



**CABI Training Materials**  
**Distribution Maps of Plant Diseases (DMPD)**  
**User Guide**



KNOWLEDGE FOR LIFE  
[www.cabi.org](http://www.cabi.org)

# Contents

Contents.....	2
Introduction .....	3
Coverage .....	3
Map Production .....	3
Accessing DMPD .....	4
Navigating the interface.....	5
Simple site searches .....	6
Conducting general site searches .....	6
Conducting filtered site searches .....	6
Viewing search results .....	7
Topic pages.....	9
Refine options .....	10
Distribution maps .....	11
MyDMPD.....	12
Creating a MyDMPD account.....	12
Combining searches .....	14
Saving searches and creating alerts .....	15
Saving and exporting records .....	16
Appendix A: Search techniques .....	18

## Introduction

The need for accurate distribution data for plant diseases is so important. Distribution Maps of Plant Diseases (DMPD), first published in 1942, are a respected, referenced source of such data, expertly compiled, validated and used by plant health organizations around the world. The maps provide an essential complement to expanding knowledge on plant disease distribution. DMPD continues to be the most authoritative source of information on the presence and extent of specific plant diseases.

## Coverage

DMPD covers important diseases affecting agriculture, horticulture and forestry. Two sets of maps are produced each year, comprising mostly of new maps with a number of map revisions (where significant changes have merited a revision). There are 18 diseases per map set covering fungi, bacteria, viruses and, from 1999 onwards, nematodes. By the end of 2013 the total number of different species mapped in the series was over 1150. The database contains the archive of the Distribution Maps as well as the very latest publications.

## Map Production

Behind the simple appearance of a map, and its associated references, lies a complex and detailed piece of research. The aim is simple; to ensure that the published map contains the best and most accurate assessment of the known distribution of a particular organism. Species selection for map production is determined by:

- existence or currency of maps of pests of economic or phytosanitary importance
- recent reports of spread
- new proposals for phytosanitary categorization
- customer feedback
- revised taxonomy which may render old map editions invalid

A thorough quality assurance procedure takes place during production to ensure accuracy and includes:

### **Primary source materials from reputable providers**

Scientific records from peer-reviewed publications on geographic distribution of species are collated from primary sources derived from CAB Abstracts, EPPO and additional partners.

### **Expert taxonomic verification from subject experts**

Subject experts ensure accurate species identification when source searching for distribution data

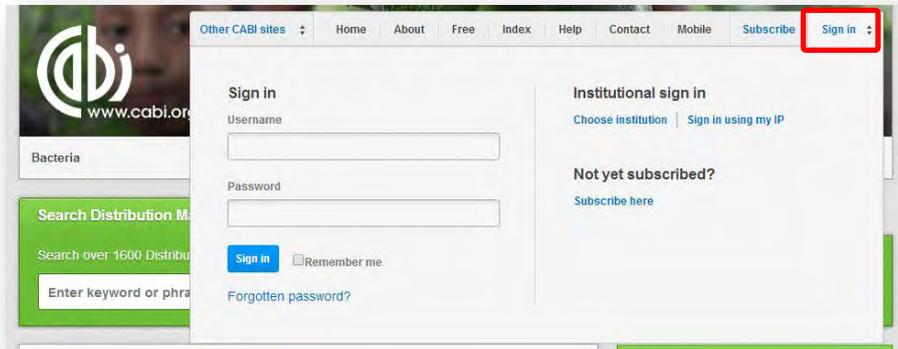
### **Expert validation of the data and review**

All draft maps are sent to expert validators for review and include the Natural History Museum, London, CABI Bioservices and independent expert consultants. EPPO also review final drafts before production

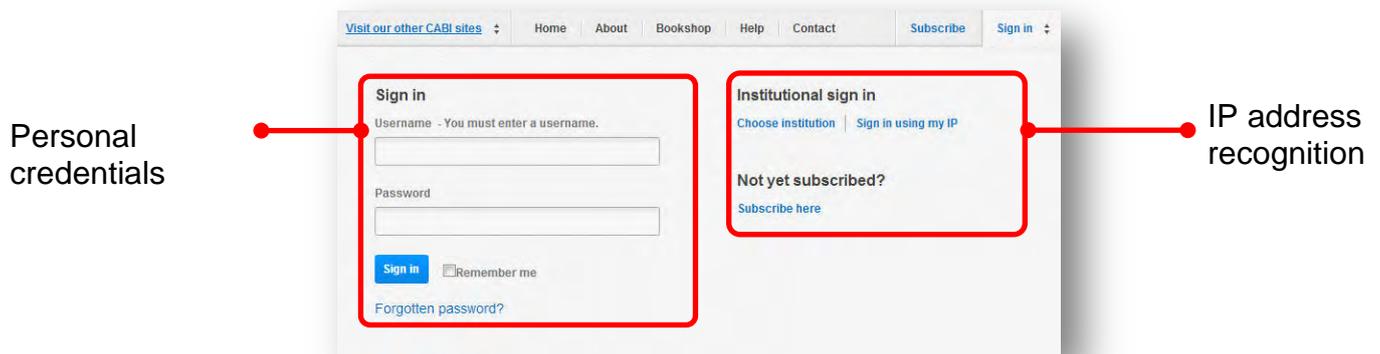
# Accessing DMPD

DMPD is a web-based interface. To access the site visit [www.cabi.org/DMPD](http://www.cabi.org/DMPD)

To sign in to the DMPD site click on the [Sign in](#) button situated in the site menu as shown below:



There are two ways to login to the database depending on the access options your account has:



## By Personal credentials:

If you requested access to the site by a username and password please enter this in to the login box situated in the top left hand corner of the webpage.

## By IP Address:

If your institution has a subscription to DMPD and you are accessing through your institutions network, the DMPD platform will recognise your IP address as a registered user and automatically log you on to the site. If you aren't automatically recognised click the [Sign in using my IP](#) button.

# Navigating the interface

The DMPD interface has been designed to enable quick and comprehensive content searches. Below shows an image of the DMPD homepage and the various features displayed.

