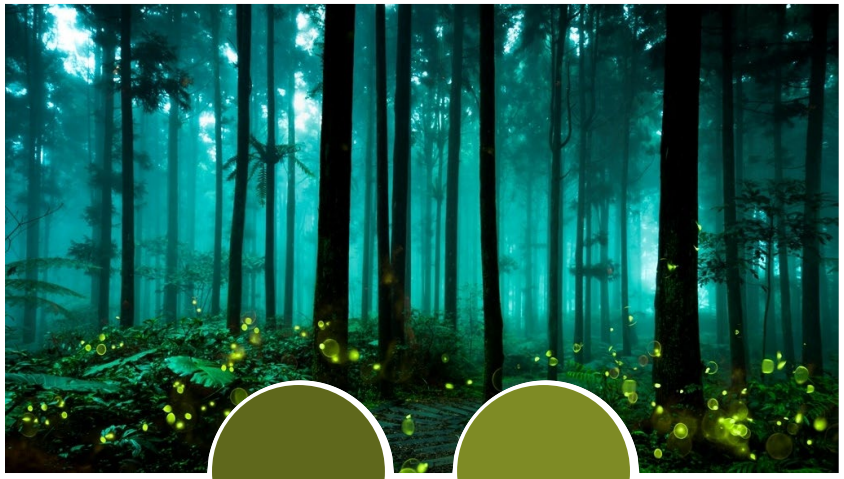
SMART NUTRIENT MANAGEMENT PLAN

Train-the-Trainer Workshop



SOIL STEWARDS

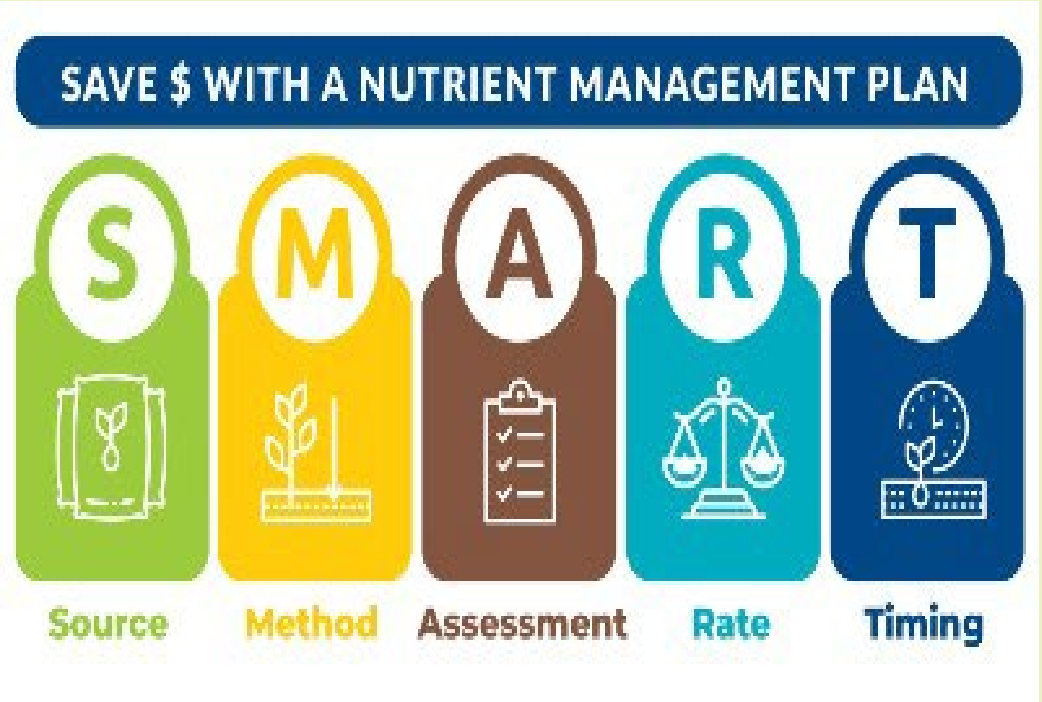
Workshop Outline

1. Introduction to SMART Nutrient Management
2. SMART: the 5Rs of Nutrient Stewardship
3. Site Matters: Conducting Site-Specific Assessments
4. Developing the SMART Nutrient Management Plan in 5 Steps
5. Coaching Farmers on How to Implement their SMART Nutrient Management Plan
6. Measuring Success and Monitoring Outcomes
7. USDA NRCS Webinar, Q&A, Interactive Discussion
8. Conclusion and Next Steps

SOIL STEWARDS

Introduction to SMART Nutrient Management

- What is SMART Nutrient Management?
  - Site-specific approach that helps farmers optimize nutrient use, minimize environmental impacts
- Why SMART Nutrient Management?
  - Soil health
  - Water quality
  - Farm profitability



SMART: The 5 Rs of Nutrient Management

SMART NUTRIENT MANAGEMENT 2

Source

WHAT TYPE OF NUTRIENTS SHOULD I USE?

