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# MPRSYS 3.0

Multipurpose Tree Species  
Information and Decision Support System

Version 3.0

## User's Manual

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Forestry/Fuelwood Research and Development (F/FRED) Project

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## **Multipurpose Tree Species Network Research Series**

This series includes papers, reports, and manuals produced or supported by the Forestry/Fuelwood Research and Development Project (F/FRED). Publications in this series are available for distribution to MPTS network members and other selected individuals and institutions.

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# MULTISYS 3.0

Multipurpose Tree Species  
Information and Decision Support System

Version 3.0

## I. INTRODUCTION

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## INTRODUCTION

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# THE F/FRED PROJECT & MPTSys

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## F/FRED PROJECT

The Forestry / Fuelwood Research and Development (F / FRED) Project is designed to help scientists address the needs of small-scale farmers in the developing world for fuelwood and other tree products. Funded by the U.S. Agency for International Development under a cooperative agreement with Winrock International, the project provides a network through which scientists exchange research plans, methods, and results. Research and development activities center on the production and use of trees that meet the household needs of small farmers.

F / FRED is implemented by the Winrock International Institute for Agricultural Development, a private, non-profit U.S. organization working in agricultural development around the world. It was established in 1985 through the merging of the Agricultural Development Council, the International Agricultural Development Service, and the Winrock International Livestock Research and Training Center. Winrock's mission is to reduce hunger and poverty in the world through sustainable agricultural and rural development. Winrock helps people of developing areas to strengthen their agricultural research and extension systems, develop their human resources, institute appropriate food and agricultural policies, manage their renewable resources, and improve their agricultural production systems.

## ACKNOWLEDGEMENTS

The F/FRED Information and Decision Support System (MPTSys) represents the collaborative efforts of the F/FRED Global Research Unit in Maui, Hawaii, the F/FRED Coordinating Unit in Bangkok, Thailand, the F/FRED Project Management Office in Arlington, Virginia and the many individuals within and outside the F/FRED research network.

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The Soil Database was developed jointly with the International Benchmark Sites Network for Agrotechnology Transfer (IBSNAT) Project and with assistance from the Soil Management Support Services (SMSS). The National Soil Survey Laboratory of the U.S. Soil Conservation Service (SCS) provided the international pedon descriptions and analyses information.

The Climate Database was developed with data from the Plant Production and Protection Division of the Food and Agriculture Organization (FAO) of the United Nations.

The MPTStat data analysis and graphics package was developed by Dr. David Allen, University of Kentucky in cooperation with the Global Research Unit.

The *MPTSys User's Manual* was updated and edited by PERUGUPALLI Venkateswarlu.

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# INTRODUCTION TO MPTSys

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## MPTSys VERSION 3.0

MPTSys is a menu-driven microcomputer software package designed to help scientists manage information about multipurpose tree species (MPTS) and their potential for producing fuel, fodder, and other tree products. It can be used by individuals with little or no previous training in computers or database management.

MPTSys consists of related databases and decision support programs that organize, store, retrieve, and analyze research data and information on MPTS field trials, literature, specialists, socioeconomic studies, soils, and climates.

The MPTSys system is based on a modular approach to system design and its main components are database management and application programs. The components are designed to "stand-alone" and can be added to or deleted from the system to meet the needs and resources of individual researchers.

A unique feature of MPTSys is its ability to link information between its databases for analysis. The links between the experiment databases and others containing weather, soil, and climate data will permit scientists to analyze the impact of weather on a network experiment while retaining the ability to access regional weather information independently of experiment data.

As a relational database system, MPTSys is a useful tool for predictive modeling. MPTS modeling efforts use systems analysis to predict the transfer of improved technologies from research sites to small farms. By simulating the complex processes that determine tree production, predictive models can assist decision makers. Program managers can use models to compare management systems and quantitatively assess trade-offs between site productivity and sustainability. With information about the environmental and soil conditions of a farm site, an extension agent may simulate growth and production for tested species to clarify a farmer's planting and management alternatives.

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## SYSTEM REQUIREMENTS

The F/FRED Information and Decision Support System MPTSys is distributed for use with PC-DOS and should be used on fully IBM-compatible microcomputers.

To use MPTSys, you will need the following hardware configuration, in addition to the program disks.

## HARDWARE REQUIREMENTS

- IBM PC/XT/AT, or any fully IBM-compatible microcomputer system, with:
  - one hard disk (20 Mb recommended, 8 Mb free)
  - 640 Kb RAM installed (500 Kb free)
  - one 360K DS/DD (double sided/double density) drive (for installation and backup)
  - an EGA card (Enhanced Graphics Adapter) or compatible
- A graphics monitor (color is optional)
- A graphics printer (optional but highly recommended)

*NOTE: Computers with MDA (monochrome display adapter) or CGA (color graphics adapter) boards may be used, but users may experience some washed out displays or snow on the screen.*

## SOFTWARE REQUIREMENTS

- DOS (Disk Operating System), with one of the following:
  - PC-DOS V3.1 or higher
  - MS-DOS V3.2 or higher

## THE MPTSys PACKAGE

Your MPTSys package should contain:

- The MPTSys Program disks
- The *MPTSys User's Manual*

If you are missing any of the above items, contact:

MPTS Research Network Secretariat  
Faculty of Forestry  
Kasetsart University  
P.O.Box 1038, Kasetsart Post Office  
Bangkok 10903, Thailand  
Tel: (66-2) 579-1977, 561-4245/6  
Tlx: 21340 WINROCK TH  
dialcom 141:tcn 370  
Fax: (66-2) 561-1041

F/FRED Project Management Office  
Winrock International  
1611 N. Kent St., Suite 600  
Arlington, VA 22209  
USA  
Tel: (703) 525-9436  
Tlx: 248589 WIDC  
dialcom 41:tcn 408  
Fax: (703) 522-8758

# OVERVIEW OF MPTSys

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This chapter covers basic terminology, key conventions and commands, and guidelines for using the MPTSys programs.

## TERMINOLOGY

### Form

This term refers to the Experiment Database Information, Measurements, Observations and General Measurements data entry screens for Forms A-U. Each form consists of one or more records (or part of a record) and contains different types of data.

### Record

A single record is composed of data for a single entity. For example, in the Site Descriptor experiment data forms, a single record is usually equivalent to one form. In the Measurement experiment data forms, one record may be associated with data for one weather station, or one plot or one month, etc. In the Abstract database, a record is equivalent to one Abstract entry which could be as long as seven pages.

### Data Entry Fields

This term refers to the highlighted areas on screen where data may be entered with the keyboard. These highlighted areas are distinguished by being in color contrast to the normal screen display. That is, if the screen display is light characters on a dark background, the highlighted areas will be dark on light. After entering data into a data entry field, press the [Enter] key and the cursor will be positioned in the next data entry field. The entered data is not saved until <Ctrl-W> is pressed.

**Field Types.** Data entry fields may be numeric, alphanumeric, or date. Numeric fields accept only numbers; alphanumeric fields accept letters and numbers; and date fields accept dates only in the mm/dd/yy (month/date/year) format. Characters that do not conform with the field type will not be accepted and will not appear in the data field. For example, if you pressed the [A] key to enter data into a field requiring a two-digit number, the letter 'A' will not appear on screen, the cursor will remain in the field, and pressing the [Enter] key will not move the cursor to the next field.

**Data-checked Fields.** In some data entry fields, the data are checked by the program as they are entered. If invalid data has been entered, the cursor will not move to the next field when the [Enter] key is pressed. In these fields, press the [F1] key for a help message on valid data entry.

## GUIDELINES FOR DATA ENTRY

1. Use the scrolling highlighted bar menu to select an option. Press the cursor keys ([↑] [↓] arrow keys) to position the bar on the desired item and then press the [Enter] key to select the item. An example of a scrolling bar menu can be found in the Experiment Database main menu.
2. Press a key that is highlighted in the bottom portion of a screen to select an option. If a key is available for a screen, the key's label (i.e., [F2], <Ctrl-W>) will be displayed in yellow (on color monitors) and in bright white (on monochrome monitors). The [S]earch, [M]odify, [D]elete, [A]dd, [B]rowse, and [F2]=Output functions (see the section entitled "Operation Functions" in this chapter for descriptions of these functions) are further examples of keys selected with this method.
3. To enter data and specify search criteria, enter filenames for disk output, and record ranges for output, enter the information with the keyboard and then press the [Enter] key.
4. Press the [Esc] key anytime in MPTSys to move one screen back from the one presently displayed on the monitor. You may press the [Esc] key as many times as is necessary to return to a particular screen.

The [Esc] key is also used to exit the operation functions [A]dd, [D]elete, [S]earch, [B]rowse, [M]odify and [F2]=Output (see the section entitled "Operation Functions" in this chapter for a description of these functions).

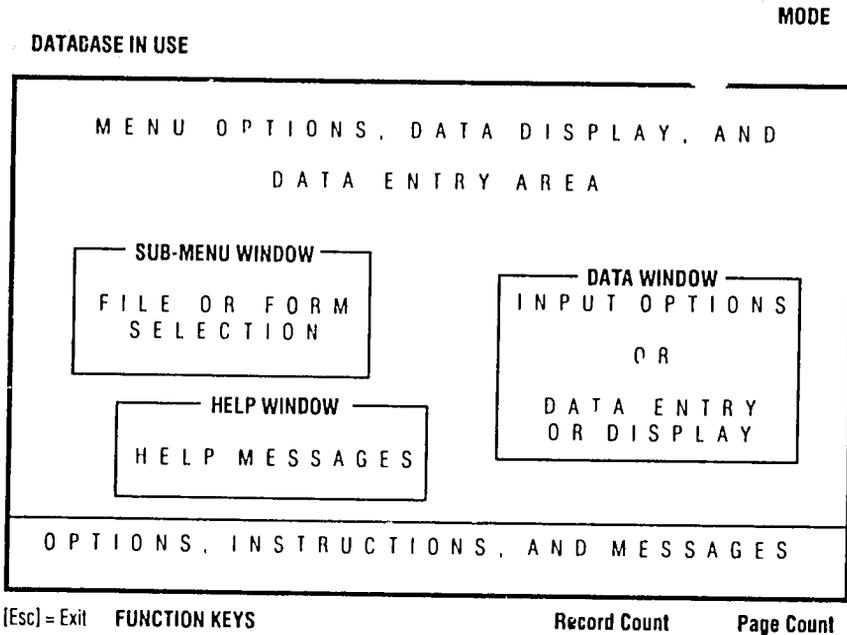
## SPECIAL KEYS AND KEYSTROKES

Below is a summary listing of the special keys and keystrokes for use in MPTSys and a brief description of the function of each. Not every key listed here is available in every screen. If active, the key(s) will be highlighted in the bottom portion of a screen. to be used in combinations are designated by angle brackets. For example, <Ctrl-W> means to press the [W] key while pressing down the [Ctrl] key.

- [Esc] - ABORT procedure
  - EXIT screen and go to previous screen
  - CLOSE Help window
  - <Ctrl-End> and <Ctrl-[->-SAME as [Esc] key
- <Ctrl-W> - SAVE a newly created or modified record
  - START program execution
  - <Ctrl-End> - SAME as <Ctrl-W>
- [Enter] - CONFIRM menu selection or data entry into field
- [F1] - Get on-screen HELP information
- [F2] - OUTPUT to a printer or create an ASCII file
- <Ctrl-Y> - DELETE a record
  
- [Page Up] - Move UP one screen (page)
- [Page Down] - Move DOWN one screen (page)
  - <Ctrl-R> - SAME as [Page Up]
  - <Ctrl-C> - SAME as [Page Down]
- [N] - Move to NEXT record
- [P] - Move to PREVIOUS record
  
- [←][↑][↓][→] - MOVE on-screen cursor
  - <Ctrl-D>/<Ctrl-L> - SAME as [→]
  - <Ctrl-S> - SAME as [←]
  - <Ctrl-E>/<Ctrl-K> - SAME as [↑]
  - <Ctrl-J>/<Ctrl-X> - SAME as [↓]
- [Backspace] - ERASE entries to left of cursor
  - <Ctrl-H> - SAME as [Backspace]
- [Delete] - ERASE entries at the cursor
- [Insert] - Enter data IN BETWEEN other data
- [Home] - Move cursor one word FORWARD or to next data field
  - In Experiment database, DISPLAYS experiments
- [End] - Moves cursor one word BACKWARD or to previous data field
  
- <Ctrl-Home> - SELECT a data entry option in Experiment database
- [F3] - RETRIEVE another experiment for on screen display

## SCREEN FEATURES

Common features found in most MPTSys screen are presented below.



### Database In Use

At the top left of the screen, an indicator will display one of the following.

- The current database file in use.
- The option selected from the MPTSys Master menu.
- The form selected from a sub-menu, (in the Experiment Database menu).

### Mode

At the top right on the screen, an indicator displays the current program operation: SEARCH, ADD, MODIFY, DELETE, or BROWSE.

## **Menu Options, Data Display, and Data Entry Area**

The area at the top of the screen will display menu options, or data, or data entry fields.

### **Windows**

Windows may open anywhere on the screen and are used to display any of the following.

- A form selection sub-menu. Found in some Experiment Database screens.
- A file selection menu. Found in the Browse option screen of selected MPTSys databases.
- Data entry. Found in some Experiment Database measurement screens where a window will open into which you can enter additional data.
- A lookup table for data entry options. Found in the Add or Search option screen of some databases.
- A data display window. Found in the Climate Database.
- A help window. Opens when [F1] is pressed during data entry.

### **Options, Instructions, and Messages**

The area at the bottom of the screen will display the operational options, or instructions for data entry, or system/error messages. In some cases, data entry may be done in this area.

### **Function Keys**

The area at the bottom-middle left of the screen will display function keys that are active. For example, [F1] = Help.

### **Record Count**

At the bottom-middle right of the screen, an indicator will show the current record being displayed on screen, as well as the total number of records in the active data file.

### **Page Count**

At the bottom-right of the screen, an indicator will show the current page being displayed on screen, as well as the total number of pages in the record or form.

### **[Esc] = Exit**

Indicates that the [Esc] key is active. This key can be used at any point in MPTSys to abort the current operation or exit a program module. Use it also to close Help windows on the screen.

## **ERROR MESSAGES**

If a program error should occur while using MPTSys, an error message and number will appear on the lower portion of the screen. After an error message, press any key and you should return to the MPTSys Master menu. Some general error problems are listed here. For a more detailed listing, refer to "Appendix C" in the "Installation" chapter of this *User's Manual*.

1. An error message such as "insufficient disk space", caused by limitations of the user's computer system, must be corrected by the user. If the hard disk is full, free up enough disk space before restarting MPTSys. The amount of disk space needed depends on the amount of data to be entered.
2. Errors in data entry, such as duplicate data or invalid values, will cause the system to display an error message. Read the message and correct the entry. The program will not save the data if such errors are not corrected.
3. If there is a program error, you might want to copy the error number and message and send it to the F/FRED Project, along with information about the circumstances in which the error occurred. If the problem can be duplicated and corrected, then F/FRED will send you information regarding the problem.

## OPERATION FUNCTIONS

MPTSys uses six major operation functions to allow manipulation of information and data in its databases. A function key must be highlighted in the bottom portion of the screen before it can be used. The function keys available for each database are listed in that database's introductory chapter.

### **[A]dd**

The Add function allows you to enter new data into the database. Press the [A] key and the data entry fields for that screen will be highlighted. After entering data or information press <Ctrl-W> to save the entries.

### **[S]earch**

The Search function allows you to locate record(s) in the database that need to be modified, deleted, or printed. Depending upon the search criteria you specify, you can search for all the records in the database for a particular form or a specific record or records.

Press the [S] key and data entry fields for entering search criteria will be displayed on the screen. Leave these blank to select all records. Press <Ctrl-W> to begin the search. Records found matching the search criteria will be displayed (or if none were found, a message "record not found" will be displayed). You can modify, delete, or output the record(s) displayed.

### **[M]odify**

The Modify function allows you to change information or data entered in a record.

1. If the record you want to modify is currently on screen and you have used <Ctrl-W> to save the entries, then press the [M] key and use the cursor keys to move to the highlighted data entry field you want to change. Enter the new data and press <Ctrl-W> when you have finished modifying the record.

2. If you want to modify another record(s) in the database, you must first perform a [S]earch (see "[S]earch" section) to locate and retrieve the record(s) to be modified. Press the [M] key. Follow the instructions in #1.

### **[D]elete**

The Delete function allows you to remove an entry in a record or an entire record from the database.

1. If the record you want to delete is currently on screen and you have used <Ctrl-W> to save the entries, then press the [D]elete key and use the cursor keys and the [N] and [P] keys to highlight the record you want to delete. (If the record is one form, then all the entry fields in the record will be highlighted.) Press <Ctrl-Y> to delete the highlighted record. If you press the [Esc] key before pressing <Ctrl-Y>, no record will be deleted and the delete function will be exited.
2. If you want to delete another record(s) in the database, you must first perform a [S]earch (see "[S]earch" section above) to locate and retrieve the record(s) to be deleted. Press the [D] key. Follow the instructions in #1 above.

### **[B]rowse**

The Browse function allows you to quickly view records contained in the database. It does not allow you to do any other operation. This function is not available for every database in MPTSys. Press the [B] key and records contained in the database file will be displayed.

If you are in a database with multiple data entry forms and therefore multiple files, a submenu will be presented in which you can specify the file you wish to view and, if applicable for a file, the manner in which you want the record in the file sorted. Press <Ctrl-W> when you have completed your entries in the submenu.

When the file is presented on screen, a highlight menu bar will be positioned over one record. Use the following keys to move through the file.

- Use the [←] and [→] arrow keys to scroll the fields, to the left and the right, if the file displayed contains more fields than can be presented on one screen.
- Use the [PgUp] and [PgDn] keys to move the highlight bar up or down one full screen.
- Use the [↑] and [↓] arrow keys to move the highlight bar up and down.
- Use <Ctrl-PgUp> and <Ctrl-PgDn> to move the highlight bar to the first and last records.

## Output

The Output function allows you to produce a printed copy of data, and/or create an ASCII file of the information displayed on the screen.

1. If the data record you want to output is currently on screen and you have used <Ctrl-W> to save the entries, then press the [F2] key and either press the [P]rinter key; or the [F]ile key (for ASCII file output); or the [B]oth key to produce both a printed copy and a file.

For those forms which have more than one way of being printed (e.g., data level entry options: plot, tree, stem), dialogue windows and/or submenus will be presented. Enter the required information and then specify [P] or [F] or [B].

2. If you want to output another record(s) in a database, you must first perform a [S]earch function (see "[S]earch" section above) to locate and retrieve the record(s) to be output.

## Other

Other function keys are available in specific databases in MPTSys. These keys are described in the first section of each database chapter.



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## **II. INSTALLATION and PROGRAM GUIDE**

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# Chapter 1

## INSTALLATION

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This chapter describes the steps necessary to install MPTSys on your hard disk. It is recommended that you have at least a 20MB hard disk. Although MPTSys requires only 8 Mb of free space on the hard disk for its program and files, you will need extra free space for information and data you enter into the system.

### MPTSys PROGRAM DISKS

MPTSys 3.0 consists of six components, all of which are contained on the program disks. Besides these six components, there is an installation program found on the "INSTALL" disk.

Table A lists the disk names (which correspond to the component name) and the number of disk for each component. Take a moment to check that every program disk is contained in your MPTSys package. For components having more than one disk (e.g., "Experiment Database"), the disks are labeled by name and number. For example, the nine Experiment Database disks are labeled EXPERIMENT DATABASE DISK 1 of 4, EXPERIMENT DATABASE DISK 2 of 4, etc. See Appendix B in this section for a complete listing of the files contained on each disk.

Table A. MPTSys 3.0 DISTRIBUTION DISKS

<u>Disk Name/Component Name</u>	<u>Number of disk(s)</u>
INSTALL	1
EXPERIMENT DATABASE	4
SOIL DATABASE	2
CLIMATE DATABASE	1
MPTS SPECIALIST DATABASE	1
ABSTRACT DATABASE	1
SPECIES DIGEST	1
DATA ANALYSIS (MPTStat)	1

## Before Starting

Before you begin MPTSys program installation, turn on your computer and make sure you have everything you need (see the "Introduction to MPTSys" section for a description of requirements).

Make backup copies of the distribution disks using the DOS "DISKCOPY" command. You will need as many blank diskettes as there are distribution diskettes. [Enter] means press the key marked 'Enter'.

If you have only one floppy disk drive and its drive letter is A:, at the DOS prompt C:\> type '**DISKCOPY A: A:** [Enter]'. If you have two floppy disk drives and their drive letters are A: and B:, at the DOS prompt C:\> type '**DISKCOPY A: B:** [Enter]'. Follow the instructions that will appear on the screen.

The "source" diskette is the MPTSys diskette you want to copy and the "target" diskette is one of your blank diskettes.

Store the original disks in a safe place. The copies are your working disks. If they should become damaged or destroyed, use the original disk to restore MPTSys.

## DOS Prompt

If when you turn on your system, the DOS prompt looks like this: C>, change this prompt to the C:\> prompt. To do this, type '**PROMPT \$P\$G** [Enter]' as shown:

```
C>PROMPT $P$G [Enter]
```

The DOS prompt on your screen should now be the C:\> prompt, the backslash (\) indicating a subdirectory.

## Configure Your System

A CONFIG.SYS file must be created to set up the necessary configuration for your computer system. Each time you start DOS, DOS searches the root directory of the drive it was started from for the file named CONFIG.SYS.

Your CONFIG.SYS file must have the following commands:

```
FILES = 22  
BUFFERS = 20
```

for the program to work properly. The 'FILES =' command tells your computer how many files can be open at the same time. The 'BUFFERS =' command tells your computer how much memory to use for input/output buffering. If you need help to create or add these statements to a CONFIG.SYS file, refer to Appendix D in this section.

## MPTSys INSTALLATION

The following instructions assume your hard disk is located in drive C: and the floppy disk drive being used for installation is drive A:.

You may install MPTSys in one of the two following ways.

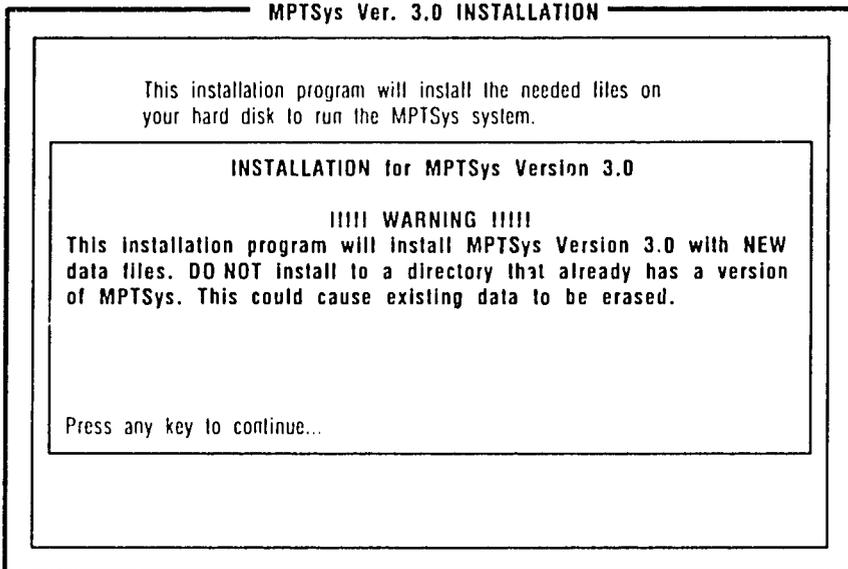
1. Use the MPTSys Install program. One of the program disks you received is labeled INSTALL and contains a user-friendly installation program. Instructions for using this disk will be found in this chapter in the section entitled "Using The Install Program."
2. Experienced DOS users may use DOS commands for MPTSys installation. Instructions will be found in Appendix A. Refer to your DOS Manual for information on the use of the MD (make directory), CD (change directory), and COPY commands.

**WARNING:** Installing MPTSys to a directory that already has a previous version of MPTSys will result in data being lost. This is because installing MPTSys copies empty data files supplied with the system diskettes and does not copy any data from existing files.

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## USING THE INSTALL PROGRAM

1. Insert the diskette labeled INSTALL into drive A:. If drive A: is not the current drive, make it so by typing 'A: [Enter]'
2. At the A:> prompt type 'INSTALL [Enter]'. The following screen will appear.



3. The default hard drive and directory is C:\MPTSYS. If you wish to change this drive and directory, enter the drive and directory where you want to install the system in the highlighted area shown in the screen below.

For example, you could type 'D:\MPTSYS2' to install the system in the hard disk drive D in a subdirectory, MPTSYS2.

If you want the system installed in the default drive and directory, C:\MPTSYS, leave the input field blank and press the [Enter] key.

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Disk drive and Directory name:  
Blank = default ( C:\MPTSYS )

Enter the disk drive and directory of where MPTSys is to be installed. Note that the directory name is restricted to a directory 1 level from the disk drive root. For example D:\MPTSYS2

[Esc]=Abort

4. The MPTSys Component menu (shown below) will be displayed listing the six MPTSys components available for installation and the amount of space (in bytes) each requires.
5. Select the component(s) you want installed by using the arrow keys to move the highlight bar until the component you wish to select is highlighted. Then press the [Enter] key. (You may select as many components as you want at this time.) After each selection, a small triangular marker will appear to the left of the selected component. In the example screen below, the Experiment Database component has been selected and the highlight bar has been placed on MPTStat Data Analysis.

**MULTIPURPOSE TREE SPECIES SYSTEM V.3.0 - INSTALLATION**

**MPTSys Component Menu**

A - EXPERIMENT DATABASE	(MPT_DATA )	[3,356,973 bytes]
B - MULTIPURPOSE TREE DATABASE	(MPT_INFO )	[1,145,520 bytes]
C - MPTS SPECIALIST DATABASE	(MPT_PROS )	[ 580,614 bytes]
D - ABSTRACT DATABASE	(MPT_DOCS )	[ 492,397 bytes]
E - SPECIES DIGEST	(MPT_SPP )	[ 427,324 bytes]
F - CLIMATE DATABASE	(MPT_CLIM )	[ 835,329 bytes]
G - SOIL DATABASE	(MPT_SOIL )	[8,017,096 bytes]
H - FARM/VILLAGE FORESTRY DATABASE	(MPT_FARM)	[ 931,510 bytes]
1 - DATA ANALYSIS PACKAGE	(MPTStat )	[ 408,341 bytes]
2 - GROWTH SIMULATOR	(MPTGro )	[ 473,116 bytes]
3 - GENOTYPE/ENVIRONMENT MODELING	(MPTModel)	[ 871,745 bytes]

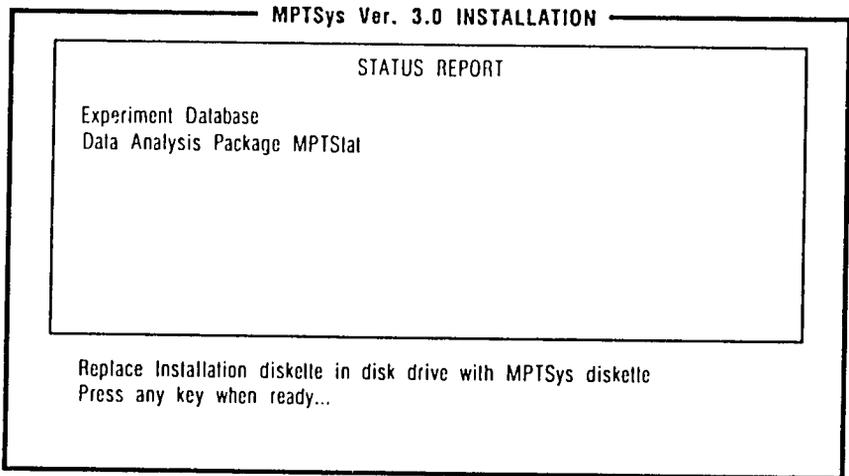
[↑][↓] = Move Highlight  
 [Enter] = Select highlighted MPTSys Component  
 [Esc] When Finished selection.

Select the MPTSys components to install. You may select more than 1

The drive and directory where the system will be installed is displayed at the upper right corner and is designated with 'Installing MPTSys to:'.

The available space on the hard disk (in bytes) is displayed below the drive and directory. The sum of the space (in bytes) required by the components you select must total less than the available space on the hard disk.

6. Press <Ctrl-W> when you finish selecting the MPTSys components you want installed and want to start the installation.
7. The following screen will appear, displaying the components you selected and prompting you to insert the MPTSys component disks. Insert the MPTSys diskettes having the same name as the component(s) you selected. For example, for the components selected in the screen below, the four (4) EXPERIMENT DATABASE diskettes and the one (1) MPTStat diskette will need to be inserted.



[Esc]=Abort

As each MPTSys diskette is being read and copied to the hard disk, the program will display the message:

**copying program file...**

After the files are copied from a diskette, the following message will appear:

**Place next MPTSys disk in disk drive  
Press any key to continue...**

Insert the next MPTSys component diskette. The above message will continue to appear until the Install program determines that all the files needed for the component you have selected have been copied. When a selected component has been completely installed, a triangle marker will appear on the screen next to the component. The Install program ends automatically when all necessary disks have been inserted and copied.

