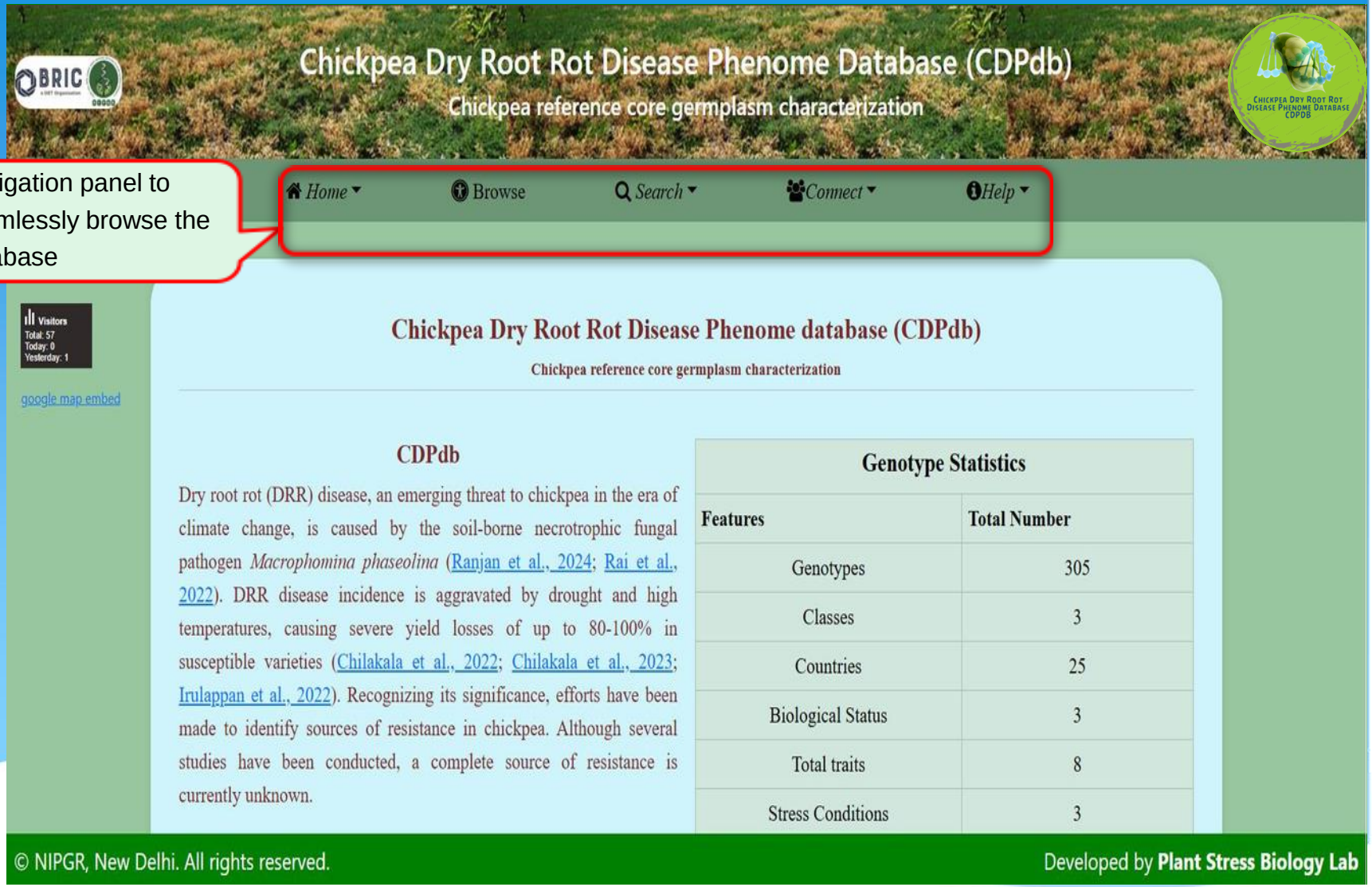
Tutorial CDPdb

CDP database presents the phenotypic characteristics and comprises several traits studied under DRR, Osmotic stress, and combined DRR + Osmotic stress, such as disease severity score, disease susceptibility index, area of necrosis, and membrane stability, representing a total of eight parameters/traits. Additionally, more than 2,200 images of the treatments have been deposited for visualization. Users can browse the database and utilize simple and advanced search options to analyze genotype responses under various stress conditions.

