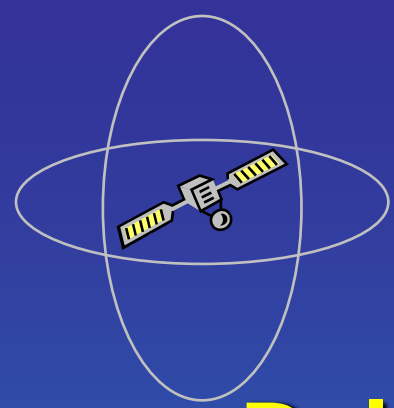
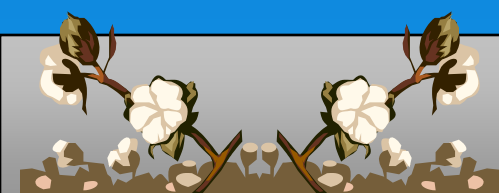


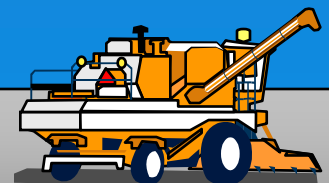


Delineating Management Zones for Variable Rate Fertilizer

Michael J. Buschermohle
Precision Agriculture Specialist
University of Tennessee
Biosystems Engineering and Soil Science



 **Precision Agriculture**
University of Tennessee Extension





Geographic Information System Software

Precision Agriculture Software

Map Shots www.mapshots.com

EASi Suite Farm

EASi Suite Multi-Client

EASi Suite Professional

Farm Works www.farmworks.com

Farm Site

Site Pro

Site Mate

AgLeader www.agleader.com

SMS Basic

SMS Advanced

SMS Mobile

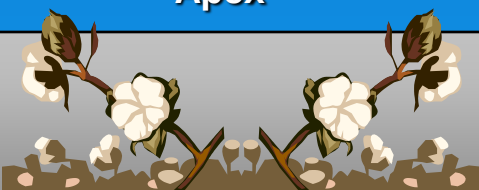
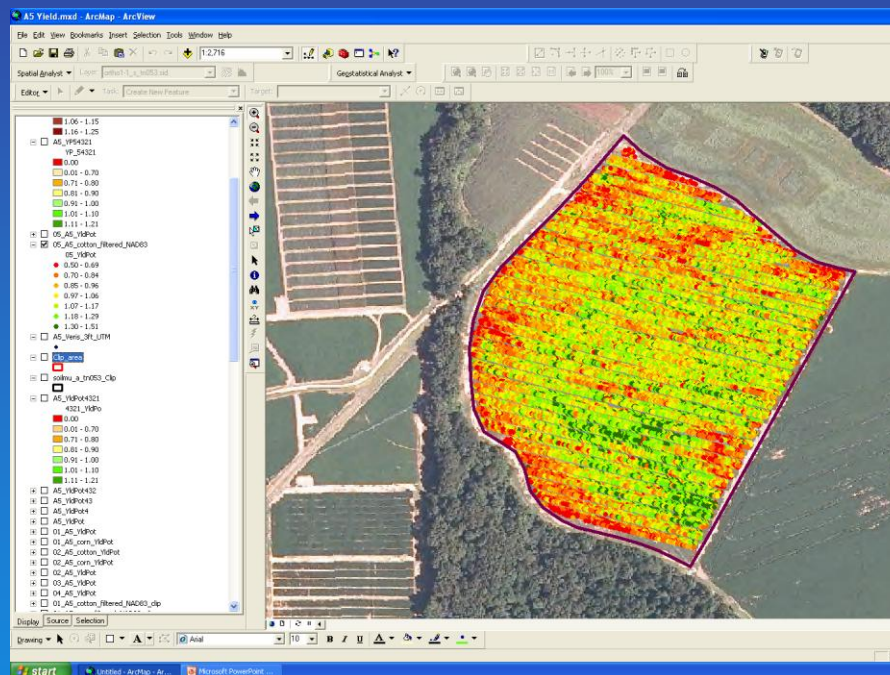
SST www.sstsoftware.com

SSToolbox

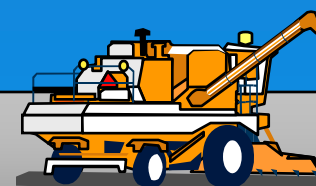
SST Stratus

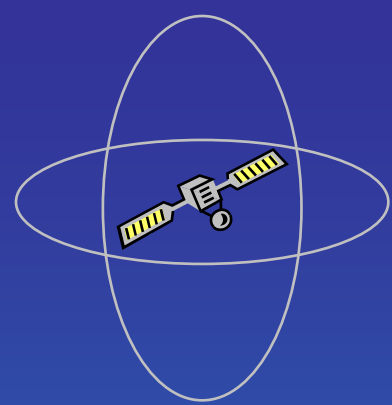
John Deere www.deere.com

Apex



UT Precision Agriculture
University of Tennessee Extension



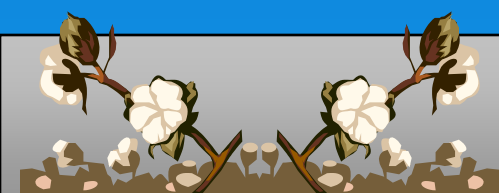
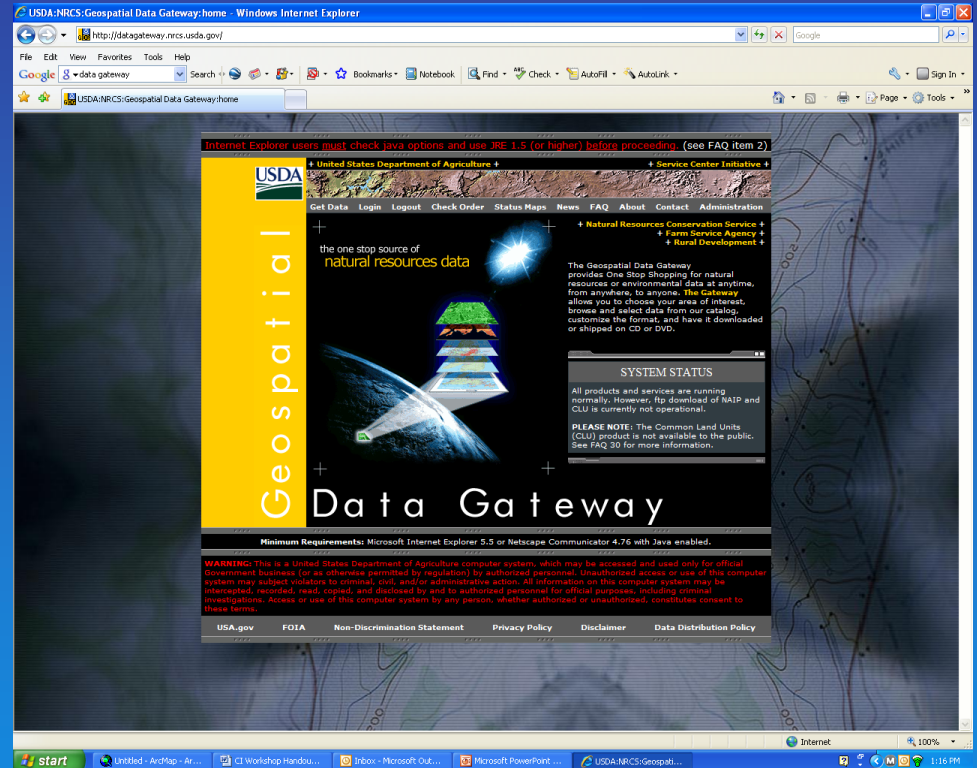


