Observations and Descriptors: CROP Dataviews

Revision Date
October 24, 2016

This document describes several inter-related dataviews that handle descriptor data ("observations"). Since many GRIN-Global users will only need to know how to use existing trait descriptors to record their observations, this document begins by focusing on using the crop descriptors to record observation data. You will also see how traits can be reviewed in the Public Website.

The remainder of the document describes explains the supporting trait and code tables and dataviews. Typically in most organizations, only a few users (or perhaps an administrator) will be defining the trait descriptors and their related codes, whereas many genebank personnel be using the Curator Tool to enter observation data.

Change notes pertaining to this document are also summarized in the appendix. Review the Table of Contents which contains links to the document's sections

Comments/Suggestions:
Please contact feedback@ars-grin.gov with any suggestions or questions related to this document. This and other GRIN-Global –related documentation can be downloaded from the GRIN-Global Training page.

Contents

Overview

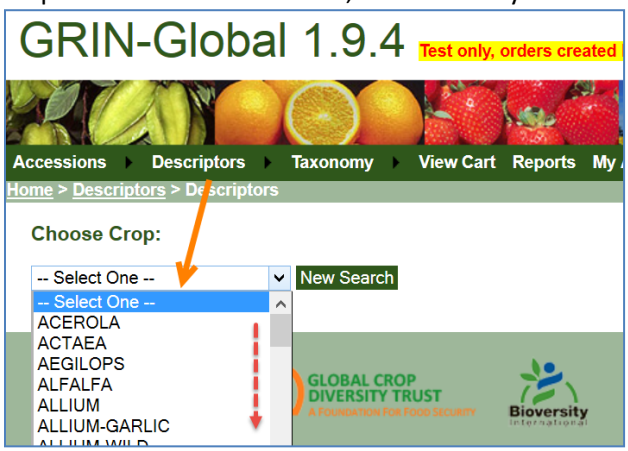
The Public Website (PW) can display characteristic/evaluation data for any accessions whose observations have been recorded. The PW user accesses this data via the **Descriptors** menu option. The user then selects a crop and if that crop has observation data in the database, descriptors (traits) will be listed. At that point the user can select from the various descriptors and then further refine their search by specific criteria.

How Can You Determine the Accession's Crop?

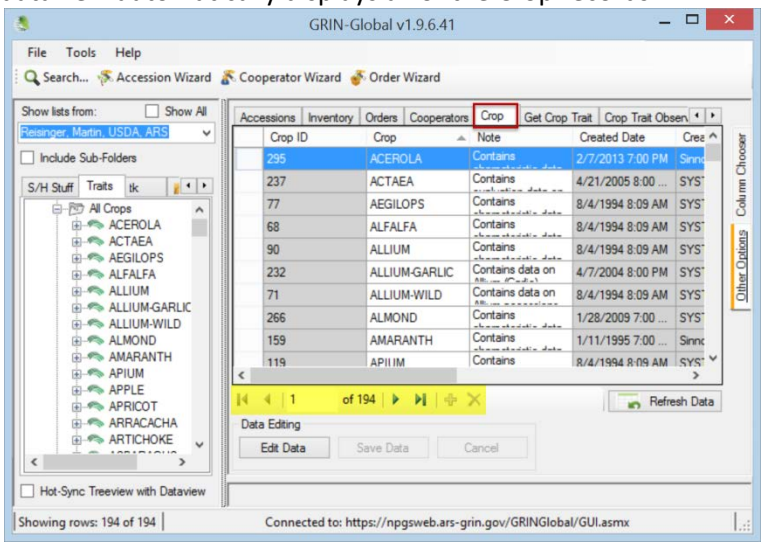
Under Reports, there is an option available – **Find the Crop/Descriptor list for a genus or species**.

The Crop Group of Dataviews

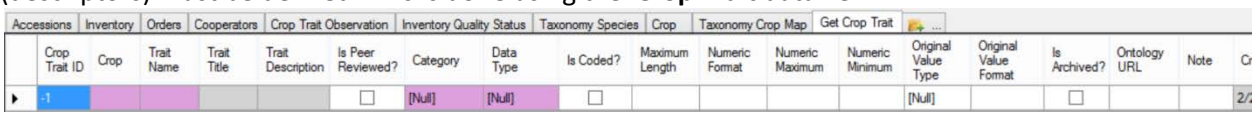
Before discussing the descriptors, it is important to understand that the descriptors are organized by crops. On the Public Website, to review any observation, a crop must initially be selected:



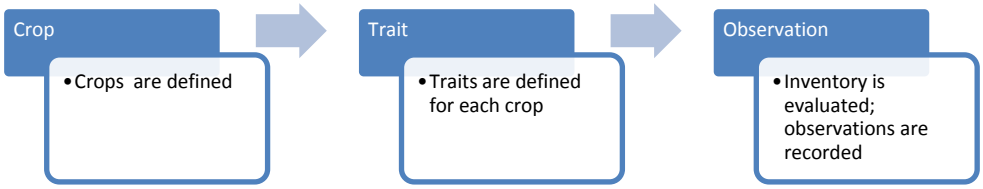
Using either the Curator Tool or the Search Tool, you can get a complete list of the crops. The **Crop** dataview automatically displays all of the Crop records.



When a curator or genebank personnel record the results of their evaluations, they record them via the **Crop Trait** observation dataview. However, before any observations can be recorded, the traits (descriptors) must be defined. This is done using the **Crop Trait** dataview:



The details for creating a new Crop Trait record are explained later in this document; refer to the *Crop Trait* section for details. Notice that the first required field in the sample new Crop Trait record above is "Crop." So if an organization is initially setting up GRIN-Global, it will need to establish its Crops; this is done using the Crop dataview.

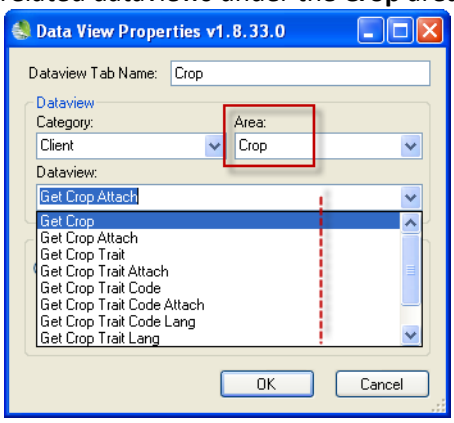


So the question becomes, how are the observations related to accessions? Review the **Crop Trait Observation** dataview below. Starting from left to right, the first required field that must be entered is the **Inventory** field. The user proceeds to input the **Crop**, the **Crop Trait**, the value of the observation record, and so on:

Notice that the **Accession** field cannot be inputted. After the record is saved, GG will complete the **Accession** field, based on the Inventory-Accession relationship. Observations are explained in detail in the *Get Crop Trait Observation* section.

Curator Tool Crop and Trait Dataviews

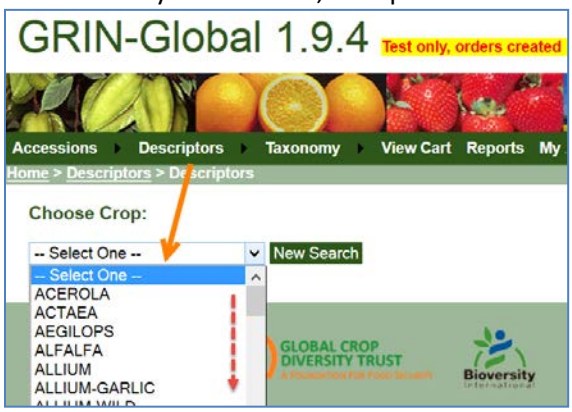
In the GRIN-Global, there is a "family" of inter-related tables; in the Curator Tool, you can see the related dataviews under the **Crop** area:



Viewing Crop Observations in the Public Website

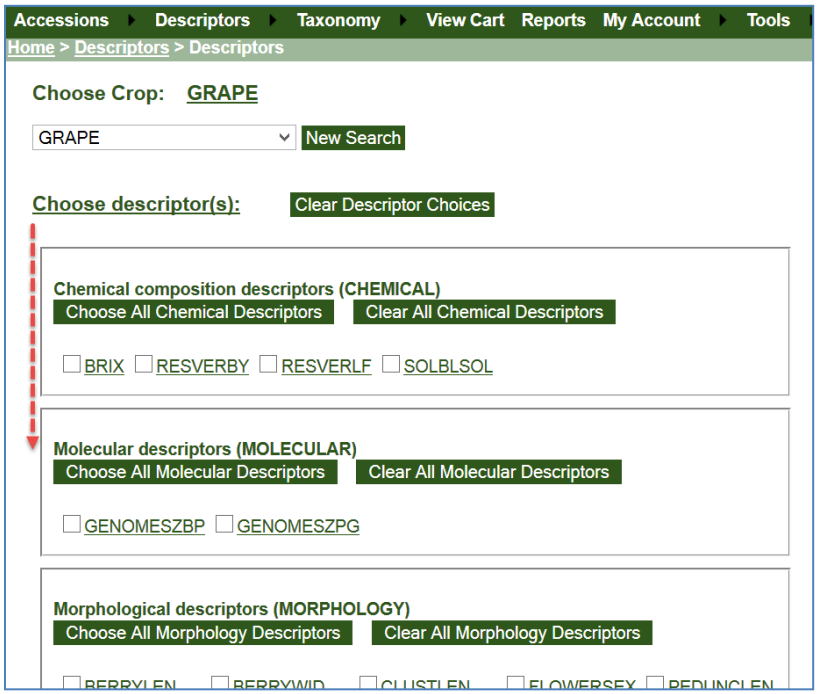
There are several ways to view observations in the Public Website. One method is to search by Descriptors – the Public Website has a **Descriptors** menu option:

To review any observation, a crop must be initially selected:

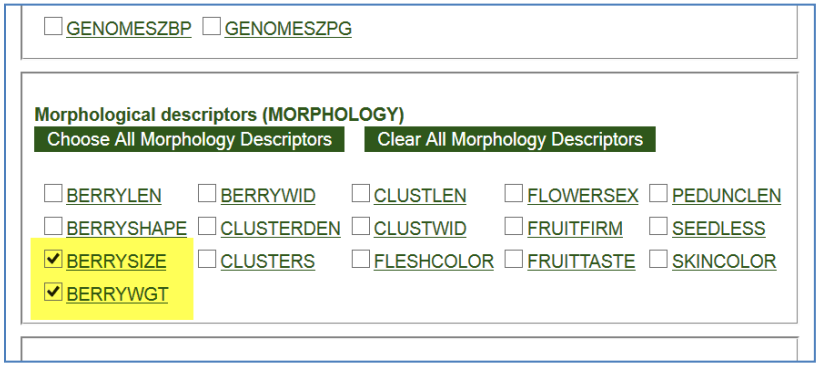


After the Crop is selected, if it has had observations associated with its inventory/accessions, a list of descriptors will display. This is an indication then that observations using these descriptors have been

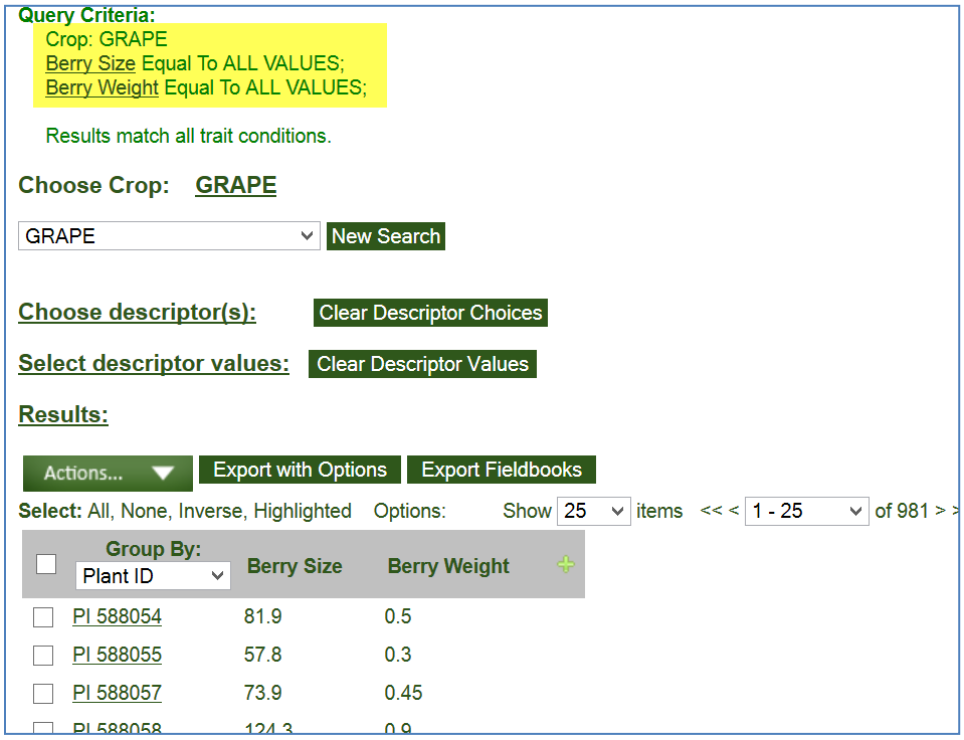
made and are stored in the database :



Using the checkboxes, select the desired descriptors:

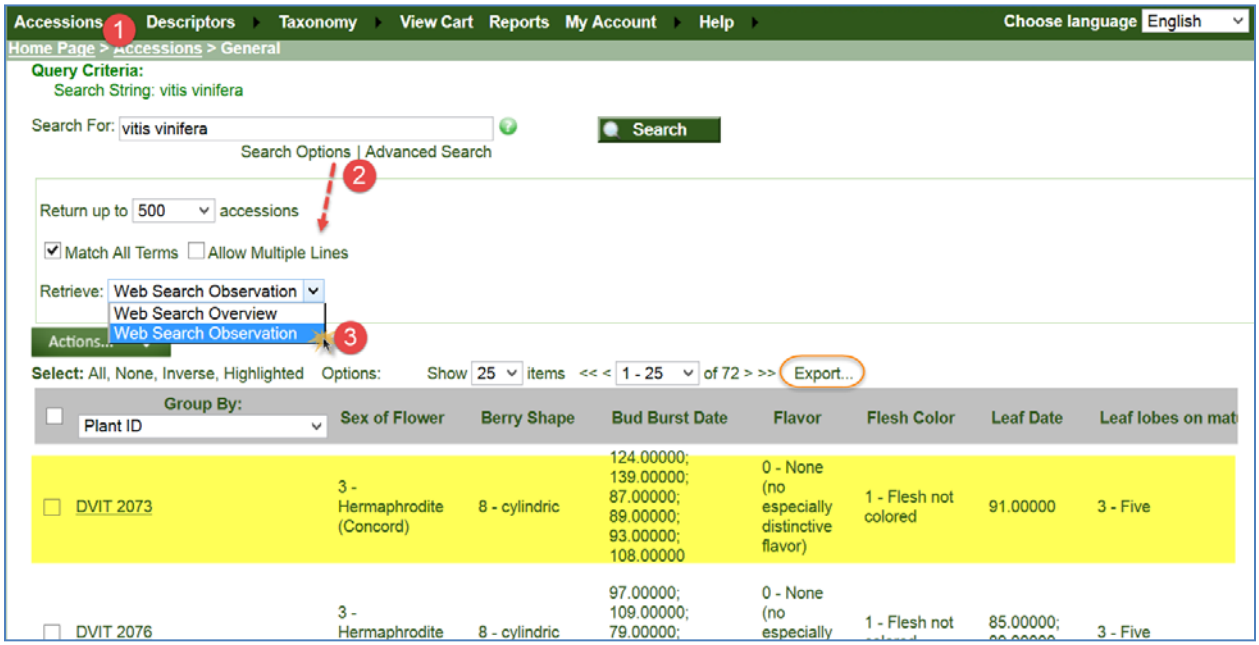


Results:



Public Website – Alternative Method for Displaying Descriptors

Under Search Options, you can select Web Search Observation. The search results display several columns of observations for accessions that met the search criteria; in this example the search criterion was simply "vitis vinifera." In this example, GG returned 72 rows of observation data. To display all of the observations , use the **Export** feature to create a CSV file for further review.



