Genetics Lab Plant Tissue DNA Sample Labeling Protocol

This protocol describes the steps for making labels for plant genetic samples to be stored in 1.5mL Eppendorf tubes. This protocol and the **PlantTissue_DNA_Sample** label template are designed for genetic material sampled from tissue samples housed in the Denver Botanic Gardens Genomic Biorepository. If you are sampling directly from specimens from another collection or institution, please use this protocol along with the ExternalCollections_DNA_Sample label template and include the collectionCode if it is not part of the catalogNumber. If you are sampling tissue from another institution or not yet fully incorporated into the tissue repository, contact the Scientific Data Manager.

Step 1: Preparing sample data

The scientist(s) preparing samples for DNA extraction should first create and save a list of the tissue samples that are to be sampled. This list must be either an Excel spreadsheet or a CSV. Four values are required for each sample: **Work ID, Work Individual ID, Individual Id** and the **scientificName**, all of which can be found on the tissue sample label or exported from the Research Database (contact Scientific Data Manager for assistance). Create a fifth column titled **dna_id** and populate it with a concatenation of Work ID, Work Individual ID, Individual Id, in that order, separated by a hyphen. To do so rapidly, use the Xcel formula: *=A2&"-"&B2&"-"&C2* then drag to autofill.

	A	B	C	D	E
1	work_id	work_individual_id	individual_id	scientificName	dna_id
2	5495	12517	JW13034	Asperugo procumbens	5495-12517-JW13034
3	5496	12518	JW13035	Scrophularia lanceolata	5496-12518-JW13035
4	5497	12519	JW13036	Populus angustifolia	5497-12519-JW13036
5	5498	12520	JW13037	Vulpia octoflora	5498-12520-JW13037
6	5499	12521	JW13038	Agropyron cristatum	5499-12521-JW13038
7	5500	12522	JW13039	Poa bulbosa	5500-12522-JW13039
8	5501	12523	JW13040	Veronica peregrina ssp. xalapensis	5501-12523-JW13040
9	5502	12524	JW13041	Berteroa incana	5502-12524-JW13041
10	5503	12525	JW13042	Sisymbrium altissimum	5503-12525-JW13042
11	5504	12526	JW13043	Lappula occidentalis	5504-12526-JW13043
12	5505	12527	JW13044	Ellisia nyctelea	5505-12527-JW13044
13	5506	12528	JW13045	Nassella viridula	5506-12528-JW13045
14	5507	12529	JW13046	Erigeron flagellaris	5507-12529-JW13046
15	5508	12530	JW13048	Carex praegracilis	5508-12530-JW13048

example tissue sample label

Work ID **5495**
Work Indiv. ID **12517**
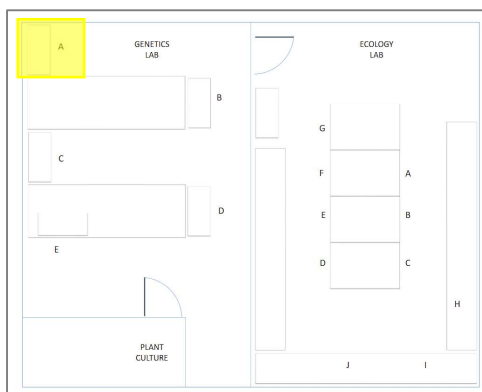Individual ID **JW13034**
Accessioned: 2020-Jan-10

Asperugo procumbens
Boraginaceae

2019-Jun-06
COLORADO, Douglas Co.
Site: Sandstone Ranch
39.21736 -104.95975
Janet L. Wingate
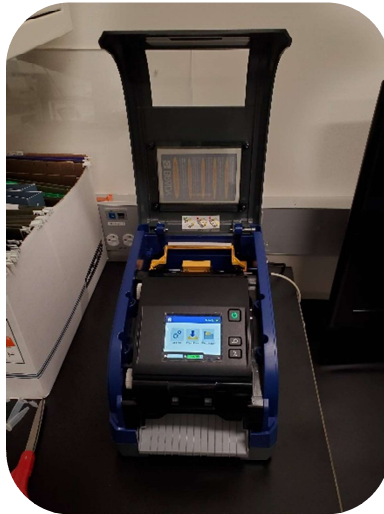
Step 2: Setting up the printer

Once the list of specimens to be samples has been saved, the printer can be set up for labels to be printed.