Dr. Senthil Kumar Muthapa

Shubhashish Ranjan
Dr. Shikha Rani
Shankar Acharya

Home Page


Chickpea Dry Root Rot Disease Phenome Database (CDPdb)
Chickpea reference core germplasm characterization
Navigation panel to seamlessly browse the database
Home
Browse
Search
Connect
Help
Visitors
Total: 57
Today: 0
Yesterday: 1
google map embed
Chickpea Dry Root Rot Disease Phenome database (CDPdb)
Chickpea reference core germplasm characterization
CDPdb
Dry root rot (DRR) disease, an emerging threat to chickpea in the era of climate change, is caused by the soil-borne necrotrophic fungal pathogen Macrophomina phaseolina (Ranjan et al., 2024; Rai et al., 2022). DRR disease incidence is aggravated by drought and high temperatures, causing severe yield losses of up to 80-100% in susceptible varieties (Chilakala et al., 2022; Chilakala et al., 2023; Irulappan et al., 2022). Recognizing its significance, efforts have been made to identify sources of resistance in chickpea. Although several studies have been conducted, a complete source of resistance is currently unknown.
Genotype Statistics
Features
Total Number
Genotypes 305
Classes 3
Countries 25
Biological Status 3
Total traits 8
Stress Conditions 3
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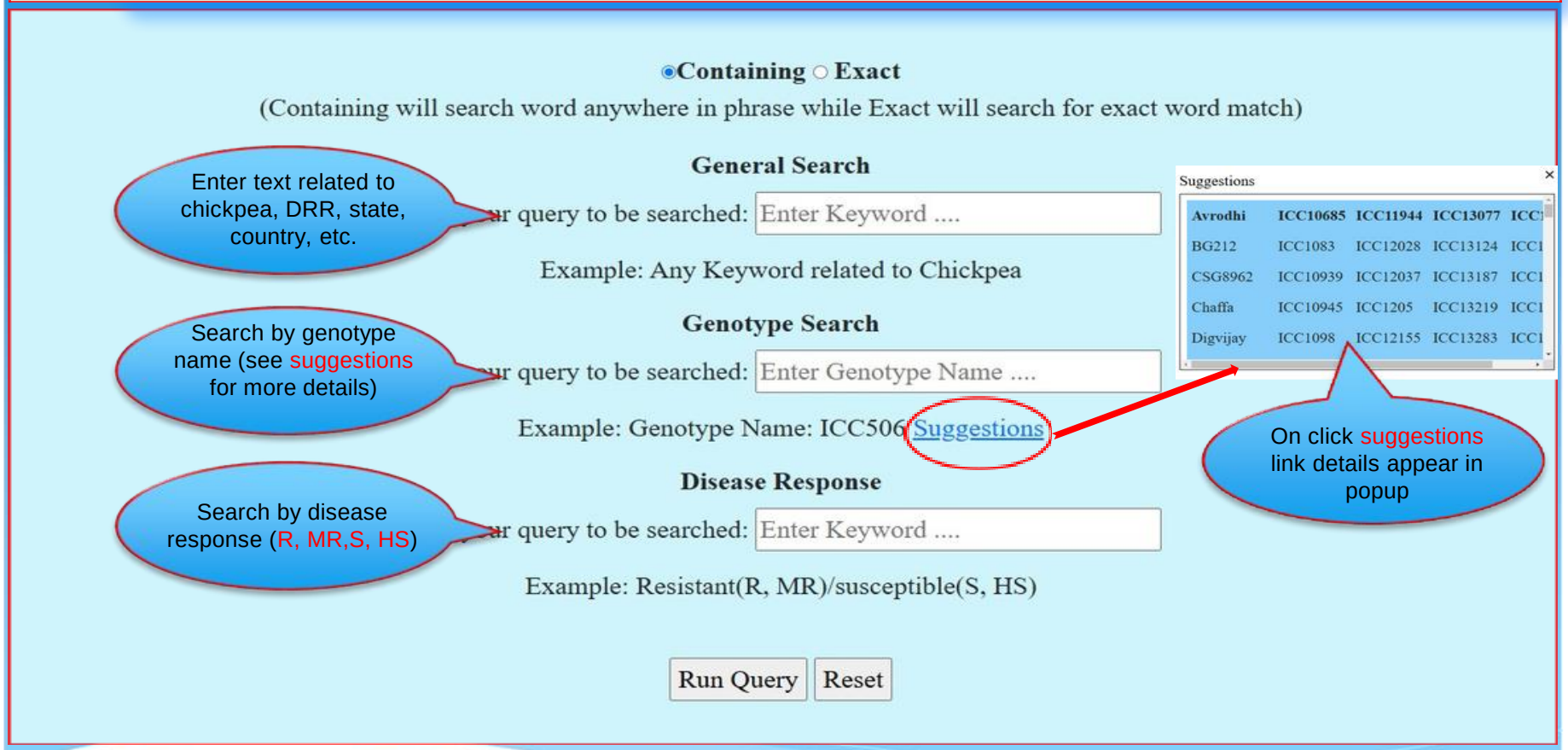
Developed by Plant Stress Biology Lab

Search Page

The search option has three search bars, but only one can be used at a time to search the database.



Search by Keyword

◉ Containing ○ Exact

(Containing will search word anywhere in phrase while Exact will search for exact word match)

Enter keyword

General Search

Type your query to be searched: Rajasthan

Example: Any Keyword related to Chickpea

Genotype Search

Type your query to be searched: Enter Genotype Name .... Suggestions

Example: Germplasm Name: ICC506

Disease Response

Type your query to be searched: Enter Keyword ....

Example: Resistant(R, MR)/susceptible(S, HS)

Run Query | Reset

Output

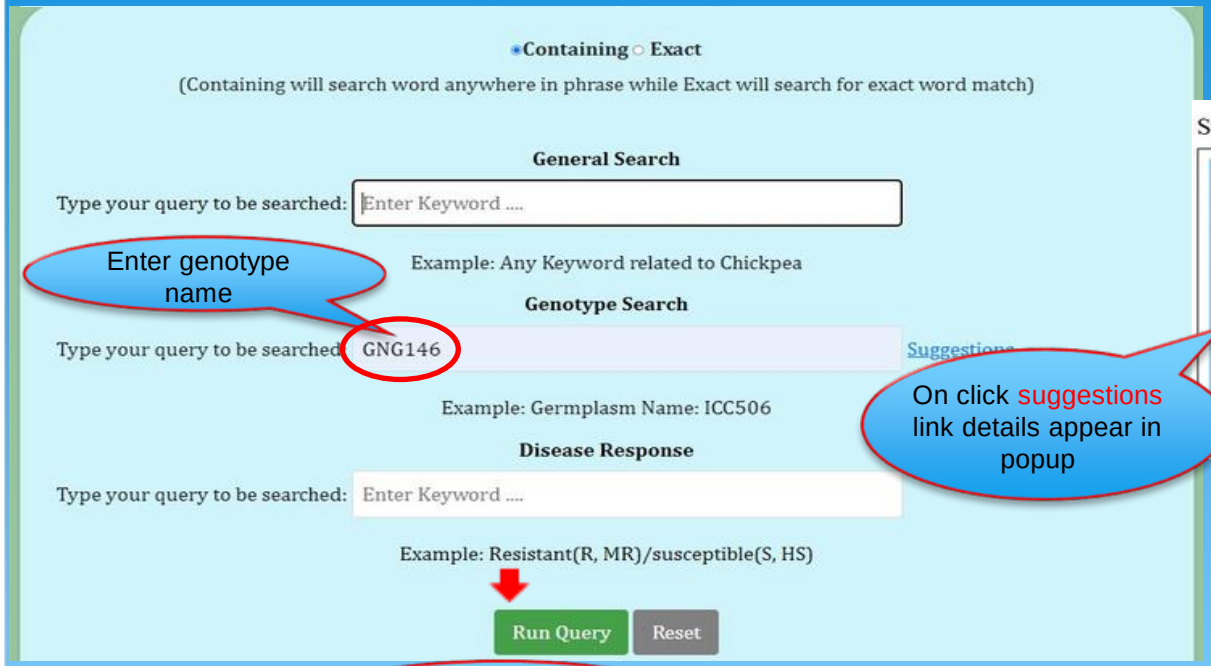
Download

Show 10 entries Search:

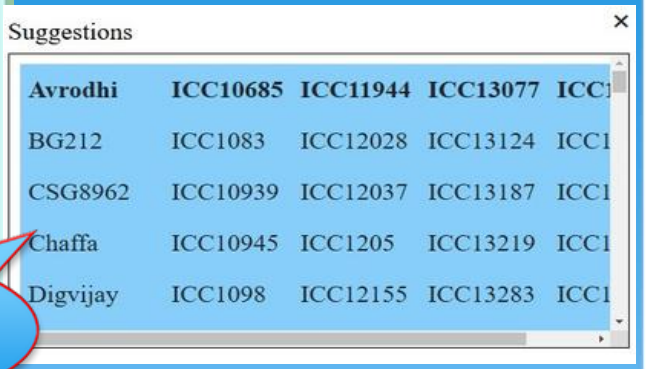
Name & Geographical Location						DRR				Drought		Combined Stress				Resulting Output		
S.No.	Accessions	Class	Biological Status	Country of Origin	Province	DSS(M) ±SE	DSI(M) ±SE	DSI(WinR) ±SE	AN(WinR) ±SE	EC(Control) ±SE	EC(Drought) ±SE	DSS(M) (CS)±SE	DSI(WinR) (CS)±SE	AN(WinR) (CS)±SE	EC(CS) ±SE	DRR	CS	Click here for Image
2	GNG146	Desi	Advanced/Improved cultivar	India	Rajasthan	3.67±0.30	37.86±0.32	48.76±1.82	68.90±3.24	6.54±0.99	7.49±0.90	7.70±0.11	40.53±0.80	72.48±1.26	54.04±7.78	MR	HS	Image
3	GNG1581	Desi	Advanced/Improved cultivar	India	Rajasthan	6.13±0.21	71.76±0.40	46.45±1.06	64.34±1.31	4.97±0.09	7.35±0.76	7.30±0.11	39.99±0.69	67.60±2.17	50.54±2.50	S	HS	Image
4	RSG991	Kabuli	Advanced/Improved cultivar	India	Rajasthan	3.29±0.17	32.20±0.30	51.24±2.35	50.69±3.07	3.95±0.42	6.91±1.19	6.70±0.11	41.24±1.15	69.84±2.27	36.33±2.19	MR	S	Image
7	GNG469	Desi	Advanced/Improved cultivar	India	Rajasthan	4.63±0.30	49.44±0.50	51.11±1.43	72.97±1.90	5.99±0.44	6.64±0.35	6.80±0.11	40.83±1.57	71.28±3.32	53.65±2.68	MR	S	Image
13	ICC11198	Desi	Traditional cultivar/Landrace	India	Rajasthan	4.50±0.39	49.29±0.64	34.43±1.97	43.14±3.28	5.17±0.14	7.88±0.15	5.20±0.23	41.15±2.08	67.54±4.74	56.29±5.25	MR	S	Image
73	ICC12947	Desi	Traditional cultivar/Landrace	India	Rajasthan	3.78±0.21	42.27±0.42	56.10±1.48	42.88±1.85	1.59±0.98	14.62±0.54	7.84±0.10	36.13±0.92	60.14±3.20	38.15±2.01	MR	HS	Image
297	GNG1292	Desi	Advanced/Improved cultivar	India	Rajasthan	3.67±0.16	44.78±0.34	64.10±3.71	43.13±0.93	3.48±1.26	5.35±1.21	7.30±0.11	38.14±1.29	67.10±2.76	41.63±6.73	MR	HS	Image
305	GNG1499	Desi	Advanced/Improved cultivar	India	Rajasthan	5.44±0.32	59.75±0.20	72.71±2.99	49.17±1.41	3.18±0.84	5.10±0.72	7.30±0.11	37.17±0.88	63.10±2.51	46.27±1.95	S	HS	Image

Showing 1 to 8 of 8 entries Previous 1 Next

Search by Genotype



Enter genotype name



On click suggestions link details appear in popup

Output

Search by disease reaction

◉Containing ○ Exact

(Containing will search word anywhere in phrase while Exact will search for exact word match)

General Search

Type your query to be searched: Enter Keyword ....

Example: Any Keyword related to Chickpea

Genotype Search

Type your query to be searched: Enter Genotype Name .... Suggestions

Example: Germplasm Name: ICC506

Enter type of disease reaction

Disease Response

Type your query to be searched: HS

Example: Resistant(R, MR)/susceptible(S, HS)

