

AG BMP IMPLEMENTATION VERIFICATION INDEX

Steve Dressing and Don Meals, Tetra Tech, Inc.

OBJECTIVES

- To generate qualitative assessments of relative confidence in BMP verification procedures
- To provide a framework for assessing the relative strengths and weaknesses of alternative verification procedures for documenting BMP implementation.
- To provide consistency in the assessment of verification protocols across BMPs, sectors, and states.

LIMITATIONS

- ✘ Index scoring is largely based on best professional judgment, but could include quantitative basis as available.
- ✘ Testing of index has been limited to 3 protocols:
 - + MD Nutrient Management
 - + CTIC Tillage Survey
 - + Black Creek, IN
- ✘ Scores do not translate directly into specific confidence levels.

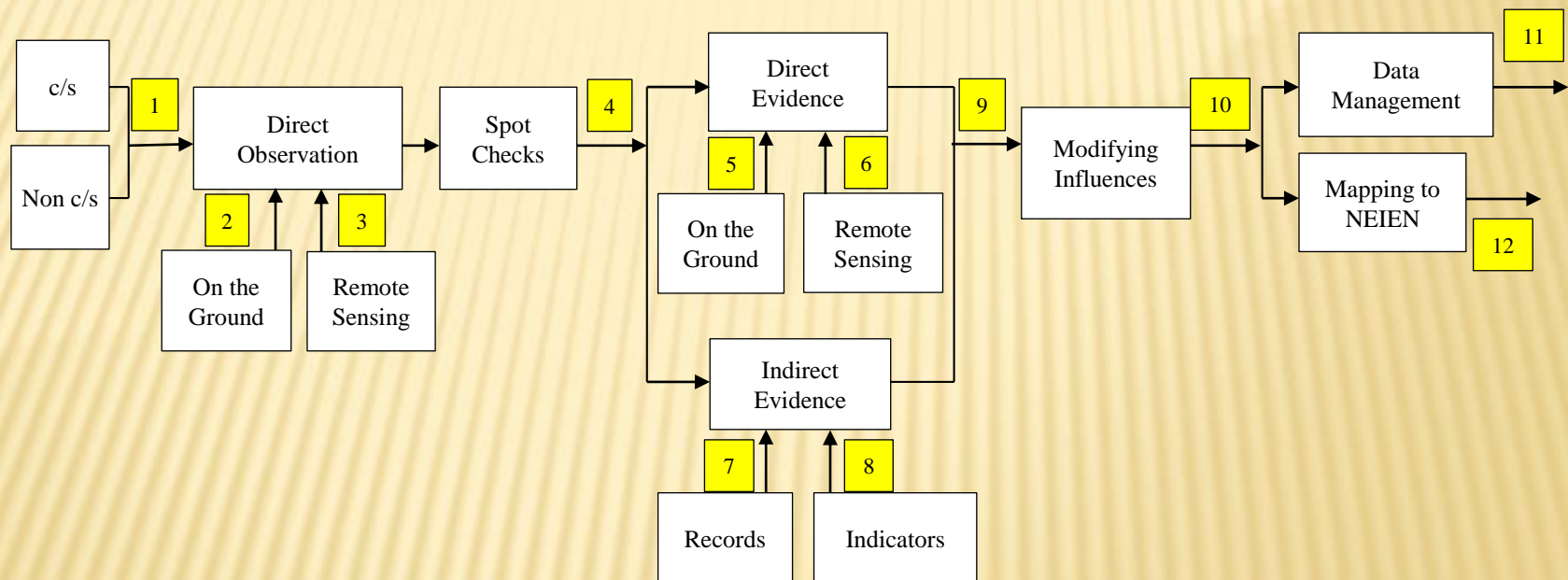
ERROR/UNCERTAINTY- DIRECT OBSERVATION

BMP
Coverage

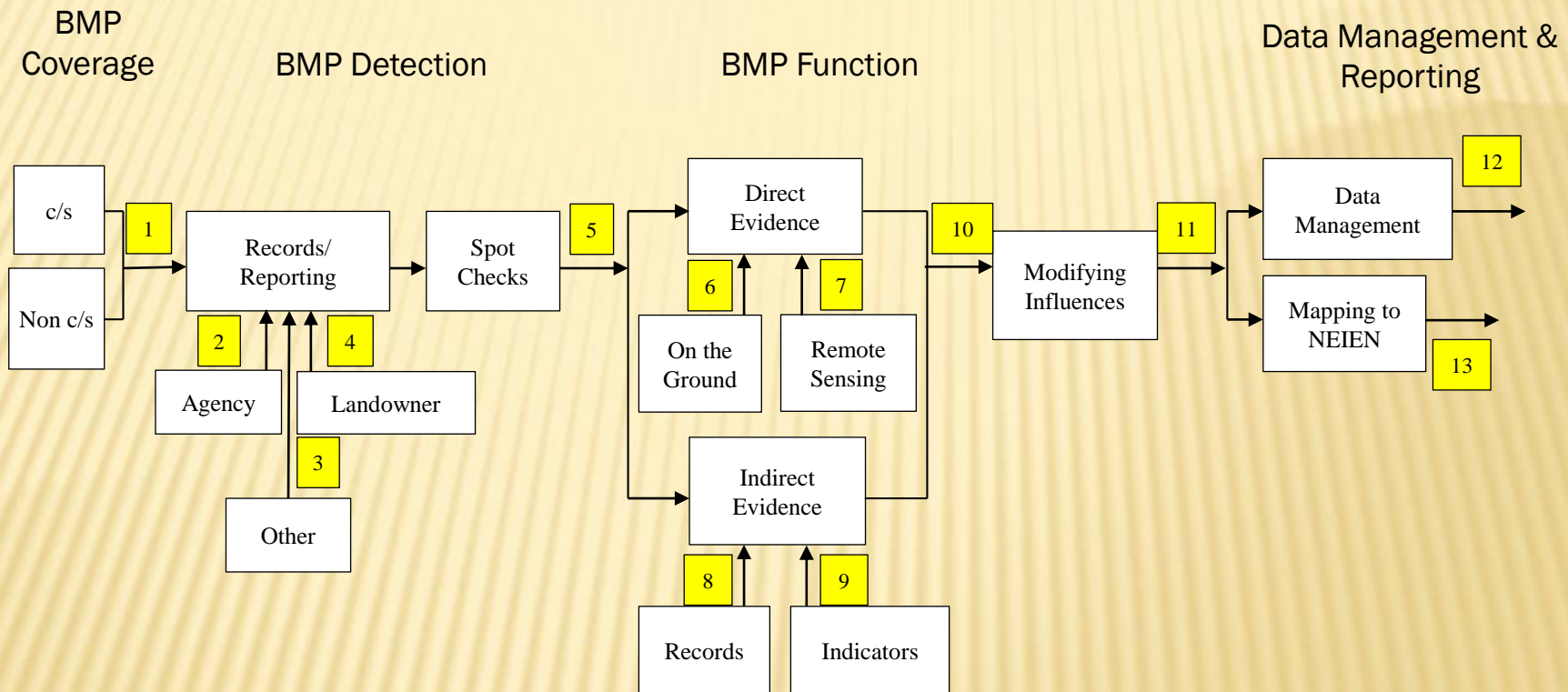
BMP Detection