Get Crop Trait Observation

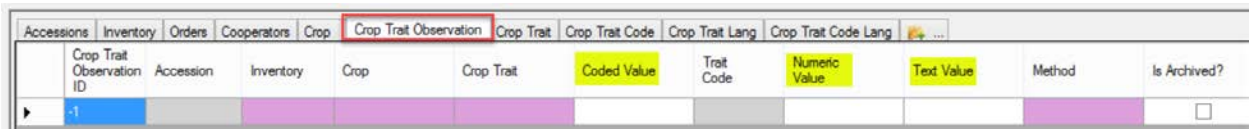
Assuming the descriptors ("crop traits") have already been added for the crops for which you are recording observations, in the Curator Tool you will use the **Observation** dataview to enter your evaluation results. In this first section of the document, besides showing how to record observation records, we also discuss a language switching option so that you can input codes rather than their longer titles.

The observation requires a method to be indicated, so ensure that the relevant methods have been defined first before attempting to add observations. (Use the **Get Method** dataview.)

Get Crop Trait Observation

The **Crop Trait Observation** dataview has many fields; four are required:

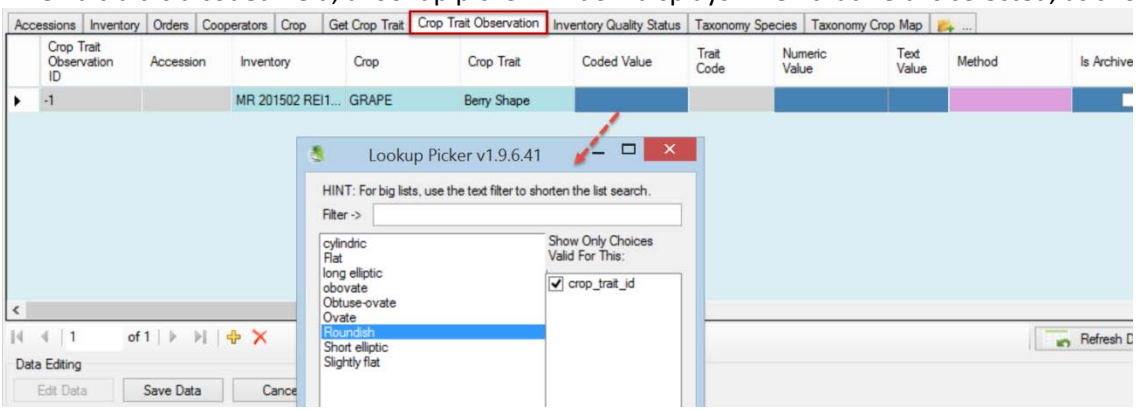
- Inventory
- Crop
- Crop Trait
- Method



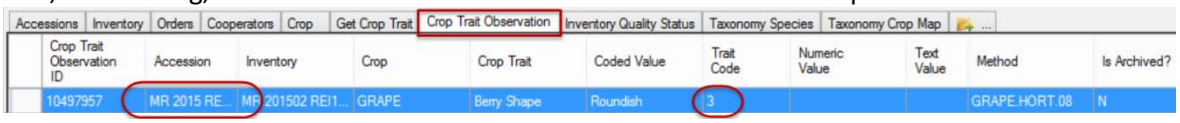
Violet colored cells are required; gray fields are read-only.

The three highlighted "Value" fields highlighted – Coded, Numeric, and Test Value, are mutually exclusive – only one of the three fields should be completed. Unfortunately, to date there is no trigger to ensure this – it is possible that you can fill more than one field.

When a trait is a coded field, a lookup picker window displays when that field is selected, as shown here:

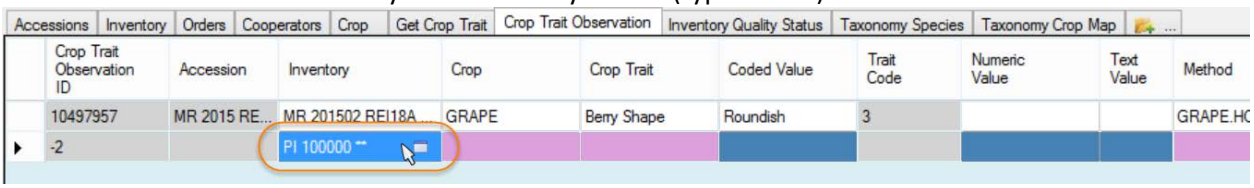


Also, after saving, the **Accession** and **Trait Code** fields fill in with the respective value:



Attach Observations to the Accession or Inventory?

Observations are typically associated with a specific inventory record; however, because of the flexibility provided by the schema design, an observation can be associated with *either* an inventory record (a specific "lot") *or* with the accession in general. Sometimes historical observations have been saved, but not associated with inventory. Rather than lose this data, it can be recorded in GRIN-Global and associated with the accession's system inventory record (type = "**")

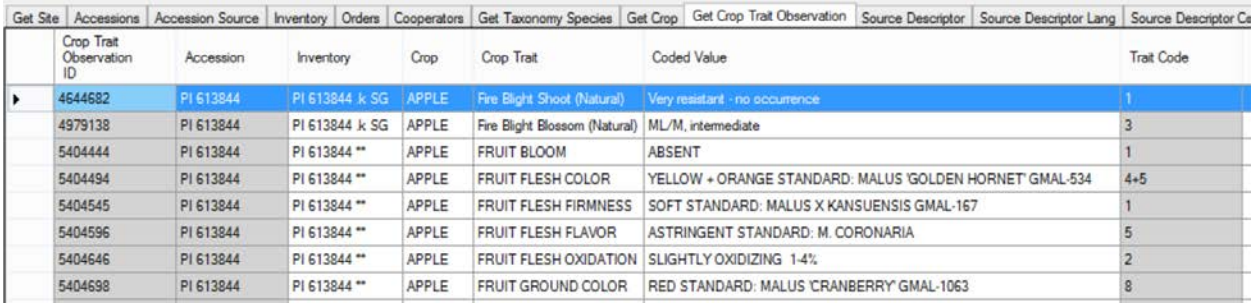


Bulk Importing of Observations

At some point you may have many observations to load into GRIN-Global. Inputting them one at a time is time consuming and inefficient, especially if you already have the data stored in a spreadsheet. Instead, it is much more practical to "bulk import" the observation data.

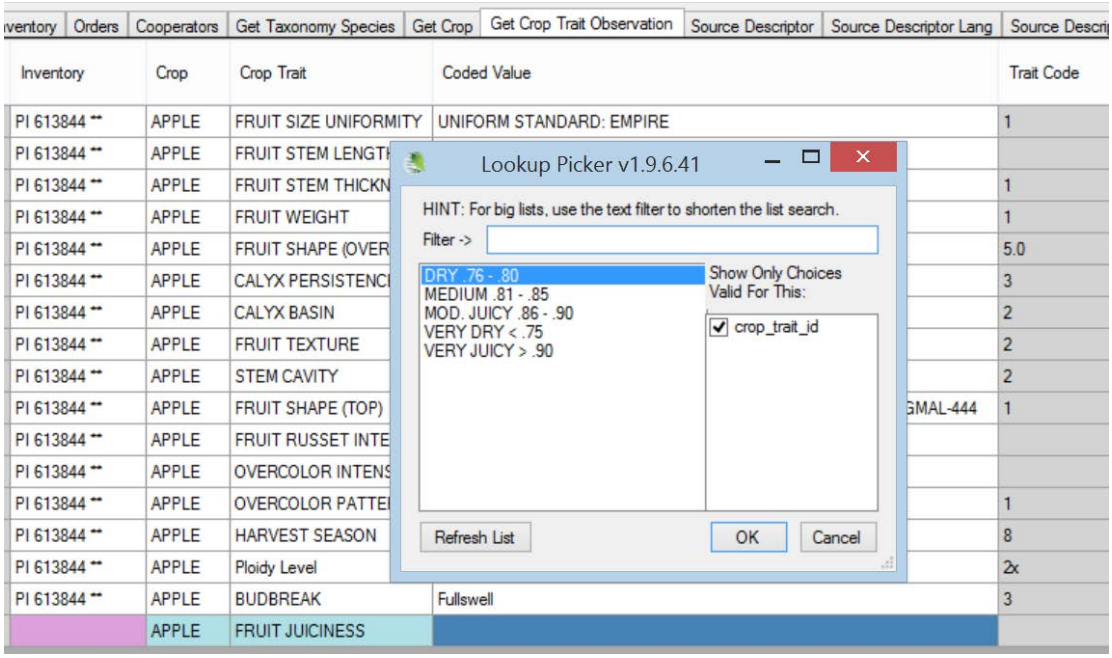
Many users will prefer working with the **Trait Codes** rather than the **Coded Values**, especially when bulk importing. Refer to the *English vs. ENG* section for more details.

Sample Observation Data for Apples

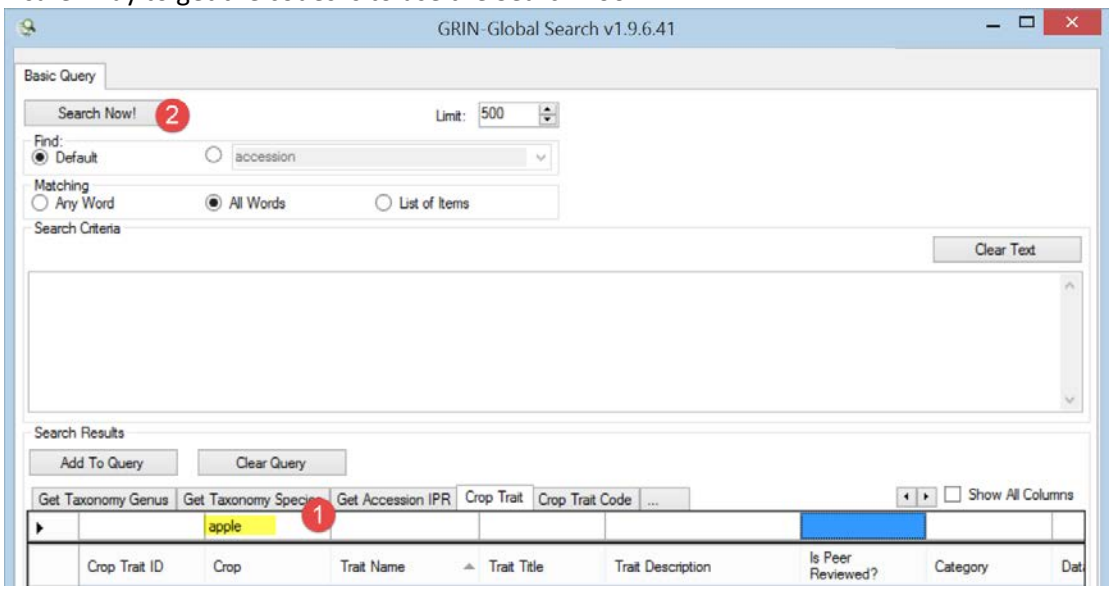


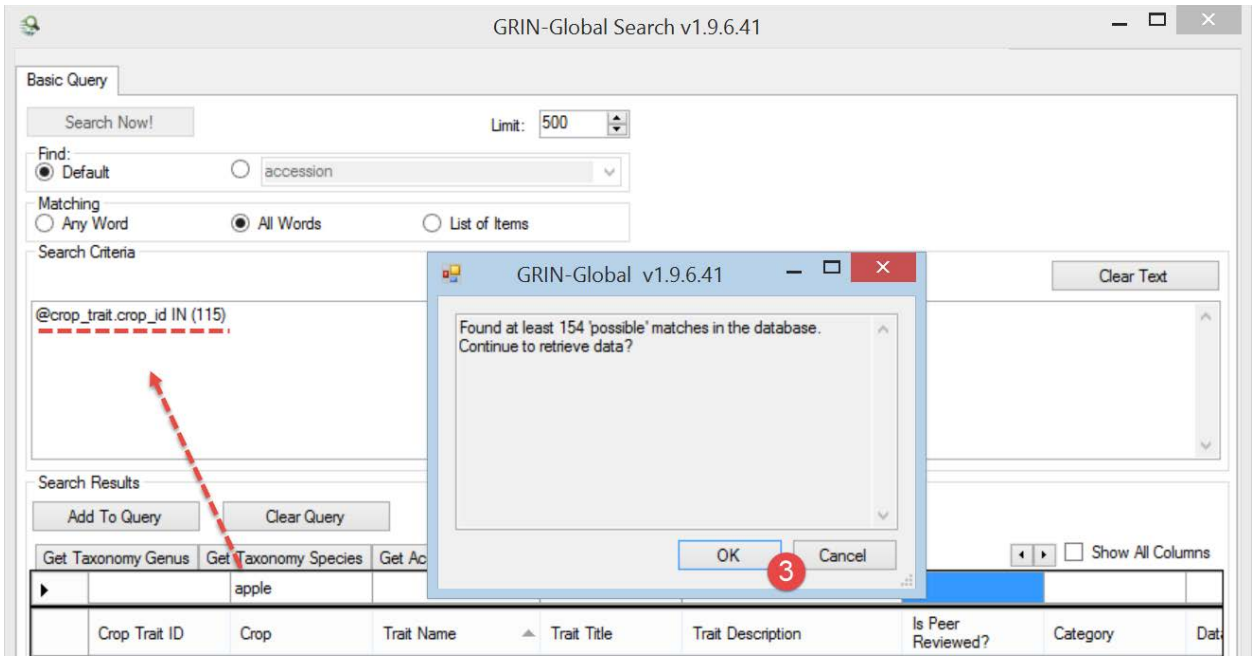
In the following scenario, assume that the observations being recorded are for the Apple trait **FRUIT JUICINESS**. **FRUIT JUICINESS** is a coded trait. There are several methods for determining what the possible valid codes are.

In EDIT mode, one simplistic method is to use the **Get Crop Trait Observation** dataview. Begin by adding a new record and then use the **Coded Value** lookup to determine what codes are valid for the descriptor. Unfortunately there isn't an easy way to copy these codes into a spreadsheet, so you may transcribe them inaccurately if you attempt to type them.