Run Query | Reset

Output

Download

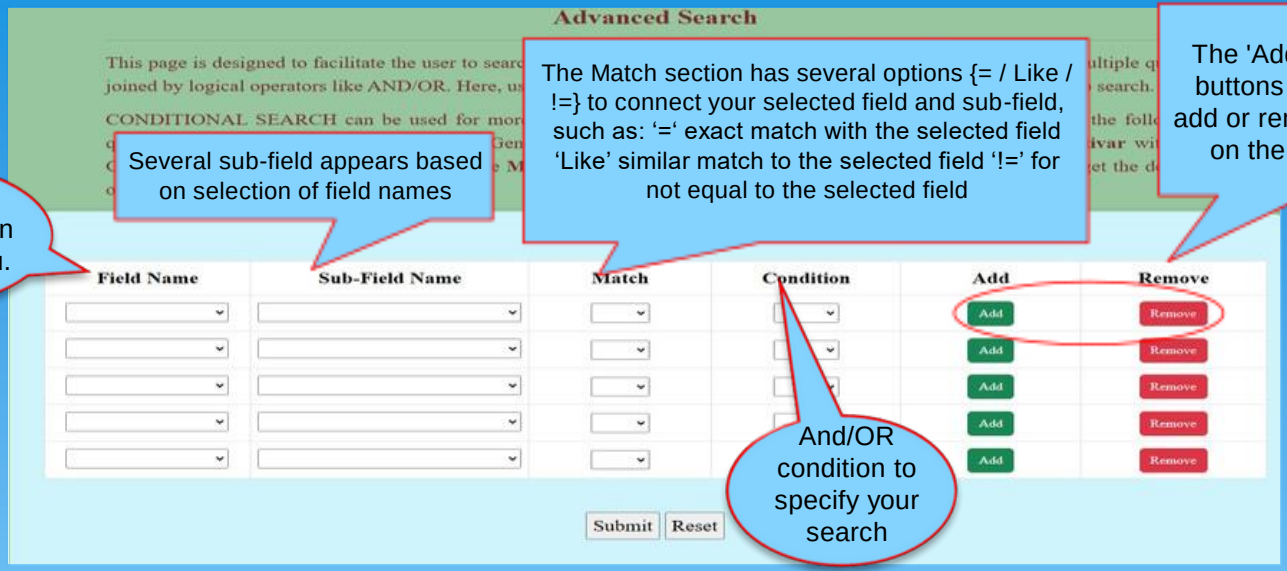
Show 10 entries

Name & Geographical Location						DRR				Drought		Combined Stress				Resulting Output		
S.No.	Accessions	Class	Biological Status	Country of Origin	Province	DSS(M) ±SE	DSI(M) ±SE	DSI(WinR) ±SE	AN(WinR) ±SE	EC(Control) ±SE	EC(Drought) ±SE	DSS(M)(CS) ±SE	DSI(WinR)(CS) ±SE	AN(WinR)(CS) ±SE	EC(CS) ±SE	RR	CS	Click here for Image
1	Chaffa	Desi	Breeding/Research material	India	Maharashtra	3.22±0.2	34.67±0.31	37.62±1.87	52.88±3.47	4.81±0.51	8.11±1.88	7.4±0.09	38.43±0.87	63.71±2.26	45.32±2.1	R	HS	Image
2	GNG146	Desi	Advanced/Improved cultivar	India	Rajasthan	3.67±0.30	37.86±0.32	48.76±1.82	68.90±3.24	6.54±0.99	7.49±0.90	7.70±0.11	40.53±0.80	72.48±1.26	54.04±7.76	MR	HS	Image
3	GNG1581	Desi	Advanced/Improved cultivar	India	Rajasthan	6.13±0.21	71.76±0.40	46.45±1.06	64.34±1.31	4.97±0.09	7.35±0.76	7.30±0.11	39.99±0.69	67.60±2.17	50.54±2.50	S	HS	Image
8	HC1	Desi	Advanced/Improved cultivar	India	Haryana	5.33±0.27	59.00±0.37	46.26±2.29	67.70±3.03	8.58±1.23	10.93±1.44	8.20±0.11	35.69±0.68	61.87±2.31	40.29±2.79	S	HS	Image
10	ICC10399	Desi	Traditional cultivar/Landrace	India	Karnataka	7.60±0.22	90.75±0.67	75.22±0.96	75.22±1.11	1.14±0.11	2.57±0.18	8.16±0.25	35.92±1.00	57.03±2.09	24.96±1.98	HS	HS	Image
11	ICC10673	Desi	Traditional cultivar/Landrace	Turkey	Bingol	5.33±0.30	62.14±0.32	49.25±1.54	68.05±2.35	6.60±0.06	9.20±1.31	7.30±0.23	40.33±1.63	65.45±3.19	46.65±5.14	S	HS	Image
12	ICC10685	Desi	Traditional cultivar/Landrace	Turkey	Bingol	5.40±0.46	60.14±0.13	45.22±1.22	45.62±7.03	9.69±1.03	15.59±0.36	7.30±0.23	39.55±2.83	64.06±4.67	56.88±5.07	S	HS	Image
17	ICC1161	Desi	Traditional cultivar/Landrace	Pakistan	--	5.67±0.27	67.08±0.37	50.12±3.49	69.64±4.15	4.26±0.77	5.00±0.74	7.10±0.17	31.99±1.68	49.36±3.90	39.80±1.98	S	HS	Image
19	ICC10018	Desi	Traditional cultivar/Landrace	India	Orissa	7.00±0.00	74.44±0.50	30.49±1.94	36.94±3.31	4.61±0.25	6.00±0.66	7.00±0.15	39.21±0.81	66.98±1.51	51.50±7.40	HS	HS	Image
20	ICC10393	Desi	Traditional cultivar/Landrace	India	Karnataka	4.50±0.31	54.75±0.37	29.68±0.65	35.15±1.29	2.58±0.24	5.39±0.68	7.36±0.14	37.56±1.87	64.46±6.26	42.84±1.96	MR	HS	Image

Showing 1 to 10 of 159 entries

Previous 1 2 3 4 5 ... 16 Next

Advance Search



Download

10 entries per page

Search:

Name & Geographical Location					DRR			Drought		Combined Stress				Resulting Output		
Accessions	Class	Biological Status	Country	Province	DSS±SE	DSI±SE	AN±SE	EC(Control) ±SE	EC(Drought) ±SE	DSS(CS) ±SE	DSI(CS) ±SE	AN(CS) ±SE	EC(CS)±SE	DRR	CS	Click here for Image
Avorodhi	Desi	Traditional cultivar/Landrace	India	Uttar Pradesh	4.56±0.17	55.21±0.18	61.35±0.85	1.39±0.20	7.76±0.32	5.80±0.11	38.90±1.36	68.12±2.95	37.21±1.16	MR	S	Image
BG212	Desi	Advanced/Improved cultivar	India	Delhi	7.00±0.25	72.22±0.36	54.09±2.35	2.90±0.62	6.21±0.23	8.30±0.06	37.16±1.23	55.02±2.11	44.34±2.68	HS	HS	Image
Chaffa	Desi	Breeding/Research material	India	Maharashtra	3.22±0.2	34.67±0.31	52.88±3.47	4.81±0.51	8.11±1.88	7.4±0.09	38.43±0.87	63.71±2.26	45.32±2.12	MR	HS	Image
CSG8962	Desi	Advanced/Improved cultivar	India	Haryana	5.89±0.25	65.45±0.16	42.32±0.97	3.46±0.43	8.39±0.34	6.28±0.05	37.72±1.42	56.91±1.49	43.60±2.47	S	S	Image
Digvijay	Desi	Advanced/Improved cultivar	India	Maharashtra	6.57±0.34	74.38±0.56	70.83±2.55	4.35±0.65	6.76±0.93	6.20±0.11	38.02±0.85	65.00±2.04	57.25±5.26	S	S	Image

Advanced search is provided for users who want precise data from multiple queries.