The screenshot shows the DMPD homepage with several key features highlighted by red boxes and labels:

- Site menu:** Located at the top left, it includes links for 'Other CABI sites', 'Home', 'About', 'Tree', 'Index', 'Help', 'Contact', 'Mobile', and 'Sign out'.
- Browse by topic:** A horizontal navigation bar below the site menu, featuring buttons for 'Bacteria', 'Fungi', 'Nematodes', 'Viruses', and 'Other'.
- Search bar:** A central search area with the text 'Search Distribution Maps of Plant Diseases' and a search input field. It also includes a 'My DMPD: sign in or register' link and a 'Search within topic' dropdown.
- Latest indexed articles:** A large section on the left side of the page, titled 'Latest content', which lists several recent articles with their titles, authors, and publication details. Each article entry includes a 'View full text article' link.
- My DMPD Account:** A sidebar on the right side of the page, containing options such as 'Create and export short lists', 'Save content', and 'Save searches'.

At the bottom of the page, there is a footer with the CABI logo, a 'Privacy Policy' link, and social media icons for Facebook, Twitter, LinkedIn, and YouTube.

## Simple site searches

DMPD offers a simple site search using a variety of basic search techniques to search content across the whole of the site such as Boolean operators and Phrase searching. These search techniques can be found in the [search techniques reference table](#).

## Conducting general site searches

A general site search conducts a search across all the various types of content and topics available on the DMPD site. It will return a broad range of search results that will include all material types from all subject areas. It can be a useful place to begin a search.

To conduct a general site search enter your search terms in to the search box located in the search bar of the home page and click the  button as shown below:

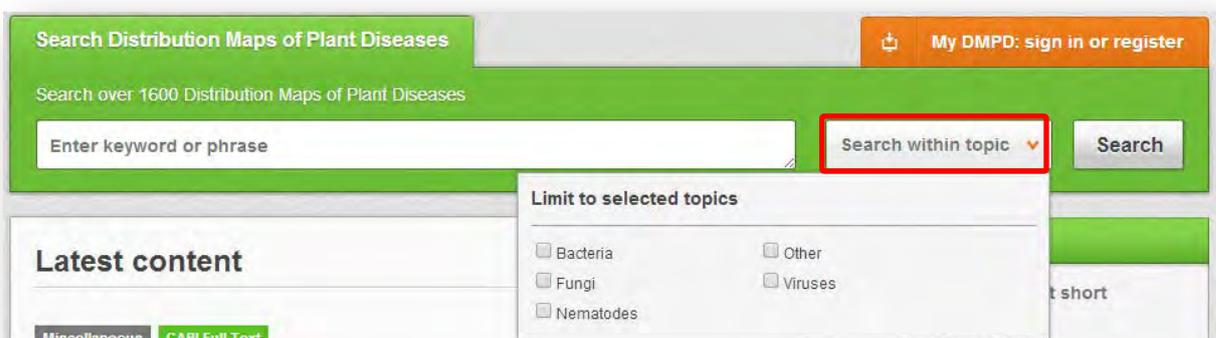


The screenshot shows the top navigation bar of the DMPD website. On the left, there is a green header with the text "Search Distribution Maps of Plant Diseases". To the right of this header is an orange button with a user icon and the text "My DMPD: sign in or register". Below the header, there is a green search bar with the text "Search over 1600 Distribution Maps of Plant Diseases". Inside the search bar is a white input field with the placeholder text "Enter keyword or phrase". To the right of the input field is a dropdown menu labeled "Search within topic" with a downward arrow. To the right of the dropdown menu is a grey button labeled "Search".

## Conducting filtered site searches

A filtered site search can be used to limit a search to specific categories of organisms. This will return a narrower range of search results and is particularly useful if you are trying to limit searches to particular fields of interest.

To conduct a filtered site search enter your search terms in to the search box located in the search bar of the home page. Click on the filter options to the right of the search box and select the categories you would like to limit the search to. The  indicates which categories have been selected. Below shows the examples for both the subject and content filters:



The screenshot shows the same search bar as in the previous image, but with the "Search within topic" dropdown menu open. The dropdown menu is titled "Limit to selected topics" and contains a list of categories with checkboxes: Bacteria, Fungi, Nematodes, Other, and Viruses. The "Other" checkbox is checked. The search bar is highlighted with a red border. Below the search bar, there is a section titled "Latest content" with two tabs: "Miscellaneous" and "CABI Full Text".

Once selected click the  button.

## Viewing search results

The returned results will be displayed on the search results page as shown below. The figure below the search box indicates the number of returned results from your search string query. Below this will show any filtered categories that were selected for the search. To remove the filters simply click the **X** next to the filtered term. The search results are displayed in the box below and can be ordered by most recently indexed first or relevance. At the top and bottom of the search results screen there are also options to vary the number of records displayed on the current page.

Number of records

5 results found

X Topic: Fungi

Results per page: 10

Filter display

Records display options

Search Distribution Maps of Plant Diseases

Search over 1600 Distribution Maps of Plant Diseases

potato AND "Czech republic"

Search within topic Search

My DMPD: sign in or register

1

Search results

Abstract CABI Full Text

**Spongospora subterranea. [Distribution map].**

A new distribution map is provided for *Spongospora subterranea* (Wallr.) Lagerh. Cercozoa; Plasmodiophorales. Hosts: Potato (*Solanum tuberosum*) and tomato (*S. lycopersicum*). Information is given on the geographical distribution in Europe (Austria; Belarus; Belgium; Bosnia-Herzegovina; Bulgaria;...

Publisher CABI, Wallingford, UK,  
Citation *Distribution Maps of Plant Diseases*, 2012, April, pp Map 34 (Edition 6)

View full text article →

Abstract CABI Full Text

Refine results

Sort Order

Relevance  
Date (Recent First)  
Date (Oldest First)  
Alphabetical (A to Z)

Geographical Location

Africa (5)  
Canada (5)  
Czech Republic (5)  
Denmark (5)  
Finland (5)  
MORE RESULTS...

Year

1996 (1)  
1998 (1)  
2005 (1)  
2008 (1)  
2012 (1)

Below shows an example of an article header from the returned results. You can see the resource type, the article title, the beginning of the article abstract and further bibliographic information for the record.

