

# Precision farming: Do we really grasp the full extent of the concept

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Imagine you are a farmer riding along in your 50,000-acre wheat field early in the growing season. You push a button on your tractor to turn on its Global Positioning System (GPS) monitor, which pinpoints your exact location to within one meter. Touching another button, you display a series of Geographical Information System (GIS) maps that show where the soil in your field is moist, where the soil eroded over the winter, and where there are factors within the soil that limit crop growth. Next, you upload remote sensing data, collected just yesterday, that shows where your budding new crop is already thriving and areas where it isn't. You hit SEND to upload these data into an onboard machine that automatically regulates the application of fertilizer and pesticides—just the right amount and exactly where the chemicals are needed. You sit back and enjoy the ride, saving money as the machines do most of the work. Congratulations, you are among a new generation of growers called "precision farmers."



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# Precision Agriculture

...is a farming management concept based on **observing, measuring and responding** to inter and intra-field **variability in crops**. The goal of precision agriculture research is to define a decision support system (DSS) for whole farm management with the goal of **optimizing returns** on inputs while **preserving resources**.



# AFGRI

**“more productive and efficient”**

**“With precision agriculture, farmers and soils **work better, not harder.**”**

**“being ‘site-specific’ and ‘information-specific’, as in the most *precise* way of informing farming decisions.”**

**“Farmers use precision agriculture practices to apply nutrients, water, seeds, and other agricultural inputs to grow more crops in a wide range of soil environments. Precision ag can help farmers know **how much and when to apply these inputs.**”**



# YARA

Precision farming is a key to best agricultural management practices. It enables farmers to add the specific nutrients needed for their crop, in exactly the right amount, at the right time. A key concern in the case of fertilizer application is that too much nutrient...is wasting money and harming nature.

Yara offers a range of fertilizer management tools to maximize crop performance. The tools give farmers a means of fine-tuning application rates according to local conditions, allowing for more effective use of crop nutrients, lower costs and minimum adverse effects on the environment.



# Precision Farming today...

- GPS & GPSS technology
  - Drones & NDVI
- Trimble and Other technologies
  - Sowing Machines
- Harvesting machines such as Combine harvesters
  - Fertilizer application by **Machine**
  - Irrigation with Center Pivots
    - Soil mapping



# Precision Farming today...

Precision farming has become and adopted term for the use of Satellite technology integrated with other hi-tech equipment to capture information during Harvesting with Combine harvesters, manage fertilizer applications, Irrigation applications, soil mapping and planting to facilitate coordination between these activities to improve production and efficiencies to increase profits.



# Precision Farming today...

- GPS & GPSS technology
  - Drones & NDVI
- Trimble and Other technologies
  - Precision planting
- Harvesting machines such as Combine harvesters
  - Fertilizer application by **Machine**
  - Irrigation (efficiencies debatable)
    - Soil mapping





Does this really encompass farming..?



# Farming as a whole

- Soil Mapping and management
- Land Preparation and orchard design
  - Planting
- Labour management
- Fertilizer application
- Irrigation Application and measurement
- Procurement
- Harvesting (cultivars & timing)
  - Pruning
  - Spraying
  - Calibrations
- Crop specific activities



# Precision Farming today...

- Precision farming or Precision Agriculture is not equal to or limited to Satellite farming



# Precision Farming today...

Precision farming is not a product someone can just sell to you...perhaps it's rather a Business philosophy.

Integrated management of your farming activities, its accurate measurement and database management and reporting that enables accurate decision making which improves profitability and efficiency.



# Precision Farming today...

PF / PA needs Sophisticated technology to be implemented?

Many insignificant changes can be made to how things are done to improve accuracy of information gathering and dissemination.

In all likelihood we need to define something new...

