

Precision Agriculture Components

Equipment needed for Precision Ag

- GPS, sensors, monitors
- Autosteer, VRT
- Greenseeker, N management

Precision agriculture (PA) consists of many different components and types of equipment. Farmers usually start with one component or piece of equipment and build from there. GPS is important to PA because it allows the precise location of a vehicle to be tracked during field work. GPS is important when creating yield maps. Uses of GPS in PA include field boundary mapping, soil sampling, and crop scouting.

Grain yield monitors measure the flow of grain in a combine. This data is linked to GPS coordinates to create yield maps.

Variable-rate technology (VRT) consists of equipment that allows for variable-rate application (VRA) of seed, fertilizer, pesticides, etc. to match the conditions of the field. It is usually one of the last components of precision agriculture adopted.

ACTIVITY:

(adapted from Chip Malone, Cornell Extension)

Gather 12 cups and mark a line about halfway up inside each cup. Try to keep the lines as even as possible. Arrange the cups into a grid to create Farmer Bob's field. The line is the optimum level of input (fertilizer, chemical, seed, etc. Fill the cups with varying amounts of water to represent the current conditions in Farmer Bob's field (above, below and near the line). Have a child dispense an equal amount of water to each cup. This is the conventional way of applying fertilizers to a field. Ask the students the results of this method. (Runoff, more or less than ideal)

Empty the water out of the cups and again fill the cups with varying amounts of water. Have a student pour water into each cup until it reaches the line. Record how much water was added. For the cups that are already at the line or above it, do not add any more water. This is how precision agriculture works, only the amount of nutrients needed is applied to an area of the field. Discuss what the benefits of this method are (save money, less input costs, don't over fertilizer, etc.)