Resource type

Abstract CABI Full Text

**Spongospora subterranea. [Distribution map].**

Abstract introduction

Bibliographic information

Publisher CABI, Wallingford, UK,  
Citation *Distribution Maps of Plant Diseases*, 2012, April, pp Map 34 (Edition 6)

When clicked, the article title will take you to the record page listing the full bibliographic details of the record as shown below.

Next: [Phoma exigua var. foveata. \[Distribution map\]](#) >>  
[Return to Search Results](#)

Miscellaneous

***Spongospora subterranea*. [Distribution map].**

[View full text article](#) >

**Abstract**

A new distribution map is provided for *Spongospora subterranea* (Wallr.) Lagerh. Cercozoa; Plasmodiophorales. Hosts: Potato (*Solanum tuberosum*) and tomato (*S. lycopersicum*). Information is given on the geographical distribution in Europe (Austria; Belarus; Belgium; Bosnia-Herzegovina; Bulgaria; Croatia; Cyprus; Czech Republic; Denmark; Faroe Islands; Finland; Germany; Greece; Ireland; Sicily; Italy; Latvia; Malta; Netherlands; Norway; Poland; Portugal; Romania; Northern Russia; Sweden; Switzerland; Channel Islands; England and Wales; Isle of Man and Scotland, UK), Asia (Armenia; Azerbaijan; Fujian, Gansu, Guangdong, Guangxi, Guizhou, Jiangxi, Jilin, Nei Menggu, Yunnan and Zhejiang, China; Georgia; Himachal Pradesh and Maharashtra, India; Indonesia; Israel; Hokkaido, Japan; Korea Republic; Kyrgyzstan; Lebanon; Nepal; Pakistan; Philippines; Sri Lanka; Taiwan; and Turkey), Africa (Algeria; Burundi; Egypt; Kenya; Madagascar; Mauritius; Morocco; Mozambique; Rwanda; South Africa; Tanzania; Tunisia; Zambia and Zimbabwe), North America (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward Island, Quebec and Saskatchewan, Canada; Mexico; Alabama, Alaska, California, Colorado, Connecticut, Florida, Hawaii, Idaho, Maine, Massachusetts, Minnesota, Mississippi, Montana, New Hampshire, New Jersey, New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Vermont, Washington and Wyoming, USA), Central America and Caribbean (Costa Rica, Cuba and Panama), South America (Argentina; Bolivia; Goiás, Minas Gerais, Paraná, Rio Grande do Sul, Santa Catarina and São Paulo, Brazil; Chile; Colombia; Ecuador; Falkland Islands; Peru; Uruguay; and Venezuela) and Oceania (New South Wales, Queensland, South Australia, Tasmania, Western Australia and Victoria, Australia, New Zealand; and Papua New Guinea).

**Abstract details**

Author(s)  
[CABI/EPP0](#)

Author Affiliation  
CABI Head Office, Wallingford, UK.

Miscellaneous  
[Distribution Maps of Plant Diseases](#)  
2012 April Map 34 (Edition 6)

ISSN  
0012-396X

Publisher Information  
CABI Wallingford UK

Language of Text  
English

**Geographical Location**  
[Africa](#) [Alabama](#) [Alaska](#) [Alberta](#) [Algeria](#) [Argentina](#) [Armenia](#) [Asia](#) [Australia](#) [Austria](#) [Azerbaijan](#) [Belarus](#) [Belgium](#) [Bosnia-Herzegovina](#) [British Columbia](#) [Bulgaria](#) [Burundi](#) [California](#) [Canada](#) [Caribbean](#) [Central America](#) [Channel Islands](#) [China](#) [Colorado](#) [Connecticut](#) [Costa Rica](#) [Croatia](#) [Cuba](#) [Cyprus](#) [Czech Republic](#) [Denmark](#) [Ecuador](#) [Egypt](#) [England](#) [Europe](#) [Falkland Islands](#) [Faroe Islands](#) [Finland](#) [Florida](#) [Fujian](#) [Gansu](#) [Germany](#) [Greece](#) [Guangdong](#) [Guangxi](#) [Guizhou](#) [Hawaii](#) [Himachal Pradesh](#) [Hokkaido](#) [Idaho](#) [India](#) [Indonesia](#) [Isle of Man](#) [Israel](#) [Italy](#) [Japan](#) [Jiangxi](#) [Jilin](#) [Kenya](#) [Korea Republic](#) [Kyrgyzstan](#) [Latvia](#) [Lebanon](#)

**Bibliographic information**

**Metadata**

As well as the full abstract the page will also include the full bibliographic information and indexing keywords that were assigned to the record during the indexing process. This can be found under the Abstract details pane on the right of the page.

## Topic pages

Topic pages enable you to focus searching on particular organism categories. The topic page can be selected from the horizontal menu bar shown in the screen shot below. These topic pages are structured in a similar format as the homepage but only include content items that refer to the selected topic. For example, the screen shot below shows the topic page for bacteria. Therefore the latest content section on the bacteria topic page will only show recent articles that refer to those particular organisms. The green underline in the horizontal topic page menu and the page title indicate which topic page you are currently viewing.

The screenshot shows the CAB International website interface. At the top, there is a navigation bar with 'Other CABi sites', 'Home', 'About', 'Free', 'Index', 'Help', 'Contact', 'Mobile', and 'Sign out'. Below this is a header for 'Distribution Maps of Plant Diseases' with a sub-header 'A leading resource for accurate data on the worldwide distribution of plant diseases of economic or quarantine importance'. A horizontal menu bar contains 'Bacteria', 'Fungi', 'Nematodes', 'Viruses', and 'Other'. The 'Bacteria' item is highlighted with a green underline. Below the menu is a search bar with the text 'Search Distribution Maps of Plant Diseases' and a search button. The search results section shows '230 results found' and 'Topic: Bacteria'. The results list includes two entries: 'Spiroplasma citri. [Distribution map]' and 'Candidatus Phytoplasma mali. [Distribution map]'. A 'Refine results' sidebar on the right allows filtering by 'Sort Order', 'Geographical Location', and 'Year'. Red boxes and arrows highlight the 'Bacteria' menu item, the search results, and the 'Refine results' pane.

Search results limited to that topic

Topic page menu bar

Refine results pane

When conducting a search from a topic page, the relevant option is automatically selected from the topic filter section as shown below. This means that any search conducted from the topic page will limit searches to only content relating to that subject.