Spatial Data From the Internet

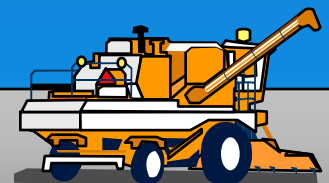
USDA NRCS

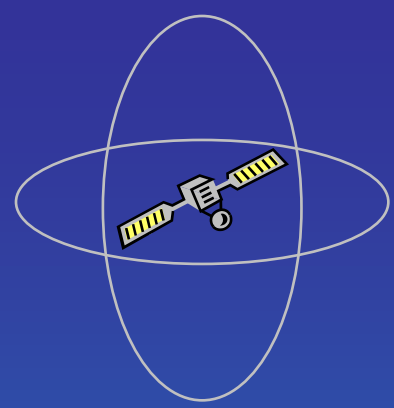
<http://datagateway.nrcs.usda.gov>

Hydrologic Units
Topographic Images
Aerial Imagery
Soils maps
Temperature Maps
Precipitation Maps

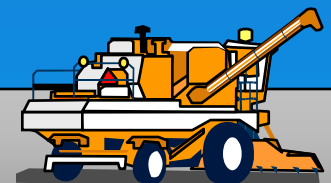
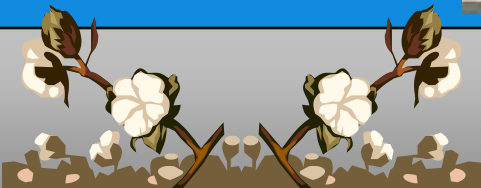


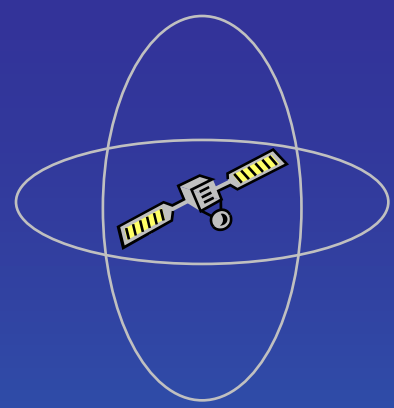
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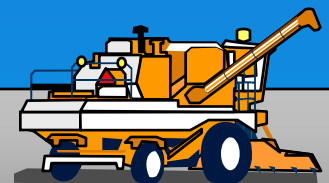
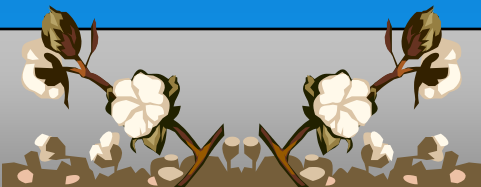
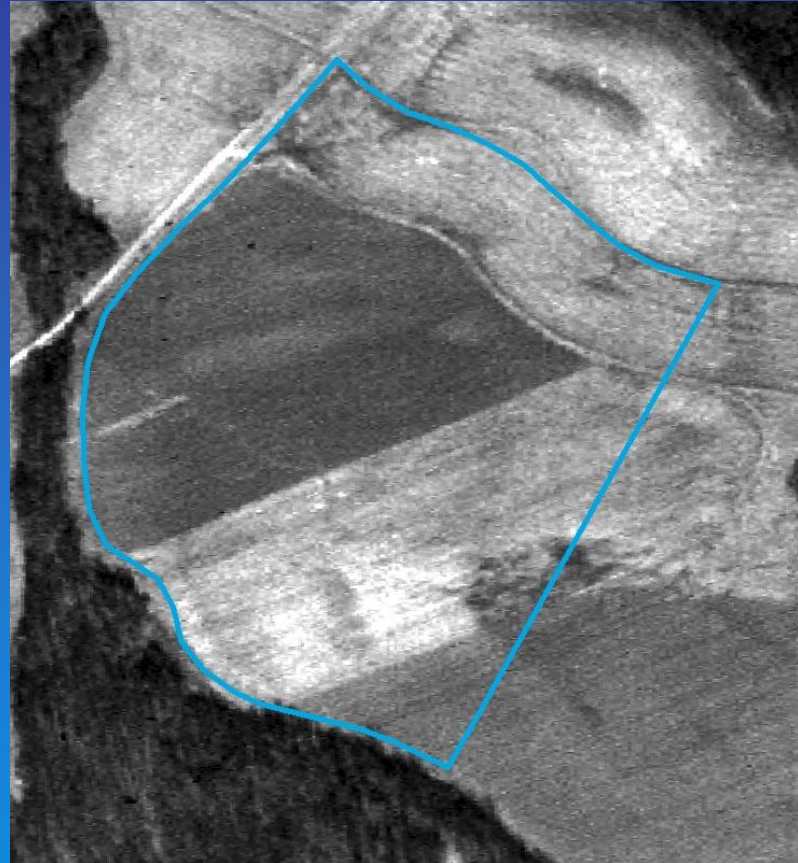
Example Field

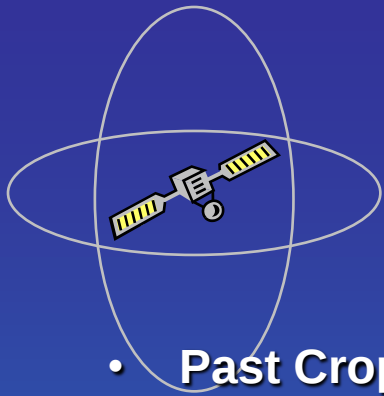




Delineating Management Zones

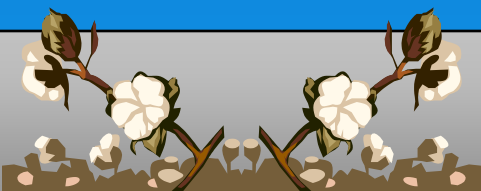
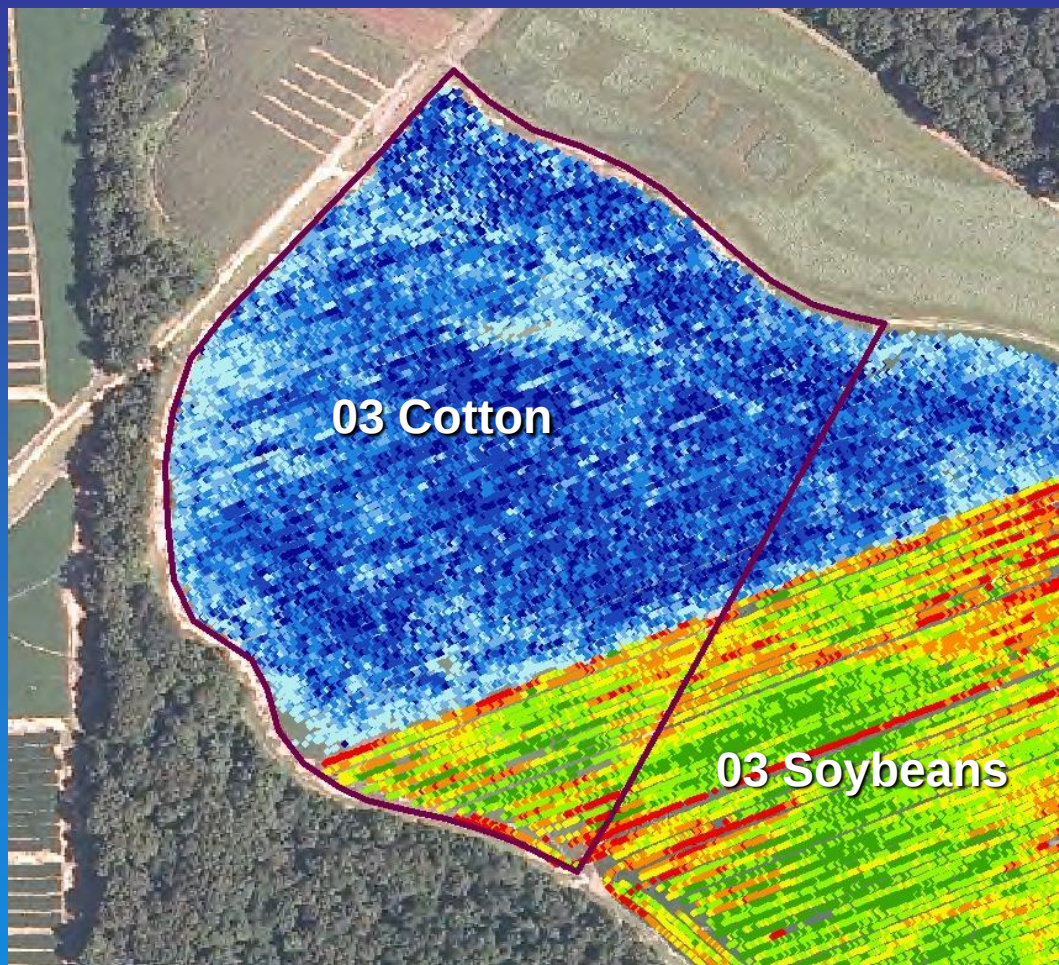
- Old Field Boundaries