Browse Page

Total 6 browse options are available such as class, biological status, countries DRR, Drought and Combined stress. Individual can browse data by these option.

Browse

Here, the user can browse all the information of the genotypes of *Cicer arietinum* grouped by **Class, Biological Type, DRR, Osmotic Stress, Combined stress and Countries** via the options provided below which can be easily accessed by clicking on ⊞, followed by choices which the user can select according to their query. For more information see HELP page.

- ⊞ **Browse by Class**
  - ⊟ Desi
  - ⊟ Kabuli
  - ⊟ Intermediate
- ⊞ **Browse by Biological Status**
  - ⊟ Traditional cultivar/Landrace
  - ⊟ Breeding/Research material
  - ⊟ Advanced/Improved cultivar
- ⊞ **Browse by Countries**
- ⊞ **Browse by DRR**
- ⊞ **Browse by Osmotic Stress**
- ⊞ **Browse by Combined Stress**

If someone wants to see genotype responses from Turkey, they can select 'Country' and then 'Turkey'.

Phenotypic expression data of the Genotype for Region: Turkey

User can Click on ↑↓ icon to view the results in either ascending or descending order in the desired column. Click on the download icon on the right side to download the results displayed.

⤓ Download

10 entries per page Search:

Name & Geographical Location				DRR			Osmotic Stress		Combined Stress				Resulting Output		
Accessions	Class	Biological Status	Province	DSS±SE	DSI±SE	AN±SE	EC(Control)±SE	EC(Drought)±SE	DSS(CS)±SE	DSI(CS)±SE	AN(CS)±SE	EC(CS)±SE	DRR	CS	Click here for Image
ICC10673	Desi	Traditional cultivar/Landrace	Bingol	5.33±0.30	62.14±0.32	68.05±2.35	6.60±0.06	9.20±1.31	7.30±0.23	40.33±1.63	65.45±3.19	46.65±5.14	S	HS	Image
ICC10685	Desi	Traditional cultivar/Landrace	Bingol	5.40±0.46	60.14±0.13	45.62±7.03	9.69±1.03	15.59±0.36	7.30±0.23	39.55±2.83	64.06±4.67	56.88±5.07	S	HS	Image
ICC18699	Kabuli	Traditional cultivar/Landrace	Siirt	6.33±0.22	72.08±0.08	61.91±1.54	1.21±0.20	3.62±0.20	3.30±0.11	50.18±0.92	72.65±1.94	33.10±0.24	S	MR	Image
ICC19095	Kabuli	Traditional cultivar/Landrace	Elazig	6.17±0.28	70.57±0.63	63.84±2.23	4.31±1.61	9.16±0.57	4.70±0.11	36.27±2.46	52.92±5.44	47.04±2.23	S	MR	Image
ICC19100	Kabuli	Traditional cultivar/Landrace	Konya	7.67±0.30	87.64±0.61	58.62±2.40	1.97±0.14	3.17±0.42	3.10±0.17	29.19±2.27	38.43±5.14	25.19±0.55	HS	MR	Image
ICC4495	Desi	Traditional cultivar/Landrace	Sinop	2.67±0.16	24.58±0.37	61.91±3.12	3.34±0.24	6.60±0.72	8.40±0.22	38.14±1.26	55.35±2.56	20.89±1.00	R	HS	Image
ICC7150	Desi	Traditional cultivar/Landrace	Manisa	7.33±0.19	83.04±0.91	35.74±1.94	6.20±0.17	8.57±0.27	5.00±0.14	30.67±1.20	40.15±2.14	31.35±1.60	HS	S	Image
ICC7184	Desi	Traditional cultivar/Landrace	Bingol	5.33±0.16	57.36±0.68	29.74±1.16	3.09±0.33	3.80±0.31	7.80±0.23	33.61±1.49	52.03±2.92	40.74±4.61	S	HS	Image

Image visualization and download

To view the images, select a treatment from the dropdown menu.

Visualize Image Data

Select Category

Dry Root Rot

Dry root rot
Combined stress
Drought

Select Subcategory

Select Subcategory

Select Subcategory
Rootscanner-image
Stereo-image
Camera-image

Select a subcategory of images from dropdown

↓Download

Figure: Control image of the sample.

Figure: DRR image of the sample.

Important Note*

* The Disease reaction correspond to control image is immune (DSS=0). If control image is not available kindly consider score.

* Control Images having dark spots are due to physical damage during the handling of the roots.

* Generally, loss of lateral roots, the extent of cell death and nacrosis were more prominent in DRR-infeccted roots. Sometimes, the roots make look shrunken and dry due to high infection intensity.

* Some roots may appear water-soaked under combined stress treatment.

Image visualization & download

Visualize Image Data

Select Category

Dry Root Rot

Select Subcategory

Stereo-image

To download the image, select the 'Download' button.

Accession: ICC1164

↓Download

Figure: Control image of the sample.

Figure: DRR image of the sample.

Image visualization & download

Select
'Combined stress'
subcategory
CS Rootscanner-image

Visualize Image Data

Select Category

Combined Stress

Select Subcategory

CS_Rootscanner-image

Accession: ICC1164

↓Download

Figure: Control image of the sample.

Figure: DRR image of the sample.

Image visualization & download

Select ‘Dry root rot’ subcategory “Camera-image”

Visualize Image Data

Select Category

Dry Root Rot

Select Subcategory

Camera-image

Accession: GNG1499

↓Download

Figure: Control image of the sample.

Figure: DRR image of the sample.

Contact Us

Contact Us

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Users can contact team members via their email addresses or social media handles for the lab.

Team Members

This database is developed by **Dr. Senthil Kumar Muthappa's** research group at National Institute of Plant Genome Research (NIPGR) , New Delhi, India.

