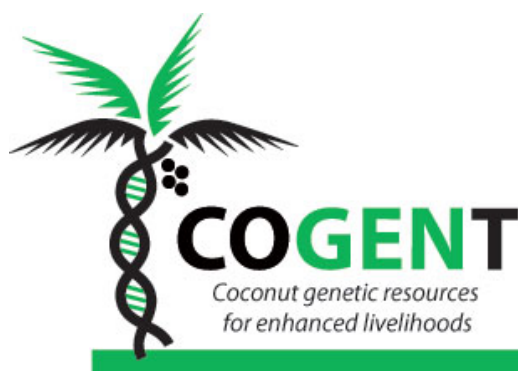


C G R D User's manual

Coconut Genetic Resources Database

Version 6.1 for Windows

For



International Coconut Genetic Resources Network

Revision History

Name	Date	Reason For Changes	Version
Chantal Hamelin	2003	Original document	1.0
Max Ruas	07/04/2015	Update content for CGRD version 6.1	1.1
Max Ruas	26/08/2015	Minor Revision	1.2
Max Ruas	18/04/2015	Update related to the creation of backup and compressed files	1.3
Max Ruas	04/05/2015	Update on report chapters	1.4

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INTRODUCTION

The CGRD (Coconut Genetic Resources Database) software is designed to ensure complete management of data from the Coconut Genetic Resources Network. The new version of this software is version 6.1 for Windows.

It contains the functions required for the following operations:

- Maintaining/consulting information on collection sites
- Entering/consulting data on individual accessions
- Interrogation of the database
- Creation of various types of reports for the accessions
- Backup of the database on an external medium
- Restoring database from an external medium to the computer hard disk (when the database files have been damaged on the hard disk)
- Consulting pictures of coconut cultivars on various topics
- Consulting the molecular group-based coconut classification and the allelic frequencies of tested cultivars obtained from microsatellite studies
- Obtaining information on microsatellite markers and viewing the electrophoretic profile

1. WHAT IS NEW IN CGRD 6.1

This new version includes:

- A functionality to send data to the database centralizing institute. Since the data from the sites of collection must be periodically sent to the institute which centralizes the database, a special module has been designed that allows selecting the sites which data are to be sent. A compressed file containing only the selected sites' data is created then can be sent to the centralizing institute by postal way or as an attached document with an email.
- A **CSV** (Comma Separated Values) file type can now be chosen when exporting selected data as a delimited ASCII file. The advantage of this format is that the file can be automatically opened as if it was a spreadsheet from the Windows Explorer into Microsoft Excel.
- In the window Accession displayed when you choose Accession/Data management in the Main menu the status of the accession is now displayed next to its number. An accession is marked as Active when the value of the accession size descriptor is not equal to zero. When this value is NULL, the status is said to be unknown.

2. SYSTEM REQUIREMENTS

The minimum requirement to run the software is a hard disk with at least 100 MB of available space

3. INSTALLATION OF CGRD

The software and data files are available through USB key or can be downloaded from COGENT web site.

TO INSTALL CGRD FOR WINDOWS

1. Go to the [CGRD version 6.1](#) web page
2. Download the zipped file containing the setup file
3. Unzip the setup.exe file on your hard disk
4. Double click on the setup.exe file
5. The CGRD installation program will start and will guide you through the installation process.

A default folder C:\CGRD and a default program will be created by the Setup procedure. You will be prompted to accept or to change these default values during the Setup step. Once you have chosen a default folder you should not change it after exiting the Setup procedure.

6. If the software has been successfully installed and in the case you accepted the default values proposed during the Setup step, a CGRD 6.1 program icon will be added in the START/PROGRAMS menu of Windows.

Now it is necessary to install the Germplasm data to do it:

7. Go to the [CGRD version 6.1](#) web page
8. Download the zipped file containing the Germplasm data
9. Unzip the files on your hard disk under the \CGRD\DATABASE folder

At last install the images:

10. Go to the [CGRD version 6.1](#) web page
11. Download the zipped file containing the Germplasm data
12. Unzip the files on your hard disk under the \CGRD\IMAGES folder

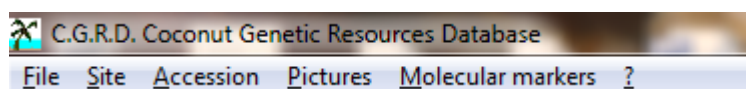
4. EXECUTION OF CGRD

TO START THE EXECUTION OF CGRD

In the windows menu bar, choose All Programs then click on the CGRD 6.1 item. The main menu of CGRD is then displayed with the application title.

5. SOFTWARE ORGANIZATION

MAIN MENU

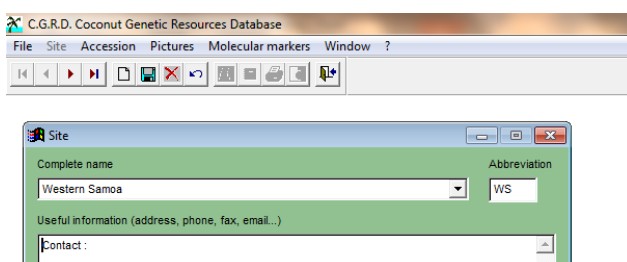


The main menu of the software

The software functionalities are organized into a main menu with six options corresponding to the next six menus:

- **File** menu for file maintenance
- **Site** menu for sites management
- **Accession** menu for accessions management
- **Pictures** menu for displaying images about coconut
- **Molecular markers** menu
- **? Help** menu

A menu item called Window is added to the Main menu when at least one window is opened. The sub-menu consists in the list of all the opened windows.



The main menu with the conditional option Window

COMMON FEATURES

Once CGRD for Windows has been launched, a window called CGRD Coconut Genetic Resources Database will open with the main menu bar. Choosing an option in the main menu option will activate a sub-menu. When an option in a sub-menu is selected a window opens and a toolbar is docked just below the main menu on the left of the main window. The toolbar disappears when the active window is closed.

APPLICATION TOOLBAR

The toolbar contains the following buttons:

- four navigations buttons called



FIRST,



PREVIOUS,



NEXT,



LAST to move into a list



– a NEW button to add items in a list



– a SAVE/BACKUP button to save changes on items in a list or to backup database



– a DELETE button to delete an item in a list



– a CANCEL/UNDO button to cancel changes in a list or a selection



– a FIND button to perform selections in a list



– a REPORT button to generate reports from the results of selection



– a PRINT button to print reports



– a PRINT PREVIEW button to preview reports before printing



– a CLOSE button to return to the main menu

The toolbar buttons are enabled/disabled depending on the actions that can be performed in the context of the active window.

FILE MENU

This menu groups the operations for file maintenance (backup, restore) of the CGRD database files that are located on the hard disk of your computer together with the exportation function of the accessions file into an ASCII format called DIP for the communication with others systems using accessions descriptors.

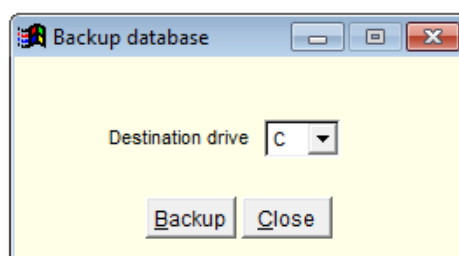
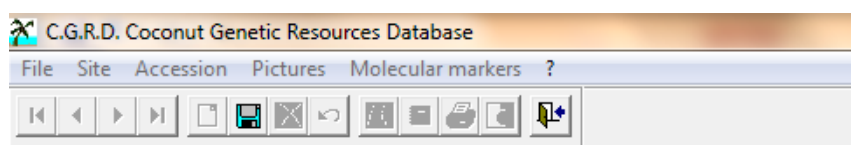
BACKUP

This operation is important for preventing any loss of data in case of a hard disk breakdown on your computer. It should be performed after each session during which you added or changed data. It will back up the database to an external medium of your choice.