- Choose the right nutrients for your crop and current soil nutrients.
- Choosing commercial fertilizer or manure depends on whether your crop is ready to take nutrients immediately (crops are already growing) or needs a delayed uptake (seeds were just planted).
- Choosing the right type of nutrients also depends on what type of nutrients your soil or plant already contains, which is one reason why testing is so important.

Method

HOW AND WHERE SHOULD I APPLY?

- Place nutrients near the root zone where the plant can easily access them.
- Specific sites may require nutrients to be incorporated into the soil to reduce the risk of nutrient loss in runoff events. In conservation tillage or no-till systems, nutrient placement with the planter or injection via a no-till, low disturbance application tool are effective methods for nutrient incorporation.
- If a broadcast method is utilized, some sites may benefit from a low intensity incorporation of manure or fertilizer following the application.
- If incorporation or injection are not practical, combine in-field conservation practices with edge-of-field practices to reduce nutrient losses.

Assessment

WHAT ARE THE SITE-SPECIFIC CONDITIONS?

- A certified nutrient management planner can analyze your site-specific land conditions, perform a nutrient loss risk assessment (including for runoff or leaching losses at areas within the field) and draft a nutrient management plan that is tailored to your land.
- Nutrient management should assess your other management and conservation practices (such as cover crops, no-till, or conservation tillage) and their effect on nutrient requirements, utilization and loss.
- Testing and analysis can tell you what nutrients are already present in the soil, soil amendment, or plant to determine what nutrients are needed.

Rate

HOW MUCH DO I NEED?

- Many factors affect the amount of nutrients you need, so testing is the best way to find out. Have your soil, organic nutrient source, and plants tested so you know whether you need to add nutrients and how much.
- If you are practicing conservation tillage or no-till, cover crops, or other soil health practices, your soil may not need as much fertilizer as you think, because those practices naturally increase soil organic matter and soil biological processes, making more nutrients available for your crops.
- Variable rate application technology can improve nutrient efficiency by delivering appropriate amounts to the specific needs of varying soil and crop conditions across the field.

Timing

WHEN SHOULD I APPLY?

- Nutrients should be applied when the crop demand is highest, but weather, seasonal conditions and other factors should also be considered.
- Split time of application (side dressing) and advanced technologies can be used to more precisely time nutrients for efficient crop uptake.
- Precision guidance systems allow you to apply fertilizer to actively growing crops.