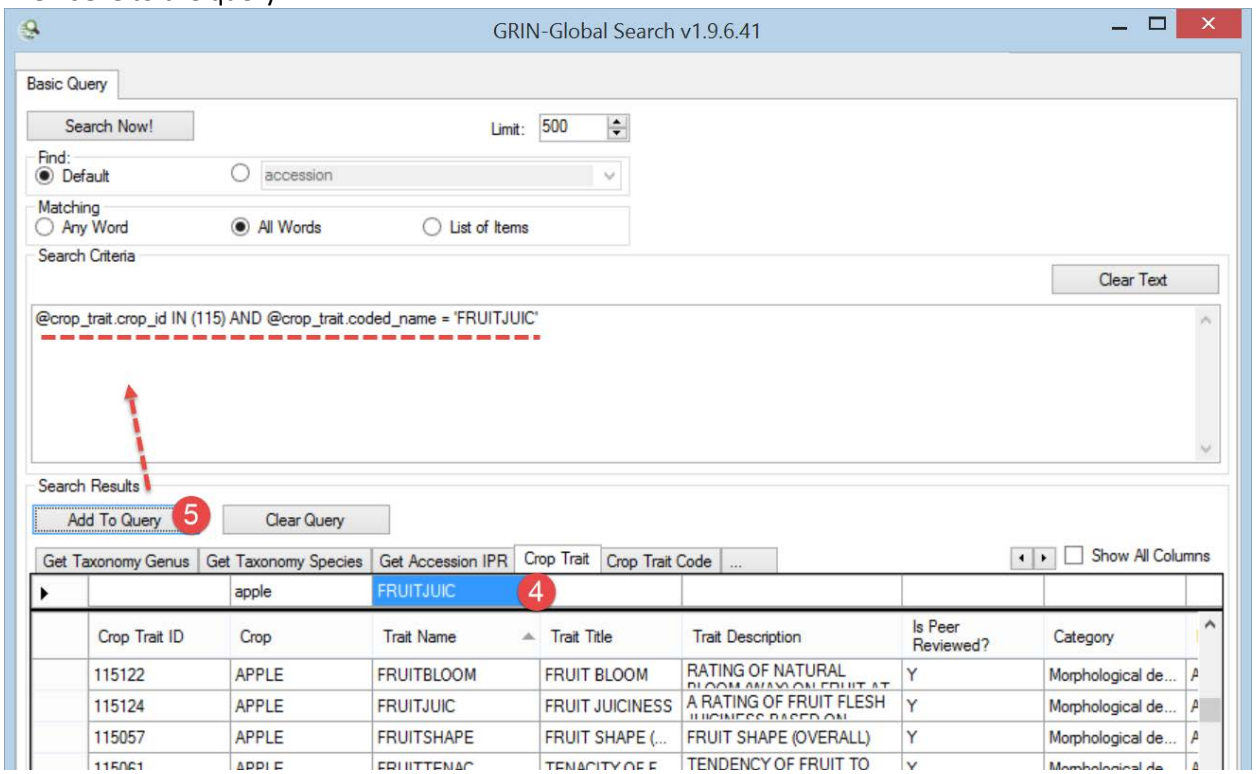


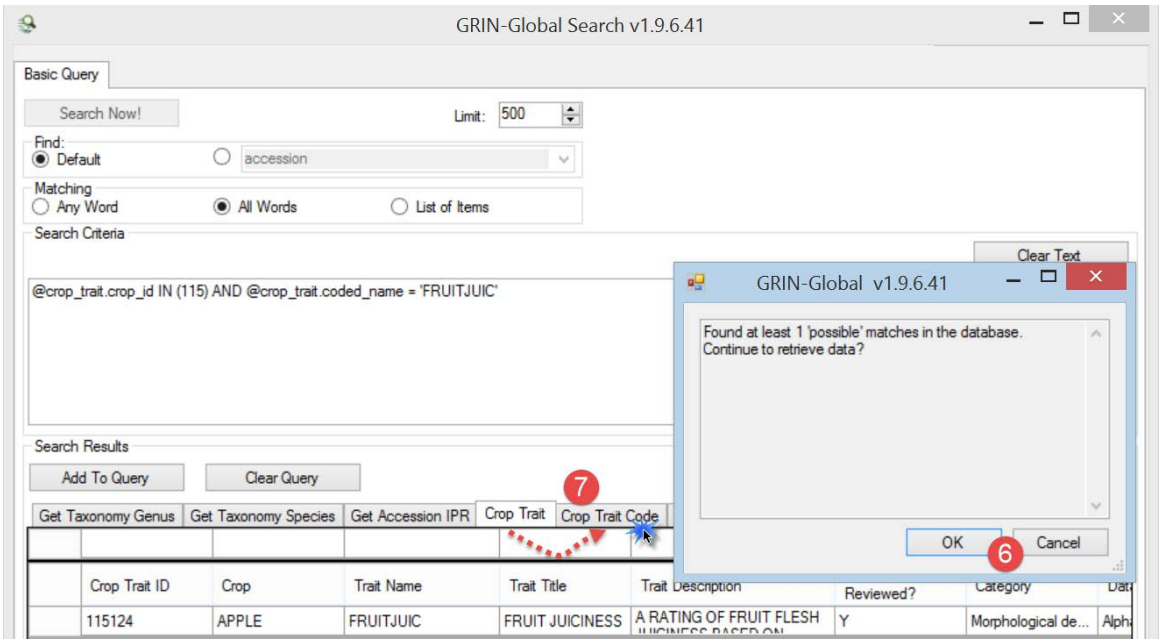
A safer way to get the codes is to use the Search Tool.



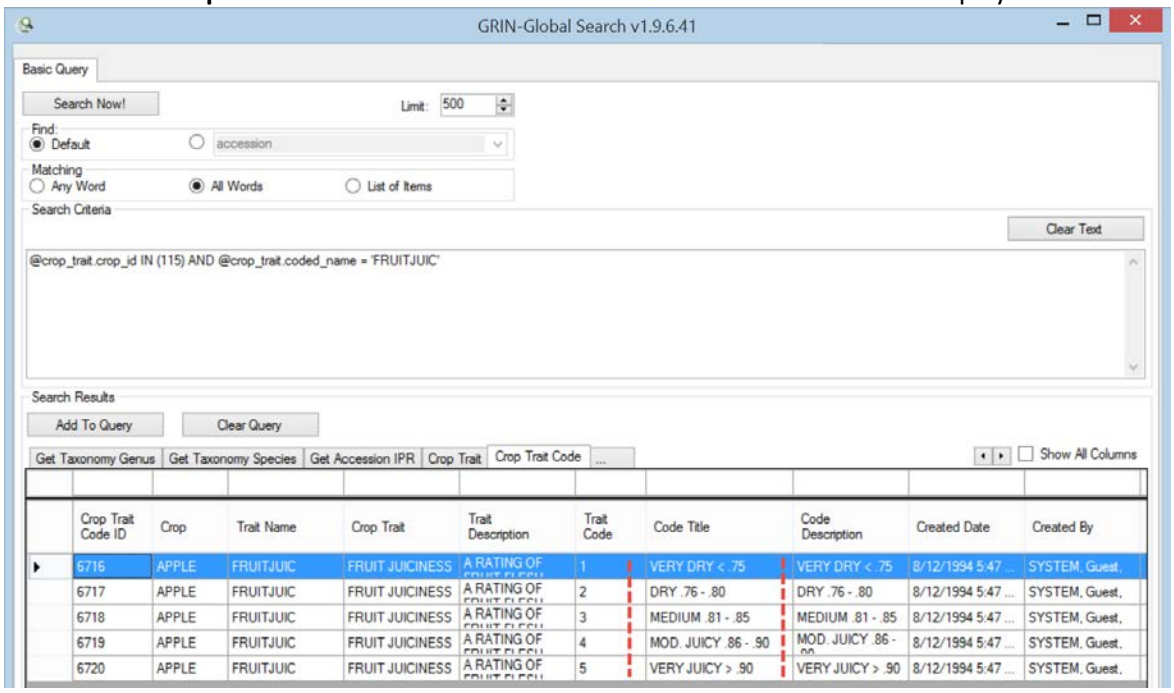


Sorting the list of records found by the Trait Name and scrolling down the list will display the row for **FRUIT JUICINESS.** Notice that the Trait Title is **FRUIT JUICINESS**; the Trait Name is **FRUITJUIC.** Add **FRUITJUIC** to the query:





Switch to the **Crop Trait Code** dataview and the codes for the **FRUITJUIC** trait display:

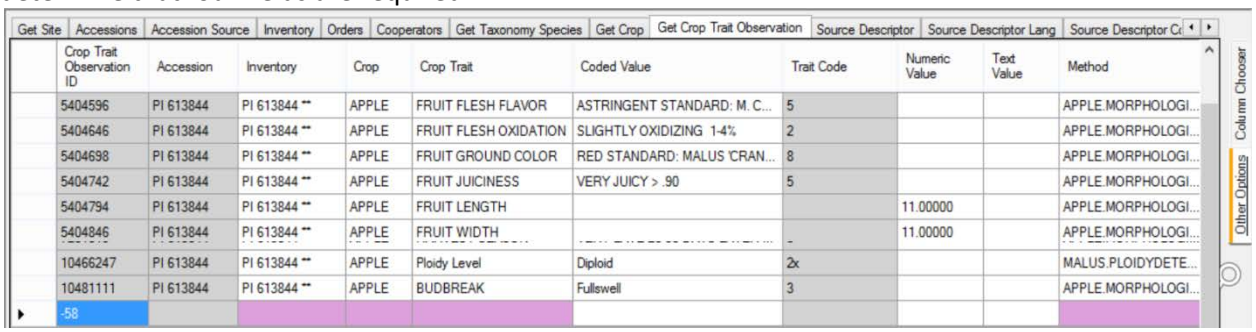


You can highlight the rows (in this case the five records for FRUIT JUICINESS) and drag them into Excel:

	A	B	C	D	E	F	G	H
1	Crop Trait	Crop	Trait Name	Crop Trait	Trait Description	Trait Code	Code Title	Code Description
2	6720	APPLE	FRUITJUIC	FRUIT JUICINESS	A RATING OF FRUIT FLESH JUI	5	VERY JUICY > .90	VERY JUICY > .90
3	6719	APPLE	FRUITJUIC	FRUIT JUICINESS	A RATING OF FRUIT FLESH JUI	4	MOD. JUICY .86 - .90	MOD. JUICY .86 - .90
4	6718	APPLE	FRUITJUIC	FRUIT JUICINESS	A RATING OF FRUIT FLESH JUI	3	MEDIUM .81 - .85	MEDIUM .81 - .85
5	6717	APPLE	FRUITJUIC	FRUIT JUICINESS	A RATING OF FRUIT FLESH JUI	2	DRY .76 - .80	DRY .76 - .80
6	6716	APPLE	FRUITJUIC	FRUIT JUICINESS	A RATING OF FRUIT FLESH JUI	1	VERY DRY < .75	VERY DRY < .75

Now let's see what is needed to save an observation record.

In this partial screen capture of a **Crop Trait Observation** dataview, because of the violet color, we can determine that four fields are required:



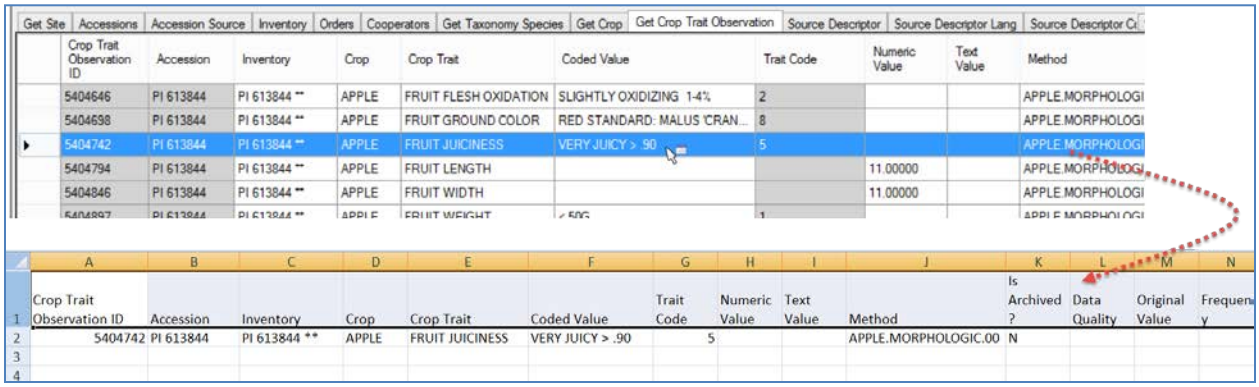
Crop Trait Observation ID	Accession	Inventory	Crop	Crop Trait	Coded Value	Trait Code	Numeric Value	Text Value	Method
5404596	PI 613844	PI 613844 **	APPLE	FRUIT FLESH FLAVOR	ASTRINGENT STANDARD: M. C...	5			APPLE.MORPHOLOGI...
5404646	PI 613844	PI 613844 **	APPLE	FRUIT FLESH OXIDATION	SLIGHTLY OXIDIZING 1-4%	2			APPLE.MORPHOLOGI...
5404698	PI 613844	PI 613844 **	APPLE	FRUIT GROUND COLOR	RED STANDARD: MALUS 'CRAN...	8			APPLE.MORPHOLOGI...
5404742	PI 613844	PI 613844 **	APPLE	FRUIT JUICINESS	VERY JUICY > .90	5			APPLE.MORPHOLOGI...
5404794	PI 613844	PI 613844 **	APPLE	FRUIT LENGTH			11.00000		APPLE.MORPHOLOGI...
5404846	PI 613844	PI 613844 **	APPLE	FRUIT WIDTH			11.00000		APPLE.MORPHOLOGI...
10466247	PI 613844	PI 613844 **	APPLE	Ploidy Level	Diploid	2x			MALUS.PLOIDYDETE...
10481111	PI 613844	PI 613844 **	APPLE	BUDBREAK	Fullswell	3			APPLE.MORPHOLOGI...
-58									

Required Fieds:

- Inventory
- Crop
- Crop Trait
- Method

If the trait is a coded descriptor, then you will also need to supply a valid code in the **Coded Value** field. Notice in the above example that the **Trait Code** column has a gray color, inidicating that in this dataview you cannot input or drag data into this field.

In the Curator Tool, with the **Crop Trait Observation** dataview active, drag a record that already has the Crop Trait **FRUIT JUICINESS** to a spreadsheet:

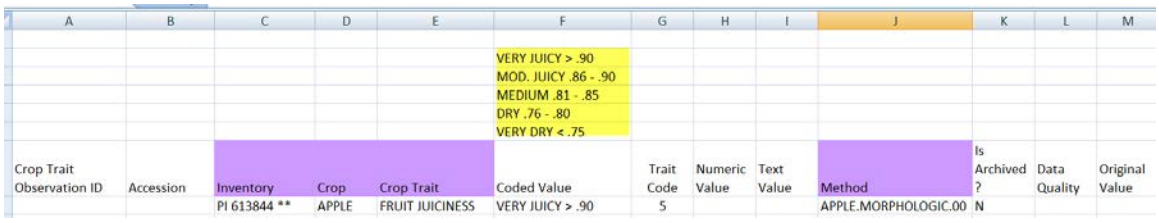


Crop Trait Observation ID	Accession	Inventory	Crop	Crop Trait	Coded Value	Trait Code	Numeric Value	Text Value	Method	Is Archived ?	Data Quality	Original Value	Frequency
5404742	PI 613844	PI 613844 **	APPLE	FRUIT JUICINESS	VERY JUICY > .90	5			APPLE.MORPHOLOGIC.00	N			

Now you can use the spreadsheet as a template for building your observation records. In this scenario we are only illustrating the bulk adding of **FRUIT JUCINESS** observations, but you can add any observations, as long as you provide the required fields and when traits are coded traits, you provide valid codes.