### **Check Files**

After using the program, you may want to look at Appendix B which lists the files for each of the subdirectories of MPTSys. Refer to these listings to verify that all the files for the component(s) you selected have been properly installed.

### **Restart**

If you are unable to complete the installation for any reason, you can restart the installation from the beginning. Any files previously installed will be overwritten. Two simple reasons for installation failure may be powerline problems or the hard disk did not have enough memory to accommodate all the files. Other possible reason for installation problems and possible corrective action can be found in Appendix C.

### **Error Report**

If the program is aborted for any reason, an error report file, ERRORLOG.TXT, will be saved on the hard disk. View this file to determine which files were not copied.

## Chapter 2

# MPTSys PROGRAM EXECUTION

---

### **RUN MPTSys**

After you have installed the programs, databases, and indices on your hard disk, you are ready to begin.

Before starting, be sure you have read the "Overview of MPTSys" chapter in the "Introduction" section on the conventions and screen features used in MPTSys.

At the DOS prompt, C:\>, type '**CD MPTSYS [Enter]**', which will log you into the subdirectory containing MPTSYS. If you have installed MPTSys in a different subdirectory, at the DOS prompt type '**CD**' and the subdirectory name to get to that subdirectory.

At the DOS prompt, C:\MPTSYS>, type '**MPTSYS [Enter]**' and program execution will begin.

# MPTSys MASTER MENU

The system will display the following MPTSys master menu which shows the eleven components of the MPTSys system. To choose one of the options, use the [↑] and [↓] keys to move the highlight bar to the desired option. Then press the [Enter] key or the letter key corresponding to the desired option.

```
----- F/FRED MULTIPURPOSE TREE SPECIES SYSTEM 3.0 -----  
  
      <<  MASTER  MENU  >>  
  
      A - EXPERIMENT DATABASE           (MPT_DATA)  
      B - MULTIPURPOSE TREE DATABASE    (MPT_INFO )  
      C - MPTS SPECIALIST DATABASE      (MPT_PROS)  
      D - ABSTRACT DATABASE             (MPT_DOCS)  
      E - SPECIES DIGEST                (MPT_SPP )  
      F - CLIMATE DATABASE              (MPT_CLIM)  
      G - SOIL DATABASE                 (MPT_SOIL )  
      H - FARM/VILLAGE FORESTRY DATABASE (MPT_FARM)  
  
      1 - DATA ANALYSIS PACKAGE        (MPTStat )  
      2 - GROWTH SIMULATOR             (MPTGro  )  
      3 - GENOTYPE/ENVIRONMENT MODEL'NG (MPTModel)
```

[↑] and [↓] to highlight desired item. Press [Enter] to begin program execution.

[Esc]=Quit [F1]=Help

## Database Options

Select the option, "C-MPTS Specialist Database," "D - Abstracts Database," "G - Soil Database," or "F - Climate Database" from the MPTSys Master menu to display on screen the Main menu for that database. Select "1 = Data Analysis Package MPTStat" to display the Statistical Analysis and Graphics Program menu.



## EXIT MPTSys

To exit MPTSys, and return to the operating system, you must first return to the F/FRED Master menu. You may return to the Master menu at any point in the program by pressing the [Esc] key a sufficient number of times (the number varies depending on where you are in the program).

## Appendix A

### INSTALLING MPTSys USING DOS

---

The following instructions will enable you to create subdirectories on your hard disk for the MPTSys program and files and to copy the programs and files to your hard disk using DOS commands. It is assumed that you want MPTSys installed on hard disk C: and in a subdirectory named 'MPTSYS'. This method of installing MPTSys is faster than using the Install program.

#### CREATE SUBDIRECTORIES

1. At the DOS prompt C>, type 'CD\ ' and press the [Enter] key.

This logs you on to the root directory of the hard disk drive.

2. At the DOS prompt C:\>, type 'MD MPTSYS' and press [Enter] key.

This creates a subdirectory, with the name MPTSYS.

3. At the DOS prompt C:\>, type 'CD MPTSYS' and press the [Enter] key.

This logs you into the newly created subdirectory, named MPTSYS and the DOS prompt should be C:\MPTSYS>.

4. At the Dos prompt C:\MPTSYS>, type the following lines, pressing the [Enter] key after each line.

```
MD DATA
MD INFO
MD SOIL
MD CLIM
MD FARM
MD PROS
MD DOCS
MD SPP
MD STAT
MD-MPTG
MD MPTM
```

This creates the subdirectories for the MPTSys components.

## **COPY PROGRAMS AND FILES**

Use the DOS COPY command to copy the programs and files from the system disks to their respective subdirectories on your hard disk, as instructed below. Press the [Enter] key after each entry.

1. To copy the file MPTSYS.EXE from the INSTALL disk into C:\MPTSYS type:

**COPY A:MPTSYS.EXE C:\MPTSYS**

with the disk inserted in drive A:.

2. To copy all the files from the EXPERIMENT DATABASE disks into C:\MPTSYS\DATA, type

**COPY A:\*. \* C:\MPTSYS\DATA**

for each of diskettes inserted in drive A:.

3. To copy all the files from the MPTStat disk into C:\MPTSYS\STAT, type:

**COPY A:\*. \* C:\MPTSYS\STAT**

with the disk inserted in drive A:.

4. To copy all the files from the SOIL DATABASE disks into C:\MPTSYS\SOIL, type:

**COPY A:\*. \* C:\MPTSYS\SOIL**

for each of the diskettes inserted in drive A:.

5. To copy all the files from the CLIMATE DATABASE disks labelled into C:\MPTSYS\CLIM, type:

**COPY A:\*. \* C:\MPTSYS\CLIM**

for each of the diskettes inserted in drive A:.

6. To copy all the files from MPTS SPECIALIST DATABASE disks into C:\MPTSYS\PROS, type:

**COPY A:\*. \* C:\MPTSYS\PROS**

for each of the diskettes inserted in drive A:.

7. To copy all the files from the ABSTRACT DATABASE disks into C:\MPTSYS\DOCS, type

**COPY A:\*. \* C:\MPTSYS\DOCS**

for each of the diskettes inserted in drive A:.

### **Check Files**

After using DOS to install MPTSys, you may want to look at Appendix B which lists the files for each of the subdirectories of MPTSys. Refer to these listings to verify that all the files have been properly installed.

### **Restart**

If you are unable to copy all the necessary files for any reason, refer to Appendix B to determine which files have not been Copied. You may then selectively copy the missing files.

### **Problems**

Some common installation problems and possible corrective actions can be found in Appendix C.

## Appendix B

### MPTSys LIST OF FILES

---

A complete listing of MPTSys files installed on your hard disk can be found by using the DOS DIR (directory) command. This Appendix lists the MPTSys subdirectory name, the files which should be in that MPTSys subdirectory, and the installation diskette where the file may be found. Use this list to check that all the files for each component you have selected have been installed on your hard disk. If any files are missing, insert the component disk and use the DOS DIR command to see if the file is found on the disk. If it is, follow the instructions found in Appendix A to install the missing file(s). If it is not, contact the F/FRED Project.

For the Soil Database and Abstract Database, several of the data files were too large to fit on one disk and thus were split and stored on two disks. When you install these databases, the files should appear in your subdirectory as two files. When, however, you first run the Soil and Abstract Database programs, the two split files will be joined into one and will thereafter appear in the subdirectory listing under one name. For example, the ABSTRACT data files BIB1.DBF and BIB2.DBF will be listed as BIB.DBF after running the Abstract Database program.

For the Soil Database, the Abstract Database and the MPTS Specialist Database, the index files will be created when these programs are run for the first time. These index files are not on the installation diskettes.

#### MPTSys SUBDIRECTORY

The following listing assumes MPTSys was installed on hard disk C: in a subdirectory called MPTSYS.

<u>Subdirectory</u>	<u>contains files</u>	<u>from diskette</u>
C:\MPTSYS	MPTSYS.EXE	INSTALL

*NOTE: Also listed in the MPTSys subdirectory will be the subdirectories for the MPTSys components you have installed. If you installed all six components, these subdirectories will be listed when you use the DOS DIR command. In this case, the listing would appear as shown below.*

```

C:\MPTSYS>dir
Volume in drive C is MS-DOS_5
Volume Serial Number is 18E2-80EC
Directory of C:\MPTSYS

          <DIR>          06-03-93          2:16p
          <DIR>          06-03-93          2:16p
MPTSYS    EXE           16176  04-27-92          2:37p
DATA      <DIR>          06-03-93          2:16p
INFO      <DIR>          06-03-93          2:16p
DOCS      <DIR>          06-03-93          2:16p
PROS      <DIR>          06-03-93          2:16p
SPP       <DIR>          06-03-93          2:16p
SOIL      <DIR>          06-03-93          2:17p
CLIM      <DIR>          06-03-93          2:17p
FARM      <DIR>          06-03-93          2:17p
STAT      <DIR>          06-03-93          2:17p
MPIG      <DIR>          06-03-93          2:17p
*MPTM     <DIR>          06-03-93          2:17p
          14 file(s)           16176 bytes
                               585728 bytes free

C:\MPTSYS>

```

## ABSTRACT DATABASE

These files are in the Abstract Database subdirectory and are from diskettes labeled ABSTRACT DATABASE.

<u>Subdirectory</u>	<u>contains files</u>
C:\MPTSYS\OOCS	BIBMAIN.EXE ERROR.TXT BIB1.DBF BIB2.DBF ABS1.DBF ABS2.DBF

## MPTS SPECIALIST DATABASE

These files are in the MPTS Specialist Database subdirectory and are from diskettes labeled MPTS SPECIALIST DATABASE.

<u>Subdirectory</u>	<u>contains files</u>
C:\MPTSYS\PROS	SPECMAIN.EXE ERROR.TXT MAILIST.DBF

## CLIMATE DATABASE

These files are in the Climate Database subdirectory and are from diskettes labeled CLIMATE DATABASE.

<u>Subdirectory</u>	<u>contains files</u>
C:\MPTSYS\CLIM	CLIMMAIN.EXE CLDATA01.DBF CLDATA02.DBF CLDATA03.DBF CLDATA04.DBF CLDATA05.DBF CLDATA07.DBF CLDATA08.DBF CLDATA09.DBF CLDATA10.DBF CLDATA11.DBF CLDATA12.DBF ERROR.TXT CLIMATTR.DBF CLIMCTRY.DBF CLIMSTAT.DBF CLDATA01.NDX CLDATA02.NDX CLDATA03.NDX CLDATA04.NDX CLDATA05.NDX CLDATA07.NDX CLDATA08.NDX CLDATA09.NDX CLDATA10.NDX CLDATA11.NDX CLDATA12.NDX CLIMATTR.NDX CLIMCTRY.NDX CLIMSTAT.NDX

## SOIL DATABASE

These files are in the Soil Database subdirectory and are from diskettes labeled SOIL DATABASE.

<u>Subdirectory</u>	<u>contains files</u>
C:\MPTSYS\SOIL	SOILMAIN.EXE PROFLAYR.DBF SOILMAIN.OV1 PROLAYR1.DBF PROFHEAD.DBF SCSCODES.DBF COUNTRY.DBF SORDER.DBF SUBORDER.DBF SUBGROUP.DBF SOILVAR.DBF

## EXPERIMENT DATABASE

These files are in the Experiment Database subdirectory and are from diskettes labeled EXPERIMENT DATABASE.

<u>Subdirectory</u>	<u>contains files</u>
C:\MPTSYS\DATA	EXPTMAIN.EXE INFOMAIN.EXE MEASMAIN.EXE MEASMAIN.OV1 OBSMAIN.EXE XYMAIN.EXE XYMAIN.OV1 INFOMAIN.OV1 ANALYSIS.EXE UTILMAIN.EXE UTILMAIN.OV1 ERROR.TXT FORMA.DBF FORMC.DBF FORMD.DBF FORME.DBF FORMH.DBF FORMI1A.DBF FORMI1B.DBF FORMI2.DBF FORMI3.DBF FORMK.DBF FORML1.DBF FORML2A.DBF FORML2B.DBF FORML2C.DBF FORMM1.DBF

Subdirectory  
C:\MPTSYS\DATA

contains files  
FORMM2.DBF  
FORMNO.DBF  
FORMN1.DBF  
FORMN2.DBF  
FORMNF1.DBF  
FORMNF2.DBF  
FORMO1.DBF  
FORMO2.DBF  
FORMP1.DBF  
FORMP2.DBF  
FORMQ.DBF  
FORMR.DBF  
FORMS.DBF  
FORMT.DBF  
FORMU.DBF  
FORMX.DBF  
FORMX1.DBF  
FORMX2.DBF  
FORMY.DBF  
FORMY1.DBF  
FORMY2.DBF  
HELP.DBF  
ID.DBF  
NETWORK.DBF  
NTWKLINK.DBF  
SPECIES.DBF  
FORMA.NDX  
FORM1A.NDX  
FORM1B.NDX  
FORM2.NDX  
FORM3.NDX  
FORMK.NDX  
FORML2A.NDX  
FORML2B.NDX  
FORML2C.NDX  
FORMM1.NDX  
FORMM2.NDX  
FORMM2P.NDX  
FORMNO.NDX  
FORMN1.NDX  
FORMN1P.NDX  
FORMN2.NDX  
FORMN2P.NDX  
FORMNF1.NDX  
FORMNF2.NDX  
FORMNF2P.NDX  
FORMO1.NDX  
FORMO2.NDX  
FORMO2P.NDX  
FORMP1.NDX  
FORMP2.NDX  
FORMP2P.NDX  
FORMQ.NDX  
FORMQP.NDX

contains files  
FORMR.NDX  
FORMS.NDX  
FORMT.NDX  
FORMU.NDX  
FORMX.NDX  
FORMX1.NDX  
FORMX2.NDX  
FORMX2P.NDX  
FORMY.NDX  
FORMY1.NDX  
FORMY2.NDX  
FORMY2P.NDX  
HELP.NDX  
NETWORK.NDX  
NTWKLINK.NDX  
SPECIES.NDX

## Species Digest

These files are in the SPP subdirectory and are from the diskette labeled 'MPT-SPP'.

<u>Subdirectory</u>	<u>contains files</u>
C:\MPTSYS\SPP	SPPCODES.DBF SPPDATA.DBF ERROR.TXT SREGS.DBF SPPCODES.NDX SPPDATA.NDX MPP_SPP.EXE

## Data Analysis (MPTStat)

These files are in the STAT subdirectory and are from the diskette labeled 'MPTStat'

<u>Subdirectory</u>	<u>contains files</u>
C:\MPTSYS\STAT	FMOD.EXE ATT.BGI CGA.BGI EGAVGA.BGI HERC.BGI IBM8514.BGI PC3270.BGI GOTH.CHR LITT.CHR SANS.CHR TRIP.CHR

*NOTE: The.BGI files designate graphics drivers and only one is needed. The one you need depends on the type of graphics adapter and monitor you have on your computer. All the drivers have been included so that you may be able to install the system in several computers with different display systems. Unused drivers may be deleted.*

*NOTE: The.CHR files are font files and at this time only the TRIP.CHR is used. However, future updates of this program may utilize the other fonts so they are included here for future use. The unused fonts, however, may be deleted.*

# Appendix C

## INSTALLATION PROBLEMS AND SOLUTIONS

---

If you have problems installing the system using the Install program or using DOS commands check the following:

### DOS PROBLEMS

<u>Error message</u>	<u>Problem/Solution</u>
"Insufficient disk space"	Your hard disk does not have enough bytes free. Check the hard disk requirements in this manual's "System Requirements" section, and make sure your hard disk has enough bytes free.
"Unable to create directory"	You have tried to create a directory (MD) that already exists.
"Invalid drive specification"	When specifying a disk drive letter, you specified a disk drive that does not exist. For example you typed E: when your computer had only disk drives A, B, C, and D.

**NOTE:** When copying files from the floppy disks, make sure you are in the correct directory. If you are not in the correct directory, files will be copied to the wrong directories and MPTSys will not be able to find them.

## INSTALL PROGRAM PROBLEMS

Error message

"Not enough memory"

Problem/Solution

Your computer does not have enough memory (RAM) free. This could be caused by too many Terminate and Stay Resident (TSR) programs or drivers (.SYS) programs, such as Virtual Disk (VDISK) programs, or cache programs that may reserve RAM in your computer. To free RAM remove these programs and drivers.

"Wrong version of DOS"

Your computer is using the wrong version of DOS. Check the DOS requirements in this manual's "System Requirements" section. To check the version of DOS your computer is using type VER.

## Appendix D

# CONFIGURE SYSTEM FILE

---

The CONFIG.SYS file is the first file read by the operating system when your computer is turned on. This file contains instructions for configuring your computer system in a particular way.

If the file is not found, the computer will be set to its default values.

**WARNING: MPTSYS 3.0 WILL NOT WORK WITH THE DOS DEFAULT SETTINGS.**

To create the CONFIG.SYS file to MPTSYS specifications do the following.

### CREATE CONFIG.SYS

1. At the C> prompt, type "CD\" and press the [Enter] key.
2. At the C:\> prompt, type "COPY CON CONFIG.SYS" and press the [Enter] key.
3. Enter the following statement lines, pressing the [Enter] key after each line:

```
FILES = 22  
BUFFERS = 20  
^Z
```

^Z is the end-of-file marker. It is usually created by pressing [F6]. If that does not work, it can also be created by pressing [Z] while holding down [Ctrl].

4. When the file is created, the screen will display the message "#1 file(s) copied" and the C> prompt will reappear.
5. Turn off the computer, then turn it back on again to have the CONFIG.SYS command take effect.



Multipurpose Tree Species  
Information and Decision Support System

Version 3.0

## **III. EXPERIMENT DATABASE**

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## EXPERIMENT DATABASE

---

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# Chapter 1

## INTRODUCTION

---

### **PROGRAM DESCRIPTIONS**

The Experiment Database is the prime residence for experiment minimum data sets. The main modules of the Experiment database control information, measurement, observation, data analysis, and utility functions.

#### **Experiment Information**

This module allows you to access Experiment Database Forms A-K. In these forms you can define data, enter experiment design information, treatment factors/levels, and site-specific data (location, socio-economic conditions, soil, climate and management). You can also edit, delete, display, and print the experiment data contained in these forms.

#### **Predefined Measurements**

This module allows you to access Experiment Database Forms L-Q. In these forms you can record height, diameter, tree form, foliage and wood biomass, as well as daily weather, soil and tree-litter measurements. You can also edit, delete, display, and print the experiment data contained in these forms.

#### **Experiment Observations**

This module allows you to access Experiment Database Forms R-U. In these forms you can record phenology, damage, and irrigation methods and log experiment observations. You can also edit, delete, display and print the experiment data contained in these forms.

#### **Agroforestry Measurements**

This module allows you to access Experiment Database Forms V-W. In these forms you can record agroforestry measurements such as sprout, regrowth foliage biomass, regrowth wood biomass and crop measurements. You can also edit, delete, display, and print the experiment data contained in these forms.

## User-Defined Measurements

This module allows you to access Experiment Database Forms X and Y. In Form X you can define and enter up to 12 additional variables of either numeric or nominal data not provided for in the other measurement forms. In Form Y you can define and enter up to six pairs of wet- and dry-weight data not provided for in the other biomass measurement forms. You can also edit, delete, display and print experiment data contained in these forms.

## Data Analysis

This module allows you to select experiment data from the measurement and information forms to create analysis data sets. The data sets created can be used as input to MPTStat (*See MPTStat User's Manual*) for immediate analysis or as text files that can be edited for use with other data analysis programs.

## Utilities

This module has five functions which allow you to delete, back up and restore large blocks of data from the database, reindex the database index files, and group experiments within the database.

## FUNCTION KEYS

The function keys available in the Experiment Database are as follows.

- [A]dd - Enter data or information into a form.
- [S]earch - Specify search criteria to locate a particular record(s) in the database.
- [D]elete - Remove record(s) from the database.
- [M]odify - Update and change data and information contained in record(s) in the database.
- [B]rowse - View the contents of the database file. For some Experiment forms, a submenu will be presented in which you may specify the manner in which the records are to be sorted.
- [F2] - Output a data form to the [P]rinter or a text [F]ile or [B]oth.
- [F3] - Change to another experiment or enter a new experiment.

## MODULE SELECTION

Select "A - Experiment Database" from the F/FRED Master menu. To access Forms A-U, select the module option from the Experiment Database Main menu which contains the forms you need. See following screen.

**F/FRED EXPERIMENT DATABASE**

---

<< MAIN MENU >>

A - EXPERIMENT INFORMATION B - PRE-DEFINED MEASUREMENTS C - EXPERIMENT OBSERVATIONS D - AGROFORESTRY MEASUREMENTS E - USER-DEFINED MEASUREMENTS  1 - DATA ANALYSIS 2 - UTILITIES	<p style="text-align: center;">FORMS</p> A - > Project/Institution B - > Researcher C - > Trial Site D - > Socioeconomic E - > Climate F - > Soil G - > Site Preparation H - > Description I - > Factors/Treatments J - > Planting K - > Tree/Crop Species
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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[↓] and [↑] to highlight desired item. Press [Enter] to begin program execution.

[Esc] = Exit, [F1] = Help

To view the forms contained within a module, move the highlight bar to a module option. A window listing the forms will appear to the right of the highlighted option (see screen above). Select an option by pressing the [Enter] key. The submenu shown in the window will then appear on screen. For example, to access any of the forms, A-K, highlight the "Experiment Information" option and press the [Enter] key.

## **EXPERIMENT ID**

In the Experiment Database, data sets for each experiment are stored and retrieved by an Experiment ID. This ID is a unique combination of two letters and two digits.

Whenever you enter a new experiment in the Experiment Database, you must enter an ID code.

The two letters of the ID are called the "Institution ID" and should reflect, in a unique way, the name of the institute conducting the experiment.

The two digits of the ID define the experiment, and usually indicate a particular site or trial/test number.

### **Example ID**

TK-02. This Experiment ID uniquely identifies the institute, Kasetsart University ('K' of the code), in Bangkok, Thailand ('T' of the code) and is for experiment #2 (02' of the code).

IF-21. This experiment ID uniquely identifies the institute, Forest Research & Development Center ('F' of the code), in Indonesia ('I' of the code) and is for experiment #21 (21' of the code).

### **Enter New ID**

If no experiments have been entered previously into the database, do the following after selecting Experiment Database from the F/FRED Master menu.

1. When the Experiment Database Main menu is presented, highlight and select the "Experiment Information" module.
2. The Experiment Database Information submenu will be presented.

## EXPERIMENT DATABASE INFORMATION

<< SUB MENU >>
FORM A -> Project/Institution Information B -> Researcher Information C -> Trial Site Information D -> Site Descriptor - Socioeconomic E -> Site Descriptor - Climate F -> Site Descriptor - Soil G -> Experiment Site Preparation H -> Experiment Description I -> Experiment Factors/Treatments J -> Experiment Planting K -> Tree Species
Please enter the Experiment ID: Press <Ctrl-W> to begin program execution.

[Esc] = Exit. [Home] = Show IDs

3. At the bottom of this screen, enter your unique experiment ID in the highlighted data entry field by typing in the two letters that are your institute's ID. Then type in (without entering a space or the hyphen) the two digits representing the experiment for which you will enter a data set.

*NOTE: If your institute has not used MPTSys before, select the Institute ID letters with care. This ID should always be used by everyone in your institute entering data sets into the Experiment Database and must be unique from other institutions using MPTSys.*

4. Press <Ctrl-W>. The Experiment ID code will appear at the top right of the screen, and all data entered into the Experiment Database will become part of the data set for that Experiment ID.

## Change Experiment ID

To enter data for a new experiment or to change to another experiment residing in the database, do the following.

1. Press the [F3] key. The bottom portion of the screen will display the same highlighted data fields as seen in the example screen shown in the section in this chapter entitled "Enter New ID".
2. Enter the Experiment ID code. If you want to enter data for an experiment already residing in the database and do not remember or know its ID, press the [Home] key for a listing of all Experiment Database IDs.
3. Press the [Enter] key and select a form and the function you wish to use.

*NOTE: It is not necessary to complete all data entries for an experiment at one time. As long as you save your data entries before you exit the database, you can, at a later date, continue entering the data set for the experiment by entering its experiment ID as described in the section "Change Experiment ID".*

## SAME INSTITUTE/DIFFERENT EXPERIMENT

Once you have entered an ID for your institute and completed Form A, Institute Information, whenever after you enter that ID (e.g., 'TK'), the Experiment Database program will complete Form A with the same data you first entered into Form A. You may change this information using the [M]odify function.

## Chapter 2

# INFORMATION FORMS A - K

---

### INTRODUCTION

This chapter describes and explains the screens presented for Forms A-K, when "Experiment Information" is selected from the Experiment Database Main menu.

#### **Information Forms A, B, C**

These forms contain, respectively, institution; cooperator and trial site; and weather station information.

#### **Site Descriptor Forms D, E, F**

These forms contain, respectively, socioeconomic; climate; and soil descriptors of the trial site data.

#### **Experiment Forms G, H, I, J**

These forms contain, respectively, experiment site preparation; descriptive; factors/treatment; and planting data.

#### **Species Form K**

This form contains information about the tree and seeds used in an experiment.

Highlighted areas on the screens for Forms A-K indicate where data may be entered. Press the [Enter] key after each entry. Press <Ctrl-W> to save all entered data. If you need assistance while in a form, press the Help Key, [F1], and messages giving additional information will be presented.

*NOTE: If you use the [Esc] key in a data set form after entering data but before pressing <Ctrl-W>, your entered data will not be saved.*

## SUBMENU FOR FORMS A-K

After selecting the "Experiment Information" module option from the Experiment Database Main menu and entering, if necessary, an Experiment ID, the following submenu will appear. Move the highlight bar until the form you want is highlighted and then press the [Enter] key.

### EXPERIMENT DATABASE INFORMATION

ID: TK-01

<< SUBMENU >>
FORM <b>A -&gt; Institution Information</b> B -> Cooperator Information C -> Site Information D -> Site Descriptor - Socioeconomic E -> Site Descriptor - climate F -> Site Descriptor Soil G -> Experiment Site Preparation H -> Experiment Description I -> Experiment Factors / Treatments J -> Experiment Planting K -> Tree Species
Use (↑) and (↓) to highlight desired item. Press [Enter] to begin program execution.

[Esc] = Exit, [F3] = Change Experiment

### Form I Submenu

When Form I is selected, a second submenu (shown below), will appear.

SUBMENU
<b>1-&gt; Treatment Factors and Level</b> 2-> Treatment Combinations 3-> Experiment Design
[Esc]=Exit, [↑], [↓]=Move, [Enter]=Select

Select Form I-1, I-2, and I-3 (Option 1, 2, 3 respectively) from this submenu by moving the highlight bar to the desired form and then pressing the [Enter] key.

**FORM A: Institution Information****ADD**

Project ID:		Name: <b>Kasetsart University</b>		ID: <b>TK-01</b>
Manager:		<b>Suree Bhumibhamon</b>		
Institution:		<b>Faculty of Forestry</b>		
Address:		<b>Faculty of Forestry Kasetsart University 50 Paholyothin Road Bangkhen, Bangkok 10903</b>		
Country:		<b>Thailand</b>		
Telephone:		<b>579-0171</b>	Fax:	
Telex:		<b>21957 RECOFTC TH</b>	Cable:	
Note:				
Enter information in form above. Press < Ctrl - W > to save.				

[Esc] = Exit. [F1] = Help

**FORM A: INSTITUTION INFORMATION**

If the first two characters of the Experiment ID assigned to each experiment at that institute are the same, information for Form A needs to be entered only once for each institute. For example, if for the institute XY, a user assigns "XY" as the first two characters of every experiment ID (e.g., XY-01, XY-02, XY-03, etc.), then every Form A, after the entry of the XY-01 information, will be completed by the program.

**Institution Name**

Enter the name of the institution conducting the experiment. A specific department or division can be added for clarity. Acronyms should follow the complete spelling of names and should be enclosed in parentheses.

**Mailing Address**

Enter the complete street address with information adequate to deliver packages and messages, as well as a post office box or other information needed to deliver regular mail; include intra-city zip or other codes, if relevant.

**Country**

Enter the complete, unabbreviated name of the country in which the experiment is being conducted.

**Telex, Cable, Telephone & Fax**

Enter full codes; include all international, country, and city codes.

## FORM B: Cooperator Information

Principal Investigator Name; Family: <b>Bunthamon</b> First: <b>Surce</b>	ID: TK-01
Other Researchers: <b>Vinai Thavorn</b> <b>Dawrong Pipatwattanakul</b>	
Institute Name: <input type="text"/>	
Address: <input type="text"/>	
Country: <input type="text"/>	
Telex: <input type="text"/>	Cable: <input type="text"/>
Telephone: <input type="text"/>	
Fax: <input type="text"/>	
Enter information in form above. Press <Ctrl-W> to save.	

[Esc]=Exit, [F1]=Help

## FORM B: COOPERATOR INFORMATION

**Principal Investigator Name**

Enter the name of the individual responsible for the experiment.

**Other Researchers**

Enter the names of other scientists participating in the experiment.

