confidence levels are affected by the type of agricultural BMPs being assessed.

    – Assessments methods were evaluated for each BMP category to determine if the method was realistically appropriate.

    – Significant verification efforts may still be required to meet the data confidence threshold.

Verification Protocol Elements

- **Verification Protocol Version 3.5 Matrix**

  – <u>Cost-Sharing Information</u>
    Potential differences for BMPs designed and financed through federal, state, NGO and private sources for each assessment method.

  – <u>Other BMP Information</u>
    Ability of each assessment method to verify if the practice meets the BMP specification, a functional equivalent, or non-functional equivalent BMP. Identifies date of practice implementation for model reporting purposes.

Verification Protocol Elements

- **Verification Protocol Version 3.5 Matrix**

  - Verification Methodology
    Methodologies to track, verify and report implemented practices. BMPs being assessed and verified through permit or financial incentive programs are limited to the period of the active permit or contractual agreement. Alternative assessment methods are also identified.

  - Verification Issues
    Limitations and potential verification issues that need to be addressed to obtain the statistical data confidence threshold requirements.

Verification Protocol Elements

- **Verification Protocol Version 3.5 Matrix**

  - <u>Relative Scientific Defensibility</u>
    Relative comparative values are assigned to each assessment method pertaining to their scientific defensibility based on the findings of the Tetra Tech research report.

  - <u>Relative Accountability</u>
    Relative comparative values assigned to each assessment method pertaining to the accountability of the entity reporting, tracking and verifying the data.

Verification Protocol Elements

- **Verification Protocol Version 3.5 Matrix**

    - <u>Relative Transparency</u>
    Relative comparative values assigned to each assessment method based on the transparency of the:

        - BMP verification method and entities involved?

        - BMP verification method, entities involved, and the subsequent reported data?

Agricultural Verification Protocol Packet

Verification Protocol Packet

- The Agricultural Verification Protocol Packet being developed will include the following elements:

    – Verification Protocol Matrix

    – Verification Guidance Document

    – Summary Verification Research Report

    – Verification Planning Tools

Verification Protocol Packet

- Packet is intended to provide…

  - …structure and expectations of verifying tracked data for reporting to the Chesapeake Bay Program for nutrient and sediment reduction credits.

  - …guidance for agencies and partners to develop program specific and detailed data verification plans for submission to the Verification Review Panel and partnership for review.

  - …guidance for the Verification Review Panel and the partnership to review and recommend verification plans.

Verification Protocol Packet

- Estimated date of packet completion and Agriculture Workgroup recommendation...

Early 2013

Questions?