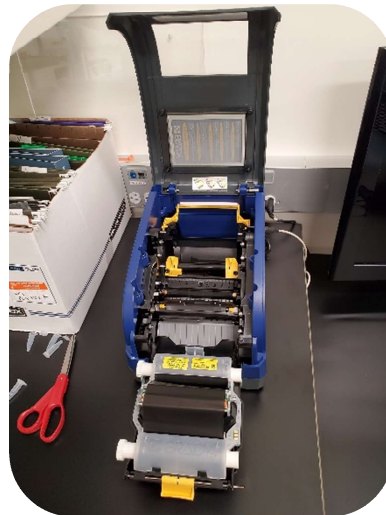The printer is located in the Genetics Lab at Work Space A.

Adding Label Roll

Lift the lid from the front to open the top

Press the yellow center latch toward the front of the machine and pull forward to fully open the printer.


Place the roll of labels into the printer. The roll is designed to only fit into the printer the correct way. Pull the labels over the shiny black roller and wind the reel to retract any excess slack. Labels can be found above the PCR Workstation in the box labeled 1.5 mL eppie tubes.

Pull the labels over the shiny black roller and close the 2 yellow alignment guides so the arrows are aligned with he edges of the label sheet.
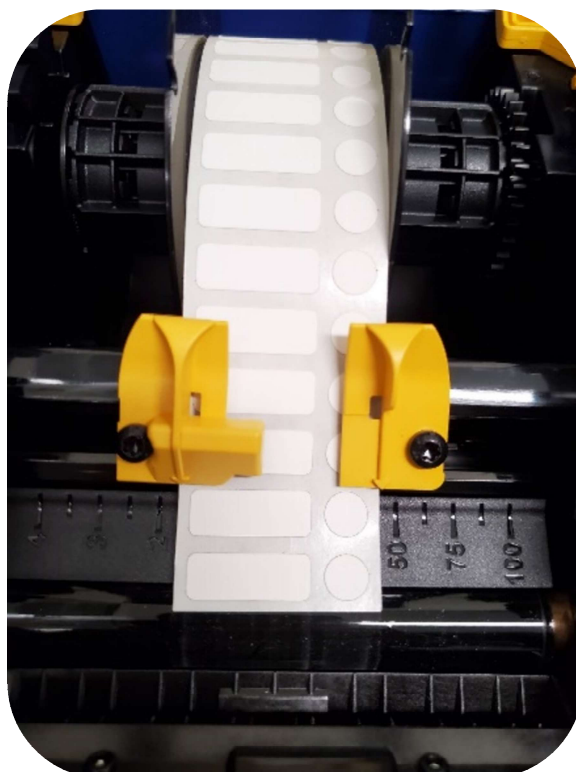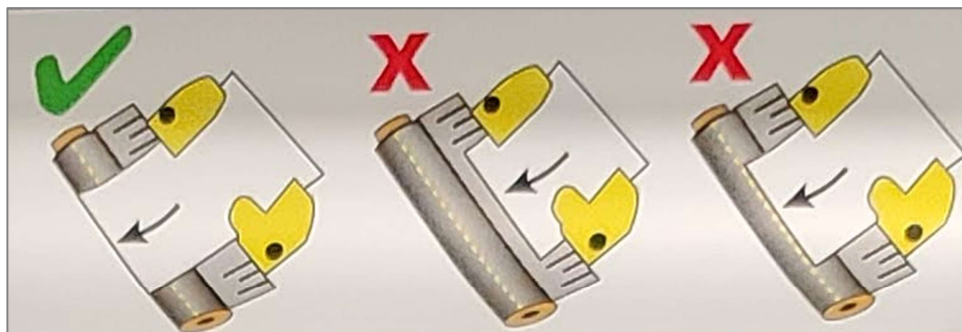
Close the front ribbon door and press down gently until the yellow latch clicks. The screen will display an error if the labels are not loaded properly. If there is an error, reopen and adjust the placement of the edge of the labels and the yellow alignment guides. Once successful, close the top lid.
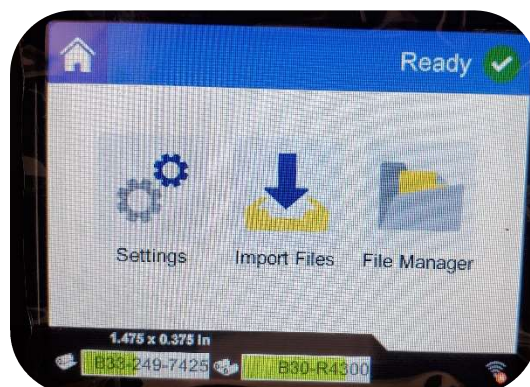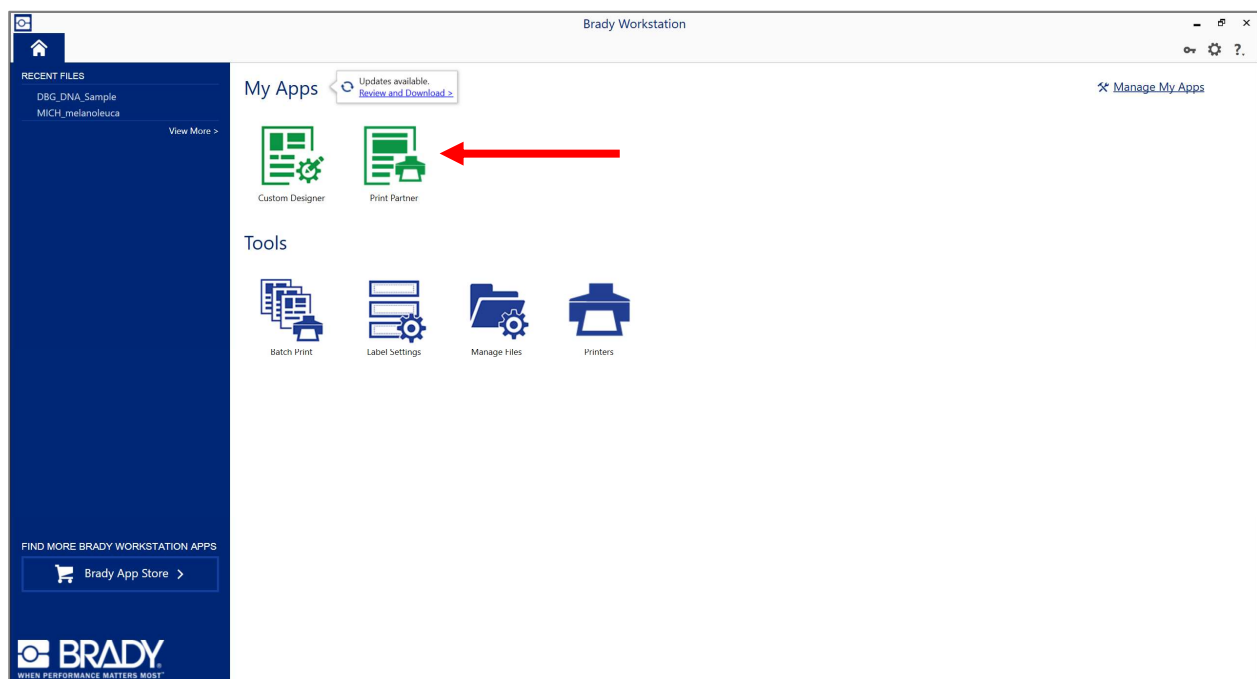
Step 3: Creating and printing the labels