**Institution and Address of Principal Investigator**

If the institution is different from that described in Form A, enter the name and address of the institution with which the principal investigator is affiliated.

**FORM C: Trial Site Information**

ID: TK-01
Site Name: <b>LAD KRATING PLANTATION</b> Site ID : <b>LADKR01</b>
Elevation (m): <b>150</b> Latitude (deg): <b>13</b> (min): <b>30</b> Direction (N,S): <b>N</b> Longitude (deg): <b>101</b> (min): <b>32</b> Direction (W,E): <b>E</b>
Trial Site Aspect (degrees from North): Trial Site Slope (Percent) Trial Site Slope (Category):
Trial Site Position.....: Trial Site Relief.....: General Relief.....:
Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

**FORM C: TRIAL SITE INFORMATION****Site Name**

Enter the name of the site. This name must be used for only one location in the country.

**Site ID**

Enter a unique ID, with a maximum of 7 characters. It is suggested that you use the first five letters of the site name plus two digits.

*NOTE: When you enter the Site Name, the program will enter, as a default, the first five characters of the Site Name into the Site ID field. You may then enter two digits after these 5 characters, or if you wish, enter another ID.*

**Elevation**

Enter the site elevation above mean sea level, in meters.

**Direction (N,S)**

Enter the direction of the experiment site relative to the equator as 'N' for north or 'S' for south.

**Direction (W,E)**

Enter the direction of the experiment site relative to the prime meridian or Greenwich meridian as 'E' for east or 'W' for west.

**Trial Site Aspect (degrees from North)**

Enter the aspect of the experiment site as the direction which the topography faces. Use values from 0 to 360, for example: 45=NE, 90=E, 135=SE, 180=S, 225=SW, 270=W, 315=NW and 360=N.

**Trial Site Slope (percent)**

Enter the percent slope of the experiment site in degrees. If the site is level, enter 'O'. If the percent slope is unknown enter '.'.

**Trial Site Slope (Category)**

Enter the trial site slope category code. Use the following slope category codes (A-D).

A-Flat or Gentle (0-5%)      B-Intermediate (6-10%)  
C-Steep      (11-45%)      D-Very Steep (>45%)

**Trial Site Position**

Enter one of the following trial site position codes.

A-Upper Slope;      C-Lower Slope;      E-Valley  
B-Mid slope;      D-Terrace;

**Trial Site Relief**

Enter the trial site relief code. Use the following site relief codes (A-D).

A-Flat      B-Concave  
C-Convex      D-Ridge

**General Relief**

Enter general relief code. Use the following general relief codes (A-D).

A-Flat      B-Hilly  
C-Rolling      D-Mountainous



**Proximity of Nearest Village, Household and Public Road**

Enter the distance (by train or road), in km, to the nearest occupied village and house and the distance to the nearest public road.

**Primary Surrounding Land Use**

Enter 'Crop', 'Forest', or 'Pasture' to designate the principal use of the land surrounding the experiment area at time of recording.

**Common Species**

Enter the common species for the type of land use indicated.

**Grazing Pattern**

Classify grazing pattern as 'tended' only if livestock movement is adequately controlled, either by a person or a fence. Enter one of the following grazing pattern codes.

A - Untended B - Tended

**Plot Area Protection**

Enter either 'Y' for yes to indicate that the experiment site has adequate protection of this type, otherwise enter 'N' for no.

**Farm Gate Prices**

Enter the farm gate prices for fodder, fuelwood and small timber.

**Average daily wage for agricultural labourer**

Enter the average daily wage for an agricultural labourer.

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**FORM E: Site Descriptor - Climate**

ID: TK-01

Climate Station Name: **LAD KRATING PLT.**  
 Climate Station ID : **LAD KRA**      Years of Record: **10**  
 Latitude (deg): **13** (min): **30**    Direction (N,S): **N**  
 Longitude (deg): **101** (min): **32**    Direction (W,E): **E**  
 Elevation (m): **150**

Rainfall Regime:    Mean Annual Rainfall (mm):  
 Length of Dry Season (months < 60mm):

Mean Annual Temperature (C).....:  
 Mean Daily Minimum Temperature (coldest month, C):  
 Mean Daily Maximum Temperature (hottest month, C):  
 Absolute Minimum Temperature (C).....:

Koeppen Class:                      Frost:

Distance from Experiment Site (km): 5.0

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

**FORM E: SITE DESCRIPTOR - CLIMATE****Climate Station Name**

Enter the name of the nearest or most useful climatological station with more than six years of records.

**Climate Station ID**

Enter a unique ID code. It is suggested you use the first seven letters of the station name. If the name has less than seven letters, leave the remaining spaces blank.

*NOTE: When you enter the Climate Station Name, the program will enter, as a default, the first seven characters of the Climate Station Name into the Climate Station ID field. To keep the default ID, press the [Enter] key, or if you wish, enter another ID.*

*NOTE: If the same Climate Station is used for different experiments, use the same Climate Station ID. This allows you to link your experiment with a Climate Station already defined in the database for another experiment. If the station name, ID, and data have already been entered into the database, then in Form E you only need to enter the Station ID and press <Ctrl-W>. The program will then complete the form from the information contained in the database for that ID.*

### **Elevation**

Enter the elevation of the station, in m, above mean sea level.

### **Years of Record**

Enter the number of years that the Climate Station has been collecting meteorological data.

### **Latitude and Longitude**

Enter the latitude position of the Climate Station in degrees (0 to 90). If the latitude position is unknown enter '.'.

Enter the longitude position of the Climate Station in degrees (0 to 180). If the longitude position is unknown, enter '.'.

### **Direction (N,S)**

Enter the direction of the Climate Station relative to the equator as 'N' for north or 'S' for south.

### **Direction (E,W)**

Enter the direction of the Climate Station relative to the prime meridian or Greenwich meridian as 'E' for east or 'W' for west.

### **Rainfall regime**

Enter one of the following rainfall regime codes (A-D).

- A - Summer (2+consecutive dry months in high sun period)
- B - Uniform (all year wet or dry, no clear maximum)
- C - Winter (2+ consecutive dry months in low sun period)
- D - Bimodal (2 dry seasons/year, separated by 2+ non dry months)

### **Mean Annual Rainfall**

Enter the mean annual rainfall in mm of the station.

### **Length of Dry Season**

Enter the length of dry seasons in months (months < 60mm rainFall).

### **Temperatures**

Enter the annual mean temperatures, mean daily minimum and maximum temperatures and absolute temperature in celsius degrees.

### **Temperatures and Precipitation**

Enter the long-term, monthly mean maximum (MaxT) and minimum (MinT) temperatures, in degrees Celsius. Enter the mean monthly precipitation, in mm.

*Calculating Mean Monthly Temperatures.* If the long-term monthly means for the station are not available, their calculation requires two steps, as follows.

1. Calculate the monthly means for each year. For each month of each year, sum the values (maximum and minimum temperature) for every day recorded. Divide each sum by the number of days recorded (a maximum of 31). Repeat for all available or desired years, but at least seven years should be calculated.
2. Calculate the long-term mean temperature. For each month, sum the values (maximum and minimum temperature) for all the years. Divide each sum by the number of years of records for that month. Enter the mean MaxT and MinT values in Form E.

*Calculating Mean Monthly Precipitation.* If the mean monthly precipitation values are not available, calculate them as follows.

1. Sum the total precipitation for each month of each year for the life of the station. Use at least seven years of data.

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2. Divide each month's sum by the number of years of records.  
Enter the mean precipitation values for each month in Form E.

*NOTE: MPTSYS will calculate the annual mean temperatures and total precipitation from the entered data.*

*CAUTION: Mean monthly maximum and minimum temperature and mean monthly precipitation are used in the Data Analysis program. Therefore, if you do not have actual data, leave these fields blank.*

### **Koepfen Class**

Enter one of the following Koepfen climate codes (A - O).

- A - Af (permanently humid)
- B - Am (monsoonal, short dry season)
- C - Aw (subhumid, drier than Am)
- D - Awl (as Aw, but bimodal rainfall)
- E - BSh (semi-arid, hot; 'steppe', 'sahel')
- F - BSk (semi-arid, warm to cold)
- G - BWh (arid, hot; desert)
- H - BWk (arid, warm to cold)
- I - Cfa (humid subtropics, east side of continents; includes montane)
- J - Cfb (temperate maritime)
- K - Cw (highland subhumid)
- L - Cwl (as Cw, but bimodal rainfall)
- M - Cs (mediterranean)
- N - D (temperate continental; also tropical & subtropical montane)
- O - E (cold tundra; also high montane zone)

### **Frost**

Enter the following frost codes (A-C).

- A - Annual                      B - Never                      C - Occasional

### **Distance from Experiment Site (km)**

Enter the straight line distance from the Climate Station to the experiment site in kilometers. If the distance is unknown enter ''.

**FORM F: Site Descriptors - Soil**

Soil pedon ID: (Summary)	ID: TS - 21
---- surface ---- -- subsoil ---	
Texture. :	
Color..... :	
pH..... :	
Salinity :	
Depth to impermeable layer..... :	
Waterlogging..... :	
Average Depth to water table.... :	
Sodicity..... :	
Soil moisture at planting..... :	
Soil moisture after planing..... :	
[S]earch [A]dd [M]odify [D]elete [B]rowse [PgDn] Next Screen [PgUp] Previous screen	

[Esc] = Exit [F1] = Help [F2] = Output [F3] = Experiment ID

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**FORM F: SITE DESCRIPTOR - SOIL****Soil Pedon ID**

Enter the assigned 7-character Soil Pedon ID Number if analyzed by the U.S. National Soils Survey Laboratory or other soil identifier code.

**Texture**

Enter the following soil texture codes (A - C).

- A - Sand (sand, loamy sand)
- B - Loam (sandy loam, loam, clay loam)
- C - Clay (light clay, heavy clay)

**Color**

Enter the following soil color codes (A - C).

- |            |            |           |
|------------|------------|-----------|
| A - White  | D - Orange | G - Black |
| B - Gray   | E - Red    |           |
| C - Yellow | F - Brown  |           |

**pH**

Enter the following soil pH codes (A - D).

- |                      |                         |
|----------------------|-------------------------|
| A - Very acid (<4.5) | C - Neutral (6.0 - 7.5) |
| B - Acid (4.5 - 6.0) | D - Alkaline (>7.5)     |

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### **Salinity**

Enter one of the following salinity codes (A - E).

- |                           |                             |
|---------------------------|-----------------------------|
| A - Very low (<15mS m-1)  | D - High (90-210 mS m-1)    |
| B - Low (15-45 mS m-1)    | E - Very light (>210 mS m1) |
| C - Medium (45-90 mS m-1) |                             |

### **Depth to Impermeable layer**

Enter one of the following impermeable layer codes (A - D).

- A - Less than 25 cm
- B - 25 to 50 cm
- C - 50 to 100 cm
- D - More than 100 cm

### **Waterlogging**

Enter one of the following waterlogging codes (A - D).

- A - No waterlogging
- B - Less than 2 weeks
- C - 2 to 4 weeks
- D - More than 4 weeks

### **Average Depth to water table**

Enter one of the following average depth to water table codes (A,B).

- |                   |                    |
|-------------------|--------------------|
| A - More than 2 m | B - Less than 2 m. |
|-------------------|--------------------|

### **Sodicity**

Enter one of the following sodicity codes (A,B).

- |                         |                       |
|-------------------------|-----------------------|
| A - Nonsodic (ESP <15%) | B - Sodic (ESP > 15%) |
|-------------------------|-----------------------|

### **Soil moisture at Planting and after Planting.**

Enter one of the following soil moisture codes (A - E).

- |          |           |              |
|----------|-----------|--------------|
| A - Dry  | C - Moist | E - Very Wet |
| B - Damp | D - Wet   |              |

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**FORM F: Site Descriptor - Soil**

ADD

Soil Pedon ID: <b>S87F087</b>	ID: <b>TK-01</b>
Soil Classification (Family Level of Soil Taxonomy): <b>Clayey-skeletal, Kaolinitic Isohyperthermic Oxic Paleutult</b>	
Soil Order: <b>Ultisol</b>	
Soil Moisture Regime...(by Soil Taxonomy):	
Soil Temperature Regime(by Soil Taxonomy): <b>Isohyperthermic</b>	
Soil Parent Material: <b>Residuum from Shale Material</b>	
Soil... SURFACE	SUBSOIL
Texture.: <b>Clay loam</b>	<b>Clay</b>
Drainage: <b>Well drained</b>	<b>Well drained</b>
Color...: <b>Brown to dark brown</b>	<b>Yellowish Brown</b>
pH.....:	
Depth to impermeable layer (cm):	
Special Problems (acidity, erosion, salinity): <b>Erosion slightly,0.5</b>	
Enter information in form above. Press <Ctrl-W> to save.	

[Esc]=Exit, [F1]=Help

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**FORM F: SITE DESCRIPTOR - SOIL****Soil Pedon ID**

Enter the assigned 7-character Soil Pedon ID Number if analyzed by the U.S. National Soils Survey Laboratory. If not, leave blank.

**Soil Classification**

Enter the soil classification using the Soil Taxonomy classification system (use the soil family level, if possible). If an alternative system is used, specify the system in the "Special Problems" field.

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## Soil Order

Enter a soil order. Choose one of the following soil orders.

<u>Soil Order</u>	<u>Description</u>
Alfisol -	Soils with a clayey B horizon and exchangeable (Ca+Mg+K+Na) saturation greater than 50% calculated from neutral NH <sub>4</sub> OAc-CEC.
Ultisol -	Soils with a clayey B horizon and base saturation less than 50%. They are acidic, leached soils from humid areas of the tropics and subtropics.
Oxisol -	Oxisols are strongly weathered soils but have very little variation in texture with depth. Some strongly weathered, red, deep, porous oxisols contain large amounts of clay-sized Fe and Al oxides.
Vertisol -	Dark clay soils containing large amounts of swelling clay minerals (smectite). The soils crack widely during the dry season and become very sticky in the wet season.
Mollisol -	Prairie soils formed from colluvial materials with dark surface horizon and base saturation greater than 50%, dominating in exchangeable calcium.
Entisol -	Soils with little or no horizon development in the profile. They are mostly derived from alluvial materials.
Inceptisol -	Young soils with limited profile development. They are mostly formed from colluvial and alluvial materials. Soils derived from volcanic ash are considered a special group of Inceptisols.
Aridisol -	Soils of arid region, such as desert soils. Some are saline.
Spodosol -	Soils with a bleached surface layer (A2 horizon) and an alluvial accumulation of sesquioxides and organic matter in the B horizon. These soils are mostly formed under humid conditions and coniferous forest in the temperate region.
Histosol -	Soils rich in organic matter such as peat and muck.

All soil orders listed, with the exception of Spodosols, occur in tropical regions. Ultisols and Oxisols are the most abundant soils in the humid tropics, whereas Alfisols soils occur widely in the sub-humid and semi-arid regions.

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## Soil Moisture Regime

Enter one of the following soil moisture regime.

<u>Regime</u>	<u>Description</u>
Aquic	- In most years, the soil is saturated with oxygen-depleted water at some season of biologic activity, but the water table may be lower in another season.
Udic	- In most years, the soil moisture control section is never dry in any part for as long as 90 cumulative days, but it is not aquic.
Ustic	- In most years, the soil moisture control section is dry in some part for more than 90 cumulative days, but it is dry for less than half the growing season in all parts in the temperate or middle latitudes. In the tropics or lower latitudes, the moisture control section is moist in some part for more than 90 consecutive days in most years, but may be dry in all parts for more than 90 days, or even for more than 180 days, cumulative.
Xeric	- In six or more years out of 10, the moisture control section is continuously moist for more than 45 days in all parts in winter and is continuously dry in all parts in summer for more than 45 days, and the soil temperature is thermic, mesic, or frigid.
Aridic/Torric	- In most years, the soil moisture control section is dry in all parts more than half the growing season and is not moist in some part for as long as 90 consecutive days during the growing season.

## Soil Temperature Regime

Enter one of the following soil temperature regime. The soil temperature regimes are categorized by mean annual soil temperature.

<u>Regime</u>	<u>Description</u>
Pergelic	- < 0 degrees Celsius (permafrost or dry frost is present)
Cryic	- 0 to 8 degrees Celsius
Frigid	- 0 to 8 degrees Celsius (warmer than cryic summer temperatures)
Mesic	- 8 to 15 degrees Celsius
Thermic	- 15 to 22 degrees Celsius
Hyperthermic	- > 22 degrees Celsius

In tropical and subtropical areas, where the mean winter and summer soil temperatures generally do not differ by more than 5 degrees Celsius, the 'iso' prefix is added to the nomenclature of the warmer temperature regimes. For example, Isopergelic.

## Soil Parent-Material

Enter the soil parent-material as determined by a soil taxonomy specialist. If detailed information is not available, enter one of the following:

Igneous, Sedimentary, Metamorphic, Unconsolidated.

## Soil Texture

Enter the soil texture. If laboratory information is not available, enter one of the following:

Sandy, Loamy sand, Sandy loam, Loam, Silt loam, Clay loam, Light clay, Heavy clay.

## Soil Drainage

Enter the soil drainage. If detailed information is not available, enter one of the following:

Well drained, Moderately drained, Poorly drained, Seasonally waterlogged.

**Soil Color**

Enter the soil color. If detailed information is not available, enter one of the following:

White, Grey, Yellow, Orange, Red, Brown, Black, Mottled.

**Soil Depth (to impermeable layer)**

Enter the soil depth (to impermeable layer). If detailed information is not available, enter one of the following:

< 25cm, 25-50cm, 50-100cm, > 100cm.

**Ph Level**

Enter the PH level. If actual measurements are not available, enter one of the following:

< 4.5, 4.5-6.0, 6.1-7.5, > 7.5.

**Special Problems**

Describe any soil conditions that may affect the experiment.

## FORM G: Experiment Site Preparation

ID: TK-01

Existing Vegetation (density and species composition):

Plantation of *Melia azedarach* was burned previously and poor growing stock remain.

Method of Clearing (sequence of operations):

Cut down big tree with chainsaw, all stumps were removed with bulldozer, land was cleared afterward.

Residue (I=incorporated, R=removed, B=burned, M=mulched, P=piled): R  
 (% of surface free of residues after preparation): 0 %

Method of Soil Cultivation (sequence, depth and type of implements):

Ploughing with tractor was done 3 times prior to the planting, to the depth of 50 cm.

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

## FORM G: EXPERIMENT SITE PREPARATION

**Existing Vegetation**

Describe the vegetation on the experiment site (species, composition, and density) as it existed immediately before site preparation.

**Method of Clearing**

Describe the sequence of operations for removing existing vegetation from the experiment site. Describe any improvements to site drainage.

**Residue**

Enter the letter code (I,R,B,M,P) that best describes what was done with the surface residue. Enter the surface percentage free of residue at the time of planting.

**Method of Soil Cultivation**

Describe the type(s) of soil cultivation done after clearing the experiment site and up to the time of planting.

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**FORM H: Experiment Description**

<p>Experiment Name: 1987 Humid/Sub-humid Zone Network Trial</p> <p>Objective: To evaluate the F/FRED Project's priority species under three management regimes in multi-location trials.</p> <p>Experiment Design: A randomized complete block design with four replications. The treatment design is a 3*2*3 complete factorial with factors of species, genotype, and cutting management.</p> <p>Plot Dimensions (m) 7 by 14</p> <p>Tree Spacing (if constant for all plots); Between Rows (m): 2      Within Row (m): 1</p>	ID: TK-01
Enter information in form above. Press <Ctrl-W> to save.	

[Esc]=Exit, [F1]=Help

**FORM H: EXPERIMENT DESCRIPTION****Experiment Name**

Enter a short, descriptive experiment title not exceeding 40 characters, including spaces.

**Objective**

Briefly describe the objectives of the experiment. See example in above screen.

**Experiment Design**

Describe the experimental and treatment design and number of replications used in the experiment. See example in above screen.

*NOTE: Throughout the Experiment forms, the term "replication" means a repetition of plots with the same treatment. For example, if there are two (2) experimental factors (species and genotype) with two levels of species and two levels of genotype, then the number of treatments would be four (2 X 2). If an experimenter uses eight (8) plots, then ideally each treatment will be replicated twice (that is, each treatment will be applied in two plots), and the number of replications will, therefore, be two (2).*

#### **Plot Dimensions**

Enter the dimensions of the plot, as length by width, in meters.

#### **Tree Spacing**

If the same nominal spacing is used for all plots, enter distance between rows, and between trees within rows in meters.

**FORM I-1: Treatment Factors and Levels**

Factor_A	ID: TK-01
Name: SPECIES	
Description: MPTS species for humid environment zone	
Level of SPECIES	Description
-----	-----
ACACAURI	Acacia auriculiformis
ACACHANG	Acacia mangium
LEUC_SPP	Leucaena species
Enter information in form above. Press <Ctrl-W> to save.	

[Esc]=Exit, [F1]=Help

**FORM I-1: TREATMENT FACTORS AND LEVELS**

Form I has three input screens: Form I-1, I-2, and I-3. When you select Option 1 from the Form I submenu (see the section in this chapter entitled "Submenus for Forms A-K"), this screen appears.

**Factor**

MPTSYS allows up to five treatment factors or variables to be entered. Each factor or variable must be assigned a letter using the letters A to E consecutively. The various categories of each factor, as well as actual quantitative levels, are termed 'levels' in this system. That is, species x, y, and z are levels, as are applications of 10, 30, and 40 kg/ha.

**Name**

Enter the name of the treatment factor, such as species, cutting management, or spacing. The factor name must start with a letter, must not exceed eight characters in length, and should not contain a space (the system eliminates blank spaces between characters).

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### **Description**

Enter a brief description of the treatment factor named. See example screen on previous page.

### **Level Name and Description**

Enter a name for each level. The level name must not exceed eight characters in length, and should not contain a space (the system will automatically eliminate blank spaces between characters). Since some commercial analysis programs require the level name to start with a letter, it is suggested you use a letter in this position, even for quantitative levels (e.g., 10kg/ha = A10k) if you plan to use one of these programs.

When you have entered all the levels and descriptions for a factor, press <Ctrl-W>. The program will save the data and then present the Factor screen again. Enter the next factor (by letter), its name description and the factor levels and descriptions. Press <Ctrl-W>. When you have completed entering all factors and saved the last factor data, press the [Esc] key to return to the submenu.

*NOTE: To add more levels than the eight allowed on this screen, use the [A]dd option by pressing the [A] key and then enter the same factor code (i.e., A, B, etc.). You will then be presented with blank highlighted fields for "Level" and "Description". Enter the level names and descriptions. Press <Ctrl-W> when finished.*

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### Example

Following is an example of a 3-factor (Factors A, B, and C) experiment with three levels for Factor A, two levels for Factor B, and three levels for Factor C. It can be generalized for any number of factors and levels. This example will also be used in Form I-2.

Factor A, SPECIES, with its three levels could be described as follows:

<u>Level Name</u>	<u>Level Description</u>
ACACAURI	Acacia auriculiformis
ACACMANG	Acacia mangium
LEUC_SPP	Leucaena species

Factor B, GENOTYPE, with 2 levels (two, genotype/species) could be described as follows:

<u>Level Name</u>	<u>Level Description</u>
AURI_PNG	Besback-Balamuk, Papua-New Guinea
AURI_QLD	Morehead River, Queensland, Australia
DIVE_156	Psyllid resistant-K156
HYBR_KX3	L.leucocephala K8 x L.diversifolia K156
MANG_PNG	Boite, Papua-New Guinea
MANG_QLD	Iron Range, Queensland, Australia

Factor C, Cutting Management, with its three levels could be described as follows:

<u>Level Name</u>	<u>Level Description</u>
CONTROL	No cutting management
POLLARD	Cut tree stems at 2 m height at 24 months
PRUNING	Remove material lower 1/2 of h at 18 mo.

*NOTE: Factor and level names must be entered in Form I-1 before Form I-2 can be completed.*

## FORM I-2: Treatment Combinations

ID: TK-01

Treatment	Factor Levels		
	SPECIES	GENOTYPE	CUT_MGMT
1	ACACMANG	MANG_QLD	CONTROL
2	ACACMANG	MANG_QLD	POLLARD
3	ACACMANG	MANG_QLD	PRUNING
4	ACACMANG	MANG_PNG	CONTROL
5	ACACMANG	MANG_PNG	POLLARD
6	ACACMANG	MANG_PNG	PRUNING
7	ACACAURI	AURI_QLD	CONTROL
8	ACACAURI	AURI_QLD	POLLARD
9	ACACAURI	AURI_QLD	PRUNING
10	ACACAURI	AURI_PNG	CONTROL
11	ACACAURI	AURI_PNG	POLLARD
12	ACACAURI	AURI_PNG	PRUNING

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

## FORM I-2: TREATMENT COMBINATIONS

When you select Option 2 from the Form I submenu (see the section in this chapter entitled "Submenus for Forms A-K"), the above screen will appear.

**Treatment**

For each treatment - that is, for all combinations of treatment factor and level - assign an alphanumeric identifier (see screen above under "Treatments"). The identifier cannot exceed eight characters in length.

**Factor Levels**

The factor names entered in Form I-1 will be displayed as columns heads. In the screen above, these are SPECIES, GENOTYPE, and CUT\_MGMT. In the columns under each factor name, enter the levels defined in Form I-1 for each factor (see screen above). These are the treatments. Treatments may be entered in any desired order and they will then be arranged in ascending order, by treatment identifier.

For one-factor experiments, the treatment combinations will be the levels of the one factor.

For factorial experiments, the number of possible treatment combinations will be the product of the number of levels for each of the factors. For example, in the example used here, there are 18 treatments: 3 (levels for Factor A) X 2 (levels for Factor B; i.e., 2 genotypes/species) X 3 (levels for Factor C) = 18. These are shown below.

<u>Treatment</u>	<u>SPECIES</u>	<u>GENOTYPE</u>	<u>CUT MGMT</u>
1	ACACMANG	MANG_QLD	CONTROL
2	ACACMANG	MANG_QLD	POLLARD
3	ACACMANG	MANG_QLD	PRUNING
4	ACACMANG	MANG_PNG	CONTROL
5	ACACMANG	MANG_PNG	POLLARD
6	ACACMANG	MANG_PNG	PRUNING
7	ACACAURI	AURI_QLD	CONTROL
8	ACACAURI	AURI_QLD	POLLARD
9	ACACAURI	AURI_QLD	PRUNING
10	ACACAURI	AURI_PNG	CONTROL
11	ACACAURI	AURI_PNG	POLLARD
12	ACACAURI	AURI_PNG	PRUNING
13	LEUC_SPP	DIVE_156	CONTROL
14	LEUC_SPP	DIVE_156	POLLARD
15	LEUC_SPP	DIVE_156	PRUNING
16	LEUC_SPP	HYBR_KX3	CONTROL
17	LEUC_SPP	HYBR_KX3	POLLARD
18	LEUC_SPP	HYBR_KX3	PRUNING

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ID: TK-01

Plot	Treatment	Rep	Plot	Treatment	Rep	Plot	Treatment	Rep
1	3	1	13	11	1	25	16	2
2	9	1	14	12	1	26	2	2
3	18	1	15	5	1	27	12	2
4	7	1	16	1	1	28	11	2
5	15	1	17	17	1	29	5	2
6	8	1	18	10	1	30	8	2
7	2	1	19	17	2	31	13	2
8	6	1	20	6	2	32	14	2
9	13	1	21	9	2	33	18	2
10	16	1	22	4	2	34	15	2
11	14	1	23	7	2	35	3	2
12	4	1	24	10	2	36	1	2

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

### FORM I-3: EXPERIMENT DESIGN

When you select Option 3 from the Form I submenu (see the section in this chapter entitled "Submenus for Forms A-K"), the above screen will appear.

#### Plot Numbers

Enter a number for each plot, composed of digits and/or letters of up to three characters in length. Do NOT begin a plot number with a zero.

#### Treatment Number/Name

Enter the treatment number (see Form I-2 under "Treatment") for each plot.

#### Replication Numbers

Enter a replication number composed of digits and/or alphanumeric characters up to two characters in length.

f5

A replication is a repetition of plots with the same treatment (see "Experiment Design" under the section in this chapter entitled "Form H: Experiment Description"). It should not be confused with samples (e.g., trees) within a plot.

*NOTE: Accuracy is essential when entering data into this form. The program checks Form I-3 against the treatment combinations in Form I-2, and a warning message will be displayed if any discrepancies are found.*

**FORM J: Experiment Planting**

Planting Date (mm/dd/yy): <b>10/15/87</b>	ID: <b>TK-01</b>
Control of Competing Vegetation at Planting (description and estimation of % control): <b>Manual work for weed control, 100%</b> <b>(The planting date was delayed due to long summer months)</b>	
Comments:	
Fertilizer .....	
Irrigation .....	
Inoculant .....	
Weed control .....	
Planting Stock	
Size .....	
Height Range (cm) .....	
Age Range (months) .....	
Enter information in form above. Press <Ctrl-W> to save.	

[Esc]=Exit, [F1]=Help

**FORM J: EXPERIMENT PLANTING**

**Planting Date**

Enter the month, day, and year of planting. Use the mm/dd/yy format. If more than one day was required for planting, enter the date when planting was completed.