To back up the database

1. In the main menu choose File then Backup database
2. Select the unit in which to save the database in the Destination drive drop-down list box
3. Click on the Backup button of the toolbar or active window to begin backup

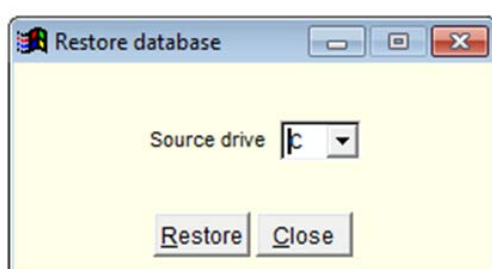
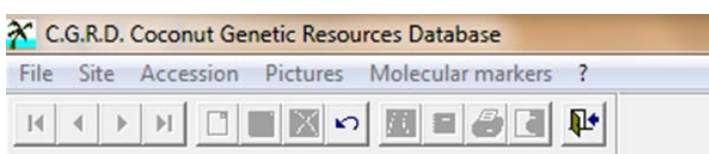
At the end of the backup, a cgrd.7z file is created in the root folder (i.e. DestinationDrive:\CGRD) of the unit corresponding to the destination drive chosen



Choosing the destination drive to back up the database in the Backup window

RESTORE

This option should only be used if database files on hard disk have been damaged, to recover data from a previous backup.



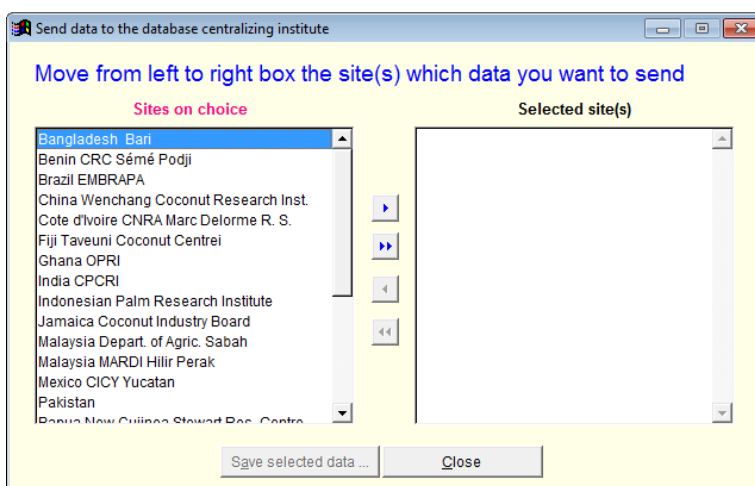
Choosing the source drive from which to restore the database in the Restore window

To restore the database

1. In the main menu choose File then Restore database...
2. Select the unit from which to restore the database in the Source drive drop-down list box
3. Click on the Restore button of the toolbar or active window to begin restoration

SEND DATA TO THE DATABASE CENTRALIZING INSTITUTE

This menu option must be exclusively used when you want to send data to the database centralizing institute after updating so that they can be included in the centralized version of CGRD. It creates a file CGRD.7z that contains the data to send. This file is put either in the root directory of the application CGRD or on a diskette. It offers the possibility to choose the site(s) which data you want to send.



The Send data to the database centralizing institute window

To send data to the database centralizing institute

1. In the main menu choose File then Send data to the database centralizing institute.
2. From the Sites on choice list box, select the site(s), the accessions of which you wish to send and move them to the selected site(s) list box
3. Click on the Send data by email button if you intend to send data as an attached document to an email

or

Click on the Send data by diskette if you want to send a diskette to the database centralizing institute

When you choose to Send data by email, the file cgrd.7z is created in the root directory of the unit of the application. You need then to join this file to an email as an attached document by yourself, the application doesn't send the email automatically.

When you choose to Send data by diskette, you are requested to put a diskette into the floppy where the file cgrd.7z is then written on the diskette

EXIT FROM CGRD

To exit from CGRD

In the main menu choose File then Exit from CGRD or click on the Close button in the upper right-hand part of the screen.

SITE MENU

The site is the location where the accessions are physically present (research center, station ...). A site must have been created before values for accession descriptors can be entered. Choosing the site option opens the Site window where sites can be added, removed and edited. The name of the last site selected before exiting CGRD is stored, so that it will be automatically selected at the beginning of the next session.

The Site window for management of collection sites

To add a new site

1. In the main menu choose Site
2. Click on the New button in the toolbar
3. It is necessary to enter at least values for the Site abbreviation combo box and the complete name text boxes.
4. Click on the Save button

To edit a site

1. In the main menu choose Site
2. Select the site to edit in the Complete name drop-down list
3. Edit the fields
4. Click on the Save button in the toolbar

To remove a site

1. In the main menu choose Site
2. Select the site to delete in the Complete name drop-down list
3. Click on the Delete button
4. Click on the Yes button of the delete warning window to confirm your request

ACCESSION MENU

The Accession menu is the menu where management and output of accession data can be done. It has two options, a Data management option for adding, editing and removing accessions and a Reports option that allows the selection of accessions by the mean of criteria and the creation of reports for the selected accessions.

DATA MANAGEMENT

Choosing the Data management option of the Accession menu opens the Accession window where accessions can be added, edited and removed from the database. A site/institute can be chosen from the dropdown list box SITE to display the accessions of this site and then each accession can be reached by choosing either its accession number or its cultivar name in appropriated dropdown list boxes.

Each accession is characterized by passport descriptors and evaluation and characterization descriptors. The latter are divided into nine categories of descriptors: site, germination, stem, leaf, inflorescence, flowering, fruit, yield, oil. In the Accession window, the passport descriptors can be accessed by choosing the Passport tab and the characterization and evaluation descriptors by choosing the Characterization and evaluation tab. In the Passport tab click on the UP arrow/PGUP key or DOWN arrow/PGDN key button to display the descriptors. The different categories of characterization and evaluation descriptors are accessed by selecting the corresponding tabs. A Pictures tab can be chosen to view pictures on the current accession or cultivar.

The screenshot shows the 'Accession' window with the 'Passport' tab selected. The window has a yellow border and a blue title bar. At the top, there are dropdown menus for 'Site' (Western Samoa), 'Accession' (WS001), and 'SMOT' (Samoan Tall). Below these are tabs for 'Passport', 'Characterization and evaluation', and 'Pictures'. The 'Passport' tab is active, showing 'Accession data' and 'Collection data' sections. The 'Accession data' section includes fields for '1.7 SCIENTIFIC NAME (Coco nucifera L.)', '1.7.1 Category' (1 - Tall (typica)), '1.7.2 Colour' (Colour 1: 7 - Green, Colour 2: 10 - Brown, Colour 3: 6 - Green-Red), '1.8 CULTIVAR NAME', '1.8.1 Cultivar name' (Samoan Tall), '1.8.2 Synonyms' (Synonym 1, 2, 3), and '1.8.3 Accepted abbreviation' (SMOT). The 'Collection data' section is empty. The window also has a 'Status' dropdown set to 'unknown' and a 'Page 1/4' indicator.

The Accession window for data management site by site

The way you enter a value for a descriptor depends on the descriptor considered: in some cases you have to pick up a value in a drop-down list and in others cases you have to enter a value in a text box with the keyboard.

Some descriptors (mainly characterization-evaluation descriptors) accept .NULL. values. It means that the value is missing; it is different from the value zero that you could enter in

some case as a significant value. By default, when you add an accession the values of the descriptors that accept the NULL value contain the NULL value.

To enter the .NULL. value for a descriptor, you hold down the CTRL key and press 0 (zero key not in the numeric pad of your computer) . You will need to do that if you have entered by error a value for a descriptor.