Using the Pinky laptop, open the Brady Workstation application.
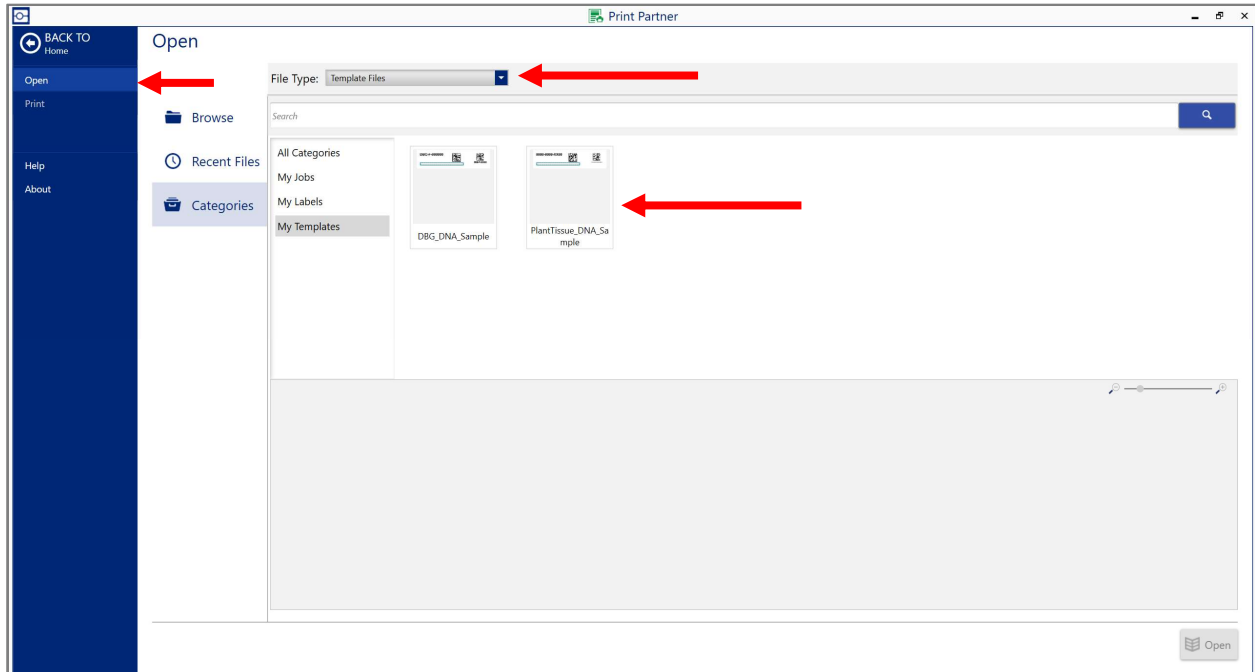

Connect the printer to the laptop using the light grey USB cord connected to the back of the printer
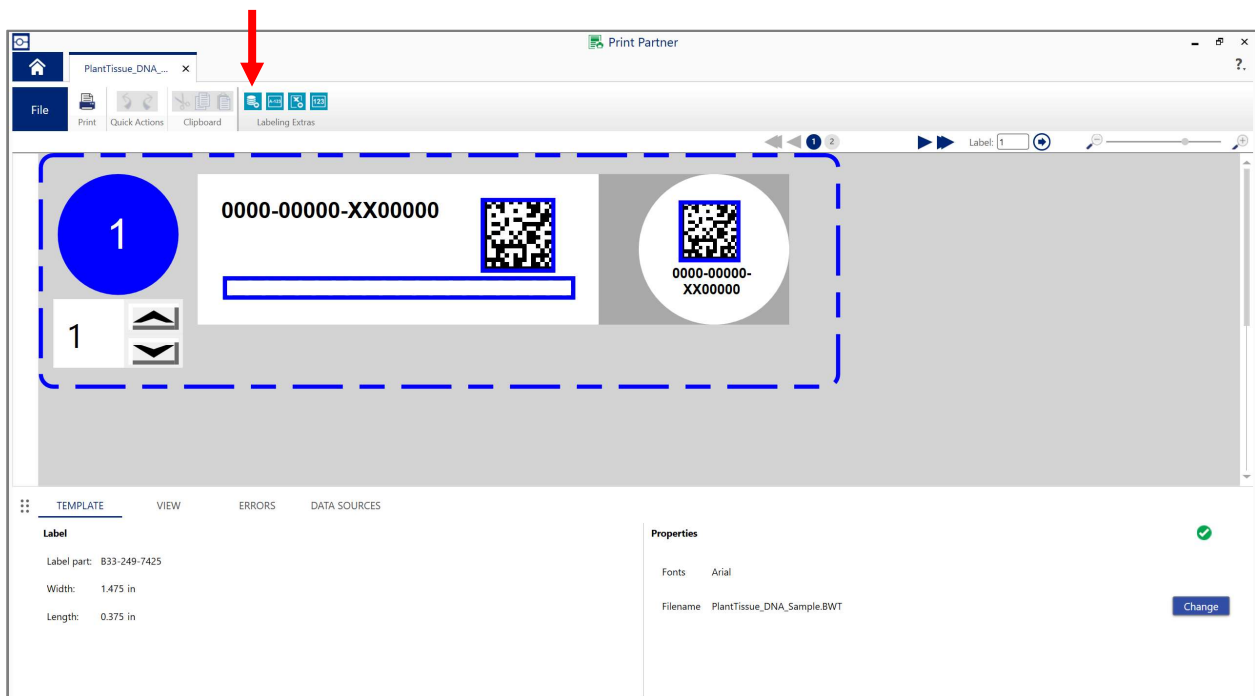

