CRSP DATA BASE
INSTRUCTIONS FOR DATA ENTRY

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The Pond Dynamics/Aquaculture Collaborative Research Support Program is an international community of researchers and institutions dedicated to strengthening health and nutrition in developing countries by improving the efficiency of pond aquaculture systems. The Pond Dynamics/Aquaculture CRSP is supported by a grant from the U.S. Agency for International Development (AID Grant No.: DAN-4023-G-SS-2074-00) and by contributions from the participating institutions.

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INTRODUCTION

This document presents Edition 1.1 of instructions for entering standardized field data from the CRSP global experiment into the central Data Base Management System (DBMS) maintained by the CRSP Program Management Office (PMO). Edition 1.1 reflects the changes in Version 1.0 requested at the 1986 CRSP meeting held at Lake Arrowhead, California. Version 1.0 should not be used.

The DBMS is composed of three elements; data reporting, file management, and information retrieval. Instructions for file management and information retrieval will be published separately.

Field data are reported to the PMO by the several CRSP projects using commercially available software. Software options are described below. The spreadsheet files received from the projects are modified by the PMO and are read directly into the DBMS using RBASE 5000 on a microcomputer. The RBASE files are then moved from the microcomputer to a mainframe computer using a local area network.

The DBMS provides numerous options for data retrieval. Users may process data on personal computers using any of several programs including RBase 5000. Magnetic tape files for mainframe and mini-computers are available in virtually any format specified by the user. Direct access to the mainframe computer via various telecommunications is another alternative.

The selection of reporting options depends on the computer hardware to be used and the desires of projects to accomplish statistical analyses outside of the centralized CRSP data synthesis function. Four options are described below; the PMO has prepared data reporting templates for Options 1, 2, and 3.

Option 1. LOTUS 1-2-3 for use on IBM or IBM-Compatible PCs

This option provides rapid data entry onto spreadsheets and additionally permits substantial analysis of data limited only by the capabilities of the computer system employed.

Option 2. MULTIPLAN for use on Apple IIe

This option provides for simple, rapid data entry. However, unless the computer has been substantially expanded, data entry utilizes all available RAM and consequently there is no opportunity for data analysis.

Option 3. MULTIPLAN for use on IBM or IBM-Compatible PCs

This option also provides for simple, rapid data entry. However, the lack of graphics and slower speed of operation makes this option less suitable for data analysis than LOTUS.

Option 4. Projects may elect to report data on any other program written for either the Apple IIe or the IBM PC which can output a text file which can be read by the PMO computer systems. In this case the projects will be responsible for developing their own templates and assuring that they are consistent with the templates offered by the Program Management Office under Options 1, 2 or 3 above. Contact the PMO for further information.

INSTRUCTIONS FOR DATA ENTRY

BEFORE YOU BEGIN:

1. Make a backup copy of the TEMPLATE DISK you have received. (Use your operating system to make the copy. Remember to be sure the original is "write-protected"!)

2. Please review the CRSP Work Plans once again--especially sections dealing specifically with the frequency and type of measurements which are called for.

3. Please familiarize yourselves with the spreadsheet program which you will be using. If you have not previously used a spreadsheet, don't worry--they are easy to work with. If you can not get the spreadsheet to work no matter what you do, read the manual.

GENERAL:

Twelve templates have been developed for use in data reporting and are saved onto the TEMPLATE DISK. The templates are arranged in approximately the same order as the Third CRSP work plan. Although the PMO would have preferred fewer templates, memory limitations on many of the Project's Apple IIe computers would not allow substantial consolidation. The templates and their file names are as follows:

	TITLE	FILE NAME
A.	Daily Weather Measurements	WEATHER
B.	Daily Pond Measurements	DAYPOND
C.	Miscellaneous Observations Including Fish Health	MISCELL
D.	Weekly and Twice-Weekly Measurements	WEEKLY
E.	Diurnal Measurements	DIURNAL
F.	Fish/Shrimp Stocking, Sampling, and Harvesting	FISH
G.	Plankton and Benthos	PLANKTON
H.	Water Quality Characteristics	WATERQ
I.	Pond Soil Characteristics	SOIL
J.	Pond Morphometrics	MORPH
K.	Analysis of Nutrients and Lime	NUTRIENT
L.	Nutrient and Lime Inputs	INPUTS

Printouts of these templates are contained in Appendix C. Their organization is similar to that of the paper forms you might use for collecting data in the field or lab. In most cases you will not see the entire template

on the screen at one time, but will have to scroll down or to the right (or both) to see the rest of it and to enter data.

