

# Yield Mapping

Yield maps are some of the most valuable sources of spatial data for precision agriculture. They represent the output of crop production. Processed yield maps can be used to investigate factors affecting the yield. Or you can use them to choose variable rate applications of agricultural inputs based on the yield potential or spatially variable yield goal.

In this activity, you'll overlay soybean yield data for the year 2002 which is in txt format to ArcMap using Microsoft Excel software. You'll overlay this layer and the boundary layer of a selected field at Mead, Nebraska ([University of Nebraska-Lincoln Agricultural Research and Development Center](#)) for yield mapping.

---

## *Helper's Guide*

### **How to Prepare**

For the "Before You Start" activity, you'll need pieces of colored paper and a square marked out on the floor.

-First you'll divide the explorers into four groups—people with birthdays in January through March, people with birthdays in April through June, people born in July through September, and finally the October through December birthdays.

-Give each one born in January through March a piece of white paper; give each one born in April through June green paper; give each one born in July through September red paper; and give each one born in October through December brown paper.

-You can divide the group using other categories (e.g., class, gender, hometown, etc.) applied as long as the number of categories remains relatively low (2 to 5).

-Have the Explorers step into the square. Tell them to move around and mingle a little and then stop.

-Have the students set their papers down where they're standing and start carefully out of the square.

-Discuss the results and help them see the comparison between the activity and yield mapping.

For "Learn by Doing," you'll need a computer or computers for the explorers. You must complete this activity before working with explorers so you can guide them through it.

Creating a yield map is one of the primary tasks of precision agriculture. There are many GIS applications similar to yield mapping in which users enter measurements done throughout the area of investigation and color the markers for each measurement according to the value obtained.

The data for this activity should be copied to your C directory. Browse to 4H-GISyear2\Data to view Boundary.shp, Yield\_2002s and all the data needed to complete this activity. The final map of this activity is located in C:\4H-GISyear2\Map\_yield.

Note: Keep in mind that setting the right coordinate system is important. This activity uses WGS84.prj because the data is collected using a GPS receiver.

### **Need to Emphasize**

- Longitude is the X value and latitude is the Y value in terms of rectangular coordinates.

- A long yield history is essential to avoid drawing conclusions that are affected by the weather or other unpredictable factors during a particular year.
- A yield map is a critical piece of the precision agriculture “puzzle” that many crop producers and consultants analyze every year.

### **Related Links**

- The Precision Farming Guide for Agriculturists by [Dan Ess](#) , [Mark Morgan](#) , [Ralph Reynolds](#) (John Deere)
- <http://www.ianrpubs.unl.edu/e-public/live/ec704/build/ec704.pdf>
- <http://www.fs.fed.us/rm/boise/research/gis/documents/AddEventLayerinArcMapfromanExcelSpreadsheet.pdf>

---

*Viacheslav Adamchuk and Shana Thomas  
Phone: 402-472-8431  
E-mail: [vadamchuk2@unl.edu](mailto:vadamchuk2@unl.edu)  
Last updated: January 29, 2009  
Revised by Slava 2/8/09  
Revised by Peg 2/09*