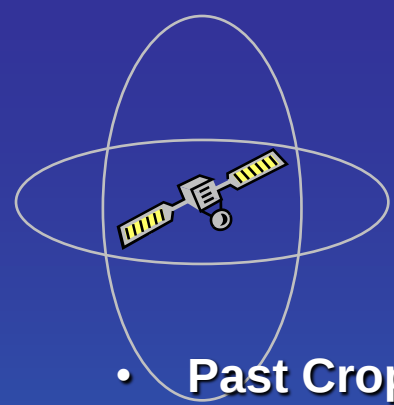




- Past Cropping History

Historical Information

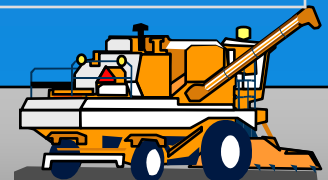
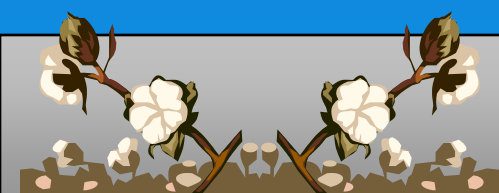


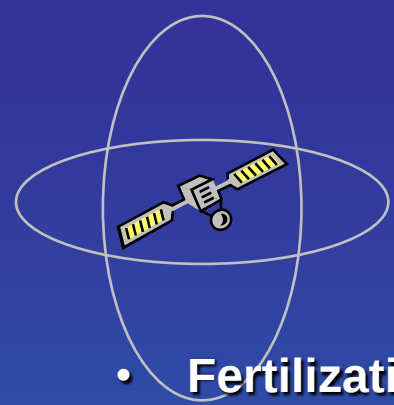


Historical Information

- Past Cropping History

Year	Crop	Avg. Yield
01	Corn	153 bu/ac
	Cotton	2 ba/ac
02	Corn	117 bu/ac
	Cotton	2.25 ba/ac
03	Wheat	57 bu/ac
	Beans	49 bu/ac
	Cotton	2.1 ba/ac
04	Corn	178 bu/ac
05	Cotton	2.3 ba/ac





Historical Information

- Fertilization History

Good Years:

80 lbs/ac K

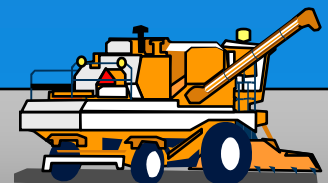
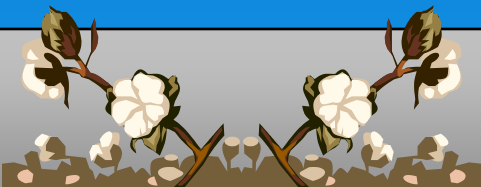
80 lbs/ac P

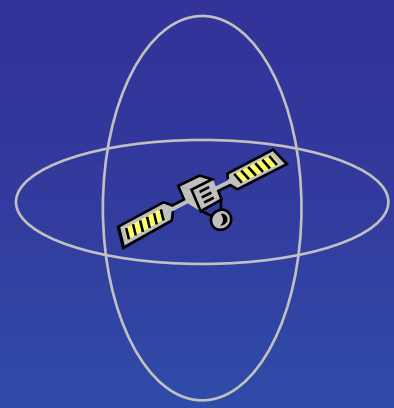
Lean Years:

60 lbs/ac K

60 lbs/ac P

I Don't Skimp on Nitrogen



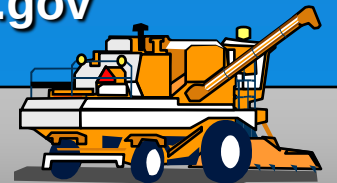
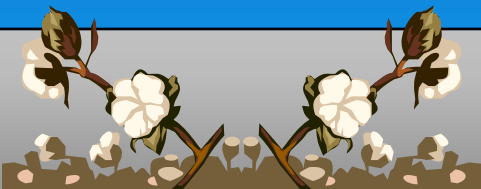


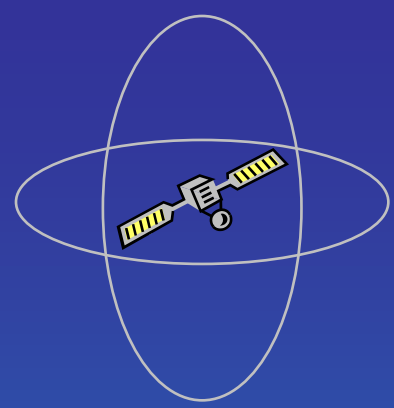
Delineating Management Zones

- Aerial Imagery



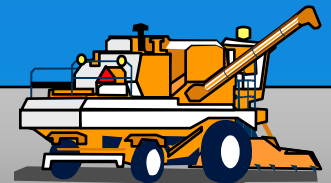
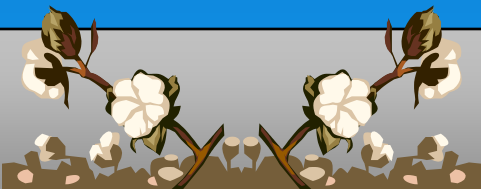
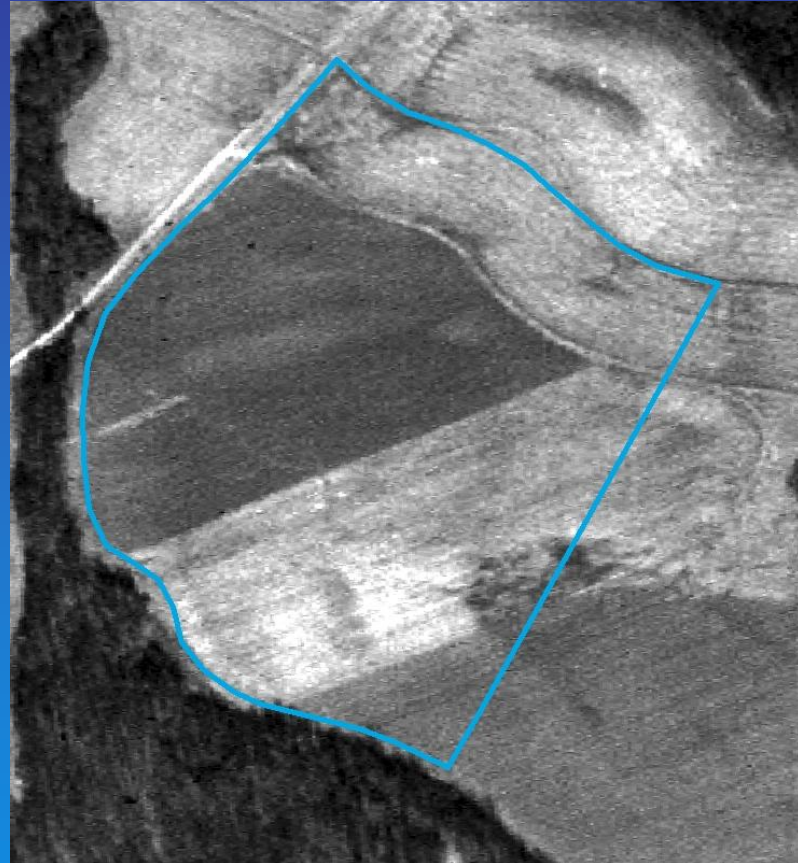
<http://datagateway.nrcs.usda.gov>