To add a new accession

1. In the main menu choose Accession then Data management
2. Select the site where you wish to add a new accession in the Site drop-down list box
3. Click on the new button in the toolbar
4. It is necessary to enter at least a value in the Accession combo box in the top of the window Accession.
5. Click on the Save button

To edit an accession

1. In the main menu choose Accession then Data management
2. Select the site whose accessions you wish to display in the Site drop-down list box
3. Select the accession to edit in the Accession combo box
4. Edit the fields of the displayed accession
5. Click on the Save button

To remove an accession

1. In the main menu choose Accession then Data management
2. Select the site whose accessions you wish to display in the Site drop-down list box
3. Select the accession to delete in the Accession combo box
4. Click on the Delete button
5. Click on the Yes button of the Delete warning window to confirm your request

To display pictures for an accession

1. In the main menu choose Accession then Data management
2. Select the site whose accessions you wish to display in the Site drop-down list box
3. Select the accession whose picture you wish to see in the Accession number combo box
or
Select the cultivar whose picture you wish to see in the Cultivar combo box
4. Click on the Picture tab
5. In the Topics list select a topic
6. Click on the up arrow or down arrow buttons if enabled to view the different pictures of the displayed accession

REPORTS

CGRD has functions to create reports of different types from the data of accessions matching user defined criteria of selection.

The REPORT menu has two options corresponding to the steps required to create a report:

- Selection of accessions option to define criteria of selection and to perform the selection of the accessions matching these criteria.
- Create option to choose the type of report and to build this report.

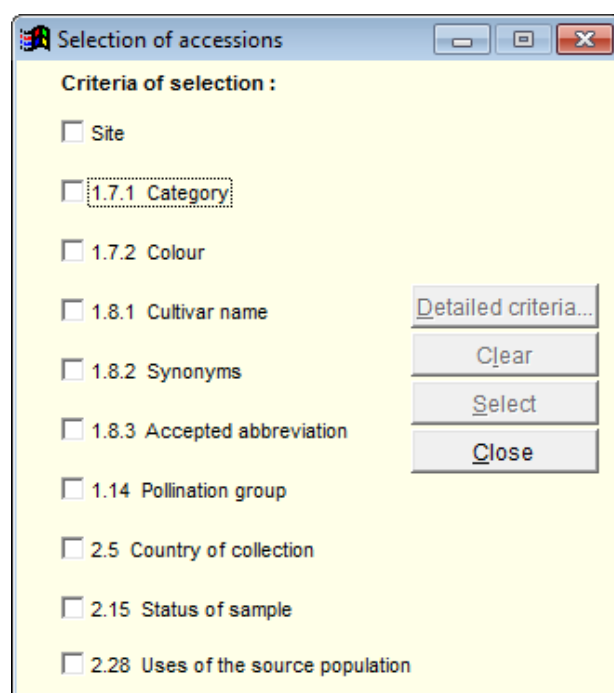
The SELECTION OF ACCESSIONS option should be chosen first to build and execute a query and retrieve the accessions matching the selection criteria. If the search is successful, the accessions selected are automatically displayed on the screen in a window.

Once a search has been executed, the accessions selected are kept until the next search.

The CREATE option can be used only if a query has already been run during the current session or during a previous session and is not available if the query was not successful.

SELECTION OF ACCESSIONS

Selection of accessions matching defined criteria can be performed on the database. Queries can be built using up to ten selection criteria corresponding to the site and to some passport descriptors. These criteria can be combined in any way. For a given criterion, several occurrences can be chosen at the same time.



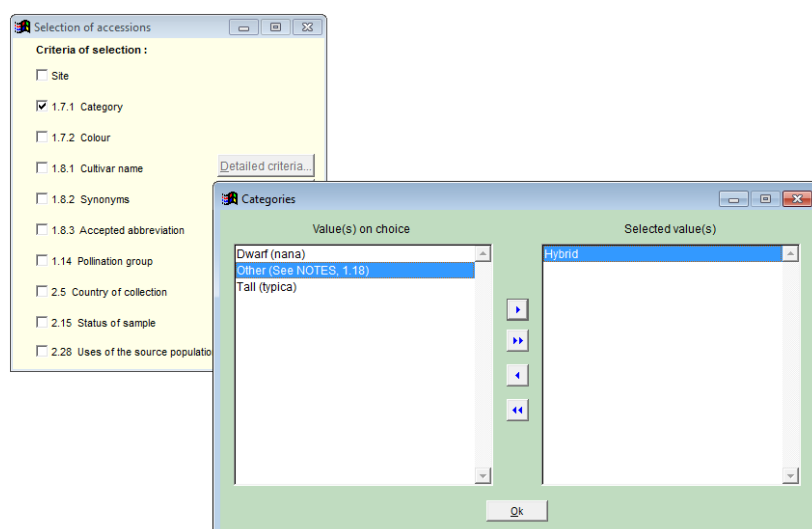
The Selection of accessions window

To build and execute a query

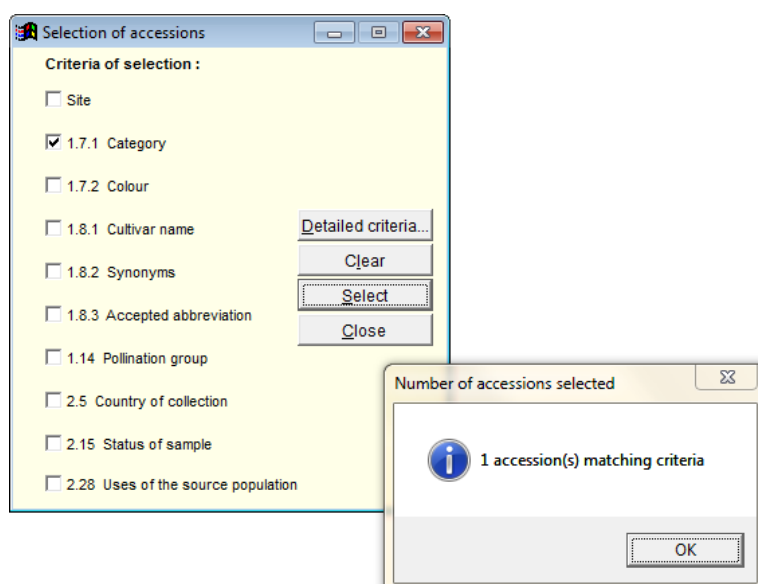
1. In the main menu choose Accession then Reports then Selection of accessions
2. Click in the corresponding check box to choose a selection criterion in the Selection of accessions window
3. Select one or more items in the list of occurrences that is displayed in a window for the selected criterion
4. Click on the Ok button to return to the Selection of accessions window
5. It is necessary to repeat steps 2 to 4 to add other selection criteria

To cancel all the previous selections at once, click on the Clear button

6. Click on the Select button to execute the query and display the number of accessions selected in the Number of accessions selected window