All characters or symbols in the titles which appear on the screen when you load a template (those which appear in print on the attached printouts) are "locked" or "write-protected" -- that is you cannot make entries over them, or inadvertently erase or change them. If you try to change one of the cells containing the titles, the computer will just "beep" at you.

Along with the column headings on each template we have included two bits of information which might be helpful to you. One is a reminder of the units which are to be used in reporting the data, e.g. "mg/l" or "deg C", and the other is an indicator of the precision to which measurements should usually be made--for example (xxx) indicates that the measurement will usually be a whole number with up to three digits.

If you do not have data for a given cell or column, please leave that cell or column BLANK--do NOT put in any symbol or a zero to indicate that the data is unavailable.

Include as many complete periods (i.e, days, weeks or months) of information as you wish in any one data file, but do not push the memory capability of your computer or allow the data set to be larger than one diskette can hold. Start a new template when you need to record more data than you have room for on the first one.

It is essential that each line of data include the identifying columns. These columns are Site, Date, Pond and Time (for dissolved oxygen and diurnal measurements). If these identifiers are not included, the data will probably be unusable. It is also very helpful if Experimental Cycle and Season are indicated.

INSTRUCTIONS FOR INDIVIDUAL TEMPLATES

A. WEATHER (Daily Weather Measurements)

Use this template to record daily weather data. Note that the Data Synthesis Team (DST) is asking you to record this data by CALENDAR YEAR (six month periods if you are using an APPLE IIe with only 128K), rather than by experiment. Please note these additional points:

--Codes for "Site," "Exp Cycle," and "Season" should be taken from the code lists attached in Appendix A.

--When entering dates, please enter a complete four-digit value for the year (i.e., enter "1986", rather than "86").

--"Evaporation" was not specified in the Work Plan as a value to be reported on a daily basis. However, since you must measure it on a daily basis in order to calculate the overall evaporation value for each experiment (specified in the Work Plans as an "occasional" measurement), the DST is asking that you record those daily measurements on this template.

B. DAYPOND (Daily Pond Measurements)

Use this template to record your daily pond depths. Note that you are asked for pond depths only to the nearest centimeter, rather than to the nearest half-centimeter as specified in the Work Plan. In addition, the DST would like you to record the following information:

--"Water Inflow" If water was added to a pond by farm staff (not by the rain), record Y (yes). If water was not added, enter N (no). This information will be used in water budget studies, and replaces information asked for as "Hydrologic Characteristics" in the Work Plans.

--"Pond Overflow?" If the pond overflowed because too much water was added to the pond by the staff, the answer is "yes" so enter a Y. If the answer is "no," enter an N.

--Please enter the "Number of Dead Fish/Shrimp" which were observed in each pond on the date in question, then enter the appropriate "Species Code," using the code lists attached to these instructions. This mortality information is optional. If more than one species has died, use more than one data line. Ensure that the identifiers (i.e, site, experimental cycle, season, date and pond number) are on each line.

--"Salinity" measurements, although not specifically mentioned in the second and third Work Plans, should be continued, at least for the brackish-water experiments.

C. MISCELL (Miscellaneous Observations Including Fish Health)

This template provides a place to record miscellaneous observations about any of the ponds. The only observation of this type specifically asked for in the Work Plans is the "Fish Health" observation, which was requested as a part of the monthly records of fish sampling, but you may have additional observations to record. (Note: MULTIPLAN users on the APPLE IIe will have to use the "continuous" format to record observations longer than 32 characters - see your MULTIPLAN manual for details)

D. WEEKLY (Weekly and Twice-Weekly Measurements)

Use this template to record data that you collect on a weekly or twice-weekly basis. For those items to be collected twice per week (secchi disk readings and chlorophyll readings), there will be two data lines for each week. Note that the Work Plan for the third experimental cycle no longer calls for any twice-weekly measurements. Please include only <u>complete weeks</u> of data.

