

FRESH BREEDING & MARKETING
FORWARD



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Fresh Forward



Huissen, The Netherlands



Huelva, Spain



Randwijk, The Netherlands



Stevensbeek, The Netherlands

Main location:
Huissen
±4 ha greenhouse
2,8 ha orchard
0,5 ha tray field

Strawberry Breeding Programme



- **Annually:**

130.000 Seedlings

- **Breeding focus**

Taste

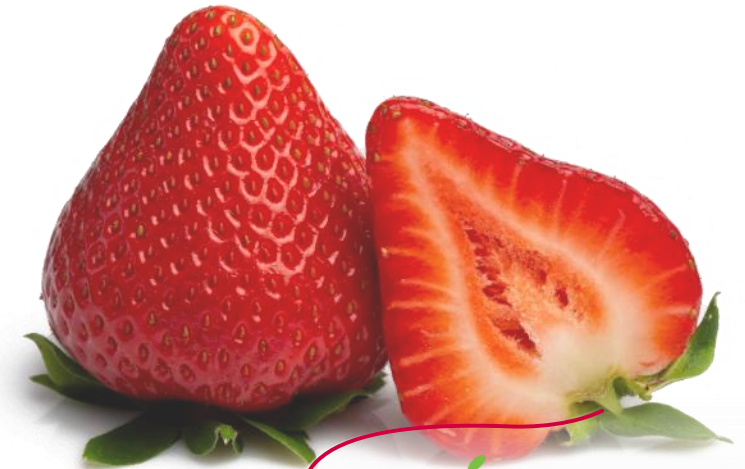
Suitability for producer and trader

Resistance

- Production areas

Middle & Northern Europe ***Elsanta – Sonata – Opera – Rumba – Allegro - Twist - Verdi – Parlando – Jenkka – Cadenza – Ravellia***

Southern Europe ***Calinda – Fandango – Balada - Bachata***

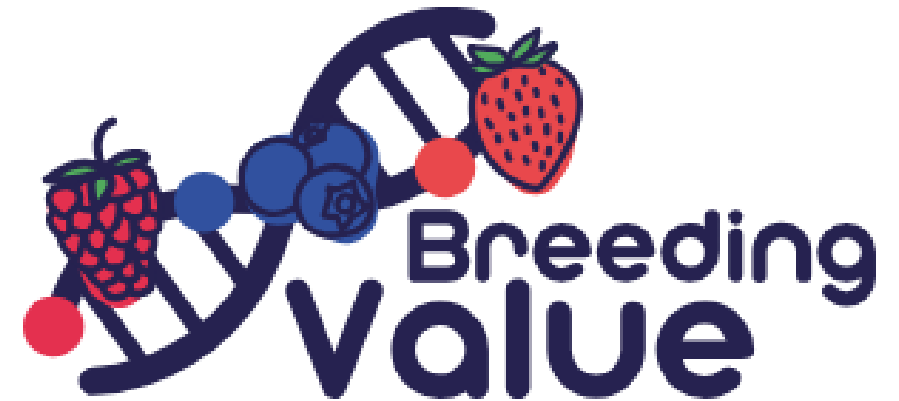


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Fresh Forward and Breeding Value

- **Breeding Value open call II**

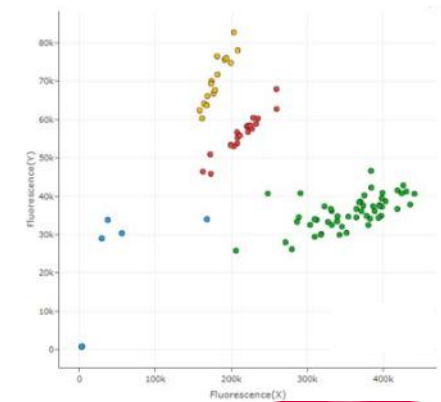
- Gaining information about building, training and implementation of genomic prediction models
- Learn how to perform genomic selection and implement this in a breeding program.
- Help our researchers with knowledge about the genetics and inheritance of resistance against powdery mildew