Mr. Shubhashish Ranjan	Dr. Shikha Rani	Mr. Shankar Acharya
Research Scholar (PhD Student) National Institute of Plant Genome Research (NIPGR)	Research Associate-III (RA) National Institute of Plant Genome Research (NIPGR)	Senior Technical Officer (STO) National Institute of Plant Genome Research (NIPGR)

Social Networking Sites

This section provides the users to listen to our podcasts and connect with us through below mentioned social networking sites and get the latest updates, highlights and news related to our databases.

Connect with us on

Listen to our podcasts

Also Available On

Acknowledgement

We acknowledge the financial support by the National Institute of Plant Genome Research core fund.
We sincerely acknowledge the following scientists for their critical comments during the development of this database:

Scientists

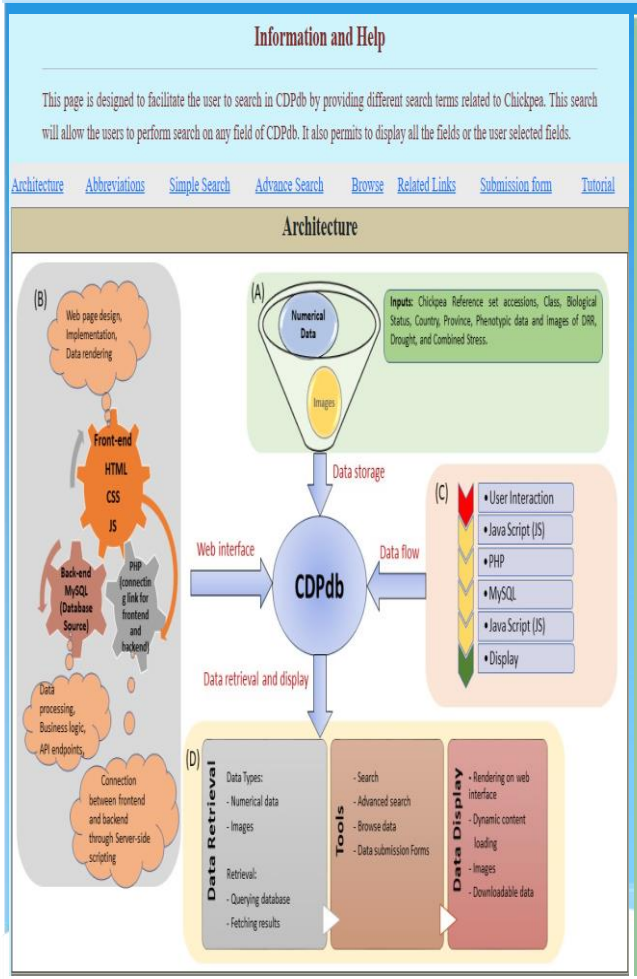
Dr. Swarup Kumar Parida, Scientist, NIPGR, India

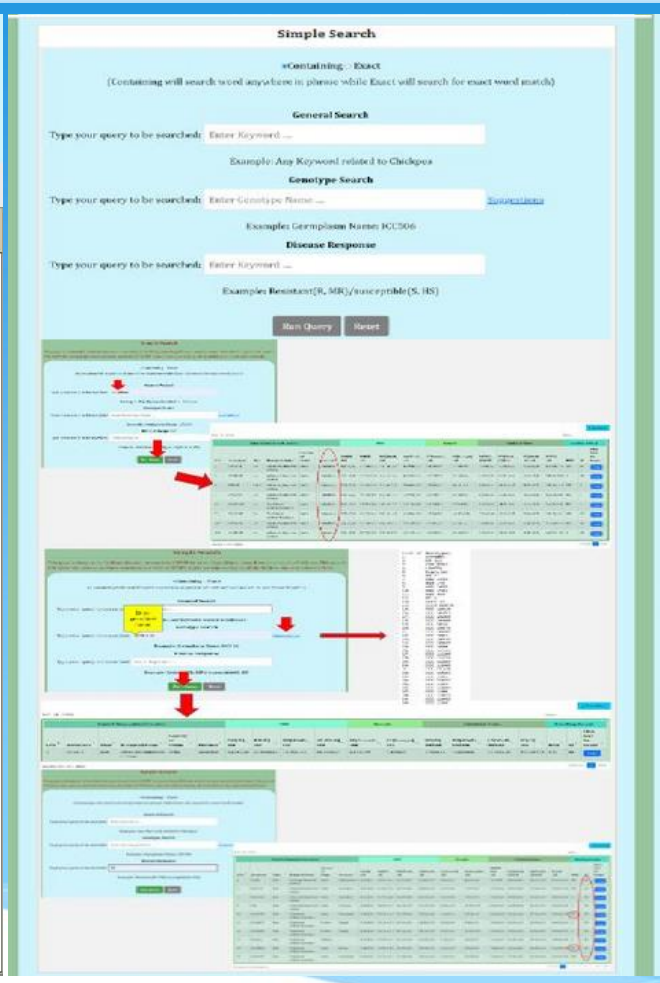
Lab members

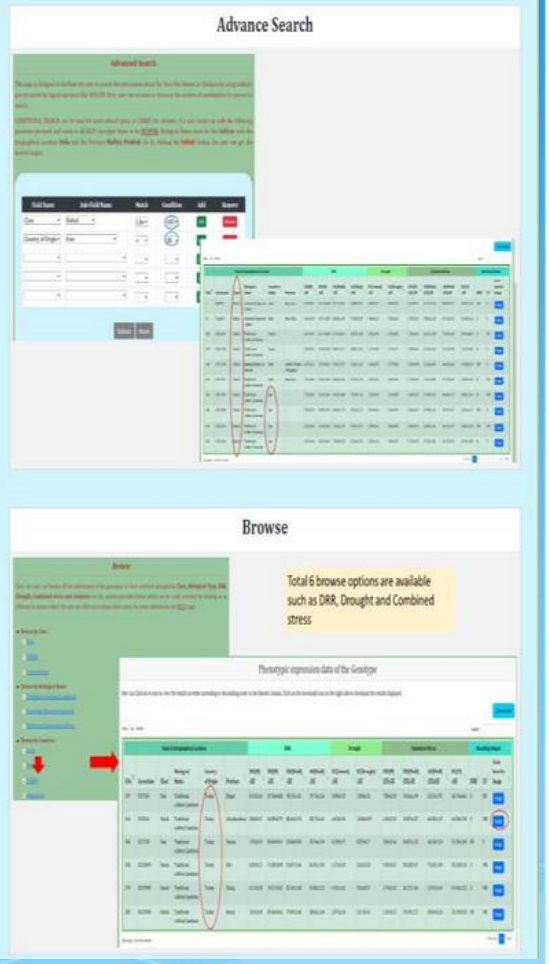
Dr. Piyush Priya, Senior Research Associate, NIPGR, India
Aswin Reddy Chillakala, PhD Scholar, NIPGR, India
Durgadevi Adimoolam, Junior Research Fellow, NIPGR, India
Chaitali Narendra Chavan, Post Graduate Trainee, NIPGR
Navaneeth V, Summer Research Trainee, NIPGR