**Control of Competing Vegetation**

Describe methods of vegetation control used at the time of planting and their effectiveness.

**Comments**

Enter comments about any fertilizers used. Enter comments about any irrigation done. Enter comments about any inoculants used. Enter comments about any weeding done.

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**Planting Stock****Size**

Enter one of the following stock size codes (A - C).

A - Less than 30 cm   B - 30 to 60cm   C - More than 60cm

**Height Range (cm)**

Enter the height range of the stock at planting

**Age Range (months)**

Enter the age (in months) of the stock at planting

## FORM K: Tree Species

Species ID	1	ID: TK-01
Tree Species:	Genus: <b>Acacia</b> Species: <b>auriculiformis</b> Sub-species:	
Seed Origin:	Country: <b>Australia</b> State/Territory: <b>Queensland</b> Locality: <b>Moorehead River</b> Elevation (m): <b>70</b> Latitude (deg): <b>15</b> (min): <b>02</b> Direction (N,S): <b>S</b> Longitude (deg): <b>143</b> (min): <b>42</b> Direction (W,E): <b>E</b>	
Seed Supplier:	<b>CSIRO</b>	Source:
Lot Number:	<b>1517</b>	
Enter information in form above. Press <Ctrl-W> to save.		

[Esc]=Exit, [F1]=Help

## FORM K: TREE SPECIES

**Species ID**

A window will be displayed on screen. From this display, select the number for the species you want. From your selection, both "Genus" and "Species" will be entered by the program. For a species not listed in the window, enter "27" (Other) and type in the genus and species names. The term Sub-species in this screen is synonymous with variety.

**Seed Origin**

Enter country information for the origin of the variety.

**Seed Supplier**

Enter the name of the institution or organization that supplied the seeds used in the experiment.

**Lot Number**

Enter the code(s) used by the seed supplier to identify the seeds used.

**Source**

Enter One of the following source codes (A,B)

A - Natural

B - Cultivated

# Chapter 3

## MEASUREMENTS FORMS L - Q

---

### INTRODUCTION

This chapter describes and explains the screens presented for Forms L-Q, when "Measurements" is selected from the Experiment Database Main menu.

#### **Weather Measurement Forms L-1 and L-2**

Form L-1 contains weather station information. Form L-2 contains daily weather measurements and monthly weather values.

#### **Soil Measurement Forms M-1 and M-2**

Form M-1 contains preplant soil measurements. Form M-2 contains all subsequent soil measurements.

#### **Nondestructive Tree Measurement Forms N-1 and N-2**

Form N-1 contains tree survival, height, and diameter measurements. Form N-2 contains tree form (shape) information.

#### **Biomass Measurement Forms O and P**

Form O contains tree foliage biomass measurements. Form P contains wood biomass measurements.

#### **Tree Litter Measurement Form Q**

This form contains tree litter measurements.

Highlighted areas on the screen for Form L-Q indicate where data may be entered. Press the [Enter] key after each entry. Press <Ctrl-W> to save entered data. If you need assistance while in a form, press the Help key, [F1], and messages giving additional information will be presented.

*NOTE: If you use the [Esc] key in a data form after entering data but before pressing <Ctrl-W>, your entered data will not be saved.*

## SUBMENU FOR FORMS L-Q

After selecting the "Measurements" module option from the Experiment Database Main menu and entering, if necessary, an Experiment ID, the following submenu will appear. Move the highlight bar until the form you want is highlighted and then press the [Enter] key.

### EXPERIMENT DATABASE MEASUREMENT

ID: TK-01

<< S U B M E N U >>
FORM L -> Weather Measurements M -> Soil Measurements N -> Tree Measurements O -> Foliage Biomass Measurements P -> Wood Biomass Measurements Q -> Tree Litter Measurements
Use [↑] and [↓] to highlight desired item. Press [Enter] to begin program execution. (Press [Esc] to exit to select other data forms.)

[Esc]=Exit. [F3]=Change Experiment

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### Submenus for Forms L, M, and N

When Forms L, M, and N, are selected, the respective submenus (shown below) will appear. In each menu, select one of the options presented.

#### Form L Sub-menu

```

      SUBMENU
1-> Weather Station Information
2-> Weather Data Measurements
[Esc]=Exit, [1], [↓]=Move, [Enter]=Select

```

#### Form M Sub-menu

```

      SUBMENU
1-> Preplant Soil Measurements
2-> Soil Measurements
[Esc]=Exit, [1], [↓]=Move, [Enter]=Select

```

#### Form N Sub-menu

```

      SUBMENU
1-> Tree h/d Measurements
2-> Tree form
[Esc]=Exit, [1], [↓]=Move, [Enter]=Select

```

**FORM L-1: Weather Station Information**

Weather Station ID : LAD11 Weather Station Name: Lad Krating Plantation Responsible Institution; Name: LAD KRATING PLANTATION  Address: THAI PLYWOOD Co. BANGNA, BANGKOK  Observation Time (hour 1-24): 9  Start Date of Collecting Data (mm/dd/yy): 12/01/87  Elevation (m): 150 Latitude (deg): 13 (min): 30   Direction (N,S): N Longitude (deg): 101 (min): 32   Direction (W,E): E	ID: TK-01
Enter information in form above. Press <Ctrl-W> to save.	

[Esc]=Exit, [F1]=Help

**FORM L-1: WEATHER STATION INFORMATION**

Form L has two input screen: Form L-1 and Form L-2. When you select Option 1 from the Form L submenu (see the section in this chapter entitled "Submenus for Forms L, M, and N") this screen will appear.

**Weather Station ID**

Enter a unique, five-character code, consisting of three letters and two digits. It is suggested you use the first three letters of the weather station name, then two digits.

*NOTE: If you have already entered a Weather Station ID for this station, use that ID. The rest of the form will be completed by the program using the information already entered into the Experiment database for this station.*

**Weather Station Name**

Enter the commonly used name of the weather station, in full. A weather station name may be used by any number of experiments.

**Responsible Institution**

Enter the complete name and address of the institution operating the weather station.

**Observation Time**

Using the 24-hour system, enter the hour of the day when observations are made.

**Start Date of Collecting Data**

Using the mm/dd/yy format, enter the date when observations began at this station. This date should not be later than the date of planting.

**FORM L-2: Daily Weather Measurements**

ADD

Year: 88				Month: 10				ID: TK-01	
Day	MaxT (C)	MinT (C)	Precip (mm)	Humidity (%)	Day	MaxT (C)	MinT (C)	Precip (mm)	Humidity (%)
1	34.0	24.0	0	79.0	11	29.0	24.0	0	92.0
2	33.0	24.0	0	85.0	12	30.0	24.0	0	92.0
3	34.0	24.0	8	78.0	13	33.0	25.0	0	85.0
4	34.0	24.0	11	95.0	14	33.0	23.0	0	78.0
5	29.0	24.0	0	79.0	15	36.0	24.0	0	89.0
6	37.0	24.0	0	85.0	16	34.0	24.0	143	92.0
7	36.0	25.0	0	85.0	17	34.0	23.0	14	96.0
8	35.0	26.0	0	92.0	18	37.0	23.0	31	98.0
9	33.0	25.0	16	92.0	19	35.0	25.0	5	98.0
10	28.0	23.0	0	95.0	20	32.0	23.0	0	92.0

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

Page: 1/2

**FORM L-2: DAILY WEATHER MEASUREMENTS**

When you select Option 2 from the Form L submenu (see the section in this chapter entitled "Submenus for Forms L, M, and N), you will be given the option of entering data by daily weather data or by monthly weather data. The screen above will appear if you select Daily Weather Data.

**Year**

Enter the year when measurements were taken (i.e., '88' for 1988).

**Month**

Enter the numeric designation of the month, so that January is '01', February is '02', etc.

When you press the [Enter] key after entering the month, the measurement input fields will be highlighted and contain default values of '-99' for temperatures and '-9' for the others.

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### **MaxT, MinT, Precip, and Humidity**

Enter maximum and minimum temperature, precipitation, and humidity for each day of each month, beginning at the time of planting. Use degrees Celsius, millimeters, and percentage, respectively.

MPTSYS will calculate total precipitation and temperature means when all the data for the month have been entered and <Ctrl-W> has been pressed.

## FORM L-2: Monthly Weather Measurements

ID: TK-C1

Year	Month	MaxT (C)	MinT (C)	Precip (mm)	Humidity (%)
88	01	34.6	18.4	0	-9.0
88	02	35.3	22.2	28	-9.0
88	03	36.9	24.3	26	-9.0
88	04	36.4	25.1	77	87.3
88	05	33.9	25.3	153	84.4
88	06	34.2	24.9	220	83.5
88	07	33.2	24.3	229	88.3
88	08	32.9	24.3	262	88.4
88	09	33.9	24.3	189	88.1
88	10	33.0	23.7	247	87.1
88	11	31.4	21.0	0	74.8
88	12	32.4	17.0	0	78.5

Enter information in form above. <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

## FORM L-2: MONTHLY WEATHER MEASUREMENTS

When you select the option of entering Monthly Weather Data, the screen above will appear. Enter the mean monthly weather data in the highlighted fields. The highlighted measurement input fields will contain default values of '-99' for temperatures and '-9' for the others.

**Year**

Enter the last two digits of the year measurements were taken (i.e., '89' for 1989).

**Month**

Enter the numeric designation of the month. January is '01', February is '02', etc.

**MaxT**

Enter the mean maximum temperature for the month, in degrees Celsius.

**MinT**

Enter the mean minimum temperature for the month, in degrees Celsius.

**Precip**

Enter the total amount of precipitation for the month, in millimeters.

**Humidity**

Enter the mean percent humidity for the month, as a percentage.

## FORM M-1: Preplant Soil Measurements

Layer (cm)		pH		N	P extr	K extr	OM
Upper	Lower	(H2O)	(KCl)	(%)	(ppm) meth	(ppm) meth	(%)
0	10	4.9	4.5	0.12	4.38	-9.00	2.56
10	20	4.7	4.1	0.07	1.44	64.00	1.34
20	43	4.7	4.0	0.06	1.31	41.00	1.19
43	76	4.6	3.9	0.06	1.25	58.00	0.91
76	98	4.7	4.0	0.05	1.00	45.00	0.64
98	130	4.8	4.0	0.04	1.06	36.00	0.46

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

## FORM M-1: PREPLANT SOIL MEASUREMENTS

Form M has two input screens: Form M-1 and Form M-2. When you select Option 1 from the Form M submenu (see the section in this chapter entitled "Submenus for Forms L, M, and N"), this screen will appear.

**Date**

Enter the date that the measurements were taken. When you press the [Enter] key after entering the date, the measurement input fields will be highlighted and contain default values of '-9'.

**Layer**

Depth from soil surface to upper and lower boundaries (in centimeters). The top layer begins at the point where there is only soil, no litter. The upper depth of the top layer is zero. Sample for each layer as a composite for all replications. Seven is the maximum number of layers that may be entered.

## Chemical and Organic Components

The chemical and organic components must be obtained from a soil analysis laboratory.

*pH.* pH (H<sub>2</sub>O-based and KCl-based).

*N.* Nitrogen content, as a percent (%).

*P.* Phosphorus content, in parts per million (ppm).

*Extraction Method.* Enter the extraction method. For example, BK1=Bray and Kurtz 1 phosphorus extraction; SBS=Sodium bicarbonate (Olson) P extraction, used to determine parts per million of extractable phosphorus and potassium.

*K.* Potassium content in parts per million (ppm).

*OM.* Organic matter, as a percent (%), for each layer.

*NOTE: Deleting a record in Form M-1 is somewhat different than in other forms. Select [M]odify, then enter 0 (zero) in every lower and upper layer fields containing entered data. Press <Ctrl-W> and the record will be deleted.*

Age (months): 12										ID: XX-99
Plot(s) : 1 5 16										
Age	Layer(cm)		pH		N	P	extr	K	extr	OM
Plot (no)	Upper	Lower	(H2O)	(KCl)	(%)	(ppm)	meth	(ppm)	meth	(%)
	0	15	4.3	3.7	0.02	9.16		8.59		3.56
	15	30	4.8	3.9	0.10	4.52		7.40		2.15
	-9	-9	-9.0	-9.0	-9.00	-9.00		-9.00		-9.00
	-9	-9	-9.0	-9.0	-9.00	-9.00		-9.00		-9.00
	-9	-9	-9.0	-9.0	-9.00	-9.00		-9.00		-9.00
	-9	-9	-9.0	-9.0	-9.00	-9.00		-9.00		-9.00

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

## FORM M-2: SOIL MEASUREMENTS

When you select Option 2 from the Form M submenu (see the section in this chapter entitled "Submenus for Forms L, M, and N"), the screen above will appear. The highlighted measurement input fields will contain default values of '-9'

### Age

Enter the age (in months) of the tree when the soil samples were taken.

### Plots

Enter the plot numbers (see Form I-3 in Chapter 2) to which the measurements being entered apply.

### Layer

Enter a layer's upper and lower boundaries in centimeters (see Form M-1 for a description of layer).

## Chemical and Organic Components

The chemical and organic components must be obtained from a soil analysis laboratory.

*pH.* pH (H<sub>2</sub>O-based and KCl-based).

*N.* Nitrogen content, as a percent (%).

*P.* Phosphorus content, in parts per million (ppm).

*Extraction Method.* Enter the extraction method. For example, BK1 = Bray and Kurtz 1 phosphorus extraction; SBS = Sodium bicarbonate (Olson) P extraction, used to determine parts per million of extractable phosphorus and potassium.

*K.* Potassium content in parts per million (ppm).

*OM.* Organic matter, as a percent (%), for each layer.

*NOTE:* The data entered for the layers will be applied to each of the plot numbers you enter. In the example, for instance, Plots 1, 5, 16 will contain the same data (see screen on previous page).

## FORM N-1: Tree h/d Measurements

ID: TK-01

Age (months): 12

Plot (no)	Age (mo)	Survival (live/total)	Trees measured (%)	Height (m)	Basal diameter (cm)	DBH (cm)	# of stems/tree	
1	12	45/49	( 91%)	9	4.6	5.4	4.0	-9.0
2	12	49/49	(100%)	9	4.6	5.0	3.4	-9.0
3	12	49/49	(100%)	9	4.5	4.3	3.3	-9.0
4	12	49/49	(100%)	9	5.6	3.8	3.5	-9.0
5	12	48/49	( 97%)	9	4.5	4.7	3.6	-9.0
6	12	49/49	(100%)	9	3.8	3.6	2.8	-9.0
7	12	48/49	( 97%)	9	4.4	5.2	3.7	-9.0
8	12	49/49	(100%)	9	4.1	4.7	3.6	-9.0
9	12	49/49	(100%)	9	5.2	3.7	2.9	-9.0
10	12	49/49	(100%)	9	4.0	5.0	3.5	-9.0
11	12	49/49	(100%)	9	5.7	3.7	3.0	-9.0

Enter information in form above. Press &lt;Ctrl-W&gt; to save.

[Esc]=Exit, [F1]=Help, &lt;Ctrl-Home&gt;=Data Entry Option

## FORM N-1: TREE h/d MEASUREMENTS

Form N has two input screens: Form N-1 and Form N-2. When you select Option 1 from the Form N submenu (see the section in this chapter entitled "Submenus for Forms L, M, and N"), this screen will appear.

Form N-1, Tree h/d (height/diameter) Measurements, allows you to enter Stem, Tree, and Plot level data. The default data entry level is at the Stem level. To change the data entry level to Tree or Plot, use <Ctrl-Home>. You may enter data at one level and then change to another level.

The measurements, "Height," "Basal-diameter," "DBH," and "# of stems/trees," in Form N-1, are all mean values for a plot and are entered either by the user (at Plot level) or calculated by the program (at the Tree and Stem level).

When entering data at the Plot level, these mean values must first be calculated by the user and then entered into Form N-1.

When entering data at the Stem level, the program will calculate mean tree values from the stem measurements, and the mean plot values from the tree values.

When entering data at the Tree level, the program will calculate the mean plot values from the tree measurements. All entered values (stem, tree, plot) will be saved in the Experiment Database.

## **ALL DATA ENTRY LEVELS**

Enter the following data for data entry at Stem, Tree, or Plot level.

### **Age**

Enter the age of the trees (to the nearest month) when measurements are taken.

### **Plot**

Enter the plot number(s) for which you will be entering h/d measurement data for the entered age.

### **Survival**

Enter the total number of live trees over the number of trees planted. Replants for initial mortality should not be included. The system calculates the survival percentage at the time of measurement.

### **Trees Measured**

Enter the number of trees measured at this date and used to calculate mean values. Measuring at least eight trees per plot until the end of your experiment is desirable. The program will accept values from 1 to 99.

*NOTE: When entering data at the Tree or Stem level, the number of trees entered in "Trees measured" is used to generate the number of data entry lines presented when the tree window is displayed. The maximum number of trees (entry spaces) that can be displayed at one time in a window is 9 and is called a page. A page counter is used to display the current page in relation to the total number of pages. For example, if the entered number of trees measured was 16, then the number of pages would be 2.*

## **PLOT LEVEL**

At the Plot data entry level, the user must calculate the following values.

### **Height**

Enter the mean total tree height, in meters. This height is the vertical distance from the ground line to the apical bud of the main stem; do not consider leaves and lateral branches. On appreciable slopes, measure from the ground line on the uphill side of the tree.

### **Basal (Diameter at the Base)**

Basal diameter is usually measured at nominal stump height. Thus, enter the mean db measurement (in cm) taken at 30 cm above ground line.

### **DBH (Diameter at Breast Height)**

Enter this mean diameter (in cm) of the trees taken at 1.3 m above ground line. If there is a knot or other abnormality at that height, measure at a nearby point that most closely approximates what the correct measurement would have been (this is usually above 1.3m).

### **# of Stems/Tree**

Enter the mean number of stems per individual trees in a plot. The system will accept values from 1 to 99.

Age - Survival - Trees					P L D T: 1 page: 1/1			
Plot (no)		live/total	(%)	measure	Plot # of	Ht	Basal	DBH
					Tree Ave. Stems	(m)	(cm)	(cm)
1	12	45/49	( 91%)	9	17 Y	4.8	5.4	4.2
	12	/	( %)		18 Y	3.8	4.0	2.8
	12	/	( %)		19 Y	4.7	6.7	4.7
	12	/	( %)		24 Y	4.7	5.5	4.0
	12	/	( %)		25 Y	4.7	4.6	3.5
	12	/	( %)		26 Y	4.9	5.6	4.5
	12	/	( %)		31 Y	4.5	5.6	4.3
	12	/	( %)		32 Y	4.1	5.5	3.8
	12	/	( %)		Y	-9.0	-9.0	-9.0
	12	/	( %)					
	12	/	( %)					

<Ctrl-W>=Plot Mean, [Esc]=Exit  
[PgUp]/[PgDn]=Prev./Next Page

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help, <Ctrl-Home>=Data Entry Option

## TREE AND STEM LEVEL

When you select data entry at Tree or Stem level, the data entry window shown above will appear after you enter the number of trees in "Trees measured."

Enter the measurement data for the individual trees. The program calculates the mean plot values from this data when you press <Ctrl-W>. The mean values for the plot are then entered into Form N-1.

*NOTE: If you are entering data at the Plot level and want to change to data entry at the Tree or Stem level, you must do so before entering a number in "Trees measured."*

### Tree

Enter the number of the tree for which measurements will be entered.

*NOTE: The Tree ID number must remain constant throughout the life of the plot; if a tree dies, retire the number and never apply it to another tree on that plot. The numbering system should be the same for all experiments with the same experiment design.*

#### **Plot Ave.**

Enter 'Y' if you want the program to include the measurement in the plot mean. Enter a 'N' if you do not want it included.

*NOTE: You may want to enter the data for a tree in order to have it in the database, but may not, for any number of reasons, want this data included in the mean plot values' calculations.*

#### **# of Stems/tree**

Enter the number of stems measured per tree, from 1 to 9.

*NOTE: When entering data at the Stem level, the # of stems/tree value is used to generate the number of data entry lines, presented when the stem window is displayed.*

#### **Ht (Height)**

Enter the total tree height in meters. This height is the vertical distance from the ground line to the apical bud of the main stem; do not consider leaves and lateral branches. On applicable slopes, measure from the ground line on the uphill side of the tree.

#### **Basal (Diameter at the Base)**

Basal diameter is usually measured at nominal stump height. Thus, enter the basal diameter of the tree (in cm) taken at 30 cm above ground line.

#### **DBH (Diameter at Breast Height)**

Enter the diameter of the tree (in cm) taken at 1.3 m above ground line. If there is a knob or other abnormality at that height, measure at a nearby point that most closely approximates what the correct measurement would have been (usually above 1.3 m).

FORM N-1: Tree h/d Measurements

ID: TK-01

TREE: 33					PLOT: 1 page: 1/1				
P	Tree	Ht	Basal	DBH	Plot # of	Ht	Basal	DBH	
-	Stem	Ave	(m)	(cm)	Tree	Ave.	(m)	(cm)	(cm)
	Y	-9.0	-9.0	-9.0	17	Y	4.8	5.4	4.2
	Y	-9.0	-9.0	-9.0	18	Y	3.8	4.0	2.8
					19	Y	4.7	6.7	4.7
					24	Y	4.7	5.5	4.0
					25	Y	4.7	4.6	3.5
					26	Y	4.9	5.6	4.5
					31	Y	4.5	5.6	4.3
					32	Y	4.1	5.5	3.8
					33	Y	2	-9.0	-9.0

[Esc]=Exit, <Ctrl-W>=Tree Mean

<Ctrl-W>=Plot Mean, [Esc]=Exit  
[PgUp]/[PgDn]=Prev./Next Page

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help, <Ctrl-Home>=Data Entry Option

STEM LEVEL

When you select data entry at the Stem level, the data entry window shown above (on the left) will appear after you enter a number in "# of Stems."

Enter the measurement data for individual stems. The program calculates the mean tree values from the stem data when you press <Ctrl-W>.

NOTE: If you are entering data at the Tree level and want to change to the Stem level, you must do so before entering a number in "# of Stems."

Stem

Enter the number of the stem from which measurements will be entered.

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*NOTE: This stem number must remain constant for this particular tree throughout the life of the tree. If the stem dies, do not use this stem number for another stem on the same tree. Of course, one tree may have the same stem number as another tree.*

**Tree Ave**

Enter 'Y' if you want to include the measurement in the individual tree mean. Enter a 'N' if you do not want the program to include the measurement in the individual tree mean.

**Ht (Height)**

Enter the total stem height, from the ground line to the top of the measured stem.

**Basal (Diameter at the Base)**

Measure the same as traditional measurements.

**DBH (Diameter at Breast Height)**

Measure the same as traditional measurements.

**FORM N-2: Tree Form**

Age (months): 12			ID: TK-01	
Plot	Age (mo)	Trees measured	Stem form (%) (S=single stem, M=multi stem, F=forked)	Description
-----				
Enter information in form above. Press <Ctrl-W> to save.				

[Esc]=Exit, [F1]=Help, <Ctrl-Home>=Data Entry Option

**FORM N-2: TREE FORM**

When you select Option 2 from the Form N submenu (see the section in this chapter entitled "Submenus for Forms L, M, and N"), the screen above will appear.

Use Form N-2 when you want to enter data on the growth pattern of trees in the experiment. You may enter this data at the Plot or Tree level. Use <Ctrl-Home> to select the data entry level.

The measurements in "Stem form (%)" in Form N-2 are percentage values derived from the ratio of trees in a plot having (S)ingle stems, (M)ultiple stems, and (F)orked stems (respectively) to the total number of trees measured. This percentage can be entered by the user (at Plot level) or calculated by the program (at Tree level).

The measurements for "Description" in Form N-2 are dependent on whether the tree is single-stemmed or multi-stemmed. For the trees in a plot that are single-stemmed, the "Description" is a nominal value describing the average tree stem. For the trees in a plot that are multi-stemmed the "Description" is a numerical value - the mean number of stems per tree.

*NOTE: Even though the number of [F] forked-stem trees per plot may be entered, the program will not calculate their mean descriptive value nor may you enter this value.*

Use the Plot level if you want to calculate and enter the percentage and mean values. When you select the Tree data entry level, a window will be displayed when the number of "Trees Measured" is entered in the form. From the data entered in this window. The percentage and mean values will be calculated by the program and displayed in Form N-2.

## **PLOT AND TREE LEVEL**

Enter the following data for data entry at Plot and Tree level.

### **Age**

Enter the age of the trees (to the nearest month) when measurements are taken.

### **Plot**

Enter the number assigned to the plot being sampled.

### **Trees Measured**

Enter the number of trees measured in the plot. Enter a value from 1 to 99.

## **PLOT LEVEL**

### **Stem Form (%)**

Enter the percentage of trees in the plot that are S=single stem, M=multi-stem (below 50 cm), and F=forked (above 50 cm) in the respective data entry fields.

**Description**

For all single-stem trees in the plot, determine the mean shape which best describes the trees using the following descriptor codes:

(1) Very Straight, (2) Straight, (3) Fair, (4) Crooked.

For all multi-stem trees in the plot, enter the mean number of stems per tree.

The program does not allow you to enter a value for forked-stem trees.

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Plot	Age (mo)	Trees measured	Stem form Tree (S/M/F)	Description type/# of stem	n	arked)
1	12	3	17 S	1	.0	
	12	-9		-9	.0	
	12	-9		-9	.0	
	12	-9		-9	.0	
	12	-9		-9	.0	
	12	-9		-9	.0	
	12	-9	S -9 M -9 F -9	S-9.0 M-9.0		
	12	-9	S -9 M -9 F -9	S-9.0 M-9.0		
	12	-9	S -9 M -9 F -9	S-9.0 M-9.0		
	12	-9	S -9 M -9 F -9	S-9.0 M-9.0		
	12	-9	S -9 M -9 F -9	S-9.0 M-9.0		

Enter information in form above. Press <Ctrl-W> to save.

PLOT: 1 page: 1/1  
 Stem form Description  
 Tree (S/M/F) type/# of stem  
 17 S 1  
 -9  
 -9  
 <Ctrl-W>=Plot Mean, [Esc]=Exit  
 [PgUp]/[PgDn]=Prev./Next Page

[Esc]=Exit, [F1]=Help

**TREE LEVEL**

When you select data entry at the Tree level, the data entry window shown above will be displayed after you enter a number in "Trees measured." When you complete data entry in this window and press <Ctrl-W>, the program will calculate the values from the entered data and display them in Form N-2.

*NOTE: If you are entering data at Plot level and want to change to Tree level, you must do so before entering a number in "Trees measured."*

**Tree**

Enter the number of the tree for which measurements will be entered.

*NOTE: This Tree ID number must remain consistent throughout the life of the plot. See the NOTE in this chapter under "Tree Number" in "Form N-1."*

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**Stem Form**

Enter the letter option, S=Single Stem, M=Multi-Stem, or F=Forked, that best describes the structure of this individual tree.

**Description**

For all single-stem trees, determine the shape which describes the tree, using the following descriptor codes:

(1) Very Straight, (2) Straight, (3) Fair, (4) Crooked.

For trees which are multi-stem or forked, enter the number of stems per tree. Valid entries are from 1 to 99.

ID: TK-01

-----Foliage Weight and Nutrients-----							
Plot	Age (mo)	Trees measured	Wet Wt (---kg/tree---)	Dry Wt	N (----% of Dry Wt----)	P	K
1	12	2	4.39	0.70	-9.0	-9.0	-9.0
2	12	2	2.55	0.60	-9.0	-9.0	-9.0
3	12	2	1.20	0.30	-9.0	-9.0	-9.0
4	12	2	2.55	0.80	-9.0	-9.0	-9.0
5	12	2	1.60	0.40	-9.0	-9.0	-9.0
6	12	2	2.20	0.50	-9.0	-9.0	-9.0
7	12	2	6.15	1.60	-9.0	-9.0	-9.0
8	12	2	5.30	1.60	-9.0	-9.0	-9.0
9	12	2	1.95	0.60	-9.0	-9.0	-9.0
10	12	2	1.50	0.40	-9.0	-9.0	-9.0
11	12	2	0.43	0.30	-9.0	-9.0	-9.0

Enter information in the form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

## FORM O: FOLIAGE BIOMASS MEASUREMENTS

You may enter foliage biomass measurements into Form O at either the Plot or Tree level. Select the data entry level by pressing <Ctrl-Home>.

At the Tree level, a data entry window will be presented for "Wet Wt" and "Dry Wt" after a number has been entered into "Trees measured."

The measurements, "Wet Wt" and "Dry Wt," in Form O are mean values for a plot and are entered either by the user (at Plot level) or calculated by the program (at the Tree level).

When entering data at the Plot level, these mean plot values must first be calculated by the user and then entered into Form O.

When entering data at the Tree level, the program will calculate mean plot value from the individual tree values and display them in Form O.

**Description**

For all single-stem trees in the plot, determine the mean shape which best describes the trees using the following descriptor codes:

(1) Very Straight, (2) Straight, (3) Fair, (4) Crooked.

For all multi-stem trees in the plot, enter the mean number of stems per tree.

The program does not allow you to enter a value for forked-stem trees.

