

# About the Widespread Malus compilation of USDA *Malus sieversii* data

November 16, 2015

## Introduction

Widespread Malus has compiled data on the USDA collection of *Malus sieversii* that might be useful in selecting accessions (scions or budwood) to request from USDA. We are collecting a 'core diversity collection' from the USDA collection that is especially diverse. Our goals are to make this diversity available to others, to grow out large number of open-pollinated seedlings, and make deliberate crosses with hand pollination in pursuit of useful new apple cultivars.

USDA's *Malus sieversii* collection has enormous genetic diversity, and could serve as a useful reservoir of genes for use in breeding projects. There is already work being done in academia and by small numbers of nursery professionals and/or hobbyists.

We are hopeful that others can use this data compilation in their own work.

The data have been compiled into a Microsoft Excel format as well as Open Document Spreadsheet format (which may be opened by freely-available Open Office or its descendents). We may also make some data available in other formats. Inquiries regarding how to use the data are welcome.

We are responsible for any data-processing errors in this document, but we are not responsible for any requests you may make from USDA. We recommend that you cross-check your request with the GRIN database itself, and with the USDA Apple Catalog to ensure you are requesting what you expect. Search the GRIN database at:

<http://www.ars-grin.gov/npgs/searchgrin.html>

Download USDA's Apple Catalog from the link in the next section.

## Requesting material from USDA

**Please consider carefully your ability to make use of any material you request from USDA.**

USDA personnel do an amazing job of maintaining this collection (and many others), often with limited resources. If you are not sure you can use what you are considering requesting, perhaps a request for this material isn't the best use of your (or their) time.

USDA's cutoff date for scion wood requests is January 10th (for shipment by March 20th). To request scion wood, you should download the USDA Apple Catalog, at:

<http://www.ars.usda.gov/services/software/software.htm?modecode=80-60-05-00>

There is a request form at the front of the catalog, which is in Adobe Acrobat (PDF) format.

We had a bit of difficulty locating rootstock last month for March 2016 delivery, and recommend that you order ASAP if you have not yet done so. We ordered this year from Willamette Nursery and CopenHaven Farms (we received excellent rootstocks from Willamette in the past, and are ordering from CopenHaven for the first time this year, but are not recommending any particular nursery in this document).

In addition to requesting scion wood from USDA, you may wish to consider growing open-pollinated seedlings of *Malus sieversii* trees in the collection. If so, request "100 Open-Pollinated *Malus sieversii* seeds" on the order form. Requests for these seeds are typically filled with 25 seeds from each of four mother trees. If you are interested in cooperating with others to diversify the seeds you grow, please let us know. For example, we may be able to share seeds among several people so that instead of 25 seeds from each of four mother trees, each person ends up with 5 seeds from each of 20 mother trees. Pollen parents for these seeds are not known.

## How the data compilation is organized

Not all USDA records for *Malus sieversii* are in the compilation. Both the USDA Apple Catalog and the GRIN page for each accession were examined. (see the **BLUE-LETTERED** columns below. Y = available, N = not available, blank = no data) If the accession was in the GRIN database, but wasn't indicated as AVAILABLE in the apple catalog or the accession's GRIN page, it was not included. Some accessions were available as seeds and are available only for academic research; these were not included, either. Some accessions are listed in the GRIN page as "check regarding availability" -- these are indicated with an M for maybe.

Note that the Apple Catalog and the GRIN page availability information may conflict. This is most likely due to GMAL accessions not being in the permanent catalog, and many/most of these GMAL accessions will be cut down during Winter 2015/2016 to make room for additional trees in the permanent collection. If you are interested in a GMAL accession that is not listed as being in the apple catalog, you should request it this year. We have inquired to make sure that trees have not yet been cut, but haven't heard back by time of publication.