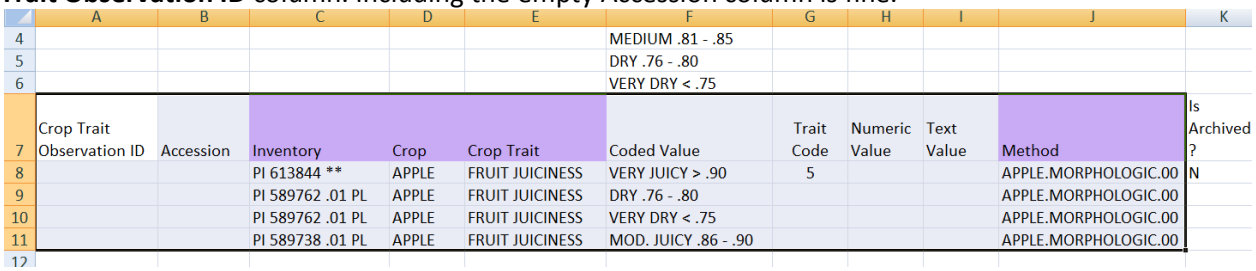
Previously we had dumped the valid codes into a spreadsheet. Use the values from the **Crop Trait Code** dataview's **Code Title** column when creating the observation records. (Note: further below, in the English vs ENG section, we'll discuss how you can use the Trait Codes instead.)

If you setup your spreadsheet with the valid **Crop Trait Code** dataview's **Code Title** values directly above the **Code Value** heading, you will benefit from Excel's handy feature which will supply an item from the list as you type.



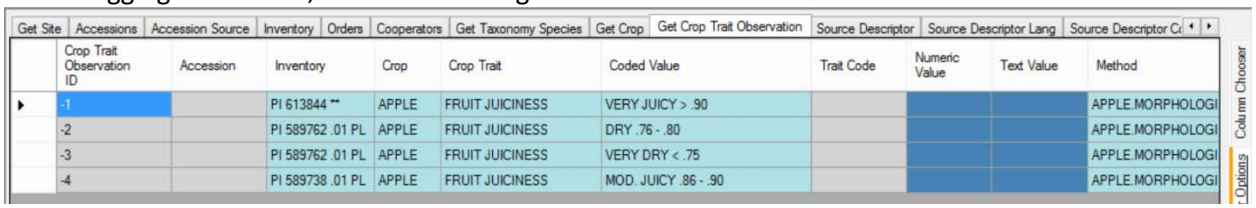
					VERY JUICY > .90							
					MOD. JUICY .86 - .90							
					MEDIUM .81 - .85							
					DRY .76 - .80							
					VERY DRY < .75							
Crop Trait Observation ID	Accession	Inventory	Crop	Crop Trait	Coded Value	Trait Code	Numeric Value	Text Value	Method	Is Archived ?	Data Quality	Original Value
		PI 613844 **	APPLE	FRUIT JUICINESS	VERY JUICY > .90	5			APPLE.MORPHOLOGIC.00	N		

Eventually you will have the new observation data in the spreadsheet ready to be dragged into the Curator Tool. Highlight the headings – you do not need them all, but you must include the empty **Crop Trait Observation ID** column. Including the empty Accession column is fine.



4						MEDIUM .81 - .85					
5						DRY .76 - .80					
6						VERY DRY < .75					
7	Crop Trait Observation ID	Accession	Inventory	Crop	Crop Trait	Coded Value	Trait Code	Numeric Value	Text Value	Method	Is Archived ?
8			PI 613844 **	APPLE	FRUIT JUICINESS	VERY JUICY > .90	5			APPLE.MORPHOLOGIC.00	N
9			PI 589762 .01 PL	APPLE	FRUIT JUICINESS	DRY .76 - .80				APPLE.MORPHOLOGIC.00	
10			PI 589762 .01 PL	APPLE	FRUIT JUICINESS	VERY DRY < .75				APPLE.MORPHOLOGIC.00	
11			PI 589738 .01 PL	APPLE	FRUIT JUICINESS	MOD. JUICY .86 - .90				APPLE.MORPHOLOGIC.00	
12											

After dragging into the CT, but before saving:

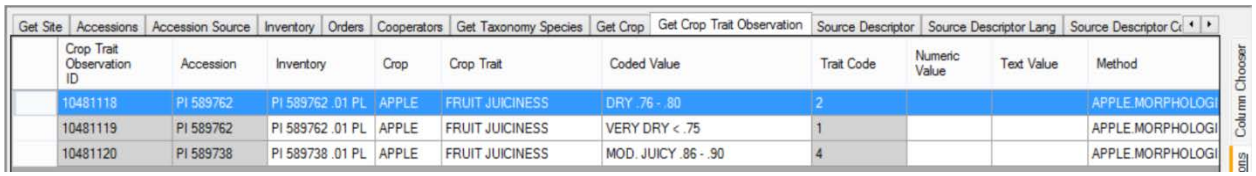


Get Site | Accessions | Accession Source | Inventory | Orders | Cooperators | Get Taxonomy Species | Get Crop | Get Crop Trait Observation | Source Descriptor | Source Descriptor Lang | Source Descriptor C

Crop Trait Observation ID	Accession	Inventory	Crop	Crop Trait	Coded Value	Trait Code	Numeric Value	Text Value	Method
-1		PI 613844 **	APPLE	FRUIT JUICINESS	VERY JUICY > .90				APPLE.MORPHOLOGI
-2		PI 589762 .01 PL	APPLE	FRUIT JUICINESS	DRY .76 - .80				APPLE.MORPHOLOGI
-3		PI 589762 .01 PL	APPLE	FRUIT JUICINESS	VERY DRY < .75				APPLE.MORPHOLOGI
-4		PI 589738 .01 PL	APPLE	FRUIT JUICINESS	MOD. JUICY .86 - .90				APPLE.MORPHOLOGI

Column Chooser | Options

After the Save:



Get Site | Accessions | Accession Source | Inventory | Orders | Cooperators | Get Taxonomy Species | Get Crop | Get Crop Trait Observation | Source Descriptor | Source Descriptor Lang | Source Descriptor C

Crop Trait Observation ID	Accession	Inventory	Crop	Crop Trait	Coded Value	Trait Code	Numeric Value	Text Value	Method
10481118	PI 589762	PI 589762 .01 PL	APPLE	FRUIT JUICINESS	DRY .76 - .80	2			APPLE.MORPHOLOGI
10481119	PI 589762	PI 589762 .01 PL	APPLE	FRUIT JUICINESS	VERY DRY < .75	1			APPLE.MORPHOLOGI
10481120	PI 589738	PI 589738 .01 PL	APPLE	FRUIT JUICINESS	MOD. JUICY .86 - .90	4			APPLE.MORPHOLOGI

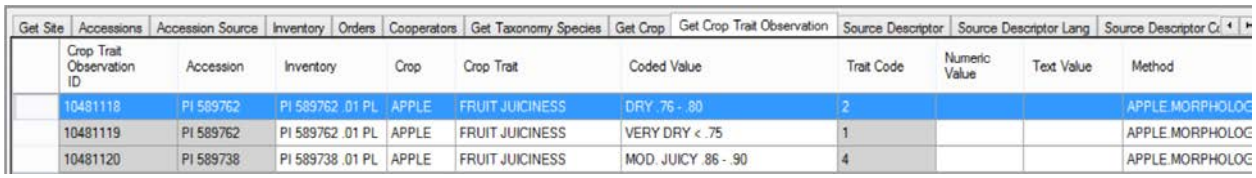
Column Chooser | ons

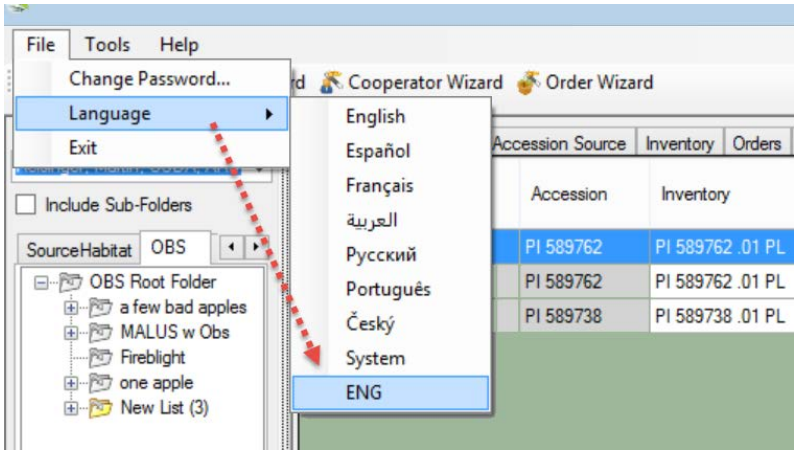
Why only three whereas the Excel table has four? The first record, which we used as a template, was already in the database. During the Save process, the Curator Tool highlights the duplicate and does not allow it to be saved again. Since it was already in the database, we only saved the three new records.

As an aside, the three observations in this example were associated to inventory records, not accessions. Remember that observations associated with system inventory records are associated to the accession.

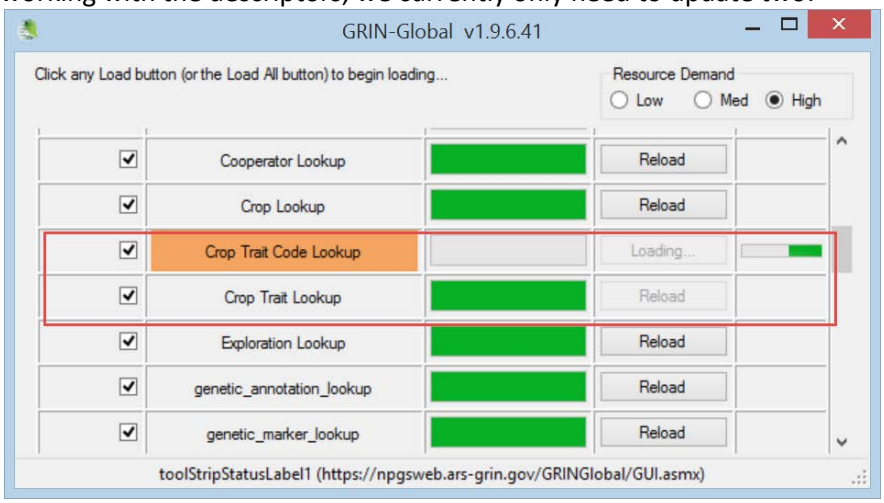
English vs. ENG

A set of dataviews were created to allow the codes to be used, rather than the lengthier titles. Some people prefer using the ENG dataviews.



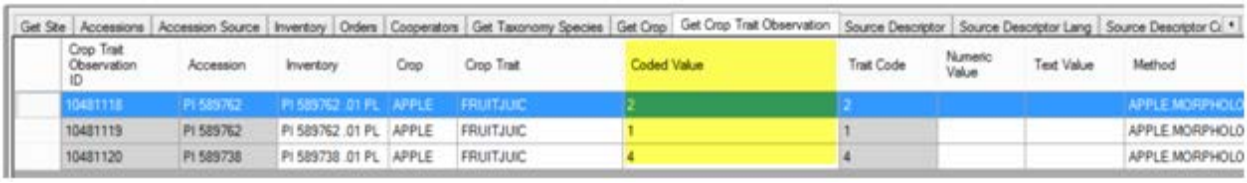


After you switch languages, you will be prompted to update your lookup tables. Since we are only working with the descriptors, we currently only need to update two:



(The **Crop Trait Lookup** updated before the screen capture completed.)

Click the **Refresh** button, and the Observation dataview (ENG) now looks like this:



Crop Trait Observation ID	Accession	Inventory	Crop	Crop Trait	Coded Value	Trait Code	Numeric Value	Text Value	Method
10481118	PI 589762	PI 589762 .01 PL	APPLE	FRUITJUIC	2	2			APPLE.MORPHOLO
10481119	PI 589762	PI 589762 .01 PL	APPLE	FRUITJUIC	1	1			APPLE.MORPHOLO
10481120	PI 589738	PI 589738 .01 PL	APPLE	FRUITJUIC	4	4			APPLE.MORPHOLO

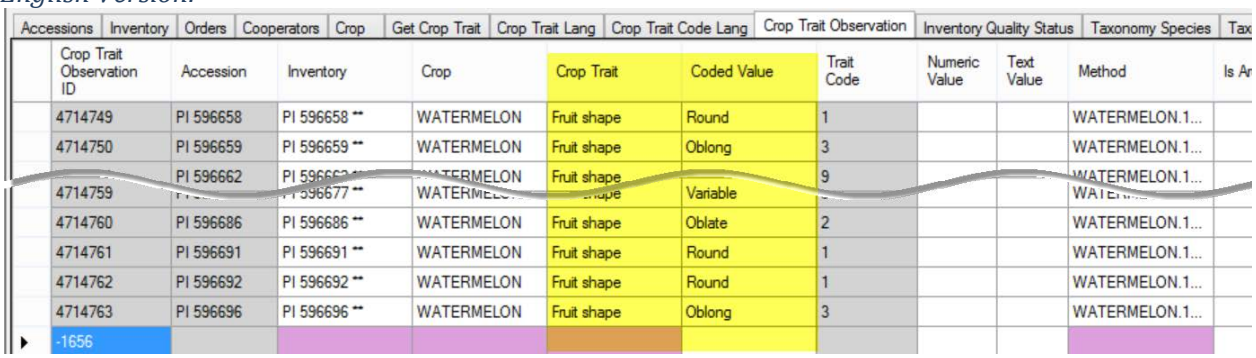
Compare the ENG version above with the English version we saw previously:

Crop Trait Observation ID	Accession	Inventory	Crop	Crop Trait	Coded Value	Trait Code	Numeric Value	Text Value	Method
10481118	PI 589762	PI 589762 .01 PL	APPLE	FRUIT JUICINESS	DRY .76 - .80	2			APPLE.MORPHOLOG
10481119	PI 589762	PI 589762 .01 PL	APPLE	FRUIT JUICINESS	VERY DRY < .75	1			APPLE.MORPHOLOG
10481120	PI 589738	PI 589738 .01 PL	APPLE	FRUIT JUICINESS	MOD. JUICY .86 - .90	4			APPLE.MORPHOLOG

Notice especially the **Crop Trait** and the **Coded Value** fields. The **ENG** version is much simpler to bulk update. After you complete the updating, you can always switch from the **ENG** language version to the **English**.

