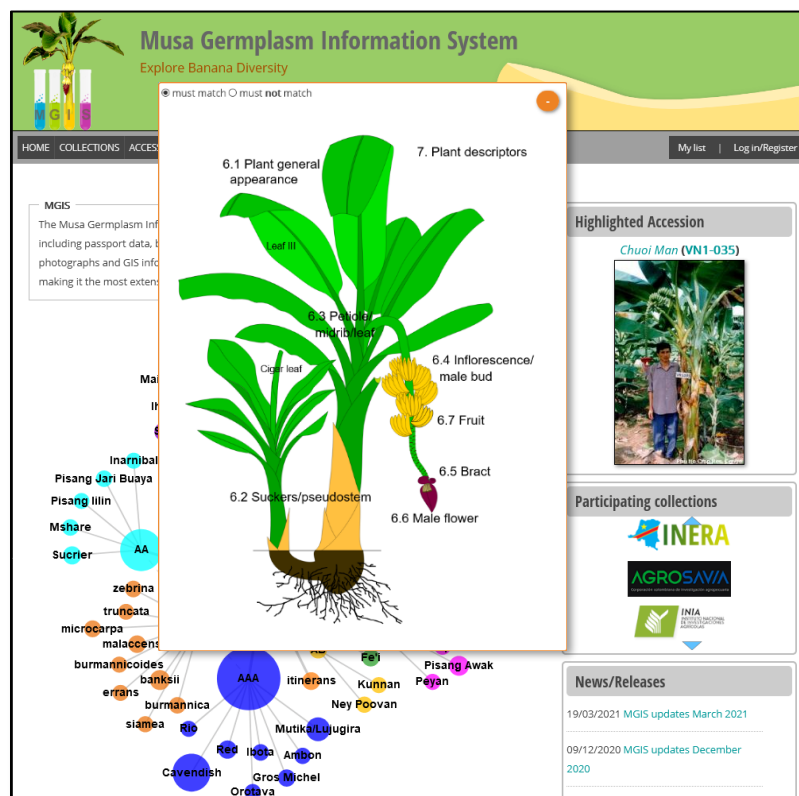# MGIS-BrAPI morphological characterization export

Authors: Guignon Valentin, Ruas Max, Rouard Mathieu.

Subjects: genebank; brapi; morphological descriptors; Banana.

Report date: 7/12/2020

URI: https://hdl.handle.net/20.500.11766/12978

Collections: Agricultural Research Knowledge [9110]

Abstract: The MGIS morphological characterization filtering interface enables the selection of accessions with BrAPI morphological trait export link.

Citation : Valentin Guignon, Max Ruas, Mathieu Rouard. (7/12/2020). BrAPI export of banana germplasm morphological characterization.

Executive summary

Using Breeding API (BrAPI) is a convenient way to expose genebank data to breeding programs. Breeders are often interested in plant morphological characterization. MGIS contains such information on banana plants but until recently, no user interface was available to filter through this data and it was only available through web pages on germplasm passport data.

A new web user interface started 2 years ago, was able to filter experimental phenotyping traits but was limited to a small dataset and was underused. To enable filtering on banana germplasm morphological characterization, the interface has been improved and is now published on MGIS website.

Outputs and Outcomes

The new morphological characterization filtering interface is available on the accession list page in the available filter list as shown on Figure 1. It displays a graphical anatomic diagram of a typical banana plant (Figure 2) which has parts that can be automatically zoomed for details (Figure 3). Each clickable part is highlighted in orange and displays a popup window on click. The popup window (Figure 4) lists the available morphological elements related to the clicked anatomical part. For each element, a list of available values with the number of matching germplasms is displayed. The user can click on any value to add it as a filter which will be combined to other active filters (according to combination mode selected at the top of Figure 2). The selected filtering values will be displayed in the filter list as shown on Figure 1.

Figure 1. Accession list filtering.

7. Plant descriptors

6.1 Plant general appearance

Leaf III

6.3 Petiole/ midrib/leaf

Cigar leaf

6.4 Inflorescence/ male bud

6.7 Fruit

6.5 Bract

6.2 Suckers/pseudostem

6.6 Male flower

Figure 2. Typical banana plant anatomical diagram.