Help Page

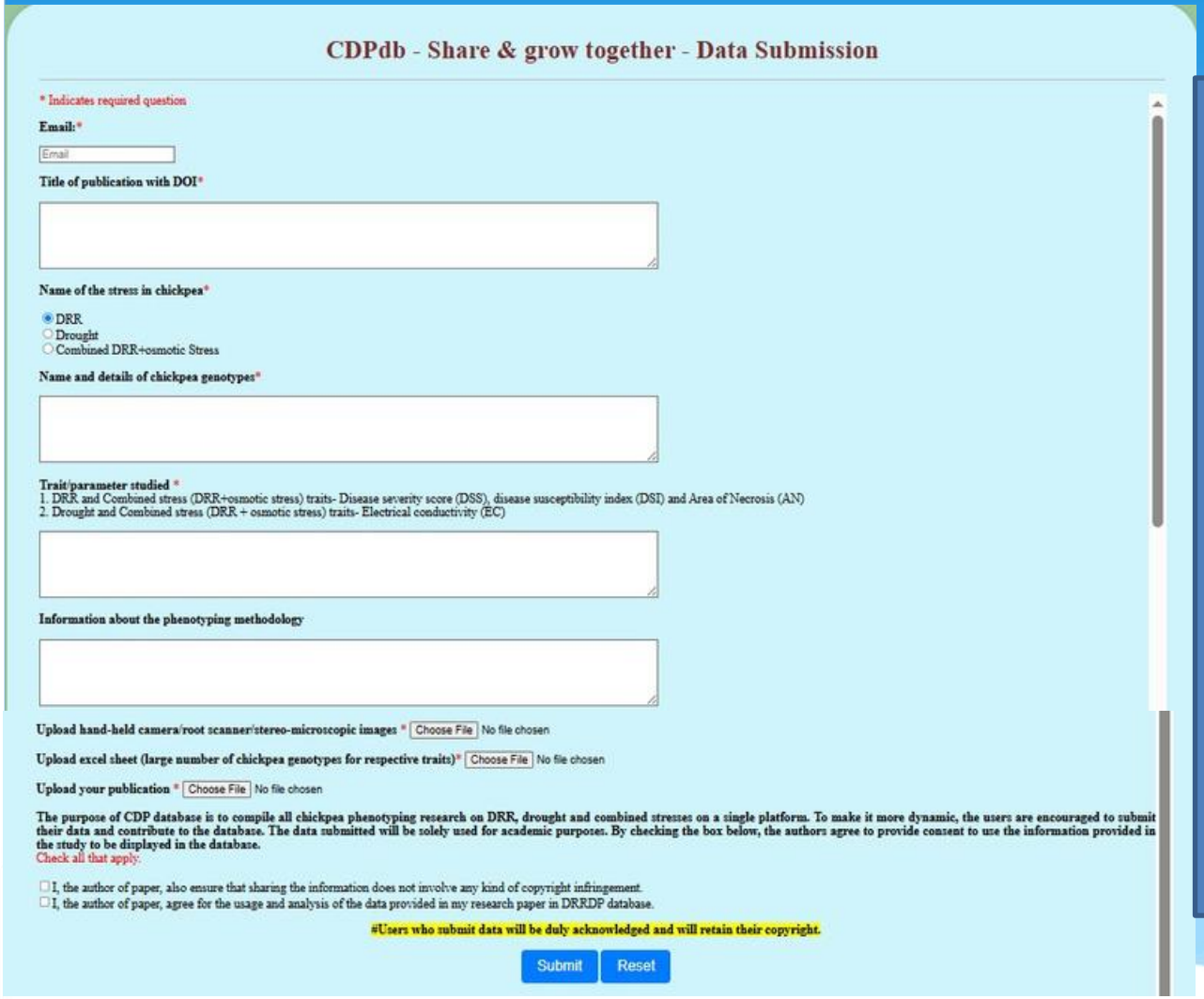
The help section provides information about the database, usage instructions, and available tutorials to assist users.







Submission form



CDPdb - Share & grow together - Data Submission

* Indicates required question

Email:*

Email

Title of publication with DOI*

Name of the stress in chickpea*

- DRR
- Drought
- Combined DRR+osmotic Stress

Name and details of chickpea genotypes*

Trait/parameter studied *
1. DRR and Combined stress (DRR+osmotic stress) traits- Disease severity score (DSS), disease susceptibility index (DSI) and Area of Necrosis (AN)
2. Drought and Combined stress (DRR + osmotic stress) traits- Electrical conductivity (EC)

Information about the phenotyping methodology

Upload hand-held camera/root scanner/stereo-microscopic images * Choose File No file chosen

Upload excel sheet (large number of chickpea genotypes for respective traits)* Choose File No file chosen

Upload your publication * Choose File No file chosen

The purpose of CDP database is to compile all chickpea phenotyping research on DRR, drought and combined stresses on a single platform. To make it more dynamic, the users are encouraged to submit their data and contribute to the database. The data submitted will be solely used for academic purposes. By checking the box below, the authors agree to provide consent to use the information provided in the study to be displayed in the database.
Check all that apply.

- I, the author of paper, also ensure that sharing the information does not involve any kind of copyright infringement.
- I, the author of paper, agree for the usage and analysis of the data provided in my research paper in DRRDP database.