The screenshot shows the CAB International website interface for 'Search Descriptions of Fungi and Bacteria'. The search bar contains the text 'Search around 2000 descriptions of Fungi and Bacteria'. Below the search bar is a search button. The search results section shows '1,744 results found' and 'Topic: Plant pathogens'. A 'Limit to selected topics' section is visible, with three options: 'Animal pathogens', 'Human pathogens', and 'Plant pathogens'. The 'Plant pathogens' option is selected with a checked checkbox. Red boxes and arrows highlight the search bar and the 'Plant pathogens' selection.

Topic automatically selected

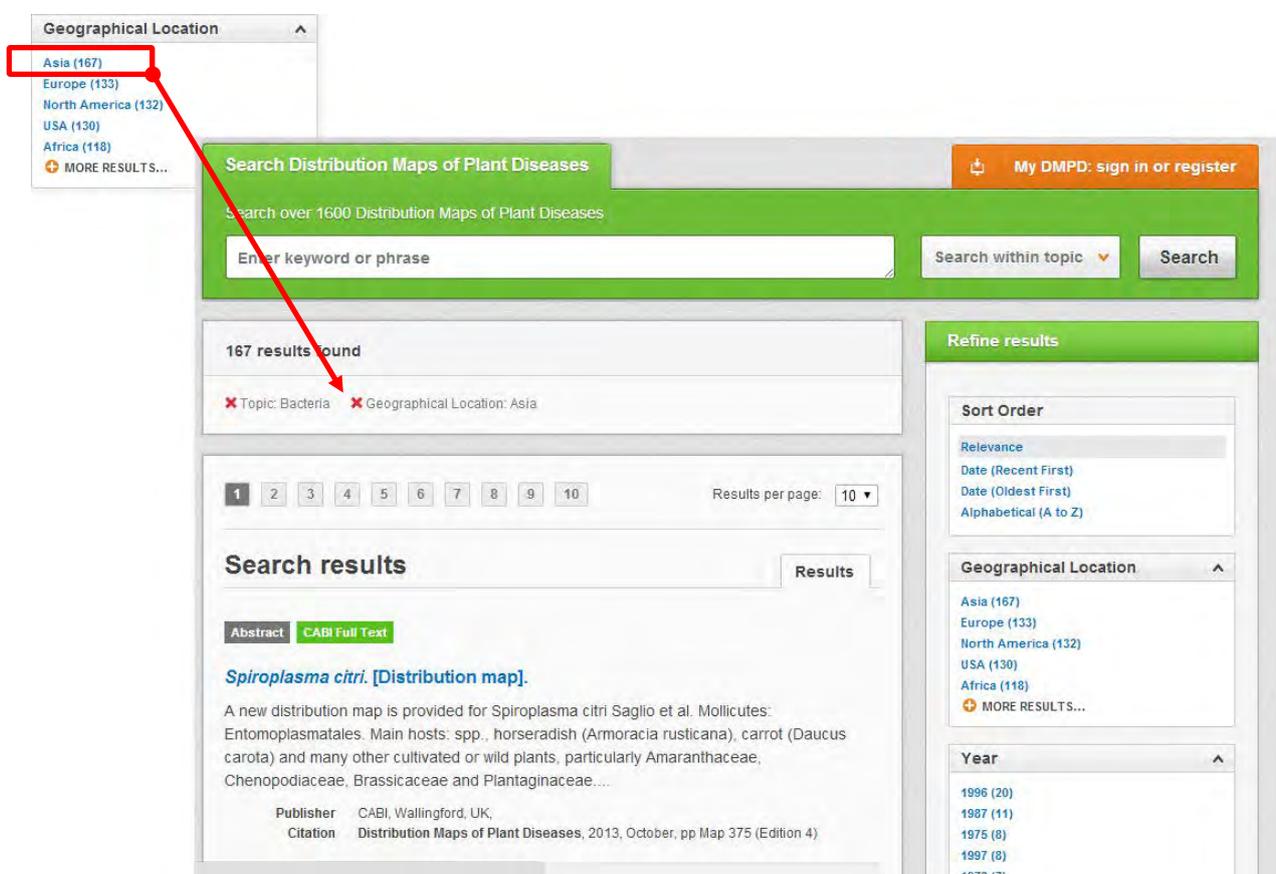
## Refine options

On the right side of the topic page there is a Refine results pane. This allows you to organise the display of the results alphabetically or by recency or relevancy. The refine pane also allows users to refine content even further using the geographic location and year of publication.



Each field is listed in a separate box in the refine results pane. These can be collapsed by using the  in the field box header. Blue text indicates the keyword and the bracketed number indicate the amount of records associated to it.

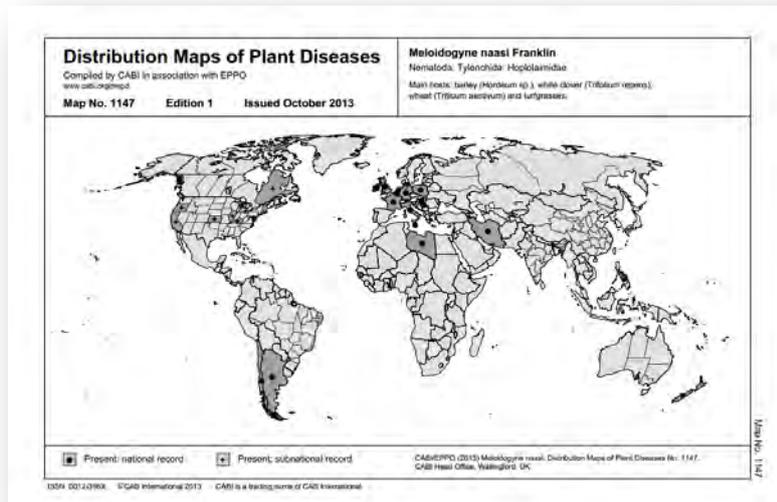
Clicking on a blue keyword conducts a search to return results specific to the selected topic and the relevant keyword from the associated field. For example, below we can see that by clicking on the subject [Asia \(167\)](#) listed in the author field box a filtered search is generated limiting results the author: "plant pests". This is displayed in the filter display at the top of the results page.