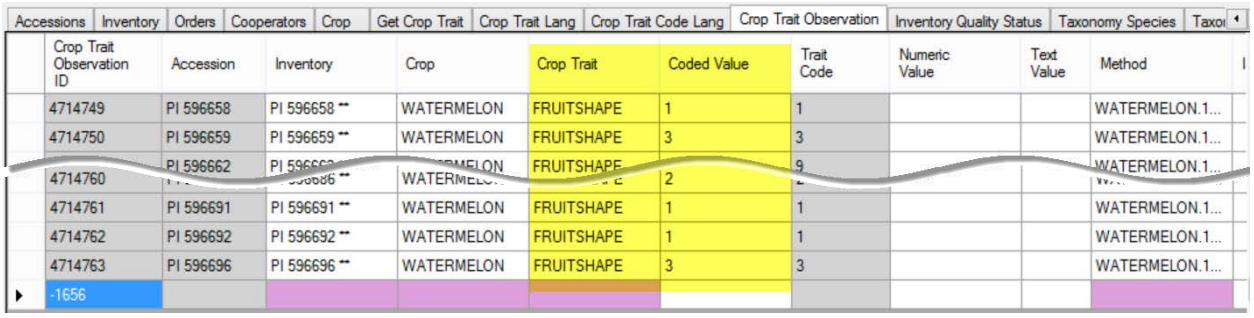
The following is another example. In this example, the Crop Trait Fruit Shape for Watermelons is shown:

English Version:



Crop Trait Observation ID	Accession	Inventory	Crop	Crop Trait	Coded Value	Trait Code	Numeric Value	Text Value	Method	Is Ar
4714749	PI 596658	PI 596658 **	WATERMELON	Fruit shape	Round	1			WATERMELON.1...	
4714750	PI 596659	PI 596659 **	WATERMELON	Fruit shape	Oblong	3			WATERMELON.1...	
	PI 596662	PI 596662 **	WATERMELON	Fruit shape		9			WATERMELON.1...	
4714759		PI 596677 **	WATERMELON	Fruit shape	Variable					
4714760	PI 596686	PI 596686 **	WATERMELON	Fruit shape	Oblate	2			WATERMELON.1...	
4714761	PI 596691	PI 596691 **	WATERMELON	Fruit shape	Round	1			WATERMELON.1...	
4714762	PI 596692	PI 596692 **	WATERMELON	Fruit shape	Round	1			WATERMELON.1...	
4714763	PI 596696	PI 596696 **	WATERMELON	Fruit shape	Oblong	3			WATERMELON.1...	
-1656										

ENG Version:



Crop Trait Observation ID	Accession	Inventory	Crop	Crop Trait	Coded Value	Trait Code	Numeric Value	Text Value	Method
4714749	PI 596658	PI 596658 **	WATERMELON	FRUITSHAPE	1	1			WATERMELON.1...
4714750	PI 596659	PI 596659 **	WATERMELON	FRUITSHAPE	3	3			WATERMELON.1...
	PI 596662	PI 596662 **	WATERMELON	FRUITSHAPE		9			WATERMELON.1...
4714760		[illegible] **	WATERMELON	[illegible]	2				
4714761	PI 596691	PI 596691 **	WATERMELON	FRUITSHAPE	1	1			WATERMELON.1...
4714762	PI 596692	PI 596692 **	WATERMELON	FRUITSHAPE	1	1			WATERMELON.1...
4714763	PI 596696	PI 596696 **	WATERMELON	FRUITSHAPE	3	3			WATERMELON.1...
-1656									

Refer to the document English vs. ENG for complete details on working with the **ENG** alternative language.

Archived Observations

Observation records have a TRUE/FALSE flag indicating whether the data for this observation has been archived. The default is "N." However, when set to "Y," the GRIN-Global Public Website user will not be

able to search this observation data, and the observation record is not displayed in the observation detail page. This term "archive" is misleading to some – the records are not being moved or archived somewhere else, they are simply no longer visible on the Public Website.

Descriptor Standards and Guidelines

Refer to Bioversity's webpage on descriptors and standards and their Technical Bulletin Number 13, "Developing crop descriptor lists, Guidelines for developers" which cover the topic of crop descriptors in detail. Their webpage on descriptors states: "Descriptors lists and Derived Standards represent an important tool for a standardized characterization system and it is promoted by Bioversity throughout the world. It provides an international format and a universally understood 'language' for plant genetic resources data. The adoption of this scheme for data encoding, or at least the production of a transformation method to convert other schemes to the Bioversity format, will produce a rapid, reliable and efficient means for information exchange, storage, retrieval and communication, and will assist with the utilization of germplasm."

The following definitions of descriptors are from the International Board for Plant Genetic Resources (IBPGR):

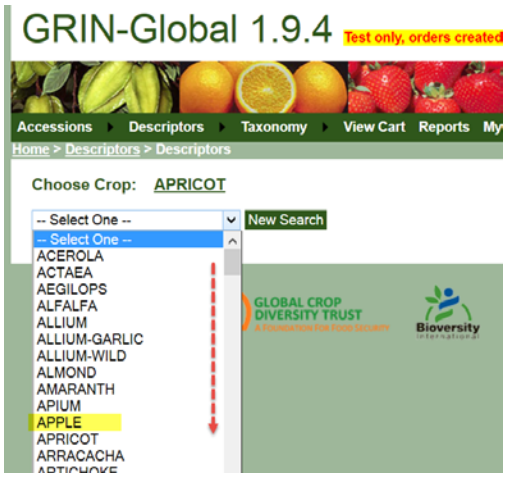
- characterization descriptors: "consists of recording those characters which are highly heritable, can be easily seen by the eye and are expressed in all environments."
- preliminary evaluation descriptors: "consists of recording a limited number of additional traits thought desirable by a consensus of users of the particular crop."

Using the Public Website to Determine What Traits Have Observations

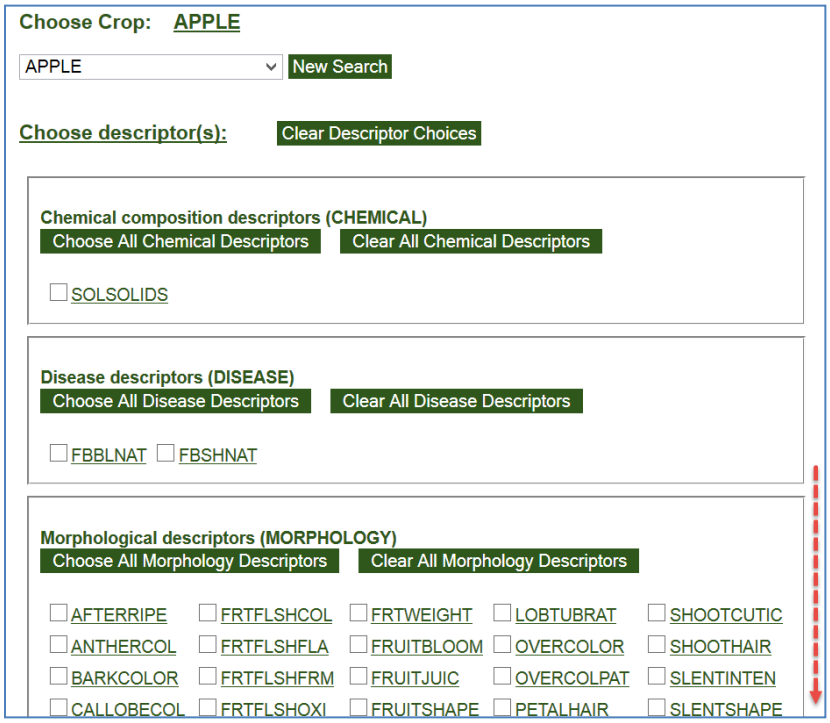
Besides using the Curator Tool, there are many features within the GRIN-Global Public Website which genebank personnel may also use to examine descriptors.

Descriptors Search

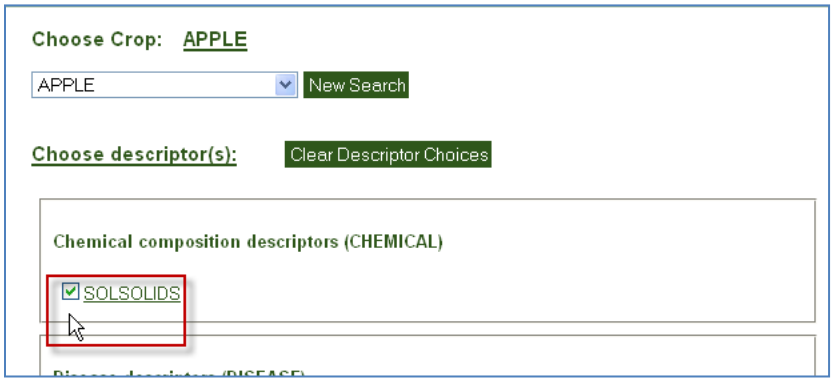
Use the **Descriptors** option to review existing descriptors and observations. First select the desired crop; after doing so, you have several tools with which you can review descriptors and observations.



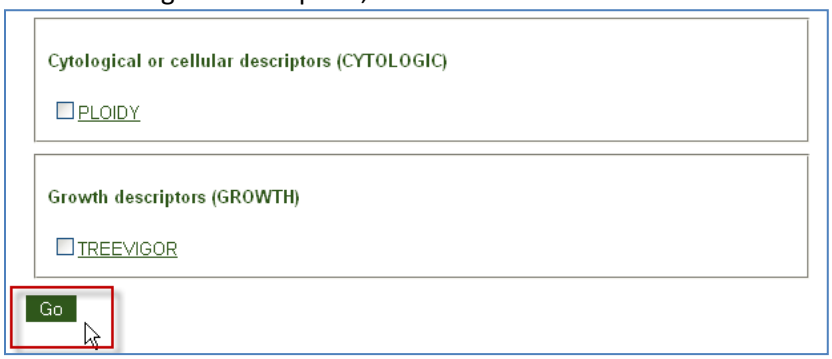
After the crop has been selected, if the crop has observations, all descriptors which have been used to denote the observations will be listed:



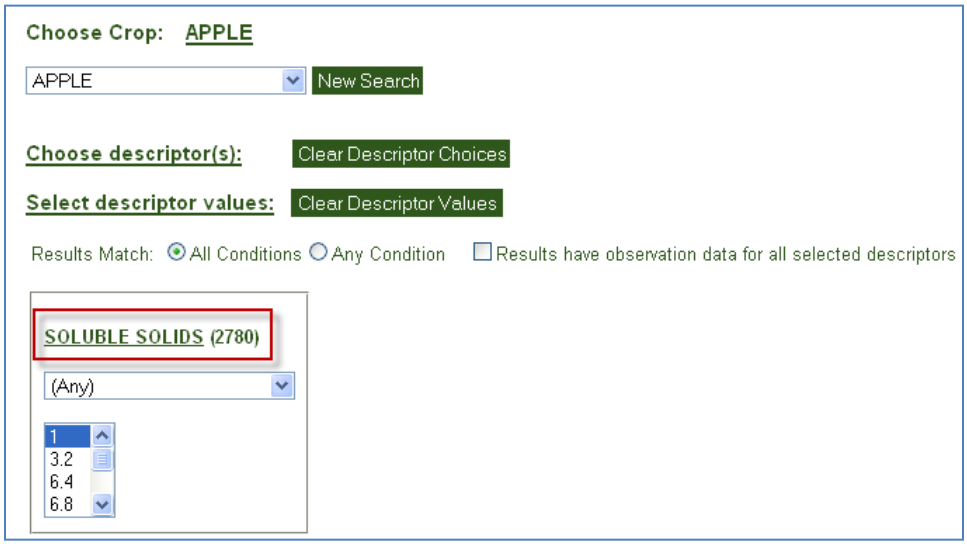
You can select any of the descriptors to review the observations:



After selecting the descriptors, scroll down and click the **Go** button:

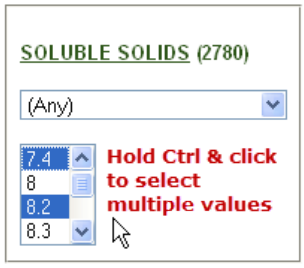


In this example, the Apple crop has 2780 observations recorded for the **Soluble Solids** trait. Of course multiple traits can be selected.

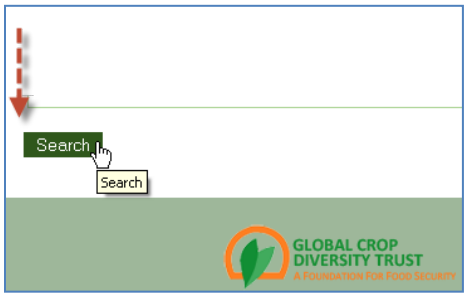


In the value boxes you can select actual values in the database. The condition dropdown is used to indicate the filtering condition -- "ANY" is the default, but you can change that to "GREATER THAN," "EQUAL TO," etc.

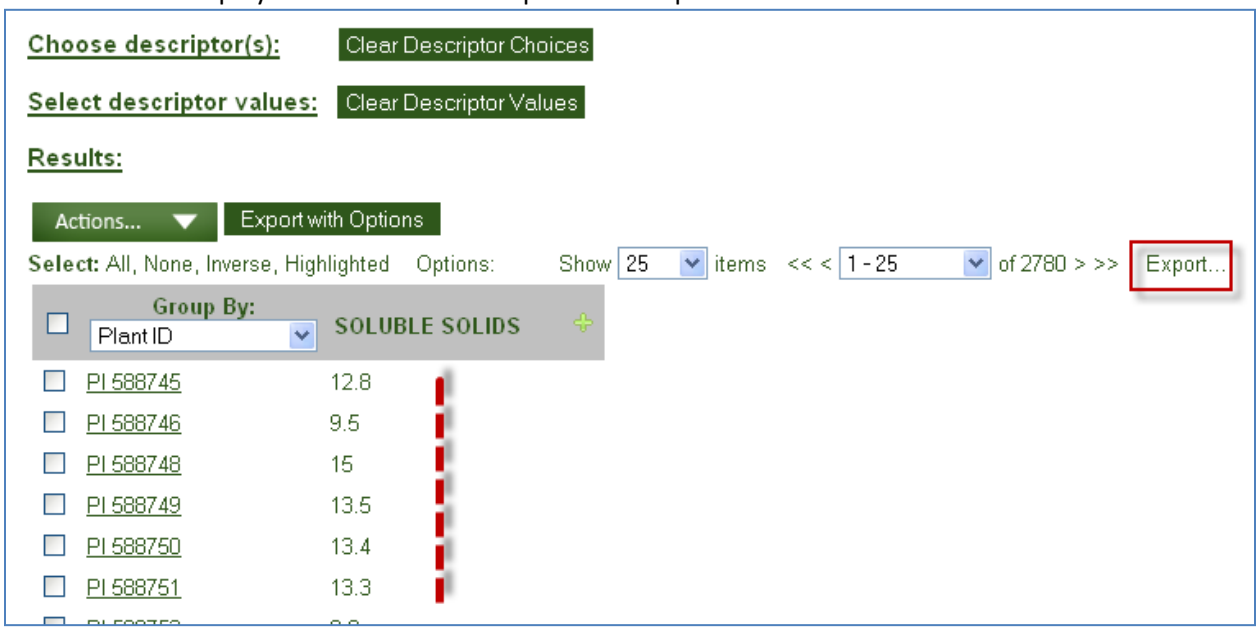
When using criteria boxes, you can select multiple criteria:



