



**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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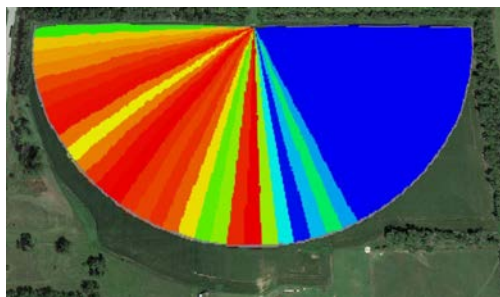


#### Data Layer Example - Beginning with a Soil Map and Adding a Variable Rate Irrigation Map

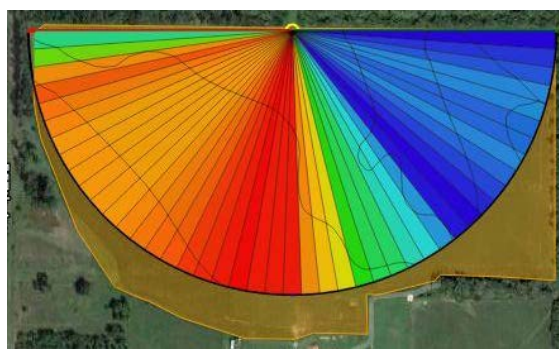


Soil type map created years ago by survey of USDA and obtained from USDA website.

+



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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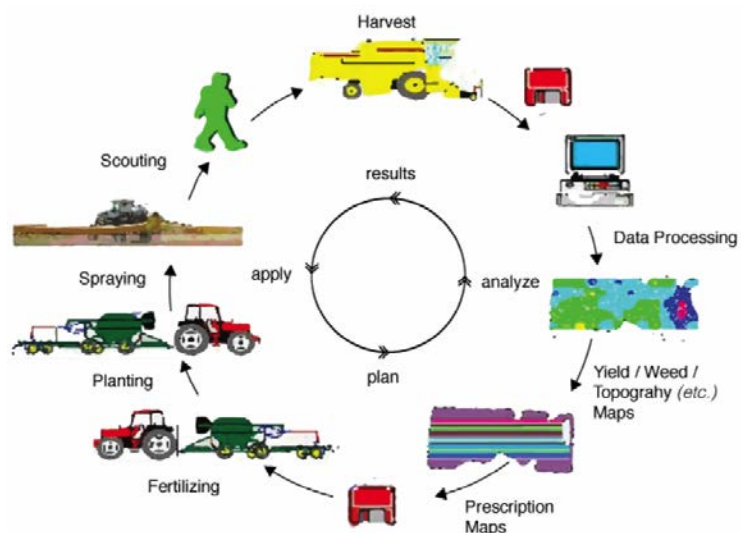
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#### Repeat for Next Year

- 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