

# Examining CropScape and the Changes to Agriculture in Pennsylvania



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**Grade Level:** College Freshman or High School Seniors

**Time Frame:** Two Class Periods

**National Geographic Standards:**

**Standard 1:** How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

**Standard 14:** How human actions modify the physical environment

## Objectives

After this assignment, students should be able to:

- Explain raster data and its complexities
- Analyze raster data to examine spatial patterns.

## Procedures

- 1) Divide the students by Pennsylvania Counties
- 2) Copy and paste the following link: <https://nassgeodata.gmu.edu/CropScape/>
- 3) Click *Define Area of Interest by Region, State, ASD, County* (Top Row in the middle of the



toolbar)

- 4) In the Define Area of Interest by Region, State, ASD (Agricultural Statistical Division), County Menu
  - A) Select a Level – County
  - B) Select a State – Pennsylvania
  - C) Select a County – (Choose the county assigned to you)

**Define Area of Interest By State/ASD/County** [X]

**Select a Level**

Region                       State  
 ASD                                 County

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**Select a Region**

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**Select a State**

Pennsylvania [v]

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**Select an ASD**

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**Select a County**

Washington [v]

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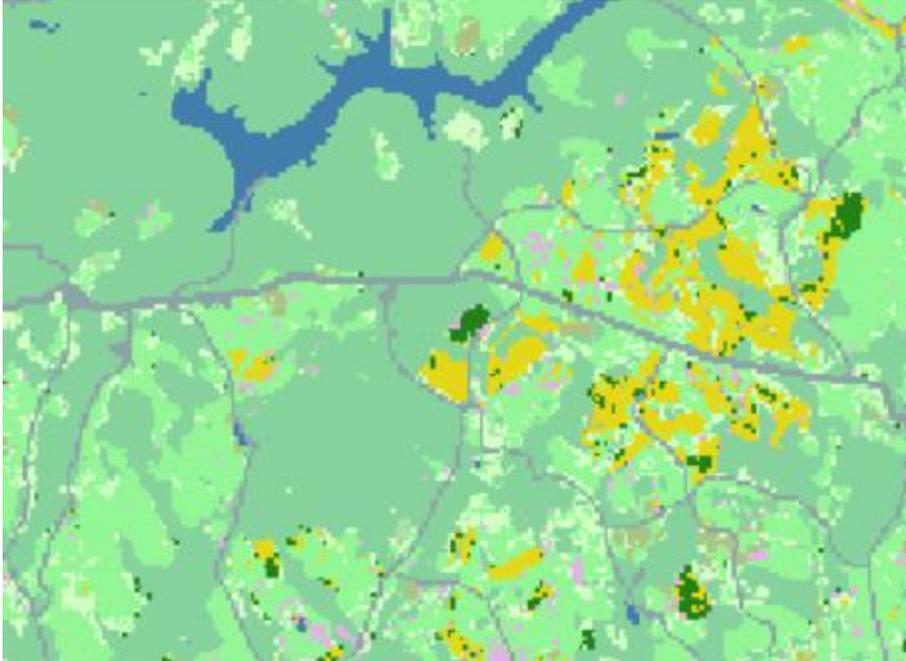
      

5) Click Submit

6) Click the *Legend* button (Top Left hand side) 

7) Examine the Colors in the Legend with the map. What crops can you best identify on the map?

8) Click *Drag in Zoom* button and draw a box around an area to better the map 



9) Zoom in further you should be able to visualize the pixels. (Alternative ways to zooming – use the mouse wheel.)



10) Use the *Pan* tool to examine the variety of different crops.



11) Click the *Previous View* Button  until you can see the whole county again. (If there are problems with the Previous View Button, then the student can use Define Area of Interest Tab again to select the county.)

12) Click the *Area of Interest Statistics*



13) Put a check on Display Crop Categories Only

2018 Cropland Data Layer Statistics for Washington, Pennsylvania

Display Crop Categories Only

Value	Category	Pixel Counts	Acreage
1	Corn	19102	4248.2
4	Sorghum	59	13.1
5	Soybeans	17768	3951.5
21	Barley	4	0.9
24	Winter Wheat	347	77.2
27	Rye	4	0.9
28	Oats	78	17.3
36	Alfalfa	37955	8441
37	Other Hay/Non Alfalfa	279161	62083.9
<b>Total</b>	<b>20</b>	<b>638410</b>	<b>141978.9</b>

Note: Pixel and acreage counts are not official estimates.

14) Double Click on the term – Acreage. This chart now shows the largest percentage per area of crops.

