



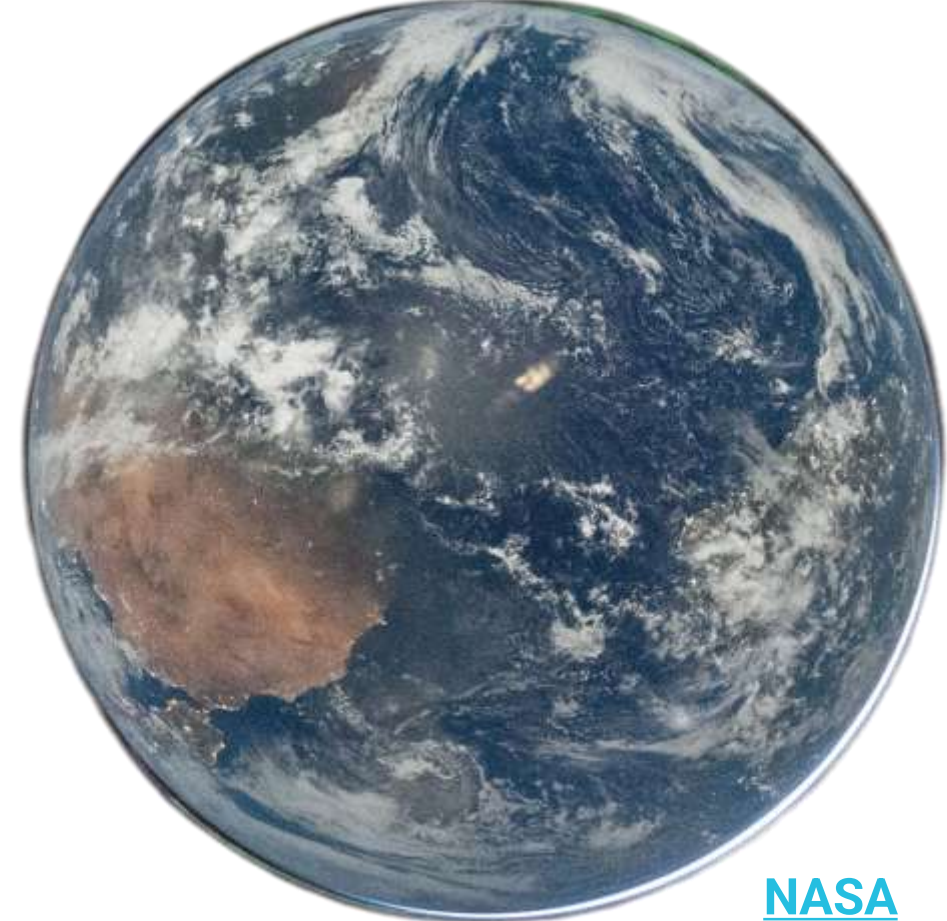
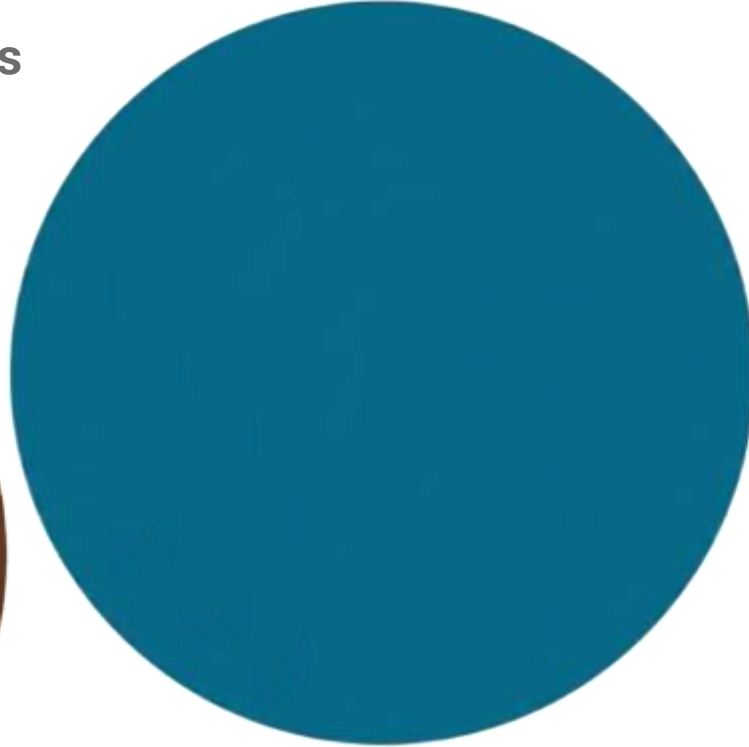
Unlocking Spatial Intelligence: AI's Plan to Sustainably Feed the Planet