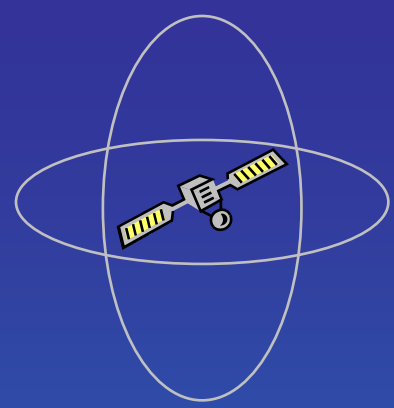




Delineating Management Zones

- Bare Soil Aerial Photo



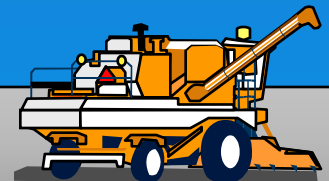
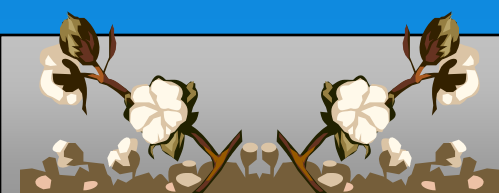


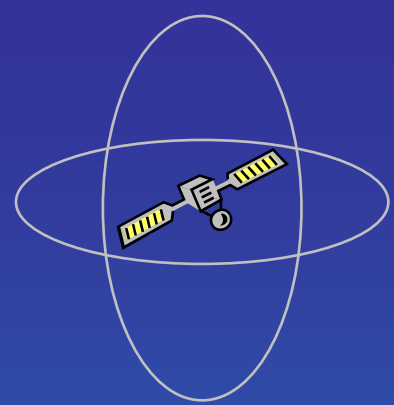
Delineating Management Zones

- Topo Map



<http://datagateway.nrcs.usda.gov>



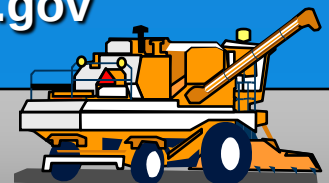
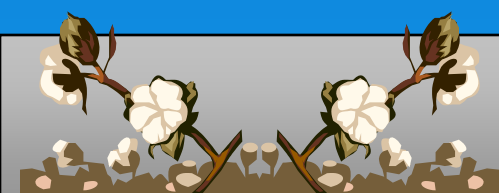


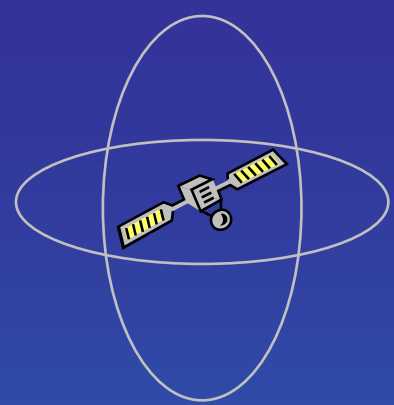
Delineating Management Zones

- Digital Soil Map



<http://datagateway.nrcs.usda.gov>



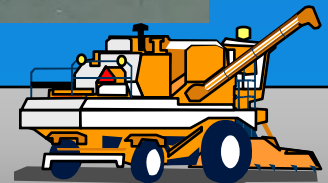
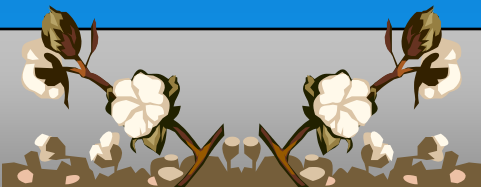


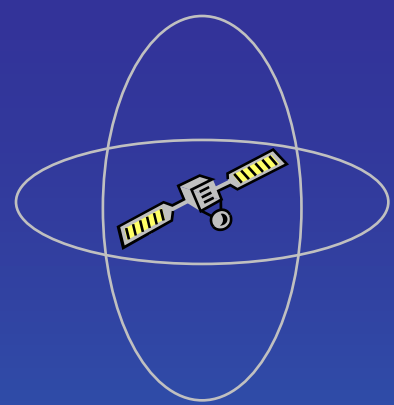
Delineating Management Zones

- Soil Electrical Conductivity

3 ft. Depth

Range
5.6 – 27.8 (mSiem/m)



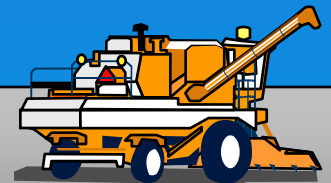
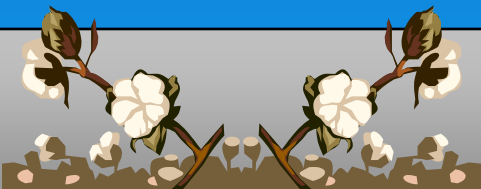


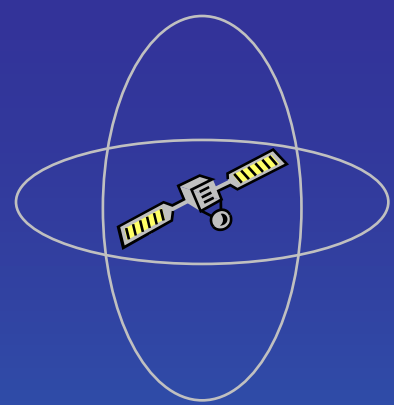
Delineating Management Zones

- Soil Electrical Conductivity

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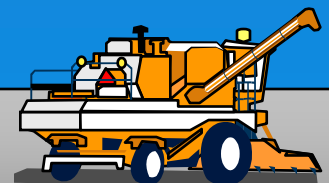
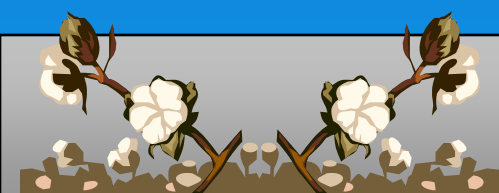
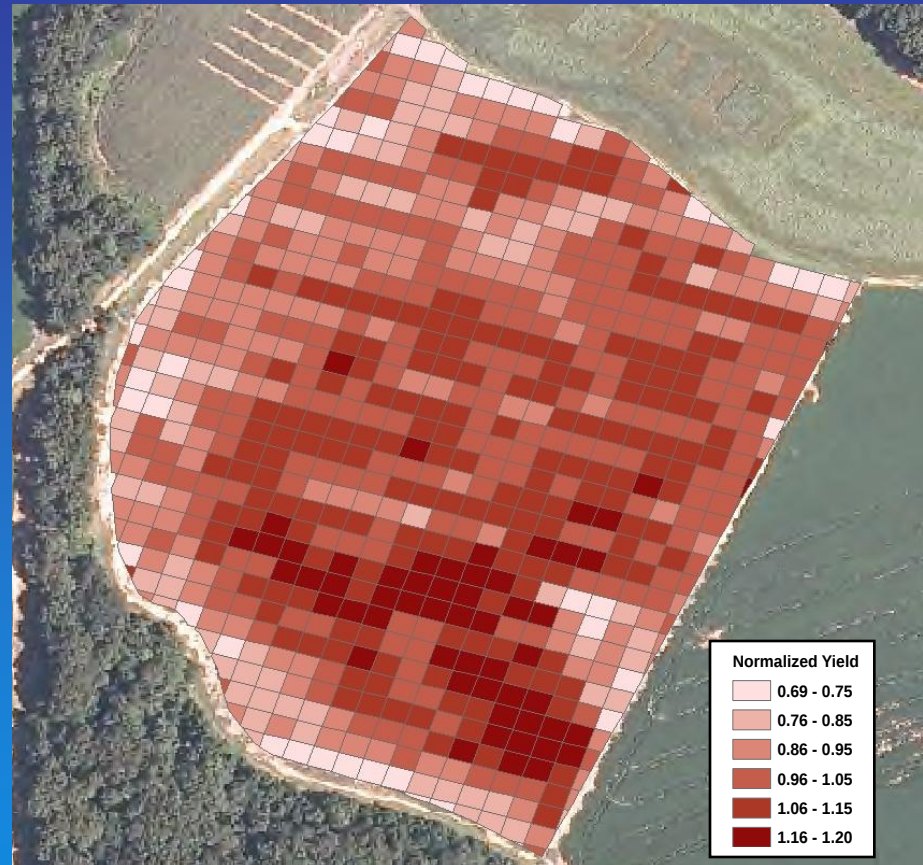