A window for defining the values of selection criteria

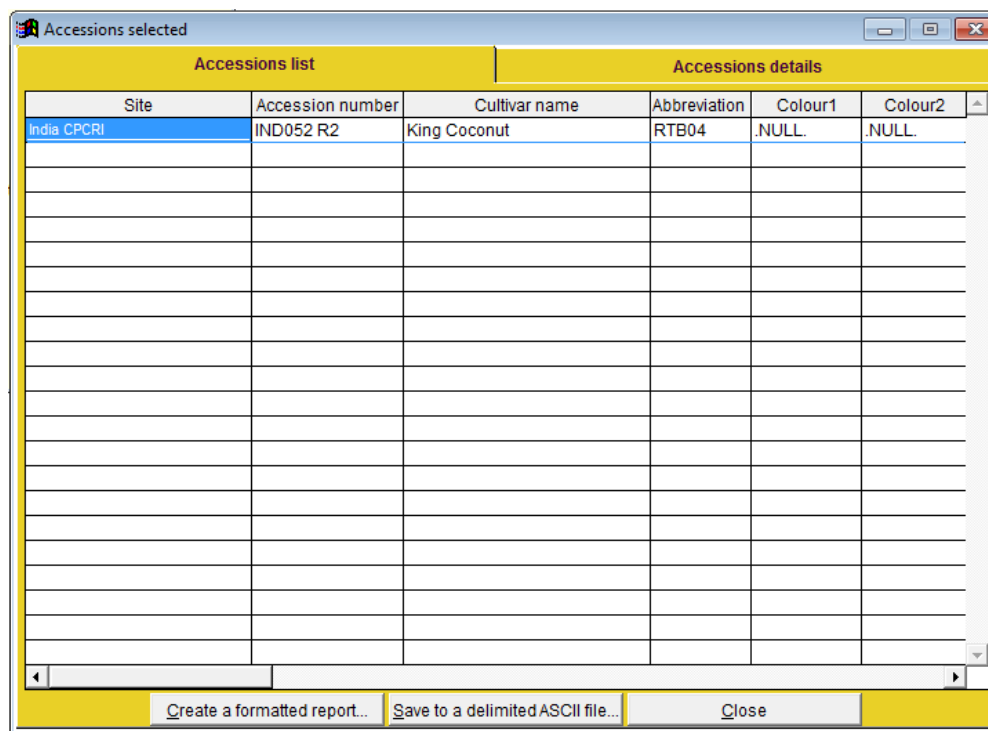


The Number of accessions selected window

7. Click on the OK button of the Number of accessions selected window to close it and to open the Accessions selected window to view these accessions

The default order can be changed by clicking on a column title. For instance if the colour1 order is wanted, a click on the name colour1 will change the current order.

Accessions selected



The Accessions selected window

In the Accessions selected window, the command button Create a formatted report allow to create a formatted report from the accessions listed while the command button Save to a delimited ASCII file should be used to save the accessions listed to a delimited ASCII file.

See [chapter To create a formatted report](#) and [chapter To save to a delimited ASCII file](#)

From the Selection of accessions window, the chosen values for all checked criteria can be seen.

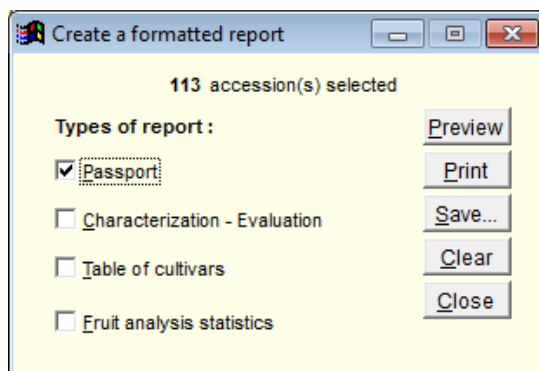
To view the detailed criteria of selection

1. Execute steps 1 to 6 of the chapter To build and execute a query
2. Click on the Detailed criteria button in the Selection of accessions window to display the Detailed criteria window

The detailed criteria of selection listed in the detailed criteria window can be save to an ASCII file.

To save the selection criteria to an ASCII file

1. Execute steps 1 to 6 of the chapter To build and execute a query
2. Click on the Detailed criteria button in the Selection of accessions window to open the Detailed criteria window
3. Click on the Save button in the Detailed criteria window. A Save as window opens with an ASCII file dialog box where you should type a name for the file.
4. Click on the Save button in the Save as window to execute the operation.



The Detailed criteria window which displays the selection criteria to be used

CREATION OF REPORTS

The Create submenu is used to define a type for the reports to be built. It has a Formatted report option and a Delimited ASCII file option.

Choosing Formatted report allows to create predefined formatted reports with the passport descriptors and/or the characterization descriptors.

Choosing Delimited ASCII file allows to create a delimited ASCII file where the values of the descriptors of the accessions are separated with commas. The character type values are delimited with quotation marks. This type of file can be used with some statistical software or can be input into a Microsoft excel worksheet.

FORMATTED REPORT

Four types of formatted reports are available:

- the passport type for the passport descriptors. A passport type report can be condensed, short or complete.
- the characterization-evaluation type for the characterization-evaluation descriptors
- the table of cultivars type which is a list of accessions cultivar with their cultivar names, abbreviation name, date of planting, number of living trees and the site where they are kept.
- the fruit analysis statistics type for the fruit measured variables

To create a formatted report

1. Choose Accession in the main menu then Reports then Create then Formatted report
2. Click on a check box to select the type of report.
3. Depending on the type of report chosen, a window may open where you will have to complete your choice by clicking check boxes or option buttons
4. Repeat steps 2 to 3 to create other reports if needed

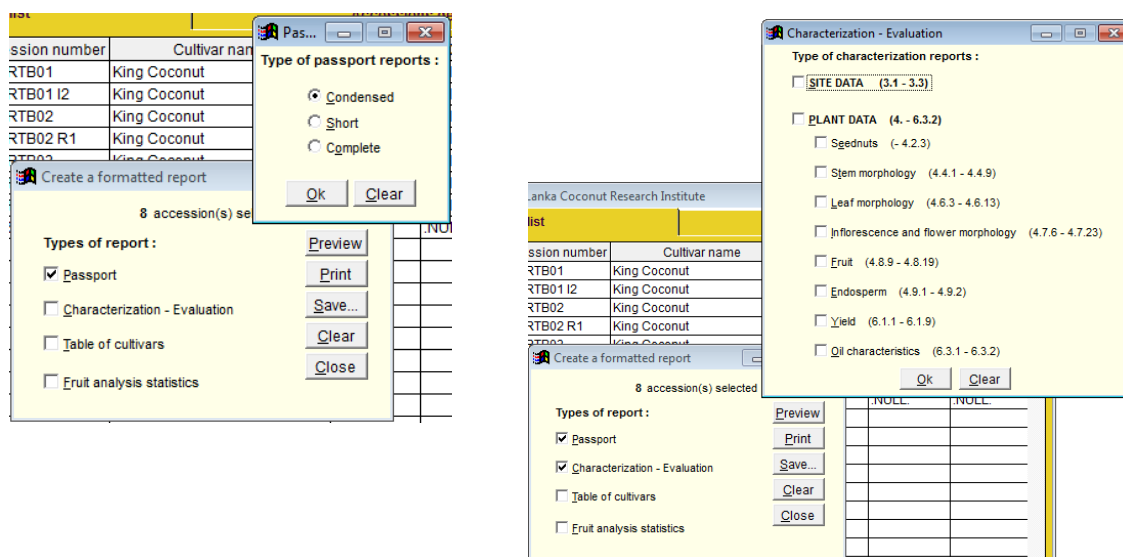
Or

1. Build and execute a query
2. Click on the Formatted report button in the Query result window
3. Click on a check box to select the type of report.
4. Depending on the type of report chosen, a window may open where you will have to complete your choice by clicking check boxes or option buttons
5. Repeat steps 2 to 3 to create other reports if needed

The different types of formatted reports available

Sub-types of reports for passport and characterization descriptors

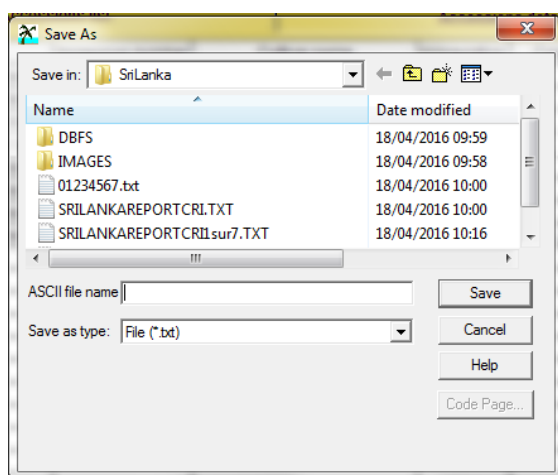
The image below show the sub-types of passport and characterization report that can be generated. Note that for passport reports the choice between sub-types is exclusive.