A screenshot of a search results page for 'Search Distribution Maps of Plant Diseases'. The page features a search bar at the top with the text 'Enter keyword or phrase' and a 'Search' button. Below the search bar, there is a 'Refine results' pane on the right side. The 'Refine results' pane has a 'Geographical Location' section with a list of locations: Asia (167), Europe (133), North America (132), USA (130), and Africa (118). A red arrow points from the 'Asia (167)' link in this pane to the '167 results found' section of the search results. The search results section shows '167 results found' and a list of filters: 'Topic: Bacteria' and 'Geographical Location: Asia'. Below the filters, there is a 'Search results' section with a 'Results' button. The first result is for 'Spiroplasma citri. [Distribution map.]' with a brief description and publication information.

## Distribution maps

On each record page the site will also provide a full text article which will link to the distribution map in PDF format. Simply click on the [View full text article](#) button to view the map. Each distribution map will provide occurrence points to indicate the presence of the plant disease. If the occurrence point displays  the data indicates the disease is present at a national level with no regional distribution specified. However, if  is displayed the regional distribution data for the species has been verified.



Following the maps is a citation list which indicates the references that have been used to plot the occurrence points. The citation list is grouped into global regions with countries listed alphabetically. Each reference used to create the occurrence point on the distribution map will then be listed for each country. Each reference will also be allocated with a distribution status symbol from the following key:

X: Present, no details  
 A: Present: widespread  
 B: Present, restricted distribution

C: Present, few occurrences  
 (D): Absent, formerly present  
 (E): Eradicated  
 (F): Intercepted only

October 2013	Meloidogyne naasi	Map No. 1147 (Edition 1)
<p><b>AMERICA</b></p> <p>USA: ...</p> <p>MEXICO: ...</p> <p>CANADA: ...</p>	<p><b>AFRICA</b></p> <p><b>ASIA</b></p> <p><b>EUROPE</b></p> <p><b>MIDDLE EAST</b></p> <p><b>OCEANIA</b></p>	<p><b>AMERICA</b></p> <p><b>AFRICA</b></p> <p><b>ASIA</b></p> <p><b>EUROPE</b></p> <p><b>MIDDLE EAST</b></p> <p><b>OCEANIA</b></p>

## MyDMPD

The MyDMPD feature improves search functionality for users allowing users to:

- Combine and save searches
- Save records
- Export citations
- Create Alerts

To gain the full functionality of MyDMPD and for the system to record and recall your searching activity you must be signed in. It is therefore recommended that you sign-in to MyDMPD at the beginning of all your search sessions on the DMPD site.

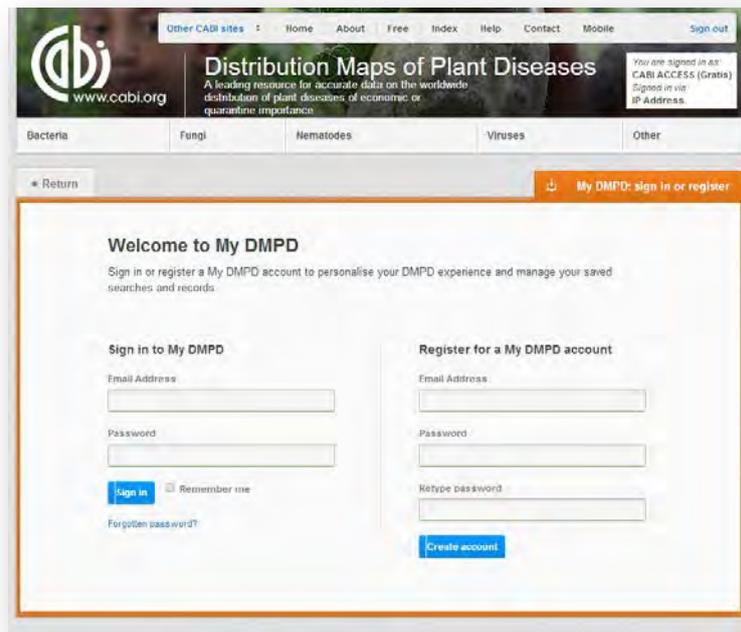
### Creating a MyDMPD account

Before you can access the features of MyDMPD you first need to create an account.

Click on the  button in the top-right hand corner of the search box as shown below:

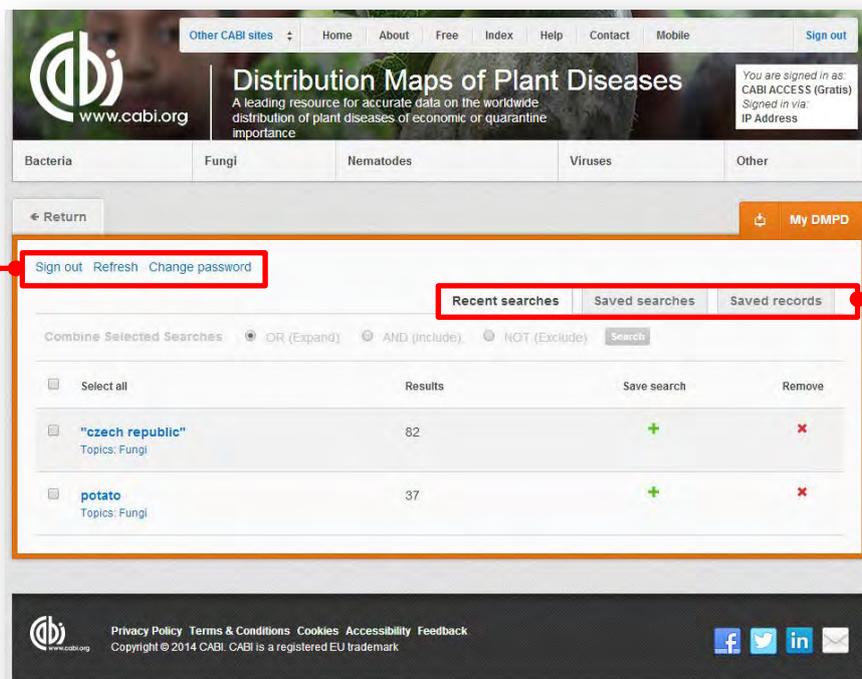


This will direct you to the sign-in page as shown below. The right hand side of the page allows new users to register an account. The left hand side of the page allows users already registered to sign in. Once registered, fill in your unique credentials to sign-in.