Delineating Management Zones

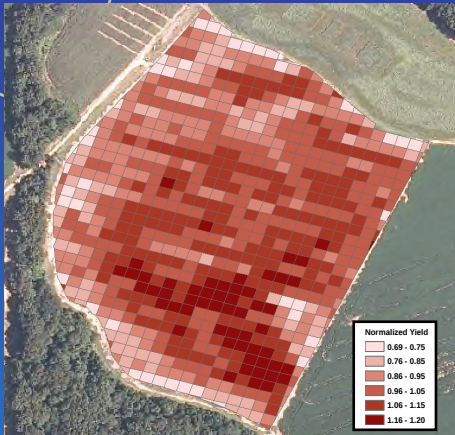
- Yield Stability

Normalized Yield

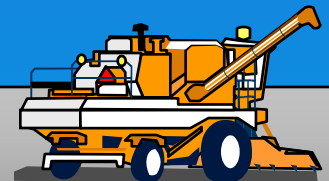
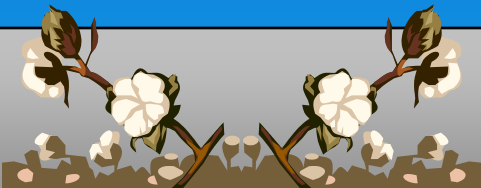


Delineating Management Zones

05

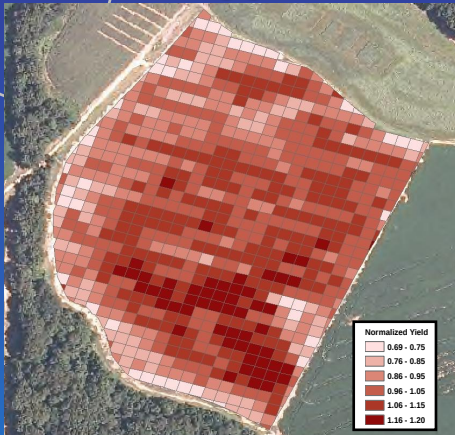


Yield Stability



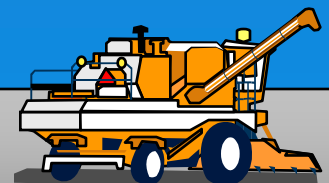
Delineating Management Zones

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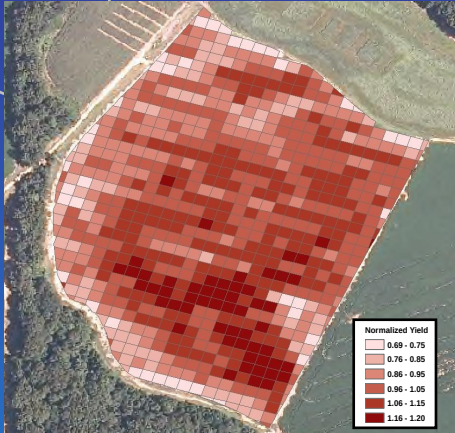
Yield Stability

05 - 04



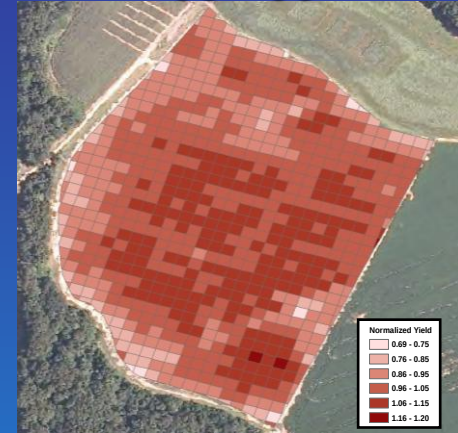
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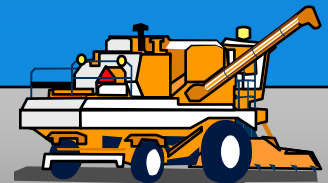


Yield Stability

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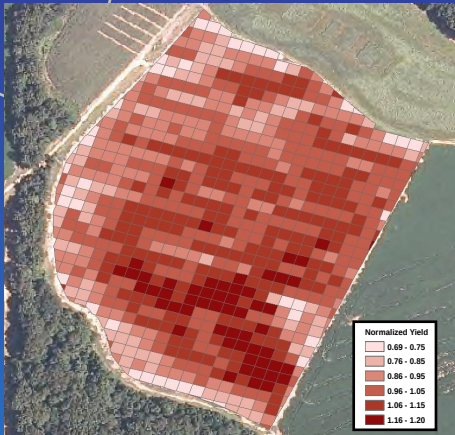


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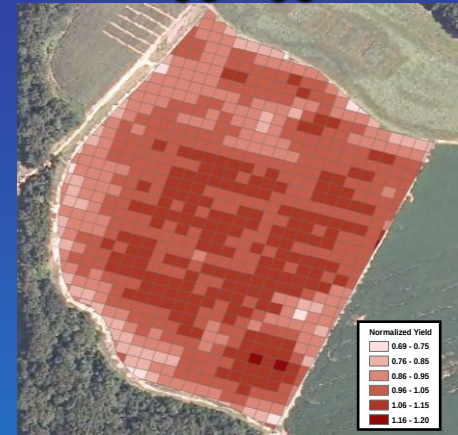
Delineating Management Zones

05



Yield Stability

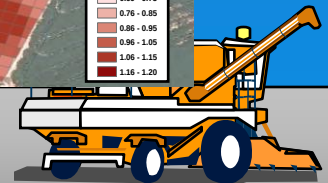
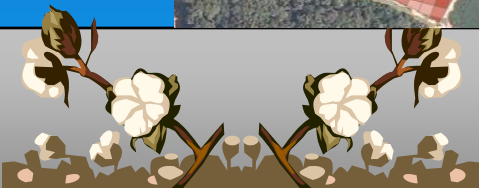
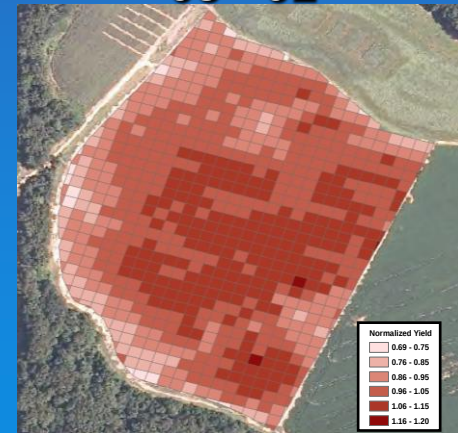
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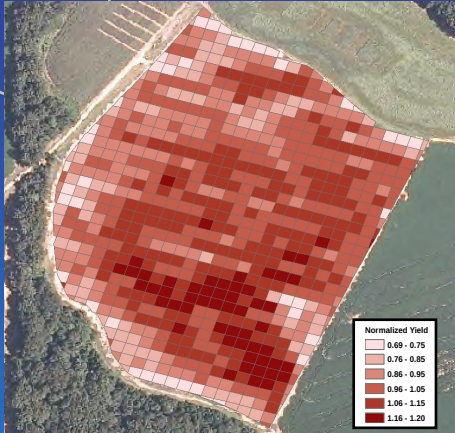


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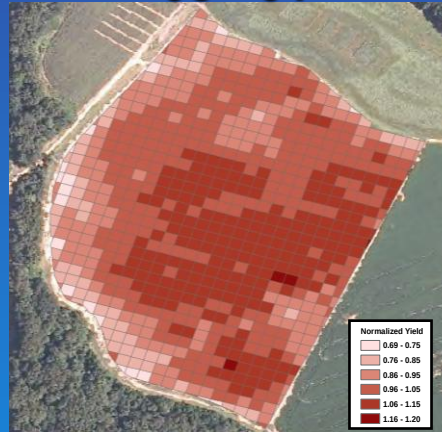
Delineating Management Zones