The formatted reports created can be output to an ASCII file or to a printer. Before outputting they can be previewed on the screen

To save a formatted report to an ASCII file

1. Create a formatted report. See above chapter To create a formatted report
2. Click on the Save button in the Create a formatted report window
3. Type the name of the destination file in the ASCII file name text box
4. Click on the Save button of the Save as window



The Save As window to save a formatted report to an ASCII file

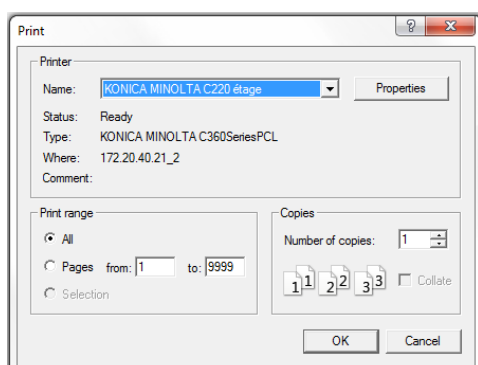
When a formatted report is saved to an ASCII file and then opened into Microsoft Word, it is recommended to use a fixed-spacing font with a size of 9.

For the Fruit analysis statistics report, the landscape orientation should be choosing.

In some case, when the ASCII file is browsed with Microsoft Word, one or two white pages are inserted before the beginning of the text.

To print a formatted report

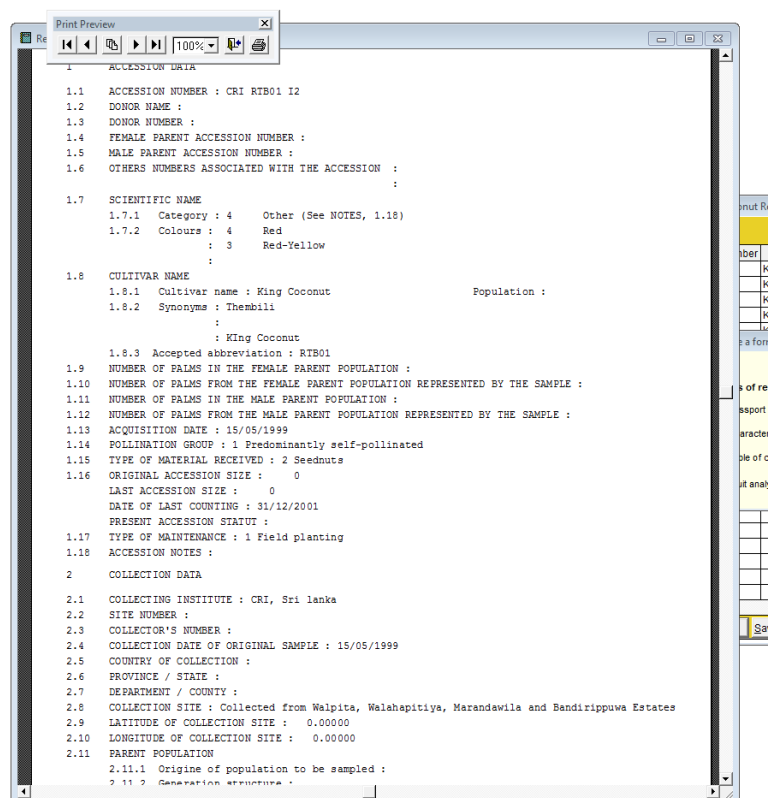
1. Create a report. See above chapter To create a formatted report
2. Click on the Print button in the Create a formatted report window
3. Click on the OK button of the PRINT window to send the report to the printer



The Print window to print a formatted report

To preview a formatted report

1. Create a report. See above chapter To create a formatted report
2. Click on the Preview button in the Create a formatted report window
3. Use the buttons of the PRINT PREVIEW toolbar displayed to move into the report that appears in a REPORT PREVIEW window



The Report preview window with the preview of a formatted report

DELIMITED ASCII FILE

The Delimited ASCII file option allows a selection of the accession descriptors to include in the file to be created.

To save to a delimited ASCII file

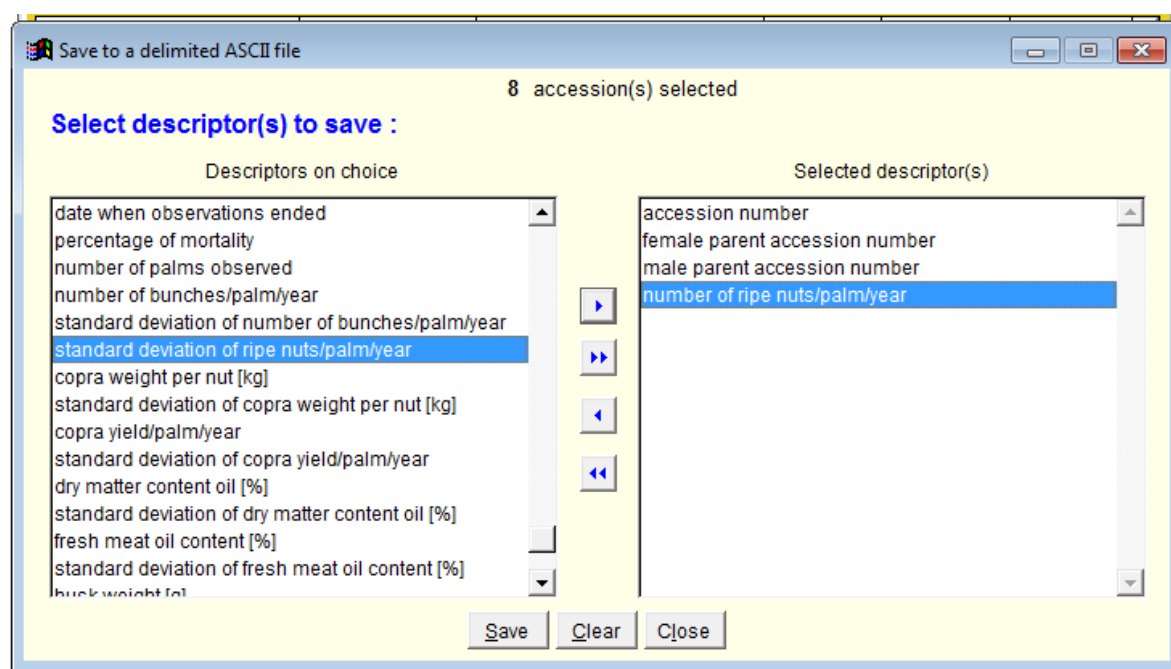
1. Choose Accession in the main menu then Reports then Create then Delimited ASCII file
2. Select descriptors to include in the list displayed in the Save to a delimited ASCII file window
3. Click on the Save button. A window Save as window appears where you must type the name of the file in the ASCII file textbox

You can choose between two types of ASCII format in the dropping list Type of the Save as window: **txt** or **csv**

Saving a file with the csv type allow to open it directly in Microsoft Excel as a spreadsheet from the Windows Explorer. The values are dispatched in several columns. However, if the same file is opened from Microsoft Excel the values are kept in a single column. They have to be dispatched into several columns by using the appropriate Excel functionality. The file of the csv type can also be opened with an ASCII text editor.

When the file is saved with the txt type and then opened from the Windows Explorer, it is opened in the default ASCII text editor.

Click on the Save button in the Save as window to achieve the operation.



