



Showcase | Precision Agriculture from Drone to Tractor

Precision Agriculture

PROJECT

Crop mapping and analysis of a 90-acre corn field in the USA, using NDVI maps to optimize the application of fertilizer

KEY BENEFITS

- End-to-end solution, from images to tractor-ready fertilizer application map
- Enables more frequent and complete monitoring of crops
- Reduces fertilizer expense and amount of manual scouting



Data Acquisition

HARDWARE & FLIGHTPLAN

senseFly eBee Ag drone with S110 NIR (near-infrared) camera
Grid flight plan with 75% frontal overlap, 85% side overlap, and 120 m altitude AGL

TIME ON SITE

Around 40 minutes

DATASET

520 images at 5 cm GSD

Project Outcome

DELIVERABLES

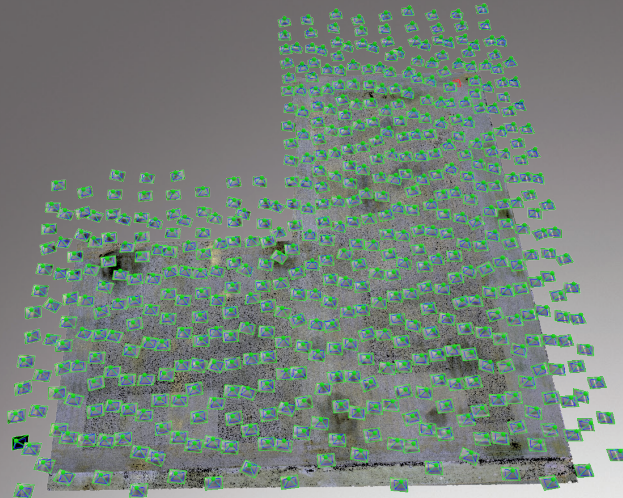
- NDVI Map for plant health evaluation and crop scouting support
- Customized prescription for fertilizer application classes, in shapefile format for tractor use and direct field application

PROCESSING TIME

1 hour

ANALYSIS

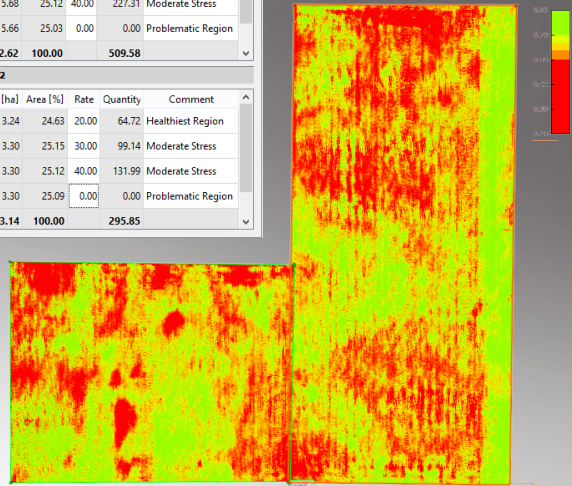
- Based on post-flight crop scouting and NDVI map analysis, 4 regions in the corn field were identified: one region where no fertilizer application was needed, and three distinct regions to be treated with 20, 30, and 40 pounds of fertilizer per acre, respectively
- Flight, scouting, analysis and fertilizer application were all done in the same day



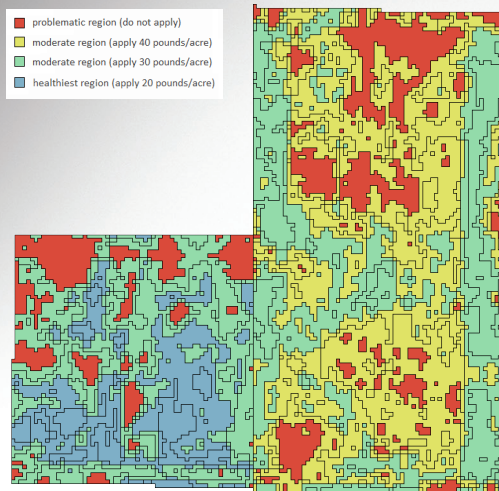
520 image flight over the field

Region 1						
Color	Area [ha]	Area [%]	Rate	Quantity	Comment	
Green	5.60	24.75	20.00	111.97	Healthiest Region	
Yellow	5.68	25.10	30.00	170.30	Moderate Stress	
Orange	5.68	25.12	40.00	227.31	Moderate Stress	
Red	5.66	25.03	0.00	0.00	Problematic Region	
Total:		22.62	100.00	509.58		

Region 2						
Color	Area [ha]	Area [%]	Rate	Quantity	Comment	
Green	3.24	24.63	20.00	64.72	Healthiest Region	
Yellow	3.30	25.15	30.00	99.14	Moderate Stress	
Orange	3.30	25.12	40.00	131.99	Moderate Stress	
Red	3.30	25.09	0.00	0.00	Problematic Region	
Total:		13.14	100.00	295.85		



NDVI map with regions



Fertilizer application classes map (shapefile)



Tractor guidance system using the shapefile map

Client Reference

SHOWCASE COURTESY OF:



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