--In order to minimize confusion which might result from reports which contain more data than is required or data which is listed as optional by the work plans, an "Extra Data?" column has been included in this template. For each row, enter a Y if the data is required or listed as optional by the work plan. If the data is extra (i.e., observations that are not requested or suggested in the Work Plans), enter an N . Do not mix required and optional data on the same line with extra data.

--Please enter the time at which your D.O. samples were taken in the "D.O. Sample Time" column.

--Under "Oxygen," "Pond Temp," "Max Temp," and "Min Temp", "top" refers to 25 cm below the water surface, "mid" refers to midwater, and "bot" refers to 25 cm above the pond bottom.

--"Max Temp" and "Min Temp" are the "Pond Temperature Extremes" specified in the Work Plan.

--"Alka" (alkalinity), "T. Hard" (total hardness), "Ammonia N," "NO3-N (nitrate N)," "Total P" (total phosphorus) and "Ortho PO4-P" (dissolved orthophosphate P) were not weekly measurements in the first and second Work Plans, but are in the third. (Leave blanks as necessary in reports on work done in the first and second experimental cycles.)

--"Ammonia N" is the "Ammonia Nitrogen" measurement required by the Work Plan. The values measured and reported should include both forms of Ammonia (NH3 and NH4).

--Note that columns for "NO2-N" (nitrite N) and "Total NO2&3-N" (nitrite plus nitrate N) have been added to the template, as per decisions made at the 1986 CRSP annual meeting.

--For "S. Disk" (Secchi Disk Visibility) measurements, "A" and "B" are the two locations for each pond.

--Chlorophyll "b" and "c" are not required for freshwater experiments.

E. DIURNAL (Diurnal Measurements)

This template is used to record all of the diurnal data for one day (data collected from the ponds throughout one day). While diurnal measurements were to be done on a monthly basis for the first two experimental cycles, during the third cycle they are done every two weeks ("even-week measurements"). Please record only complete days of data.

--Please enter the "Time" as a four-digit number without a colon (twenty-four hour clock); for example, enter "1645" rather than "4:45pm". Do not use the time function if you are using LOTUS 1-2-3 Version 2. Don't worry about your spreadsheet dropping the leading zeros of times before 1000 (for example, although you may type "0530", your spreadsheet will show it as "530").

--Notes pertaining to "top," "mid," and "bot" measurements for "Weekly Measurements" (Template D) also apply to diurnal measurements.

F. FISH (Fish Stocking, Sampling, and Harvesting)

This template is to be used for recording data about stocking, sampling, and harvesting of the fish (or shrimp)--data described under "Monthly Measurements" and "Occasional Measurements" in the Work Plans.

--Please indicate in the "Activity Code" column whether your data pertains to stocking, sampling, or harvesting activities. Use the abbreviations "Stk," "Sam," and "Har", respectively.

--Again, please indicate which species you are dealing with by entering a "Species Code" taken from the attached list of codes. If you find it necessary to report on a species which is not listed, please contact the DST for a code number. Please do not assign your own code numbers to additional species.

--"Whole Population" refers to <u>all</u> of the animals of the indicated species which were stocked into or harvested from the pond. Under "Sample Weight" and "Sample Length," columns are provided for the number of individuals in the sample, the mean values, and for the standard deviations. Samples can be collected at any time including stocking and harvest. In regard to "Reproduction," you are asked to record "Weight," in kilograms, in one column, and "Number" (of individuals) in a separate column.

G. PLANKTON (Plankton and Benthos)

Use this template to report on "Primary Productivity," Phytoplankton Composition," "Zooplankton Composition," and "Benthos Composition." These are discussed in the Work Plans as <u>monthly</u> measurements. Please save only <u>complete</u> months' worth of data in any DATA FILE. Use the codes 1, 2, and 3 to indicate whether the specified groups of organisms are "rare," "common," or "abundant," respectively. Refer to the attached list of codes if in doubt.

H. WATERQ (Water Quality Measurements)

This template is for recording water quality data from samples which are collected at the beginning of each experiment and again at the end of the experiment. Note that, as with the template for "Weekly" measurements, additional columns have been provided for "NO2-N" and "Total NO2&3-N".

I. SOIL (Pond Soil Measurements)

This template is to be used for recording data from soil samples taken at the end of each experiment--after the pond is drained and before filling it to start a new experiment.