The Save to a delimited ASCII file window to save selected accessions descriptors to a delimited ASCII file

PICTURES MENU

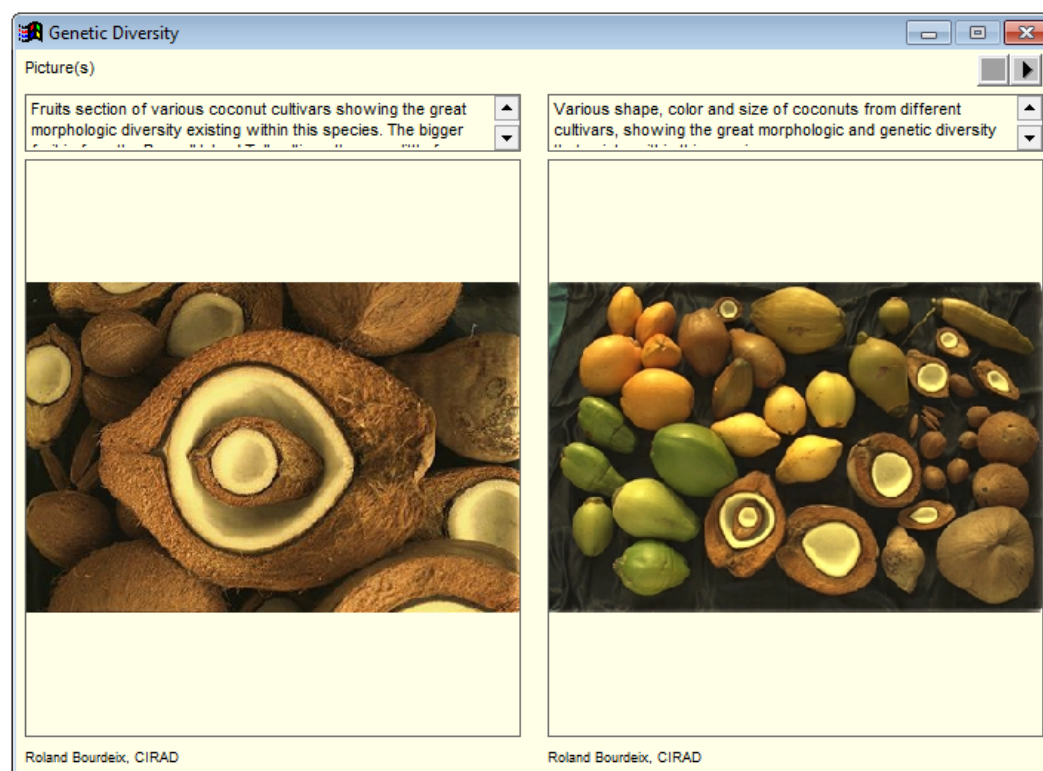
The Pictures menu should be chosen to view pictures about coconut. The pictures are grouped into several categories: genetic diversity, cultivars, maps, other...

The Pictures menu enables the selection of the categories of pictures to display. It has four options corresponding to the pictures categories: Genetic diversity, Cultivar, Maps and Other options.

GENETIC DIVERSITY

To display pictures of genetic diversity

1. In the main menu choose Pictures
2. In the menu, select Genetic diversity
3. Click on the up arrow or down arrow buttons if enabled to scroll among the pictures



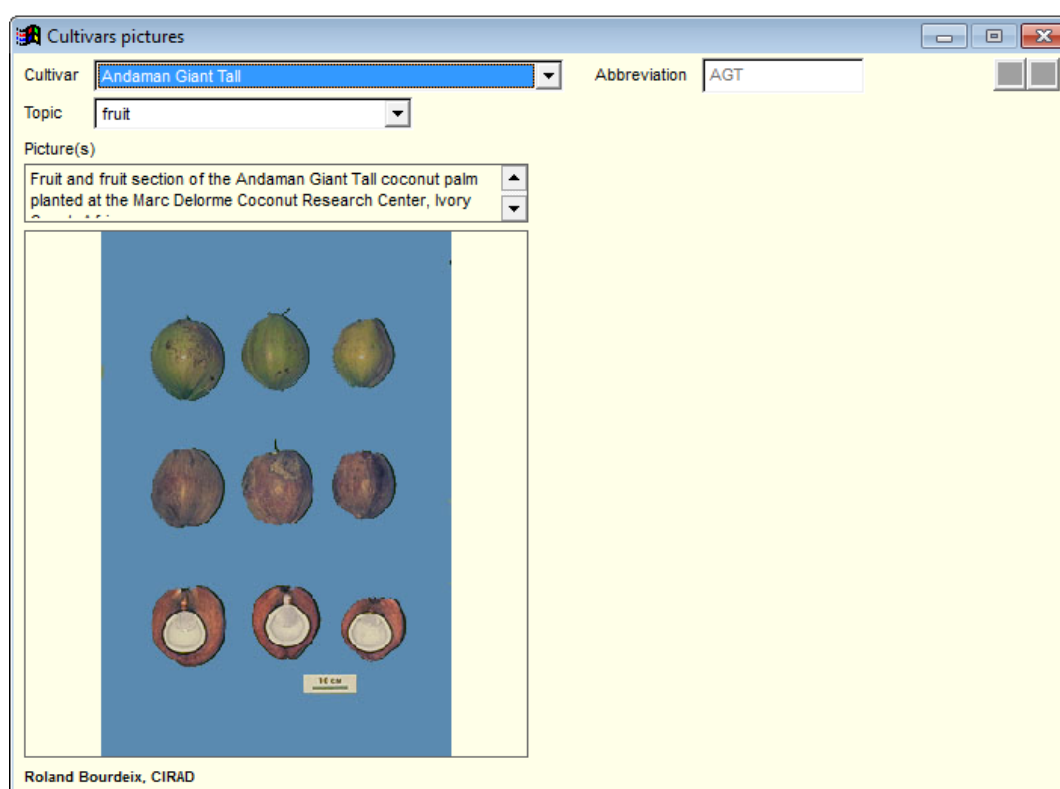
The Genetic diversity window for displaying pictures of genetic diversity

CULTIVARS

The Cultivars option is used to display pictures of the nut, bunch, inflorescence, whole palm of a selected cultivar.

To display pictures of coconut cultivars

1. In the main menu choose Pictures then Cultivars
2. From the Cultivars list box, select the cultivar, whose pictures you wish to see
3. In the Topic list box, select the category of cultivar pictures you want to display.
4. Click on the up arrow or down arrow buttons if enabled to scroll among the pictures



The Cultivar window for displaying pictures of coconut cultivars

MAPS

To display pictures of coconut distribution maps

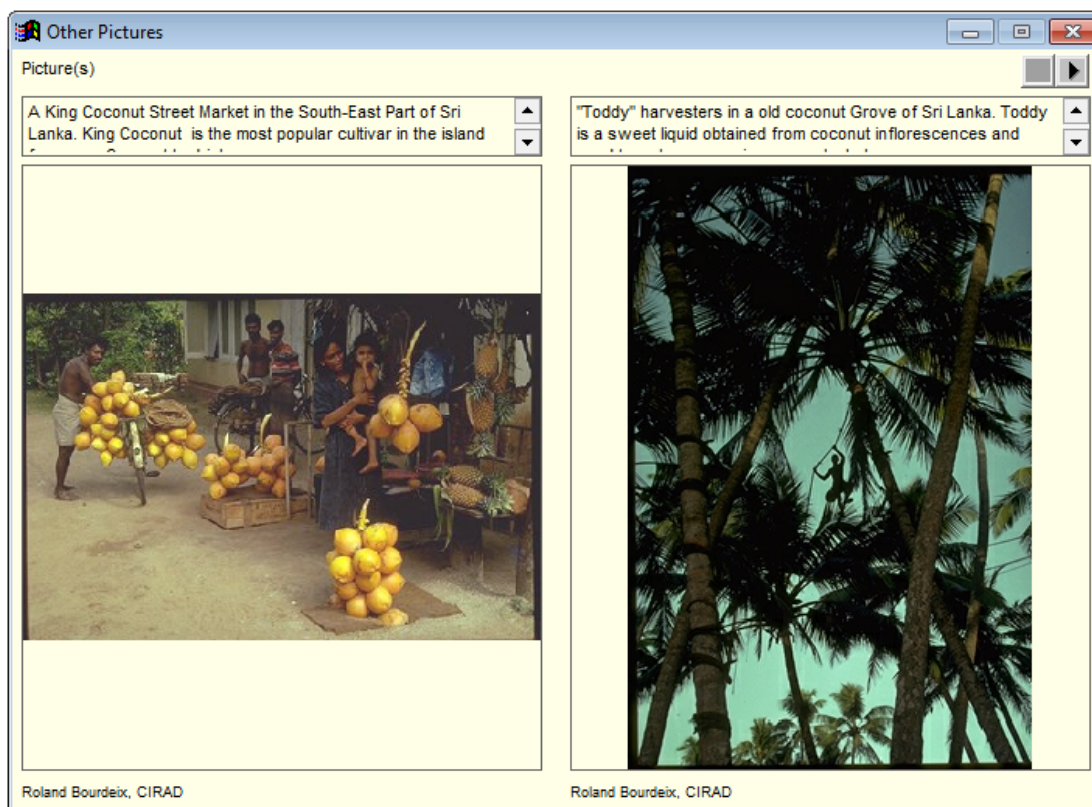
1. In the main menu choose Pictures then Other picture topics
2. In the menu, select Maps
3. Click on the up arrow or down arrow buttons if enabled to scroll among the pictures