05

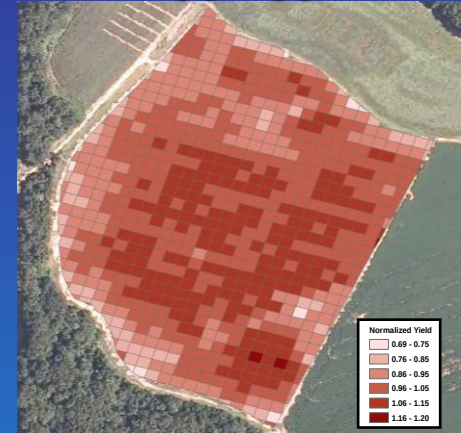


Yield Stability

05 - 01



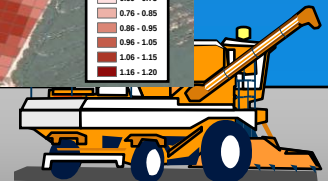
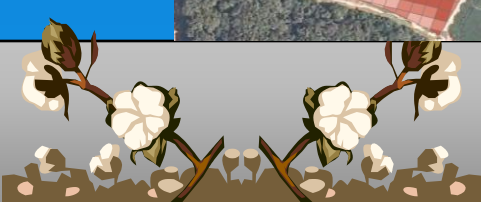
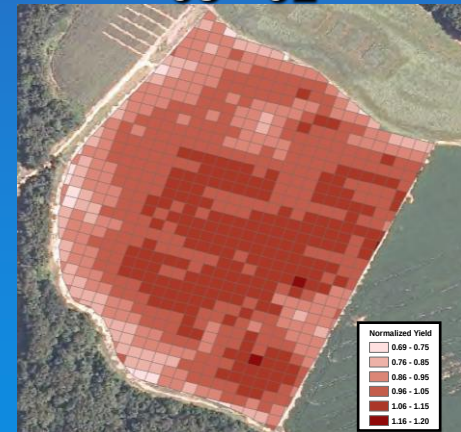
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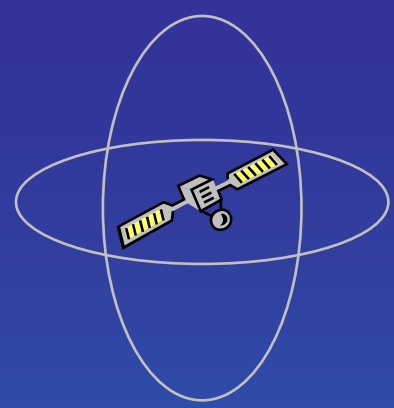


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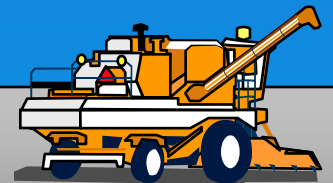
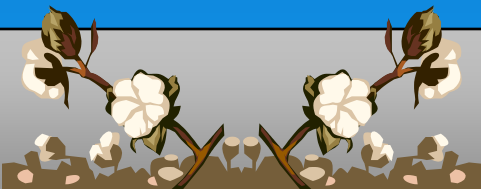
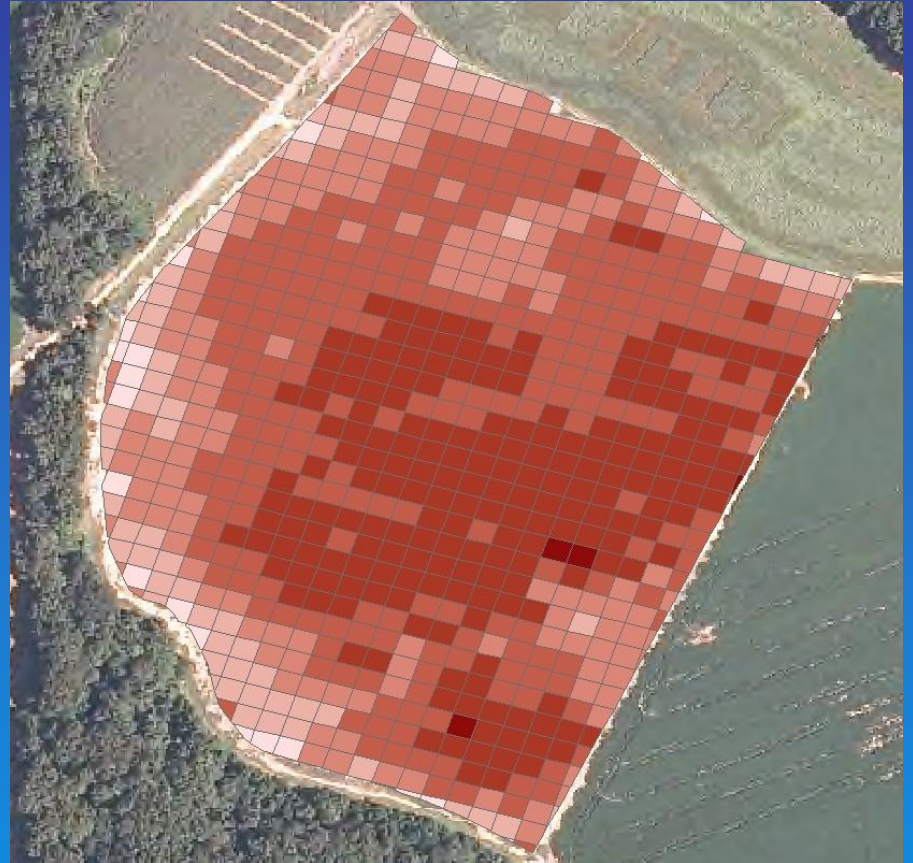
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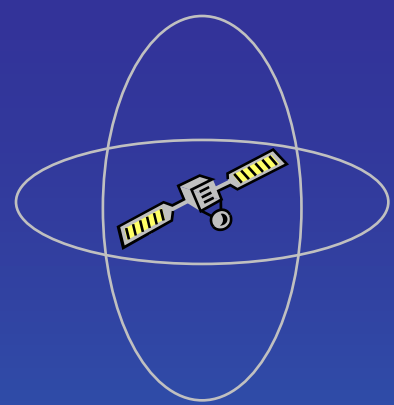




Delineating Management Zones

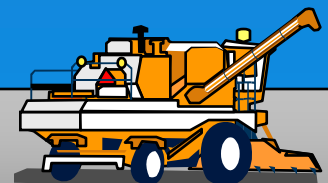
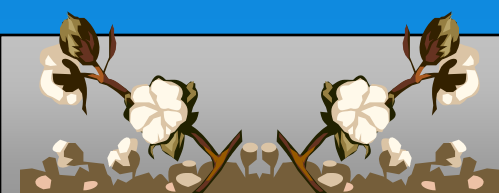
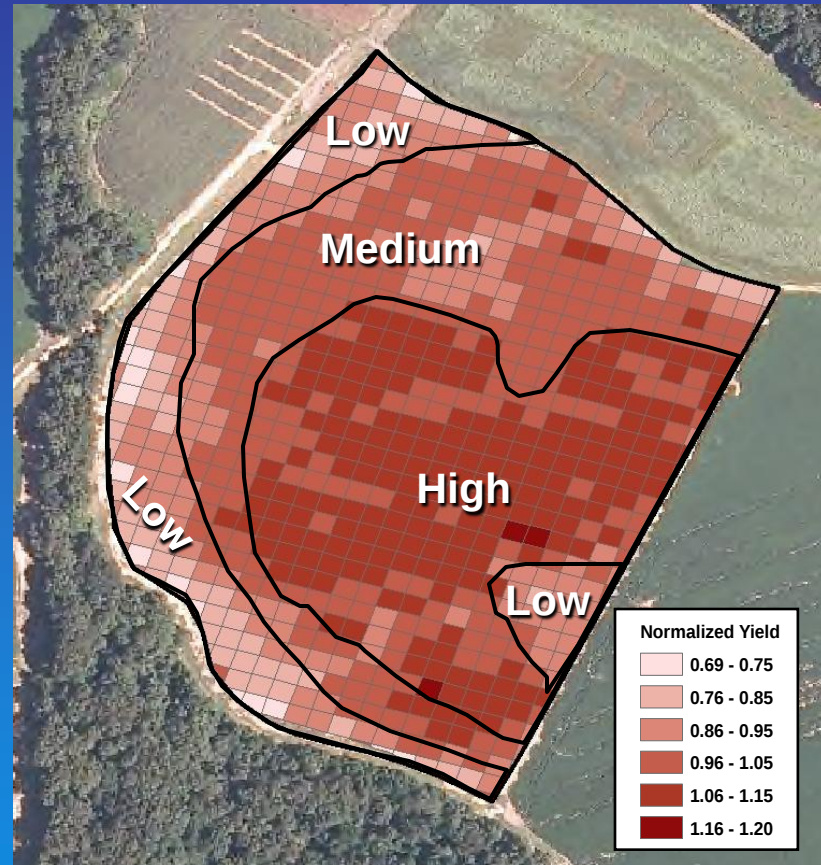
- Management Zones Based on Yield Stability