J. MORPH (Pond Morphometrics)

Use this template to record the area and volume of each pond for each depth listed. If a pond's depth exceeds 100cm, follow the given format and record area and volume for each additional 10-cm depth increment.

K. NUTRIENT (Analysis of Nutrients and Lime)

The Work Plans ask that you have the various limes and fertilizers that you use analyzed. Please use this template to record the results of those analyses. The "Codes" should be taken from the attached lists. If you have used a nutrient for which no code is given, please use a temporary <u>letter</u> code starting with T until the DST can assign a new code for that nutrient. Report each of the following as a <u>percentage of dry matter</u>: N, P, K, Organic C, and S. Sulfur is an optional measurement which can be important in areas with acid sulphate soils.

L. INPUTS (Nutrient and Lime Inputs)

This template provides space for you to record data on the Nutrient Inputs which you have made, including "Feed," "Manure," "Inorganic" (fertilizer), and "Lime." Refer to the attached code lists for the appropriate codes for feed, manure, inorganic, and lime "types."

HOW TO NAME FILES

Each DATA FILE that you save should be given a filename consisting of an 8-character letter/number combination made up in the following way:

First character: enter a single letter designating which site you are working at. Use the letter given for your site listed in Appendix A.

Second character: enter a single letter indicating which template you are using (i.e. what type of report is contained in the data file). Use the following letters for the templates:

TEMPLATE FILENAME	LETTER
WEATHER	A
DAYPOND	B
MISCELL	C
WEEKLY	D
DIURNAL	E
FISH	F
PLANKTON	G
WATERQ	H
SOIL	I
MORPH	J
NUTRIENT	K
INPUTS	L

The appropriate letter is also given in the title on each of the templates, so that you won't have to look it up each time you are ready to save a DATA FILE.

Third through eighth characters: enter a six-digit number showing the first date on which data in this file were collected. This will be the date on the first line of data in the file. The date must be entered with the day first, month second, and year last. The day, month, and year should each be expressed as 2-digit numbers with no spaces between them.

Properly-entered filenames for DATA FILES will look like this:

AA010186 (for Aguadulce, daily WEATHER file beginning on 1 January, 1986), or

EB271183 (for Bogor, DAYPOND file beginning on 27 November, 1983).

APPENDIX A - CODE LISTS [a)]

SITE CODES:

Aguadulce (Panama)	= A
Gualaca (Panama)	= B
Ayutthaya (Thailand)	= C
Nong Sua (Thailand)	= D
Bogor (Indonesia)	= E
Comayaga (Honduras)	= F
Iloilo (Philippines)	= G
Butare (Rwanda)	= H

EXPERIMENTAL CYCLE CODES:

First Experimental Cycle	= 1
Second Experimental Cycle	= 2
Third Experimental Cycle	= 3
Between Experimental Cycles	= 0

SEASON CODES:

Dry Season	= D
Wet Season	= W
Between Seasons	= B

WATER INFLOW QUESTION CODES:

If water was added to pond ("yes")	= Y
IF water was not added ("no")	= N

POND OVERFLOW QUESTION CODES:

If pond <u>did</u> overflow ("yes")	= Y
If pond <u>did</u> <u>not</u> overflow ("no")	= N

ACTIVITY CODES:

Stocking	= STK
Sampling	= SAM
Harvesting	= HAR

a) Please do not assign your own codes. Check with the PMO for additional codes, if needed. You may assign a temporary code starting with a T while waiting for the PMO to give you a permanent code.

FISH/SHRIMP SPECIES CODES:

Oreochromis ("Tilapia") niloticus	= nil
Oreochromis ("Tilapia") hornorum	= hor
O. niloticus X O. hornorum hybrids	= nxh
Chanos chanos	= cha
Penaeus vannamei	= van
Penaeus stylorostris	= sty
Penaeus monodon	= mon

PLANKTON ABUNDANCE CODES:

If a group is "rare"	= 1
If a group is "common"	= 2
If a group is "abundant"	= 3

NUTRIENT AND LIME CODES

Feed Types [b]	
Feed Type 1	= FD1
Feed Type 2	= FD2
Manure	
Chicken	= CHICK
Duck	= DUCK
Pig	= PIG
Cattle	= COW
Horse	= HORSE
Inorganic Fertilizer	
Triple Superphosphate	= TSP
Urea	= UREA
Lime	
CaCO3	= CaCO3
CaMg(CO3)2	= CaMg

b) Use FD1 to indicate the first type of feed that you use. Use further codes (FD2, FD3, etc.) only if you change feeds. Once you have assigned a code to a type of feed, the code cannot be used for another feed.

