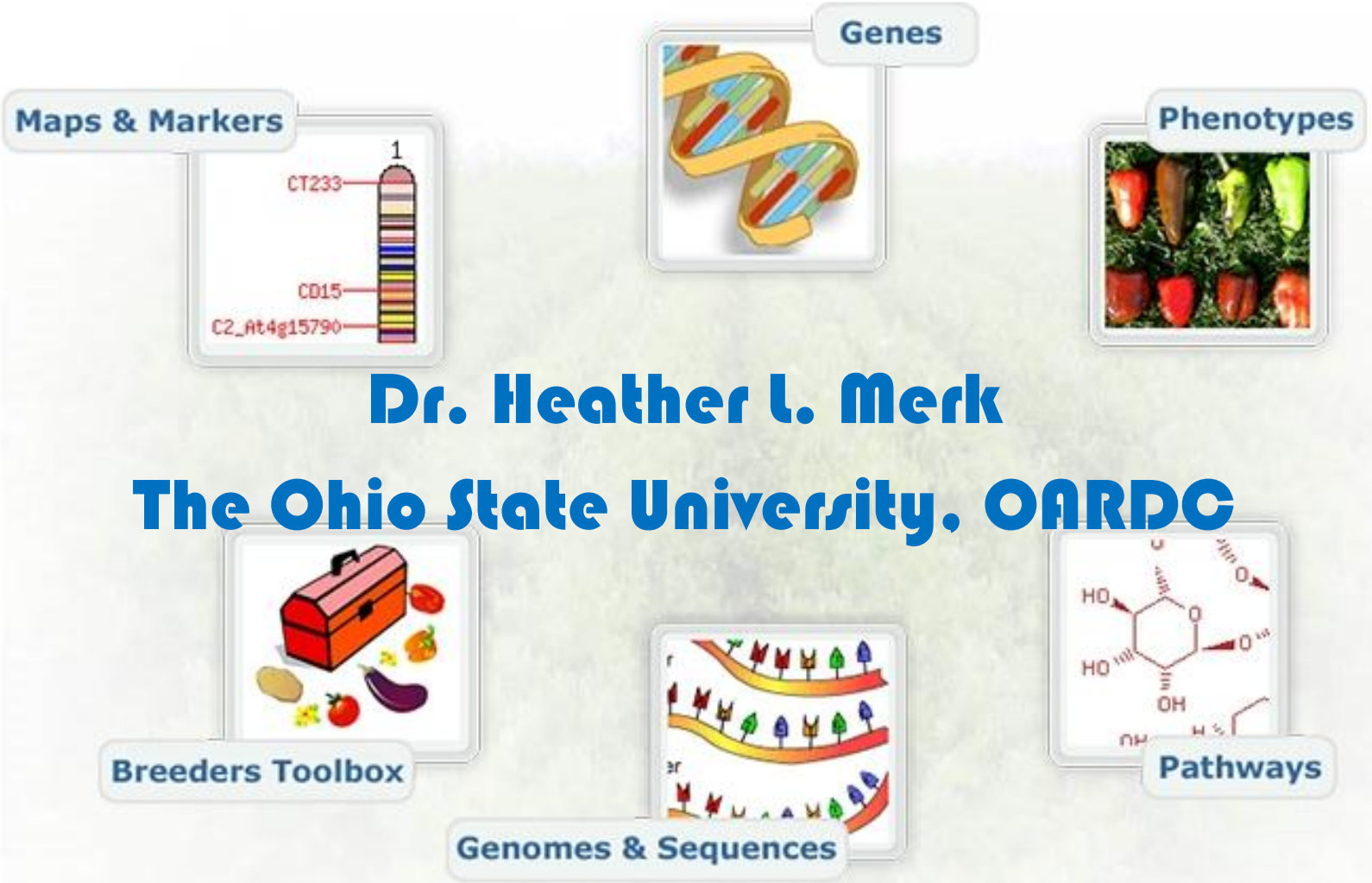
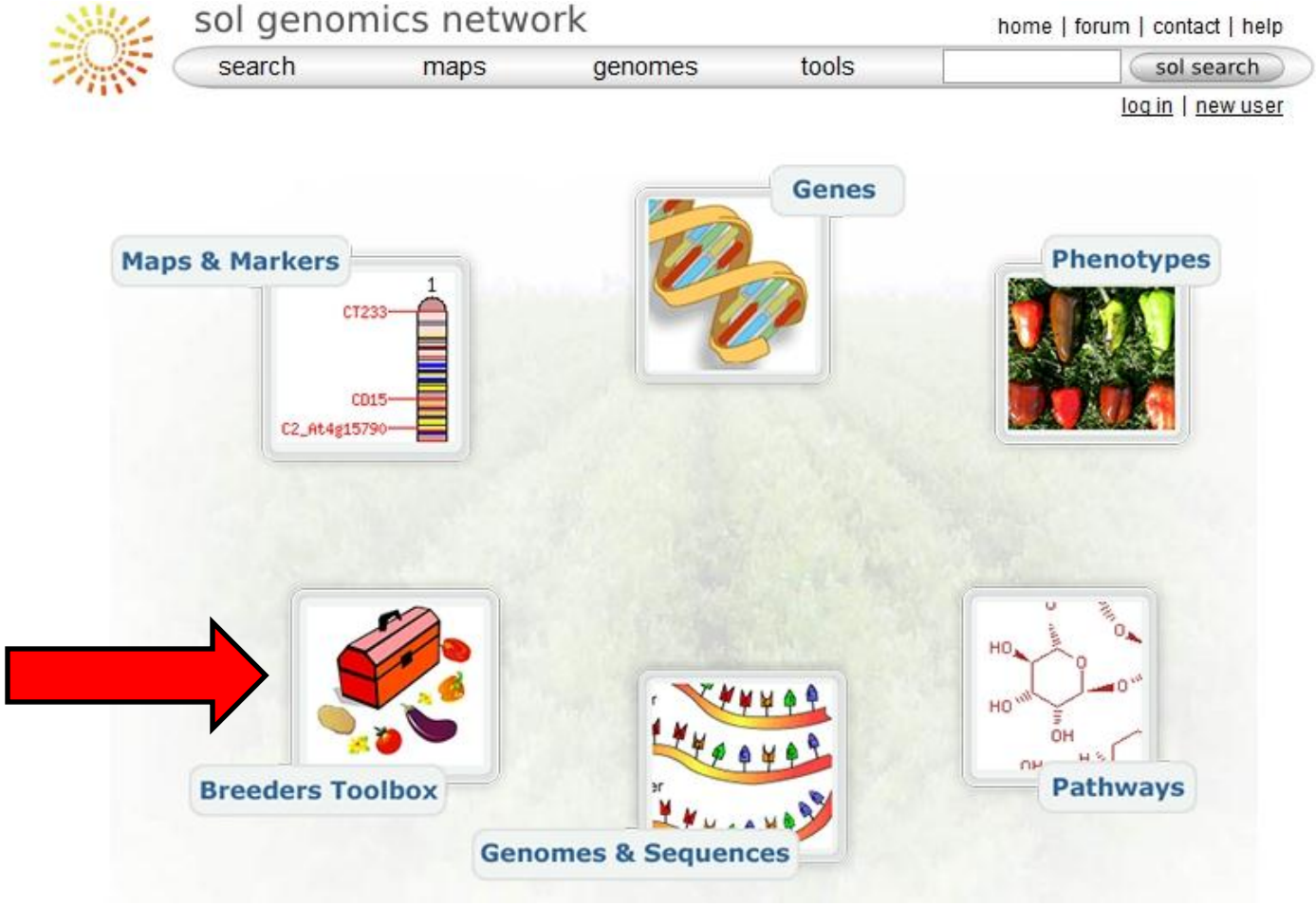
Using the Sol Genomics Network: The Marker Search Tool