Below shows the MyDMPD page. At the top of the display box are the different tabs to display the different types of search activities. By default the display automatically shows the recent searches that you have conducted whilst logged-in to MyDMPD. To the left hand side of the page there is also an option to sign-out or change your account password. To permanently remove a search from your recent search display click on remove button 

Sign out/  
Change  
password

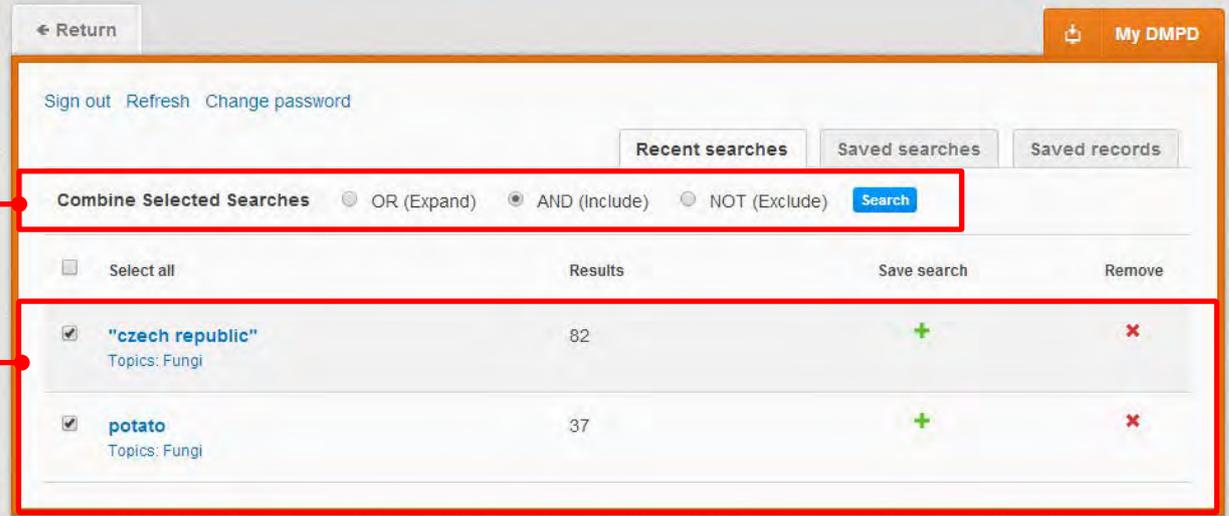


Display  
tabs

## Combining searches

Combined searches are a useful tool for when compiling long and complex search strings which contain multiple Boolean operators and parentheses. To simplify the process and minimise the chance of input errors this function allows the user to perform two or more separate searches and combine them with either the AND, OR and NOT Boolean operators.

In the example below we can see in the recent search tab two relatively complex searches have recently been conducted. These two have been selected using the checkbox  and the AND Boolean operator has been chosen from the combined search options. You can also see these searches have been filtered to certain criteria as explained [previously](#).

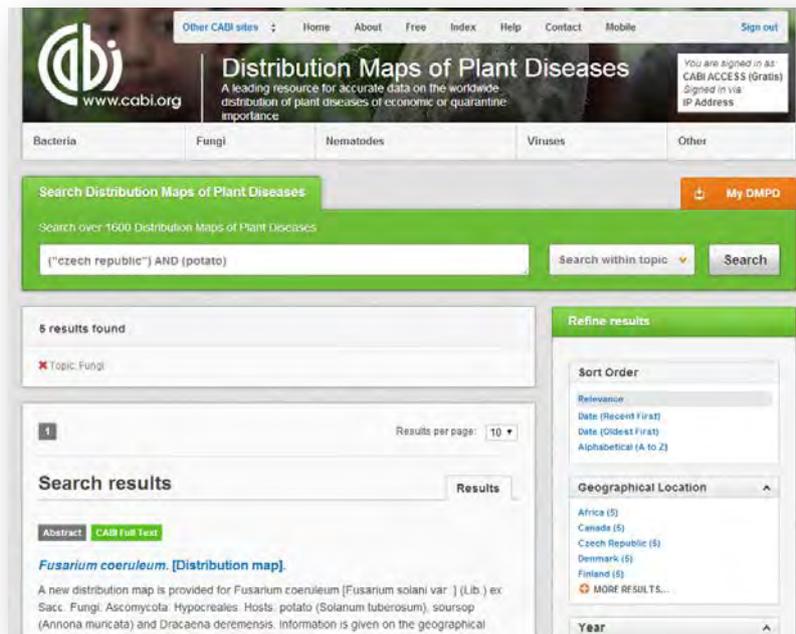


Combining options

Selected searches

Select all	Results	Save search	Remove
<input checked="" type="checkbox"/>	"czech republic" Topics: Fungi 82	+	×
<input checked="" type="checkbox"/>	potato Topics: Fungi 37	+	×

Once your options have been selected perform the search by clicking the [Search](#) button. This will conduct the search and direct you to the results page as shown below. You can see that the search string of the two combined searches is displayed in the search box. By combining this search with the AND operator we have limited the results further but alternatively by using this feature with the OR operator the we can also expand results.