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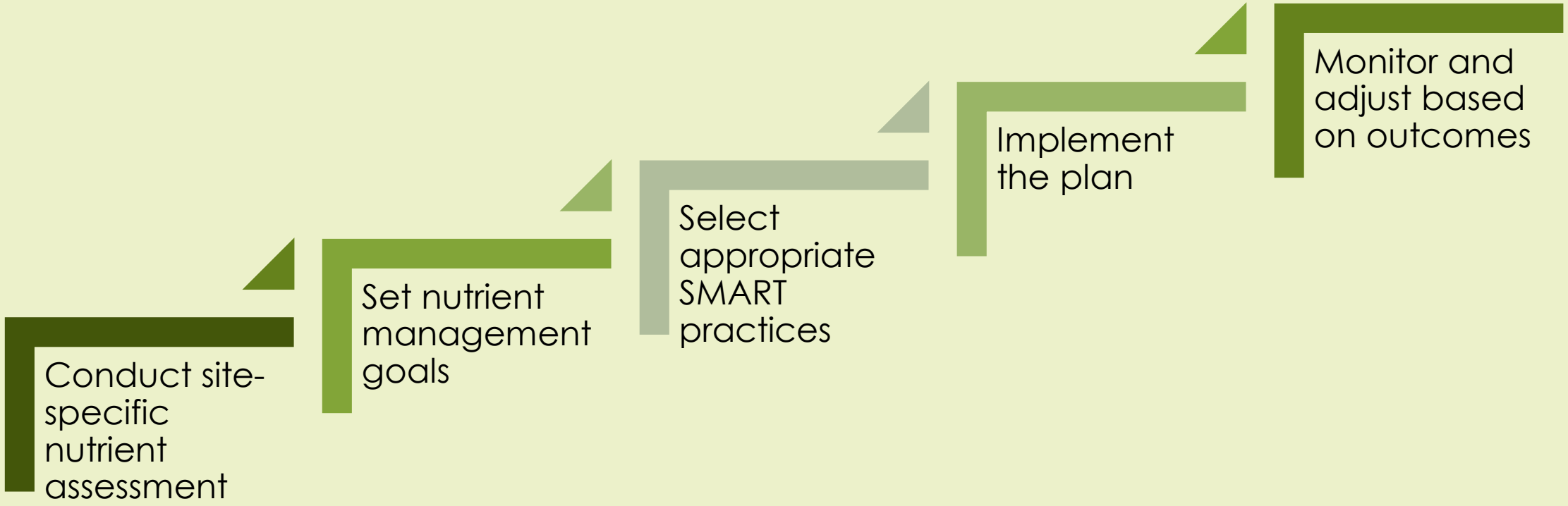
- The right **s**ource – choosing the most appropriate nutrient source (synthetic fertilizers, organic amendments, etc.)
- The right **m**ethod – using the best process and placement for the nutrients (via drip irrigation, near the root zone, avoiding runoff, etc.)
- The right **a**ssessment – soil and land testing and analysis to determine existing nutrients, run-off risks, etc.
- The right **r**ate – applying the correct amount of nutrients based on crop needs, soil testing, and nutrient availability
- The right **t**iming – applying nutrients at times when crops need them the most

Soil Stewards

Site Matters: Conducting Site Specific Assessments

- Site-specific Conditions and Assessments
  - Understanding local soil, water, and crop conditions
  - Using tools and methods for assessing soil health (soil tests, field observations, history)
- Understanding Nutrient Loss Pathways
  - Leaching, runoff, volatilization and immobilization
  - Impact of nutrient loss on the environment
- Conducting a Site Assessment
  - Establishing rapport
  - Soil testing
  - Field scouting
  - Reviewing water management challenges
- Tools and Resources
  - No- to low-cost tools such as NRCS Soil Health Indicators, online nutrient calculators
  - Local conservations districts, cooperative extension offices

Developing the SMART Nutrient Management Plan in 5 Steps



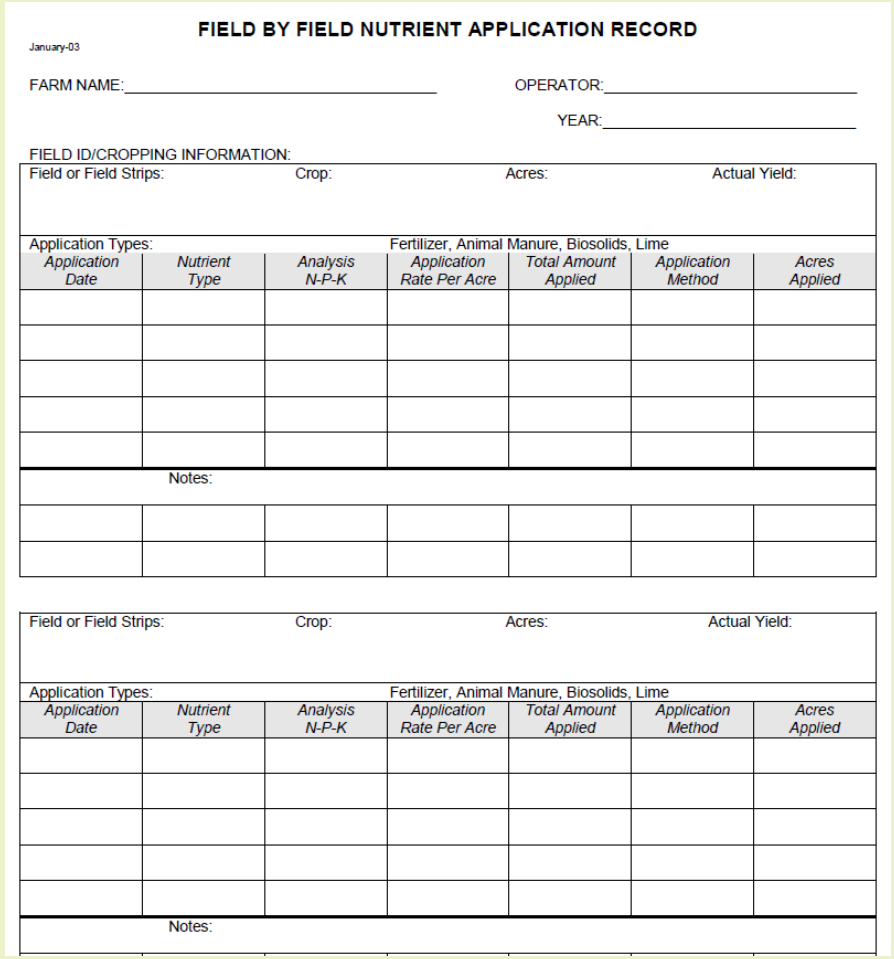
Coaching Farmers on How to Implement a SMART Nutrient Management Plan

