

Tennessee 4-H Plant Sciences Project

Advanced





UNDERSTANDING SOILS

Outcome: Compare and contrast no-till and other farming practices that can impact soil organic matter or lead to nutrient loss.

EXPLORE: Step Out Activity

List the farming practices you researched. Describe the differences between the practices. Describe ways those practices can impact soil organic matter or lead to nutrient loss.

| Farming Practice | Description of Practice | Impacts to Organic Matter | Impacts to Nutrient Loss |
|------------------|-------------------------|---------------------------|--------------------------|
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Share your findings with at least one group (4-H Club, judging team, etc.).

I shared with the following groups:

EXPAND & APPLY

What skills did you learn? How does this relate to every day life? How can you use this knowledge in the future?



CROP PRODUCTION

Outcome: Investigate different methods of adding nitrogen and describe the pros and cons of each (poultry litter, anhydrous ammonia, etc.).



EXPLORE: Step Out Activity

| Nitrogen Source | Pros | Cons |
|-----------------|------|------|
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Share your findings with at least one group (4-H Club, judging team, etc.).

I shared with the following groups:



EXPAND & APPLY

What skills did you learn? How does this relate to every day life? How can you use this knowledge in the future?



CROP PRODUCTION

Outcome: Compare the signs of nutrient deficiency and toxicity for specific macro and micronutrients.



EXPLORE: Step Out Activity

Define the following:

Nutrient Deficiency -

Toxicity -

Macro nutrients -

Micronutrients -

Select a vegetable crop and list the signs of nutrient deficiency and toxicity for at least two macro and micronutrients.

Vegetable Crop -

List the macro and micronutrients selected -

List the signs of deficiency and toxicity -



EXPAND & APPLY

What skills did you learn? How does this relate to every day life? How can you use this knowledge in the future?

Add a photo of a crop with a nutrient deficiency.



VEGETABLE CROP MANAGEMENT

Outcome: Evaluate different types of weed control techniques (plastic and natural mulches, hand weeding, garden tillers or multiple rows).

EXPLORE: Step Out Activity

List weed control techniques. Describe the pros and cons of each method. Include the cost of the method if known.

| Weed Control Technique | Pros | Cons | Cost |
|------------------------|------|------|------|
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EXPAND & APPLY

Talk with your county ANR Agent about recommended weed control techniques. Then summarize your findings here.



References:

USDA National Resources Conservation Service

<https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/soil>

W998 – What Does Soil Health Mean for Tennessee Farmers?

<https://utia.tennessee.edu/publications/wp-content/uploads/sites/269/2023/10/W998.pdf>

W362 – Youth Gardening in Tennessee: Soil Building and Plant Nutrition

<https://utia.tennessee.edu/publications/wp-content/uploads/sites/269/2023/10/W362-B.pdf>

Contact your county Extension Office and Agriculture and Natural Resources (ANR) Agent for information about plants, crops, and garden plants in your area.