APPENDIX B - TEMPLATES

DAILY WEATHER MEASUREMENTS (Template Code = A)

SITE	EXP CYCLE	SEA SON	DATE DAY	DATE MONTH	DATE YEAR	SOLAR RADIATION E/m2/d	SOLAR RADIATION cal/cm2/d	RAIN cm/d	MEAN WIND km/hr	AIR TEMP MAX. deg C	AIR TEMP MIN. deg C	EVAPORATION mm/d
			XX	XX	XXXX	XX.XX	XXXXXX	XX.X	XX	XX.X	XX.X	XX

DAILY POND MEASUREMENTS (Template Code = B)

SITE	EXP CYCLE	SEA SON	DATE DAY	DATE MONTH	DATE YEAR	POND	POND DEPTH m	WATER INFLOW?	POND OVER-FLOW?	NUMBER OF DEAD FISH/ SHRIMP	SPECIES CODE	SALINITY ppt
			XX	XX	XXXX		X.XX	Y or N	Y or N			XX

MISCELLANEOUS OBSERVATIONS INCLUDING FISH HEALTH (Template Code = C)

SITE	EXP CYCLE	SEA SON	DATE DAY	DATE MONTH	DATE YEAR	POND	WRITE OBSERVATIONS IN THIS COLUMN. USE MORE THAN 1 LINE IF NECESSARY. INCLUDE "IDENTITY" INFORMATION ON EACH LINE.
			XX	XX	XXXX		

WEEKLY AND TWICE WEEKLY MEASUREMENTS (Template Code = D)

SITE	EXP CYCLE	SEA SON	DATE DAY	DATE MONTH	DATE YEAR	EXTRA DATA?	POND	D.O. SAMPLE TIME	OXYGEN TOP mg/l	OXYGEN MID mg/l	OXYGEN BOT mg/l	POND TEMP. TOP deg C	POND TEMP. MID deg C	POND TEMP. BOT deg C	MAX TEMP TOP deg C	MAX TEMP BOT deg C	MIN TEMP TOP deg C	MIN TEMP BOT deg C
			XX	XX	XXXX	Y or N		XXXX	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X

ALKA mg/l CaCO3	T.HARD mg/l CaCO3	pH	KJELDAHL N mg/l	AMMONIA N mg/l	NO2-N mg/l	NO3-N mg/l	TOTAL NO2&3-N mg/l	TOTAL P mg/l	ORTHO PO4-P mg/l	S.DISK A cm	S.DISK B cm	CHLOROPHYLL a mg/m3	CHLOROPHYLL b mg/m3	CHLOROPHYLL c mg/m3
XXX	XXX	XX.X	X.XX	X.XX	X.XX	X.XX	XX.XX	X.XX	X.XX	XX	XX	XXXX	XXXX	XXXX

DIURNAL MEASUREMENTS (Template Code = E)

SITE	EXP CYCLE	SEASON	DATE DAY	DATE MONTH	DATE YEAR	TIME OF DAY	POND	OXYGEN TOP mg/l	OXYGEN MID mg/l	OXYGEN BOT mg/l	POND TEMP. TOP deg C	POND TEMP. MID deg C	POND TEMP. BOT deg C	pH
			XX	XX	XXXX	XXXX		XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X

FISH/SHRIMP STOCKING, SAMPLING AND HARVEST (Template Code = F)

SITE	EXP CYCLE	SEASON	DATE DAY	DATE MONTH	DATE YEAR	POND	ACTIVITY CODE	SPECIES CODE	WHOLE POPULATION WT.(kg)	WHOLE POPULATION No.	SAMPLE WEIGHT (g) MEAN	SAMPLE WEIGHT (g) No.	SAMPLE WEIGHT (g) S. DEV	SAMPLE LENGTH (cm) MEAN	SAMPLE LENGTH (cm) No.	SAMPLE LENGTH (cm) S. DEV	REPRODUCTION WT.(kg)	REPRODUCTION No.
			XX	XX	XXXX				XXXX.X		XXX		XXX.X	XX.X		XX.XX	XXX.X	