7. Plant descriptors

6.1 Plant general appearance

Leaf III

6.3 Petiole/ midrib/leaf

Cigar leaf

6.4 Inflorescence/ male bud

Apex

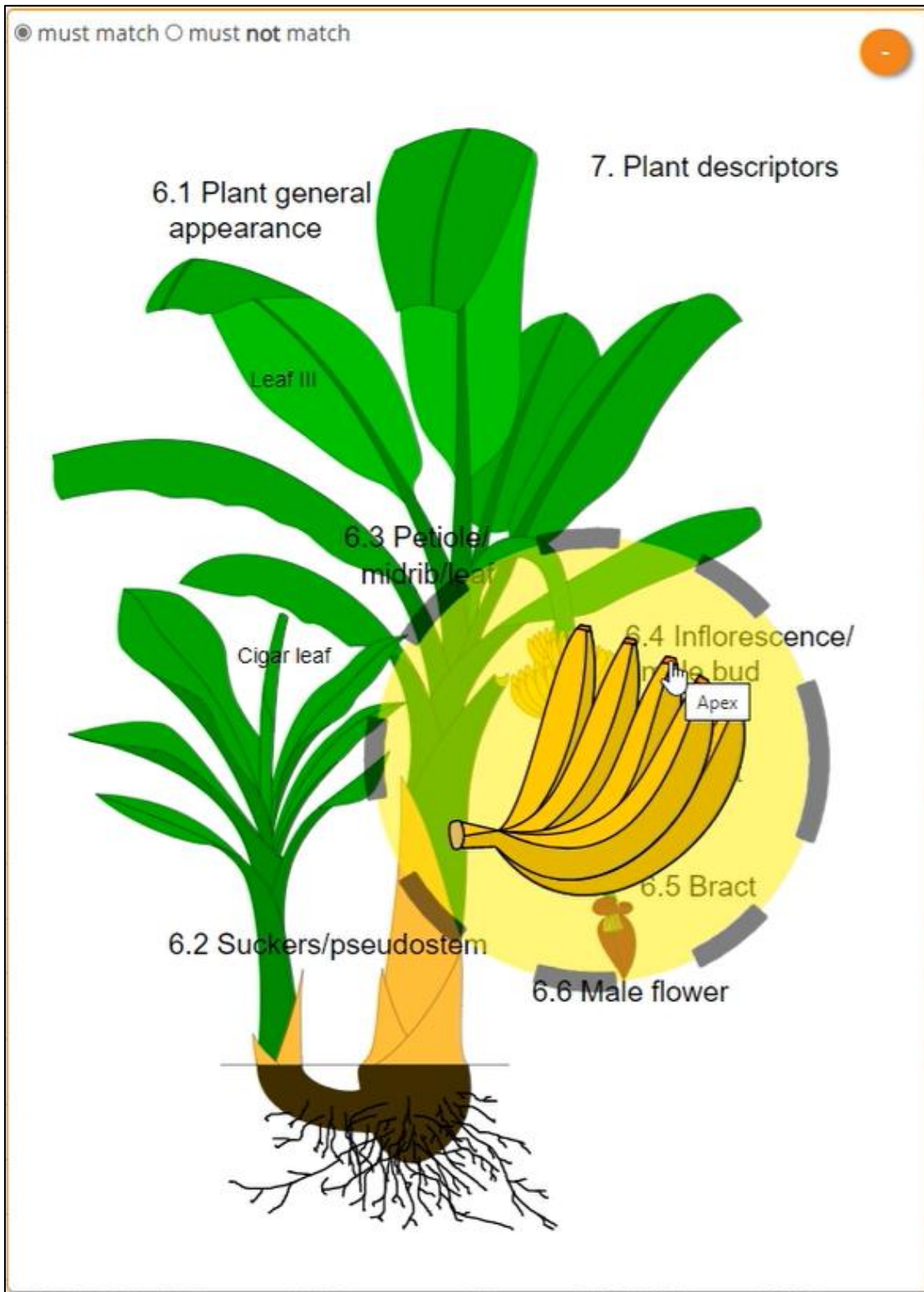6.5 Bract