Other CABI sites : Home About Free Index Help Contact Mobile Sign out

**Distribution Maps of Plant Diseases**  
A leading resource for accurate data on the worldwide distribution of plant diseases of economic or quarantine importance

You are signed in as CABI ACCESS (Gratis)  
Signed in via IP Address

Bacteria Fungi Nematodes Viruses Other

Search Distribution Maps of Plant Diseases My DMPD

Search over 1600 Distribution Maps of Plant Diseases

Search within topic Search

5 results found

Topic: Fungi

1 Results per page: 10

**Search results** Results

Abstract CABI Full Text

***Fusarium coeruleum.* [Distribution map.]**

A new distribution map is provided for *Fusarium coeruleum* [*Fusarium solani* var. ] (Lib.) ex Sacc. Fungi. Ascomycota: Hypocreales. Hosts: potato (*Solanum tuberosum*), sour sop (*Annona muricata*) and *Dracaena deremensis*. Information is given on the geographical

Refine results

Sort Order

Relevance  
Date (Recent First)  
Date (Oldest First)  
Alphabetical (A to Z)

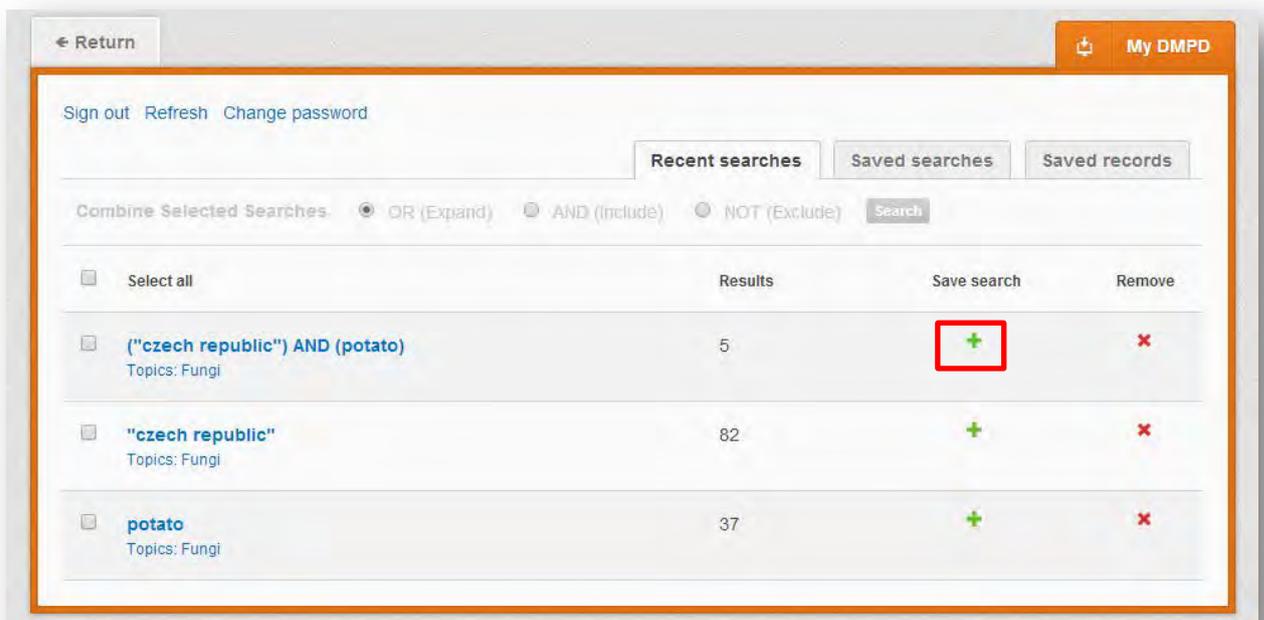
Geographical Location

Africa (5)  
Canada (5)  
Czech Republic (5)  
Denmark (5)  
Finland (5)  
MORE RESULTS...

Year

## Saving searches and creating alerts

For searches you would like to run on a regular basis, users can save searches for future reference by using MyDMPD. To save a search visit the recent search tab from the MyDMPD page and click on the save search button 



Return My DMPD

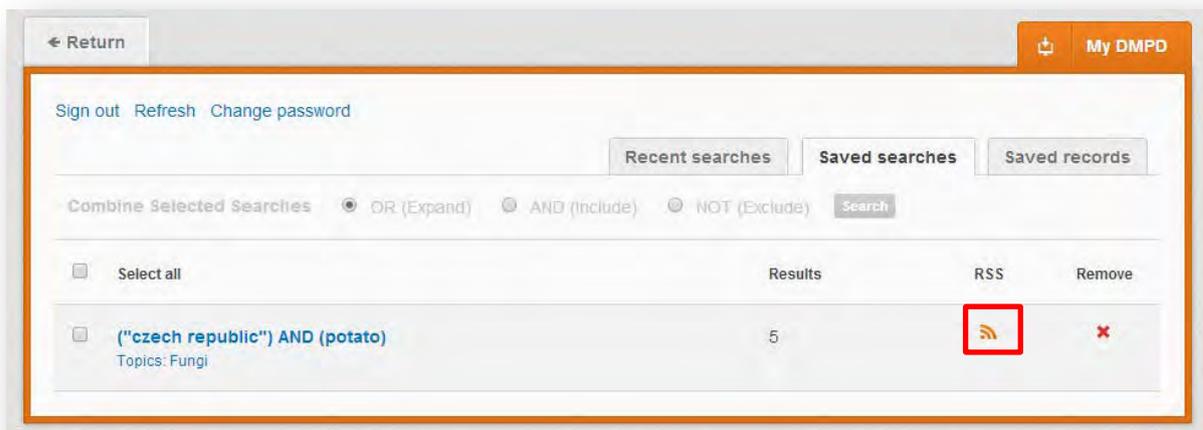
Sign out Refresh Change password

Recent searches Saved searches Saved records

Combine Selected Searches  OR (Expand)  AND (Include)  NOT (Exclude) Search

Select all	Results	Save search	Remove
<input type="checkbox"/> ("czech republic") AND (potato) Topics: Fungi	5		
<input type="checkbox"/> "czech republic" Topics: Fungi	82		
<input type="checkbox"/> potato Topics: Fungi	37		