- Use visual aids – soil test results, charts, tables, etc.
- Engage in hands-on field exercises, demonstrations, and group discussions
- Encourage easy-to-adopt practices like fertigation and slow-release fertilizers

- Follow-up with farmers at interim times to help address challenges, modify plans
- Help farmers get connected to USDA NRCS programs for funding and technical assistance
- Stay connected with farmers, follow-up to track progress over time

Soil Stewards

Coaching Farmers on How to Implement a SMART Nutrient Management Plan



FIELD BY FIELD NUTRIENT APPLICATION RECORD

January-03

FARM NAME:_____ OPERATOR:_____

YEAR:_____

FIELD ID/CROPPING INFORMATION:

Field or Field Strips:	Crop:	Acres:	Actual Yield:

Application Types: Fertilizer, Animal Manure, Biosolids, Lime

Application Date	*Nutrient Type*	*Analysis N-P-K*	*Application Rate Per Acre*	*Total Amount Applied*	*Application Method*	*Acres Applied*

Notes:

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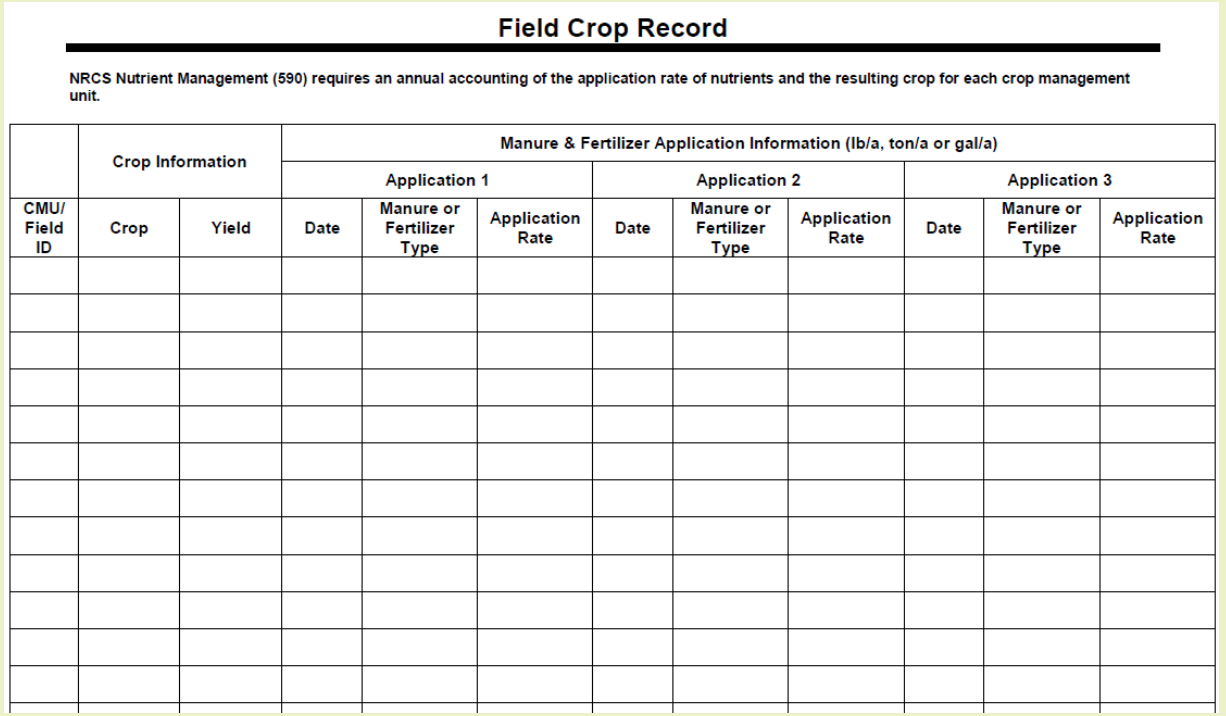