2018 Cropland Data Layer Statistics for Washington, Pennsylvania

Display Crop Categories Only

Value	Category	Pixel Counts	Acreage
37	Other Hay/Non Alfalfa	279161	62083.9
176	Grass/Pasture	264424	58806.5
36	Alfalfa	37955	8441
61	Fallow/Idle Cropland	19464	4328.7
1	Corn	19102	4248.2
5	Soybeans	17768	3951.5
24	Winter Wheat	347	77.2
28	Oats	78	17.3
4	Sorghum	59	13.1
<b>Total</b>	<b>20</b>	<b>638410</b>	<b>141978.9</b>

Note: Pixel and acreage counts are not official estimates.

15) Create a Table using the template below and write down the Top 5 Crops under Crop Category. Write down each crop's respective acreage in the Acreage column. Find the Total Acreage number in the bottom left corner and write that in each of the squares under the Total Acreage Column. (See below for an example). Then close the pop – up.

16) Then take each of the Top 5 acreage and divide it by the total to complete a percentage  
 $= (62083.9/141978.9) * 100$

Ranking	Crop Category	Acreage	Total Acreage	Percent
1	Other Hay / Non-Alfalfa	62083.9	141978.9	43.7%
2			141978.9	
3			141978.9	
4			141978.9	
5			141978.9	

17) Now present your findings to the class.

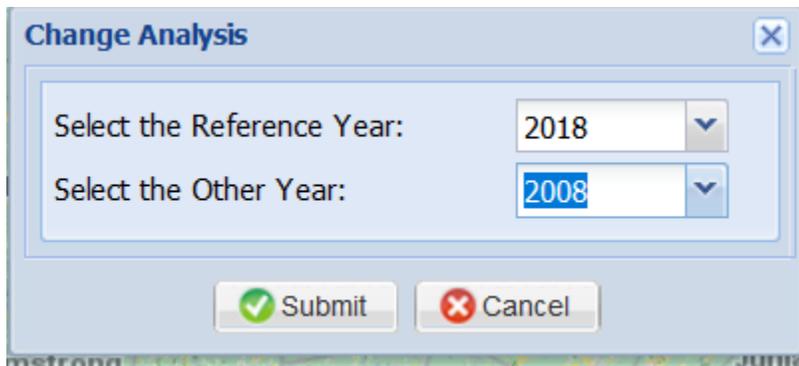
18) Students should choose one of the following crops that was in their assigned county.  
 The teacher should attempt to make the groups as equal as possible.

- A) Corn
- B) Soybeans
- C) Winter Wheat
- D) Oats
- E) Christmas Trees

19) Click *Change Analysis*  (If an error message pops up you may have to reset the *defined area of interest* to your original county. You can do this by repeating steps 3 – 5)

20) Select on the Change Analysis Menu with the following

- A) Select the Reference Year – 2018
- B) Select the Other Year – 2008



21) Click Submit

22) Choose – Display Crop Changes Only.  Display Crop Changes Only

**Cropland Data Layer Changes between 2018 and 2008**

Display Crop Changes Only

2018	2008	Pixel Counts	Acreage
<input type="checkbox"/> Alfalfa	Corn	441	98.1
<input type="checkbox"/> Alfalfa	Soybeans	85	18.9
<input type="checkbox"/> Alfalfa	Winter Wheat	42	9.3
<input type="checkbox"/> Alfalfa	Oats	36	8
<input type="checkbox"/> Alfalfa	Alfalfa	4661	1036.6
<input type="checkbox"/> Alfalfa	Other Hay/Non Alfalfa	1571	349.4
<input type="checkbox"/> Alfalfa	Fallow/Idle Cropland	234	52
<input type="checkbox"/> Alfalfa	Developed/Open Space	139	30.9
		<b>123498</b>	<b>27464.8</b>

Note: Pixel and acreage counts are not official estimates.

23) Then create 3 tables similar to the ones below. An example is shown below.

A) From Your Crop to a New Crop

FROM Corn	TO Another Crop	Acreage
	Soybeans	
	Winter Wheat	

B) To Your Crop from Another Crop

To Corn	FROM Another Crop	Acreage
	Soybeans	
	Winter Wheat	

C) Crop stayed the same

FROM Corn	TO Corn	Acreage

24) Complete the equation

$$\text{TO Corn} - \text{FROM Corn} =$$

25) What was the difference in acreage? How much acreage stayed the same?

26) Students should complete research on their crop in Pennsylvania. Have there been any policy changes to impact the increase or decrease of their crop? Trade? Weather?, etc.