Click the green Print Partner Button

- On the left side panel, select **Open**
- For File Type, select **Template Files**
- Double Click **PlantTissue_DNA_Sample**

The label template should now be shown on the screen. Click the Advanced Import button to bring in the sample data.

Select Spreadsheet from the menus that appears in the bottom right. Browse to the location of your spreadsheet file and select to import.
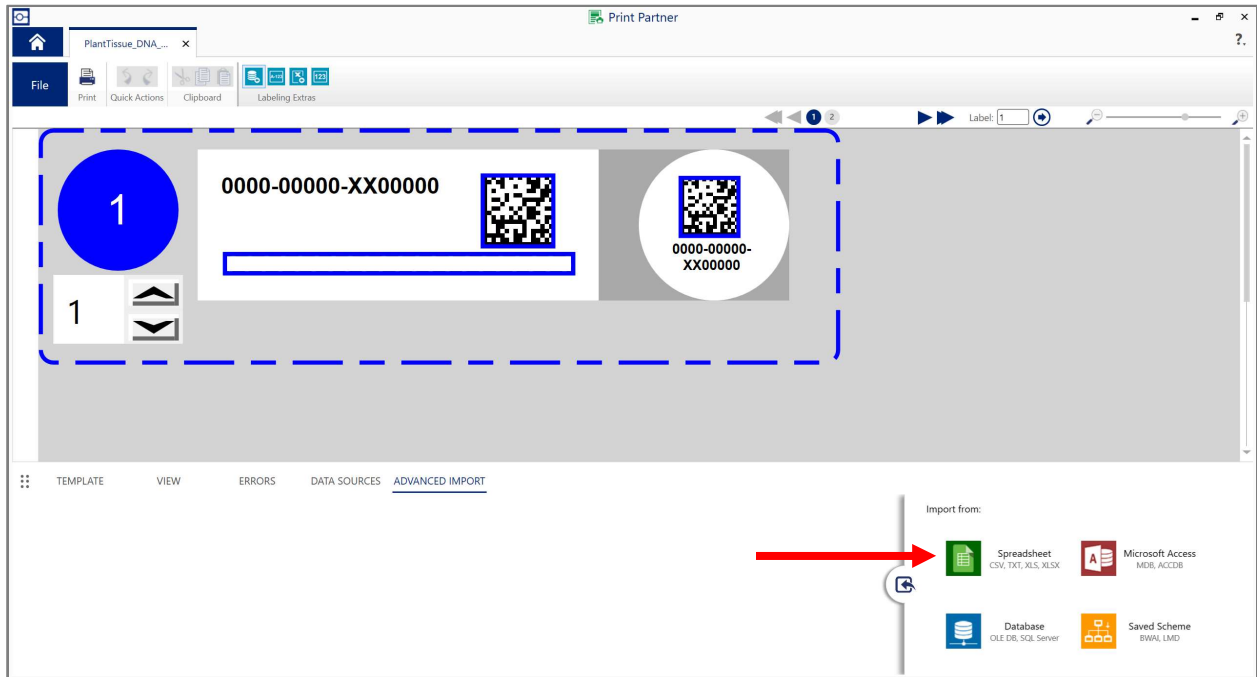

