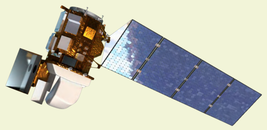
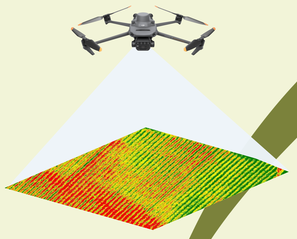
PLAANT: Precision Land Analysis and Aerial Nitrogen Treatment

BOSTON UNIVERSITY

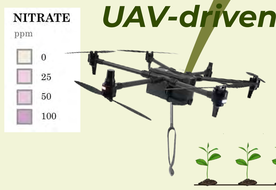
Satellite remote sensing for baseline mapping



Aerial multispectral surveyance

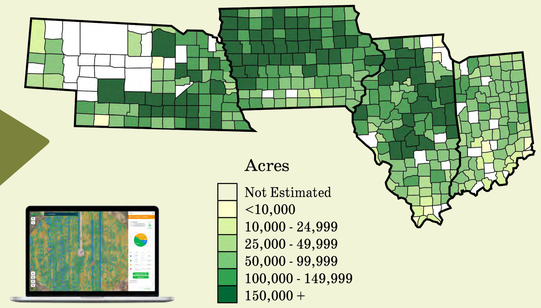


UAV-driven ground sampling



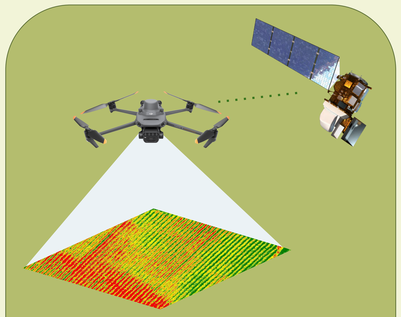
Highly specialized N recommendations for any field

Corn Harvested Acres by County, 2022



Precision fertilization from comprehensive N-detection

SURVEY



Multispectral analysis discerns N needs through band-specific reflectance due to crop health.

SAMPLE

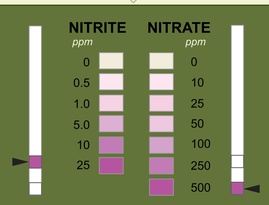
Aerial sampling and N testing automates the labor intensive and inefficient soil analysis process.

SPRAY

Specialized N map is leveraged to deploy tailored, variable-rate precision fertilization.

Data Collection and Analysis

Cross-scale analysis creates a baseline N map and informs physical sampling.



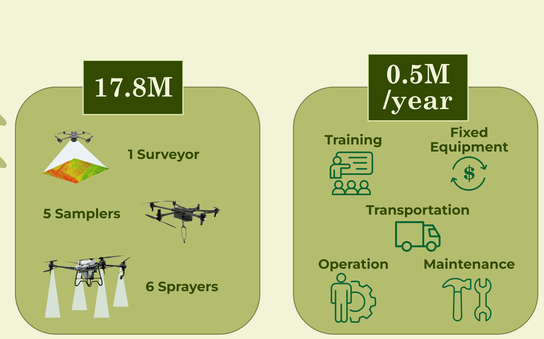
Simple colorimetric strip testing provides ground-truth data to calibration N map.

Response

Exact application reduces N losses, increases yield,

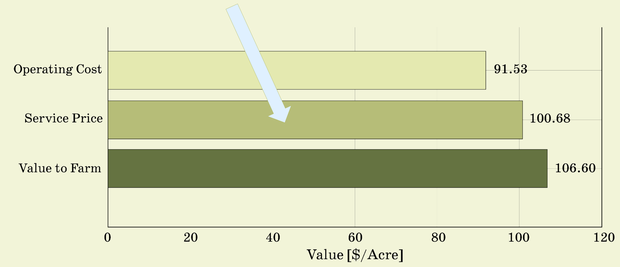
7 14.007
N
Nitrogen

minimizes environmental impact of fertilizer.



< 0.01% of the $200B [USD] Fertilizer Industry

Compared to current Fertilizer spend of $200/acre



Farms experience **profit increase of 6.4%**
Profit Area **+ 20% Yield, - 35% N-Savings**

Projected Improvements

PLAANT combines cross-scale nitrogen information to optimize targeted fertilization and improve ***nitrogen use efficiency (NUE).***

GHGs **13 Mt/yr CO2eq reduction** in U.S. GHG emissions.

Yield Up to **20% crop yield increase.**

H_2O **$150 million/yr saved** on pollution treatment.

Increased in-situ visibility of complex soil dynamics.

Expanded **data availability** for agricultural research.