Plot	Age (mo)	Trees measured	Stem form Tree (S/M/F)	Description type/# of stem	n	arked)
1	12	3	17	S 1	.0	
	12	-9		-9	.0	
	12	-9		-9	.0	
	12	-9		-9	.0	
	12	-9		-9	.0	
	12	-9		-9	.0	
	12	-9	S -9	M -9 F -9 S-9.0	M-9.0	
	12	-9	S -9	M -9 F -9 S-9.0	M-9.0	
	12	-9	S -9	M -9 F -9 S-9.0	M-9.0	
	12	-9	S -9	M -9 F -9 S-9.0	M-9.0	
	12	-9	S -9	M -9 F -9 S-9.0	M-9.0	

PLOT: 1 page: 1/1  
 Stem form Description  
 Tree (S/M/F) type/# of stem  
 <Ctrl-W>=Plot Mean, [Esc]=Exit  
 [PgUp]/[PgDn]=Prev./Next Page

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

### TREE LEVEL

When you select data entry at the Tree level, the data entry window shown above will be displayed after you enter a number in "Trees measured." When you complete data entry in this window and press <Ctrl-W>, the program will calculate the values from the entered data and display them in Form N-2.

*NOTE: If you are entering data at Plot level and want to change to Tree level, you must do so before entering a number in "Trees measured."*

#### Tree

Enter the number of the tree for which measurements will be entered.

*NOTE: This Tree ID number must remain consistent throughout the life of the plot. See the NOTE in this chapter under "Tree Number" in "Form N-1."*

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**Stem Form**

Enter the letter option, S=Single Stem, M=Multi-Stem, or F=Forked, that best describes the structure of this individual tree.

**Description**

For all single-stem trees, determine the shape which describes the tree, using the following descriptor codes:

(1) Very Straight, (2) Straight, (3) Fair, (4) Crooked.

For trees which are multi-stem or forked, enter the number of stems per tree. Valid entries are from 1 to 99.

ID: TK-01

-----Foliage Weight and Nutrients-----							
Plot	Age (mo)	Trees measured	Wet Wt (---kg/tree---	Dry Wt	N (----% of Dry Wt----	P	K
1	12	2	4.39	0.70	-9.0	-9.0	-9.0
2	12	2	2.55	0.60	-9.0	-9.0	-9.0
3	12	2	1.20	0.30	-9.0	-9.0	-9.0
4	12	2	2.55	0.80	-9.0	-9.0	-9.0
5	12	2	1.60	0.40	-9.0	-9.0	-9.0
6	12	2	2.20	0.50	-9.0	-9.0	-9.0
7	12	2	6.15	1.60	-9.0	-9.0	-9.0
8	12	2	5.30	1.60	-9.0	-9.0	-9.0
9	12	2	1.95	0.60	-9.0	-9.0	-9.0
10	12	2	1.50	0.40	-9.0	-9.0	-9.0
11	12	2	0.43	0.30	-9.0	-9.0	-9.0

Enter information in the form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

## FORM O: FOLIAGE BIOMASS MEASUREMENTS

You may enter foliage biomass measurements into Form O at either the Plot or Tree level. Select the data entry level by pressing <Ctrl-Home>.

At the Tree level, a data entry window will be presented for "Wet Wt" and "Dry Wt" after a number has been entered into "Trees measured."

The measurements, "Wet Wt" and "Dry Wt," in Form O are mean values for a plot and are entered either by the user (at Plot level) or calculated by the program (at the Tree level).

When entering data at the Plot level, these mean plot values must first be calculated by the user and then entered into Form O.

When entering data at the Tree level, the program will calculate mean plot value from the individual tree values and display them in Form O.

## **PLOT AND TREE LEVEL**

Enter the following for both Plot and Tree level data entry.

### **Age**

Enter the age (to the nearest month) of the trees when measurements are taken.

### **Plot**

Enter the number of the plot being sampled.

### **Trees Measured**

Enter the number of trees measured in the plot at this date (from 1 to 99).

## **PLOT LEVEL**

At the Plot level, you must calculate the mean "Wet Wt" and "Dry Wt" values.

### **Dry Wt**

Enter the mean foliage dry weight, in kilograms/tree, for each plot.

### **Wet Wt**

Enter the mean foliage wet (fresh) weight, in kilograms/tree, for each plot.

### **Foliage Nutrient Analysis**

Enter the mean amounts of nitrogen (N), phosphorous (P), and potassium (K), as determined in a laboratory from the bulked dry material.



**NOTE:** This Tree ID number must remain constant throughout the life of the plot. See the NOTE in this chapter under "Tree" in "Form N-1".

### **Plot Ave.**

Enter 'Y' if you want the program to include the measurement in the plot mean. Enter 'N' if you do not want it included.

### **TWW**

Enter the total wet weight. TWW is the tree's total foliage fresh weight, measured in kilograms.

### **SWW**

Enter the sample wet weight. SWW is determined by taking a representative sample (if necessary) of the TWW (usually less than 1.0 kg, depending on total and individual leaf weight). This amount (weight) of foliage will be used to obtain the sample dry weight (SDW). Enter weight in grams.

### **SDW**

Enter the sample dry weight. SDW is obtained by drying the SWW at 60-80 degrees C until the weight is constant, and then re-weighing it. Enter weight in grams.

### **TDW**

The total dry weight is calculated and entered by the program from the data entered in the window.

$$TDW = TWW \times (SDW/SWW).$$

### **Foliage Nutrient Analysis**

Enter the mean amount of nitrogen (N), phosphorous (P), and potassium (K), as determined in a laboratory from the bulked dry material.

## FORM P: Wood Biomass Measurements

ID: TK-01

Plot	Age (mo)	Trees measured	Stems		Branches/Twigs		Specific Gravity
			Wet Wt (--kg/tree--)	Dry Wt	Wet Wt	Dry Wt	
1	12	2	26.50	5.60	2.17	0.65	0.23
2	12	2	4.20	1.50	1.67	0.62	0.68
3	12	2	4.80	2.00	0.82	0.27	0.52
4	12	2	3.65	1.20	1.57	0.70	0.51
5	12	2	4.05	1.80	1.67	0.69	0.50
6	12	2	5.05	1.90	1.22	0.46	0.54
7	12	2	32.50	12.40	2.67	0.91	0.37
8	12	2	4.05	1.20	2.67	1.01	0.30
9	12	2	4.65	2.20	1.62	0.71	0.48
10	12	2	4.55	2.00	1.32	0.49	0.48
11	12	2	1.00	0.50	0.25	0.17	0.49

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

## FORM P: WOOD BIOMASS MEASUREMENTS

You may enter wood biomass measurements into Form P at either the Plot or Tree level. Select the data entry level by pressing <Ctrl-Home>.

At the Tree level, a data entry window will be presented for "Wet Wt" and "Dry Wt" for both Stems and Branches/Twigs after a number has been entered into "Trees measured."

Both sets of measurements for "Wet Wt" and "Dry Wt" in Form P are mean values for a plot and are entered either by the user (at Plot level) or calculated by the program (at Tree level).

When entering data at the Plot level, these mean plot values must first be calculated by the user and then entered into Form P.

When entering data at the Tree level, the program will calculate mean plot values from the individual tree values and display them in Form P.

## PLOT AND TREE LEVEL

Enter the following for both Plot and Tree level data entry.

### **Age**

Enter the age (to the nearest month) of the trees when measurements are taken.

### **Plot**

Enter the number assigned to the plot being sampled.

### **Trees Measured**

Enter the number of trees measured in the plot at this date.

## PLOT LEVEL

At the Plot level, the user must calculate the mean "Wet Wt" and "Dry Wt" values.

### **Stems**

Enter the dry weight for all stems, in kilograms/tree.

*Wet Wt.* Enter the mean stem wet (fresh) weight, in kilograms/tree, for each plot.

*Dry Wt.* Enter the mean stem dry weight, in kilograms/tree, for each plot.

### **Branches/Twigs**

Enter the dry weight for all branches and twigs, in kilograms/tree.

*Wet Wt.* Enter the mean branches/twigs wet (fresh) weight, in kilograms/tree, for each plot.

*Dry Wt.* Enter the mean branches/twigs dry weight, in kilograms/tree, for each plot.

### **Specific Gravity**

Enter specific gravity of wood (stems and branches/twigs) for each plot. The specific gravity may be calculated by dividing sample dry weight of wood by wet sample volume.

-----		PLOT: 11		page: 1/1		-----		Branches/Twigs Wt		-----	
Plot	Ag	Tree ave.	TWW (kg)	SWW (g)	SDW (g)	TDW (kg)	TWW (kg)	SWW (g)	SDW (g)	TDW (kg)	
1	12	Z	Y	0.40	20	9	0.18	0.07	65	56	0.06
2	12	ZB	Y	1.60	50	26	0.80	0.42	170	70	0.17
3	12	<Ctrl-W>=Plot Mean, [Esc]=Exit									
4	12	[PgUp]/[PgDn]=Prev./Next Page									
5	12										
6	12	2		5.05	1.90	1.22	0.46		0.54		
7	12	2		32.50	12.40	2.67	0.91		0.37		
8	12	2		4.05	1.20	2.67	1.01		0.38		
9	12	2		4.65	2.20	1.62	0.71		0.48		
10	12	2		4.55	2.00	1.32	0.49		0.48		
11	12	2		1.00	0.50	0.25	0.17		0.49		

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

## TREE LEVEL

When you select data entry at the Tree level, the data entry window shown above will be displayed after you enter a number in "Trees measured."

When you complete data entry in the window and press <Ctrl-W>, the program will calculate the mean "Wet Wt" and "Dry Wt" values for both stem and Branches/Twigs from the entered data and displays them in Form P.

*NOTE: If you are entering data at Plot level and want to change to Tree level, you must do so before entering a number in "Trees measured."*

### Trees

Enter the number of the tree for which measurements will be entered.

**NOTE:** The Tree ID number must remain constant throughout the life of the plot. See the NOTE in this chapter under "Tree" in "Form N-1."

### **Plot Ave.**

Enter a 'Y' if you want the program to include the measurement in the plot mean. Enter a 'N' if you do not want it included.

### **Stems Weight**

**TWW.** Enter the total wet (fresh) weight of stems. TWW is total stem fresh weight of the tree measured in grams.

**SWW.** Enter the sample wet weight. SWW is determined by taking a representative sample of the stem TWW. Enter weight in grams.

**SDW.** Enter the sample dry weight. SDW is obtained by drying the SWW sample at 60-80 degrees C until weight is constant, and then re-weighing. Enter weight, in grams.

**TDW.** The total dry weight is calculated and entered by the program from the data entered in the window.

$$TDW = TWW \times (SDW/SWW).$$

### **Branches/Twigs Weight**

**TWW, SWW, SDW.** Determine the values for Branches/Twigs for each tree in the same way described for "Stem Wt" measurements.

**TDW.** The program calculates and enters the value.

### **Specific Gravity**

Enter specific gravity of wood (stems and branches/twigs) for each plot. The specific gravity may be calculated by dividing sample dry weight of wood by wet sample volume.

## FORM Q: Tree Litter Measurements

Age (months): 12								ID: TK-01
Plot(s) : 1 2 3 4 5								
Plot	Age (mo)	Layer (mm)		Dry Wt (kg/tree)	OM (%)	- Nutrients (%) -		
		Upper	Lower			N	P	K
		-9	-9	-9.00	-9.0	-9.00	-9.00	-9.00
		-9	-9	-9.00	-9.0	-9.00	-9.00	-9.00
		-9	-9	-9.00	-9.0	-9.00	-9.00	-9.00
		-9	-9	-9.00	-9.0	-9.00	-9.00	-9.00
		-9	-9	-9.00	-9.0	-9.00	-9.00	-9.00
		-9	-9	-9.00	-9.0	-9.00	-9.00	-9.00

Enter information in form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

## FORM Q: TREE LITTER MEASUREMENTS

Form Q enables you to enter data for the organic material lying on top of the mineral soil. This data must be calculated as mean values for all the plots designated in "Plot(s)."

**Age**

Enter the age (to the nearest month) of the trees when measurements were taken.

**Plots**

Enter the plot numbers (maximum = 5) to which the tree litter measurements apply.

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### **Layer**

The user must determine the litter layers, by composition and placement (within the total litter accumulation). Usually, however, litter deposits exhibit all or some of the following layers.

1. One layer (at least part of the year) in which the original material is practically unmodified and is recognizable as to origin.
2. A second layer (sometimes called fermented) is made up of partially modified materials, such as leaves, twigs, woody and animal matter, and is recognizable only as to general origin.
3. A third, almost universal layer (at least part of the year) which is amorphous and broken down to such an extent that the original form cannot be distinguished.

### **Dry Wt**

Enter the mean dry weight of the litter deposit, per layer, in kilograms.

### **OM**

Enter the mean percentage of organic matter, per layer, determined in a laboratory.

### **N, P, and K**

Enter the mean percentage of the nutrient contents of the tree litter, per layer as determined in a laboratory.

*NOTE: The entered data will be copied to each of the plots specified. In the example above, Plots 1 through 5 will contain the same data.*

# Chapter 4

## OBSERVATIONS FORMS R - U

---

### INTRODUCTION

This chapter describes and explains the screens presented for Forms R-U, when "Observations" is selected from the Experiment Database Main menu.

Information entered into Forms R-U cannot be analyzed by the Data Analysis program.

#### **Tree Observation Forms R and S**

Form R contains tree phenology observations entered at the species or genotype level. Form S contains tree damage observations entered at the treatment, plot, or tree level.

#### **Experiment Operations Forms T and U**

Form T contains irrigation data entered at the experiment, treatment, or plot level. Use Form U to record a log of operations performed during the experiment.

Highlighted areas on the screens for Forms R-U indicate where data may be entered. Press the [Enter] key after each entry. Press <Ctrl-W> to save all entered data. If you need assistance while in a form, press the Help Key, [F1], and messages giving additional information will be presented.

*NOTE: If you use the [Esc] key in a data set form after ending data but before pressing <Ctrl-W>, your entered data will not be saved.*

## SUBMENU FOR FORMS R-U

After selecting the Observation module option from the Experiment Database Main menu and entering, if necessary, an Experiment ID, the following submenu will be presented. Move the highlight bar until the form you want is highlighted and then press [Enter] key.

<b>EXPERIMENT DATABASE MEASUREMENT</b>	ID: TK-01
<< S U B M E N U >>	
FORM	
R-> Tree Phenology Observation	
S-> Tree Damage Observation	
T-> Irrigation	
U-> Log of Experiment Operations	
Use [↑] and [↓] to highlight desired item. Press [Enter] to begin program execution. (Press [Esc] to exit to select other data forms.)	

[Esc]=Exit, [F3]=Change Experiment

## DATES AND COMMENTS

The Observation forms require dates and comments. Use the date that an observation or operation was performed. The comments should be detailed and specific. You may enter observation data into Forms R-U as often as needed for each experiment. Each dated observation will be stored as a record, by form and experiment, in the database. When you have entered data into a form and press <Ctrl-W> the data will be saved and a blank record presented. Press the [A]dd key to add another record or the [Esc] key to return to the submenu for Forms R-U.

**FORM R: Tree Phenology Observation**

ID: TS-21

Leaves			Flowers/Fruits				
Age	Plot	Description	Score	Live	Description	Score	Ave

[S]earch [A]dd [M]odify [D]elete [B]rowse

[Esc]=Exit [F1]=Help [F3]=Experiment ID

**FORM R: TREE PHENOLOGY OBSERVATION**

This form enables you to record the tree phenology observations on leaves and flowers/fruits.

**Leaves Description**

Enter one of the following description codes (N, Y, F, I, M)

N - Leafless	Y - Full Year (young)
F - Leaves falling	I - Leaves flushing
M - Full leaf (mature)	

**Leaves score**

Enter one of the following (1, 2, 3)

1 - Light	2 - Medium	3 - Heavy
-----------	------------	-----------

**Flowers/Fruits**

Enter 'y' if live flowers or fertile fruits are present else 'N'.

**Flowers/Fruits Description**

If live flowers or fertile fruits are present, enter one of the following (B,F,G,M,D)

B - Flower buds	F - Open flowers
G - Immature fruits	M - Mature fruits
D - Dry empty fruits	

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**Flowers/Fruits Score**

Enter one of the following codes (1,2,3)

1-Light 2-Medium 3-Heavy

**Flowers/Fruits Ave.**

Enter one of the following codes (1-8).

Code	Average number of flowers/fruits	Number of flowers/fruits
1	0	0
2	2	1 - 3
3	8	4 - 15
4	30	16 - 60
5	125	61 - 250
6	500	251 - 1,000
7	2,000	1,001 - 4,000
8	8,000	4,001 - 16,000

**FORM S: Tree Damage Observation**

ID: TS-21
<u>Age</u> <u>Plot</u> <u>Type</u> <u>Parts</u> <u>Severity</u> <u>% Damage</u>
[S]earch [A]dd [M]odify [D]elete [B]rowse

[Esc]=Exit   [F1]=Help   [F3]=Experiment ID

**FORM S: TREE DAMAGE OBSERVATION**

This form enables you to record Tree Damage observations.

**Type**

Enter one of the following codes.

- |                         |                   |
|-------------------------|-------------------|
| N - No damage           | C - Cold/Frost    |
| M - Tree missing        | F - Fire          |
| X - Wrong species       | S - Water Stress  |
| I - Insect damage       | L - Water logging |
| B - Nutrient deficiency | W - Wind          |
| P - Animal (physical)   | U - Unknown       |
| H - Human (cutting)     | O - Other         |

**Parts**

Enter one of the following codes

- |                    |                |
|--------------------|----------------|
| S - Stems          | R - Roots      |
| B - Branches       | W - Whole tree |
| F - Flowers/Fruits | C - Bark       |
| L - Leaves         |                |

**Severity**

Enter one of the following codes (1-9).

- |                 |                     |                      |
|-----------------|---------------------|----------------------|
| 1 - No problems | 4 - Moderate/medium | 7 - Heavy            |
| 2 - Light       | 5 - Medium          | 8 - Heavy/very heavy |
| 3 - Moderate    | 6 - Medium/Heavy    | 9 - Very heavy       |

**Damage**

Enter the percentage of damage observed.

**FORM T: Irrigation**

ID: TS-21
<u>Age</u> <u>Plot</u> <u>Amount</u> <u>Method</u>
[S]earch [A]dd [M]odify [D]elete [B]rowse

[Esc]=Exit    [F1]=Help    [F3]=Experiment ID

**FORM T: IRRIGATION**

Use Form T as a log of irrigation operations, with age, plot, amount, and method. Uniform application is assumed.

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**FORM U: Log of Experiment Operation**

			ID: TK-01
Age	Operation	Comment	
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Enter information in form above. Press <Ctrl-W> to save.			

[Esc]=Exit, [F1]=Help

**FORM U: LOG OF EXPERIMENT OPERATIONS**

Use Form U as a summary log of the experiment operations. Enter age, management operation and comments.

## Chapter 5

# AGROFORESTRY MEASUREMENTS FORMS V - W

---

### INTRODUCTION

This chapter describes and explains the screens presented for Forms V and W when 'Agroforestry measurements' are selected from the Experiment Database main menu.

Forms V and W are used for entering the data for agroforestry measurements such as sprout measurements, regrowth foliage biomass measurements, regrowth wood biomass measurements and crop measurements at plot level and tree level.

Highlighted areas on the screens for Forms V-W indicate where data may be entered. Press the [Enter] key after each entry. Press <Ctrl-W> to save all entered data. If you need assistance while in a form, press the help key [F1], and messages giving individual information will be presented.

*NOTE: If you use the [Esc] key in a data set form after ending data but before pressing <Ctrl-W> your entered data will not be saved.*

**FORM V-1: Sprout Measurements**

ID: TS-21

Plot	Age (mo)	Cutting Type	Tree measured	Diameter (cm)	Sprouts Length (cm)	Number of sprouts
------	-------------	-----------------	------------------	------------------	---------------------------	-------------------------

[S]earch [A]dd [M]odify [D]elete [B]rowse

[Esc]=Exit [F1]=Help [F3]=Change Experiment

**FORM V-1: SPROUT MEASUREMENTS**

You may enter sprout measurements data into Form V-1 at either the Plot level or Tree level. Select the data entry level by pressing <Ctrl-Home>.

**Sprout Diameter (cm)**

Enter the sprout diameter. Valid entries are floating point numbers.

**Sprout Length (cm)**

Enter the sprout length. Valid entries are floating point numbers.

**Number of Sprouts**

Enter the number of sprouts.

**Form V-2: Regrowth Foliage Biomass Measurements**

					ID: TS-21	
Plot	Age (mo)	Culling Type	Trees measured	Wet Wt (- - -kg/tree- - -)	Foliage Weight Dry Wt	
-----						
[S]earch [A]dd [M]odify [D]elete [B]rowse						

[Esc]=Exit [F1]=Help [F3]=Change Experiment

**FORMS V-2: REGROWTH FOLIAGE BIOMASS MEASUREMENTS**

The data can be entered at Plot level or By individual Tree level. If the user selects data entry option as "By Plot" then

**Foliage Wet Weight**

Enter the foliage wet weight for each plot.

**Foliage Dry Weight**

Enter the foliage dry weight for each plot.

If the data entry option is "By individual Tree" then

**Foliage Wet Weight**

Enter the foliage sample wet weight for the tree. When the total wet weight, sample wet weight, and sample dry weight are entered, the total dry weight will be calculated by the program.

**Foliage Dry Weight**

Enter the foliage sample dry weight for the tree. When the total wet weight, sample wet weight, and sample dry weight are entered, the total dry weight will be calculated by the program.

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**FORM V-3: Regrowth Wood Biomass Measurements**

						ID: TS-21	
Plot	Age (mo)	Cutting Type	Trees measured	--- Stems ---		- Branches/twigs -	
				Wet Wt	Dry Wt	Wet Wt	Dry Wt
				(-- -kg/tree-- --)	(-- -kg/tree-- --)	(-- -kg/tree-- --)	(-- -kg/tree-- --)

[S]earch [A]dd [M]odify [D]elete [B]rowse

[Esc]=Exit [F1]=Help [F3]=Change Experiment

**FORM V-3: REGROWTH WOOD BIOMASS MEASUREMENTS**

**Stem Wet Weight**

Enter the sample stem wood biomass wet weight for the tree. When the total wet weight, and sample wet weight, and sample dry weight are entered, the total dry weight will be calculated by the program.

**Stem Dry Weight**

Enter the sample stem wood biomass sample dry weight for the tree. When the total wet weight, sample wet weight, and sample dry weight are entered, the total dry weight will be calculated by the program.

**Branches/Twigs Wet weight**

Enter the branch/twig sample wet weight for the tree. When the total wet weight, sample wet weight, and sample dry weight are entered, the total dry weight will be calculated by the program.

**Branch/Twigs Dry Weight**

Enter the branch/twig sample dry weight for the tree. When the total wet weight, sample wet weight, and sample dry weight are entered, the total dry weight will be calculated by the program.

*Note: If the user selects Data Entry option as "By plot" the user has to enter the wet weight and dry weight. The program will not calculate the dry weights.*

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### FORM W: Crop Measurements

								ID: TS-23
Plot ID	Expt-Age mo.	DAS days	No. Plants	Distance m	Height cm	PlotGrWt kg/ha	Stover kg/ha	
[S]earch [A]dd [M]odify [D]elete [B]rowse [V]ariables [→], [←] = Page Right/Left								1/3

[Esc]=Exit [F1]=Help [F3]=Change Experiment

### FORM W: Crop Measurements

Form W enables you to record variables such as Height, Plot GrWt, Stover, Grain Wt, Plant\_Ca% dry weight, Plant\_N% dry weight, Plant\_P% dry weight, Plant\_K% dry weight etc.

## Chapter 6

# USER-DEFINED MEASUREMENTS FORMS X AND Y

---

### INTRODUCTION

This chapter describes and explains the screens presented for Forms X and Y when "General Measurements" is selected from the Experiment Database Main menu.

Forms X and Y are for entering user defined measurement variables and data which have not been defined in any of the other Experiment Database forms.

#### **General Measurement Forms X-1 and X-2**

In Form X-1, maximum of 12 measurement variables may be defined. In Form X-2, the data for the defined variables may be entered.

#### **General Biomass Measurement Forms Y-1 and Y-2**

In Form Y-1, up to six pairs of wet- and dry-weight variables may be defined. In Form Y-2, the data for the defined variables may be entered.

Highlighted areas on the screens for Forms R-U indicate where data may be entered. Press the [Enter] key after each entry. Press <Ctrl-W> to save all entered data. If you need assistance while in a form, press the Help Key, [F1], and messages giving additional information will be presented.

*NOTE: If you use the [Esc] key in a data set form after ending data but before pressing <Ctrl-W>, your entered data will not be saved.*

## SUBMENU FOR FORMS X AND Y

After selecting the module option from the Experiment Database Main menu and entering, if necessary, an Experiment ID, the following sub-menu will be presented. Move the highlight bar until the form you want is highlighted and then press the [Enter] key.

EXPERIMENT DATABASE GENERAL MEASUREMENT

ID: TK-01

---

<< S U B M E N U >>

---

FORM

- X-1-> General Measurement Definition
- X-2-> General Measurements
  
- Y-1-> General Biomass Measurement Definition
- Y-2-> General Biomass Measurements

---

Use [↑] and [↓] to highlight desired item. Press [Enter] to begin program execution. (Press [Esc] to exit to select other data forms.)

[Esc]=Exit, [F3]=Change Experiment

## TO USE FORM X AND Y

Use Forms X and Y to describe, measure, and analyze variables not provided by other measurement forms. Form X can handle up to 12 additional variables of either numeric or nominal data. Form Y can handle up to 6 pairs of wet- and dry-weight data.

You must define the variables you will use before you select Form X-2 or Y-2 to enter data. To do this, first select Form X-1 if you are going to enter data into X-2, General Measurements; or select Form Y-1 if you are going to enter data into Y-2, General Biomass Measurements.

**FORM X-1: General Measurements Definition**

ADD

ID: TK-01

-- Variables --				Input	Plot	
Name	Type	Dec	Unit	Level	Value	Description
DK	N		meters	TREE	AREA	crown diameter
GENHLTH	C		A - F	PLOT	AREA	general health; A = excellent
				PLOT	AREA	
				PLOT	AREA	
				PLOT	AREA	
				PLOT	AREA	
				PLOT	AREA	
				PLOT	AREA	
				PLOT	AREA	
				PLOT	AREA	
				PLOT	AREA	
				PLOT	AREA	

Enter information in the form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

**FORM X-1: GENERAL MEASUREMENTS DEFINITION**

In Form X-1, define the variables you will use to describe, measure, and analyze measurements not provided for in the Forms A-U. You may enter up to 12 different variables. Enter the variable by name, type, decimal places, unit, input level, and plot value. These are described below.

**Name**

New variable names must not be the same as those used in Forms A-U. You may not use the names:

- PSURVIV, HT, BASAL, DBH, WWT, WT, N, P, K, WSTEM, STEM, WBRANCH, BRANCH, GRAVITY, ELEV, LAT\_DEG, SITESLOPE, GENESLOPE, LAND\_OWN, LAND\_USE, NEAR\_ROAD, TMAX, TMIN, PPN, ORDER, MOISTURE, SOILTEMP, IMPLAYER, SUB\_PH, SUB\_TXTURE, AFMOIST.

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A name may have eight characters, and if you wish, you may slightly modify the names listed on the previous page. For example, you could designate DBH as DBH1. The name must start with a letter and cannot contain a space. For example, in the screen above, two variables have been entered: 'DK' and 'GENHLTH'.

### Type

Enter either a 'C' for nominal (qualitative, categorical, alphanumeric) data or a 'N' for numeric (quantitative) data.

### Unit

Enter the unit of measurement to be used for a particular variable, up to a maximum of eight characters.

### Input Level

Enter 'PLOT' for plots with one measurement or calculated value. Enter 'TREE' for multiple subplot (sample) measurements or for calculated values per plot, such as one measurement per tree within a plot or the average stem measurements for each tree.

*NOTE: Nominal variables have to be entered at the Plot input level.*

### Plot Value

Enter the computational method you want the program to use to summarize subplot measurements within a plot for each Plot value. Enter the following for each Plot value.

"AMEA " - Arithmetic Mean	"MIN " - Minimum
"GMEA " - Geometric Mean	"SUM " - Summation
"MAX " - Maximum	

## FORM X-2: General Measurements

ID: TK-01

Plot	Age	Trees	DK meter	GENHLTH A - F
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	
12	-9	-9	-9.00	

Enter information in the form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

## FORM X-2: GENERAL MEASUREMENTS

The variables you entered in Form X-1 will appear on Form X-2.

Enter the plot number, age, and the number of trees measured.

Enter measurements for the appropriate variables. Default values for numeric measurements, '-9', will appear in the highlighted areas as shown in the above screen.

Variables with the input level set to "Tree" will accept individual tree measurements in separate tree windows. Mean plot values, however, can also be entered directly, by using <Ctrl-Home> to change the data entry to the "Plot" level.

The program provides plot summaries based on the entered measurements, as defined in Form X-1 and recorded in Form X-2 (by tree). The program calculates the plot value according to the method specified in "Plot Value" in Form X-1.