The Advanced Import panel will appear at the bottom of the page, showing the data from your spreadsheet file. Select Next to sort or filter the data. Sort by an identifier or by scientificName, depending on how your specimens are organized. Then select Finish.
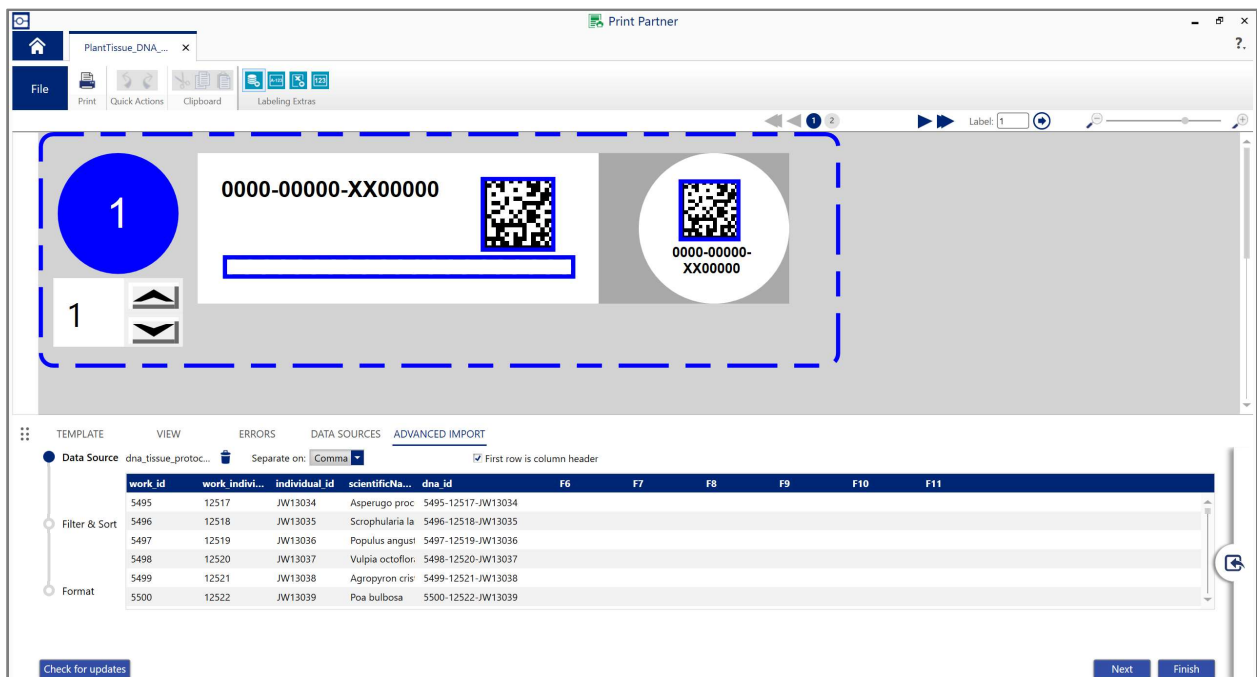
Click and drag the navy-blue column header for dna_id to template Data Matrix Code. Select Yes when the dialog box prompts "This object already has content" Repeat for the other Data Matrix