Dr. Heather L. Merk

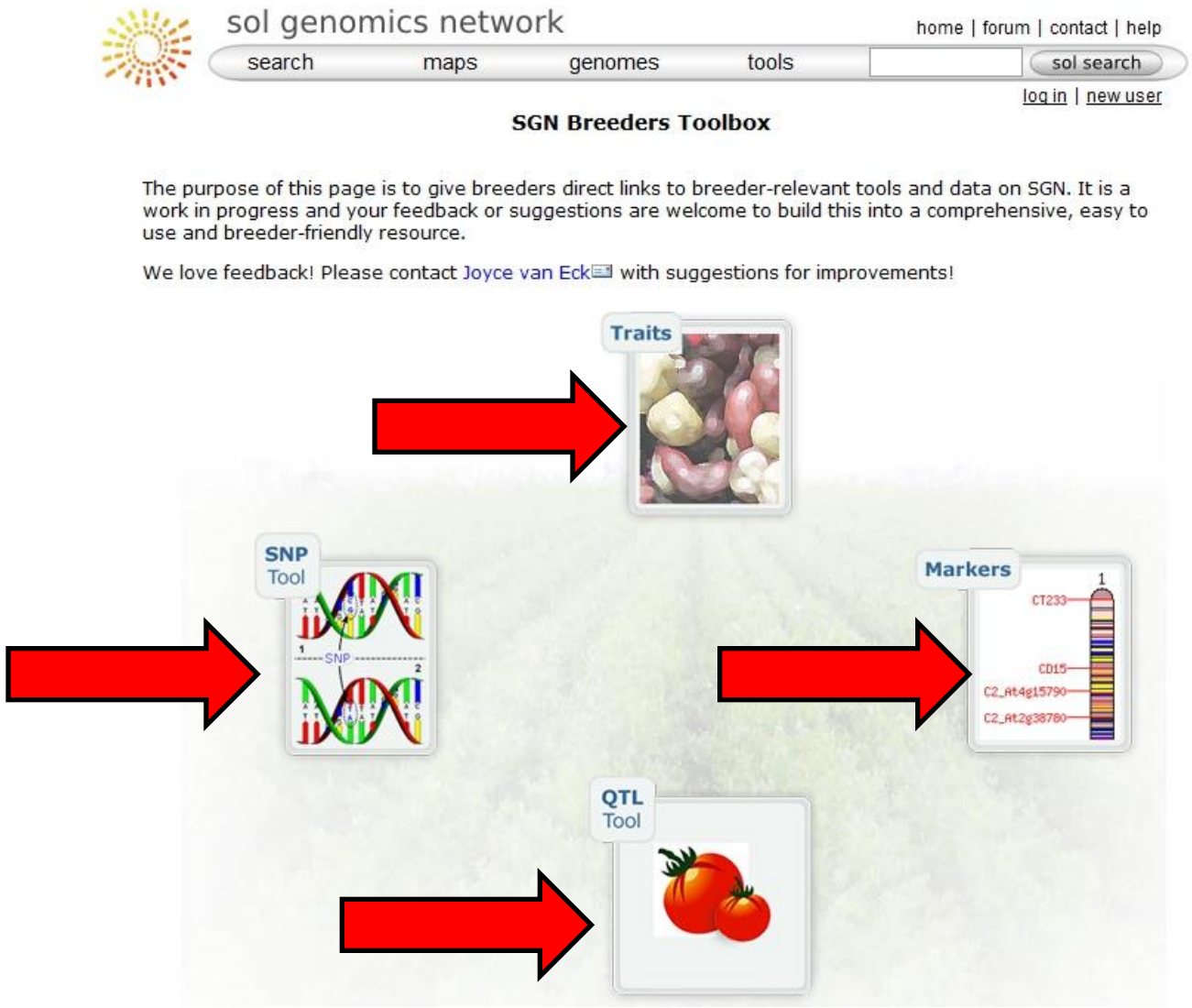
The Ohio State University, OARDC

Introduction to the Sol Genomics Network (SGN)



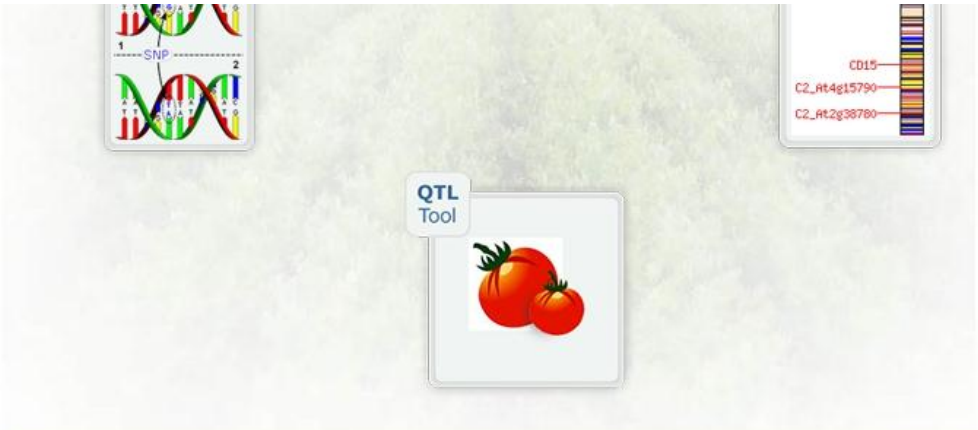
http://solgenomics.net/

The Breeders Toolbox



http://solgenomics.net/breeders

Tutorials for Breeders



Tutorials

- Plant Breeding and Genomics at the eXtension site
- Tomato Genome Browser Webinar presented at the 2010 Tomato Disease Workshop by Heather Merk
- Designing a CAPS Marker From a SNP Using The SGN CAPS Designer by Heather Merk

SGN tools

- Browse the SGN Markers database
- Browse available controlled vocabularies using the SGN Ontology browser
- Develop CAPS markers using the CAPS Designer
- Check intron locations in transript data using the Intron Finder
- QTL data submssion and on-the-fly QTL analysis for Solanaceae traits
- SGN gene and phenotype submission guide

