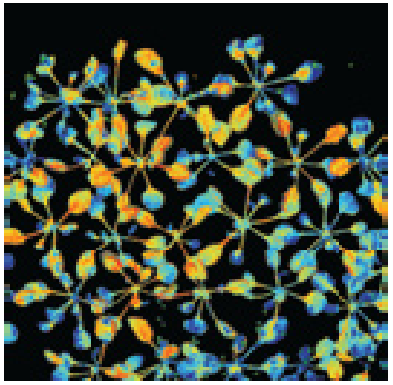
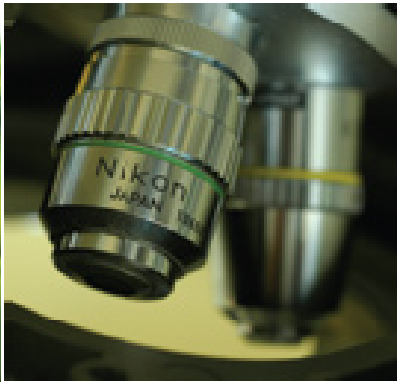
Australian Plant Phenomics Facility

The High Resolution Plant Phenomics Centre



www.plantphenomics.org.au

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CSIRO

ANU THE AUSTRALIAN NATIONAL UNIVERSITY

An Australian Government Initiative
National Collaborative Research Infrastructure Strategy

Government of South Australia

ACPFG

Data acquisition and management

Dr Peter Ansell

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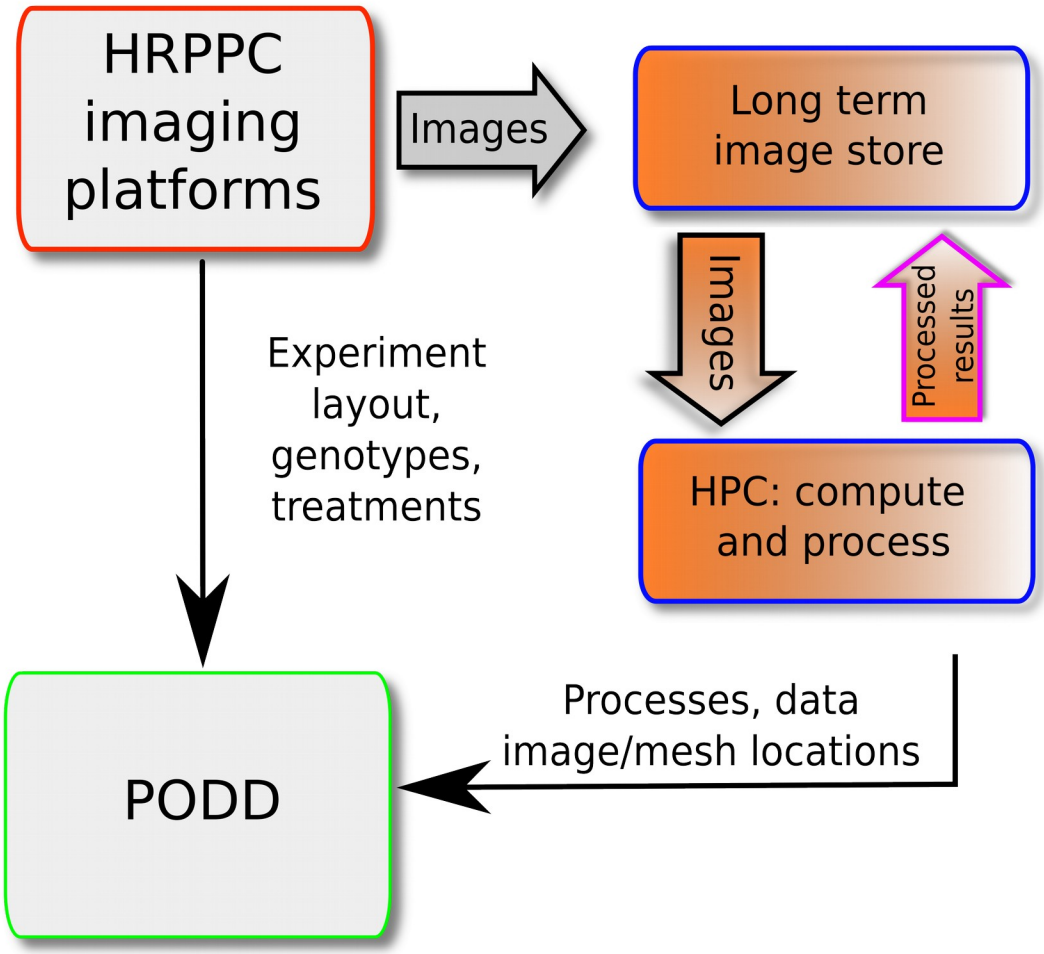
Overview



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Data acquisition

- **Experimental layouts determined before experiment begin**
- **Layout uploaded to machine databases and PODD**
- **Images and other measurements collected regularly using PlantScan, TrayScan, CabScan, Cropatron, etc.**
- **Images stored on disks specific to each platform, and metadata stored in SQL databases for each platform**

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Data management and processing

- **Images are batched up and sent to the CSIRO Datastore**
- **CSIRO Datastore is backed up to a long term tape library**
- **Images are processed on the CSIRO Pearcey cluster and in the near future on the NCI node of the Nectar cloud**
- **Results are sent to the CSIRO Datastore and backed up on tape**

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Data analysis

- **Results are aggregated based on the experimental layout that is found in PODD**
- **Categories include:**
  - **Genotype**
  - **Pot**
  - **Treatment**
  - **Replicate**
- **For each category, the average, maximum, minimum, standard deviation and count are computed for each day where data was acquired**

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Discussion

- **Experimental layouts must be accurate for analysis to be useful**
- **CSIRO Datastore capacity makes it possible to permanently store our very large datasets**
- **Experimenting with new technologies**

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Future work

- **Further visualisation of data and results**
- **Integration with genomics**
- **Expand the number of platforms that use the CSIRO Datastore for permanent archival**
- **Expand the number of platforms that use cluster processing**
- **Define data standards to enable other scientists to send us their images and experimental layouts for us to attempt to process them**