

Precision Agriculture – Intelligent Crop Maintenance System



Pesticide or
fertilizer



Agricultural farms can range in size from hundreds to over a thousand acres. Maintaining the crops and maximizing their yield is a difficult task. A system is needed to increase efficiency and maximize crop yield.

Solution:

Through the use of multispectral imagery, the crops can be maintained precisely and efficiently.

The system uses a GPS guided tractor (it can be self-operated), recorder, high resolution cameras, an infrared camera, camera filters, and an embedded computer to automate the task of fertilization, pesticide application, and seed planting.

This system can be adapted to fit drones to reach smaller crops which are hard to access with large tractors and to cut down fuel costs.

Additional benefits of this method is that farming can be done during the day and night, it cuts the cost of laborers, and the crops use less water, food, and pesticides (it is highly efficient giving the optimal amount of fertilizer, pesticide, water to each plant).

Tractor can be man-operated or self-guided through GPS

Multispectral Imagery gives farmer ability to:

- Quantify results
- Detect areas that are damaged, need additional water, or fertilizer
- Maximize crop yield and profit by decreasing excess fertilizer/pesticide/water use and labor expenses

Infrared Camera allows for detection of animals and humans.



Automated, self-guided seed planting tractor.

Seeds can be planted exactly 9 inches below the surface and system can auto-adjusts to plant more or less seeds depending on the fertility of the soil.