



GENOME DATABASE FOR VACCINIUM

Genomics, genetics, and breeding resources for blueberry, cranberry, bilberry, and lingonberry research

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What's new in GDV?

Tool Improvements

- MapViewer updated to display GWAS and adjust colors
- MegaSearch updated to query GWAS, search records with empty fields
- Gene annotation template and loader created
- Links to [Fruit and Nut Cultivars Database](#)
- Ortholog page added to gene/mRNA pages

Outreach

- [Marker Search Video Tutorial](#) (2.39 mins)
- [Genetic Map and Genome Correspondence Video Tutorial](#) (2.47 mins)

New Data

- Blueberry Crop Ontology in BIMS and searchable in GDV

Viewing traits and descriptors

We curate the trait and trait descriptors from QTL and phenotype data. The curation process links all the similar traits together under a unified ontology and provides easy access to all the data associated with that trait (QTL, Phenotype Data, Publications). There are multiple ways to view the trait information. We have already covered the QTL Search in a [video](#) on our YouTube channel so let's focus on the other ways to explore traits and trait descriptors.

The first is from the Data menu, Data → Trait Abbreviations. This opens an expandable interface with a list of all the trait categories. The second is from the Search Menu, Search → Trait Search.

This search allows for filtering by keyword or trait category and the data can be downloaded in a table format. Click on a category to see all the traits. Trait Descriptors for phenotypic data are also stored and searched using Search → Trait Descriptor Search. You can also download the results in a table format.

All of these trait and trait descriptor searches have hyperlinks to the Trait Overview page which allows for easy access to all the QTLs and manuscripts associated with the trait. The Descriptor Overview has links to datasets and germplasm associated with the descriptor.

Links to all associated QTLs and publications

Trait Search

Category:

Keyword:

89 records were returned

#	Category	Abbreviation	Trait	Definition
1	biochemical trait	AGC	Syringetin 3-glucoside content	Measurement of syringetin 3-glucoside content
2	biochemical trait	CAC	Caffeic acid content	Measurement of caffeic acid content
3	biochemical trait	CC	Catechin content	Measurement of catechin content
4	biochemical trait	CHAC	Chlorogenic acid content	Measurement of chlorogenic acid content
5	biochemical trait	CITAC	Citric acid content	Measurement of citric acid content
6	biochemical trait	CYAC	Cyanidin arabinoside content	Measurement of cyanidin arabinoside content
7	biochemical trait	CYAGAC	Cyanidin 3-(6-acetyl)galactoside content	Measurement of cyanidin 3-(6-acetyl)galactoside content

- Trait Overview
- Descriptors
- QTLs/MTLs
- Dataset
- Publications

Trait Overview

Trait	Cyanidin arabinoside content
Trait Category	biochemical trait
Abbreviation	CYAC
Definition	Measurement of cyanidin arabinoside
Descriptors	[view all 1]
QTLs	[view all 2]

Add the Blueberry Crop Ontology Descriptors to BIMS program

GDV worked with Breeding Insight to develop a set of blueberry trait descriptors to assist breeders in sharing phenotype data by using a common blueberry trait ontology. These descriptors and associated information are now available on BIMS and can be imported into any breeding program.

The descriptors are also available to search and view under the Trait Descriptor search. Go to the toolbar, Search → Trait Descriptor Search. The select the 'Blueberry Crop Ontology BI BIMS Dec2020' group. You can then retrieve all descriptors and download the table, or further refine the search.

While logged in, open your breeding program

Open Import Data section and click 'Traits'

Descriptor Name	Format	Status	Details	Definition
<input checked="" type="checkbox"/> 50% bloom	numeric	available	view	Number of days from January 1st to 50% bloom
<input checked="" type="checkbox"/> 50% re-bloom	numeric	available	view	Number of days from January 1st to 50% re-bloom
<input checked="" type="checkbox"/> 50% ripe	numeric	available	view	Number of days from January 1 to 50% ripe
<input checked="" type="checkbox"/> 5% ripe	numeric	available	view	Number of days from January 1 to 5% ripe
<input checked="" type="checkbox"/> >75% blue/ripe fruit	numeric	available	view	Day of year (Julian day) when plant reached >75% blue/ripe fruit (75Blue) stage (>50%). Referenced in Rowland, L.J., Ogden, E.L., and Vinyard, B.T. 2020. Phenotypic evaluation of a hybrid diploid blue
<input checked="" type="checkbox"/> 95% ripe	numeric	available	view	Number of days from January 1 to 95% ripe
<input type="checkbox"/> Algal stem blotch	numeric	available	view	Visual observation of disease presence of Algal stem blotch
<input type="checkbox"/> Alternaria fruit rot	numeric	available	view	Visual observation of disease presence of Alternaria fruit rot
<input type="checkbox"/> Anthracnose fruit rot	numeric	available	view	Visual observation of disease presence
<input type="checkbox"/> Aphids	numeric	available	view	Visual observation of insect presence
<input checked="" type="checkbox"/> Average fruit diameter, mm	numeric	available	view	Average diameter (mm) of fruit calculated
<input checked="" type="checkbox"/> Average fruit firmness, measured	numeric	available	view	Average fruit firmness measured from gmm.
<input type="checkbox"/> Average Penetration time	numeric	available	view	Average time needed under fixed p

Then select the trait descriptors you want to import into your program

Then under the Manage Breeding section, the trait descriptors appear in your program for use

Traits

- 50% bloom
- 50% re-bloom
- 50% ripe
- 5% ripe
- >75% blue/ripe fruit
- 95% ripe
- Average fruit diameter, mm
- Average fruit firmness, measured

Click a trait to see the details.

Trait Details

Click [here](#) to go Data Analysis → Statistical Analysis to view stats from multiple datasets.

Name	50% bloom
Alias	N/A
Format	numeric
Attributes	Imported (cannot be edited) Please contact us if you'd like to suggest a change to this trait.
Definition	Number of days from January 1st to 50% bloom
# data points	There is no data associated with this trait
Properties	data_unit = days
Actions	Delete

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