**Nileworks**

# Nileworks unveiled Phenotyping Survey System
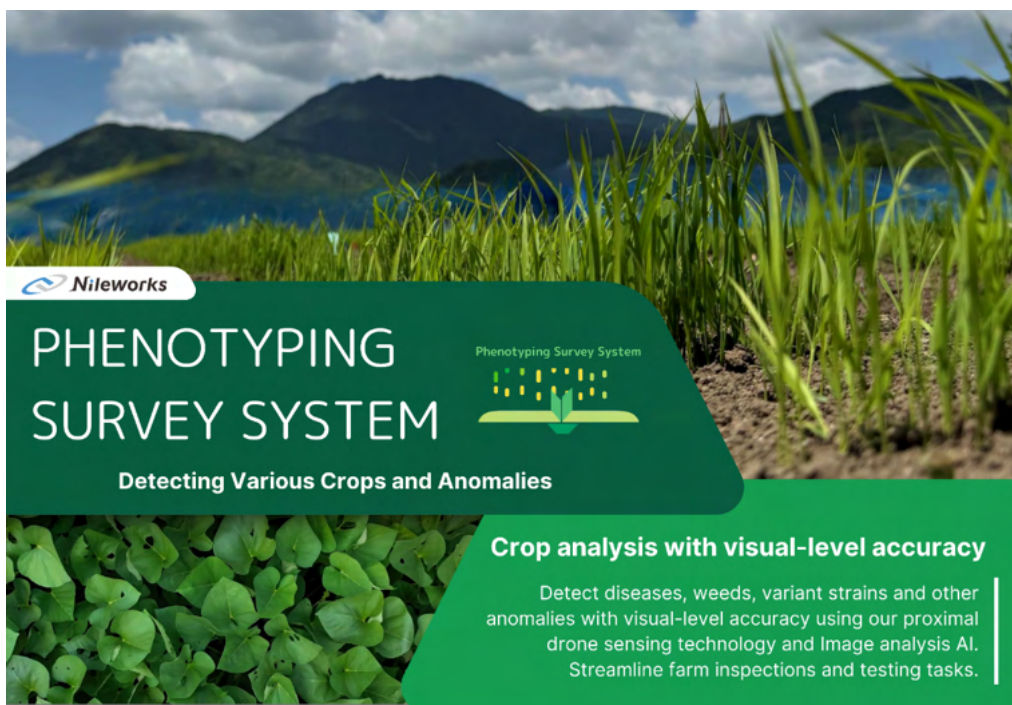# - WAGRI$^{(*)}$ Open Day 2024 -

**Tokyo, Japan – September 3, 2024** - Nileworks Inc. participated in the "WAGRI Open Day 2024" held on Tuesday, August 24, 2024. During the event, the company unveiled its unique crop analysis solution, the Phenotyping Survey System, which utilizes proprietary proximal drone sensing technology and AI-based image analysis.

## Application of Phenotyping in Agriculture

Phenotyping refers to the process of observing and measuring visible characteristics of plants, such as appearance, shape, growth patterns, disease resistance, and yield. Phenotyping is primarily conducted for the following purposes:

1. Plant Breeding: Phenotyping provides fundamental data for selecting individuals with superior traits, aiding in the development of new plant varieties.
2. Assessment of Environmental Adaptability: It evaluates how plants grow under different environmental conditions, helping to identify varieties with high adaptability.
3. Research on the Relationship Between Genotype and Phenotype: Phenotyping studies the relationship between specific phenotypes and associated genes, facilitating applications in genetic modification and genome editing technologies.

Traditionally, phenotyping relied on visual inspection and manual measurements, which limited the scope of observations. However, Nileworks' Phenotyping Survey System has achieved high precision and rapid automation through its proprietary proximal drone sensing and image analysis technology. This advancement enables efficient data collection across large-scale plant populations, accelerating progress in breeding and research.
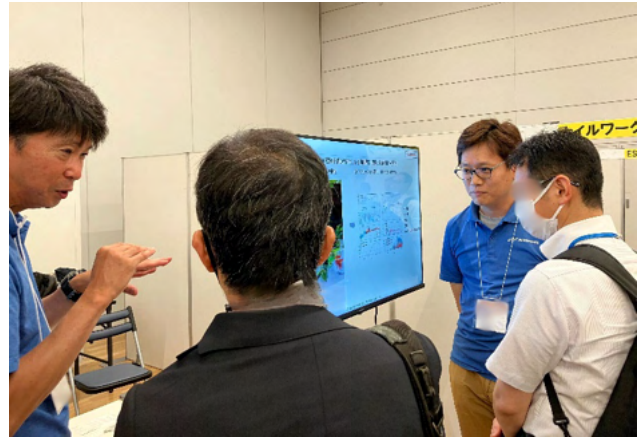
Nileworks Exhibition at WAGRI Open Day 2024

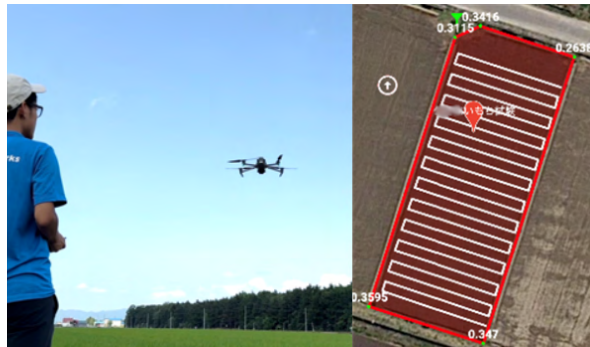## Crop analysis with visual-level accuracy, streamlining farm inspections

Nileworks has developed a system centered around drone sensing and image analysis technologies to precisely and rapidly analyze crop morphology. The system is structured as follows:

1. Digitalization of Farms and Test sections: High-precision surveying solutions are used to digitally map farm fields and test sections.
2. Automated Drone Path Generation: Based on the survey data, the path generation software automatically creates flight paths for drone sensing.
3. High-Speed, High-Precision Sensing: proximal drone sensing rapidly captures high-resolution images with visual-level accuracy.
4. Comprehensive Crop Analysis: Image analysis AI is used to assess crop appearance and morphology, meeting diverse crop analysis needs ranging from growth monitoring of grains and vegetables to disease and weeds detection.

This system is increasingly being adopted in various test fields for pesticide trials, varietal development, and seed production.



1. Precise Digital Surveying        2,3. Proximal sensing via automated Drone flight



| Disease | Weeds | Variant Strain | Ears of wheat |

4. AI capable of Detecting Various Crops and Anomalies

(\*) WAGRI – https://wagri.naro.go.jp/

■    Company overview

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