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DEVELOPMENT OF BIG DATA PLATFORM FOR DUS EXAMINATION

Document prepared by an expert from China

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The annex to this document contains a copy of a presentation “Development of big data platform for DUS examination”, to be made by an expert from China, at the third session of the TWM.

[Annex follows]

DEVELOPMENT OF BIG DATA PLATFORM FOR DUS EXAMINATION

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TWM3, Beijing, April 28 to May 1, 2025

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3. Future plan

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1.1 PROBLEMS IN DUS TESTING

① Personnel errors and environmental errors.

② Low efficiency of data collection and analysis.

③ Low linear correlation between molecular distance and morphological distance.

④ Imperfection of minimum distance of D, U and S.

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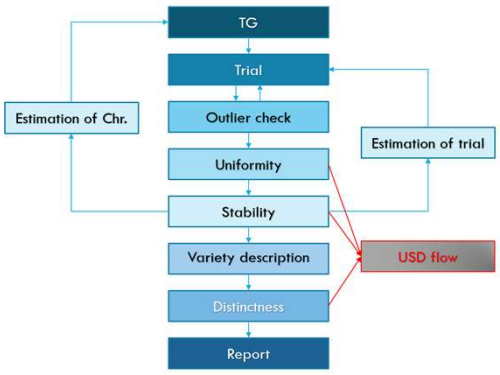
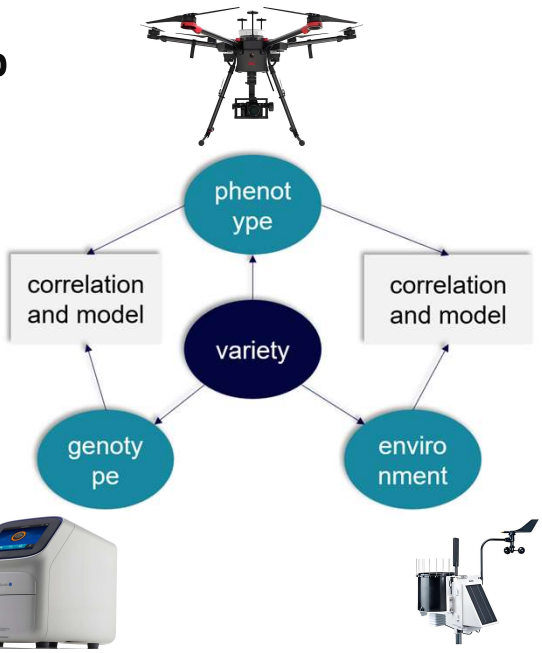
1.2 STRUCTURE OF DUSBDP





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1.3 STEPS OF DUSBDP

2017-2018 v1.0
electronic data logger

2019 v2.0
management platform for data

2020 v3.0
deep design for DUS from task to report

2021 v4.0
SAAS design, image analysis, statistical analysis

2022 v5.0
integrated system for DUS, VCU, DNA, chemical contents, resistance

2023 v6.0
forecast model between pheno-, geno-, enviro- data

2024 v7.0
automatic data record by unmanned vehicles

2025 v8.0
automatic test for all time and all space

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1.4 HISTORY OF DUSBDP

1. 2017 We developed a datalogger which is prototype of DUSBDP.
2. 2021 We reported DUSBDP4.0 in TWC39.
3. 2023 We reported DUSBDP5.5 in TWO55.
4. 2024 We abandoned old platform and built a new one for better analysis module.

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2.1 DATA MANAGEMENT PLATFORM AND LOGGER APP

Data management platform

Data logger APP

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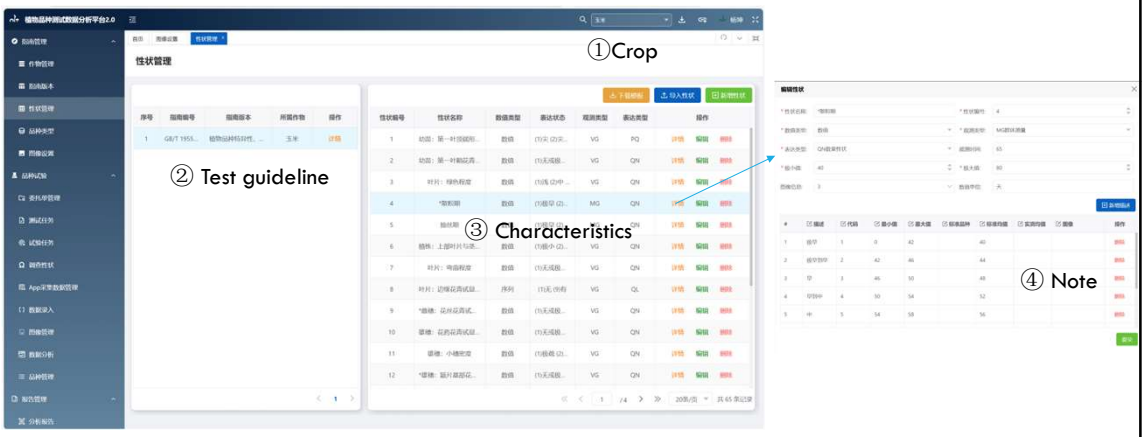
2.2 MANAGEMENT OF TG PARAMETERS



