



Intro to Agriscience
Precision Agriculture - Lesson 3, Part B
Notes



Decision-Making Process Using Precision Agriculture

- Gather _____
- _____/Compare Data
- _____ the Data
- Make _____ for Next Year
- Write _____
- _____ Prescriptions/Determine Management
- Make _____
- _____

Gather Data

- _____ in decision-making
- _____ data collected can impact _____.
 - _____ soil temperature and yield
 - _____ soil temperature and yield
 - Year 1 moisture _____ yield
 - Year 2 moisture _____ yield
 - Year 1 soil _____ data
 - Year 2 soil _____ data
 - Year 1 planting _____
 - Year 2 planting _____
 - Etc.



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Analyze/Compare the Data

- Once data is collected, it needs to be _____ at.
- _____ between a piece of data and the resulting yield and/or profitability.
 - _____ between something done and its direct _____.
 - One field + 2 Hybrids: Hybrid A yielded higher than Hybrid B.
- Looking for _____
 - _____ outcomes that occur when an individual decision is made.
 - Imperative that _____ years of data are available and _____!
 - Allows the operator to rule out change due to _____ such as rainfall, temperature, etc.

Layer the Data

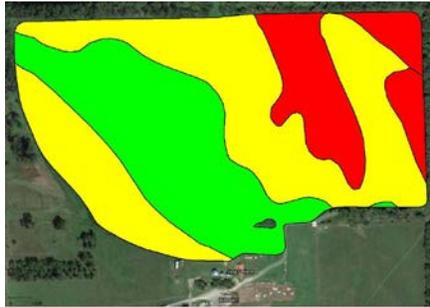
- Using multiple sources of data _____.
- Helps to identify how _____ of decisions affect the overall _____.
- User aims to find the _____ mix of decisions.
- Goal is to find the most _____ combination.



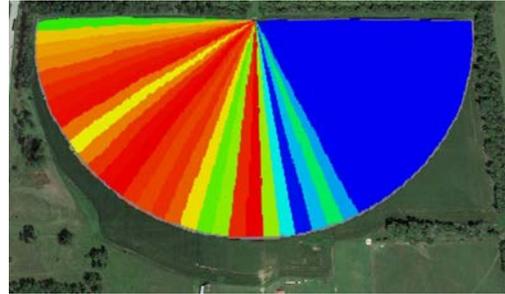
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Data Layer Example - Beginning with a Soil Map and Adding a Variable Rate Irrigation Map

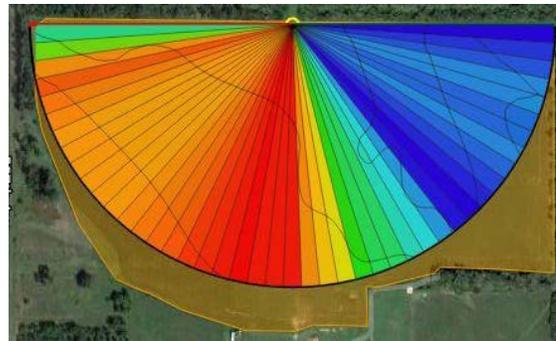


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Soil type map created years ago by survey of USDA and obtained from USDA website.

Data gathered by using specially equipped pivot that varies the amount of water supplied.



Layering allows the operator to see how much water was delivered to each soil type.

Make Decisions for Next Year

- After data is thoroughly _____ decisions need to be made for next year's planting _____.
 - _____ or varieties of seed
 - Which _____
 - _____ Population
 - _____
 - Weed, insect, disease _____
 - _____
 - Data _____
 - Etc.

- Aids in _____.



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Writing Prescriptions

- Prescription - a program or script that _____ equipment uses to apply a _____ amount of something at a specific place in the field.
 - Using _____ and _____, the operator makes decisions such as the following:
 - Hybrid _____ on “Green” and “Red” soils and Hybrid _____ on “Yellow” and “Orange” soil.
 - 34,000 _____ per acre on “Green”, 27,000 on “Yellow”, 20,000 on “Red” soils, etc.
 - _____ is used to create a _____ to tell the _____ what it should do.

Applying Prescriptions

- _____ is still critical even with all of the technology being used?
- Operator must _____ equipment to enable it to do what the prescription calls for.
 - Example: Add Hybrids A and B to the _____ bins according to the prescription written.
- If done _____, the planter will not know and _____ may be affected.

Make Observations

- After all applications of seed, fertilizer, chemical, etc. have been made; it is time to _____.
 - Take _____ of what happens.
 - Keep accurate _____ and continue to _____ data.
 - Examples:
 - Cost of _____, fertilizer, chemicals, _____, equipment costs, _____, price _____ per unit, etc.
 - Data will help determine if _____ decisions were made.



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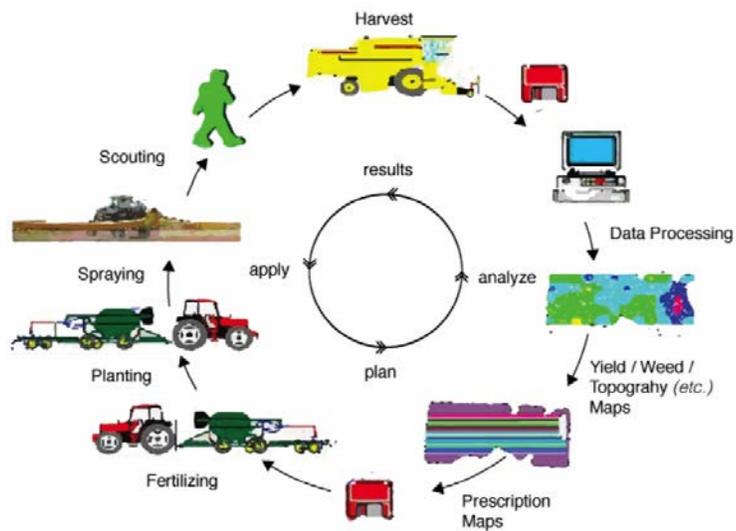
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Repeat for Next Year

- Repeat the _____.
- _____ what was learned.
- Make even _____ decisions for next year.
- Hopefully make more _____.

The Process of Making Decisions Using Precision Agriculture Data





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Lesson 3 Terms Review

Using the word bank below, place the correct term in the blank provided in front of its matching definition.

Calibration	Granularity	Prescription
Data Layering	Objective	Subjective
Field Boundary	Physical Observation	Zone

1. _____ The gathering of data by one's own senses: sight, touch, smell, hearing and taste.
2. _____ Data observed is recorded based on the thoughts, opinions, moods and feelings of the observer.
3. _____ Data observed is recorded based on the facts of the situation without consideration of thoughts, opinions, moods and feelings of the observer.
4. _____ Settings sensors and equipment to report the same reading based on a known sample.
5. _____ A file that contains the GPS coordinates of a line that is drawn around a field.
6. _____ The scale or level of detail present in a set of data.
7. _____ An area that has similar characteristics.
8. _____ Using multiple sources of data together to analyze something to help in the decision-making process.
9. _____ A program or script that precision equipment uses to apply a specific amount of something at a specific place in the field