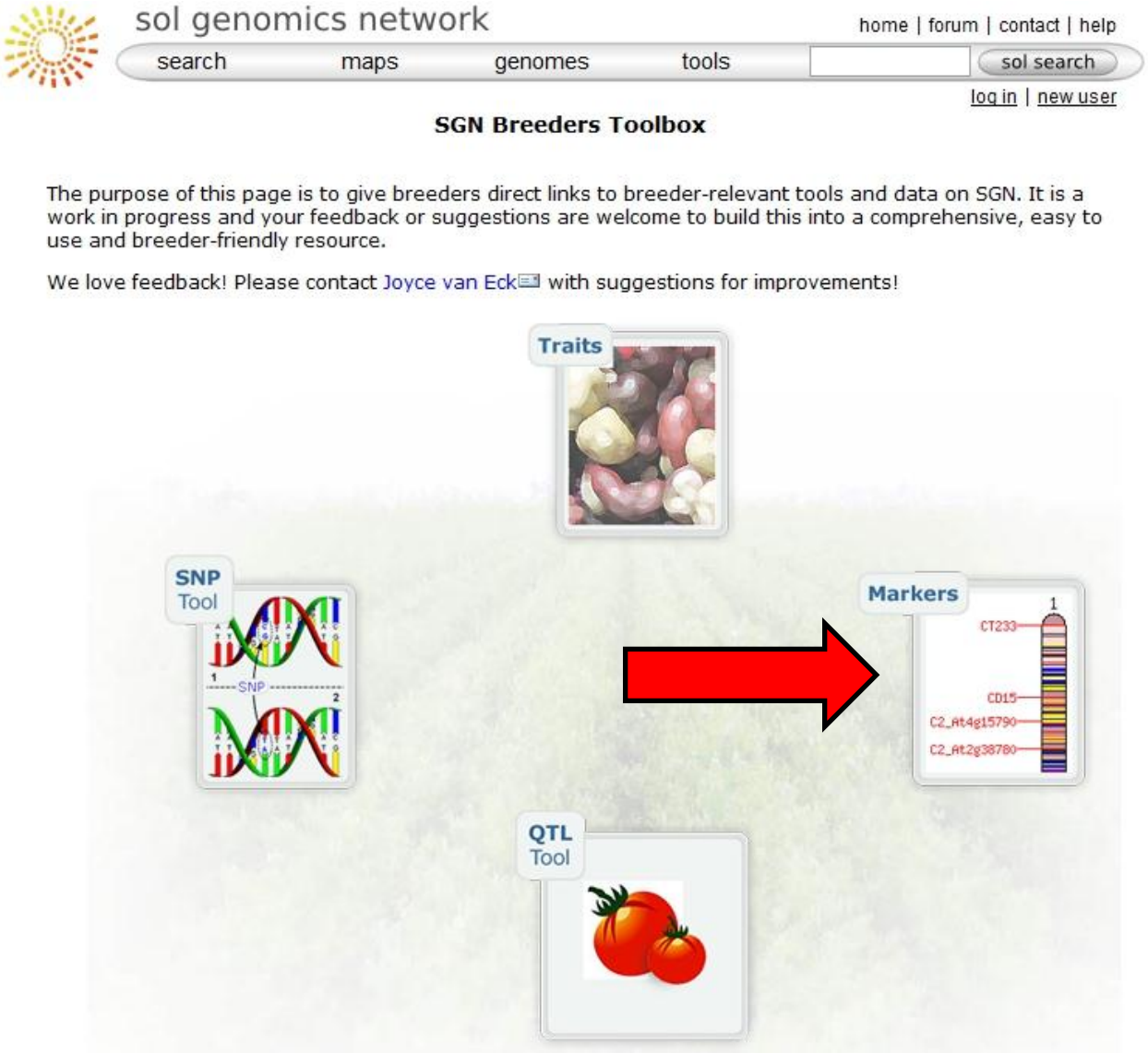
Tools in development

- SNP discovery tool. This will be part of the SolCAP project.

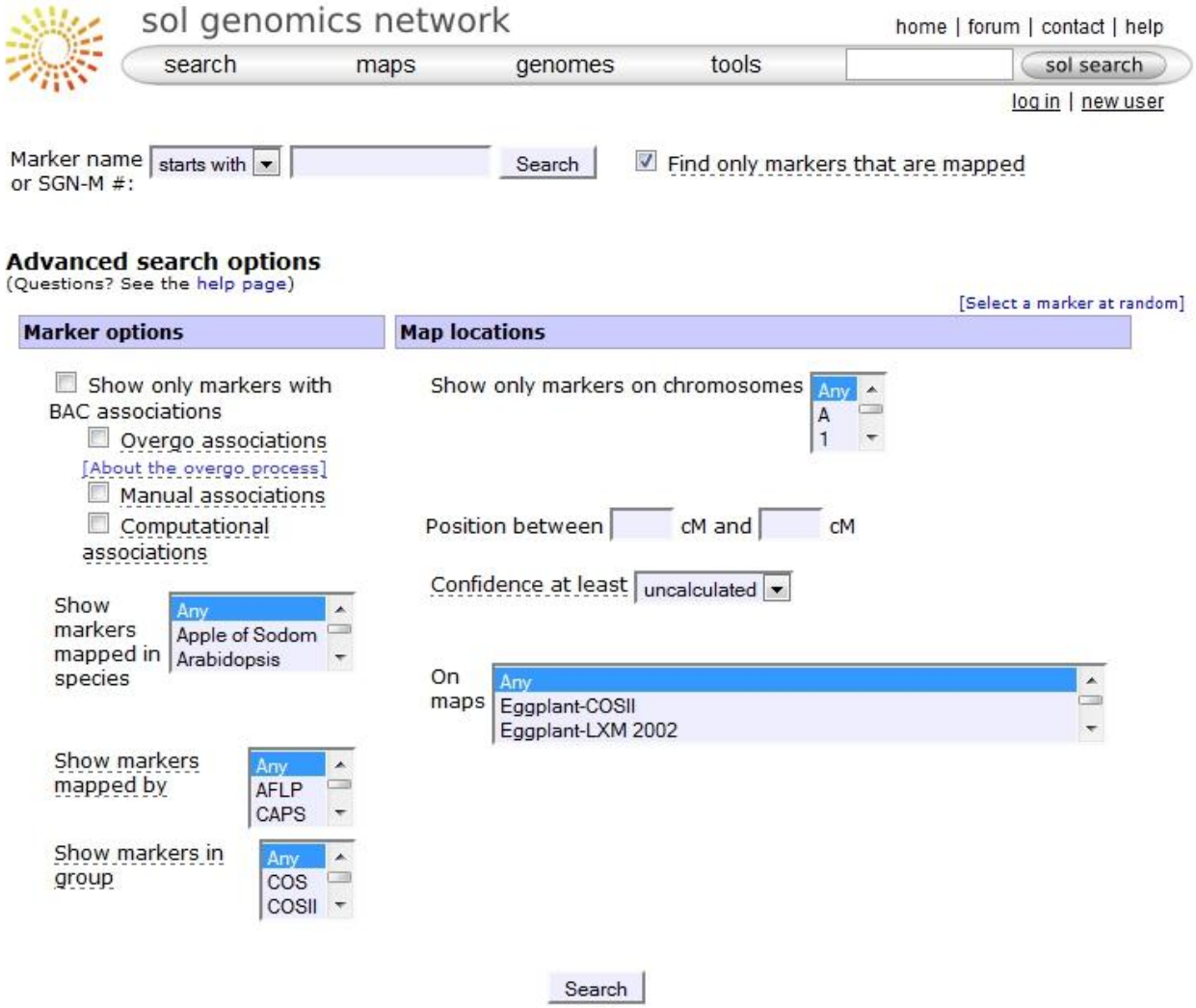
Links

- TomatoMap.Net - a site for Tomato Genetics at Ohio State University.
- SolCAP - the official SolCAP website at Michigan State University.
- Tomato Analyzer - software for scoring fruit shape and other shapes.
- Submitting data to SGN - instruction for data submissions to SGN.