PLANKTON AND BENTHOS (Template Code = G)

SITE	EXP CYCLE	SEASON	DATE DAY	DATE MONTH	DATE YEAR	POND	PRIMARY PRODUCT. mg C/m3/d	RELATIVE PHYTOPLANKTON ABUNDANCE BLUE-GREEN	GREEN	DIATOM	OTHER	RELATIVE ZOOPLANKTON ABUNDANCE ROTIFERA	CLADOCERA	COPEPODA	OTHER	RELATIVE BENTHOS ABUNDANCE MOLLUSCA	INSECTA	DECAPODA	OTHER
			XX	XX	XXXX		XXXXX												

WATER QUALITY MEASUREMENTS AT START AND END OF EACH EXPERIMENT (Template Code = H)

SITE	EXP CYCLE	SEASON	DATE DAY	DATE MONTH	DATE YEAR	POND	ALKA. mg/l CaCO3	T.HARD mg/l CaCO3	pH	AMMONIA N mg/l	NO2-N mg/l	NO3-N mg/l	TOTAL NO2&3-N mg/l	TOTAL P mg/l	ORTHO PO4-P mg/l
			XX	XX	XXXX		XXX	XXX	XX.X	X.XX	X.XX	X.XX	X.XX	X.XX	X.XX

Cl- mg/l	SALT ppt	SO4 mg/l	B mg/l	Ca mg/l	Cu mg/l	Fe mg/l	Mg mg/l	K mg/l	Na mg/l	Zn mg/l
XXXXX	XX	XXX.X	X.XXX	XXX.X	X.XXX	X.XXX	XXXX	XXXX	XXXXX	X.XXX

POND SOIL MEASUREMENTS (Template Code = I)

SITE	EXP CYCLE	SEASON	SAMPLE DATE DAY	SAMPLE DATE MONTH	SAMPLE DATE YEAR	POND	CLAY %	SILT %	SAND %	ORG. MAT. %	pH (WET)	P ppm	Ca meq/ 100g	Mg meq/ 100g	K ppm	Na meq/ 100g	TOTAL N %
			XX	XX	XXXX		XX.X	XX.X	XX.X	XX.X	XX.X	XXXXX	XXX.X	XXX.X	XXXXX	XXX.X	XX.XX

NH4-N ppm	NO3-N ppm	C.E.C meq/ 100g	SOLUBLE SALTS mmhos/cm	Al ppm	Fe ppm	Zn ppm	Mn ppm	Cu ppm	SO4-S ppm	LIME REQ (SMP)	FREE CaCO3 meq/l	EXCH-H meq/ 100g	EXCH-NA meq/ 100g
XXXXX.X	XXXXX.X	XXXX	XX.X	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX	X.X	XXX.X	XXX.X	XXX.X

POND MORPHOMETRICS (Template Code = J)

SITE	DATE			POND	DEPTH = 10cm		DEPTH = 20cm		DEPTH = 30cm		DEPTH = 40cm		DEPTH = 50cm	
	DAY	MONTH	YEAR		AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME
					m2	m3	m2	m3	m2	m3	m2	m3	m2	m3
	XX	XX	XXXX		XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX

DEPTH = 60cm		DEPTH = 70cm		DEPTH = 80cm		DEPTH = 90cm		DEPTH = 100cm	
AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME
m2	m3	m2	m3	m2	m3	m2	m3	m2	m3
XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX

ANALYSIS OF NUTRIENTS AND LIME (Template Code = K)

SITE	EXP CYCLE	SEASON	SAMPLE DATE			TYPE OF NUTRIENT OR LIME	DRY MATTER	COMPOSITION AS % DRY MATTER					LIME NEUT. VALUE
			DAY	MONTH	YEAR		%	N	P	K	ORGANIC C	S	%
			XX	XX	XXXX		XX.X	XX.X	XX.X	XX.X	XX.X	XX.X	XXX.X

NUTRIENT AND LIME INPUTS (Template Code = L)

SITE	EXP CYCLE	SEASON	DATE			POND	FEED		MANURE		INORGANIC		LIME	
			DAY	MONTH	YEAR		TYPE	kg/ha	TYPE	kg/ha	TYPE	kg/ha	TYPE	kg/ha
			XX	XX	XXXX			XXX		XXX		XXX		XXX

APPENDIX C - USING CRSP TEMPLATES WITH LOTUS 1-2-3 ON THE IBM PC OR COMPATIBLES

Following are some rather basic, step-by-step, instructions for starting LOTUS and data entry. If you already feel comfortable with LOTUS and data entry, you may only need to skim items 1 to 9. Please read items 10 to 14.