6.2 Suckers/pseudostem

6.6 Male flower

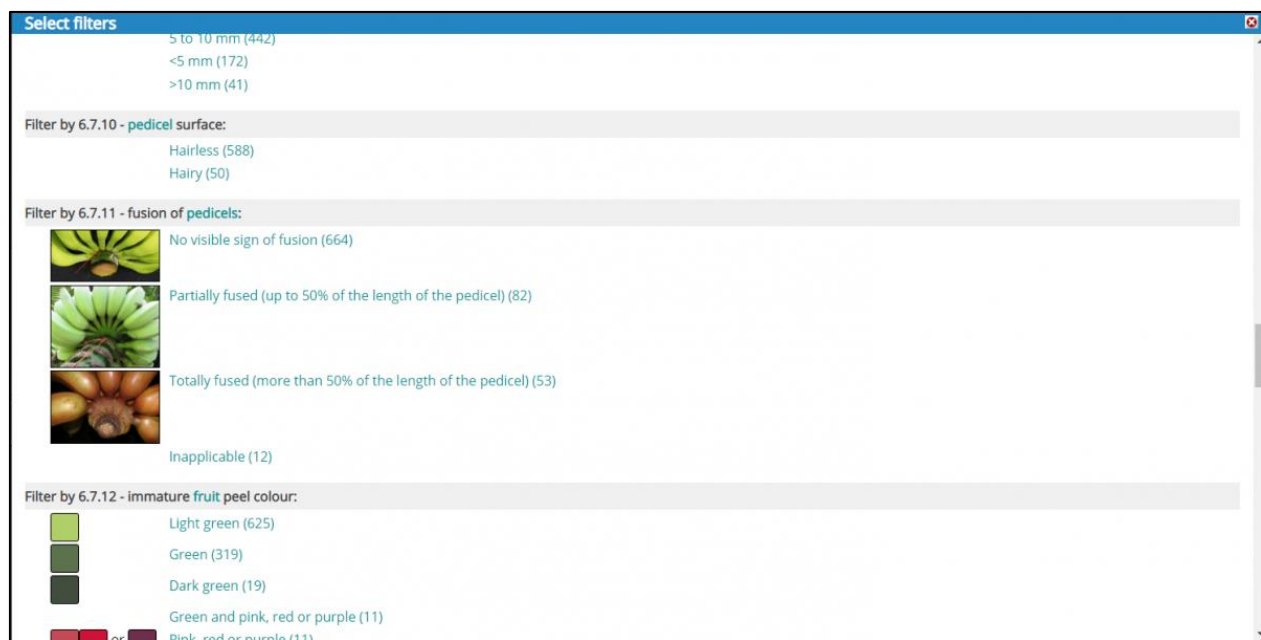*Figure 3. Auto-zoom on the banana hand and highlight of the apex.*

Figure 4. Apex filter popup window.

