



PULSE CROP DATABASE

Genomic, Genetic, and Breeding Resources
for Pulse Crop Improvement

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What's new in PCD?

Outreach

- [How to view correspondences between genomes and genetic maps](#) (2:47 mins)
- Presentations in NRSP10 Database Workshop at PAG

New Data and Functionality

- 12,457 genetic markers, 7 genetic maps, 82 QTL, and 187 GWAS added in last quarter
- Image management added to BIMS – breeders can now load images into BIMS

Recap of data added in 2023

Below is information about the data we added in 2023. A huge 'Thank You' to the pulse crop community for contributing this data!

New genomes

- [Pisum sativum cv. Zhongwan6 v1.0](#)
- *Vicia faba*
 - [inbred line Hedin/2](#)
 - [cv. Tiffany](#)
- [Vigna radiata cv. VC1973A](#)
- [Vigna unguiculata subsp. sesquipedalis line A147](#)
- [Vicia sativa cv. Studencia](#)

New expression datasets

- Aligned to *Cicer arietinum* cv. CDC Frontier
 - [Chickpea drought stress response](#)
 - [Chickpea heat stress response](#)
- Aligned to *Len culinaris* cv. CDC Redberry
 - [Lentil seed development](#)
- Aligned to *Phaseolus vulgaris* cv. G19833
 - [Soaked dry beans gene expression profiling](#)
- Aligned to *Pisum sativum* cv. Cameor
 - [Pea response to chitooligosaccharide treatment](#)

New markers, genetic maps, GWAS and/or QTL added from these manuscripts:

- Blackgram
 - [Subramaniyan et al. 2022.](#)
- Chickpea
 - [Mwape et al. 2022.](#)
 - [Alo et al. 2022.](#)
 - [Khoo et al. 2021.](#)
- Common Bean
 - [Giordani et al. 2022.](#)
 - [Wu et al. 2022.](#)
 - [Nazir et al. 2022.](#)
 - [Liu et al. 2022.](#)
 - [Diaz et al. 2021.](#)
- Cowpea
 - [Sodedji et al. 2022.](#)
- Faba Bean
 - [Jayakodi et al. 2023.](#)
 - [Maalouf et al. 2022.](#)
 - [Aguilar-Benitez et al. 2022.](#)
 - [Ijaz et al. 2021.](#)
- Lentil
 - [Rajandran et al. 2022.](#)
- Lupin
 - [Alkemade et al. 2022.](#)
- Mung Bean
 - [Laosatit et al. 2022.](#)
 - [Chiteri et al. 2021.](#)
 - [Sandhu and Singh. 2021.](#)
 - [Isemura et al. 2012.](#)
- Pea
 - [Yang et al. 2022.](#)
 - [Sawada et al. 2022.](#)
 - [Williams et al. 2022.](#)
 - [Alemu et al. 2022.](#)
 - [Wu et al. 2021.](#)

PCD by the Numbers

The database has seen growth in the number of users, citations, and data over the years. Let's look at the numbers! First, let's look at [usage](#). The number of users has grown and the number of times they visit the site (Session) and the number of pages they view (Pageviews) each visit is growing.

PCD Usage by Year

Year	Sessions	Pageviews	Users	Countries
2023	10,692	82,229	6,819	136
2022	14,591	63,620	11,457	137
2021	9,007	48,434	6,284	120
2020	11,289	45,650	8,845	115
2019	10,055	56,252	7,360	117
2018	6,608	46,230	4,141	112
2017	6,040	34,475	3,306	110
2016	4,991	24,958	3,134	116
2015	4,618	20,204	2,830	113
2014	3,955	11,920	2,935	124
2013	4,970	13,677	3,713	119
2012	3,523	11,009	2,273	101
2011	3,561	28,094	1,392	98

Last, let's look at the amount of data that has been added over the last 4 years. The amount of genetic data (markers, maps, QTL) has grown steadily. This year we started adding GWAS data. We are adding data as it is published and feature newly curated data in the News section of the homepage.

The amount of genome data has also been growing at a steady pace. We will be adding more genomes as they are published.

The number of [manuscripts that cite PCD](#) has also grown over the years and will continue to grow as more data, analyses, and tools are added. Primary citations refer to manuscripts that cite PCD directly. Secondary citations are the number of times the primary citations were cited. We would like to thank our users for citing PCD!

PCD Peer-Reviewed Citations by Year

Year	Primary Citations	Secondary Citations
2013	1	57
2014	1	118
2015	5	230
2016	9	397
2017	7	223
2018	7	413
2019	11	470
2020	9	239
2021	15	137
2022	12	68
2023	7	19
Total	84	2,371

Total PCD Data by Year

Year	Genomes	Genes	mRNA	Maps	Markers	QTL	GWAS
2023	24	813966	979309	348	912674	5543	232
2022	17	588526	699143	334	896384	5352	NA
2021	12	371357	435211	334	896336	5352	NA
2020	11	333099	396953	303	734045	4988	NA

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