**FORM Y-1: General Biomass Measurements Definition**

**ADD**

ID: TK-01				
----- V a r i a b l e s -----				
----- Name -----				
Wet Wt	Dry Wt	Unit	Input Level	Description
WFOLPRUN	DFOLPRUN	kg/tree	TREE	foliage biomass from PRUNING
WOODPRUN	DWOODPRUN	kg/tree	TREE	wood biomass from PRUNING
W	D	kg/tree	PLOT	
W	D	kg/tree	PLOT	
W	D	kg/tree	PLOT	

Enter information in the form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

**FORM Y-1: GENERAL BIOMASS MEASUREMENTS DEFINITION**

In Form Y-1, define the variables you will use to describe, measure, and analyze biomass-type measurements. You may enter up to 6 pairs of wet- and dry-weight data. Enter the variable name, decimal places, unit of measurement, input level, and plot value.

**Name**

In the highlighted areas under "Wet Wt" and "Dry Wt," are the letters 'W' and 'D', respectively. These letters cannot be changed and will be the first letter of any variable names you enter. Each variable name may have a maximum of eight characters in length, including the fixed letter, W or D. The name may include letters, numbers and the '\_' underline character.

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**Unit**

Enter the unit of measurement to be used for the variable, up to a maximum of eight characters.

**Input Level**

Enter 'PLOT' if you want to enter measurements as mean plot values. Enter 'TREE' if you want to enter measurements at the individual tree level within a plot and want the program to calculate the mean plot value.

## FORM Y-2: General Biomass Measurements

ID: TK-01

Plot	Age	Trees	WFOLPRUN -- kg/tree --	DFOLPRUN --	WWOODPRUN -- kg/tree --	DWOODPRUN --
18	-9		-9.00	-9.00	-9.00	-9.00
18	-9		-9.00	-9.00	-9.00	-9.00
18	-9		-9.00	-9.00	-9.00	-9.00
18	-9		-9.00	-9.00	-9.00	-9.00
18	-9		-9.00	-9.00	-9.00	-9.00
18	-9		-9.00	-9.00	-9.00	-9.00
18	-9		-9.00	-9.00	-9.00	-9.00
18	-9		-9.00	-9.00	-9.00	-9.00
18	-9		-9.00	-9.00	-9.00	-9.00
18	-9		-9.00	-9.00	-9.00	-9.00
18	-9		-9.00	-9.00	-9.00	-9.00
18	-9		-9.00	-9.00	-9.00	-9.00

Enter information in the form above. Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

## FORM Y-2: GENERAL BIOMASS MEASUREMENTS

The variables you entered in Form Y-1 will appear on screen in Form Y-2. Enter the plot number, age, and the number of trees measured.

Enter measurements for the appropriate variables. Default values for numeric values will appear in the highlighted areas.

Variables with the input level set to "Tree" will accept individual tree measurements in separate tree windows. Mean plot values, however, can also be entered directly, by using <Ctrl-Home> to change the data entry to the "Plot" level.

The program provides plot summaries based on the entered measurements, as defined in Form Y-1 and recorded in Form Y-2 (by tree).

The program calculates the plot value according to the method specified in "Plot Value" in Form Y-1.

# Chapter 7

## DATA ANALYSIS

---

### INTRODUCTION

This chapter describes and explains the screens presented when "Data Analysis" is selected from the Experiment Database Main menu.

*NOTE : The Data Analysis program creates data sets for running the MPTStat data analysis and graphics package. The program can also create an ASCII (text) file from the data set created that can be edited for use with other data analysis programs. MPTStat can be used independent of the Experiment Database by selecting Option 1 in the MPTStat Master menu. For details on using MPTStat, refer to the MPTStat User's Manual.*

### DATA ANALYSIS WINDOW

When you select "Data Analysis" from the Experiment Database main menu, following screen is presented. The window in the center of this sample screen is displayed whenever a data set file exists for the experiment listed at the top right corner of the screen. The window lists the data set variables contained in the data set file and the status line across the bottom of the screen lists the data set file name, the number of records in the file, the length of each record, and the file creation date.

Tree Measurements Tree Form Measuremen Tree Litter Measurem Foliage Biomass Meas Wood Biomass Measure Sprout Measurements Foliage Regrowth Mea Wood Regrowth Measur Crop Measurements Soil Measurements General Measurements General Biomass Meas	EXPTID AGE PLOT TRT REP SPECIES GENOTYPE CUTMGT HT BASAL	ID: TK-01 I Site Information oeconomic Information ite Information Information riment Site Preparation riment Description lant Soil Measurements  Phenology Observation Damage Observation ation
File: TK01.DBF Variables: 11 : Record(s) : 48: Byts/Rec 56		
[C]reate new dataset [A]SCII File (.txt) [K]MD file (.kmd) [R]un MPTStat data analysis program [B]rowse [PgDn] = Next Page [PgUp] = Previous Page		

[Esc]=Exit [F1]=Help [F2]=Print [F3]=Experiment ID

The file name listed on the status line always has a .DBF extension, indicating that it is a dBASE-compatible file. The file name is that of the experiment ID (in the sample screen, it is 'TK-01'). Whenever a data set is created for an experiment, whether or not an ASCII and/or MPTStat file has also been created, only the .DBF file will be listed on this line. From this file, the program creates the ASCII and/or MPTStat files.

The options highlighted on the bottom of this screen allow selection of the data analysis options. All these options are highlighted except when a data set file does not exist for the experiment displayed in the right top of the screen ('TK-02' in the sample screen). When that is the case, no window will appear in the screen and only the [C]reate and [R]un data options and the [F3] key will be highlighted.

## CREATE NEW DATASET

Press the [C]reate key to create a data set for the experiment displayed in the screen. The Measurement Variables screen will be presented (see below).

Tree Measurements		Tree Form Measurements	Trial Site Information	ID: TK-01
Tree Litter Measurements		Foliage Biomass Measurements	Socioeconomic Information	
Wood Biomass Measurements		Sprout Measurements	Climate Information	
Foliage Regrowth Measurements		Wood Regrowth Measurements	Soil Information	
Wood Regrowth Measurements		Crop Measurements	Experiment Site Preparation	
Crop Measurements		Soil Measurements	Experiment Description	
Soil Measurements		General Measurements	Preplant Soil Measurements	
General Biomass Measurements			Tree Phenology Observation	
			Tree Damage Observation	
			Irrigation	

[C] reate new dataset [A]SCII File (.txt) [K]MD file (.kmd)  
[R]un MPISat data analysis program [B]rowse  
[PgDn] = Next Page [PgUp] = Previous Page

[Esc]=Exit [F1]=Help [F2]=Print [F3]=Experiment ID

### Select Variables

Enter the age range for the data you want analyzed. In the measurements forms, variables will be highlighted and contain the default value, 'N'. Enter a 'Y' in the field to select that measurement variable for analysis. You may select as many variables in the screen as you want, but you must choose at least one.

*NOTE: Treatment information from Form I is always included in the data set and therefore is not listed as a variable selection choice.*

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## Data Set Creation

After selecting all variables to be included in the data set, press <Ctrl-W> to begin data set creation. When creating the data set, the program will include all variables selected but any that contain "missing" values in the database will be assigned a '.' [dot] in the final data set.

## Problems

If a data is not created (the message "No data records found" will be displayed), check the following conditions.

Make certain that data exists for the age range you specified

Make certain that the plot numbers entered in the measurement forms *exactly* match the plot numbers designed in Form I-3.

## CREATE MPTStat FILE

### From Newly-created Data Set

When a data is created, you will be given the option of creating an MPTStat file used for data analysis. At the bottom of the data set variable screen, the Experiment ID and a highlighted data entry field containing four default zeros will be presented (see screen below)

```
Enter data file number to be used: TK01 0000
ENTER A FOUR DIGIT NUMBER >=0. PRESS <CTRL-W> WHEN DONE
```

[ESC]=EXIT, [F1]=HELP

Enter a number and press <Ctrl-W> or leave the default zeroes and press <Ctrl-W>. The program will create the MPTStat file and write it directly to the STAT subdirectory "CMPTSYS\STAT" if you have installed MPTSYS using either the Install program or the DOS commands described in the "Installation" chapter of this *User's Manual*.

The file can be identified in the subdirectory by its .KMD extension. For example, TK011234.KMD. After creating the MPTStat file, the programme will display on screen the file name and its subdirectory location. Make a note of the name; it will not be listed in the MPTStat program.

### From Existing Data Set

If you have already created a data set for an experiment and want to create an MPTStat file, enter the Experiment ID, press the [K]MOD key and follow the instructions in "From newly Created Data Set" above.

*NOTE: If you press the [Esc] key before pressing <Ctrl-W>, the MPTStat file will not be created.*

*NOTE: If you use the same file name for an MPTStat file which is already in the subdirectory, you will be asked whether you want to overwrite the old file or rename the new file.*

### MPTStat Execution

To run an MPTStat analysis, from the Experiment Database means a transfer to the MPTStat package. This is done by MPTSYS and the following two screens will be presented which explain the MPTStat options. See the *MPTStat User's Manual* for detailed instructions.

#### MPTStat Quick Reference

Select the SET option if the menu colors are difficult to see. See the SET Command options and Appendix A in the MPTStat User's Manual.

Set the SAVEKMD option ON if you want to save your selections and inputs to a disk file during the analysis session.

CAUTION : A .KMD file with the same file name will be overwritten.

Select the READ option to enter a data set (a file with a .KMD extension) into MPTStat for analysis.

Select DESCRIBE then SUMMARY to quickly check your data after using the READ option.

Screen outputs will be in a disk file with a .OUT extension. The file name will be the same as the data set name.

See the MPTStat User's Manual for information on other options.

[PgUp] = Page Up, [PgDn] = Page Down, [Enter] = Continue.

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## F/FRED DATA ANALYSIS

A Select the **GLM** command to estimate analysis-of-variance and regression models.

T

P Select the **MODEL** command to specify the variables in the model. The model terms are selected from the variables list on the right. Select the explanatory term first.

B Separate the terms with the blank delimiter. Use the "\*" for interaction terms  
D and the '/' for nested terms. Enter only one response variable after entering the explanatory variables.

NOTE : The model needs to be specified before any of the options listed below MODEL can be utilized.

NOTE : The first term in the model has to be **MEAN** for the first sum to squares line in the **ANOV** table to be corrected for the overall mean of the data, to calculate a coefficient of determination (R squares value), to calculate a coefficient of variation (CV value), or to include an intercept in a regression model.

[C] [PgUp] =Page Up, [PgDn] =Page Down, [Enter] =Continue

(R

[Esc] =Exit

## CREATE ASCII FILE

To create an ASCII (or text) file from a data set, enter the Experiment ID and then press the [A] ASCII/text file key. Like the MPTStat file, you will be asked to enter a number to replace the four default zeroes in the file name (see screen below)

```
Enter data file number to be used: TK01 0000
Enter a four digit number >= 0. Press <Ctrl-W> when done.
```

[Esc] = Exit, [F1] = Help

Enter a number and press <Ctrl-W> The file name and its subdirectory location will be displayed. An ASCII file can be identified in the subdirectory by its. TXT extension. For example, TKO11234. TXT. Make a note of the file name.

*NOTE : If you use the same filename for an ASCII file which is already in the subdirectory, you will be asked whether you want to overwrite the old file or rename the new file.*

*NOTE : The first line of an ASCII (text) created file will contain the variable names. These will be listed in the same order as the columns of data in the data set but may not line up with their corresponding columns because of variable widths of names and data.*

# Chapter 8

## UTILITIES

---

### INTRODUCTION

The Utilities program is designed for system maintenance and data exchange among user. Users may backup, restore, reindex, delete and group experiments.

This chapter describes and explains the screens presented when "Utilities" is selected from the Experiment Database Main menu.

Highlighted areas on the screen for the Utility program indicate where data may be entered. Press the [Enter] key after each entry. If you need assistance while in a screen, press the Help Key, [F1], and messages giving additional information will be presented.

*NOTE: If you use the [Esc] key in a Utilities input screen after entering information or data but before pressing <Ctrl-W>, your entered data will not be saved.*

## SUBMENU FOR UTILITIES

After selecting "Utilities" from the Experiment Database Main menu, the following submenu will appear.

<b>EXPERIMENT DATABASE UTILITIES</b>	ID: TK-01
<< S U B M E N U >>	
1-> <b>BACKUP</b> Experiment data 2-> RESTORE Backed up data 3-> REINDEX Experiment database 4-> DELETE Experiment data 5-> GROUP Experiments	
Use [↑] and [↓] to highlight desired item. Press [Enter] to begin program execution. (Press [Esc] to exit to select other data forms.)	

[Esc]=Exit, [F3]=Change Experiment

From the menu, you may:

- 1 - BACKUP data in the experiment database.
- 2 - RESTORE data that was previously backed up.
- 3 - REINDEX the experiment files.
- 4 - DELETE selected groups of data.
- 5 - GROUP experiments
  - by creating experiment groups
  - by modifying experiment groups
  - by deleting experiment groups

BACKUP CRITERIA SELECTION	CURRENT SELECTION
1 -> Select an experiment group 2 -> Select experiments 3 -> Select forms 4 -> Select age range of data  [↑] [↓] to move [Enter] =Select [Esc] =Exit <Ctrl - W>=Start backup	EXPERIMENT GROUP :  EXPERIMENTS  FORMS AGE
Specify the set of data to backup	

[Esc] =Exit [F1] =Help

### OPTION 1: BACKUP EXPERIMENT DATA

When Option 1 of the Utilities submenu is selected, the above menu will be presented.

Backing up data stored in the hard disk to floppy disks enables you to transfer data from one computer to another, restore data that is accidentally erased or destroyed, and archive data that is no longer used (freeing disk storage space). Because this utility allows you to specify data in the Experiment Database for back up to one or more floppy disks, you must select each of the four options presented in the screen to set the data criteria parameters.

## SELECT BACKUP CRITERIA

### Experiment Group Selection

When Option 1 of the Backup Criteria Select menu is selected, the following submenu is displayed.

```
----- submenu -----  
1 -> Select an experiment group  
2 -> Backup all groups and all experiments
```

- 1 - Choose this option to select a specific experiment group for backup. Every experiment group in the database will be listed in a similar window to the one shown below.
- 2 - Choose this option to backup all experiment groups and all experiments. (See the section entitled "Option 5 - Group Experiments" in this chapter for a description of Experiment Groups.)

By choosing this option, you do not need to select from the second criteria option, "Select Experiments within the Experiment Group." Go to the section in this chapter entitled "Form Selection."

```
----- EXPERIMENT GROUPS -----  
ID          GROUP NAME  
-----  
          INDIVIDUAL EXPERIMENTS  
-----  
[Esc]=Exit, [1],[4] [PgUp],[PgDn], [Enter]=Select
```

Select the Experiment Group you wish to backup, by using the cursor keys and the [PgUp] and [PgDn] keys to highlight the group of your choice. Press the [Enter] key.

## Experiment Selection

When Option 2 of the Backup Criteria Selection menu is selected, the following submenu is presented.

```
----- submenu -----  
1 -> Select experiments  
2 -> Backup all experiments
```

- 1 - Choose this option to select specific experiments for backup. The following window will be displayed listing the experiments in the selected group.
- 2 - Choose this option to select all the experiments in the group to be backed up.

```
----- EXPERIMENT SELECTIONS -----  
  
▶TK-01  
  
[1], [4], [-], [+], [PgUp] [PgDn],  
[Enter]=Select, <Ctrl-W>=finished
```

Use the cursor keys and the [PgUp] and [PgDn] keys to highlight the experiment(s). The [Enter] key acts as a toggle to select or unselect the experiment being highlighted. Selected experiments are marked by a small triangle, '▶', to the left of the Experiment ID. Press <Ctrl-W> when you have finished your selections.

## Form Selection

When Option 3 of the Backup Criteria Selection menu is selected, the following submenu is presented. For the experiment(s) you have already selected, choose specific Experiment Data Forms A-U to be backed up.

\_\_\_\_\_ submenu \_\_\_\_\_

1 -> Select forms to backup
2 -> Backup all forms

- 1 - Choose this option to select specific forms for back up. The following screen will be displayed, listing all the forms in the Experiment Database from which you can select specific forms to be backed up. Highlight the forms you want by using the cursor keys and the [PgUp] and [PgDn] keys. The [Enter] key acts as a toggle to select or unselect the form being highlighted. Selected forms are marked by a small triangle, '▸', to the left of the form. Press <Ctrl-W> when you have completed your selection.
- 2 - Choose this option to select all the forms for back up.

### EXPERIMENT DATABASE BACKUP UTILITY

FORM SELECTIONS	
FORM	FORM
▸ A-> Institution Information	M-> Soil Measurements
B-> Cooperator Information	N-> Tree Measurements
C-> Trial Site Information	O-> Foliage Biomass Measurements
D-> Site Descriptor - Socioeconomic	P-> Wood Biomass Measurements
E-> Site Descriptor - Climate	Q-> Tree Litter Measurements
F-> Site Descriptor - Soil	R-> Tree Phenology Observation
G-> Experiment Site Preparation	S-> Tree Damage Observation
H-> Experiment Description	T-> Irrigation
I-> Experiment Factors/Treatments	U-> Log of Experiment Operations
J-> Experiment Planting	X-> General Measurements
K-> Tree Species	Y-> General Biomass Measurements
L-> Weather Data	

[↑][↓][→][←]=Move Selection, [Enter]=Select, <Ctrl-W>=Finished

Use the Cursor keys to highlight a FORM, then press [Enter] to select the FORM. Press <Ctrl-W> when finished selecting.

[Esc]=Exit, [F1]=Help

### Age Range Selection

When Option 4 of the Backup Criteria Selection menu is selected, the following window is presented. Enter the age range (in months) of the data you want backed up. For example, entering "3-12" would mean you want all data in the age range 3 months through 12 months to be backed up. Entering the range "0-99" will select all ages.

**AGE SELECTION**

[Esc] = Exit

*NOTE: If you selected only Information forms (Forms A-K) in the Form Selection option, the age selection will not be used by the program when backing up data because age is not a dynamic criterion for these forms. You must still, however, enter an age range.*

### STARTING THE BACKUP

When you finish specifying the backup criteria, press <Ctrl-W>. The program will calculate the approximate number of blank diskettes (double sided 5-1/4") that will be needed for backup. Enter the letter of the disk drive to which you are backing up the data. If the set of data cannot fit on one disk, the program will prompt you for more disks until all of the selected data is backed up.

*NOTE: The Backup utility will not erase a diskette. If MPTSys data are found on the diskette, the utility will overwrite them. If non-MPTSYS data are found, however, the utility will not overwrite them. Therefore, it is suggested that you erase all files on diskettes you are using as backup diskettes.*

When backup is completed, a @BACKUP.TXT file will be found in the disk directory with a summary of the backed-up files, in ACSII format.

It is suggested you label your diskettes and list the data they contain.  
For example:

MPTSYS Backup 1 of 2  
TK01 6 month data

## OPTION 2: RESTORE BACKED UP DATA

When Option 2 of the Utilities submenu is selected, the following screens will be presented. Use this utility to restore backed up data from a floppy disk (using the Backup utility) to the database on a hard disk.

Restoration is done on a record by record basis. Each data record on the backup disk is checked against data records in the database. If the record exists in the database, it is replaced; if the record does not exist, the program will add the record to the database. The program first checks to see that the disk containing the backed-up data is an MPTSYS Experiment Database Version 3.0 backup disk.

Follow the screen messages to restore data to the hard disk.

### EXPERIMENT DATABASE RESTORE UTILITY

Insert disk to be restored in disk drive. Enter the letter of the disk drive restoring from:

[Esc]=Exit, [F1]=Help

## Backup Report

After inserting the backup disk into the disk drive, enter the disk drive letter (see screen on previous page). The Restore utility checks to see if the inserted disk is a MPTSYS version 3.0 backup disk and that all files listed in the disk's @BACKUP.TXT file are on the disk. The program then displays a Backup report listing the data contained on the disk. (See sample Backup report in following screen.)

### EXPERIMENT DATABASE RESTORE UTILITY

```
==== MPTSys BACKUP REPORT ====
DATE: 02/08/93      TIME: 15:27:52

EXPERIMENT GROUP: A.AURI
EXPERIMENTS:

CF-10  FF-10  MP-10  TK-10  TS-10

AGE CONDITION: All Ages

BACKUP FORMS ON THIS DISK
-----
NETWORK  FORMA  FORMG  FORMH  FORMI  FORMJ  FORMK

DISK #: 1 (LAST)
```

```
End of Backup Report file
Press any key to continue ..
```

[Esc]=Exit, [F1]=Help

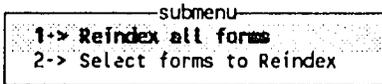
Read this report to make sure you have inserted the correct diskettes. Use the [F2] key to print the report. Notice the last line of the report where the number of the disk is given. In this sample report, the Disk is #1 (LAST). This means that one disk holds all the data that was requested for backup. If, however, two or more disks were needed to hold all the backed up data, each of those diskettes will list the data contained on its disk and the number of the disk, and the label "LAST" will be listed only for the last disk in that series.

Before restoration begins, you have the option of changing the disk.

When restoration is completed, you may restore another disk or exit the utility.

### OPTION 3: REINDEX EXPERIMENT DATABASE

When Option 3 of the Utilities submenu is selected, the following submenu will be presented. Use the Reindex utility to rebuild the index file(s) of an Experiment Database file which has been corrupted or damaged in some way.



Index files contain information on the sorted order of the data in the database. When these files are corrupted by power problems, manipulated incorrectly or accidentally erased, the program may not be able to find certain data. The Reindex utility will rebuild the damaged or missing index files, correcting the problem.

Because the reindex process can be time consuming if the database contains a large amount of data, two options are available at the submenu level when for reindexing.

- 1 - Choose this option to reindex all forms in the experiment database.
- 2 - Choose this option to view a form selection screen.

Highlight as many forms as you want by using the cursor keys and the [PgUp] and [PgDn] keys. The [Enter] key acts as a toggle to select or unselect the form being highlighted. Press <Ctrl-W> when you have completed your selection.

REINDEX BY FORM	
FORM	FORM
A -> Institution Information	N -> Tree Measurements
B -> Researcher Information	O -> Foliage Biomass Measurements
C -> Trial Site Information	P -> Wood Biomass Measurements
D -> Site Descriptor - Socioeconomic	Q -> Tree Litter Measurements
E -> Site Descriptor - Climate	R -> Tree Phenology Observation
F -> Site Descriptor - Soil	S -> Tree damage Observation
G -> Experiment Site Preparation	T -> Irrigation
H -> Experiment Description	U -> Log of Experiment Operation
I -> Experiment Factors/Treatments	V -> Regrowth Measurements
J -> Experiment Planting	W -> Crop Measurements
K -> Tree/Crop Species	X -> General Measurements
L -> Weather Measurements	Y -> General Biomass Measurements
M -> Soil Measurements	
= Move Highlight [Enter] =Select	

Select a form to Reindex

[Esc] =Exit [F1] =Help

#### OPTION 4: DELETE EXPERIMENT DATA

When Option 4 of the Utilities submenu is selected, the first screen presented contains a warning message (see below). Use the Delete utility to remove large blocks of data from the Experiment database files, but be aware that the deletion is permanent.

**!!! WARNING !!!**

The DELETE Utility will permanently delete data from the Experiment Database. Make sure you are deleting only the data you want deleted. If you have previously made a BACKUP of the deleted data you can use the RESTORE Utility to restore the data.

Press any key to continue...

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The delete utility allows you to 1) delete a set of data from more than one data form at a time; 2) use data form and age range criteria to delete selected data forms; and 3) delete Experiment IDs and remove an experiment group from the database.

### Select Delete Criteria

The following screen will be presented, asking you to choose the criteria for deletion. This criteria selection process is the same as the one used for the Backup utility, except for Form selection. Review the section entitled "Select Backup Criteria" in this chapter under "Experiment Group Selection" and make your selections from Options 1, 2, and 4 of the Delete Criteria Selection menu.

EXPERIMENT DATABASE DELETE UTILITY	DELETE						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 5px;">DELETE CRITERIA SELECTION</th> <th style="text-align: left; padding: 5px;">CURRENT SELECTION</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">           1 -&gt; Select an experiment group            2 -&gt; Select experiments            3 -&gt; Select forms            4 -&gt; Select age range of data         </td> <td style="padding: 5px;">           EXPERIMENT GROUP :             EXPERIMENTS (First 10 Listed):             FORMS :             AGE :         </td> </tr> <tr> <td colspan="2" style="padding: 5px;">           Move [Enter] = Select            [Esc] = Exit &lt;Ctrl - W&gt; = Start delete         </td> </tr> </tbody> </table> <p style="margin-top: 10px;">Specify the set of data to backup</p>	DELETE CRITERIA SELECTION	CURRENT SELECTION	1 -> Select an experiment group 2 -> Select experiments 3 -> Select forms 4 -> Select age range of data	EXPERIMENT GROUP :  EXPERIMENTS (First 10 Listed):  FORMS :  AGE :	Move [Enter] = Select [Esc] = Exit <Ctrl - W> = Start delete		
DELETE CRITERIA SELECTION	CURRENT SELECTION						
1 -> Select an experiment group 2 -> Select experiments 3 -> Select forms 4 -> Select age range of data	EXPERIMENT GROUP :  EXPERIMENTS (First 10 Listed):  FORMS :  AGE :						
Move [Enter] = Select [Esc] = Exit <Ctrl - W> = Start delete							
[Esc] = Exit [F1] = Help							

For Form Selection, you may select an entire form to delete or you may choose to select just the subforms of a form to delete. For example, you may choose to delete from Form N, only subforms, either Form N-1 or Form N-2.

For forms which are further subdivided at the data level (e.g., forms N, O, P, X, and Y), you may choose to delete the plot, tree, or stem data level.

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For Form L, you may choose to delete at both the monthly and daily data level or at the daily level only.

#### **Delete Experiment ID**

If you choose to delete an experiment, you will delete all its experiment forms (including subforms and plot, monthly, and daily data) in the age range 0-99.

#### **Delete Experiment Group**

If you choose to delete an Experiment Group, you will delete all the groups of its experiments and all the associated experiment forms (including subforms and plot, monthly, and daily data) in the age range 0-99.

### **OPTION 5: GROUP EXPERIMENTS**

When Option 5 of the Utilities submenu is selected, the following screen will be presented.

When an experiment data set is entered into MPTSYS, it is assigned to the experiment group named "Individual Experiments." Using the Group Experiments utility, you can create an experiment group that combines several Individual Experiments within it. You can also modify (change) the name and/or ID of an experiment group, and delete an experiment group.

## EXPERIMENT GROUPS UTILITY

EXPERIMENT GROUPS	
ID	Group Name
INDIVIDUAL EXPERIMENTS	
HUMID87	Humid 1987 Network Trials

Use [Up Arrow] or [Down Arrow] to choose a group.

<<EXPERIMENTS FOR HUMID 87>>						
ID	Date	Max.T	Min.T	Rain	Soil Order	Country
TH-01	10/01/87	-9.0	-9.0	1211	Ultisol	Thailand
TK-01	10/01/87	33.5	21.4	1529	Entisol	Thailand

Use [PgUp] or [PgDn] to see Experiments.

[A]dd a Group, [M]odify selected Group ID and Name,  
[D]elete selected Group, [R]eassign an Experiment

[Esc]=Exit, [F1]=Help

The screen displays the current group IDs and names and lists the experiments contained within each group when it is highlighted.

For example, in the top portion of this screen under "Experiment Groups," the group "HUMID87 HUMID 1987 Network Trials" is highlighted. In the bottom portion of the screen, under "Experiments for HUMID87" all the experiments grouped under this group name are listed.

### Add Group

To add an Experiment group, press the [A]dd key. Prompts and highlighted data entry fields will be presented in the bottom portion of the screen (see below). Enter a Group ID and Group Name and press <Ctrl-W> to save.

Group ID:	Group Name:
Enter the Group ID and Group Name. Press <Ctrl-W> when done.	

[Esc]=Exit, [F1]=Help

The entered ID and name will be displayed in the top portion of the screen. Press the [R]eassign key to assign experiments to this group (see following section, "Reassign Experiments," for instructions).

### Modify a Group ID and Name

To change a group name and/or ID, highlight the ID and name you want to change. Press the [M]odify key. The group ID and name will be presented in the bottom portion of the screen. Make any modifications to the group ID and/or name and then press <Ctrl-W> to save the changes.

### Reassign Experiments

To reassign or assign an experiment to a group, highlight the group ID and name to which you want the experiment reassigned. Press the [R]eassign key. The bottom portion of the screen will display a prompt and a data entry field (see below). Enter the ID of the experiment you wish to reassign and press <Ctrl-W>. The experiment will be listed under the selected group name.

Reassign Experiment:      to Group: TEST.  
Press <Ctrl-W> to save.