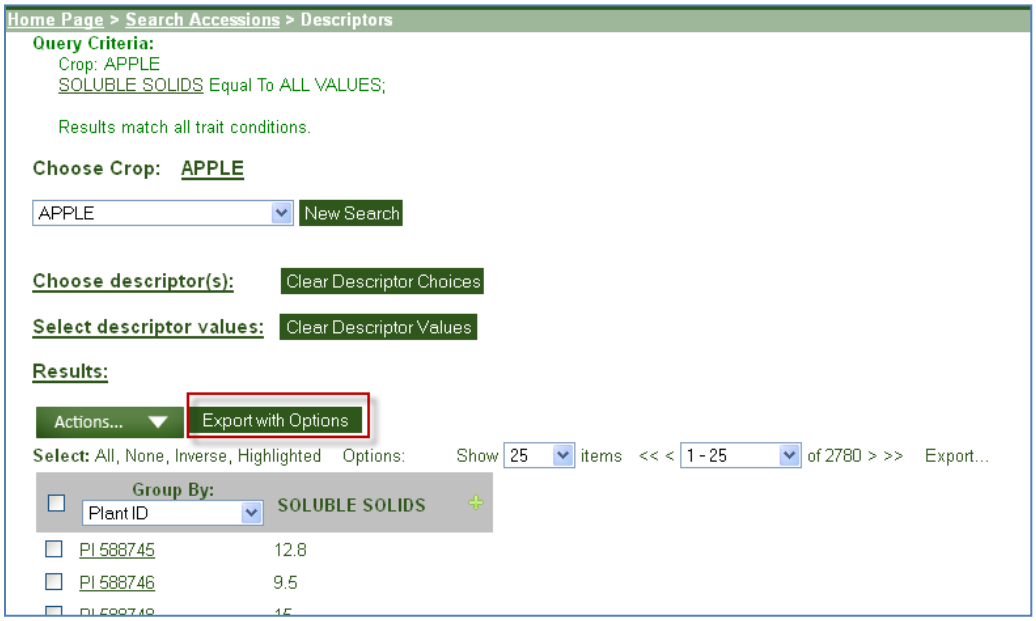
Click **Search** to continue:



The results are displayed and can also be exported to a spreadsheet:

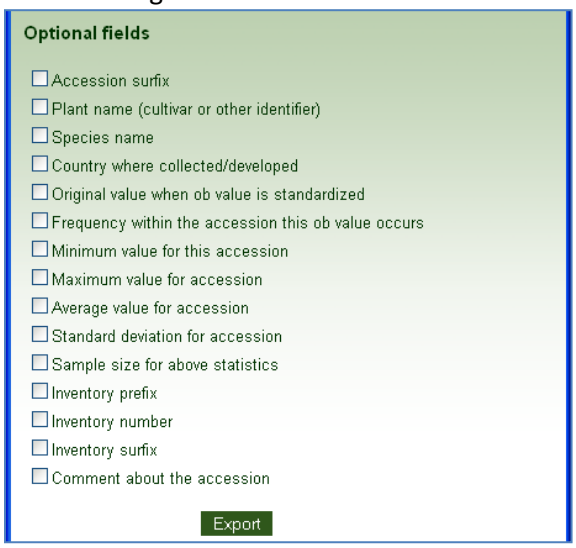


The **Export with Options** feature provides additional data columns which can be selected to include in the export:

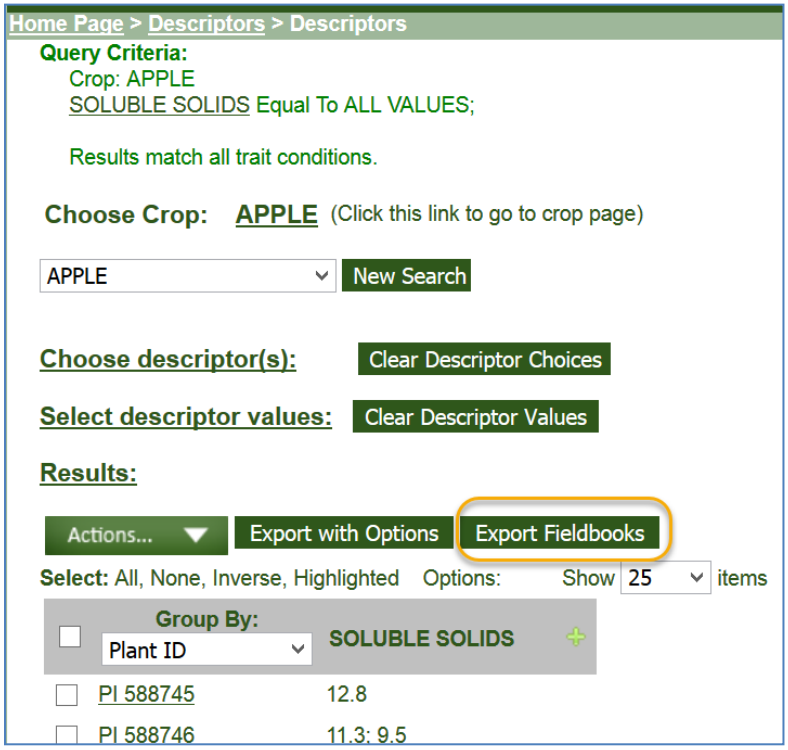


Export with Options

The following window lists the additional columns that can be exported:

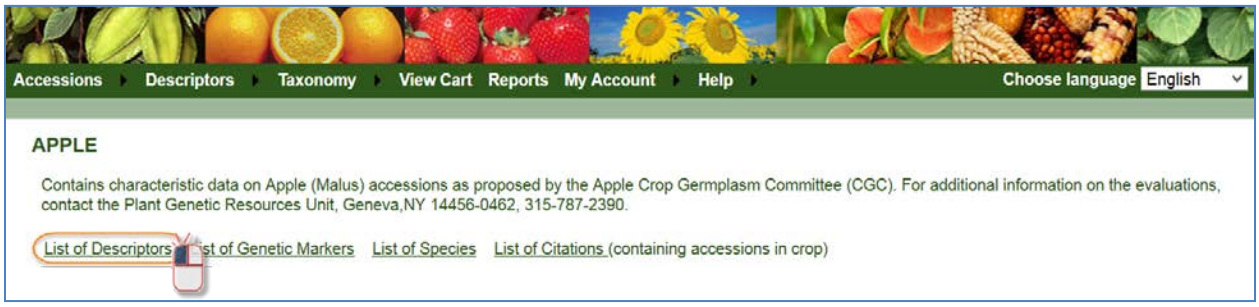


There is an additional feature available only to genebank staff who have their Public Website Username attached to their Curator Tool account – on this window they will see an **Export Fieldbooks** button.

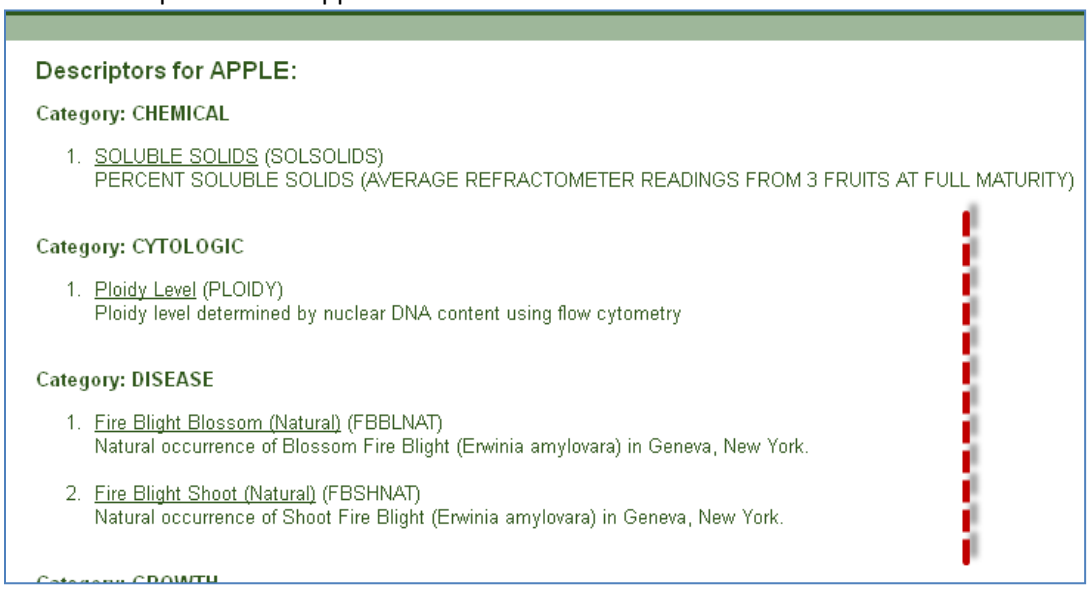


Displaying CROP Descriptors, species, and other Information

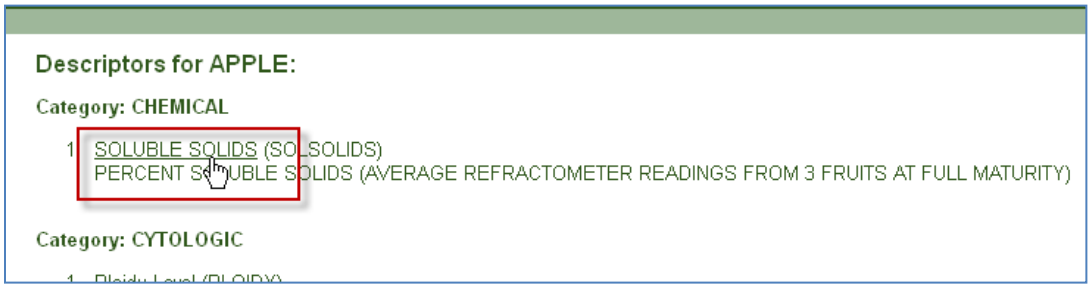
Use the link on the **Crop** name to access additional lists.

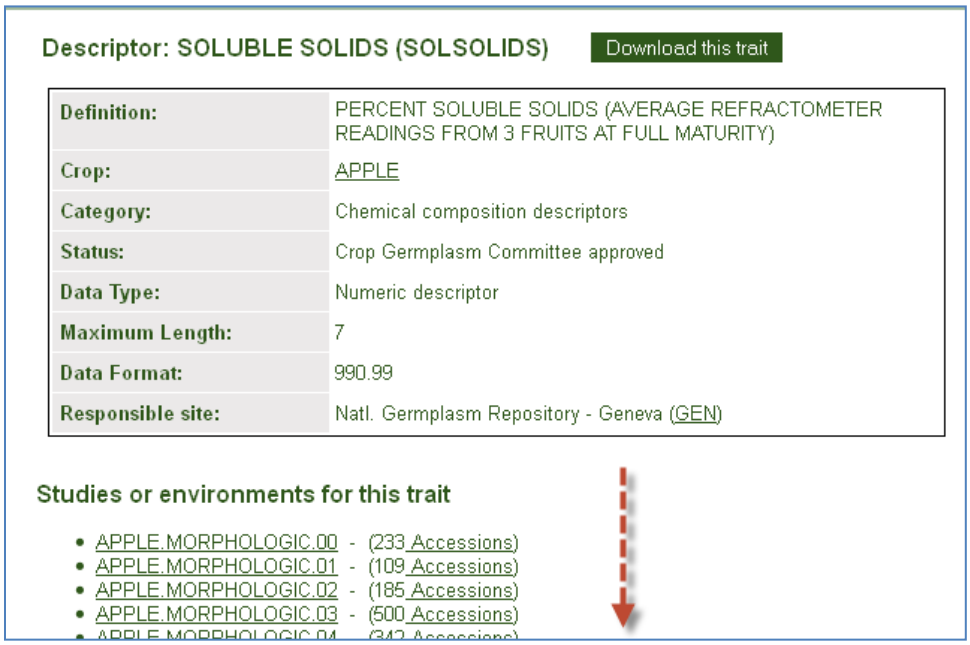


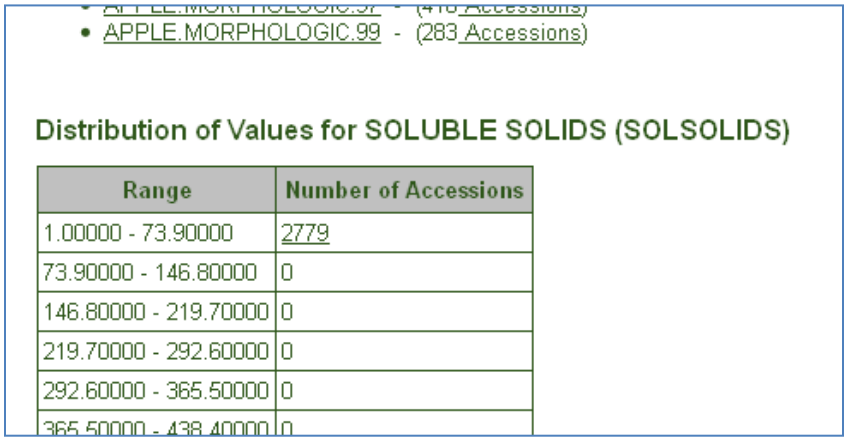
Partial Descriptor List for Apples:



Click on any descriptor link to list the descriptor details, studies, and distributions of values for the selected trait:







The Crop "Family" of Dataviews - Overview

There are five crop-related dataviews that need to be considered when setting up the crops and crop traits for your organization *before Observations can be recorded*.

The following illustrates the general flow in inputting the data in the crop-related dataviews – this flow should be followed in establishing any new crop trait:

Step	Input Data for the...	Dataview to use
1	Crop	Crop
2	Trait	Crop Trait Crop Trait Lang
3	Code	Crop Trait Code Crop Trait Code Lang

If you don't have the crop defined in the Crop dataview, you cannot input any of the traits related to the crop. Similarly, before you can create the codes for a trait, you must define the traits first.

Conversely, you cannot delete a crop from the **Crop** table if it has traits associated to it. Similarly, traits cannot be removed from the **Crop Trait** dataview unless all of the dependent data in the children dataviews has been removed first.

Crop

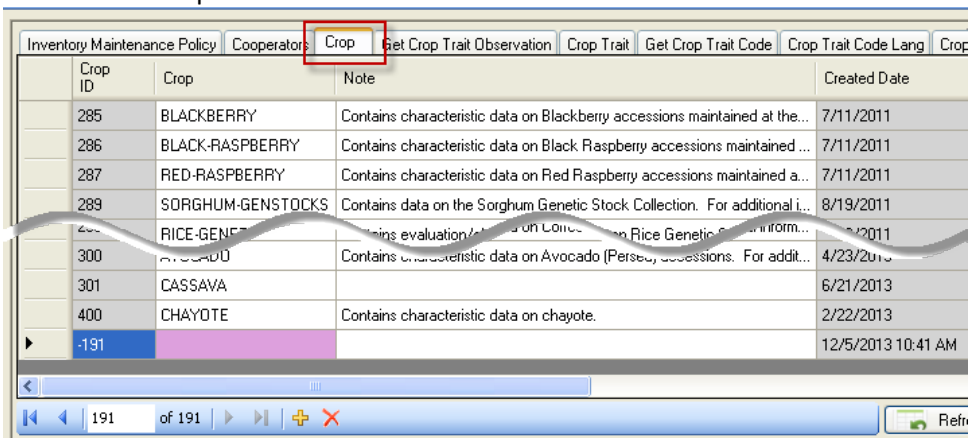
The hierarchy of the observation tables begins with the Crop table. Historically in the GRIN system, the Crop data table was not necessarily set up to be taxonomy specific, since the expectation was that the public users would be more familiar with common rather than taxonomic names.