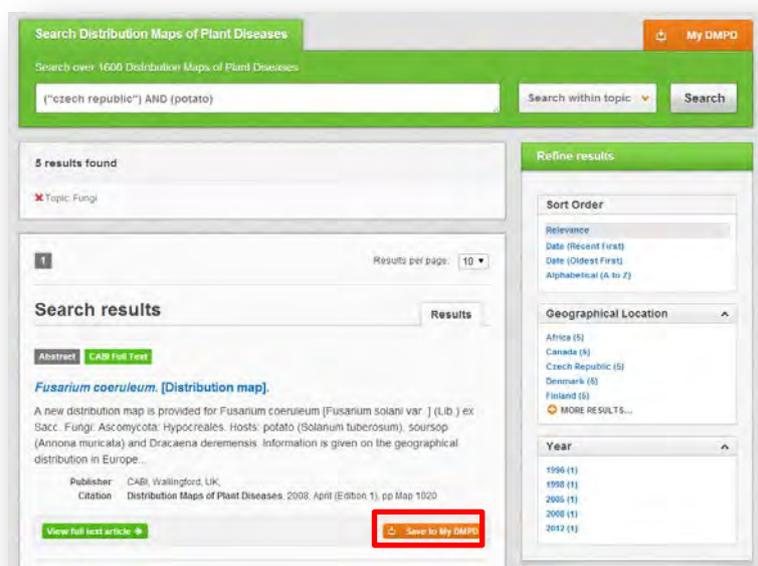
To view your saved searches click on the saved searches tab . The saved searches tab allows the user to conduct a saved search by clicking on the blue search string displayed. For each saved search there is also an option to set up an RSS feed which automatically notifies the user when new records relating to that search string are added to the DMPD site. These notifications can be viewed through all RSS readers such as Microsoft Outlook and Feedly. To find out more about RSS and how to setup an account with an RSS reader [read more here](#). To set up an RSS feed for your search string click on the RSS feed button 



## Saving and exporting records

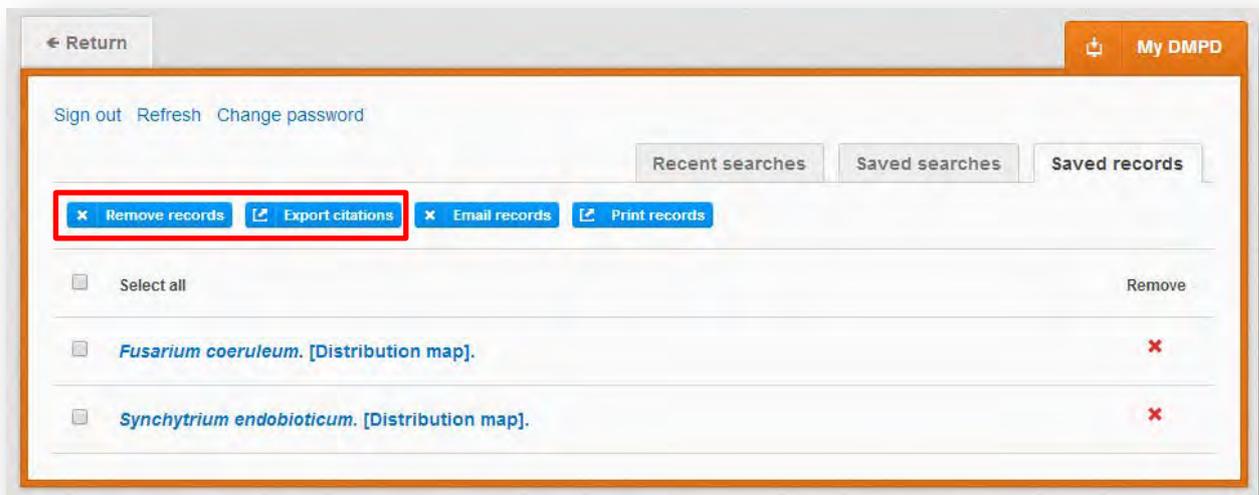
The MyDMPD tool also allows you to save individual article records for future reference and export these to reference management software to create your own bibliographies or reference lists. To save a record to your saved records repository you must first be signed into the MyDMPD tool before conducting searches. When signed in and a search has been conducted each record in the displayed results will have a

 button associated. Click this button to save the record.



To view your saved records click on the saved records tab **Saved records**. This will display the title of all saved records. To view a specific record, click on the title. Records can be removed individually by using the **X** button. To delete multiple records check the boxes  next to the records and click the **X Remove records** button as shown below.

Citations can also be exported to reference management software in a RIS file format. To export citations, select the records you would like to be included in the reference list using the checkbox  and click the **Export citations** button as shown below.



The screenshot shows the CABI DMPD interface. At the top right, there is a 'My DMPD' button. Below it, there are links for 'Sign out', 'Refresh', and 'Change password'. In the center, there are three tabs: 'Recent searches', 'Saved searches', and 'Saved records'. Below the tabs, there are four action buttons: 'X Remove records', 'Export citations', 'X Email records', and 'Print records'. The 'Remove records' and 'Export citations' buttons are highlighted with a red box. Below the buttons, there is a table with two columns: a checkbox column and a 'Remove' column. The table contains two rows of records:

<input type="checkbox"/>	Select all	Remove
<input type="checkbox"/>	<i>Fusarium coeruleum</i> . [Distribution map].	X
<input type="checkbox"/>	<i>Synchytrium endobioticum</i> . [Distribution map].	X

## Appendix A: Search techniques

Search technique	Example	Description	Function	Reason to use
<b>Single word search</b>	<input type="text" value="potato"/>	Searches using a single word term	Returns a broad range of results for a particular word/topic	Provides a broad overview of a scientific area of interest
<b>Boolean search</b>	<input type="text" value="potato AND fusarium"/>	Searches using the operators AND, OR and NOT	Performs searches on multiple concepts that provides specific keyword searching for an area of interest that can include or exclude other concepts.	Allows the user to conduct more controlled searching. Can be used to omit homophones
<b>Phrase searching</b>	<input czech="" republic\""="" type="text" value="potato AND \"/>	Use quotation marks before and after a multiple word phrase	Returns results only containing the entire phrase	Narrows searching to records that only contain the whole phrase
<b>Parentheses</b>	<input czech="" france"="" not="" republic\")="" type="text" value="(potato AND \"/>	Searches using keywords, Boolean operators and parentheses.	Used for searches that contain multiple Boolean operators to define the correct search logic	Refines searches with Boolean operators further to provide limited search results
<b>Truncation &amp; wild cards</b>	<input type="text" value="potato*"/>	Uses the symbols * and ? in keyword search	<p>Using the * returns results with different word stems for the root word</p> <p>Using the ? symbol allows users to specify unknown characters</p>	<p>The * allows users to broaden results to keywords with differing word stems e.g. pop* = popular, population, etc.</p> <p>The ? returns results using a keyword that may differ in spelling</p>

