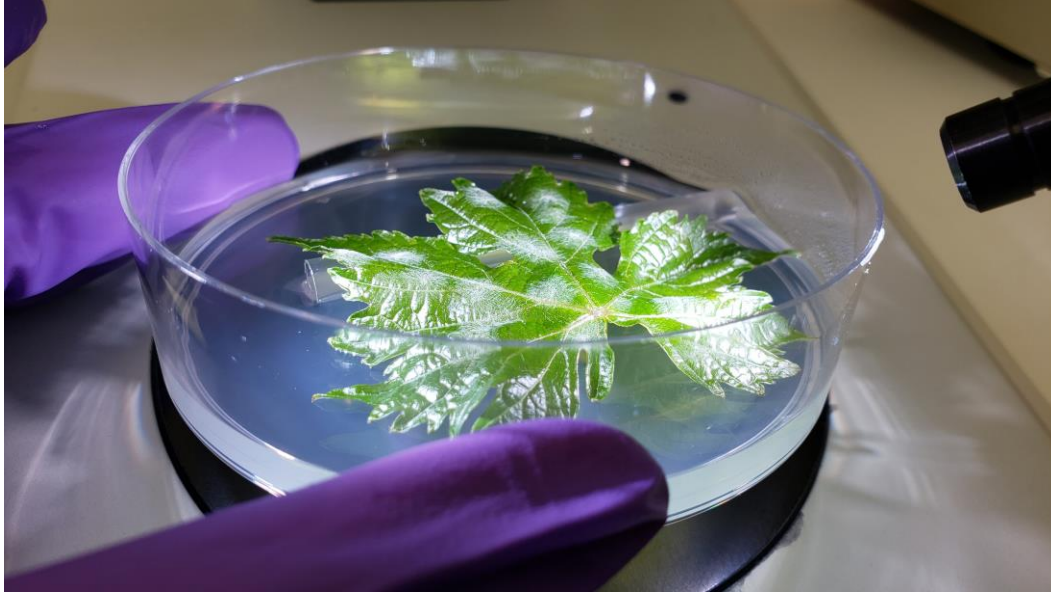


Powdery mildew phenotyping

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powdery mildew



One of the most economically important diseases in grape

phenotyping



Assessing traits in plants:
How resistant (or susceptible) is
this individual?

Important part of breeding for disease resistance

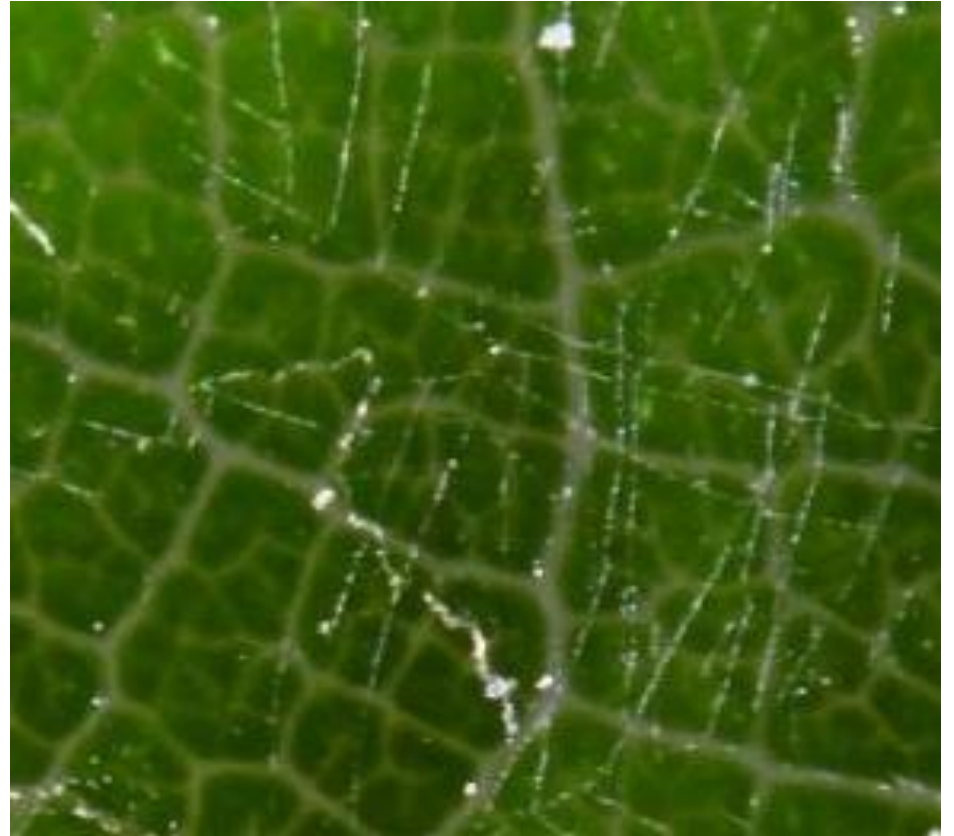
The bottleneck quickly forms:

200 seedlings x 4 shoots x 2 discs = 1600 leaf discs

300 powdery mildew threads per disc = 3-10 minutes to count

20-60 workdays to complete...and a human toll

Non-repeated measures



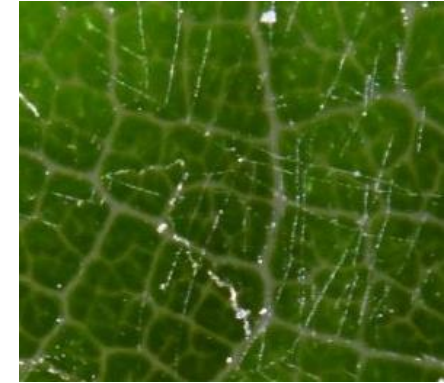
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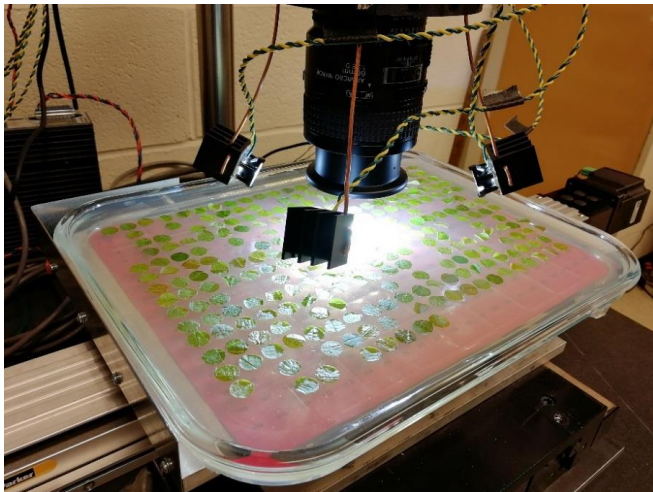
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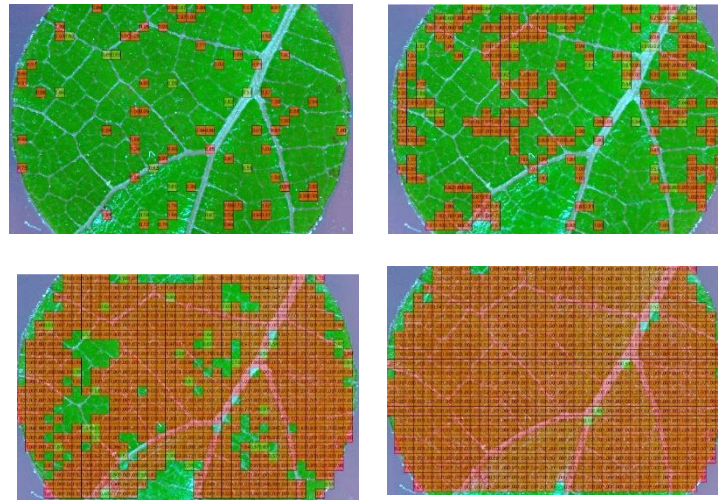


Enter VitisGen2 - cheaper, faster, more accurate:



Robotic imaging platform

+



Computer vision analysis

1 day
= Repeated measures
Better data

What does this mean?

Better experiments:

- More experiments per year, bigger experiments
- More accurate data

Better genetics:

- Identifying more powdery mildew-related areas of genome
- Increased confidence and detection of smaller effects

Better breeding:

- More powdery mildew resistance genes = durable resistance
- Improved data helps to guide breeding strategy

The next iteration...

From PMbot to Blackbird:



Cornell University



Printersys

Fungicide assays

Diseases

Hyperspectral imaging

Juice color

What are you interested in imaging?

Thermal imaging

Trichomes

Raisins

Grape berries

Acknowledgements