Crop Dataview

Two fields in this dataview can be inputted:

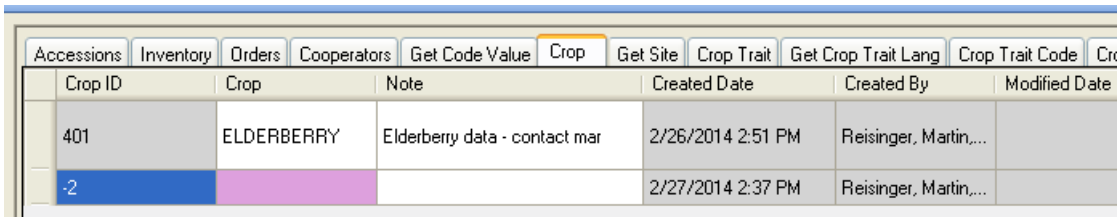
- **Crop** (required)
- **Note**

The note for each crop provides some general details about who is responsible for maintaining the crop descriptors or where additional information can be found. In setting up crop characterization and evaluation descriptor:



For this document I created an ELDERBERRY crop and then created supporting descriptor records to illustrate the family of Crop dataviews. If the example seems to not be botanically sound, it probably isn't!

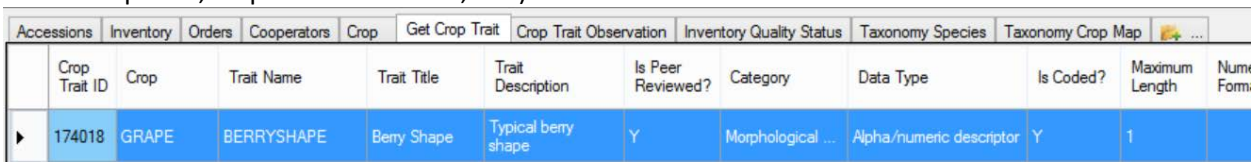
--Marty Reisinger



Crop Trait

Crop Trait Dataview

This dataview accesses the descriptor table for the crop or descriptor set. It includes both characterization (plant height, oil content, days to flower, etc.) and evaluation parameters (resistance to an insect species, response to fertilizer, etc.)

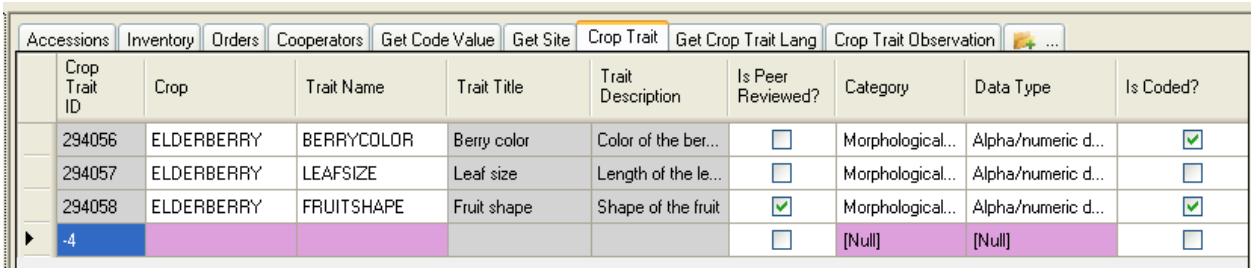


Accessions | Inventory | Orders | Cooperators | Crop | Get Crop Trait | Crop Trait Observation | Inventory Quality Status | Taxonomy Species | Taxonomy Crop Map

Crop Trait ID	Crop	Trait Name	Trait Title	Trait Description	Is Peer Reviewed?	Category	Data Type	Is Coded?	Maximum Length	Nume Forma
174018	GRAPE	BERRYSHAPE	Berry Shape	Typical berry shape	Y	Morphological ...	Alpha/numeric descriptor	Y	1	

Required fields:

- Crop
- Trait Name
- Category
- Data Type

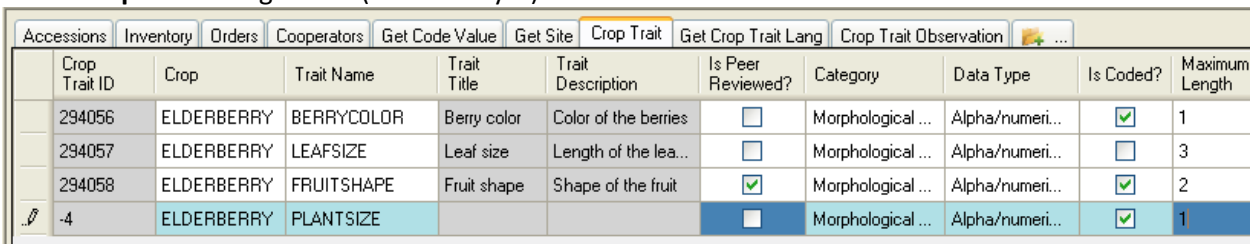


Accessions | Inventory | Orders | Cooperators | Get Code Value | Get Site | Crop Trait | Get Crop Trait Lang | Crop Trait Observation

Crop Trait ID	Crop	Trait Name	Trait Title	Trait Description	Is Peer Reviewed?	Category	Data Type	Is Coded?
294056	ELDERBERRY	BERRYCOLOR	Berry color	Color of the ber...	☐	Morphological...	Alpha/numeric d...	☑
294057	ELDERBERRY	LEAFSIZE	Leaf size	Length of the le...	☐	Morphological...	Alpha/numeric d...	☐
294058	ELDERBERRY	FRUITSHAPE	Fruit shape	Shape of the fruit	☑	Morphological...	Alpha/numeric d...	☑
-4					☐	[Null]	[Null]	☐

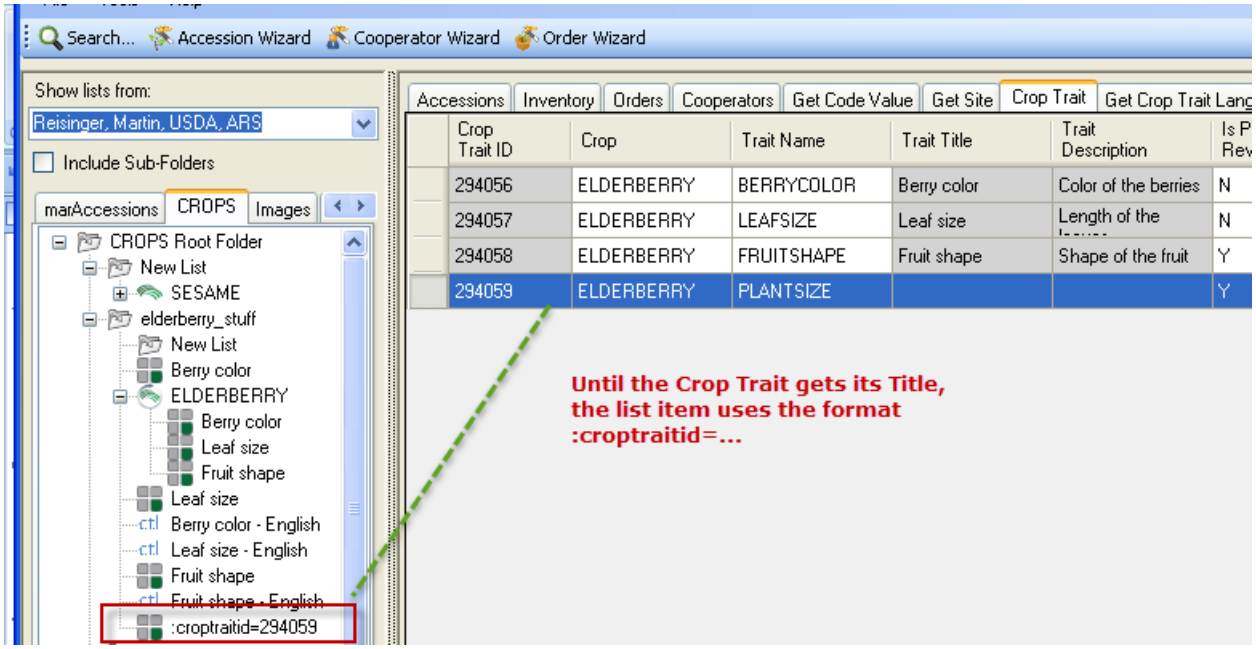
The read-only fields, **Trait Title** and **Trait Description,** will be supplied after a corresponding **Crop Trait Language** record has been completed.

A new **Crop Trait** being added (not saved yet):

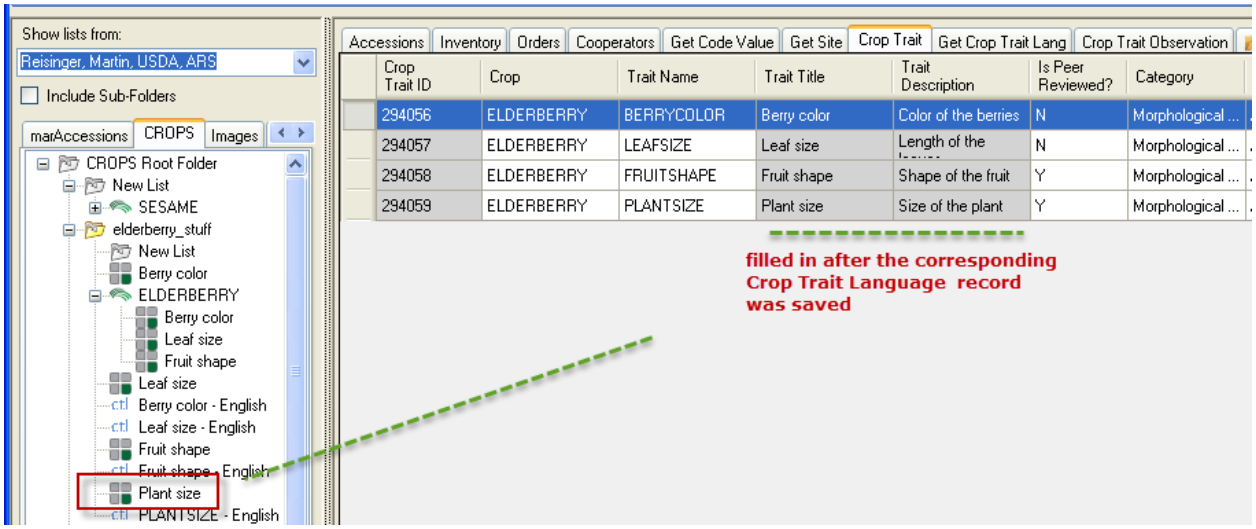


Accessions | Inventory | Orders | Cooperators | Get Code Value | Get Site | Crop Trait | Get Crop Trait Lang | Crop Trait Observation

Crop Trait ID	Crop	Trait Name	Trait Title	Trait Description	Is Peer Reviewed?	Category	Data Type	Is Coded?	Maximum Length
294056	ELDERBERRY	BERRYCOLOR	Berry color	Color of the berries	☐	Morphological ...	Alpha/numeri...	☑	1
294057	ELDERBERRY	LEAFSIZE	Leaf size	Length of the lea...	☐	Morphological ...	Alpha/numeri...	☐	3
294058	ELDERBERRY	FRUITSHAPE	Fruit shape	Shape of the fruit	☑	Morphological ...	Alpha/numeri...	☑	2
-4	ELDERBERRY	PLANTSIZE			☐	Morphological ...	Alpha/numeri...	☑	1



Later:

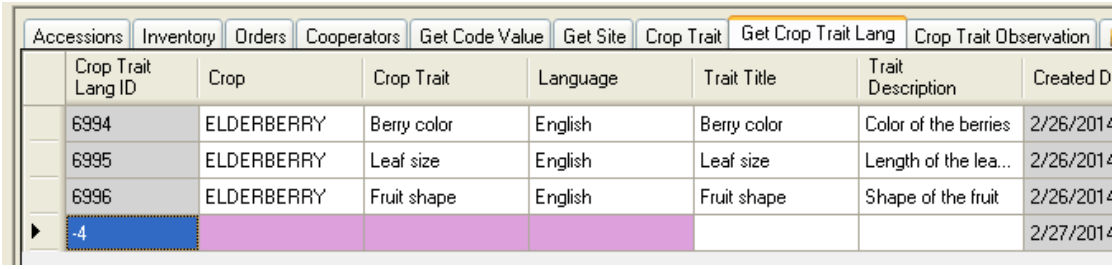


The **Trait Title** and the **Trait Description** fields are displayed now because the corresponding **Crop Trait Language** record had been saved.