[Esc]=Exit, [F1]=Help

### Delete a Group Name

To delete a grouping of experiments under a group name, highlight the group ID and name you want deleted. Press the [D]elete key. A message with the group ID will appear in the bottom portion of the screen (see below). Select 'Y' to delete the group or 'N' if you do not want to delete.

```
Delete Group: TEST      (Y/N)? N
```

[Esc]=Exit, [F1]=Help

*NOTE: When an Experiment group is deleted, any experiment assigned to that group will be reassigned to the 'Individual Experiments' group.*



Multipurpose Tree Species  
Information and Decision Support System

Version 3.0

## **IV. MPTS SPECIALIST DATABASE**

# Table of contents

## MPTS SPECIALIST DATABASE

---

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# Chapter 1

## INTRODUCTION

---

### PROGRAM DESCRIPTION

The MultiPurpose Tree Species (MPTS) Specialist Database enables quick access to the names, addresses, and areas of expertise of researchers active in MPTS research worldwide. The information contained in the database records include a specialist's experience with species, subject fields, environmental zones, and geographic regions. The database is designed to serve not only as a directory of MPTS specialists for F/FRED cooperators but also as an efficient means of information exchange among a wide range of individuals in the MPTS and farm forestry research community.

Each record in the database is comprised of two pages. The first page contains information about each individual's specialty. The second page contains general personal data.

### DATA ENTRY SCREENS

The Specialist Database has two data entry screens corresponding to the two pages that comprise each database record. Entering data into both screens completes the record for a specialist.

### DATA SELECTION WINDOWS

In the first data entry screen (page) of a specialist record, Data Selection Windows are available to facilitate data entry, as shown in the above screen. In the [A]dd mode, these windows contain a list of data entry options for the following data entry fields.

- MPT Professional Responsibility
- MPT Subject Field
- MPT Species
- MPT Environmental Zone
- MPTS Geographic Regions

## MPTS SPECIALIST DATABASE

Name.....	Family Name	First Name	MI
Job Title..			
Institution			
<< EXPERIENCE >>			
MPT Pro	1) Project Management/Implementation		
1.	2) Research		
2.	3) Extension/Training		
MPT Sub	[↑] [↓] [PgUp] [PgDn]	cies:	
1.	[Enter]=Select		
2.			
3.		3.	
MPT Environmental Zone:		MPTS Geographic Regions:	
		1.	
		2.	
Percentage of time working with the above species:		%	
Enter information in above form. Press <Ctrl-U> to save.			
(PgUp)=Page up, (PgDn)=Page down			

[Esc]=Exit

Page: 1/2

To view the Data Selection windows for one of these fields, place the cursor in the field and then press the [Enter] key. The window will list, by number, the options available. Enter the number which corresponds to the selection you want. The selected item will be entered and displayed in the data field.

## FUNCTION KEYS

The function keys available in the Specialist Database are as follows.

- [A]dd - Enter specialist information.
- [S]earch - Specify criteria to locate records.
- [M]odify - Update and change information in a record which resides in the database.
- [D]elete - Remove records from the database.

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## ACCESS DATABASE

To access the MPTS Specialist Database, select "C - MPTS Specialist Database" from the F/FRED Master menu.

*NOTE: If you are using the MPTS Specialist Database separate from MPTSYS, access the program by typing 'MPT\_PROS [ENTER]' at the DOS prompt.*

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## Chapter 2

# MPTS SPECIALIST DATABASE PROGRAM

---

This chapter describes and explains the two screens presented for the MPTS Specialist Database program.

Highlighted areas on the screens indicate where data may be entered. Press <Ctrl-W> to save all entered data.

*NOTE: If you use the [Esc] key in a page after entering data but before pressing <Ctrl-W>, your entered data will not be saved.*

ADD

**MPTS SPECIALIST DATABASE**

Name.....	Doe	John	Q.
	Family Name	First Name	MI

Job Title.. Associate Professor  
 Institution The Research Center

MPT Professional Experience:

- 1. Research
- 2. Extension/Training

MPT Subject Field:

- 1. Genetics/Breeding
- 2. Nurseries/Seed Orchards
- 3. Sp./Provenance Trials

MPT Environmental Zone:  
 Humid/Semi-humid Tropics

MPT Species:

- 1. Acacia auriculiformis
- 2. Acacia mangium
- 3. Azadirachta indica

MPT Geographic Regions:

- 1. S. Asia
- 2. S.E. Asia

Percentage of time working with the above species: 95 %

---

Enter information in above form. Press <Ctrl-W> to save.  
 [PgUp]=Page up, [PgDn]=Page down

(Esc)=Exit Page: 1/2

### PAGE ONE

The above sample screen is the first page of the MPTS Specialist Database.

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### Name, Job Title, and Institution

Enter the appropriate information. Use complete, unabbreviated names in these three data fields.

### MPT Professional Experience, MPT Subject Field, MPT Species, MPT Environmental Zone, and MPTS Geographic Regions

Data Selection windows are available for these data entry fields. Enter these data by selecting an option from the window.

### Percentage

Enter the percentage of time devoted to MPTS-related work (forest/biological and socioeconomic research and programs).

ADD

**MPTS SPECIALIST DATABASE**

Name... Dr.	Doe	John	R.
Prefix	Family Name	First Name	MI
Job Title.....	Associate Professor		
Institution...	The Research Center		
Address .....	P.O. Box 123 100 Main Street		
City.....	Paia		
State/Province	Hawaii	Postal Code.....	96779
Country.....	United States		
Phone.....	(555) 123-4567	Telex..	5500001234 OHS UI
		Fax....	(555) 123-5555
Note.....			
Update.....	11/01/89	Directory Code..	99

Enter information in above form. Press <Ctrl-W> to save.  
[PgUp]=Page up, [PgDn]=Page down

[Esc]=Exit

Page: 2/2

## PAGE TWO

The above sample screen is the second page of the MPTS Specialist Database.

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**Name, Job Title, and Institution**

These fields will be displayed with the information entered into Page One of the MPTS Specialist Database.

**Address**

Enter a street address as well as a post office box or other information needed to deliver regular mail. The address should be adequate to deliver packages and messages.

**City, State/Province, and Country**

Enter complete, unabbreviated names.

**Postal Code**

Enter the postal code as well as inter-city zip and other codes.

**Telex**

Enter the telex code, including the country code number.

**Update**

The program will display the date which information was entered into this form.

**Directory Code**

There are five Directory Codes available. The last code's default value is '99'. This is the code to designate a MPTS Specialist record. You may use the other Directory Codes to indicate other groups of people within the database. Add any digit or combination of digits in the other blank data fields to use that numeric combination for a particular group.



Multipurpose Tree Species  
Information and Decision Support System

Version 3.0

## **V. ABSTRACT DATABASE**

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## ABSTRACT DATABASE

---

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# Chapter 1

## INTRODUCTION

---

### PROGRAM DESCRIPTION

The Abstract Database is a reference database containing literature citations and abstracts that are relevant to MPTS.

The database stores the citation and abstract data as separate files which enables more efficient search procedures. The citation record includes title, author, source, and other standard citation information, and space is also provided for entering geographic region and species information. Subject headings and subheadings, based on *CAB Forestry Abstracts*, can be assigned to this record. The abstract record can contain up to six pages of copy.

### DATA ENTRY SCREENS

The Abstract Database has seven data entry screens. The first screen allows entry of data for the citation record. The other six screens allow entry of abstract copy and comprise the abstract record.

### DATA SELECTION WINDOWS

In the data entry screen for the citation record, which is the first screen to appear in the Abstract Database, Data Selection Windows are available to facilitate data entry. In the [A]dd mode, these windows contain a list of data entry options for the following data entry fields.

- Geographic Region
- Species
- Main Headings
- Subheadings

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Title:	REF ID: XX12345678	
Author(s):	<div style="border: 1px solid black; padding: 5px; text-align: center;">           &lt;&lt; REGIONS &gt;&gt;            1) Africa            2) Australia/New Zealand            3) Europe            4) Latin America            5) North America            6) Pacific Islands            7) S. Asia            8) S.E. Asia         </div>	
source:	Enter region number:	Region: ies...:
Volume:	0 = none of the above	ract...: Y
Issue.:		
Page..:		
Main Heading		
Enter information in above form. Press <Ctrl-W> to save. [PgUp]=Page Up, [PgDn]=Page Down		

[Esc]=Exit

Page: 1/7

To view the Data Selection windows for one of these fields, place the cursor in the field. The window will list, by number, the options available. Enter the number which corresponds to the selection you want. The selected item will be entered and displayed in the data field.

"Geographic Region" and "Species" data may also be entered with the keyboard. Entering a blank or zero in these windows moves the cursor to the data entry field. You may then enter a more specific geographic region or a species not listed in the Data Selection Window.

"Main Heading.Subheading" data must be entered using the Data Selection windows.

## FUNCTION KEYS

The function Keys available in the Abstract Database are as follows.

- |          |   |                                                                                         |
|----------|---|-----------------------------------------------------------------------------------------|
| [A]dd    | - | Enter citation and abstract information.                                                |
| [S]earch | - | Specify criteria to locate citation records.<br>Not available for the abstract records. |
| [M]odify | - | Update and change information in a record<br>which resides in the database.             |
| [D]elete | - | Remove records from the database                                                        |

## ACCESS DATABASE

To access the Abstract Database, select "D - Abstract Database" from the F/FRED Master menu.

*NOTE: If you are using the Abstract Database separate from MPTSYS, access the program by typing 'MPT\_DOCS [Enter]' at the DOS prompt.*

## Chapter 2

# ABSTRACT DATABASE PROGRAM

---

This chapter describes and explains the screens presented for the Abstract Database program.

Highlighted areas on the screens indicate where data may be entered. Press <Ctrl-W> to save all entered data.

*NOTE: If you use the [Esc] key in a page after entering data but before pressing <Ctrl-W>, your entered data will not be saved.*

F/FRED Abstract Database		ADD
Title:	REF ID: CB0444587	
Growth and fuelwood yield of Petford provenance of <i>Eucalyptus camaldulensis</i> Dehn, grown in rural marginal land.		
Author(s):		
Kamaluddin, M.		
Bhuiyan, M. K.		
Source:		
Pakistan Journal of Forestry		
Volume: 35	Year.....: 1985	Geo.Region:
Issue.: 1	Doc.Type...:	Species...: <i>Eucalyptus camaldulensis</i>
Page...: 15-19	Language...: English	Abstract...: Y
Main Heading . Sub Heading:		
Forest mensuration and management		
Business economics of forestry		
Enter information in above form. Press <Ctrl-W> to save.		
[PgUp]=Page Up, [PgDn]=Page Down		

[Esc]=Exit Page: 1/7

## CITATION FORM

The first screen presented in the Abstract Database is shown above and enables you to enter citation information about an abstract in the Abstract Database.

**Ref ID**

Enter a reference ID. This is required in the Abstract Database and can be any combination of letters and digits that do not exceed ten characters in length.

It is suggested that you use a two-letter code (to indicate country or institution) followed by eight digits. The program will check the entered ID for duplication before highlighting the rest of the input fields for data entry. If the ID entered is a duplicate, the message "ID exists" will flash several times and then the reference ID field will be cleared. You may reenter another reference ID.

All *CAB Abstracts* citations (the initial information obtained from a commercial database) in the database have a two-letter code of 'CB' to make retrieval by reference ID easier.

**Title**

Enter the title of the publication.

**Author(s)**

Enter the author(s) of the publication.

**Source**

Enter the source of the publication. This depends on the citation and this field may contain journal names, publishers, institutions, and so on.

**Volume, Issue, Page**

You need only enter this data for articles.

**Year**

Enter the year of publication.

**Doc. Type**

The document type used by *CAB Abstracts* are NP (numbered part), UP (unnumbered part), NW (numbered whole), and UW (unnumbered whole). Respective examples are chapters in a book, a section of speech, a book, and a thesis. It may be more useful, for personal use, to use the actual document type, i.e., 'article', for a journal article.

### **Language**

Enter the language the abstract or the article was written in.

### **Geo.Region**

This is the geographic region covered by the citation. The Data Selection window for this data entry field lists geographical regions. Select one of these regions by entering the number corresponding to the one you wish to select. If your region is not listed in this window, enter the region with the keyboard.

### **Species**

Enter the principal species covered by the citation. The Data Selection window for this data entry field lists species, by number. Enter the number corresponding to the species you wish to select. If the species is not listed in this window, enter the name with the keyboard.

### **Main Heading.Sub Heading**

The main heading and subheading fields are used to categorize the citation under a specific subject.

Select one of the sixteen main headings which appear in the Data Selection window for these fields to indicate the *general* subject of the citation. If the window list does not contain an appropriate heading, leave this field blank and use the [up arrow] to leave the window.

A list of subheadings will appear in a Data Selection window after you have selected a main heading. Select a subheading that indicates a *specific* subject covered by the citation. Some of the subheadings have a second level of subheadings and these will appear in windows on the screen. Choose a second level of subheading if you need to indicate a more specific subject.

### **Abstract**

An abstract text can only be entered if you enter 'Y' in the Abstract field.

*NOTE: Press [PgDn] to go to the abstract screens to enter the text of the abstract.*

REF ID: CB0444587

## Title:

Growth and fuelwood yield of Petford provenance of *Eucalyptus camdulensis* Dehn. grown in rural marginal land.

--&lt;&lt; ABSTRACT &gt;&gt;-----

A 0.018-ha plantation (spacing 1.6X1.6 m) was grown on the banks of rural ponds in Chittagong, Bangladesh. After 5 yr, sample trees were felled and measured. Survival was 96% and trees had reached a ht. of 11.5 m and a d.b.h. of 11.6 cm. Yield of fuelwood including bark and branches was 139.1 t/ha with 12% m.c.

Enter information in above form. Press <Ctrl-W> to save.  
[PgUp]=Page Up, [PgDn]=Page Down

[Esc]=Exit

Page: 2/7

## ABSTRACT FORM

Six screens are available for abstract text. The above screen is a sample abstract text entry screen.

The title of the Abstract and its Reference ID will be entered by the program from the information entered in the citation screen.

### Abstract

A maximum of 61 lines (6 pages of abstract) can be included with a citation. Eleven lines per screen may be entered. **Text must be entered without blank lines because the program reads a blank line as the end of text entry.** After you have filled a screen, press the [PgDn] key to display the next abstract data entry screen. After the first text entry screen, each subsequent screen will display the last line of the previous screen as the first line. Pressing the [PgUp] key allows you to go back to previous screens.

When you have completed entering the text for the abstract, press <Ctrl-W> to save the abstract you have entered.



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## VI. SOIL DATABASE

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## SOIL DATABASE

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### Chapter 2 SOIL DATABASE PROGRAM

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# Chapter 1

## INTRODUCTION

---

### PROGRAM DESCRIPTION

The Soil Database contains soil information data and is designed not only to manage this massive bank of soil data but also to manipulate these data for various end uses. It can be used to retrieve general information, create output files for F/FRED's Multipurpose Tree Growth (MPTGro) Simulation Model and general text files for various application programs, and produce customized output.

Two major data files comprise the database. One contains information associated with a single soil profile and does not vary according to soil layer. It distinguishes between pedons by the use of pedon numbers.

The second file contains information associated with a single layer of a soil profile. It distinguishes between layers by the depth of each layer from the surface and the total depth of the layer.

### DATA ENTRY SCREENS

The Soil Database has two data entry screens corresponding to the two pages that comprise each database record. The first screen (or page) contains soil classification information. The second screen (or page) contains chemical and physical analysis data by layer.

### DATA SELECTION WINDOWS

In the first data entry screen (page) of a soil record, Data Selection windows are available to facilitate data entry. These windows contain a list of data entry options for Soil Taxonomy variables, the moisture regime, estimated permeability, and drainage, in both [A]dd and [S]earch modes.

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		SOIL PEDON ID: 87P0485	
Master Horizon	Layer (cm)		Mg Content Sat. Extr.
Kjeldahl N	Upper-Lower	CLAY	Elec. Conduct. Ba-Cl
Extr P	-----	-----	Total Potassium
Extr P method	0 - 10	57.9	Total Coarse Fragments
Total Clay	10 - 21	59.9	1/10 Water Clods
Total Silt	21 - 51	72.3	1/3 Water Clods
Walkly-Black O C	51 - 81	75.4	15 Bar Air Dry Soil
KCL Extr Al	81 - 109	75.9	Soil Structure
NH4OAC Base Sat	109 - 144	74.5	Soil Consistence Dry
pH, 1:1 Soil-KCL	144 - 175	68.2	Soil Consistence Moist
pH, 1:1 Soil-H2O	175 - 200	03.0	Soil Consistence Other
pH, 1:50 Soil-NAFL			Root Information
Bulk Density, O D	Carbonate < 2mm		
Bulk Density, 1/3 B	Carbonate > 2mm		

Use [F1] and [F2] to highlight desired item. Press [Enter] to enter data.  
Press <Ctrl-W> when done.

[Esc]=Exit, [F1]=Help

Page: 2/2

## DATA ENTRY WINDOWS

In the second data entry screen (page) of a soil record, data entry for each field must be done in Data Entry windows. When the cursor is placed in a field and the [Enter] key is pressed, a Data Entry window will be displayed. For example, in the screen above, the Data Entry window is displayed for the "Total Clay" data entry field, and the percentage of total clay of each layer must be entered in this window.

## FUNCTION KEYS

The function keys available in the Soil Database are as follows.

- [A]dd - Enter soil information.
- [S]earch - Specify criteria to locate record.
- [M]odify - Update and change information in a record which resides in the database.
- [D]elete - Remove record from the database.
- [B]rowse - Display record in the database files.
- [F10] - Reindex files.

## ACCESS DATABASE

To access the Soil Database, select "G-Soil Database" from the E/F/R/E/D Master menu.

*NOTE: If you are using the Soil Database separate from MPTSYS, access the program by typing 'MPT\_SOIL [Enter]' at the DOS prompt.*

## Chapter 2

# SOIL DATABASE PROGRAM

This chapter discusses and explains the screens presented for the Soil Database program.

Highlighted areas on the screens indicate where data may be entered. Press <Ctrl-W> to save all entered data.

*NOTE: If you use the [Esc] key on the page after entering data but before pressing <Ctrl-W>, your entered data will not be saved.*

*NOTE: To enter certain data into the first page (screen) of the Soil Database, you must use specified names and codes. These are listed in the Data Selection windows for this page. You may also print out a copy of these specific items (see Appendix A in this section).*

SOIL DATABASE		ADD
Site ID: <b>FM45B001</b>	Country:	SOIL PEDON ID: <b>87P0485</b>
Latitude (deg): <b>06</b> (min): <b>33</b>	Direction (N/S): <b>S</b>	
Longitude (deg): <b>16</b> (min): <b>43</b>	Direction (E/W): <b>E</b>	
Elevation (m): <b>0</b>	Slope: <b>1 %</b>	
SOIL..... Order, Suborder: <b>ALFISOLS</b>	<b>, UDA: TS</b>	
TAXONOMY; Great Group : <b>Paleudalf</b>		
Sub-Group Mod.: <b>Typic</b>		
Texture : <b>very fine</b>		
Mineralogy : <b>kaolinitic</b>		
Reaction :		
Temperature : <b>isohyperthermic</b>		
Moisture Regime :		
Estimated Permeability: <b>moderately rapid</b>		
Soil Drainage : <b>well drained</b>		
Erosion Information : <b>slight</b>	Water Table Depth:            cm	
Annual Air Temperature: <b>C</b>	Annual Total Precipitation: <b>2000</b> mm	
Enter information in form above. Press <Ctrl-W> to save.		

[Esc]=Exit, [F1]=Help

Page: 1/2

### PAGE ONE

In the first page of the Soil Database input form, all data entered with the keyboard are checked for errors. If you do not select data

items from the Data Select window, you must be sure you enter specified names and codes. Do not save the data entered into this page until you have also completed data entry in Page Two (see the next section, "Page Two," for instructions).

### **Soil Pedon ID**

Enter the soil Pedon ID number that has been assigned by the U.S. National Soils Survey Laboratory. If it is not available, enter a unique soil identifier of up to 7 characters.

### **Site ID**

Enter the site ID number assigned by the U.S. National Soils Survey Laboratory. If this is not available, enter the country code where the site is located by doing the following.

1. See Appendix A for instructions on obtaining a list of the country codes. Each code has three digits.
2. Use the spacebar or the right arrow key to move the cursor to the third character position in the soil ID data entry field.
3. Enter the three-digit Country ID code and press the [Enter] key.

### **Country**

Enter the country name where the site is located.

*NOTE: When using the [A]dd function, you cannot enter a country name.*

### **Latitude, Longitude, Direction, Elevation, and Slope**

Enter the geographic position of the site. Enter the elevation of the site, in meters, and the slope, in percent.

### **Soil Taxonomy, Order, Suborder, Great Group**

Data Selection windows are available for these data entries. Enter these data entries with the keyboard or by pressing the [F1] key and selecting an option from the window.

*NOTE: If an entry is made in the "Great Group" data entry field, the program will enter the Order and Suborder of that group. If no entry is made into the "Order" and "Suborder" data entry fields, you will not be able to enter a data item into the "Sub-group Mod." data entry field.*

### **Moisture Regime, Estimated Permeability, Soil Drainage, Erosion Information**

Data Selection windows are available for these data entry fields. Enter the data either with the keyboard or by pressing the [F1] key and selecting an option from the window.

### **Water Table Depth**

Enter the depth of the water table, in centimeters.

### **Annual Air Temperature**

Enter the average yearly air temperature, in Celsius.

### **Annual Total Precipitation**

Enter the average yearly total amount of rainfall per year.



After you have entered all data and all Data Entry windows are closed, press <Ctrl-W> to save the inputted information, including that of Page One.

*NOTE: To save this page to the Soil Database, you must enter not only the "Master Horizon" information, but also data into at least one of the other variables listed in this page.*

### Depth

Enter the depth of each layer, from the surface, in centimeters.

ADD

**SOIL DATABASE**

Master Horizon Kjeldahl N Extr P Extr P method Total Clay Total Silt Walkly-Elack O C KCL Extr Al NH4OAC Base Sat pH, 1:1 Soil-KCL pH, 1:1 Soil-H2O pH, 1:50 Soil-NAFL Bulk Density, O D Bulk Density, 1/3 B	<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Layer (cm)</th> </tr> <tr> <th>Upper</th> <th>Lower</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>15</td> </tr> <tr> <td>15</td> <td>30</td> </tr> <tr> <td>30</td> <td>45</td> </tr> <tr> <td>45</td> <td>60</td> </tr> <tr> <td>60</td> <td>90</td> </tr> <tr> <td>90</td> <td>105</td> </tr> </tbody> </table>	Layer (cm)		Upper	Lower	0	15	15	30	30	45	45	60	60	90	90	105	SOIL PEDON ID: E7P0485  Mg Content Sat. Extr. Elec. Conduct. Ba-Cl Total Potassium Total Coarse Fragments 1/10 Water Clods 1/3 Water Clods 15 Bar Air Dry Soil Soil Structure Soil Consistence Dry Soil Consistence Moist Soil Consistence Other Root Information
Layer (cm)																		
Upper	Lower																	
0	15																	
15	30																	
30	45																	
45	60																	
60	90																	
90	105																	

Carbonate < 2mm  
Carbonate > 2mm

Use cursor keys to highlight desired item. Press [Enter] to enter data.  
Press <Ctrl-W> when done.

[Esc]=Exit, [F1]=Help

Page: 2/2

### Other Variables

Enter into the Data Entry windows, the data for any or all of the variables listed on this page. Please note (see window in above screen) that all data entries for these variables are by the layers designated in "Master Horizon."

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Site ID:	Country:	SOIL PEDON ID:
Range of Latitude (deg:min): [ : ] to [ : ] (N/S):		
Range of Longitude(deg:min): [ : ] to [ : ] (E/W):		
Range of Elevation (meter): [ : ] to [ : ]		
SOIL..... Order, Suborder:		
TAXONOMY; Great Group :		
Sub-Group Mod.:		
Texture :		
Mineralogy :		
Reaction :		
Temperature :		
Moisture Regime :		
Estimated Permeability:		
Soil Drainage :		
Erosion Information :	Water Table Depth: cm	
Annual Air Temperature: C	Annual Total Precipitation: mm	

Enter search criteria in the field displayed above. Press <Ctrl-W> to save. (Blank=All records will be selected)

[Esc]=Exit, [F1]=Help

## SEARCH

You may search for records in the Soil Database by selecting your own search criteria from the variables listed in Page One of the soil entry forms. Press the [S]earch key and the above screen will be displayed. You may choose to enter search criteria from any of the highlighted data fields. Look-up tables for Soil Taxonomy, Moisture Regime, Permeability, and Drainage variables are available by pressing the [F1] key while in these fields.

*NOTE: To use a "Range of Longitude" and "Range of Elevation" as search criteria, you must also enter a "Range of Latitude."*

*NOTE: If the "Soil Pedon ID" is entered as the search criteria, any other entered search field criteria will not be used in the search.*

SURFACE LAYER DATA		SOIL PEDON ID: 87P0482
Master Horizon: AP	P Absorption:	Mg Content Sat Extr:
Kjeldahl N: 0.070	P Absorption Method:	Elec Conduct Ba-Cl:
Extr P :	Dith Cit Extr Fe: 0.3	Total Potassium:
Extr P Method:	Dith Cit Extr Al: 0.1	Total Coarse Fragments:
Total Clay: 7.4	Dith Cit Extr Mn: 0.1	1/10 Water Clods:
Total Silt: 17.5	NH4OAC Extr K : 0.4	1/3 Water Clods: 14.5
Walkly-Black O C: 0.82	NH4OAC Extr Ca: 5.4	15 Bar Air Dry Soil: 11.4
KCL Extr Al:	NH4OAC Extr MG: 0.9	Soil Structure: 1M SBK
NH4OAC Base Sat: 100	NH4OAC Extr Na:	Soil Consistence Dry :
pH, 1:1 Soil-KCL:	Sum of Cats CEC: 9.0	Soil Consistence Moist:FR
pH, 1:1 Soil-H2O: 6.4	NH4OAC CEC: 5.4	Soil Consistence Other:D
pH, 1:50 Soil-NAFL:	Al Saturation:	Root Information: M 3 T
Bulk Density, 0 D : 1.56	Carbonate < 2mm:	
Bulk Density, 1/3B: 1.53	Carbonate > 2mm:	

[M]odify, [D]elete, [P]rev. record, [N]ext record  
 [PgUp]=Page Up, [PgDn]=Page Down

[Esc]=Exit, [F1]=Help, [F2]=Output

Record: 1/1 Page: 2/3

### Data Display

When records are found after a search, the soil data for each Soil Pedon ID will be displayed in three pages. Use the [PgUp] and [PgDn] keys to move from one page to another.

### First Page

The first page of the record will display soil classification information and is similar to Page One of the soil data entry forms displayed when adding information.

### Second Page

The second page of the record will display the soil surface layer data, as shown in the above sample screen.

### Third Page

The third page of the record will display soil characteristics in data windows, by soil layer, as shown in the sample screen which follows.

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## SOIL DATABASE

SOIL PEDON ID: 87P0482

	P Absorption P Absorption Method	Mg Content Sat Extr	
		Layer (cm) Upper-Lower	CEC7
Master Horizon			
Kjeldahl N			
Extr P	Dith Cit Extr Fe		
Extr P Method	Dith Cit Extr Al		
Total Clay	Dith Cit Extr Mn		
Total Silt	NH4OAC Extr K	0 - 20	5.4
Walkly-Black O C	NH4OAC Extr Ca	20 - 38	3.9
KCL Extr Al	NH4OAC Extr MG	38 - 56	4.8
NH4OAC Base Sat	NH4OAC Extr Na	56 - 76	4.8
pH, 1:1 Soil-KCL	Sum of Cats CEC	76 - 101	5.7
pH, 1:1 Soil-H2O	NH4OAC CEC	101 - 123	3.6
pH, 1:50 Soil-NAFL	Al Saturation	123 - 160	2.1
Bulk Density, 0 D	Carbonate < 2mm	160 - 180	0.9
Bulk Density, 1/3B	Carbonate > 2mm		

[M]odify, [D]elete, [P]rev. record, [N]ext record  
 [PgUp]=Page Up, [PgDn]=Page Down

[Esc]=Exit

Record: 1/1 Page: 3/3

## MODIFY

Once a record or records has been found after a search, you may modify or change data BUT only in the first and third pages of the record(s). The above screen displays the third page of a record; note that both the [D]elete and [M]odify keys can be used in this screen. Use the [N] and [P] keys to move from one record to another. To modify data in a record, do the following.

1. Highlight the variable (in the third page) for which you want to make changes and press the [Enter] key. The variable's Data Entry window will be displayed.
2. Press the [M]odify key.
3. Make any changes in the window, and then press <Ctrl-W> while STILL in the window to save your changes. If you press the [Esc] key without first pressing <Ctrl-W> your modifications will not be saved.

## DELETE

Once a record or records has been found after a search, you may delete the record(s) by using the [D]elete function in any of the three pages. Please be aware that you can not delete part of a record; the entire record will be deleted. Use the [N] and [P] keys to move from one record to another. To delete a record, do the following.

1. Press the [D]elete key.
2. A prompt will be displayed asking you to confirm your decision to delete.
3. If you do not want to delete, simply press the [Enter] key. The default response is 'N'.
4. If you do want to delete, enter a 'Y' at the prompt and press the [Enter] key. The entire record will be deleted.

