



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

ILCI Breeding Analytics Hub

Presenter: Bethany Fallon
Econopouly



USAID
FROM THE AMERICAN PEOPLE



Cornell University



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



Buckler Lab/Cornell U

Ana Berthel
Ed Buckler
Peter Bradbury
Terry Casstevens
Lynn Johnson
Sara Miller
Zack Miller
Brandon Monier
Cinta Romay
Matthew Wiese

Kelly Robbins/Cornell U

Francisco Agosto-Pérez
Joshua Lamos-Sweeney
Peter Selby
Mahlet Anche

ICARDA

Khaled Al-Shamaa

CIWA

Oumar Diack

CICI-ESA

Michael Chipeta
Esnart Yohane
John Kafwambira

CACCIA

Ruth Castro Vasquez
Vanessa Mora Hernandez
Joyce Estrada Gamboa
Charles Jean Rigaud
Evens Joseph



USAID
FROM THE AMERICAN PEOPLE



Cornell University



Objectives

ILCI Breeding Analytics Hub Background

The Breeding Analytics Hub is a cloud-based environment where software tools, code, documentation, and data are available in one place.

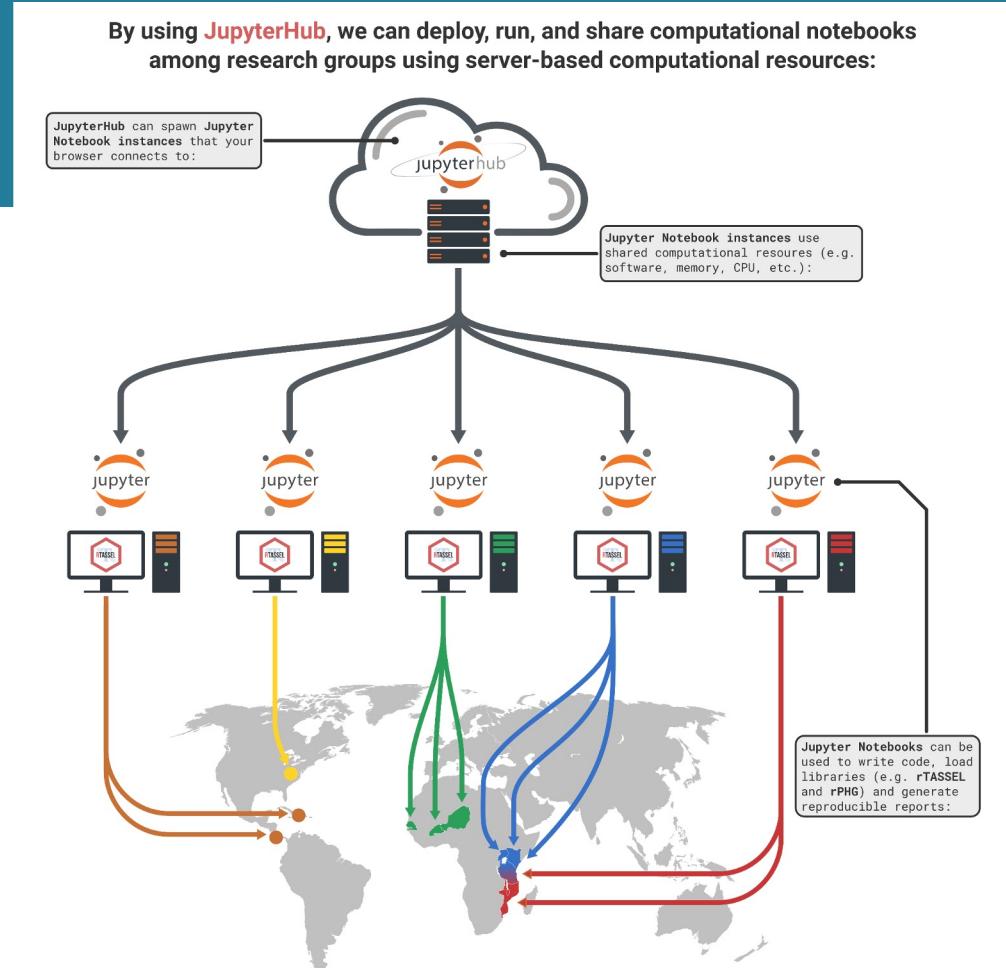


Fig: Brandon Monier

ILCI Breeding Analytics Hub Objectives

- Co-create a collaborative environment for working together across institutions.
- Provide access to data, tools and analytic pipelines.
- Co-design and develop custom software tools.
- Provide computational resources.
- Promote reproducible data projects.

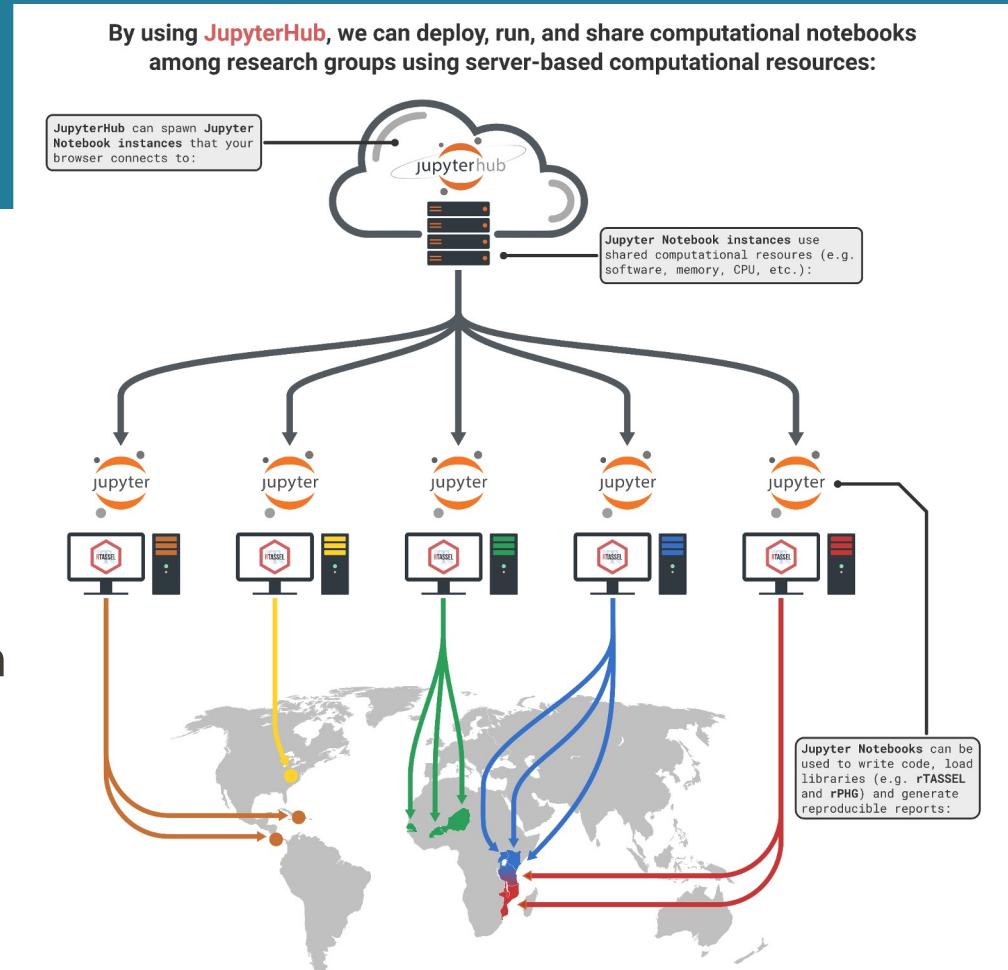


Fig: Brandon Monier

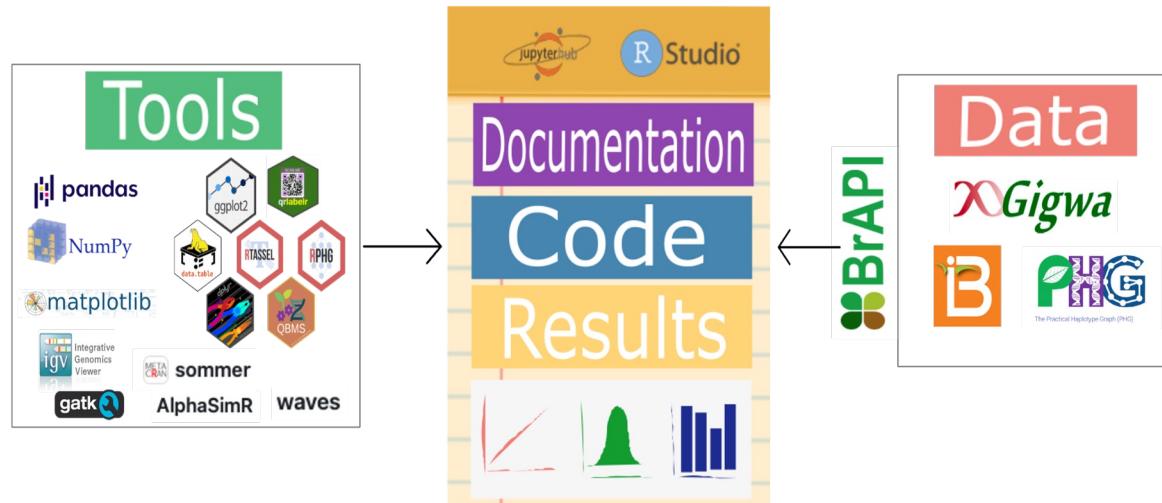


Accomplishments

ILCI Breeding Analytics Hub Accomplishments

Software infrastructure was established and customization initiated.

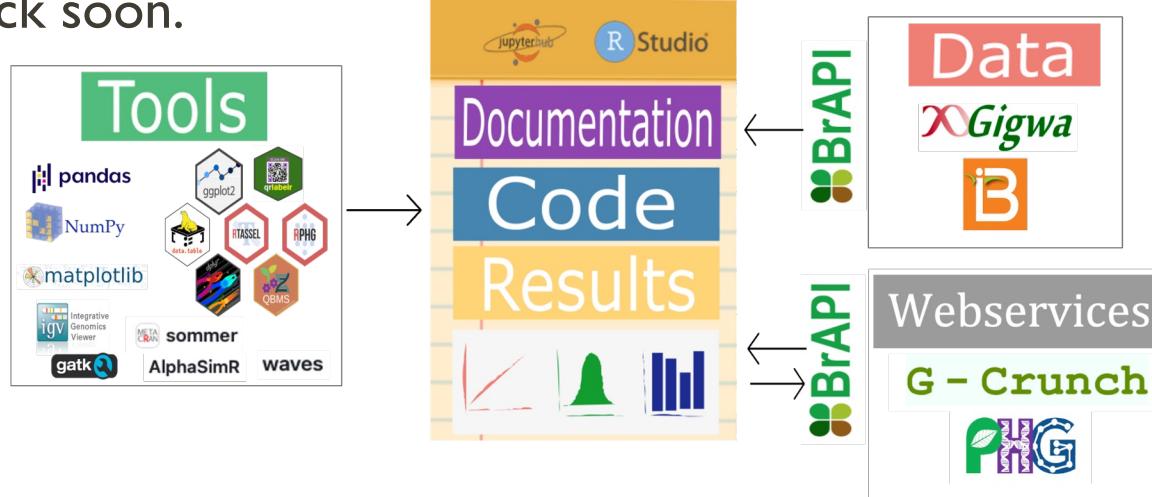
- Launched and customized an instance of JupyterHub on the cloud.
- Designed a user interface to login and retrieve data from breeder databases.



ILCI Breeding Analytics Hub Accomplishments

Custom tools were developed or adapted and brought into the Hub.

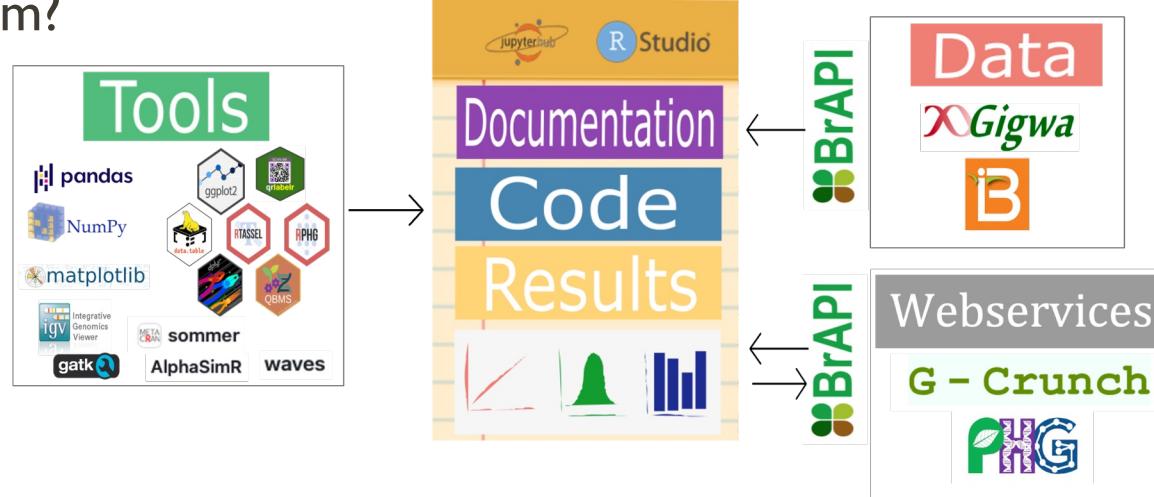
- New features were added to genomic tools with NARI collaborators as new genotype and sequence data was analyzed.
- New web-services were initiated and will be ready for testing and feedback soon.



ILCI Breeding Analytics Hub Future

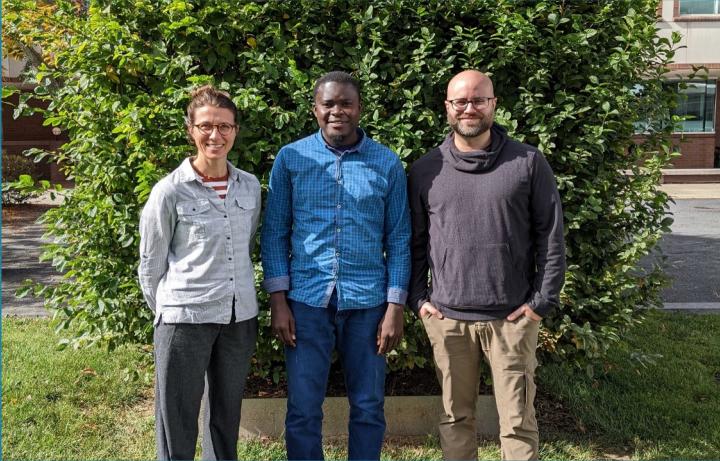
We want to expand the analytics hub functionality to span the breeding pipeline.

- Collaborative projects to design, build, test and evaluate new tools.
- What analytic tools are needed to drive impact on your breeding program?



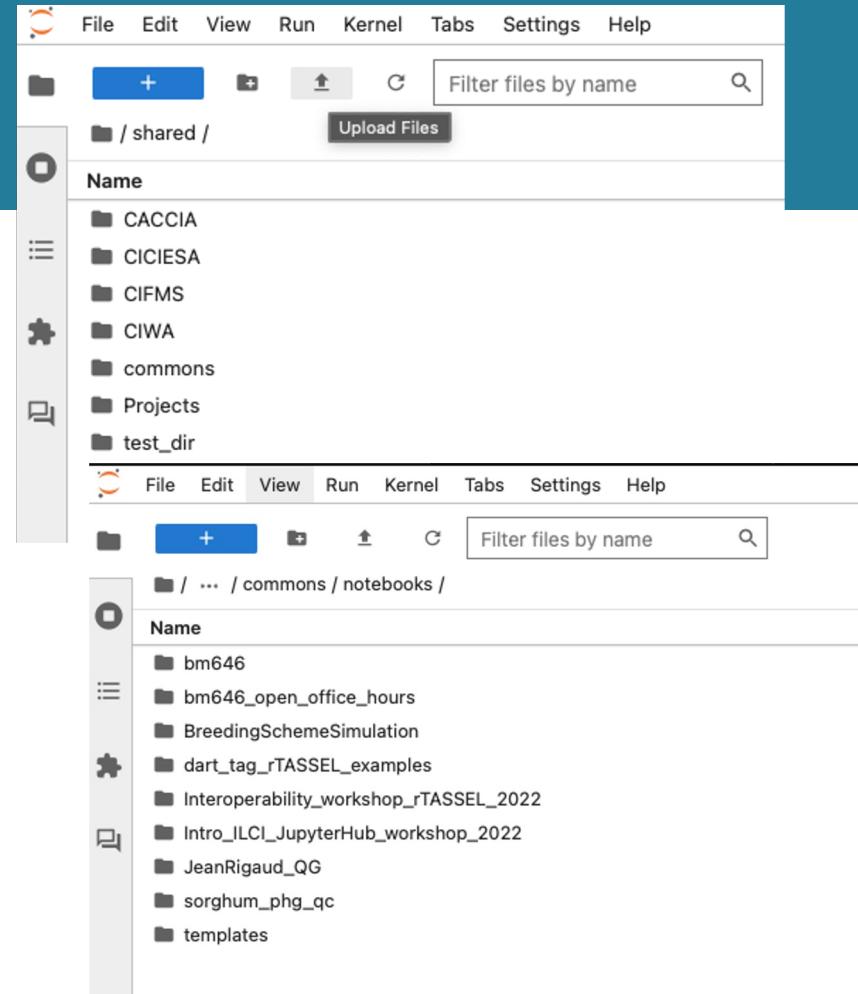


Lessons Learned



ILCI Breeding Analytics Hub Lessons Learned

- Tool development works best using a process of rapid iteration in collaborative teams.
- Tool development for the Hub needs to address the challenges across the entire breeding pipeline rather than disparate disciplinary challenges.



For more come to the ILCI Breeding Analytics Hub workshop Thursday

We will:

- Demo new and in-development tools,
- Discuss challenges with the current software environment,
- Discuss challenges in data analysis,
- Ideate around tool concepts for new collaborative projects.

If time remains at the end, anyone who has not used the Hub can stay to login.

Check out Brandon's poster too!

Slack Kelly to develop notebooks for statistical analyses and genetic evaluations.