Then the user can access accession pages and use the BrAPI link (Figure 5) to export data to a BrAPI application (Figure 6). The BrAPI link (for instance https://www.crop-diversity.org/mgis/brapi/v1/germplasm/01BEL084769/attributes) can be used by any BrAPI application without requiring authentication. It opens the door to the creation of BrAPI-compliant phenotype comparison applications and data import on other databases such as MusaBase (https://musabase.org/).
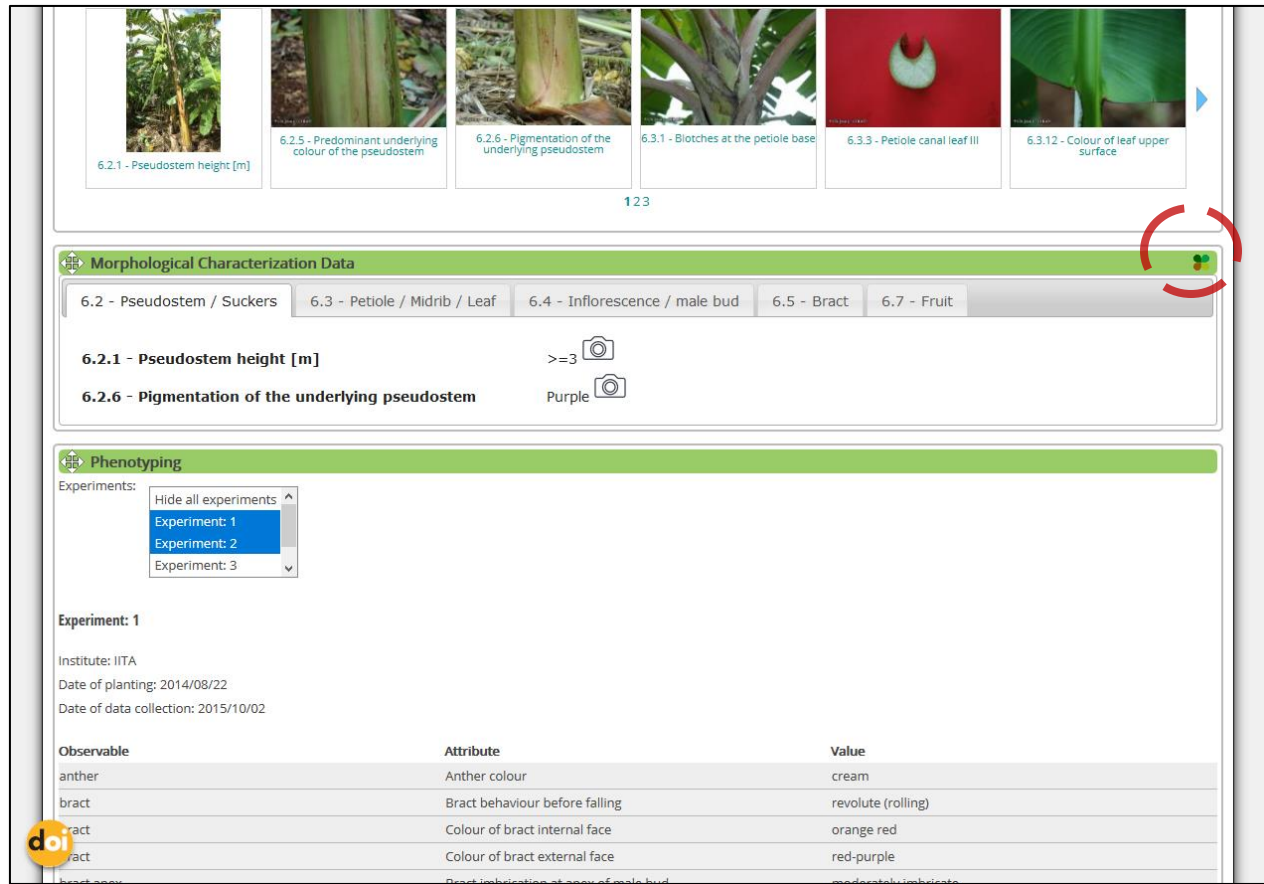
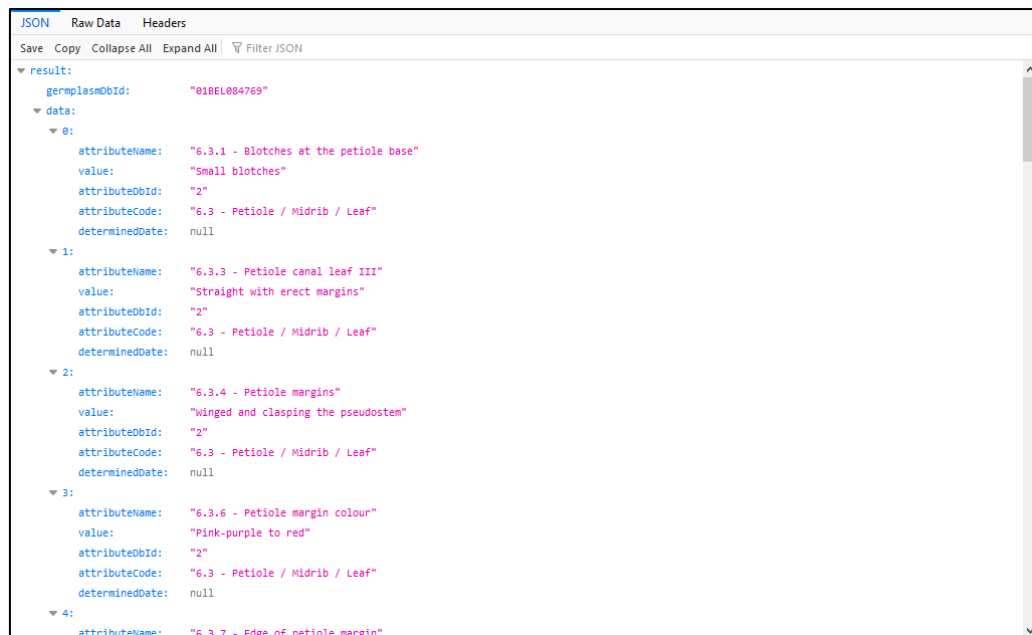*Figure 5. BrAPI link for morphological characterization export.*

Figure 6. Example of morphological characterization export through BrAPI.