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## SOIL DATABASE

Site ID: FN87	OPTION	SOIL PEDON ID: 87P0482
Latitude	Starting Record [ 1]	CURRENT OPTION
Longitude	Ending Record [ 3]	Record Selection
Elevation		1 to 1
SOIL..... Orde	[1] Full Report	Format is:
TAXONOMY; Grea	[2] Select Fields	FULL Report
Sub-	[3] MPTGRO format	
Text	[4] ENVGRO format	
Mine		Output to :
Reac	[5] Printer	File (ASCII)
Temp	[6] File	387P0482.RPT
Moisture Regim	[7] Printer and File	
Estimated Perm		
Soil Drainage		
Erosion Inform		
Annual Air Tem		

Use [↑] and [↓] to move to the desired option and press [Enter] to select.  
Press <Ctrl-W> when ready to process the output.

[Esc]=Exit

Record: 1/3 Page: 1/3

## OUTPUT

Once a record or records have been found after a search, you may output the record(s) by using the [F2] key. A double-sided window, the sides named respectively, "Option" and "Current Selection," will be displayed with the default values, as shown in the above sample screen. Do the following.

## "Option" Window Selection

*Format Selection.*

1. If more than one record has been found after a search, you may output multiple records by specifying the Starting and Ending Record numbers in the "Option" portion of the window. Use the [↑] and [↓] keys to move to these two fields.

2. Use the highlight bar and press the [Enter] key to select one of the following format selection options for output.

- [1] Select all fields in all records.
- [2] Choose selected fields (see the following subsection entitled "Specify Fields").
- [3] Create an input file for the MultiPurpose Tree Species Growth Model (MPTGro). The fields for this output are preselected and you may not change them.
- [4] Create an input file for the Environmental Model. The fields for this output are preselected and you may not change them.

*Output Selection.*

3. Use the highlight bar and press the [Enter] key to select one of the following output options.

- [5] Send output to the printer.
- [6] Send output as an ASCII file.
- [7] Send output to printer and as an ASCII file.

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FIELD SELECTION			
S	Site ID	Master Horizon	▶NH4OAC Extr Ca
	▶Latitude	Kjeldahl N	▶NH4OAC Extr Mg
	▶Longitude	Extr P	NH4OAC Extr Na
	▶Site Elevation	Extr P Method	Sum of Cats CEC
	Site Slope	Total Clay	NH4OAC CEC
	▶Soil Order	Total Silt	▶Al Saturation
	▶Soil Sub-Order	Walky-Black O C	Carbonate < 2mm
	▶Soil Great Group	KCl Extr Al	Carbonate > 2mm
	Soil Sub-Group modifier	NH4OAC Base Sat	Mg Content Sat Extr
	▶Soil Texture	pH, 1:1 Soil-KCL	Elec Conduct Ba-Cl
	▶Soil Mineralogy	pH, 1:1 Soil-Water	Total Potassium
	Soil Reaction	pH, 1:50 Soil-NAFL	T Coarse Fragments
	Soil Temperature	▶Bulk Density, 0 D	1/10 Water Clods
	▶Moisture Regime	▶Bulk Density, 1/3 B	1/3 Water Clods
	Estimated Permeability	P Absorption	15 Bar Air Dry Soil
	Soil Drainage	P Absorption Method	Soil Structure
	Erosion Information	Dith Cit Extr Fe	Soil Consistence
	Water Table	Dith Cit Extr Al	Soil Consistence Moist
	▶Annual Air Temperature	Dith Cit Extr Mn	Soil Consistence Other
	▶Annual Precipitation	NH4OAC Extr K	▶Root Information

Press [Enter] to mark or un-mark the field. Press <Ctrl-W> when done.

[Esc]=Exit

Record: 1/1 Page: 1/3

**Specify Fields.** When you select [2] as an option in "Format Selection" (see previous section), the above window will be displayed with the default fields selected, as shown above. A small triangular marker, '▶', is displayed to the left of each selected field. To unselect a default field, use the cursor keys to highlight the field and press the [Enter] key. To select any field, use the [↑] and [↓] keys to highlight the field(s) you want and press the [Enter] key for each one. When you have finished, press <Ctrl-W> to save your selections.

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Site ID: FN87	OPTION		SOIL PEDON ID: 87P0482
Latitude	Starting Record [ 1 ]		CURRENT OPTION
Longitude	Ending Record [ 3 ]		Record Selection
Elevation			1 to 1
SOIL..... Orde	[1] Full Report	Format is:	
TAXONOMY; Grea	[2] Select Filed	FULL Report	
Sub-	[3] MPTGRO format		
Text	[4] ENVG FILE NAME		
Mine	[5] Prin	Output file names are reserved for their	
Reac	[6] File	unique Soil Pedon number with 'S' prefix.	
Temp	[7] Prin	Enter file name extension:	
Moisture Regim		S87P0482.RPT	
Estimated Perm			
Soil Drainage			
Erosion Inform			
Annual Air Tem			

Use [4] and [1] to move to the desired option and press [Enter] to select. Press <Ctrl-W> when ready to process the output.

[Esc]=Exit

Record: 1/3 Page: 1/3

### "Current Option" Window Selection

In this side of the output window, the first two fields contain the information you selected in the "Option" window. The "Record Selection" field will change as the records are outputted.

*File Name.* The file name listed in this window is that of the Soil Pedon ID. You must complete the file name by entering an extension. In the example in the above screen, the extension "RPT" has been entered. Since you may want to output the same records and field selections in various formats, it is recommended that you use extensions which reflect these differing formats. Press <Ctrl-W> when you have entered this information. Output files are stored in the Soil Database directory. This location will be displayed on screen.

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SOIL PEDON ID:									
SOURCE	IDPED	IDSIT	LATSTR	LONGSTR	TXORD	TASORD	TXGG	TXSGM	TXTEX
	87P0477	FN875001	1334 N	09942	E A	US	HA	UL	096
	87P0478	FN875002	1058 N	09922	E E	PS	QU	US04	
	87P0479	FN875003	1645 N	10159	E A	US	PA		126
	87P0480	FN875004	1856 N	09902	E A	US	HA		056
	87P0481	FN875005	1330 N	10132	E M	US	PA	OX	056
	87P0482	FN875006	1525 N	09940	E E	FL	US	AA	080
	87P0483	FN580001	0640 N	10025	E U	HU	HA	AA	056
	87P0484	FN580002	0302 N	10142	E E	AQ	FL	TRO4	080
	87P0485	FN458001	0633 S	16 43	E A	UD	PA	AA	134
	87P0486	FN458002	0626 S	10724	E A	UD	PA	AA	134
	87P0487	FN725001	1557 N	12108	E A	US	PA	AA	126
	87P0488	FN725002	1041 N	12448	E A	UD	HA	MO	134
	88P0220	FN862002	2454 N	12134	E I	OC	DY	AA	096

[↑]/[↓]=Up/Down 1 Line, [←]/[→]=Left/Right 1 Screen  
 [PgUp]/[PgDn]=Up/Down 1 Screen, <Ctrl-PgUp>=Top, <Ctrl-PgDn>=Bottom  
 [Esc]=Exit

**BROWSE**

The soil data in the Soil Database can be viewed in their actual storage format by using the [B]rowse function. Do the following.

1. Press the [B]rowse key to see the Browse Menu (shown below).

BROWSE MENU	
Soil Description	
Soil Chemical Analysis	
[Esc]=Exit, [↑],[↓]=Move, [Enter]=Select	

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2. Select, with the highlight bar, one of the two ways of viewing the data.
  - a. If you select "Soil Description," all records in the soil descriptive file will be displayed by Pedon ID in the format shown in the sample screen on the previous page.
  - b. If you select "Soil Chemical Analysis," the soil characteristics of every record, by layer and by depth, will be displayed.

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# Appendix A

## SOIL DATABASE CODES

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### PRINTING THE SOIL DATABASE CODES

The codes for page one of the soil data entry forms can be printed out in hard copy format if you have DBXL, dBASE III Plus, or dBASE IV in your computer.

In the following list of instructions, if you have DBXL, then substitute "DBXL" for the term "DBASE" when you find it in these instructions. Press the [Enter] key after each line. For these instructions, it is assumed that the Soil Database is installed in the hard disk directory, C:\MPTSYS\SOIL.

1. Type **C:**
2. Type **CD\MPTSYS\SOIL**
3. Type **FATH=C:ADBASE**
4. Type **DBASE**
5. Press the [Esc] key a few times until you see the (dot) prompt. (Skip this procedure for DBXL)
6. Type **SET PRINTER ON**
7. Type **USE COUNTRY**
8. Type **LIST**

The country code will be printed. To print the following codes replace "COUNTRY" in step 7 of the instructions with:

- SORDER (for Soil Order codes)
- SUBORDER (for Soil Suborder codes)
- SCSCODES (for all other codes)
- SOILVAR (for field name abbreviations).

When you have finished printing the codes you want,

9. Type **SET PRINT OFF**
10. Type **QUIT**

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## VII. CLIMATE DATABASE

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## CLIMATE DATABASE

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# Chapter 1

## INTRODUCTION

---

### PROGRAM DESCRIPTION

The Climate Database contains climate station information and long-term climate data and provides a readily available source of worldwide climatic data. Data output can be sent to a printer, saved on a disk as a text file or in the form of a parameter file, which can then be input to a weather data generator. The generated weather data can then be used as input to the F/FRED MPTGro Simulation Model or other simulation models.

Each record in the database contains a station code, a climate variable code, and 12 climate data values (one for each month). Records can be retrieved based on climate station characteristics and/or values of selected climate variables.

Currently, the database is distributed with 11 climate variables (see the section in this chapter entitled, "Climate Variables File") - more may be added as required by the user - and 466 climate stations in South East Asia. Over 3000 climate stations worldwide are available from the F/FRED Project. The database consists of a station file for all climate station information; auxiliary files for country and climate variable codes; and data files for the 12 climate data values.

## CLIMATE VARIABLES FILE

The climate variables are stored in a separate auxiliary file. Listed below are the eleven climate variables. Each variable has a two digit code, a variable name, and unit of measure.

<u>Code</u>	<u>Name</u>	<u>Unit</u>
01	RAIN	MM
02	MEAN TEMPERATURE	DEGREES C
03	MAXIMUM TEMPERATURE	DEGREES C
04	MINIMUM TEMPERATURE	DEGREES C
05	VAPOUR PRESSURE	MB
07	WINDSPEED	M/S
08	SUNSHINE	FRACTION
09	GLOBAL RADIATION	CALORIES/SQ CM/DAY
10	PENMAN'S PET	MM
11	DAYTIME TEMPERATURE	DEGREES C
12	NIGHTTIME TEMPERATURE	DEGREES C

## DATA FILES

Each of the twelve monthly values (January to December) for each climate station is stored in a separate data file. That is, each file contains one climate variable. The data files are listed below.

<u>File name</u>	<u>Type of data</u>
CLDATA01.DBF	RAIN
CLDATA02.DBF	MEAN TEMPERATURE
CLDATA03.DBF	MAXIMUM TEMPERATURE
CLDATA04.DBF	MINIMUM TEMPERATURE
CLDATA05.DBF	VAPOUR PRESSURE
CLDATA07.DBF	WINDSPEED
CLDATA08.DBF	SUNSHINE
CLDATA09.DBF	GLOBAL RADIATION
CLDATA10.DBF	PENMAN'S PET
CLDATA11.DBF	DAYTIME TEMPERATURE
CLDATA12.DBF	NIGHTTIME TEMPERATURE

A new data file is created for every climate variable added to the system with the [F]ile function.

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## FUNCTION KEYS

The function keys available in the Climate Database are as follows.

- [A]dd - Enter climate station information
- [S]earch - Specify search criteria using either climate station information and climate variables to locate records.
- [M]odify - Update and change climate station information.
- [D]elete - Remove climate station records and its data from the database.
- [B]rowse - View the contents of database files (station and data) in table form.
- [F]ile - Maintain the country and the climate variables files. Used in conjunction with other function keys to add, modify, or delete countries and climate variables, and reindex the files.
- [R]eindex - Reindex the data files.
- [F2] - Used after the [S]earch function to print or output to a file, the climate station information and its data.
- [1] - Enter climate data.
- [2] - Modify climate data.
- [3] - Delete climate data.

## ACCESS DATABASE

To access the Climate Database, select "F-Climate Database" from the F/FRED Master menu.

*NOTE: If you are using the Climate Database separate from MPTSYS access the program by typing MPT\_CLIM [ENTER] at the DOS prompt.*

# Chapter 2

## CLIMATE DATABASE PROGRAM

---

This chapter describes and explains the screens presented for the Climate Database program.

Highlighted areas on the screens indicate where data may be entered. Press <Ctrl-W> to save all entered data.

*NOTE: If you use the [Esc] key in a page after entering data but before pressing <Ctrl-W>, your entered data will not be saved.*

<b>CLIMATE DATABASE</b>	<b>ADD</b>
Climate Station Information;	
Country Code.....:	
Country Name.....:	
Climate Station Number.:	0
Climate Station Name...:	
WHO Number.....:	00.000
Latitude (deg): -9 (min): -9	Direction (N,S):
Longitude (deg): -9 (min): -9	Direction (W,E):
Elevation (m):	0
Enter information in above form. Press <Ctrl-W> to save.	

[Esc]=Exit

### CLIMATE FORMS

Climate data can be entered in the Climate Database only for stations which are already in the database. In the add option screen shown above, you may enter climate station information.

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**Country Code**

Enter a two-letter code. Specific codes for various countries must be used. Use the [B]rowse function for a listing of these codes.

**Country Name**

Enter the country where the station is located.

**Climate Station Number**

Enter a unique station number (maximum 4 digits).

**Climate Station Name**

Enter the name of the station as it is commonly known.

**WMO Number**

Enter the World Meteorological Organization assigned identification number for this station. Leave blank if unknown.

**Latitude, Longitude and Direction**

Enter the geographical position of the station.

**Elevation**

Enter the elevation of the station above sea level, in meters.

## CLIMATE DATABASE

Climate Station Information;			
Country Code.....:			
Country Name.....:			
Climate Station Number.:	0		
Climate Station Name...:			
WMO Number.....:			
Latitude (deg):	-9 (min): -9	Direction (N,S):	Range: ± 90
Longitude (deg):	-9 (min): -9	Direction (W,E):	Range: ± 180
Elevation (m):	0		Range: ± 9999
Enter search criteria in form above. Press <Ctrl-W> to begin search. [PgUp]=Page Up, [PgDn]=Page Down			

[Esc]=Exit

Page: 1/2

## SEARCH FUNCTION

Two screens for entering search criteria are presented when the [S]earch key is pressed. The above screen is the first one. Press <Ctrl-W> when you have completed your entries in both screens.

**By Station Criteria**

You may search for climate station records in the Climate Database either by selecting climate station criteria or climatic variable criteria. When, however, you enter a climate station number, only that station record will be selected, regardless of any other search criteria you may enter. Entering the country code as a search criterion will select ALL the climate stations in the country.

**Country Code**

Enter a country code. All stations in that country will be selected.

**Station Number**

Enter the number of a station to search for just one station.

**Range**

Enter latitude, longitude, and elevation as well as plus/minus range values to search for all stations within those limits. The default range values displayed in this screen are set at the maximums to select all stations.

*NOTE: By entering latitude, longitude, and elevation along with appropriate ranges for each, the search can be made as wide or as narrow as you desire.*

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## CLIMATE DATABASE

Climate Variables;			
	Unit	Annual Value	Range
RAIN	MM	2000	± 500
MEAN TEMPERATURE	DEGREES C		±
MAXIMUM TEMPERATURE	DEGREES C		±
MINIMUM TEMPERATURE	DEGREES C		±
VAPOUR PRESSURE	MB		±
WINDSPEED	M/S		±
SUNSHINE	FRACTION		±
GLOBAL RADIATION	CALORIES/SQ CM/DAY		±
PENMAN'S PET	MM		±
DAYTIME TEMPERATURE	DEGREES C		±
NIGHTTIME TEMPERATURE	DEGREES C		±

Enter search criteria in form above. Press <Ctrl-W> to begin search.  
 [PgUp]=Page Up, [PgDn]=Page Down

[Esc]=Exit

Page: 2/2

**By Variable Data Criteria**

Search for stations with certain climatic characteristics by using the second page of the search option, as shown in the above screen.

The screen lists the variables in the database and their units of measurement, and for each, search criteria can be entered by annual value and range. The screen above shows a search for weather stations with annual rainfall between 1500 and 2500 mm.

**Annual Value**

Enter the annual value for each variable. This value is an average of the twelve monthly values, except for RAIN, which is calculated as the total of the twelve monthly values.

**Range**

Enter a plus/minus range value for each variable. The range determines the upper and lower limits of acceptable data values. If the annual value is entered and the range is left blank, only those records with data values that exactly match the annual value will be retrieved.

*NOTE: If you do not wish to have the program search by variable data, leave these data entry fields blank.*

Climate Station Information;		CLIMATE DATA	
Country Code.....: NP		RAIN	
Country Name.....: NEPAL		MM	
Climate Station Number.: 144		JAN	48 *
Climate Station Name...: DADELHURA		FEB	39 *
WMO Number.....: 44.404		MAR	53 *
Latitude (deg): 29 (min): 18 Direction (N,S): N		APR	40 *
Longitude (deg): 80 (min): 35 Direction (W,E): E		MAY	57 *
Elevation (m): 1865		JUN	206 *****
		JUL	351 *****
		AUG	305 *****
		SEP	179 *****
		OCT	60 **
		NOV	17
		DEC	24
		*=29	Page: 1/11
Station: [M]odify, [D]elete, [N]ext record, [P]revious record			
Data: [1]=Add, [2]=Modify, [3]=Delete, [PgUp]=Page Up, [PgDn]=Page Down			

[Esc]=Exit, [F2]=Output

Record: 1/466

## RECORD DISPLAY

A successful search displays the retrieved records one at a time, showing climate station information and its data. The data are displayed in a window, as shown in the above screen, in both numeric and graphic form. The approximate value of each '\*' is shown in the lower left corner of the data window. The value of the '\*' is optimized to use the full range of the display so its value will change from variable to variable as well as from station to station. The primary use of the graphic display is for visual comparison of climate patterns. Use the numeric display to compare the magnitude of the values.

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## FUNCTION KEYS

Function key options for records are displayed at the lower part of the screen and are divided into station options and data options.

### Station Options

The station options are [M]odify, [D]elete, [N]ext record, and [P]revious record. The record (station) counter is in the lower right corner of the screen. Pressing [N] and [P] will display the stations but will leave the variable being displayed unchanged. This allows comparison of a variable, e.g., RAIN, between stations.

### Data Options

The data options are [1]=Add (if the data window displays no data) or [2]=Modify and [3]=Delete (if the data window displays data as shown above). The [PgUp] and [PgDn] keys are used to display the data for different variables in the data window for the current climate station. This allows you to scan all the data for a particular station. The page (variable) counter is in the lower right corner of the data window.

Climate Station Information;		CLIMATE DATA
Output Options	12 INDIA (PART 2)	MINIMUM TEMPERATURE DEGREES C
ASCII File	221 MADRAS (MINAMBAK)	JAN 20.3 *****
SIMMETEO Input File	Current Settings	FEB 21.1 *****
Print Current Record	ASCII File	MAR 23.1 *****
Specify Record Range	RECORDS: 3 TO 3	APR 26 *****
Printer	File	MAY 27.8 *****
File	FILENAME: CLIMFILE.DAT	JUN 27.6 *****
Printer & File		JUL 26.3 *****
[1],[4] [Enter]=Select		AUG 25.8 *****
		SEP 25.4 *****
		OCT 24.4 *****
		NOV 22.5 *****
		DEC 21 *****
		*=2.3 Page: 4/11
Select output options above. Press <Ctrl-W> to start.		

[Esc]=Exit

Record: 3/466

## OUTPUT

After a successful search, you may output records either to a printer or a file. When the [F2] key is pressed, the above screen will be displayed. The default output sends the current record information to the printer. Press <Ctrl-W> if this is what you want; or use the output options to create customized outputs.

### Output Options

These options control the type of disk file to be created, the record(s) included in the output, and the destination(s) of the output. Select the "Output Options" you want by using the highlight bar and pressing the [Enter] key. For example, you may choose to output the climate station record data to an "ASCII File" or as a "SIMMETEO Input File." Choose "Specify Record Range" to enter the starting and ending record numbers. Choose "File" or "Printer & File" to enter the output filename. The default output filename is CLIMFILE.DAT.

*NOTE: The SIMMETEO Input File is designed for use with SIMMETEO (SIMulation of METEOrological variables), a weather model that produces daily values based on an input of monthly averages. The model is being developed in conjunction with Shu Geng, Department of Agronomy and Range Science, University of California, Davis, CA 95616.*

### **Current Settings**

In this window, enter the starting and ending record number(s) you want to output. In the sample screen, only one record, #3, has been selected for output (see previous page).

Enter a name for the file, up to a maximum of 8 characters for the filename and 3 characters for the extension. You may use the default filename, CLIMFILE.DAT.



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## VIII. SPECIES DIGEST

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## SPECIES DIGEST

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# Chapter 1

## INTRODUCTION

---

### PROGRAM DESCRIPTION

The Species Digest enables quick access to the characteristics of various multipurpose tree species. The information contained in the database include environmental factors that affect growth, observed silvicultural characteristics, and expected products and suitable uses.

### DATA ENTRY SCREENS

The Species Digest has three data entry screens corresponding to the three pages that comprise each database record. Entering data into three screens completes the record for a species.

### DATA SELECTION WINDOWS

In the first data entry screen of a species digest, data selection windows are available to facilitate data entry, as shown in the screen. In the [A] dd mode, these windows contain a list of data entry options.

### DATA TYPES

There are three types of data fields, the species field, the range field, and the string field.

The species field will accept a string of characters entered using the keyboard. The species field has a pick list (available in search and add modes) which can be activated by pressing <Ctrl-Home>. The "<Ctrl-Home>=Pick List" message appears at the bottom of the screen

<b>SPECIES:</b>		<b>ENVIRONMENTAL FACTORS</b>	
ALTITUDE (m) :	to		
RAINFALL			
Mean Annual (mm) :	to	<b>Rainfall Regime</b> winter ..... 0 summer ..... 0 uniform ..... 0 bimodal ..... 0 Enter a 0, 1, or 2.	
Regime :			
Dry Season (number of months) :	to		
TEMPERATURE			
Mean Max (hottest month) :	to		
Mean Min (coldest month) :	to		
Mean Annual (C) :	to		
SOIL			
Texture :			
Reaction :			
Drainage :			
Other :			
Enter information and press <Ctrl-W> to save.			
[PgDn]=Next Page [PgUp]=Previous Page			

[ESC]=Exit [F1]=Help <Ctrl-Home> =Pick List

Page : 1/3

## FUNCTION KEYS

The function keys available in the Species Digest are as follows.

- [A]dd - Enter species information
- [S]earch - Specify criteria to locate records
- [M]odify - Update and change information in a record which resides in database
- [D]elete - Remove records from database
- [B]rowse - Look at the data in the files
- [F1] - Display information about options
- [F10] - Recreate the index files used to keep the data sorted alphabetically.
- [F2] - Print one or more records
- <Ctrl-Home> - Display the list of species

## ACCESS DATABASE

To access the MPTS Species Digest, select "E - SPECIES DIGEST" from the F/FRED Master Menu.

*NOTE: If you are using the Species Digest separate from MPTSYS, access the program by typing "MPT\_SPP [ENTER]" at the DOS prompt.*

## Chapter 2

# SPECIES DIGEST DATABASE PROGRAM

This chapter describes and explains the three screens presented for the Species Digest program.

Highlighted areas on the screens indicate where data may be entered. Press <Ctrl-W> to save all entered data.

SPECIES DIGEST		ADD
SPECIES:		
----- ENVIRONMENTAL FACTORS -----		
ALTITUDE (m):		to
RAINFALL		
Mean Annual (mm):		to
Regime:		
Dry Season (number of months):		to
TEMPERATURE		
Mean Max (hottest month):		to
Mean Min (coldest month):		to
Mean Annual (C):		to
SOIL		
Texture:		
Reaction		
Drainage:		
Other:		
Enter information and press <Ctrl-W> to save.		
[PgDn]=Next Page [PgUp]=Previous Page		

[Esc]=Exit [F1]=Help <Ctrl-Home>=Pick List

Page 1/3

### PAGE ONE - Environmental factors

The above sample screen is the first page of the Species Digest Database.

#### Species

The species name including sub-species, type, variety etc.

#### Rainfall (mean annual)

The range of annual precipitation.

#### Rainfall regime

The types of rainfall distribution (up to four). Options include winter, summer, uniform, and bimodal.

### Dry Season

The range of number of dry months in one year.

### Mean maximum temperature

The range of average minimum temperature during the hottest month.

### Mean minimum temperature

The range of average minimum temperature during the coldest month.

### Mean annual temperature

The range of average annual temperature.

### Soil texture

The types of soil texture (up to three). Options include light, medium, and heavy.

### Soil reaction

The types of soil reaction (up to three). Options include alkaline, neutral, and acid.

### Soil drainage

The types of soil drainage (up to four). Options include free draining, moist, impeded, and seasonally waterlogged.

### Other soil characteristics

Other soil characteristics that affect growth (up to six). Options include shallow, deep, fertile, saline, adaptable, and poor/infertile.

## SPECIES DIGESTS

## SEARCH

SPECIES:		----- SILVICULTURAL CHARACTERISTICS -----	
TREE SIZE (m):	to	<div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p style="text-align: center;">&lt; Tree Form &gt;</p> <p>exceptional . . . 0</p> <p>good . . . . . 0</p> <p>acceptable . . . 0</p> <p>poor . . . . . 0</p> <p>variable . . . . 0</p> <p style="text-align: center;">Enter a 0, 1, or 2.</p> </div>	
TREE FORM:			
LIGHT REQUIREMENTS:			
OTHER SILVICULTURAL CHARACTERISTICS:			
PRODUCTION POTENTIAL (m3/ha/yr):	to		
TIMBER DENSITY (specific gravity):	to		
Enter search criteria. Press <Ctrl-W> to begin searching.			
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[Esc]=Exit [F1]=Help <Ctrl-Home>=Pick List

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## PAGE TWO - Silvicultural Characteristics

### Tree size

The range of expected tree height.

### Tree form

The types of tree forms (up to five). Options include exceptional, good, acceptable, poor and variable.

### Light requirements

The types of light conditions/requirements (up to four). Options include strong demanding, moderately demanding, shade tolerant, and shade tolerant in youth.

### Other Silvicultural characteristics

Types of silvicultural characteristics (up to 9). Options include coppices/root suckers, fire resistant, frost resistant, termite resistant, drought hardy, requires wide spacing, fixes nitrogen, windfirm, tolerates salt winds, and regenerates rapidly.

### Production potential

The range of production, in cubic meters per hectare per year.

### Timber density

The range of wood density (specific gravity).

## SPECIES DIGEST

## SEARCH

SPECIES: Dalbergia sissoo Roxb.

----- PRODUCTS AND USES -----

LAND USE:

erosion control, dune/soil stabilization, agroforestry

SAWTIMBER:

furniture, carpentry/joinery, miscellaneous

ROUNDWOOD:

transmission poles, posts, fuel/charcoal, veneer/plywood, miscellaneous

OTHER PRODUCTS:

fodder, honeyflora

[M]odify [D]elete [N]ext Record [P]revious Record

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[Esc]=Exit [F1]=Help [F2]=Print

Record: 1/1 Page 3/3

## **PAGE THREE - Products and Uses**

### **Land uses**

The types of land uses (up to 10). Options include shade and shelter, agriculture shade, windbreaks, erosion control, dune/soil stabilization, agroforestry, land reclamation, soil improvement, ornamental, miscellaneous.

### **Sawtimber**

The types of uses for the sawtimber (upto 9). Options include heavy construction, light construction, boxes crates etc., furniture, boat building, carpentry/joinery, railway/sleepers, and miscellaneous.

### **Roundwood**

The types of uses for the roundwood (up to 9). Options include transmission poles, building poles, piling, posts, fuel/charcoal, shortfiber pulp, longfiber pulp, veneer/plywood, turnery, and miscellaneous.

### **Other products**

The types of other products (up to 9). Options include resins, tannins, fodder, oils, gums, medicinal products, honeyflora, edible fruits/seeds, and miscellaneous.

The Forestry/Fuelwood Research and Development (F/FRED) Project is designed to help scientists address the needs of small-scale farmers in the developing world for fuelwood and other tree products. Funded by the U.S. Agency for International Development under a cooperative agreement with Winrock International, the project provides a network through which scientists exchange research plans, methods, and results. Research and development activities center on the production and use of trees that meet the household needs of small farmers.

F/FRED is implemented by the Winrock International Institute for Agricultural Development, a private, non-profit U.S. organization working in agricultural development around the world. It was established in 1985 through the merging of the Agricultural Development Council, the International Agricultural Development Service, and the Winrock International Livestock Research and Training Center. Winrock's mission is to reduce hunger and poverty in the world through sustainable agricultural and rural development. Winrock helps people of developing areas to strengthen their agricultural research and extension systems, develop their human resources, institute appropriate food and agricultural policies, manage their renewable resources, and improve their agricultural production systems.

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