**Interactive Farming Online Activity**

**Directions:**

Go to: forces.si.edu/soils/interactive/web/index.html and “click to play”

**Research the different possible crops you can grow:**

Soybeans

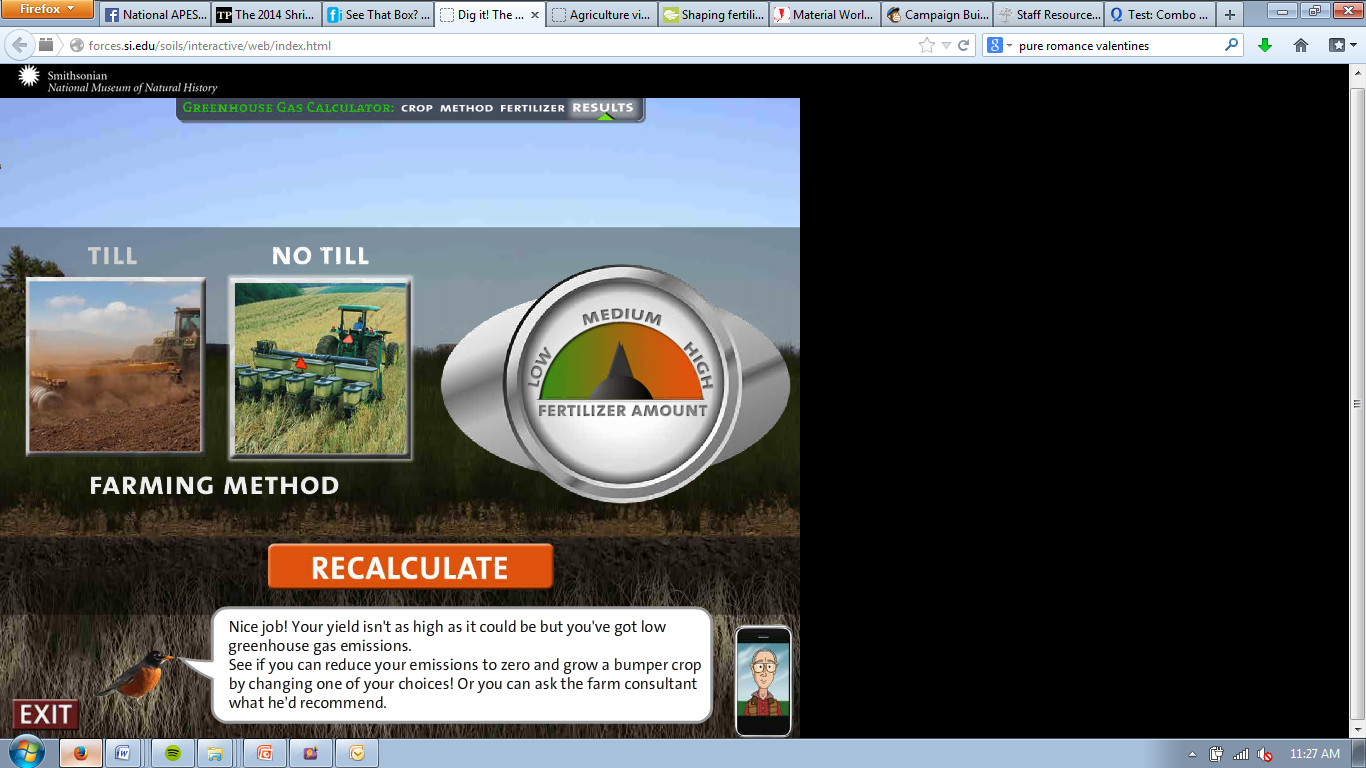
1. Only which type of crop is more popular than soybeans in the United States? *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
2. List four uses of soybeans
   1. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
   2. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
   3. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
   4. *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
3. Using your knowledge of the nitrogen cycle, describe **how** soybeans replenish the soil of nitrogen?

Switch Grass

1. What is the main use of switch grass? *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
2. How do you think a perennial plant benefits farmers economically*?*
3. How would an aquatic environment downstream from a farm growing switchgrass benefit from the amount of fertilizer switchgrass needs?

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. How would an aquatic environment downstream from a farm growing corn possibly be affected (please describe exactly how from start to finish).

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

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.**

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

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

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

**Based on your choices recreate your crop yield and greenhouse emissions**

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

**Using the “recalculate” button to answer the following:**

1. Describe the conditions that would provide a high yield of crops as well as a high level of greenhouse gas emissions.
2. Why would these methods be chosen instead of ones with a lower environmental impact?
3. 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”)?
4. Which crop, farming method and amount of fertilizer provides a high crop yield and **lowest greenhouse gas emission**?
5. Implement no till and no fertilizer when growing corn- what happens with crop yield and GHG emissions?
6. Looking back through the information you discovered when researching corn, switchgrass and soybeans:
   1. Discuss the popularity of corn compared to soybeans and switchgrass as well as it’s environmental impact
   2. Discuss the how/what needs to be done in order to decrease the amount of corn grown in regards to :
      1. Food
      2. Livestock feed
      3. Biofuels