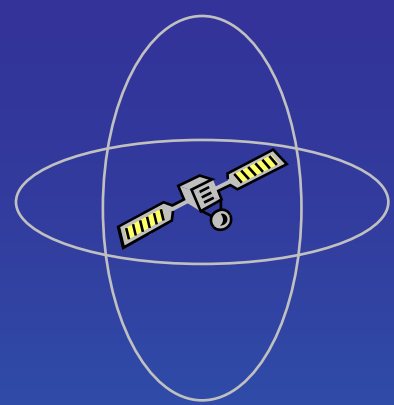




Delineating Management Zones

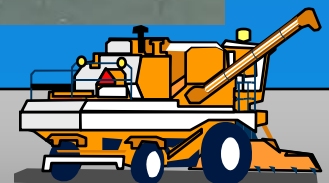
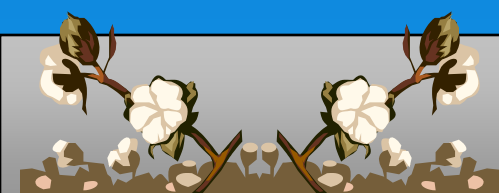
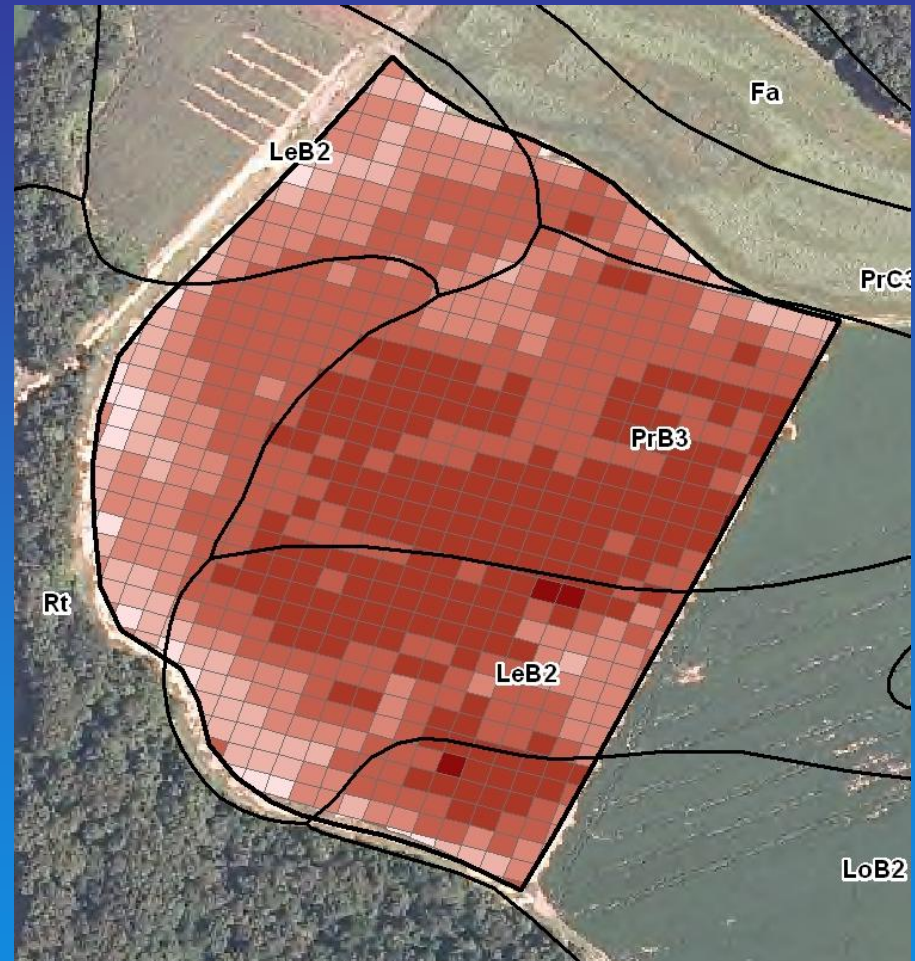
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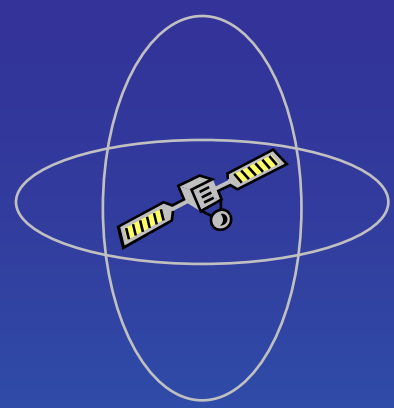




Delineating Management Zones

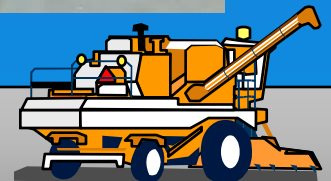
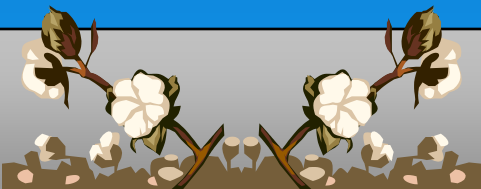
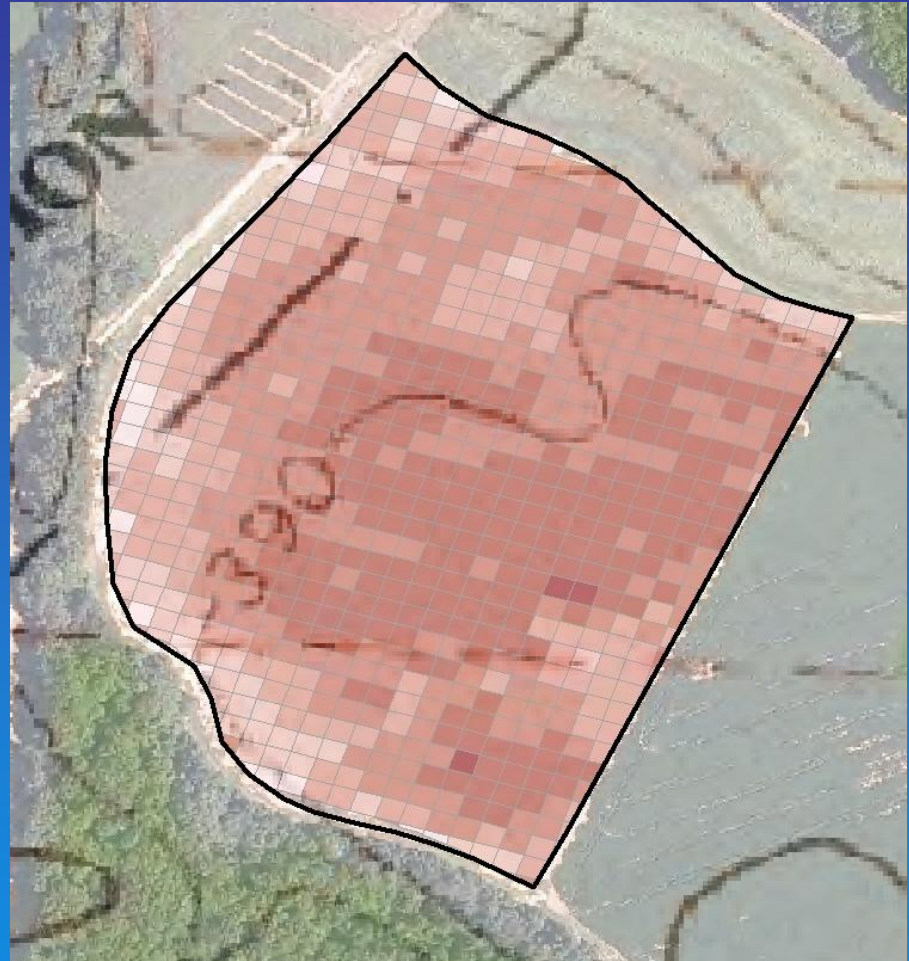
- Digital Soil Map