The Breeders Toolbox

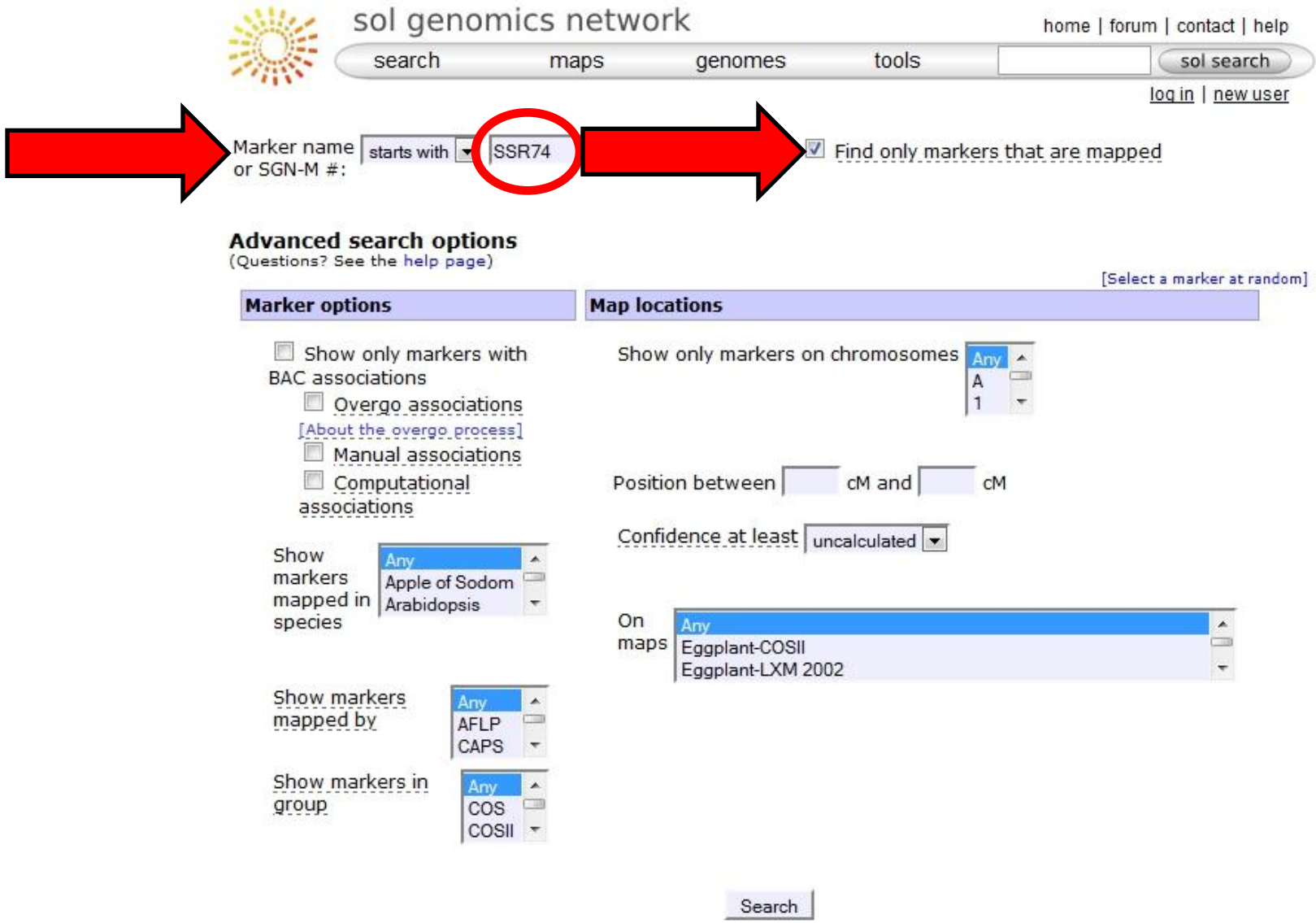


The Marker Search Tool

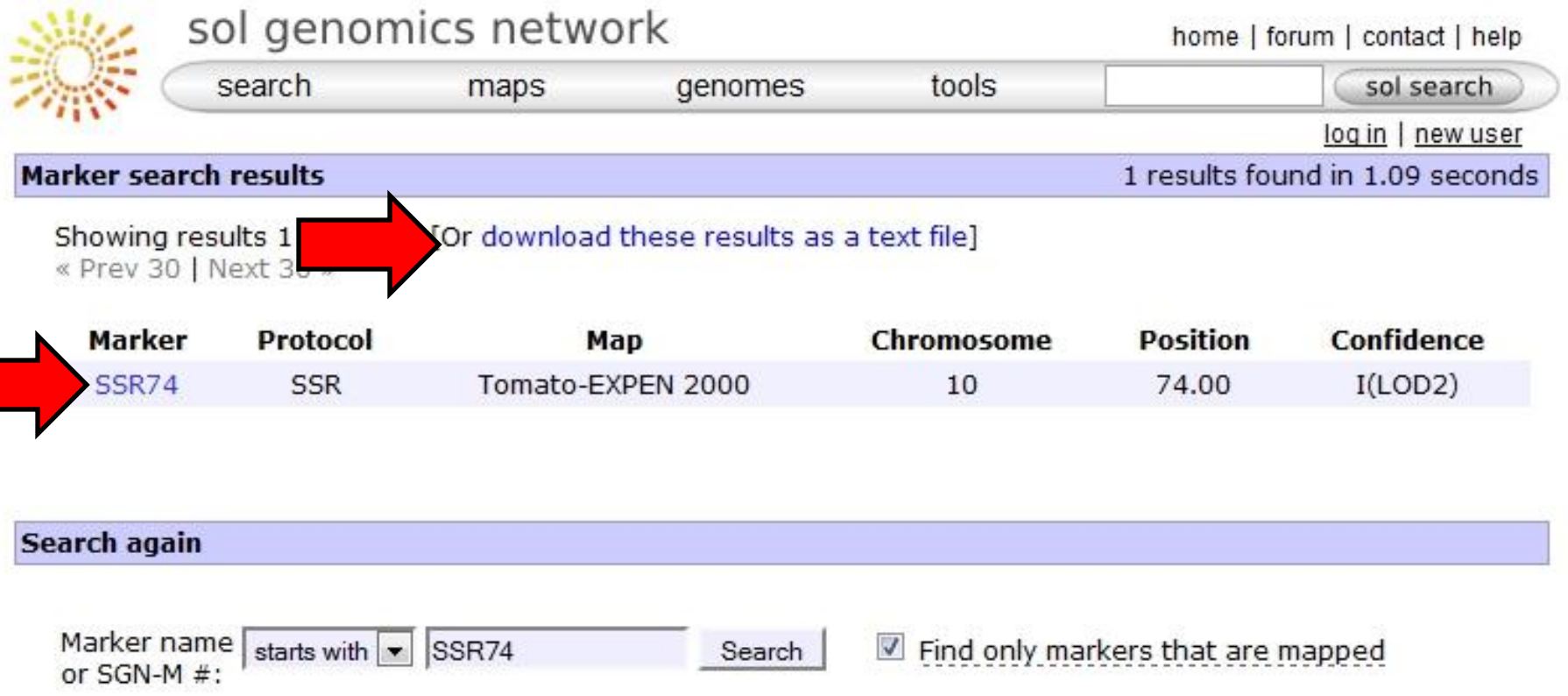


http://solgenomics.net/search/markers/markersearch.pl

Searching by Marker Name



SSR74 Search Results



Detailed SSR74 Search Results

SGN-M747

SSR info

Annealing temperatures: Low: 45 **High:** 50
Repeat motif: TCT **Repeat number:** 7
Forward primer: ACTCACCATGGCTGCTTCTT
Reverse primer: TTTCTTGAAGGGTCTTTCCC
Predicted size: 199

Derivations

This marker was derived from EST read SGN-E157993

Mapped locations

Map: Tomato-EXPEN 2000 v52 **Loc. ID 39295**

Chromosome
10

Position
74.00 cM

Confidence
I(LOD2)

Protocol
SSR

Tomato-EXPEN 2000

Other PCR data

PCR data **Exp. ID 14146**

Forward primer (5'-3')
ACTCACCATGGCTGCTTCTT

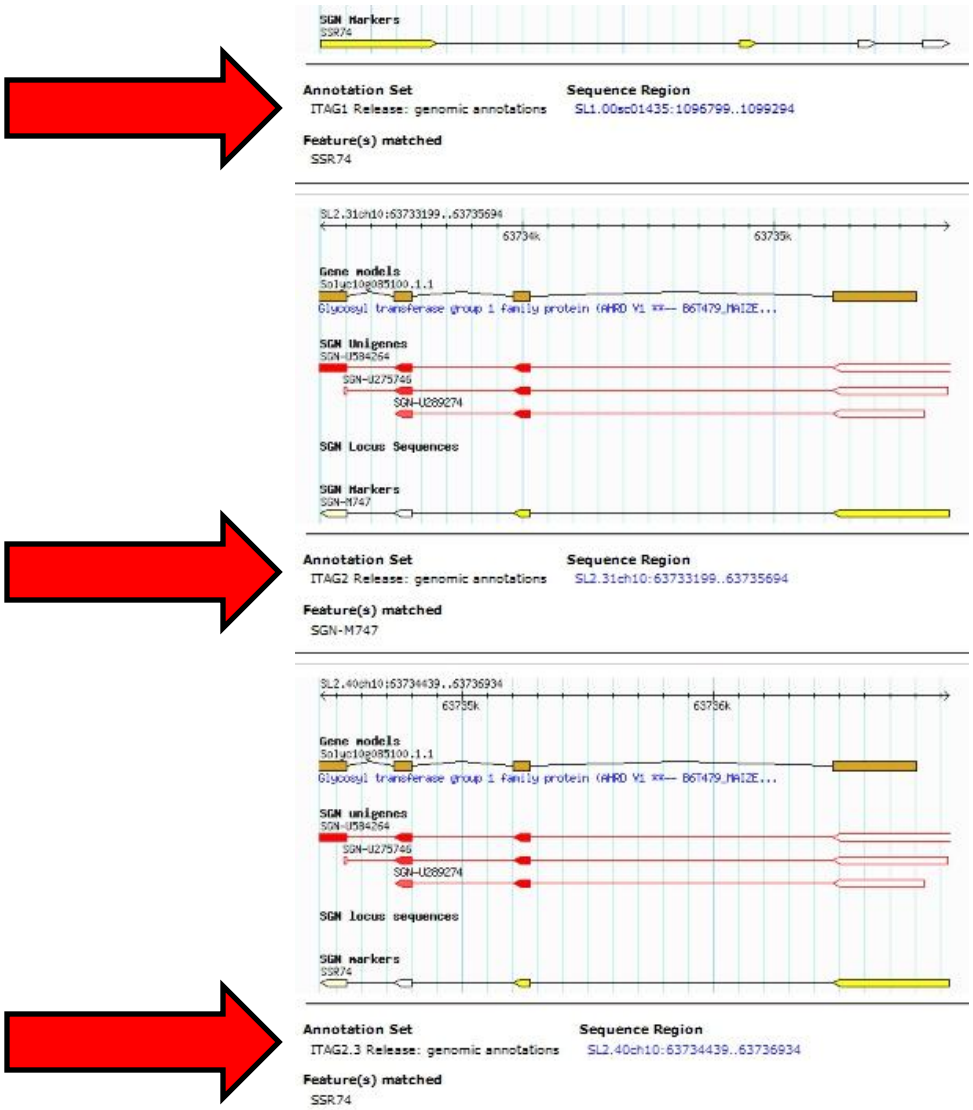
Reverse primer (5'-3')
TTTCTTGAAGGGTCTTTCCC