1. Format several blank disks for use as data reporting disks (DATA DISKS) before entering LOTUS. Format a few more disks than you think you might use during this data entry session. The procedure is as follows:

   a. Place a blank disk in drive A.
   b. Format the disk using this DOS command sequence:

      FORMAT A: (type format a:)
      RETURN (press the "RETURN" key to carry out the command to format the disk).

   c. Remove the formatted disk from the drive.
   d. Repeat steps a, b, and c for the remaining blank disks.

2. Put the LOTUS 1-2-3 system diskette in drive A and type LOTUS.

3. When the LOTUS access menu appears, enter the 1-2-3 system by pressing the "Return" key when 1-2-3 is highlighted.

4. Place the TEMPLATE DISK in drive B. Twenty four LOTUS "templates" have been saved onto the TEMPLATE DISK for your use in data reporting. Twelve of the templates are for LOTUS 1-2-3 Versions 1 and 1A while the other twelve LOTUS templates are for Version 2. Version 1 and 1A templates have WKS file extensions to the file name while Version 2 templates have WK1 file extensions. Your Lotus program will automatically select the proper template version. There are also 12 MULTIPLAN templates on the template diskette. The MULTIPLAN templates do not have any file name extensions. Just ignore these MULTIPLAN templates.

5. Load the template that you want to use. The command sequence is:

/	(to access command menu),
F	("FILE" command),
R	("RETRIEVE" command),
Filename	(type the name of the file [template] you want to use, e.g. DIURNAL),
RETURN	(press the "RETURN" key to carry out the command to load the template).

6. After loading is complete, remove the TEMPLATE DISK from drive B and put it away.

7. Place a formatted DATA DISK in drive B.

8. Begin data entry. When you first load a CRSP template, the "cursor" is positioned in the upper left hand corner of the data table (called "HOME"). The cursor can be moved by one of two methods. The first one is more useful for making short moves, and is the one you will probably use most often. By pressing the arrow keys (lower right portion of the keyboard) you can move the cursor in the directions indicated on the keys. Pressing one of these keys once will move the cursor one cell in the indicated direction, while holding the arrow key down will move the cursor continuously in that direction. To move from cell A1 to cell G9, for example, you could press the right arrow key six times and the down arrow key eight times. To move on to the next cell to the right in the same row (cell H9), simply press the right arrow key once; or to move to the next cell below in the same column (G10), simply press the down arrow key once.

   The second method of moving the cursor is more useful for making medium and large jumps around the worksheet. In the previous example, with the cursor starting at cell A1, you could have moved directly to cell G9 using the "Go To" command. To use the "Go To" function, push the F5 key. After doing this, type in the coordinates of the cell to which you want to go and press the "Return" key. The cursor will move to the specified cell.

   With the cursor in the cell into which you wish to make a data entry, type in the data. To have the value you typed actually entered into the cell by LOTUS, you must give it a command to that effect. This can be done by pressing the "Return" key after typing in the data. If you use this method, however, the cursor will remain in the same cell after the entry is made, and

this wastes your time by forcing you to take the extra step of using one of the arrow keys to get the cursor to the next cell for the next entry. A faster and better way is to use the appropriate arrow key instead of the "Return" key after typing in the data; this will simultaneously enter your typed value into the cell and move the cursor to the next cell. For example, if you intend to make a series of entries in column G, starting with row 9 and going down through row 21, your steps should look like this:

a. Position the cursor at cell G9, using one of the cursor movement methods described above.
b. Type in the entry for cell G9.
c. Press the down arrow key once.
d. Type in the entry for cell G10.
e. Press the down arrow key once.
f. Type in the entry for cell G11.
g. Press the "Down Arrow" key once.
h. Continue in this manner until all the entries have been made.