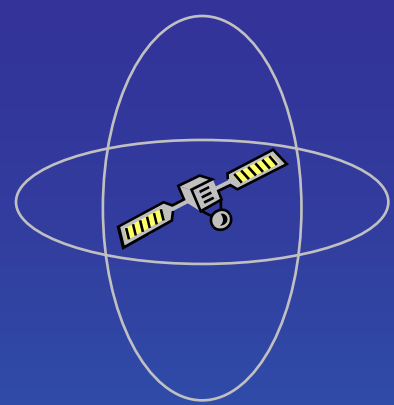




Delineating Management Zones

- Topo Map



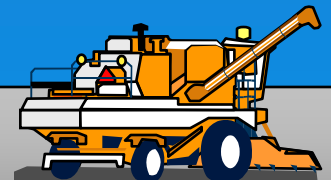
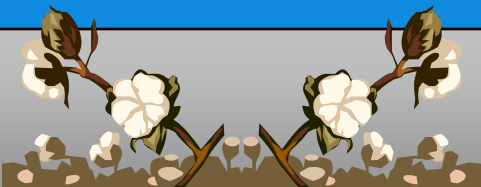
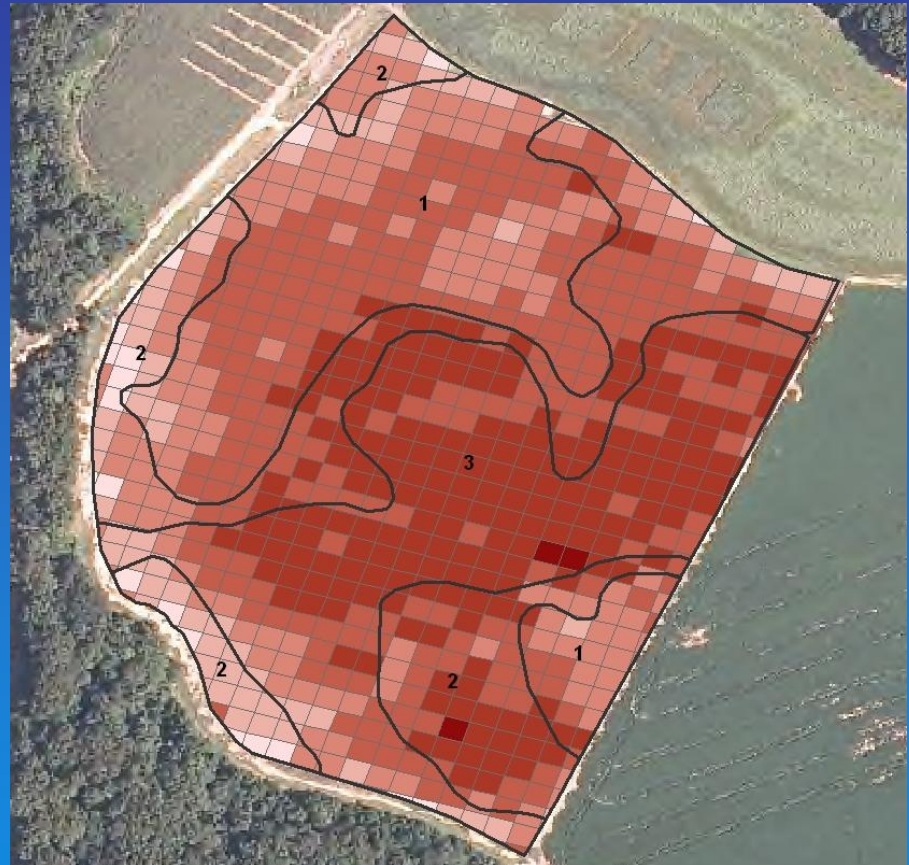


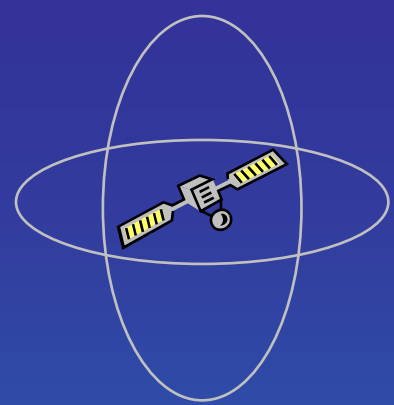
Delineating Management Zones

- Soil Electrical Conductivity

3 ft. Depth

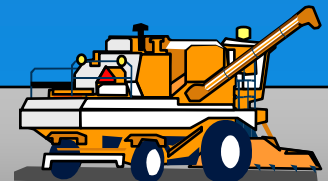
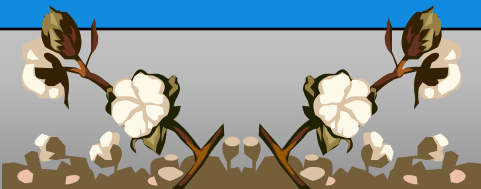
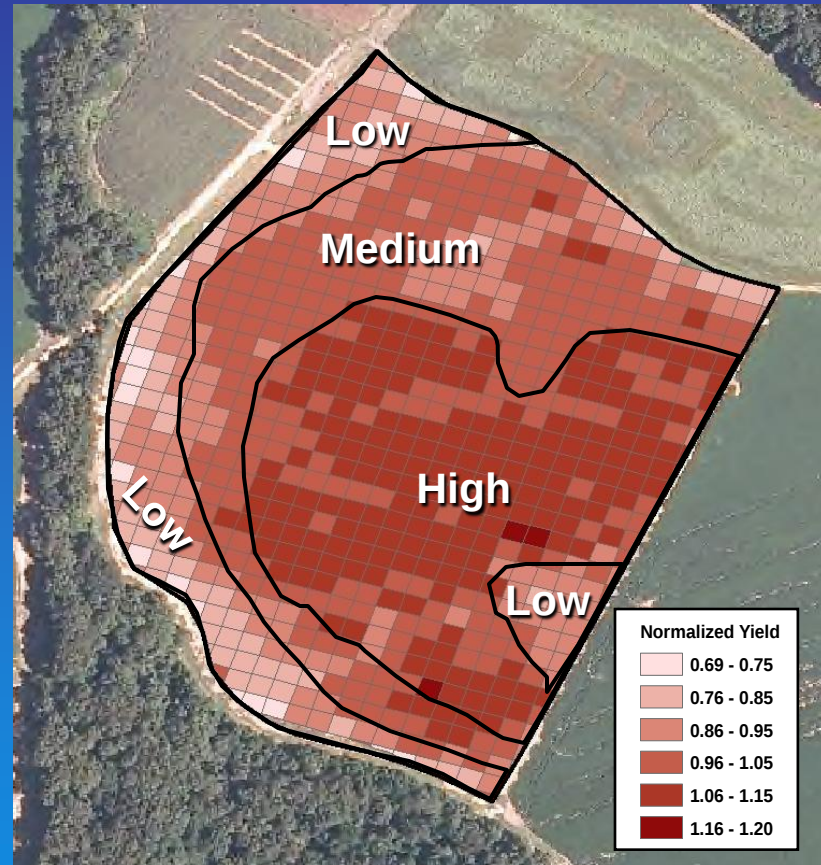
Range
5.6 – 27.8 (mSiem/m)





Delineating Management Zones

- What's the Next Step



Questions