BMP Function

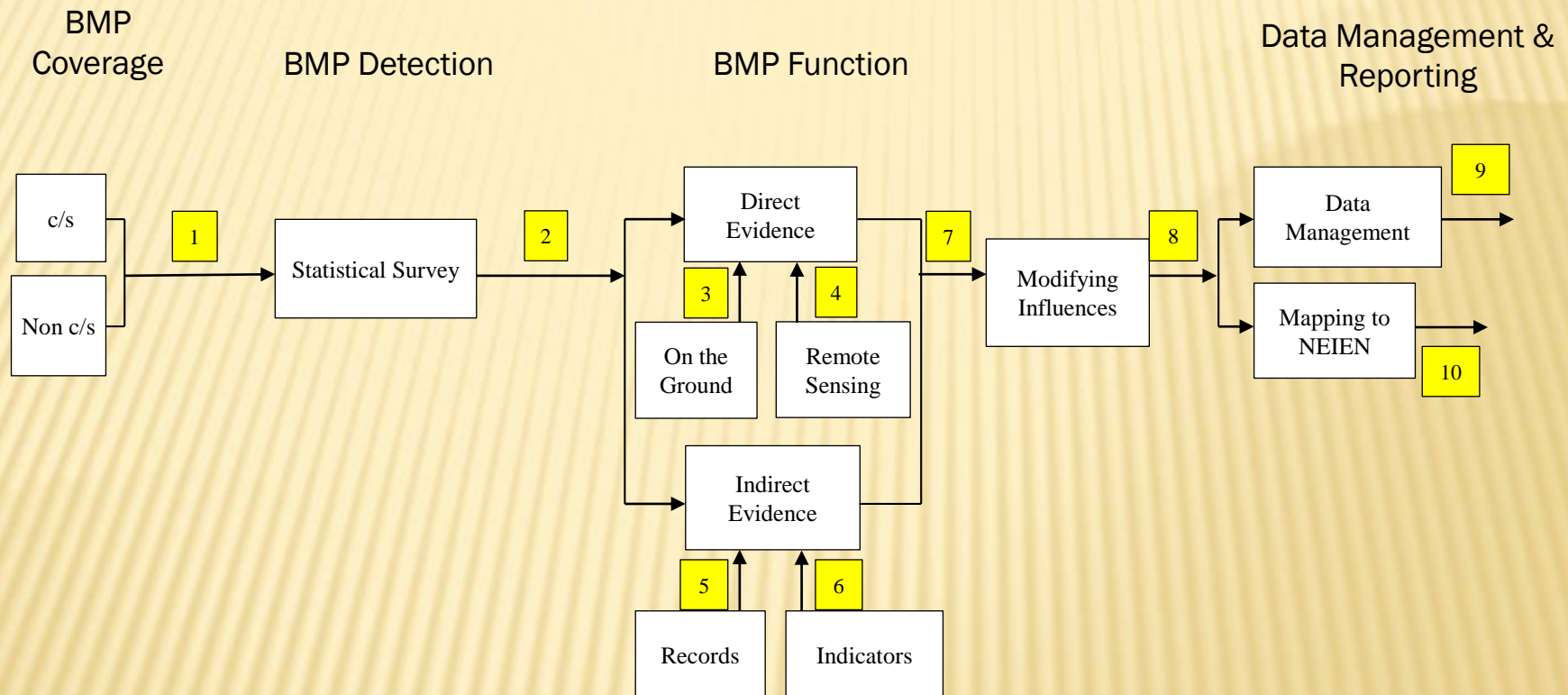
Data Management &
Reporting



ERROR/UNCERTAINTY- RECORDS/REPORTING



ERROR/UNCERTAINTY- STATISTICAL SURVEYS



INDEX SCORING

Confidence in the step identified with each error term is rated on a scale of 1 (lowest) to 5 (highest), then multiplied by a weighting factor.

CATEGORY	CATEGORY WEIGHT
BMP COVERAGE (c/s, non-c/s)	20
BMP DETECTION	30
BMP FUNCTION	30
DATA MANAGEMENT & REPORTING	20
TOTAL	100

PROCESS

- ✖ Index should be applied to each verification protocol used for each BMP in each state.
- ✖ Multiple individuals should score each protocol-BMP combination.
 - + Agree on how to reconcile differences.
- ✖ Scorers need to seek consistency in how they score protocol features across sectors, practices, and verification protocols.
 - + Note why specific ratings were given and seek consistency.

PROCESS

- ✘ Use sub-scores to identify areas of strengths and weaknesses for each protocol-BMP combination.
- ✘ Can use findings as part of evaluation of relative of confidence levels for the protocol-BMP combinations.

TEST RESULTS

Verification Protocol	Practices	Scoring Scheme Applied	Score A	Score B
Maryland Nutrient Management Program	Nutrient Management	Records/Reporting	89	86
CTIC Tillage/Residue Survey	Conservation Tillage Practices	Statistical Surveys	82	78
Black Creek, IN Retrospective Study	Structural Practices (grassed waterways, grade stabilization structures, field borders, parallel terraces)	Statistical Surveys	94	86

CAVEATS

- ✘ Need to develop consistent rules on which scoring scheme to apply, especially for hybrid verification protocols
- ✘ Document assumptions and basis for best professional judgment
- ✘ Need to agree on procedures for achieving consensus among raters
- ✘ Cross-checks between jurisdictions may be desirable to ensure comparability of ratings

Questions?