Background

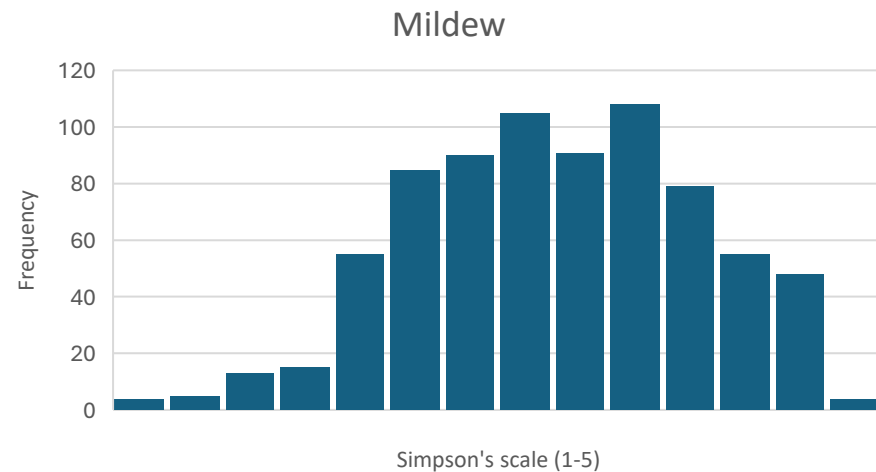
- **DNA-informed Breeding**
 - High throughput KASP markers
 - Seedling selection
- **However**
 - Monogenic traits
 - High effect QTLs
 - Application to complex genetic traits is difficult

Genomic prediction?



Powdery mildew

- **Important for Breeding**
- **No strong resistances alleles found so far**
- **Quantitative resistance**



Targeted call on genomic prediction: workflow

- **Selection of the panel (FF)**
- **Strawberry sampling & genotyping (2x384)**
 - Additional data sets for the Allelic diversity study (WP2.1)
- **Phenotyping scoring over 2 years**
- **Predictive modeling (Jahn Davik)**



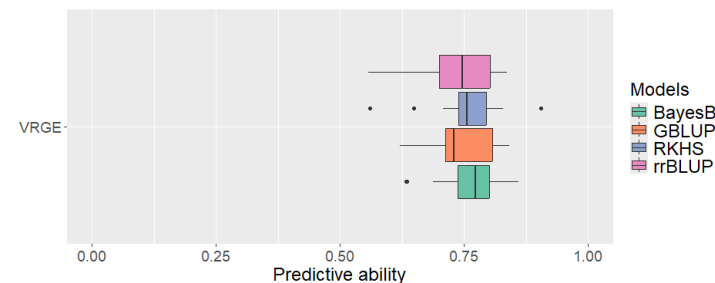
Breeding Value Trials

- **Mildew disease Trial**
 - ‘Natural’ infection
 - Control plots (i.e. spatial control)
- **Two replications**
 - **September 2022**
 - All 761 selections in one Trial
 - **September 2023**
 - Everbearers & June-bearers were planted separately

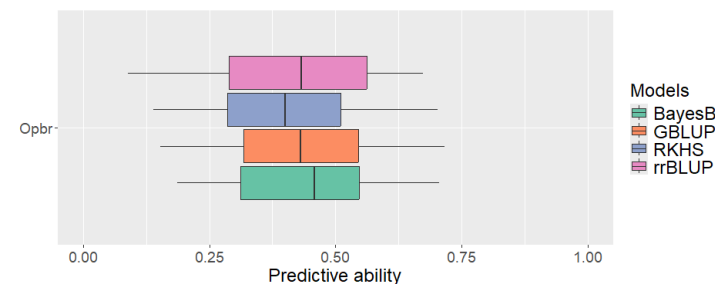


Implementation at Fresh Forward

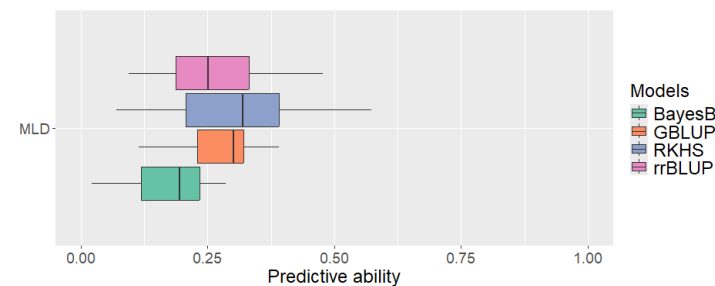
- **Application to other traits**
- **Test different parameters**
 - Training sets
 - Cultivation types (LC/HC/EB)
 - Population structure



Fruit weight



Marketable Yield



Mildew

Challenges

- **Resources:** How to setup training panels for prediction models
- **Interaction** between traits
- How to **implement** in breeding:
 - Which genotyping platform
 - Accurateness of selection responses
- **Application in breeding**
 - Predict phenotypes of first year selections
 - Seedling selection?



Thank you!