ACADEMIC ROOTS IN GERMANY

Dr. Carl Troll coined the phrase **Landscape Ecology** in 1939. Theoretical foundation for how AI can use spatial intelligence to sustainably feed us.

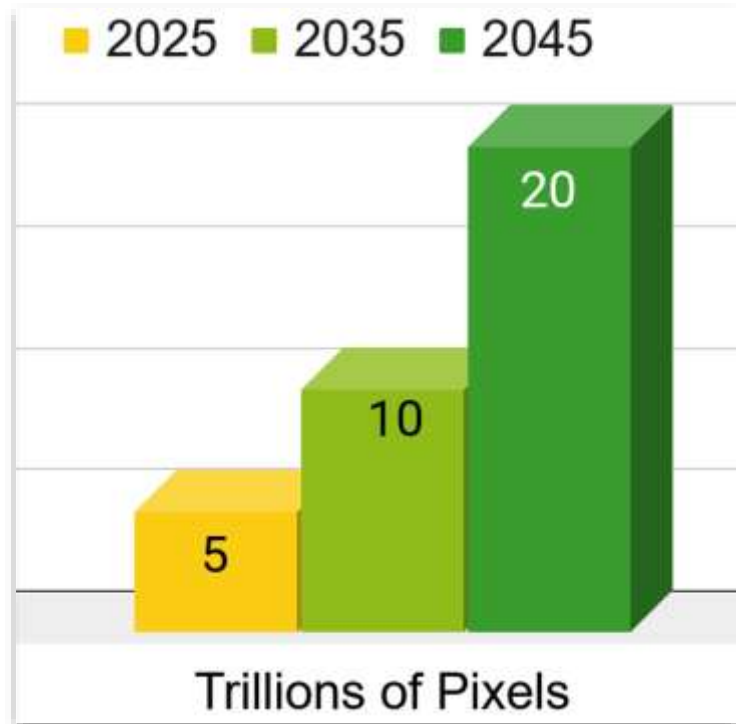


What if pictures from the Artemis II astronauts looked like this?