Code. The dna_id (0000-00000-XX-00000) should be replaced with your imported values on the side and top components of the label. Repeat for the scientificName in the space at the bottom of the side label.
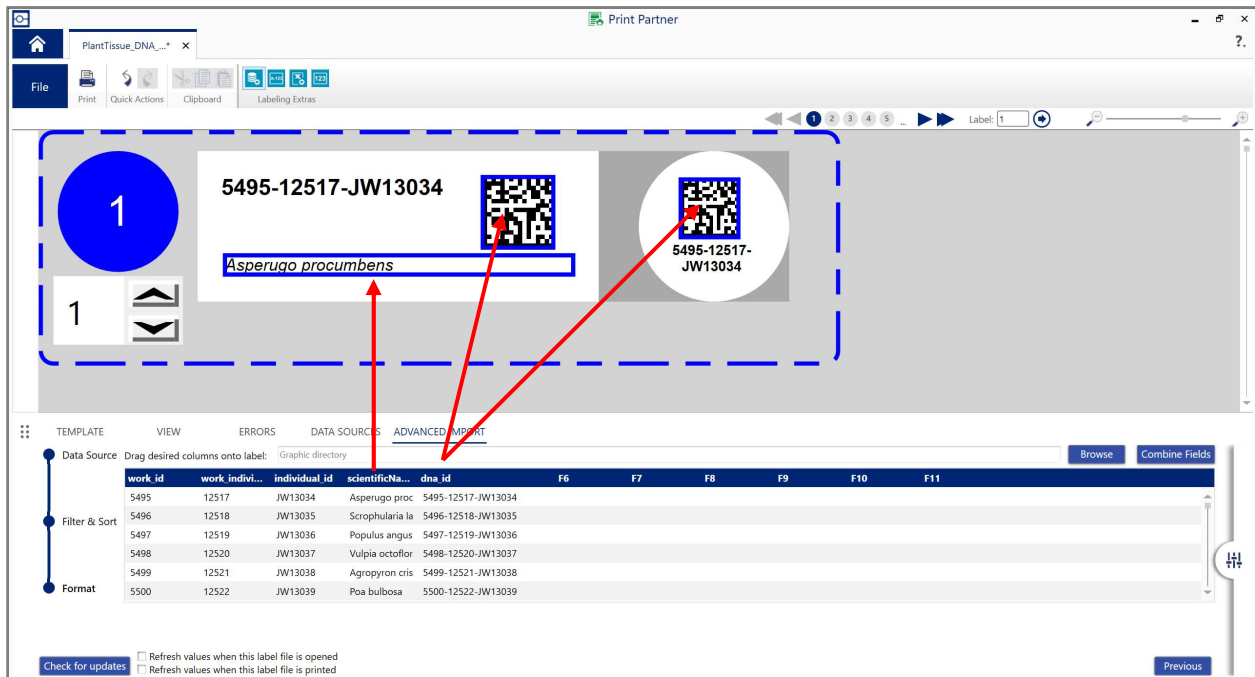
- Select the Print icon.
- In the Print module, check the box in the bottom right corner to check for errors before printing.
- **Select Advanced Settings**
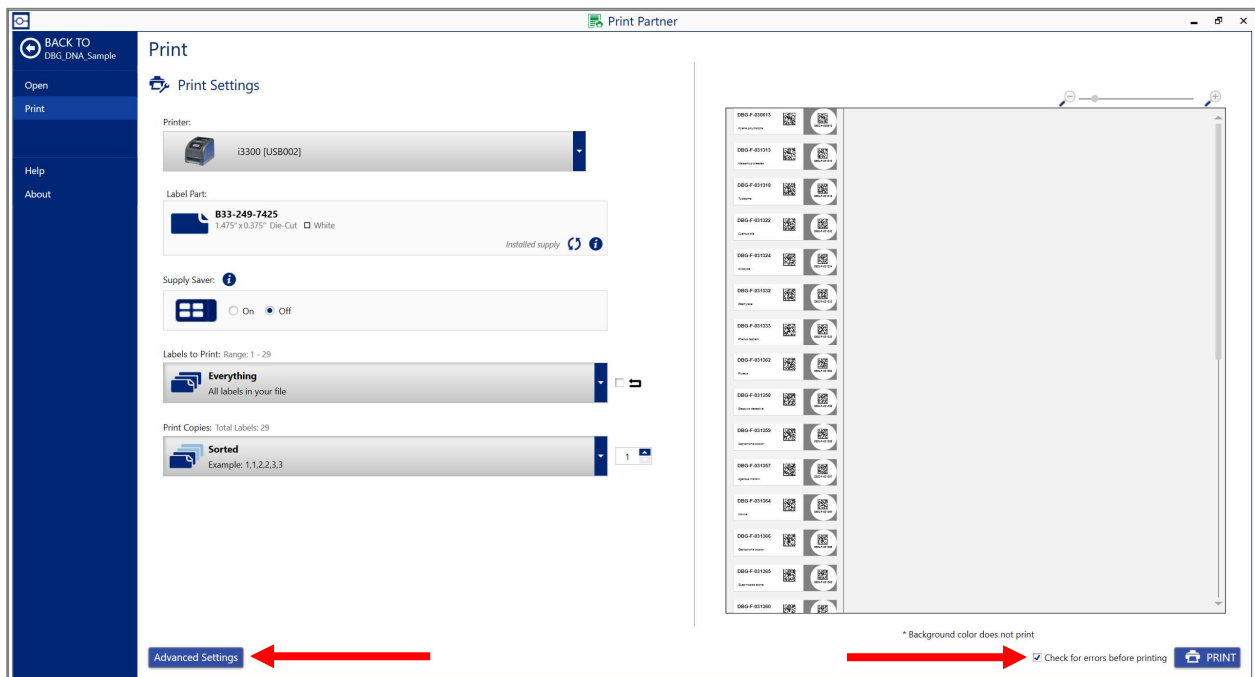