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2.3 MANAGEMENT OF IMAGE TYPES

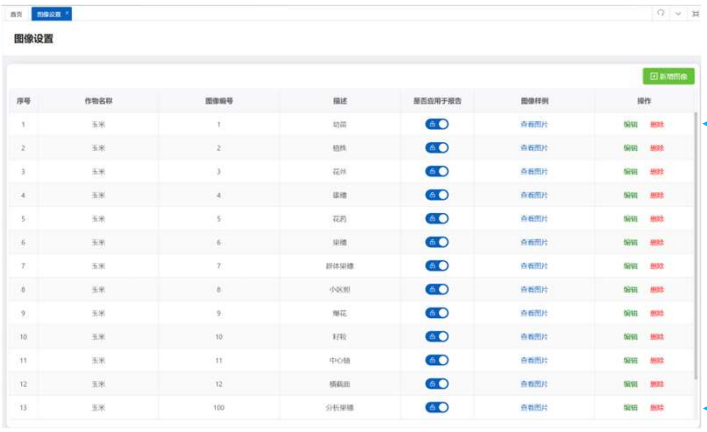

Image without algorithm

Image with algorithm

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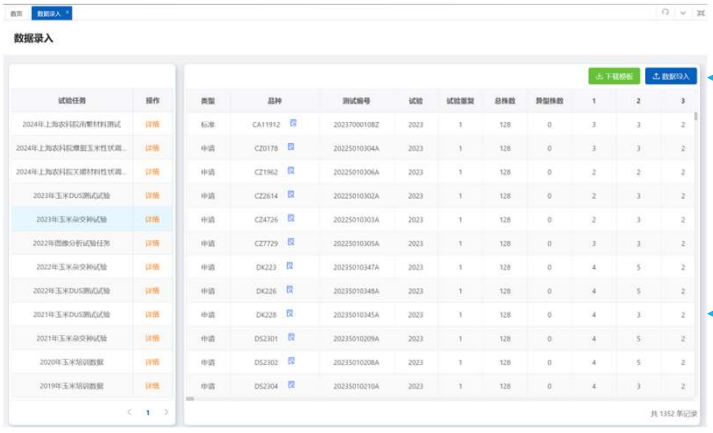
2.4 DATA MANAGEMENT

Data from Excel



Data from APP

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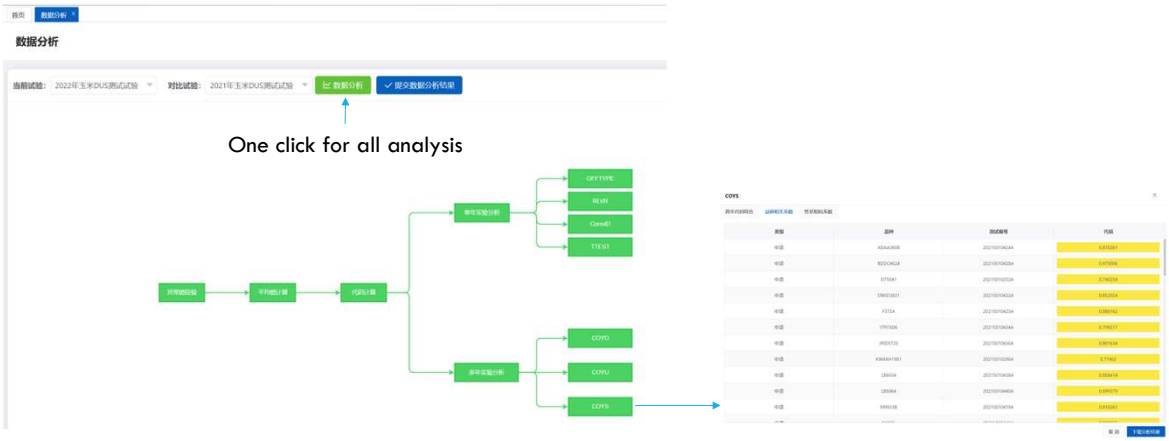
2.5 DATA ANALYSIS