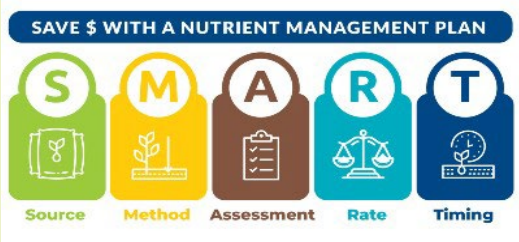
Field Crop Record

NRCS Nutrient Management (590) requires an annual accounting of the application rate of nutrients and the resulting crop for each crop management unit.

	Crop Information		Manure & Fertilizer Application Information (lb/a, ton/a or gal/a)								
			Application 1			Application 2			Application 3		
CMU/ Field ID	Crop	Yield	Date	Manure or Fertilizer Type	Application Rate	Date	Manure or Fertilizer Type	Application Rate	Date	Manure or Fertilizer Type	Application Rate

Measuring Success and Monitoring Outcomes

- Track progress via regular soil tests, crop yield monitoring, and water quality testing
- Use case studies to demonstrate how monitoring leads to improved nutrient efficiency and reduced environmental impacts
- Emphasize importance of keeping records
- Provide a simple template for documenting nutrient management practices and outcomes by season, crop type, etc.



Addressing Water Quality Concerns through Nutrient and Water Management

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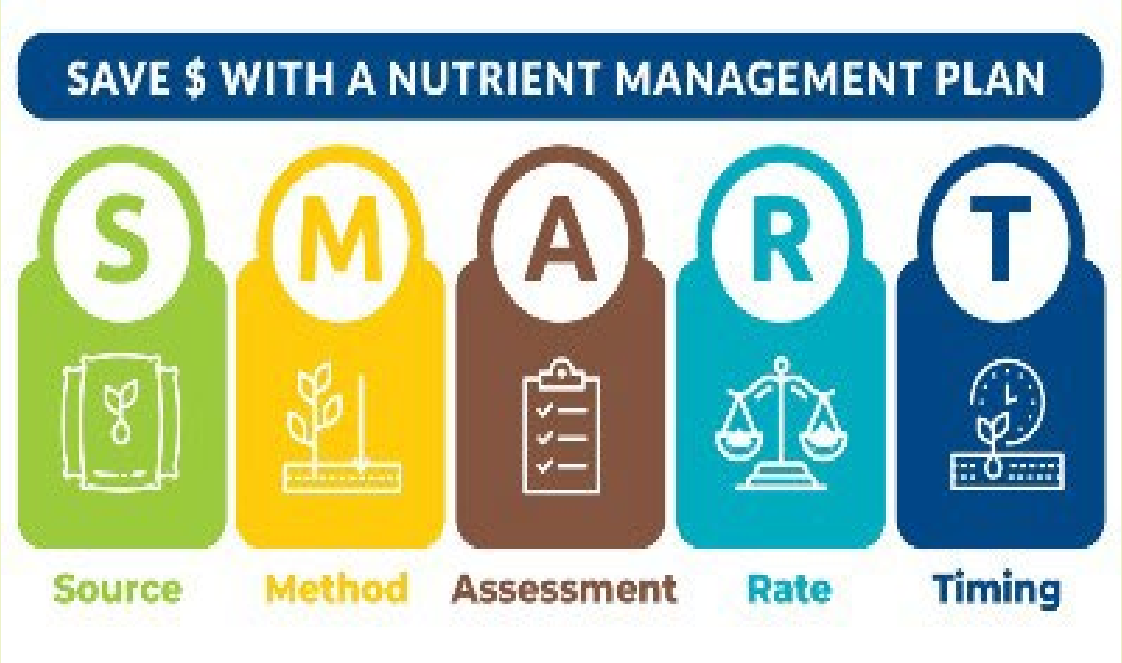
Conclusion and Next Steps



Thank you!

We should all be Soil Stewards.

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