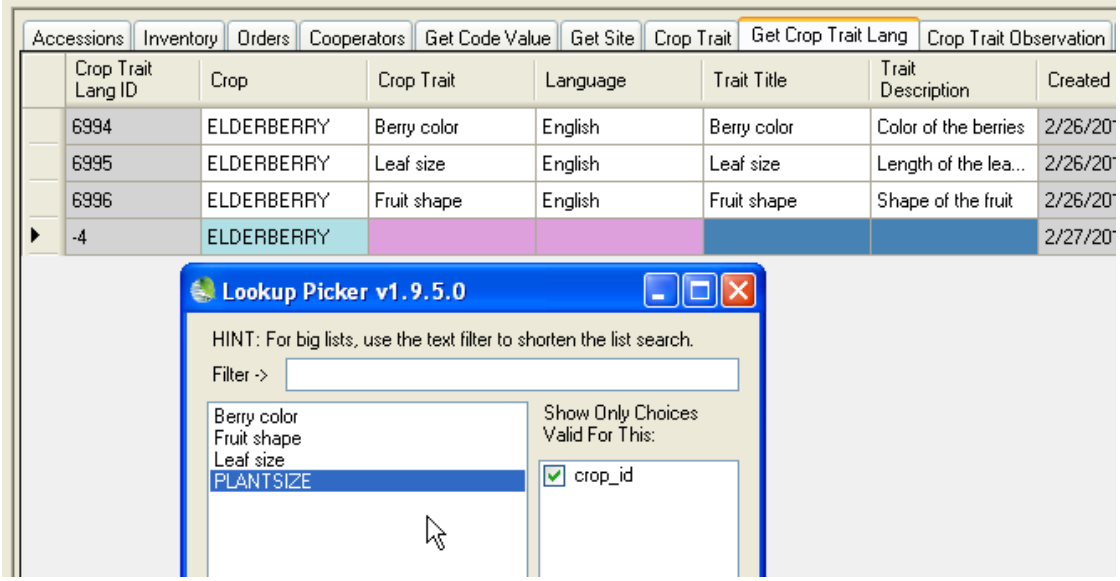
Crop Trait Language Dataview

The **Crop Trait Language** dataview has three required fields:

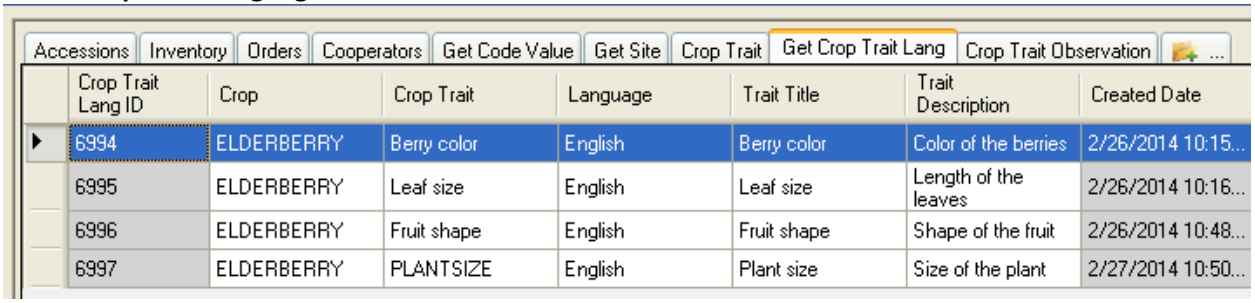
- Crop
- Crop Trait
- Language



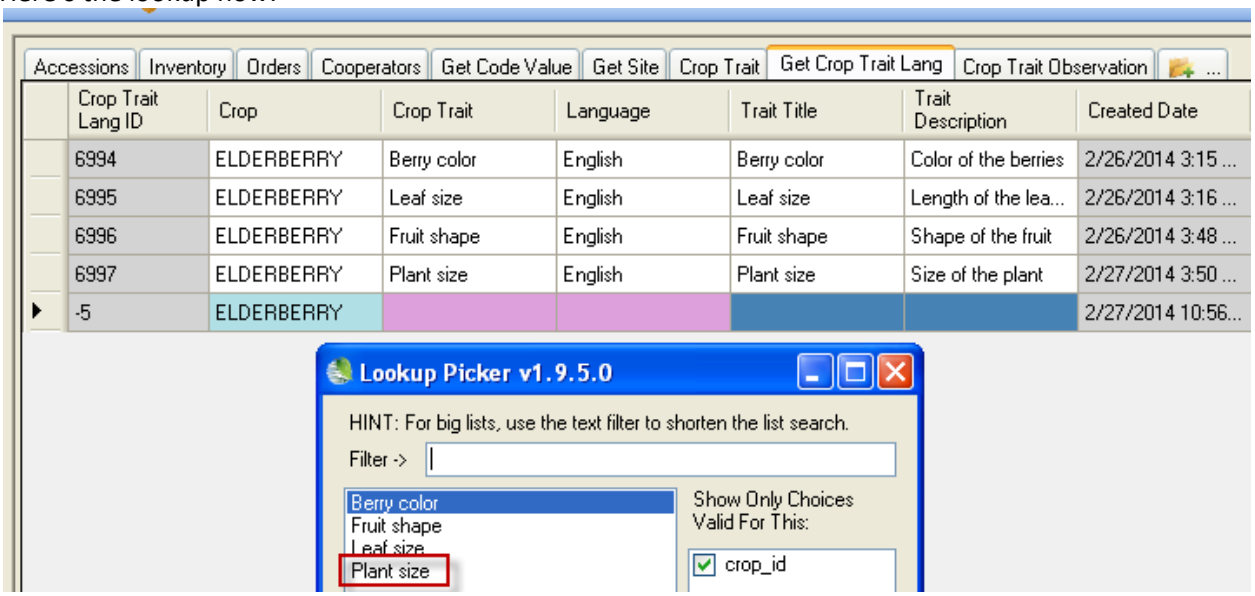
Notice in the following screen, the **Trait Name** is displayed in the lookup list. After the **Trait Title** is entered and the **Crop Trait Language** record saved, the **Trait Title** will display in future lookups.



A new **Crop Trait Language** record:



Here's the lookup now:



Crop Trait Code

Crop Trait Code Dataview

Table of the list of acceptable code values for the crop descriptors.

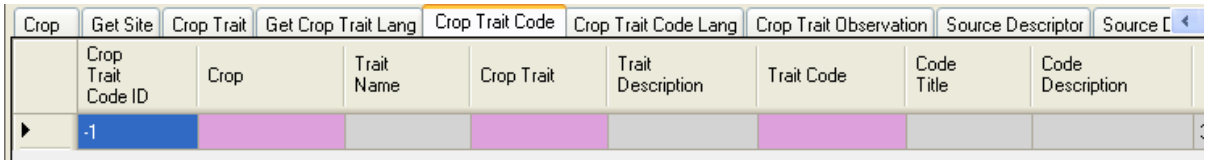
In the example above, **Plant size** was set up here as a coded field. (In the "real world," some organizations may simply record the actual height measurement for the Plant Size trait. Nevertheless, for this example, we will establish this trait as a coded field to illustrate what is needed when setting up a coded field.)

When adding a code via the **Crop Trait Code** dataview, three fields are to be supplied – all three are required:

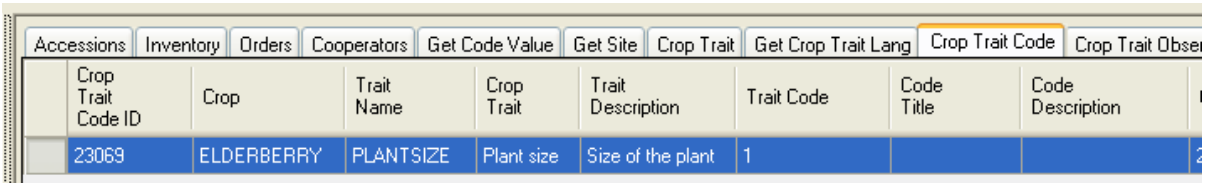
- Crop
- Crop Trait
- Trait Code

The **Crop** and **Crop Trait** fields use lookups to have their entries selected; the actual code is inputted in the **Trait Code** field. The read-only fields **Trait Name** and **Trait Description** will be automatically filled after the save.

Before:



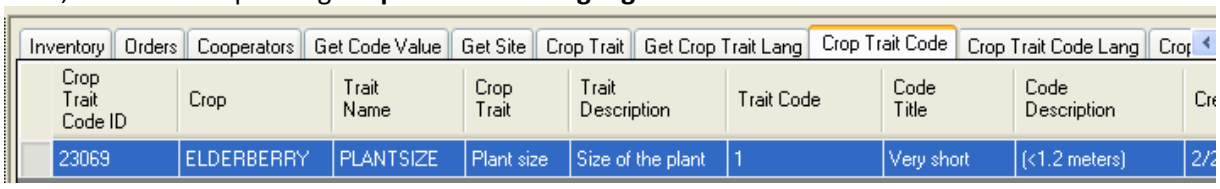
After the Save:



The **Code Title** and **Code Description** fields are also "read-only;" they will be filled *after* a corresponding **Crop Trait Code Language** record has been created.

In Edit mode, use **Ctrl – N** to create additional records below the one new record; and add any additional Trait Codes that will be used.

Later, after a corresponding **Crop Trait Code Language** record was saved:



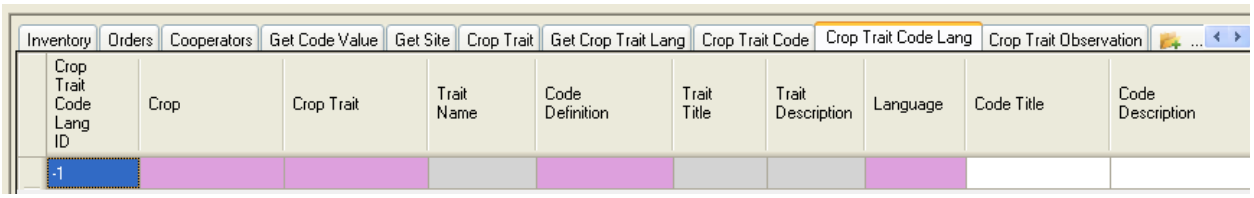
Crop Trait Code Language Dataview

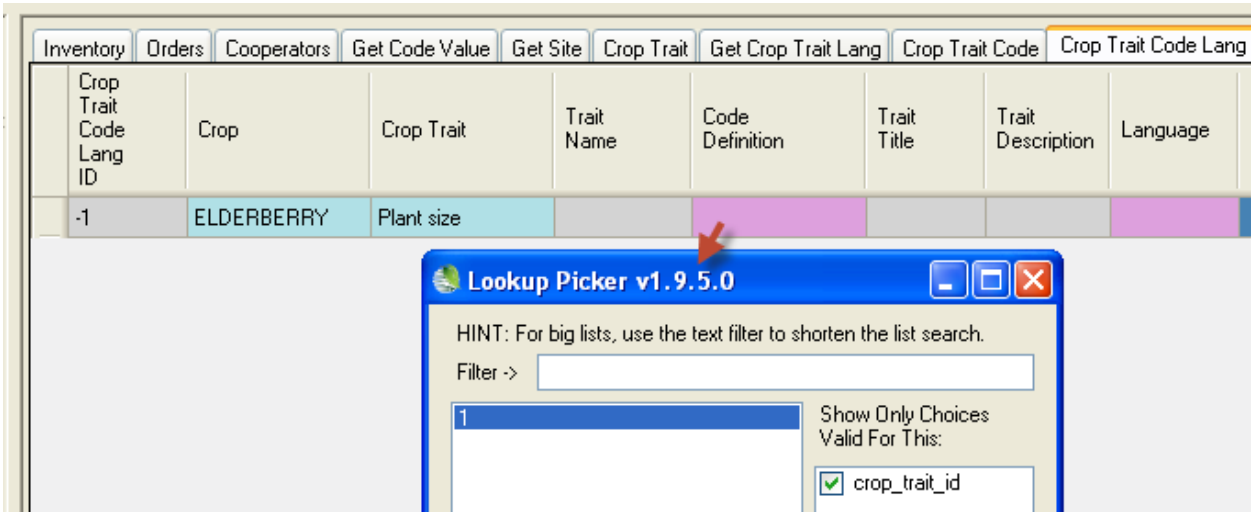
The **Crop Trait Code Language** record is used to assign a **Code Title** and **Code Description** to a **Crop Trait Code** record. Six fields can be supplied (while not shown in the violet color and technically not required fields, why else would you create this record if you were not supplying at least the **Code Title** field?)

Required fields:

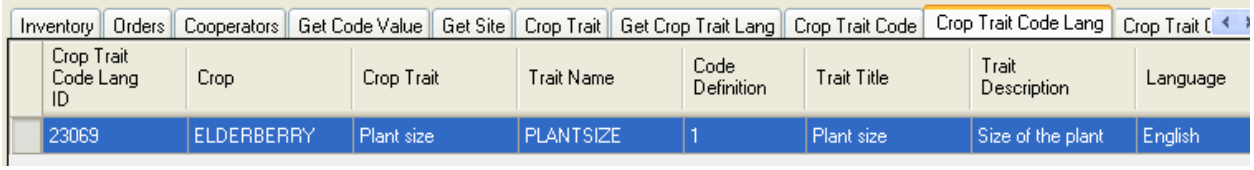
- Crop
- Crop Trait
- Code Definition
- Language

Before:

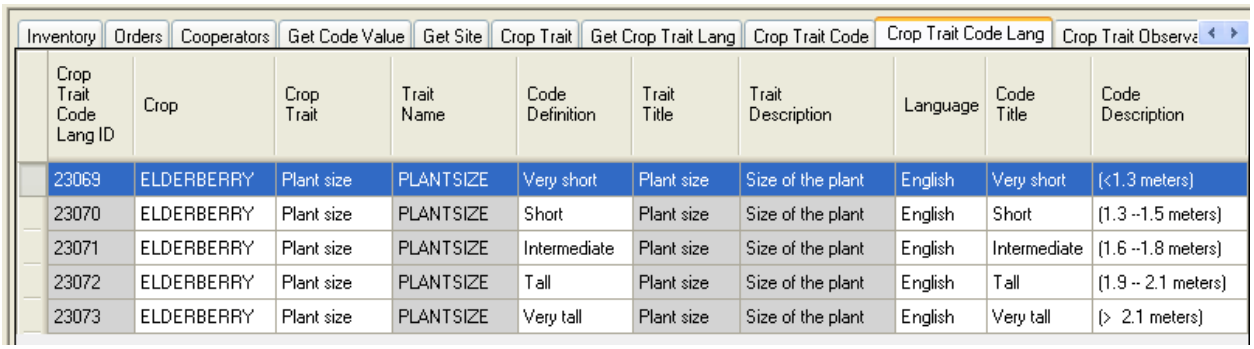




After:

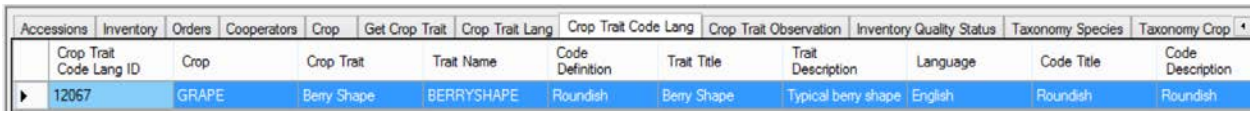


Shown here are the **Crop Trait Code Language** records for all five codes designed for the "Plant size" **Crop Trait** for the ELDERBERRY crop:



Inventory | Orders | Cooperators | Get Code Value | Get Site | Crop Trait | Get Crop Trait Lang | Crop Trait Code | Crop Trait Code Lang | Crop Trait Observa

Crop Trait Code Lang ID	Crop	Crop Trait	Trait Name	Code Definition	Trait Title	Trait Description	Language	Code Title	Code Description
23069	ELDERBERRY	Plant size	PLANTSIZE	Very short	Plant size	Size of the plant	English	Very short	(<1.3 meters)
23070	ELDERBERRY	Plant size	PLANTSIZE	Short	Plant size	Size of the plant	English	Short	(1.3 --1.5 meters)
23071	ELDERBERRY	Plant size	PLANTSIZE	Intermediate	Plant size	Size of the plant	English	Intermediate	(1.6 --1.8 meters)
23072	ELDERBERRY	Plant size	PLANTSIZE	Tall	Plant size	Size of the plant	English	Tall	(1.9 -- 2.1 meters)
23073	ELDERBERRY	Plant size	PLANTSIZE	Very tall	Plant size	Size of the plant	English	Very tall	(> 2.1 meters)



Accessions | Inventory | Orders | Cooperators | Crop | Get Crop Trait | Crop Trait Lang | Crop Trait Code Lang | Crop Trait Observation | Inventory Quality Status | Taxonomy Species | Taxonomy Crop

Crop Trait Code Lang ID	Crop	Crop Trait	Trait Name	Code Definition	Trait Title	Trait Description	Language	Code Title	Code Description
12067	GRAPE	Berry Shape	BERRYSHAPE	Roundish	Berry Shape	Typical berry shape	English	Roundish	Roundish

Appendix: Changes in this Document

October 21, 2015

- reviewed document and replaced outdated screens

February 23, 2015

- added extensive overviewed
- replaced Observations screens which have been modified
- replaced PW pages to include Descriptors option on the menu