OTHER

The Other option is used to display pictures of various topics of coconut such as utilization of coconut, people concerned with coconut.

To display pictures of other topics of coconut

1. In the main menu choose Pictures then Other picture topics
2. In the menu, select Utilisation
3. Click on the up arrow or down arrow buttons if enabled to scroll among the pictures



The Other pictures window for displaying various topics of pictures of coconut

MOLECULAR MARKERS MENU

DEFINITIONS

Genetic polymorphism is relative to the variation in the DNA sequence.

A locus is a region of the DNA where polymorphism is observed.

An allele is one of the different forms of a locus

Microsatellites are molecular markers used to study the genetic polymorphism organisms. They consist in DNA repeated in tandem sequences surrounded with specific sequences called primers, they are located in the non-coding part of the DNA.

The type of polymorphism detected with microsatellites is a polymorphism of number of repeated sequences.

The primers of a microsatellite are specific of a locus. The name given to the alleles is the number of repeated sequences. A diploid organism presents two copies of each locus. These copies can represent the same allele or different alleles.

Microsatellites are revealed by electrophoresis. The electrophoretic profile obtained for a locus shows stains corresponding to the alleles of this locus. The bands pattern obtained with different individuals allows to compare them and to assign them to cultivars or to cultivar groups, taking advantage of the differences of allelic frequencies for cultivars at several loci. The appartenance of cultivars to larger groups is represented schematically by the classification tree.

CULTIVAR CLASSIFICATION

To add/update molecular information on a cultivar (allelic frequencies of the microsatellite, molecular group)

1. In the main menu choose Molecular markers then Cultivar classification to display the Cultivar classification window
2. Choose the cultivar you want to add/update information about in the Cultivar dropdown list. A page frame is displayed with a tab that shows the alleles frequencies of all the microsatellite loci of the chosen cultivar and a tab where a molecular group-based classification tree for coconut is proposed together with a list of all the cultivars of the same molecular group as the chosen cultivar.

The molecular groups shown on the classification tree can be clicked to display the corresponding cultivars in the associated list.

The cultivars in the list can also be clicked to display their characteristics (allelic frequencies). The information that can be added or modified on a cultivar are the allelic frequencies, the molecular group and the tested value that indicate if it is checked that the molecular group displayed has been confirmed by molecular markers results. If not checked the molecular group is only supposed.

The cultivars that can be chosen in the Cultivar dropdown list are those that are present on the sites but not always: some of them could have been collected during a prospection and submit to a molecular analysis.

3. If you add/update any information on a cultivar you will be asked to save the changes when moving to another cultivar or clicking a molecular group on the classification tree or a cultivar on the list on the right of the classification tree.

To consult molecular information on a cultivar (allelic frequencies of the microsatellite, molecular group)

1. In the main menu choose Molecular makers then Cultivar classification to display the Cultivar classification window

2. Choose the cultivar you want to consult information about in the Cultivar dropdown list.

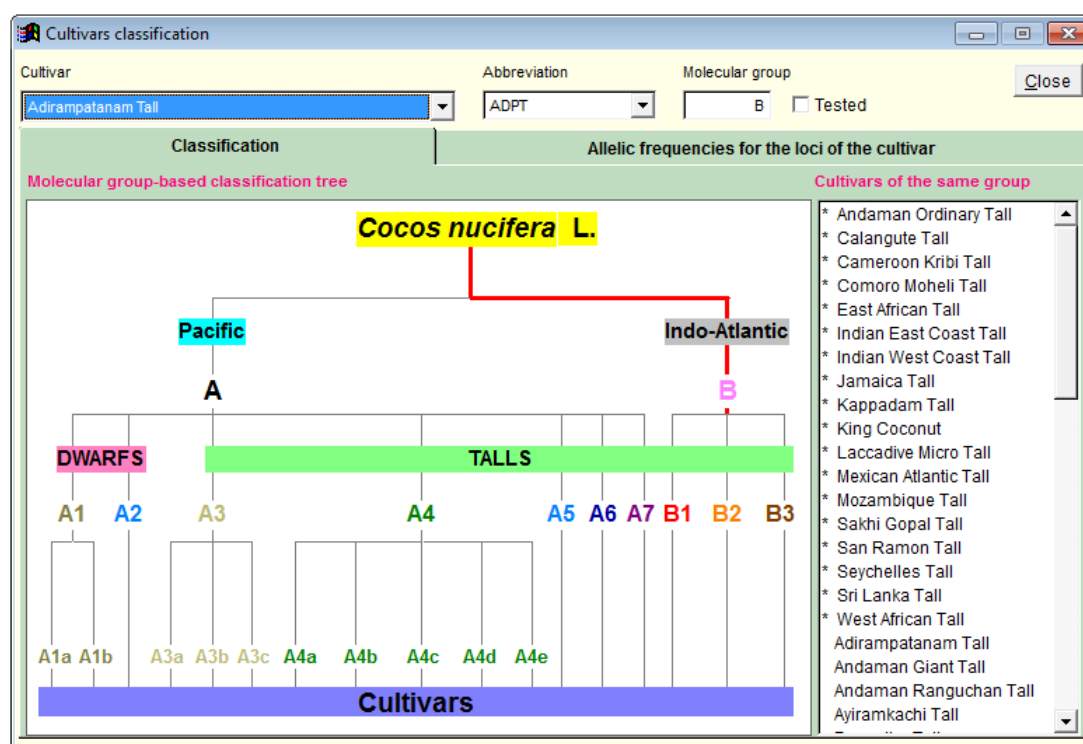
A page frame is displayed with a tab that shows the alleles frequencies of all the microsatellite loci of the chosen cultivar and a tab where a classification tree for coconut is proposed together with all the cultivars of the same molecular group as the chosen cultivar.