IMPORTANT! In the Advanced Settings dialog box, be sure that the **Cutting Options is set to End of Job** Select Save Settings
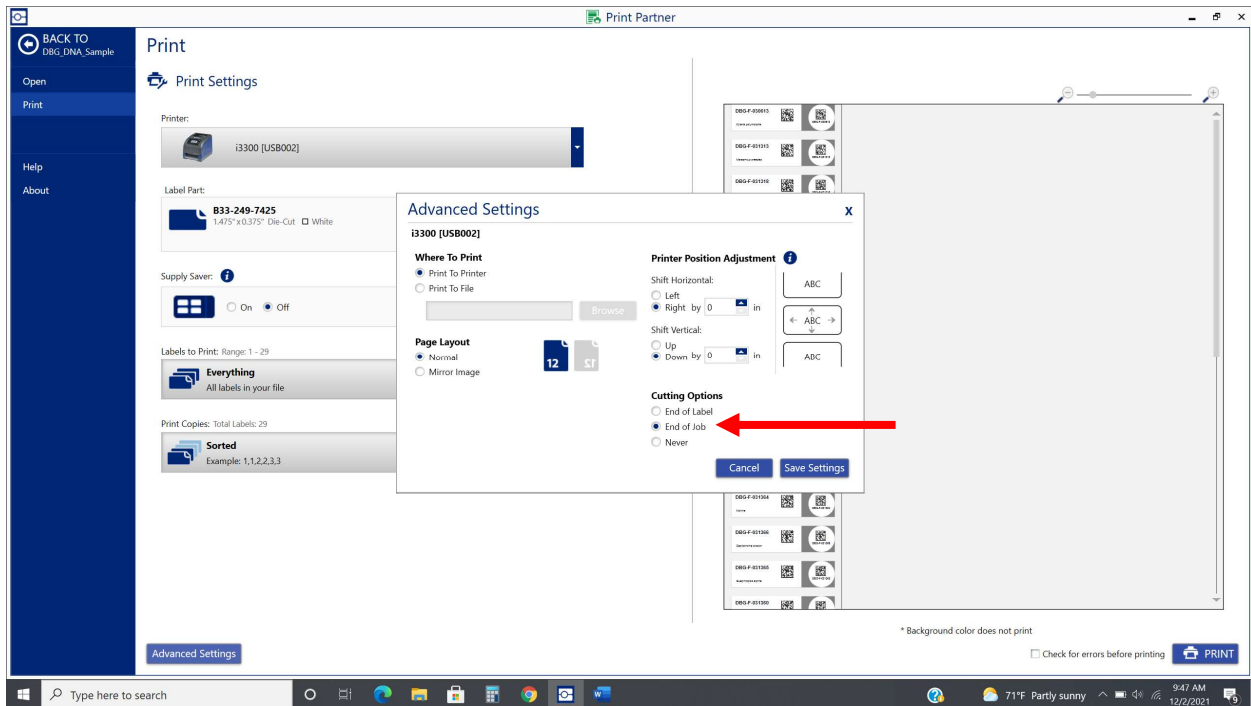
Select Print from the bottom right corner and the labels will quickly be produced. If a large number of labels is being printed, be prepared to assist the lengthy strip of paper so as to not cause a jam.

Step 4: Adhering Labels to 1.5 mL Eppendorf tubes

Adhere the labels as shown here

The CODE brand scanner labeled Genetics Lab can be used to scan Data Matrix Codes.