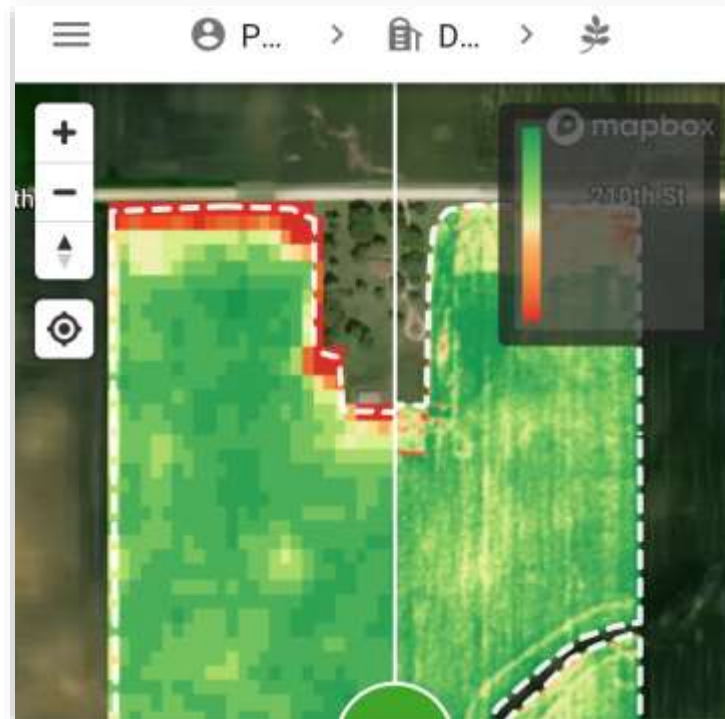


EXPLODING ARCHIVES OF IMAGERY

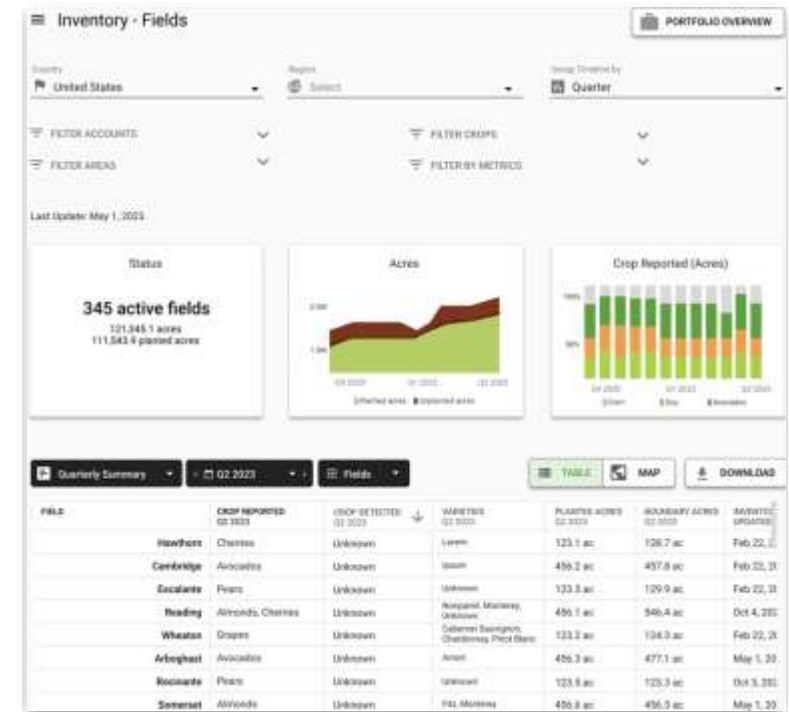
Earth is being imaged at an unprecedented rate. Currently **> 5 trillion pixels** of free science-grade imagery available over arable land.



Exponential growth of free science-grade imagery



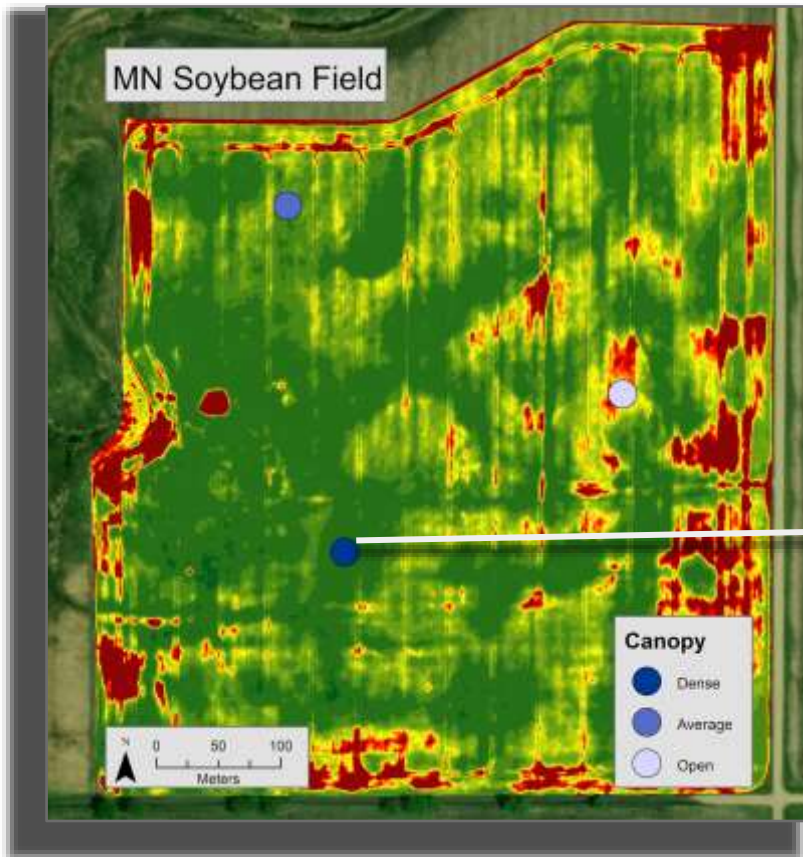
Real-time assessment of field health and supply chain risk