Accessions and product sizes
S. pimpinellifolium LA1589: 199+203
S. lycopersicum LA925: 199+200

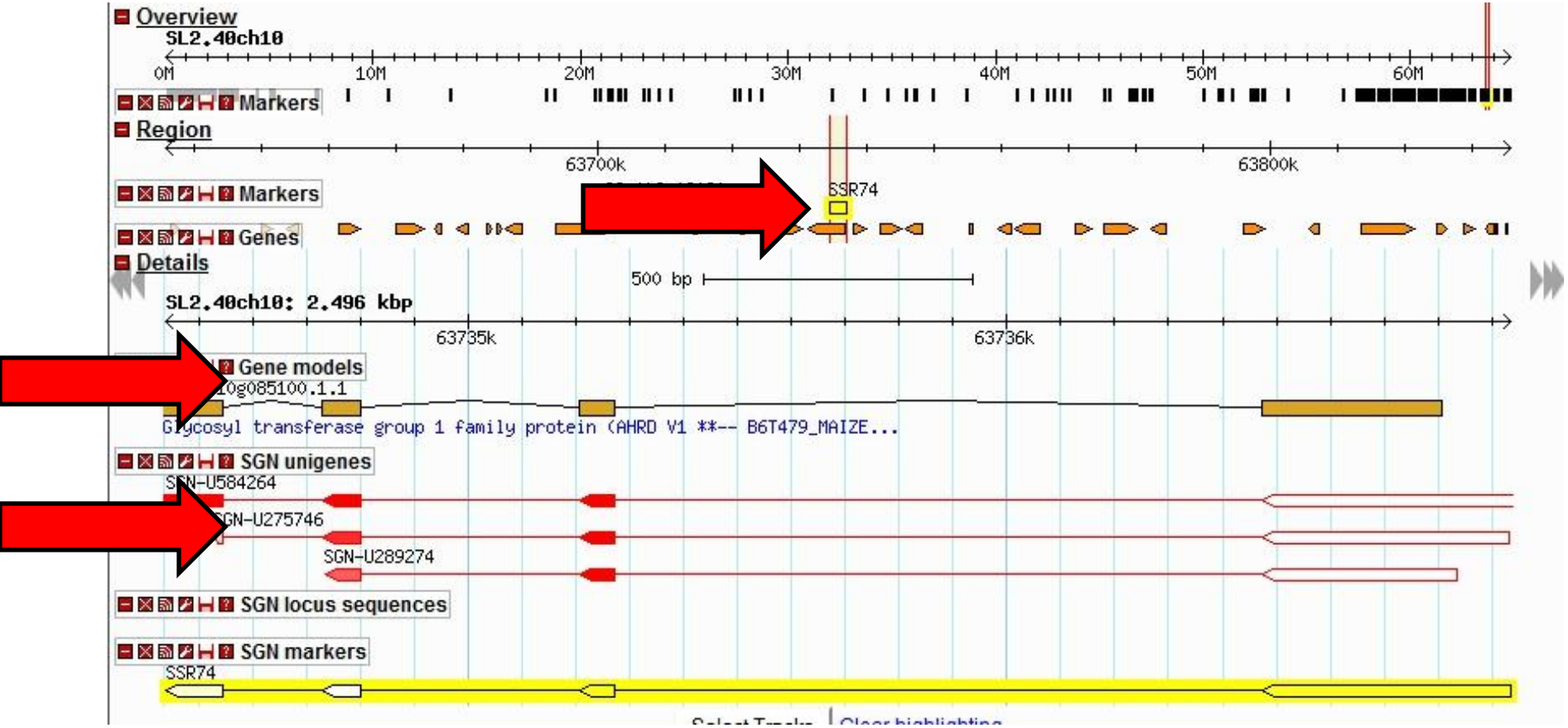
Approximate temperature
55°C

Mg^{+2} concentration
Unknown

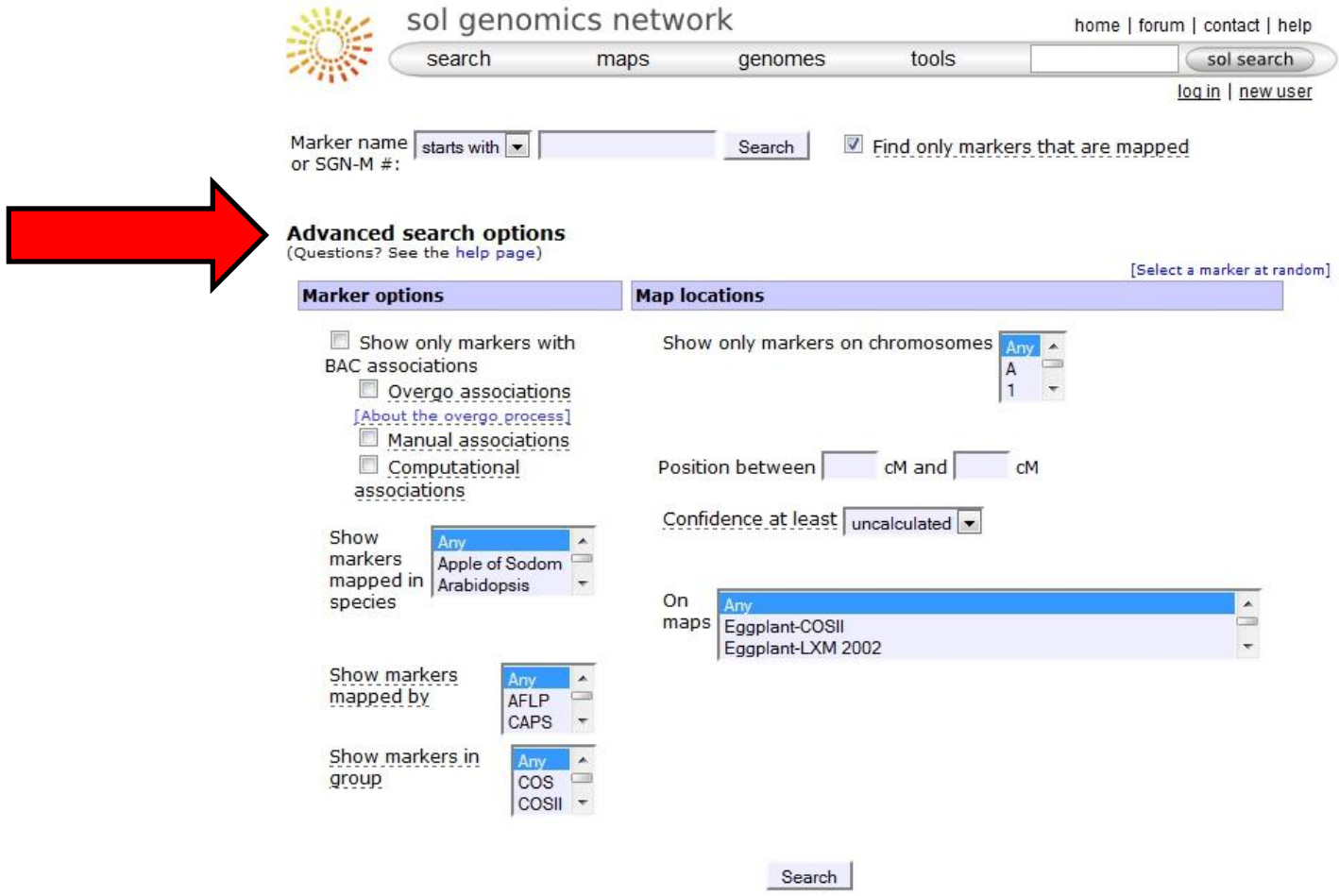
Information from the Tomato Genome Sequence