Apples that may be available from Widespread Malus are indicated in the **RED-LETTERED** column. However, quantities are extremely limited this year as we have barely begun our collection.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
1	PRIMARY ID	SECONDARY ID	DIVERSITY CORE SETS MEMBER	WIDESPREAD MALUS HAS NOV2015	CAT AUG2015	GRIN FILE NOV2015	MAX SOLUBLE SOLIDS PCT aka BRIX	OBSERVED ASTRINGENT FLAVOR	OBSERVED ACID FLAVOR	OBSERVED SUBACID FLAVOR	OBSERVED SWEET FLAVOR	OBSERVED AROMATIC FLAVOR	FRUITVOL CUBIC cm ELLIPSOID	DIAMETER inches IF SPHERICAL	FIREBLIGHT RESISTANCE	SCAB RESISTANCE	FRUIT JUICINESS GRIN	HARYSEASON GRIN
2	GMAL 3530.W						-9						-9	-9				
3	GMAL 3530.Z						-9						-9	-9				
4	GMAL 3532.X						-9						-9	-9				
5	GMAL 3536.B						-9						-9	-9				
6	GMAL 3536.F						11.4				X		57	1.9		1=V. DRY < .75	3=EARLY 30-50 DAY	
7	GMAL 3536.P						-9						-9	-9				
8	GMAL 3538.A						11.6			X			30	1.5		4=MOD. JUICY .86 - .90	3=EARLY 30-50 DAY	
9	GMAL 3539.P						-9						-9	-9				
10	GMAL 3539.U						-9						-9	-9				
11	GMAL 3541.E						-9						-9	-9				
12	GMAL 3544.B						-9						-9	-9				
13	<b>GMAL 3544.J</b>		x	Y			-9						-9	-9				
14	GMAL 3544.K						10.4		X				13	1.2		2=DRY .76 - .80	3=EARLY 30-50 DAY	
15	GMAL 3544.N						10.2			X			17	1.2		3=MEDIUM .81 - .85	3=EARLY 30-50 DAY	
16	GMAL 3547.N						10.2		X				42	1.7		1=V. DRY < .75	4=MED-EARLY 20-31	
17	GMAL 3549.N						6.8			X			16	1.2		2=DRY .76 - .80	3=EARLY 30-50 DAY	
18	GMAL 3552.C						10.2		X				26	1.4		2=DRY .76 - .80	4=MED-EARLY 20-31	
19	<b>GMAL 3552.V</b>		x				<b>9.8</b>	X					21	1.3		<b>3=MEDIUM .81 - .85</b>	<b>2=V. EARLY 50-60</b>	
20	GMAL 3554.AL						12.4	X					40	1.7		2=DRY .76 - .80	3=EARLY 30-50 DAY	

The spreadsheet document has multiple "tabs" shown along the bottom. The first two, FULL SET BY PRIMARY ID and FULL SET BY BRIX contain all the records in the data set. Several other tabs (PARTIAL SET -- FB RESISTANCE, PARTIAL SET -- SCAB RESISTANCE, PARTIAL -- ASTRIN. & BRIX>=11.5, and DIVERSITY CORE SETS) include only the relevant records. Two other tabs include descriptions of what data is in each column and references used in compiling this data set.

## Using the data compilation to find trees of interest

1. If you are interested in helping Widespread Malus build out diversity core set collections, you may want to request accessions from the DIVERSITY CORE SETS tab that we have not yet acquired. We may request scions of these accessions from you in the future, and of course you may request accessions from us. **Would you like to coordinate requests for this material this year? Let us know ... perhaps several requests can be coordinated to maximize the diversity of scions received.**
2. If you have other interests, we have provided several subsets of this data ... for fireblight resistance, scab resistance, and astringent flavor with high BRIX. However, you can sort the data yourself if you are familiar with spreadsheet software.
3. **Are you willing to share scionwood or budwood with us or others?** You are under no obligation to do so by using this compilation, but if you are willing, we'd love to know about it. **Please let us know what you are requesting so that we know about it.**

4. **If you need assistance sorting through the data**, you're welcome to contact us. We are not plant breeders, nursery professionals or biologists, but we're happy to make suggestions if you'd like, based on the information in the data compilation.

## Ongoing cooperation/partnership with Widespread Malus?

We welcome your interest in the genetic treasure that wild *Malus sieversii* represents. We all owe a great debt to USDA for making this material available, and to Central Asian nations who made it possible for USDA to acquire these trees.

We are promoting apple-growing more generally in the Boulder, Colorado area. We are also interested in cider making, providing educational opportunities regarding apples, and promoting native pollinator conservation through our orchard projects.

We hope you'll keep up with our work at [widespreadmalus.com](http://widespreadmalus.com) or via Twitter (@widespreadmalus). Contact us by email at the addresses on the web site.