Organize metrics & models by crop, geography, and benchmarks

MORE RESILIENT SUPPLY CHAINS

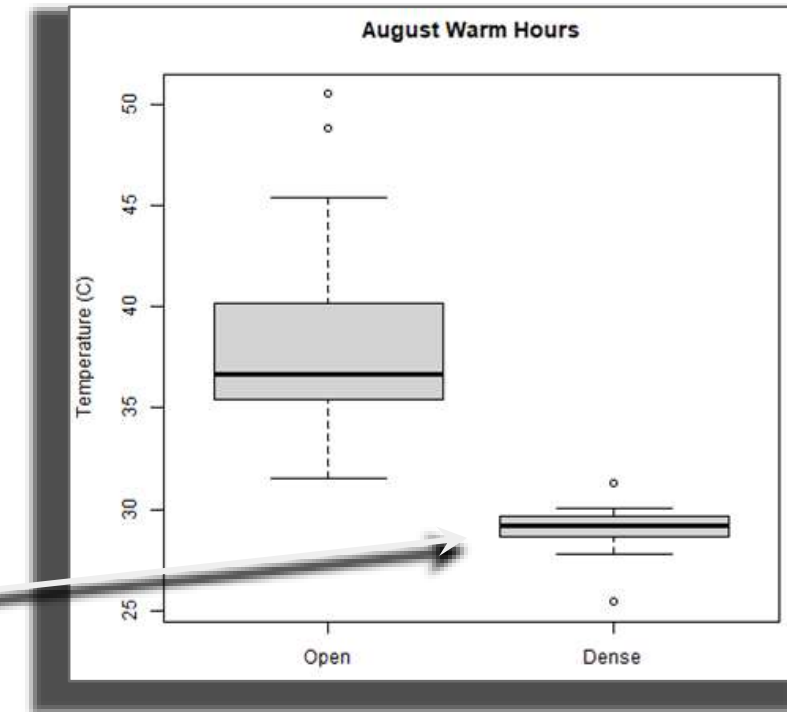
Act on real-time insights during growing season to save money on inputs, grow better crops, minimize post-harvest losses, and decrease carbon footprint.



NDVI of dryland soybean field



2-m flags (dark green NDVI)



Temps in open vs closed canopy

POTATO CASE STUDY

4th largest crop in the world, grown in over 100 different countries, and an important human food source for over 6,000 years.



→ 400 million metric tons produced per year

→ 50% stored - higher rates in developed countries

→ Stored potatoes lost to rot is single biggest global leak

→ 15-30% of stored potatoes lost to rot every year

POTATO CASE STUDY

In developed countries, **50% of all storage losses** can be traced to the environmental conditions of fields. Developing countries face more risk from poor storage.