Information from the Tomato Genome Browser

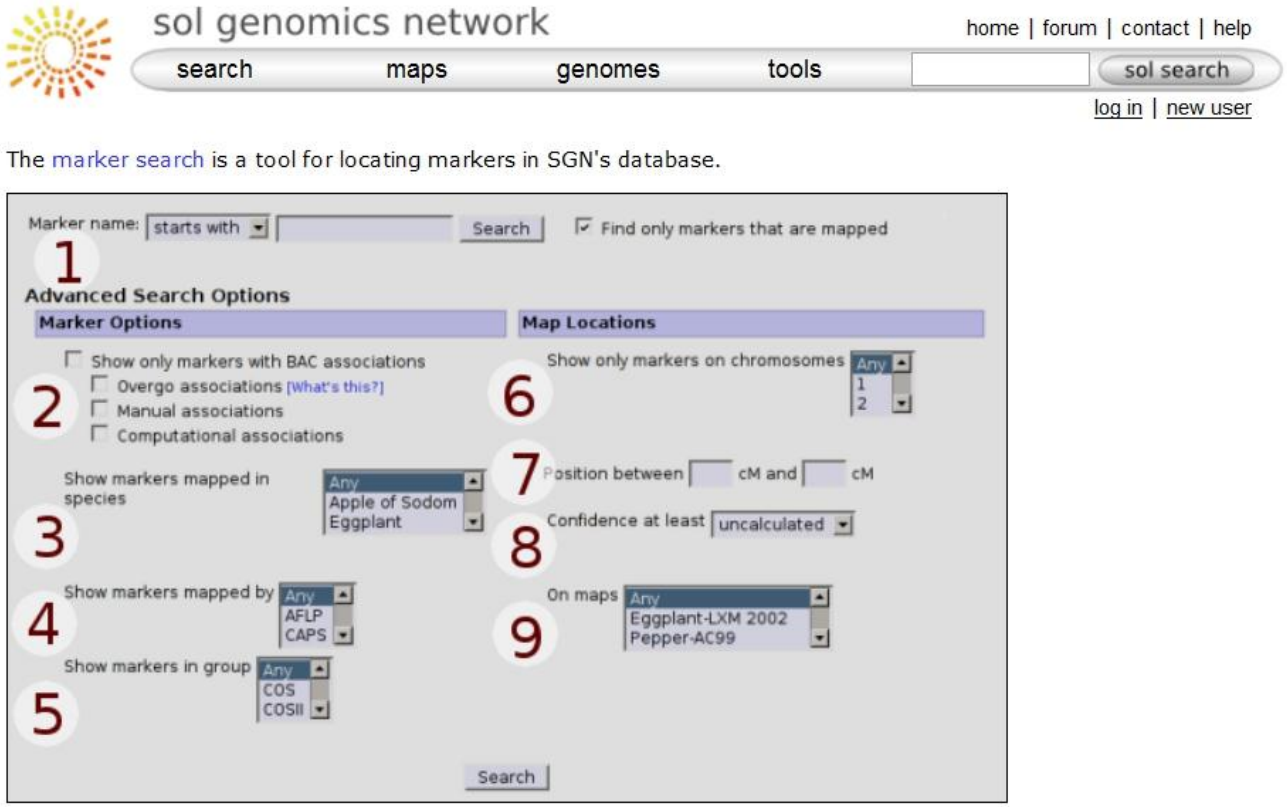


Searching by Marker Criteria



http://solgenomics.net/search/markers/markersearch.pl

SGN Marker Search Help



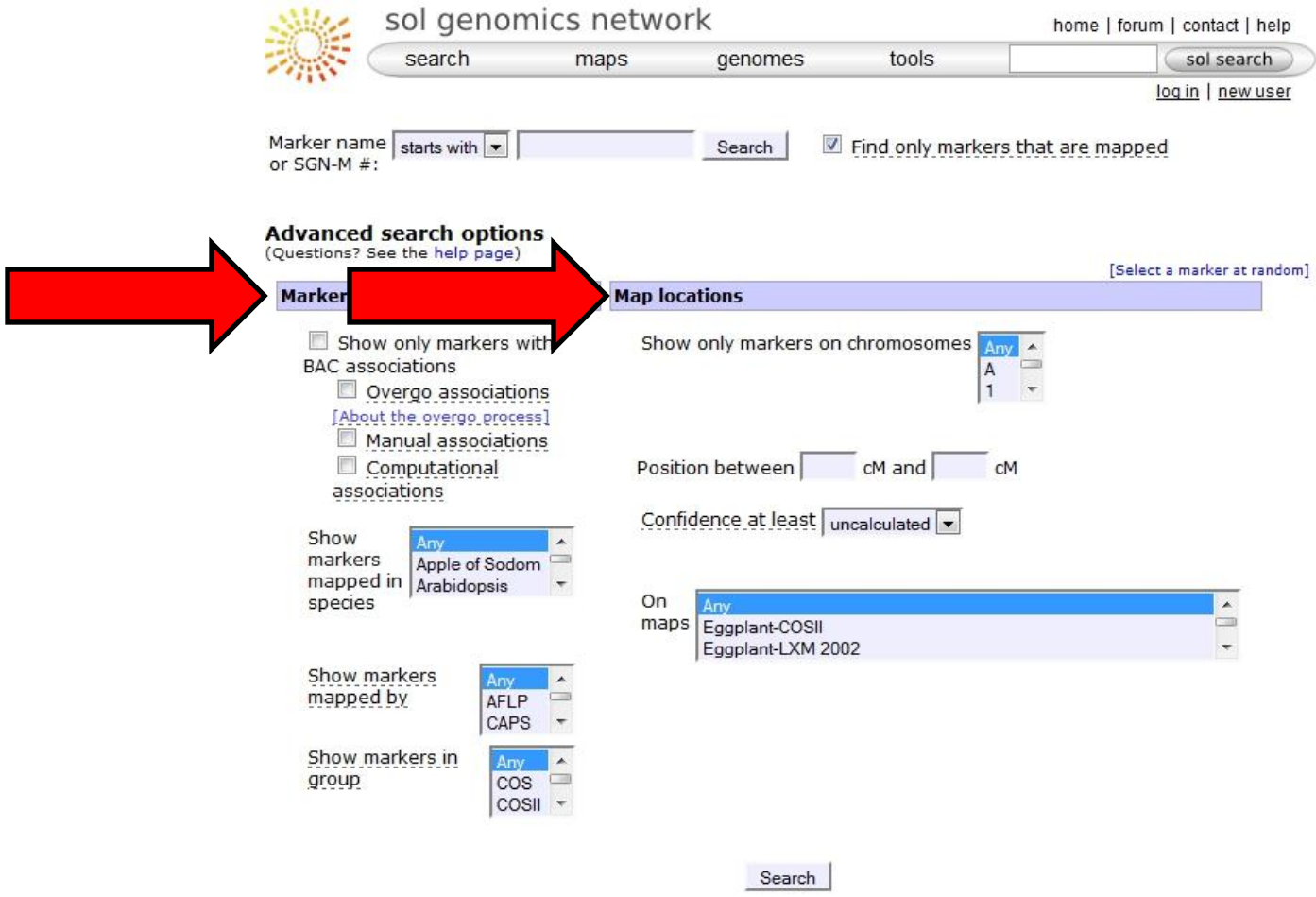
1. Marker name

If you know the name of your marker, type it in. By default, the database will be searched for all markers with a name that *starts with* what you type in.For example, if you type in "TG1", your results might include TG1, TG10, TG11, TG150, etc.

To search for an exact name, choose "exactly" from the menu. Or choose "contains" if you don't know the beginning of the marker's name. For example, a "contains" search on "T16" will include CT16, T1600, T1601, etc.

