**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour: \_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_**

**Interactive Farming Online Activity**

**Directions**

Go to: forces.si.edu/soils/interactive/web/index.html and “click to play” Use your earbuds please! ☺

**Introduction**

Crops can be grown for many reasons, and can have different nutrient requirements for optimal growth. The production of different crops also can have varying impacts on the environment.

**Call the farmer** to learn about some of the basic differences between Corn, Soybeans and Switchgrass.

**Research the different possible crops you can grow by clicking the ‘flip’ tab on each seed pack**

Soybeans

1. Only which type of crop is more popular than soybeans in the United States? *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
2. List four uses of soybeans
   1. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
   2. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
   3. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
   4. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

3. Environmental Impact - Soybeans \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ soil nitrogen.

Why is this important? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Switch Grass**

1. What is the main use of switch grass? *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
2. What does ‘perennial’ mean?
3. How do you think a perennial plant benefits farmers economically*?*
4. Describe the environmental footprint of switchgrass.

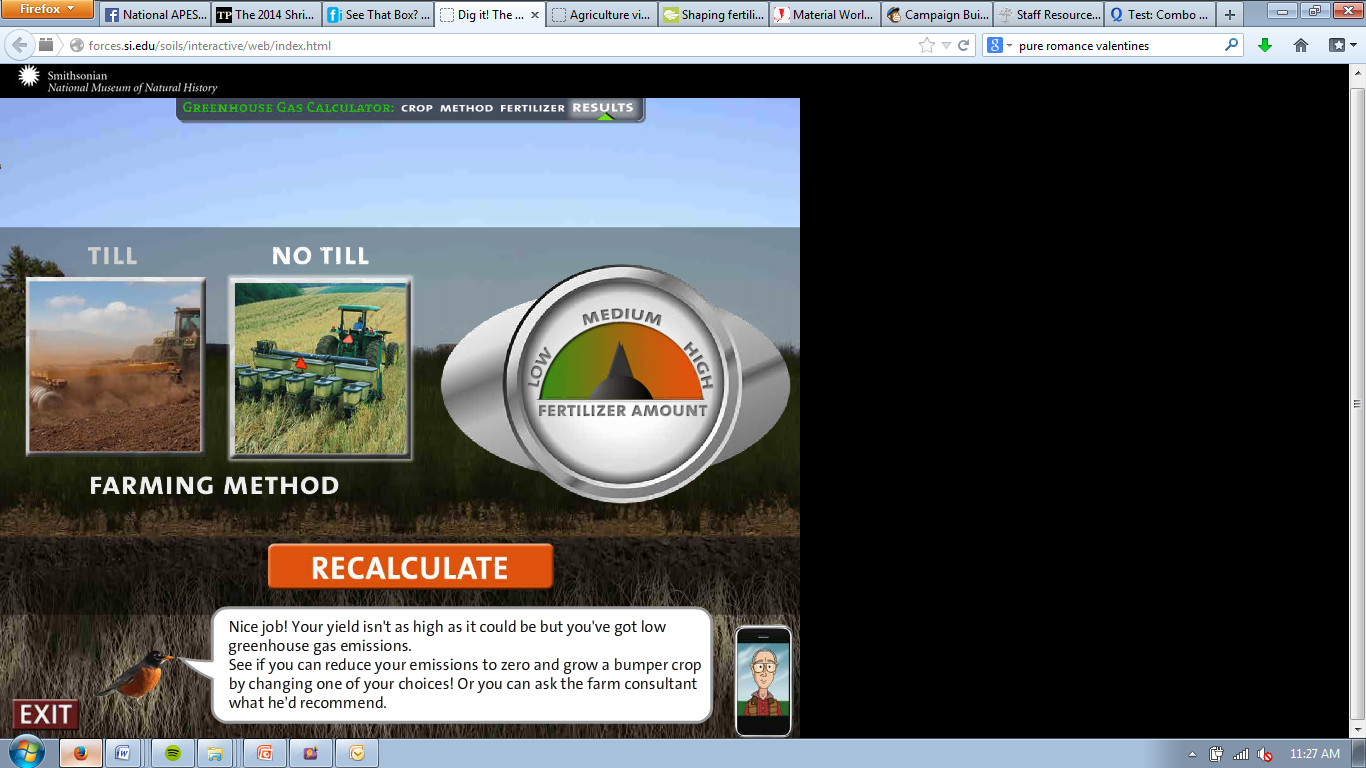
**Yellow Corn**

1. How many millions of acres of land are used to grow corn in the United States? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. List five uses of corn
   1. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
   2. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
   3. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
   4. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
   5. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

3. The nitrogen requirements of corn are very different than the other two crops you’ve read about. Describe corn’s requirement below.

**Decide which crop you want to grow and click the “buy” button**

**CROP CHOSEN \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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1. Briefly describe till farming:
2. Briefly describe no-till farming

**“Phone the farmer” and listen to more information about farming methods. In the chart below write a brief pros/cons about each method and the three issues to consider.**

|  |  |  |
| --- | --- | --- |
|  | **Till Farming** | **No Till Farming** |
| **Weeds** |  |  |
| **Pesticides** |  |  |
| **Emissions** |  |  |

**Choose which farming method you’d like to use.**

**FARMING METHOD CHOSEN \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**“Phone the farmer” and listen the information about fertilizer:**

1. Bacteria convert nitrogen into what? *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
2. Why is this a environmental problem?

**Choose the amount of fertilizer you’d like to use depending on the needs of your particular crop.**

**FERTILIZER AMOUNT CHOSEN \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Based on your choices recreate your crop yield and greenhouse emissions by shading in the levels as it appears on your screen**

|  |  |  |
| --- | --- | --- |
| **Crop Yield**  **(in tons)** |  | **Green house Gas Emissions (molecules per acre)** |
|  |  |  |
|  |  |  |
|  |  |  |

**Call the farmer to get his advice on how to get the most of your crop. Record it below.**

Farmers Advice**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Using the “recalculate” button to answer the following You’ll have to hit exit to switch between crops.**

1. Which crop, farming method and amount of fertilizer provides the **highest crop yield** and a **low greenhouse** **gas emission** (to change your crop you have to start the game over by clicking “exit”)?

Crop \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Farming Method \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Fertilizer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Which crop, farming method and amount of fertilizer provides a high crop yield and **lowest greenhouse gas emission**?
2. Implement no till and no fertilizer when growing corn- what happens with crop yield and greenhouse gas emissions?

**Environmental Impacts of Agriculture-** Conduct an internet search to answer these questions.

4. Why should we be concerned about greenhouse gas emissions? Explain.

5. Why should we be concerned about excess nitrogen fertilizer? Explain.