The characters (A, B,..), on the classification tree that correspond to the molecular group of the coconut cultivars, can be clicked

The screenshot shows a window titled "Cultivars classification". At the top, there are three dropdown menus: "Cultivar" (set to "Indian West Coast Tall"), "Abbreviation" (set to "WCT"), and "Molecular group" (set to "B1"). There is a "Close" button on the right and a checked "Tested" checkbox. Below these are two tabs: "Classification" (selected) and "Allelic frequencies for the loci of the cultivar". The main area displays "Molecular data" for two loci:

Locus	E12	A9
2 x nb of individuals:	12	12
Number of Alleles :	1	2
Allele	: 162 0%	: 89 0%
Allele	: 164 0%	: 91 0%
Allele	: 166 0%	: 93 0%
Allele	: 174 100%	: 95 0%
Heterozygosity	0.000	: 97 83%
Unbiased Nei's diversity	0.000	: 99 17%
		: 101 0%
		: 103 0%
		: 105 0%
		: 107 0%
		: 109 0%

Allelic frequencies for the loci of a chosen cultivar in the Cultivars classification window



Molecular group-based classification tree of coconut cultivars

MICROSATELLITE LOCI

To add a coconut microsatellite locus

1. In the main menu choose Molecular makers then Microsatellite loci to display the Coconut microsatellite loci window
2. Click on the New button on the toolbar and give a name (it is request) for the new locus in the Locus combo box
3. Click on the Characteristics tab of the pageframe that is displayed to fill in the characteristics of the locus
4. Click on the Electrophoresis tab of the pageframe that is displayed and click on the buttons with three dots on the right of the Electrophoretic profile and Interpretation diagram text box to choose respectively a picture of the electrophoresis profile of the microsatellite locus or a picture of an interpretation diagram of the profile. The pictures chosen are then displayed below the corresponding text box.

Note that the pictures should be located in the Images sub-folder of the application CGRD and that they may be in either the windows bitmap (bmp) or in the jpeg format.

On the electrophoretic profile and interpretation diagram, each track should correspond to a tree. For a good lisibility, up to 15 track may be represented on the diagram.

Below the interpretation diagram, the text box should be used to indicate the genotype of the trees analysed. The genotypes are the size of the allele found on each DNA strand in term of their number of pairs of base. Each genotype should be below the corresponding tree on the diagram

5. Fill in the author of the locus described and legend for the pictures in the corresponding text boxes
6. Click on the Save button on the toolbar

The screenshot shows a software window titled "Coconut microsatellite loci". At the top, there is a "Locus" dropdown menu set to "CnCir A3" and a "Close" button. The window is divided into two tabs: "Characteristics" (active) and "Electrophoresis".

Under the "Characteristics" tab, the following fields are visible:

- Origin:** A text box containing "Cirad".
- SSR repeat type (reference : MYD (T2)):** A text box containing "(GT)14".
- Number of alleles:** A text box containing "10".
- Alleles sizes (bp):** A list of values: 228, 230, 232, 234, 236, 238, 240, 242, 244, 248. There are up and down arrow buttons on the right side of the list.
- WAT control (T1):** A sub-section with "Minimum size" (228) and "Maximum size" (228) text boxes.
- MYD control (T2):** A sub-section with "Minimum size" (240) and "Maximum size" (240) text boxes.
- Annealing T°C:** A text box containing "51°".
- Chromosome location:** An empty text box.
- Bibliographic reference:** A text box containing "EMBL Genebank accession n° AJ458309" and "Germplasm characterization, evaluation and use : biochemical and molecular methods (P. lebrun, A. Berger, T. Hodgkin, L. Baudouin) - 2003 - In press". There are up and down arrow buttons on the right side of the text box.

Characteristics of a chosen locus in the Coconut microsatellite loci window

To edit a coconut microsatellite locus

1. In the main menu choose Molecular makers then Microsatellite loci to display the Coconut microsatellite loci window
2. Choose the locus you want to update data in the locus dropdown list.
3. Change any information as necessary
4. Click on the Save button on the toolbar

To consult information on a coconut microsatellite locus

1. In the main menu choose Molecular makers then Microsatellite loci to display the Coconut microsatellite loci window
2. Choose the locus you want to get information about in the locus dropdown list.
3. A pageframe is displayed with a tab that shows some characteristics of the chosen locus and a tab where a picture of the electrophoresis profile of a microsatellite can be seen together with its interpretation diagram

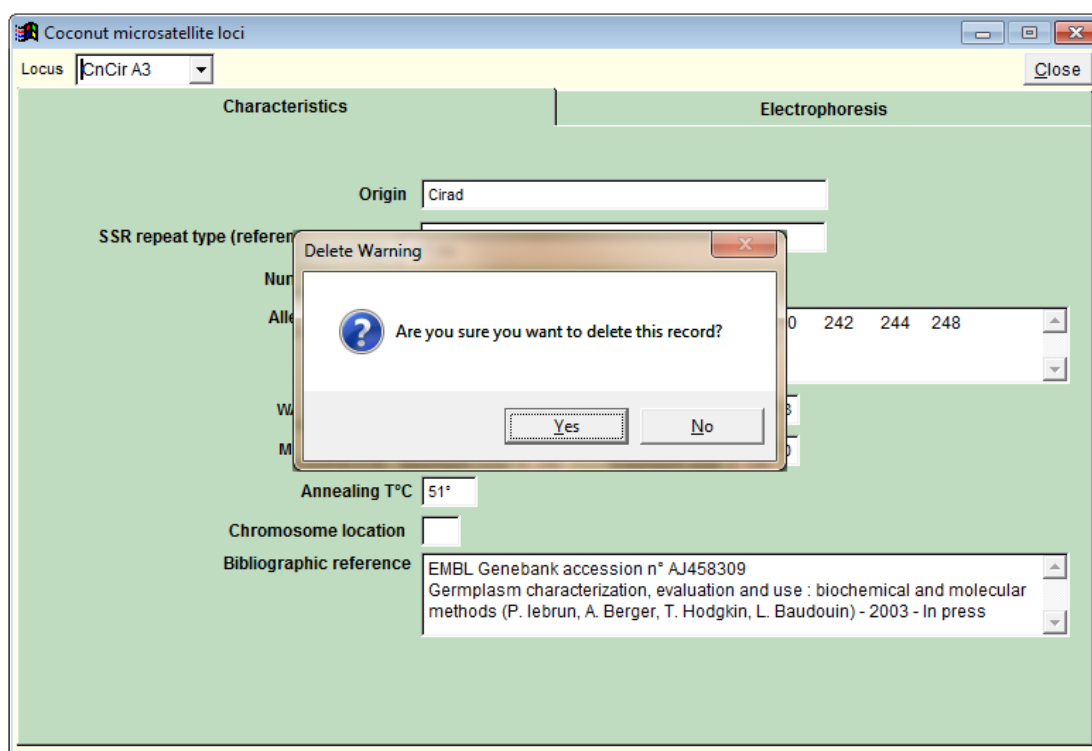
Note that you can click on the navigation buttons of the toolbar to move from one locus to another



The electrophoretic profile of a locus and the corresponding interpretation diagram annotated with the allelic sizes in the Coconut microsatellite window

To remove a coconut microsatellite locus

1. In the main menu choose Molecular makers then Microsatellite loci to display the Coconut microsatellite loci window
2. Choose the locus you want to remove in the locus dropdown list.
3. Click on the Delete button on the toolbar
4. Click on the Yes button of the Delete warning window to confirm your request



The Delete warning window that is displayed before the deletion of a locus

? HELP MENU

The ? or Help menu gives quick access to information about using CGRD for Windows. You can also obtain information about the version of the software installed on your computer.

HELP TOPICS

Help is a Windows style help and is structured like a book. You can view the table of contents, you can look at the index. You can also search for help on a specific topic.

To display the table of contents of help

1. Choose ? in the main menu then Help topics.
2. Click on the Content tab.

To view the index of help topics

1. Choose ? in the main menu then Help topics.
2. Click on the Index tab and type the first letters of the word you are searching for in the text box provided

To search for help on a specific term or topic

1. Choose ? in the main menu then Help topics.
2. Click on the Search for help on tab and type the words you are looking for information about in the text box provided

During a session, if you do not understand a window or dialogue box, just press the F1 key to display a context-sensitive help topic on that item.

ABOUT CGRD FOR WINDOWS...

To obtain information on the version of CGRD installed on your computer

Choose ? in the main menu then About CGRD for Windows.

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