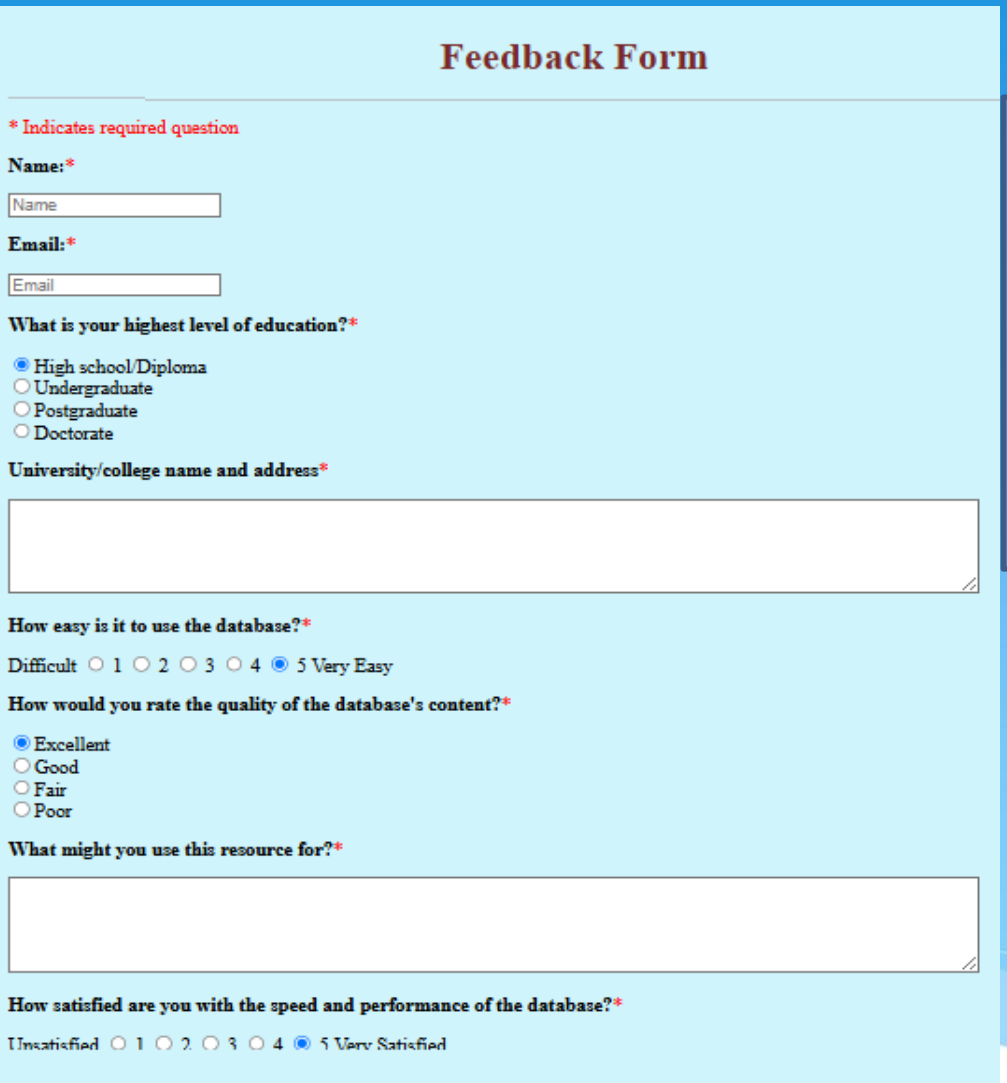
#Users who submit data will be duly acknowledged and will retain their copyright.

Submit Reset

The submission form is available on search menu under the 'Data Submission form' tab.

Users can submit data related to their DRR, drought, and combined stress research on chickpeas using the same parameters. The submission form includes queries about the experiment, genotypes used, phenotype methodology, parameter studies, and more. It is mandatory to upload images of treated roots and provide numerical data in an Excel sheet, as well as agree to the terms and conditions.

Feedback Form



Feedback Form

* Indicates required question

Name:*

Name

Email:*

Email

What is your highest level of education?*

- (•) High school/Diploma
- ( ) Undergraduate
- ( ) Postgraduate
- ( ) Doctorate

University/college name and address*

How easy is it to use the database?*

Difficult ○ 1 ○ 2 ○ 3 ○ 4 (•) 5 Very Easy

How would you rate the quality of the database's content?*

- (•) Excellent
- ( ) Good
- ( ) Fair
- ( ) Poor

What might you use this resource for?*

How satisfied are you with the speed and performance of the database?*

Unsatisfied ○ 1 ○ 2 ○ 3 ○ 4 (•) 5 Very Satisfied

The feedback form is available on search menu under the ‘Feedback form’ tab.

Users are encourged to share feedback a Users are encouraged to share feedback about their experience with the database to help us improve. The feedback form contains 10 questions related to personal information, performance, use of resources, recommendations, and more.

Related links and References

Related links and references are available on the home menu.

Related Links

Various research groups are working in the field of dry root rot disease related to chickpea plant. We hope that this page will help you to find other resources related to dry root rot disease of chickpea. Your comments and suggestions are welcome, please contact us at skmuthappa at nipgr dot ac dot in.

SCIPdb

SCIPdb - Stress Combinations and their Interactions in Plants Database: A one-stop resource on combined stress responses in plants.

More Information

ICRISAT

ICRISAT's unwavering commitment to chickpea breeding has led to significant breakthroughs, focusing on developing varieties that are high-yielding and resilient to environmental challenges, especially drought.

More Information

Pulse Crop Database

The Pulse Crop Database (PCD), formerly the Cool Season Food Legume Database (CSFL), is being developed to serve as a resource for Genomics-Assisted Breeding (GAB).

More Information

Legumepedia

Legumepedia maintains public repository of latest genome assemblies and annotations for different legume species, namely, chickpea, pigeonpea, soybean, subterranean clover, and wild progenitors of cultivated groundnut.

More Information

CicerSeq

CicerSeq is a public repository global map of genome variation based on sequencing of 3,366 Cicer genomes representing 3,171 cultivated species accessions and 195 accessions from seven wild species.

More Information

CaGEADB

The comprehensive functional annotation, expression profilling, tissue-specificity and co-expression network analyses of these sets of lncRNAs and mRNAs in different tissues/organs/developmental stages of chickpea.

More Information

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Thank you