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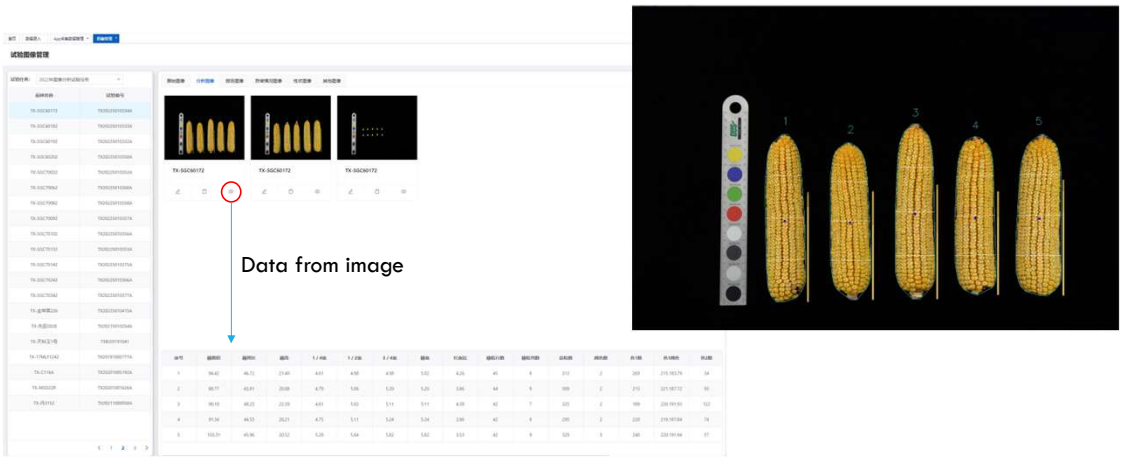
2.6 IMAGE MANAGEMENT AND ANALYSIS



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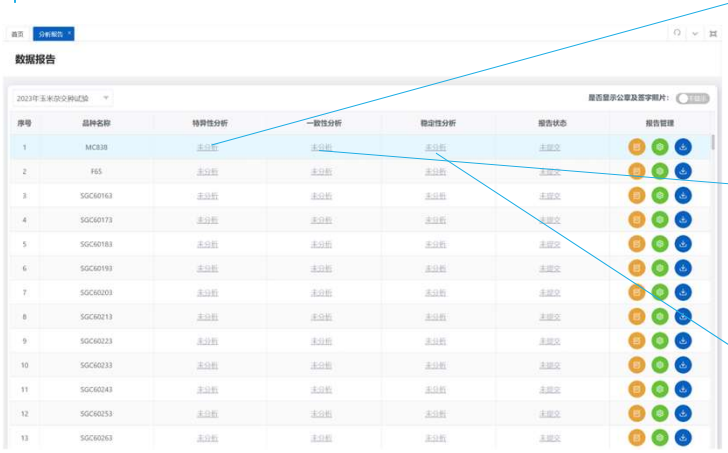
2.7 DUS REPORT



distinctness

uniformity

stability

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3.1 ADVANTAGES

① One-click data analysis with several checks generates perfect reports for a trial.

② Images play an increasingly important role in DUS testing.

③ We have more time to seek secrets in data.

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3.2 SHORTCOMINGS

① There are a lot of gaps between our platform and commercial software or hardware.

② We need time to move molecular data and environmental data from old platform to new platform.

③ We need time to develop algorithms for correlation analysis between morphological data, genotypic data and environmental data.

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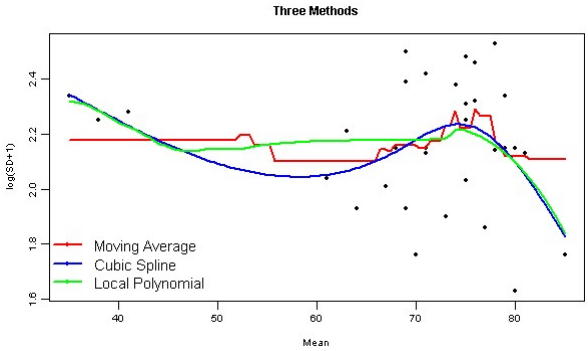
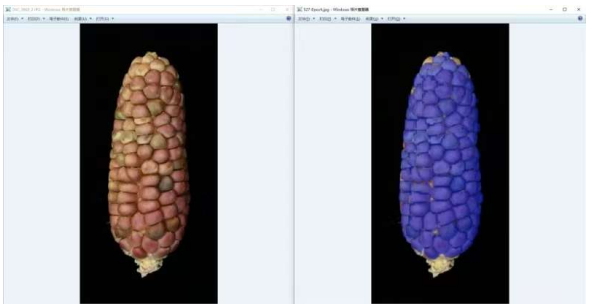
3.3 OPTIMISM ABOUT THE FUTURE



Mathematic improvement



AI in image analysis

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THANK YOU FOR YOUR ATTENTION!

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[End of Annex and of document]