Applications and impacts of the BrAPI project on plant breeding
What is the Breeding API (BrAPI)?
What is the BrAPI?

BrAPI is a ... Standardized RESTful Web Service API Specification ... for communicating plant breeding data
API – Application Programming Interface

User Interface
- GUI
- CMD
- Hardware

Application Programming Interface
- Web Service
- Local Messaging Service
- Job Queue
- Language Library
Web Service

• A Service Provider contains some Service with well defined Inputs and Outputs
• A Service Consumer sends a request to the Service Provider with the Input data, and waits for a response
• The Service performs some Function on the Input data
• The Service Provider sends the Output data as a Response back to the Service Consumer
REST - Representational State Transfer

- REST is an architecture design for creating Web Services using the well known HTTP standard
- Requests are made with URLs
- Data is represented with JSON
Standardized **Specification**

BrAPI has defined a Standardized set of data model structures to communicate the basic information of plant breeding.

BrAPI is a technical **Specification** which software developers can easily turn into code which communicates using the Standard.
BrAPI Domains

The BrAPI Data Model defines the data and metadata required for any generic breeding trials. The data models are designed to be easily interpreted by a computer in any programming language.
Typical Request/Response Loop

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BrAPI
Why do we need BrAPI?
Manual Interoperability
Automated and Standardized Interoperability
Who is in the BrAPI Community?
Who is in the BrAPI Community?

37+ registered partner organizations

250+ plant breeders, software developers, data managers, and other expert scientists

6 Elected members of the Advisory Board, managing the long term goals of the project
Applications & Impacts
BrAPI Compatible Software
Solved Use Cases
Resources

BrAPI Specification
https://brapi.org/specification

GitHub
https://github.com/plantbreeding/API

ReadTheDocs
https://plant-breeding-api.readthedocs.io/

Compatible Software List
https://brapi.org/compatibleSoftware

Publication
https://doi.org/10.1093/bioinformatics/btz190

Contact
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Questions?

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