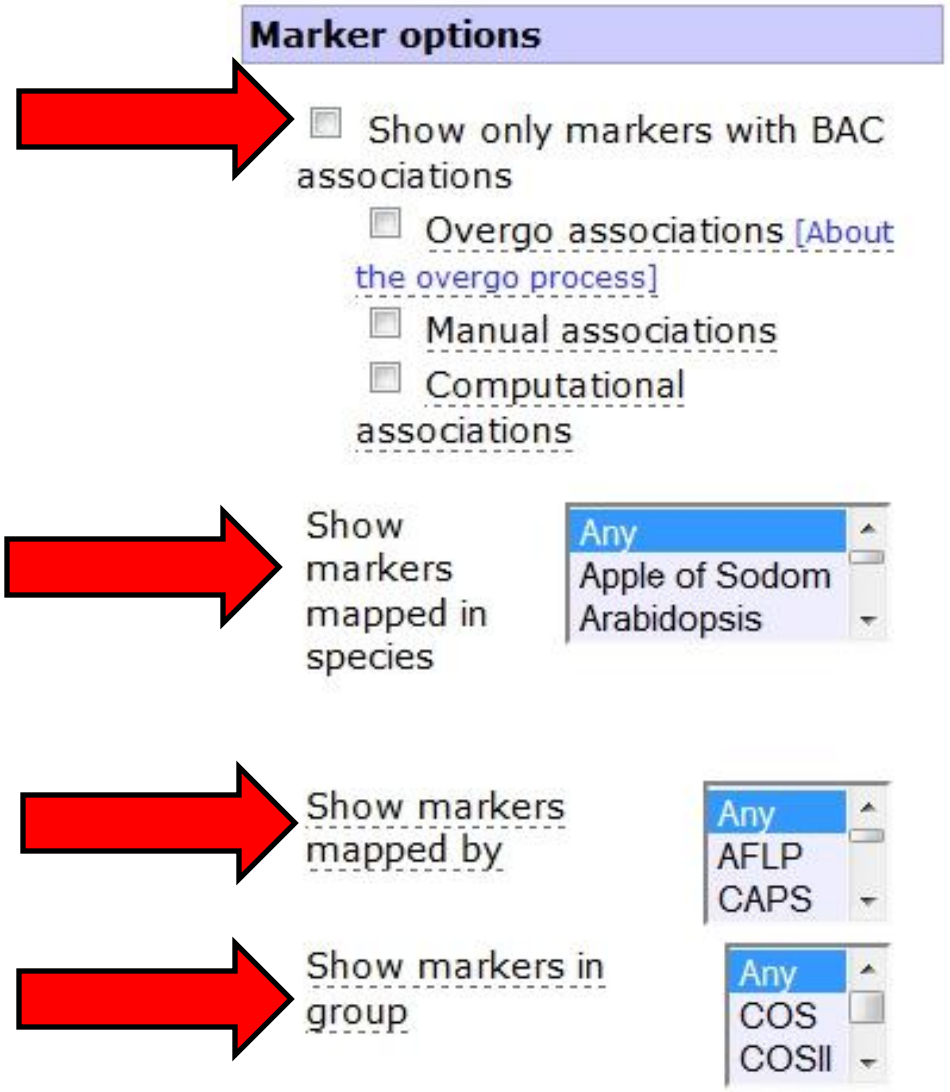
http://solgenomics.net/help/marker_search_help.pl