- Diseases & sprouting problems are top two factors
 - **Dry rot common in sandier/drier soils**
 - **Wet rot common in heavier/wetter soils**
 - Influenced by extreme weather
- These conditions vary spatially in all fields
 - Soil type and weather main influencers
 - **Quantifying this environmental risk in growing season provides chance to monitor and plan**



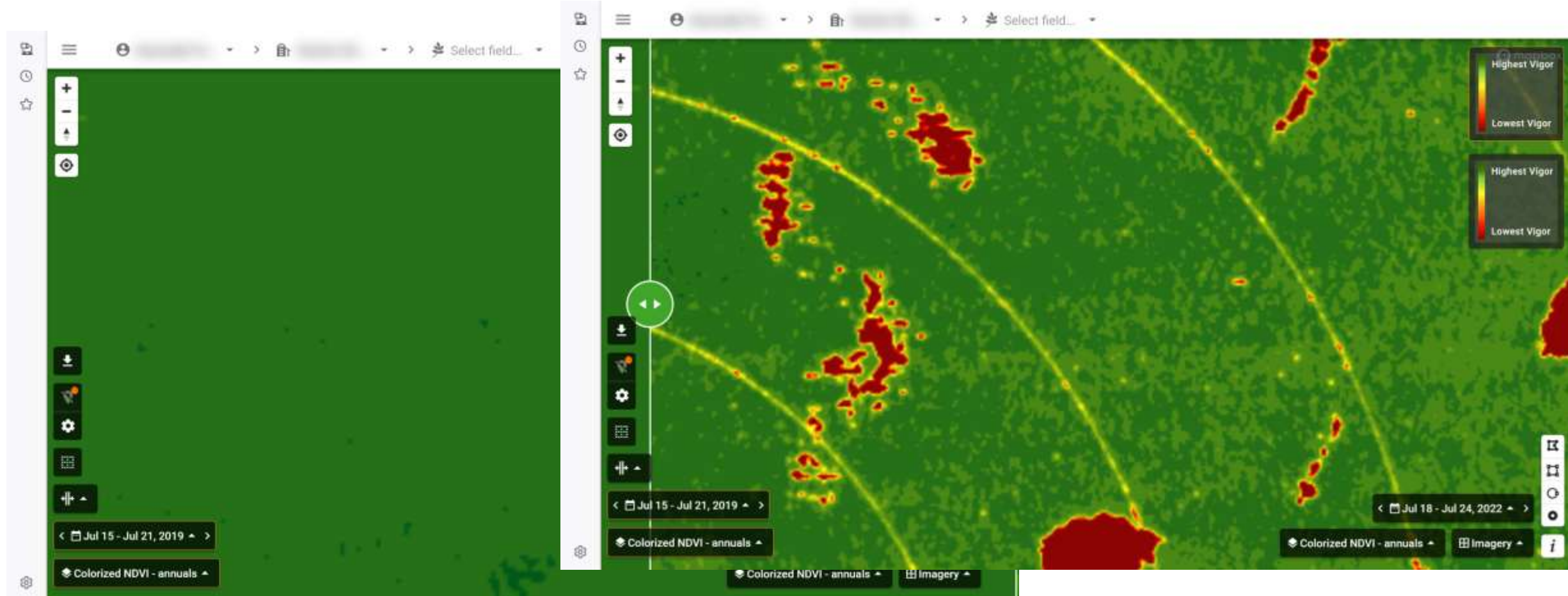
Dry rot



Wet rot

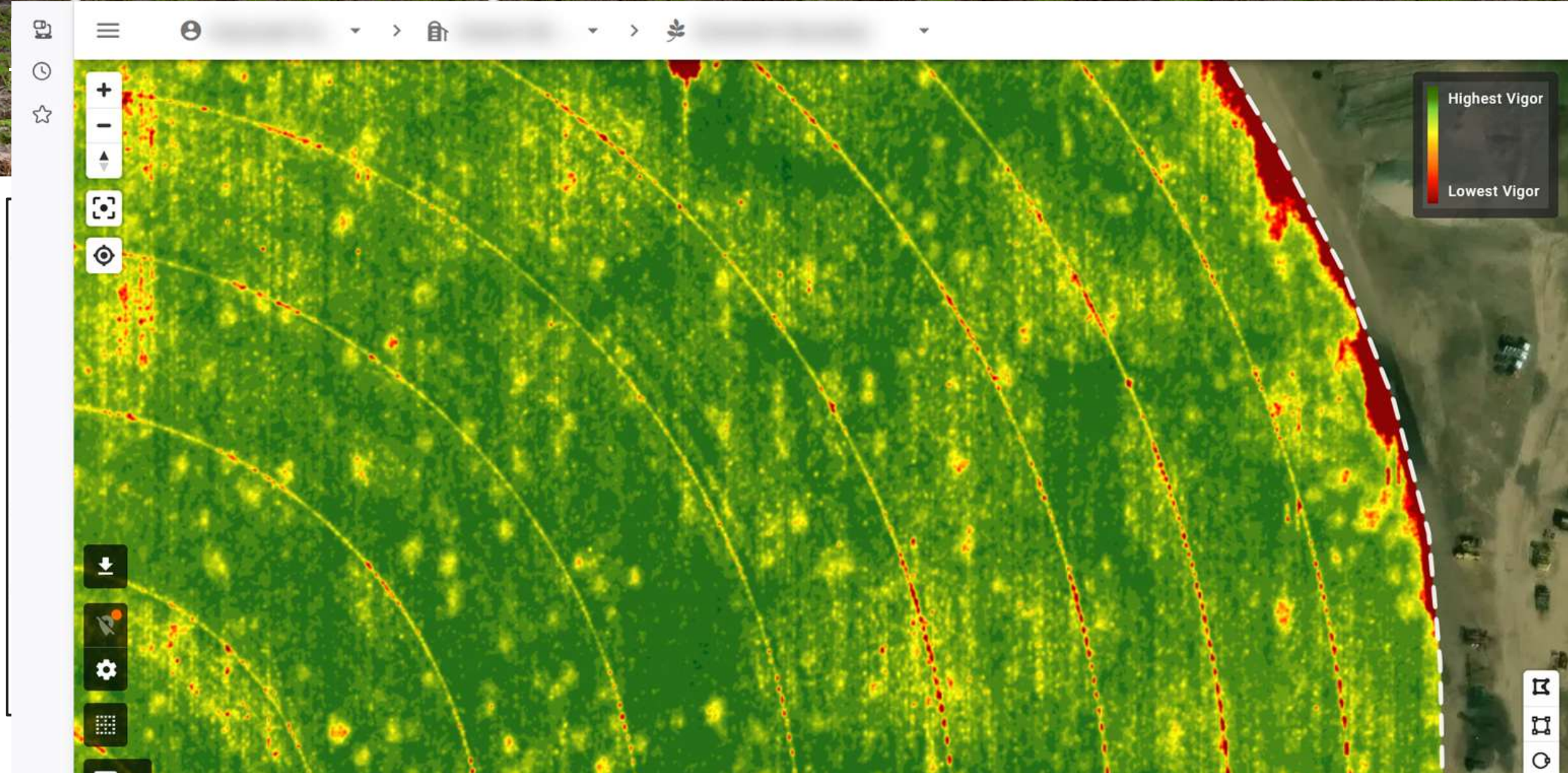
POTATO CASE STUDY

Higher risk of storage losses in fields containing patches of stressed crop canopy. Less risk linked to fields with "normal" canopies.



POTATO CASE STUDY

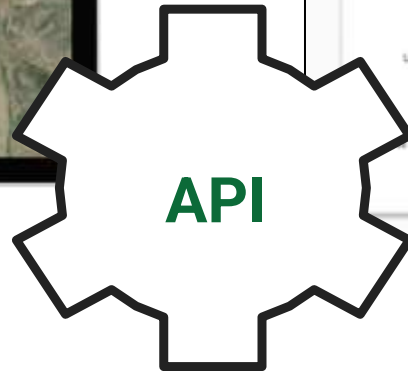
Higher risk of storage losses in fields containing



POTATO CASE STUDY



Science-grade images of fields, data from wireless sensors or agronomists, & principles of landscape agronomy in AI Engine for **geo-enabled supply chains**



THANK YOU!



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