USDA United States Department of Agriculture
Natural Resources Conservation Service

Class Worksheet - Soil Health & Sustainability for Field Staff (v. 3.0)

NAME:_____Training Location: _____

Modules 1 & 9 are done in groups. Other modules are typically done individually – to save on time – but can also be done in groups if time allows.

Module 1: Intro to Soil Health

- Discuss common regional cropping systems and then describe state prioritized scenarios to be used throughout course.
- Break into groups, assign scenarios, then discuss if group would like to modify scenario before beginning the exercise (e.g. DC knows producer situation, some rotation or soil types need to be modified to be more realistic or relevant to local situation.

Module 2: Soil Health Principles and Soil Function

- Identify the principles that already are part of the system and those that might be added. Using your scenario, which conservation practices might be considered to either implement or improve SH principles.

Principles
Practices

Module 3: Soil Biology

- Think about the five biological hot spots and your scenario and answer these 2 questions:

1. Identify which hot spot(s) you think are the most limiting and which organisms you think will be the most impacted (negatively).

2. Is there a specific SH principle or manipulation approach you think could help change the soil biome to improve SH & function in your system? Briefly describe which one might apply best.

Module 4: Resource Concerns and Soil Health Indicators

- Answer the following 4 questions:

1. Which inherent soil properties important for soil health management planning can you identify prior to the field visit?

2. Which resource concerns might be present?

3. Which key questions or observations are needed to help identify the presence of a resource concern?

4. Which indicators are likely to be most useful with your scenario and time of year?

Module 5: Cover Crop

- Answer the following 7 questions:

1. What is an entry level/basic cover crop system that you would recommend?

2. How would you modify this to gain additional SH and overall production benefit?

3. How can you help educate the client so that they are confident in adjusting their cover crop system to meet any future goals?

4. Where are the windows of opportunity for cover crops in your scenario?

5. How would termination be managed to achieve your goals?

6. What are the obstacles/challenges that may need to be overcome?

7. How will the carbon to nitrogen ratio impact the following crop?

Module 6: Grazing Cropland or Perennials

- If you have a *cropland scenario*:

1. Will your scenario accommodate the integration of grazing animals? If yes, what type of livestock can be used? If no, why not?

2. What are the potential benefits to discuss with the producer?

3. What are the obstacles/challenges?

- If you have a *grazing scenario:*

1. List all the potential management changes that could improve soil function.

2. Which ones would you recommend, and why?

Module 7: Social and Economic Considerations

1. Using *appreciative inquiry*, what are some questions you can ask clients to better understand if and why they may be open to adopting these practices?

1. What are some reasons clients may or may not be interested in adopting each of these management strategies? Consider factors *external* to the client (e.g., markets, equipment availability, labor requirements) as well as *internal* to the client (e.g., level of prior experience, confidence, social support).

Motivating factors	Barriers to adoption

Develop a list of short and long-term costs and benefits of core soil health improving practices- (e.g. risk, inputs, profitability, labor, management level).

2. What are the tradeoffs with your proposed management strategies? When considering benefits and costs, remember to include any relevant *opportunity benefits/costs* and *transition benefits/costs*.

Short Term Benefits	Short Term Costs
Long Term Benefits	**Long Term Costs**

3. What tools are available to you that will help you discuss the process of adopting soil health management systems *over time* with your clients? Write down examples that you have used/plan to use here.

Module 8-9: Strategizing and implementing the Soil Health Management System.

Using the following pages:

- Develop a SHMS strategy for your scenario
- Evaluate the impacts of implementing a SHMS compared to no action
- Present your plan

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Soil Health Management Plan

Consolidate all the information considered on this worksheet and develop a strategy for the scenario. Use this sheet to present your plan to the class.

1. Narrative: Highlight the cropping & livestock system, management level and goals.

2. Soil Suitability and Limitations & Resource Concerns: Discuss the inherent soil properties and how you might use the data to identify potential resource concerns and target your site visit.

Soil:	
Suitability	Limitation
Resource Concerns & Planning Criteria:	

3. Identify the Primary Practices Recommended: Complete the table below.

Minimize disturbance: *Protect Habitat & SOM* **Practices:**	No Action:
	Effect:

Maximize Soil Cover: *Protect Habitat & SOM* **Practices:**	No Action:
	Effect:
Maximize Biodiversity: *Feed Biota Diverse Food Source* **Practices:**	No Action:
	Effect:
Minimize Living roots: *Feed Biota Continuous Food* **Practices:**	No Action:
	Effect:

4. Fill out table on following page.
5. Summarize the plan: discuss how the plan will be implemented. Include technical, economic, and social aspects. Discuss implementation in the short term (1 yr) and longer term (5 yr).

Year -					
1	*1*	*Fall, Corn → Soybean*	*Cover Crop (340)*	*Aerial seed cereal rye at 110 lb/ac 2-3 weeks before harvest*	*Seed germ/sq. ft in fall, allow rye to grow to 18 in tall in spring*

Year (1-5)	Field	Season/Crop/Rotation	Practice or BMP	Scenario Details and Implementation Instructions (BE SPECIFIC)	Monitoring
1	*1*	*Fall, Corn → Soybean*	*Cover Crop (340)*	*Aerial seed cereal rye at 110 lb/ac 2-3 weeks before harvest*	*Seed germ/sq. ft in fall, allow rye to grow to 18 in tall in spring*

Notes: