

### Annual SweetPotato Speedbreeders Meeting

## **HIDAP:** Highly Interactive Data Analysis Platform

5-8 June 2018

**Omar Benites- Research Informatic Unit** 



## **Introduction**

HIDAP is a platform that give support to plant breeders at the International Potato Center and partners from different regions. HIDAP stands for *Highly Interactive Data Analysis Platform*, which is based on R statistical language and Shiny web framework. *HIDAP* builds and unify on the former in-house tools Data Collector and Clone Selector. These tools supported potato and sweet potato breeding respectively.

HIDAP is part of the <u>Global Trial Data Management System</u> suite of tools at CIP. It is part of in-house efforts to unify best practices which include:

- Data collection and design of experiments.
- Data quality & Processing trough statistical methods and Crop Ontology terminology.
- Statistical analysis and reproducible reports for breeding data.
- Support Open Access. (https://cipotato.org/es/open-access/)
- Connected to **<u>CIP Institutional Repositories and DB's</u>** to work with curated data.
- Connection to SweetPotatoBase trough Breeding API.
- The new version works with mobile data collection **FiledBookApp-SweetPotatoBase**





## **Introduction**

Along these years, HIDAP has been increasing their functionalities as well as their applications. According to the necessity of different research programs, HIDAP has reached two states using the same source code:

HIDAP Offilne or Stand-Alone Version (2014-Present): The offline or stand-alone version of HIDAP is suitable for locations with restricted or no internet access. (ex. National programs, extension stations, etc). It incorporates data management, data quality, data analysis and connection to institutional db's.



□ HIDAP online or HIDAP -SweetPotatoBase (2017-Present): The online version of HIDAP works directly with SweetPotatoBase trough the Breeding API (BrAPI). It is a pioner joint work that access to all field data from SweetPotatoBase and make statistical analysis/reports, exploratory graphics and data curation in HIDAP



#### **HIDAP MODULES**

Functionalities for HIDAP offline and online version





#### Flowchart of HIDAP Offline



#### Workflow HIDAP Online



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# New Steps and Workflows

#### 1. Develop the new components to move (mobile data collection) from **FieldBookApp into HIDAP**





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#### 2. Data Quality and Data Curation for FieldBookApp Files

| )ata Quality and Processing |                 |                 | HIDA            | ē               |            |          |         |       |               |              |       |      |               |                   |          |             |         |               |                        |                       |                           |                             |
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#### Workflow 1: FieldBookApp - SPBASE



#### Workflow 2: FieldBookApp – HIDAP-SPBASE



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#### Workflow 3:

#### Combine online and offline features from FieldBookApp-HIDAP-SweetPotatoBase









# Conclusions

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- The online and offline versions respond to the necessities of breeders. The offline version works well in locations without or restricted internet connection; meanwhile, the online version works with internet and points to **SweetPotatoBase**.
- HIDAP data/metadata are automatically reused by **CIP Open Access (OA)** Repositories and institutional DB's. Until now, HIDAP has contributed with more than 100 field books in OA.
- The new version of HIDAP works with FieldBookAPP to facilitate fieldbook creation/exportation. (Thanks Jolien Swanckaert), and also crrently, Hidap support data quality and data curation for FieldbookApp files using SweetPotatoBase guidelines.
- We have a close integration between HIDAP and SweetPotatoBase trought BRAPI. The team of CIP developers is actively collaborating with the team of BTI to make all these features available. (*Thanks Bryan Ellerbrock*).
- Integrations between FieldBookApp-HIDAP-SweetPotatoBase (FHISB) allows researchers to use different tools using same data standards and formats, independently of what applications or platform they are using.
- Include new analysis ex.: indexes and graphics for Wesctott design, make statistical reports for fieldbooks from FieldbookApp, add new types of data collection from FieldBookApp and SweetPotatoBase.

#### SweetPotato DataBase Community



## Acknowledgements



# ¡Gracias!, Asante, Thanks!