Searching by Marker Criteria

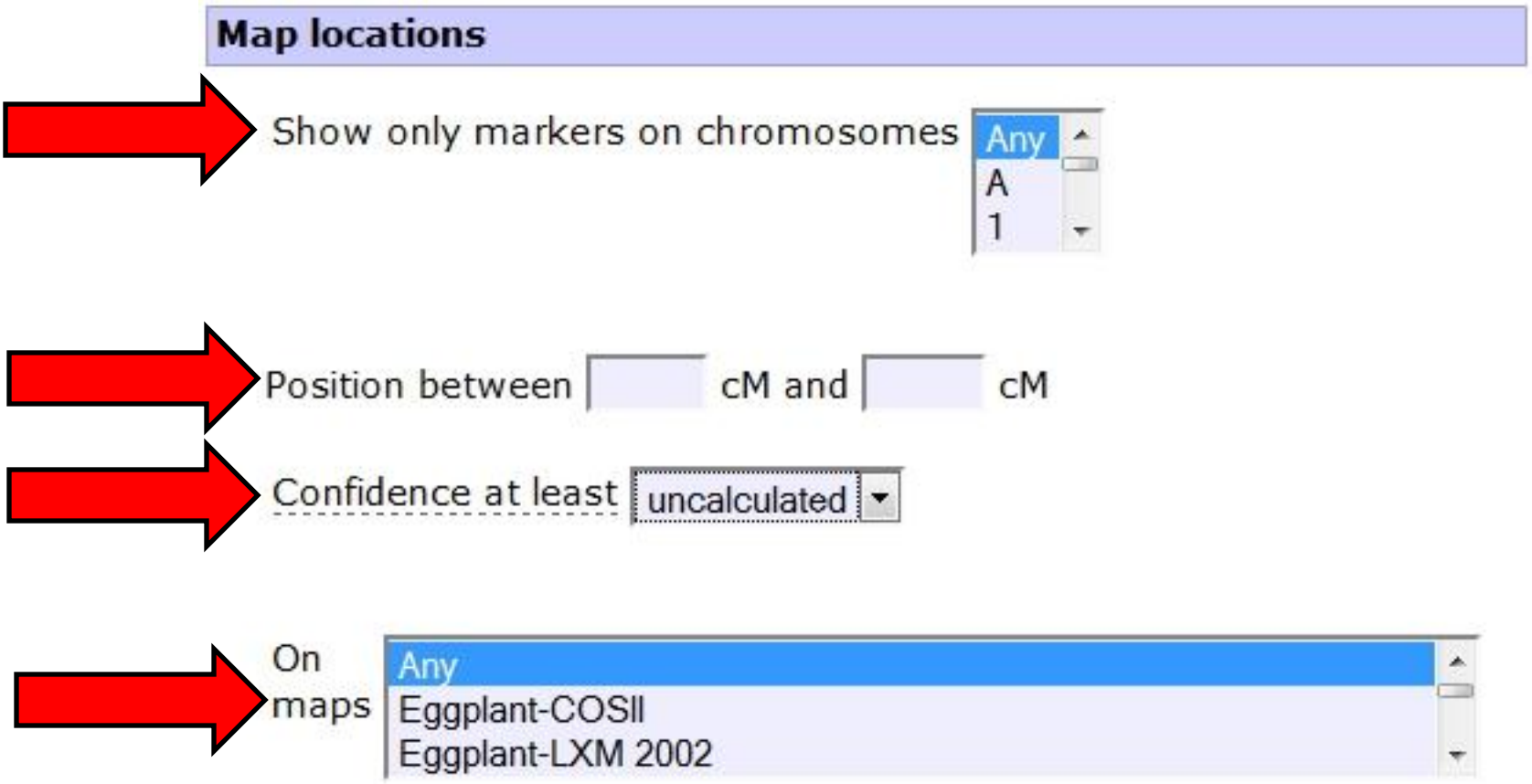


http://solgenomics.net/search/markers/markersearch.pl

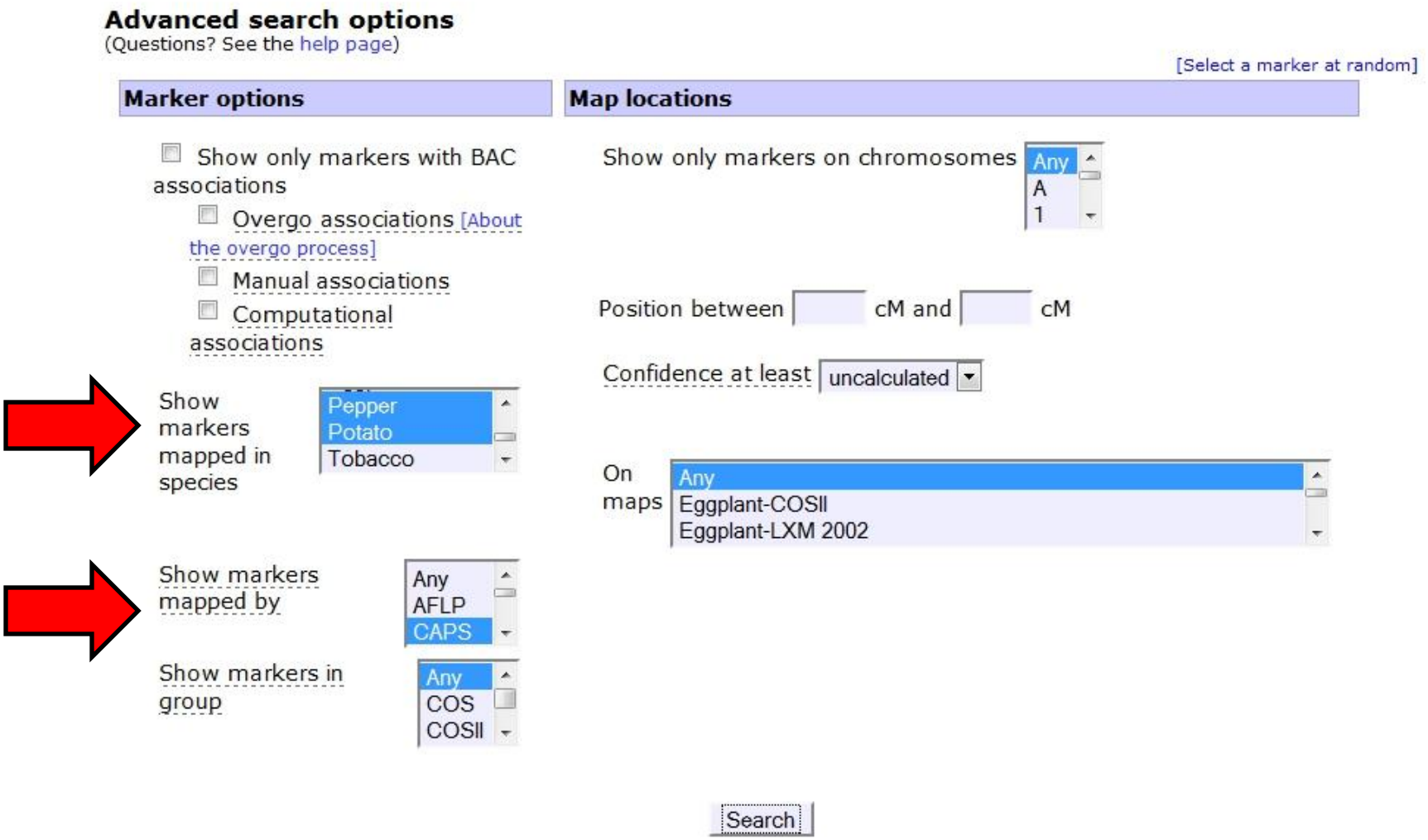
Marker Options



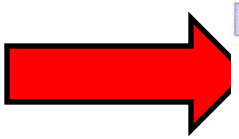
Map Options


Map locations
Show only markers on chromosomes
Any
A
1
Position between
cM and
cM
Confidence at least
uncalculated
On
maps
Any
Eggplant-COSII
Eggplant-LXM 2002

Sample Search



Search Results



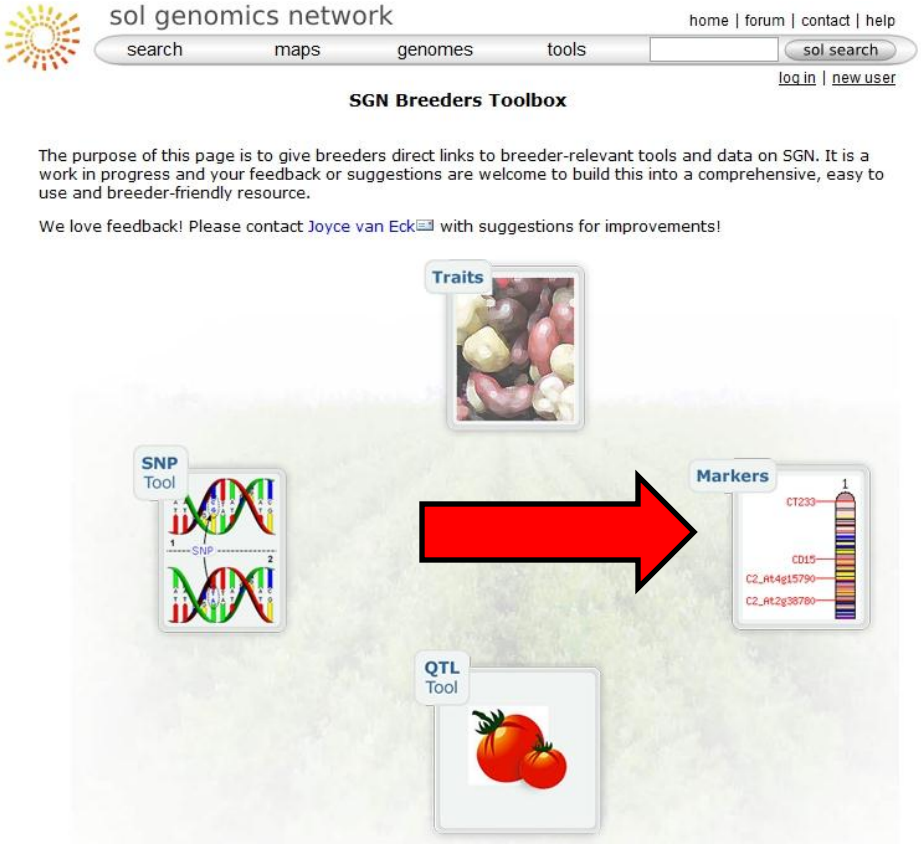
Marker search results 4827 results found in 1.75 seconds

Showing results 1 to 30 of 4827. [Or download these results as a text file]
« Prev 30 | Next 30 »

Marker	Protocol	Map	Chromosome	Position	Confidence
C2_At1g14810	CAPS	Tomato-EXPEN 2000	1	0.00	I
CT233	CAPS	Tomato-LXCHM 2007	1	0.00	uncalculated
C2_At1g01090	CAPS	Arabidopsis COSII	1	0.05	uncalculated
C2_At1g14810	CAPS	Kazusa F2-2000 pseudomolecule map	1	0.19	uncalculated
C2_At1g01730	CAPS	Arabidopsis COSII	1	0.27	uncalculated
C2_At1g01830	CAPS	Arabidopsis COSII	1	0.30	uncalculated
C2_At1g01920	CAPS	Arabidopsis COSII	1	0.32	uncalculated
C2_At1g01940	CAPS	Arabidopsis COSII	1	0.32	uncalculated
C2_At1g02065	CAPS	Arabidopsis COSII	1	0.37	uncalculated
C2_At1g02090	CAPS	Arabidopsis COSII	1	0.39	uncalculated
C2_At1g02100	CAPS	Arabidopsis COSII	1	0.39	uncalculated
C2_At1g02120	CAPS	Arabidopsis COSII	1	0.40	uncalculated
C2_At1g02140	CAPS	Arabidopsis COSII	1	0.40	uncalculated
C2_At1g02150	CAPS	Arabidopsis COSII	1	0.41	uncalculated
C2_At1g02170	CAPS	Arabidopsis COSII	1	0.41	uncalculated
C2_At1g02180	CAPS	Arabidopsis COSII	1	0.41	uncalculated
C2_At1g02330	CAPS	Arabidopsis COSII	1	0.46	uncalculated
C2_At1g02400	CAPS	Arabidopsis COSII	1	0.49	uncalculated
C2_At1g02410	CAPS	Arabidopsis COSII	1	0.49	uncalculated
C2_At1g02475	CAPS	Arabidopsis COSII	1	0.51	uncalculated
C2_At1g02560	CAPS	Arabidopsis COSII	1	0.54	uncalculated
C2_At1g02680	CAPS	Arabidopsis COSII	1	0.58	uncalculated
C2_At3g12685	CAPS	Kazusa F2-2000 pseudomolecule map	1	0.60	uncalculated
C2_At1g02870	CAPS	Arabidopsis COSII	1	0.64	uncalculated
C2_At1g02910	CAPS	Arabidopsis COSII	1	0.66	uncalculated
C2_At1g03110	CAPS	Arabidopsis COSII	1	0.75	uncalculated
C2_At1g03150	CAPS	Arabidopsis COSII	1	0.76	uncalculated
C2_At1g03180	CAPS	Arabidopsis COSII	1	0.77	uncalculated
C2_At1g03250	CAPS	Arabidopsis COSII	1	0.79	uncalculated
C2_At1g03310	CAPS	Arabidopsis COSII	1	0.82	uncalculated

Summary

We can use the marker search tool of the SGN breeders toolbox to search for markers by their name or other criteria such as the marker location



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