Indices Results

6 vegetation indices we used in the analysis of this field to compare before and after 7 days

NDVI: Less variance in plant health across the field, as the majority of the area, decreases in health except for a few small patches

MSAVI: This index's results, better adapted for bare soil, shows the field is still primarily bare soil

NDRE: NDRE indicates that although the overall health of the field has declined, some of the barren areas have grown slight amounts of vegetation

GCI/ReCL: These indices showed us that the level of chlorophyll in the small number of plants remaining has decreased, also indicating that their health and ability to grow may have decreased

GNDVI: This index showed us that photosynthetic activity on the field has decreased, which is in line with the other indices. Water and nitrogen intake has decreased potential dehydration.

Hypothesis: Over the last month, temperatures in Nagano have significantly increased, and this decrease in health could be a byproduct of the plants regulating themselves to the new climate. It is not very likely that this change would affect the field negatively in the future.

Another possibility is a general disease on the field or early germination stages or a mix of both

Summary: The overall health of the field is declining, but there is a good chance that this is only temporary considering early germination stages and early onset of the season

This is what we want to do:

- We can tell where plants are ill faster and more efficiently.
- Understanding why some plants are thriving and replicating where plants are dying
- Analyze many different farm types and plant varieties no matter the weather conditions
- Track throughout the whole season in order to give the best feedback for the current season and upcoming seasons
- Identify why health is declining, whether it is watering practices, illness, or nutrient deficiency
- Find a solution to problems using our very specific data

What we can do:

- We use different vegetation indices that examine light we can't see with our naked eye produced by satellites and drones to gain the information we normally wouldn't know about fields.
- We can tell precisely where plant health is declining

Case Study Slide 1:

- We used our drone for a prototype in which we recorded a video about it
- We found out that most of the field was dying and building a barrier to protect the farm from the field would have helped

Case Study Slide 2:

- In this study over Komoro, we used satellite imaging to conclude that most of the field was unhealthy, but that could have been due to early germination and change in the temperature

How you can help:

We have all the software and access to photos, but we haven't been able to find a farm to confirm our data. If you are willing to help, we could:

- We could analyze your farm, and we ask you to confirm whether our findings are correct to what you see
- It would also be amazing if we could visit the farms and see them ourselves