After making the entry for cell G21, you might want to go to the top of the next column to make another series of entries. This can be accomplished quickly and easily using the "Go To" command, as discussed above:

a. Press the F5 key.
b. Type in H9 (the coordinates of the first empty cell at the top of the next column).
c. Press the "Return" key.

For further information on the methods of moving around the worksheet and making data entries, please refer to the LOTUS 1-2-3 User's Manual. Don't forget the "online help" provided by the LOTUS program, which is accessible by using the F1 key. In addition, there is no substitute for lots of <u>practice</u> for becoming familiar with the LOTUS program and the CRSP templates.

9. When you have finished entering data, return the cursor to the "home" position by pressing the "HOME" key. You will find that it is much more convenient, when reloading completed data files for later use, to have saved them with the cursor "at home" than with it out in the middle of the spreadsheet somewhere.

10. You may now save the DATA FILE. The command sequence is:

/	(access command menu),
F	("FILE" command),
S	("Save" command),
Filename	(Enter the filename under which this data file is to be saved. This is not the same as the filename of the template into which you have entered the data; a list of the filenames which are to be used for the various data files is included at the end of these instructions.)
RETURN	(carry out the command [save the file]).

11. Remove the DATA DISK with the saved file on it from the disk drive, record the file name on the disk, and put it away.

12. If you have more reporting to do, for example on a different "form" or template, place the CRSP TEMPLATE DISK in drive B, load the desired template, and go back to work.

13. If you do not have any more reporting to do you may "Quit" the LOTUS program at this time. Remove the System Disk from drive A and put it away. Either turn off the computer, or if you plan to use another program, follow the LOTUS instructions for exiting to the operating system.

14. NOTE: The templates have been saved with "recalculation" set to MANUAL. This will save you considerable time during data entry, as you will not have to wait for the entire worksheet to be recalculated after each entry, as it would be if recalculation were set to AUTOMATIC. Also, the print options have been set to include the column headings (rows 1 to 7) as a border at the top of each page.

APPENDIX D - USING THE CRSP TEMPLATES WITH MULTIPLAN ON THE APPLE IIe

Please note that the templates which you have been sent were created using the Apple DOS 3.3 version of MULTIPLAN. If you are going to use a CP/M version of MULTIPLAN, you will need to create your own set of templates. If you intend to do this, please create templates which are identical with those found in Appendix C. In either case you should be working with at least 128K of memory in your Apple.

Following are some rather basic, step-by-step instructions for data entry. If you already feel comfortable with MULTIPLAN and data entry, you may want to skim or entirely skip items 1 through 10 below. Please take the time to read items 11 through 16, however.

1. Load MULTIPLAN:
   a. Place the BOOT DISK in drive 1.
   b. Turn on the computer and the monitor.

2. When the MULTIPLAN "copyright screen" appears, access MULTIPLAN utilities by pressing "ESC", remove the BOOT DISK from drive 1 and put it away. (If you already have sufficient numbers of initialized disks, go directly to instruction #4).

3. Initialize (format) several blank disks for use as data reporting disks (DATA DISKS). Initialize a few more than you think you might use during this data entry session. The procedure is as follows:

   a. Select option 2 (Initialize new data diskette)
   b. Place a blank disk in drive 1.
   c. Press "Return"
   d. When the MULTIPLAN UTILITIES menu reappears, remove the initialized disk from the drive.
   e. Repeat steps a, b, c, and d for the remaining blank disks.

4. Select Option 4 (Exit Utilities) on the MULTIPLAN UTILITIES menu, insert the SYSTEM DISK in drive 1, and press "Return". When the command line appears at the bottom of the screen, remove the SYSTEM DISK and place the TEMPLATE DISK in drive 1.

5. Load the template that you want to use. The command sequence is:

T	("Transfer" command)
L	("Load" command),
Filename	(type the name of the file [template] you want to use, e.g. DIURNAL, or use the arrow keys to highlight the file name.)
RETURN	(press the "RETURN" key to carry out the command to load the template).

6. After loading is complete (the Command line at the bottom of the screen reappears), remove the TEMPLATE DISK from drive 1 and put it away.

7. Place an initialized DATA DISK in drive 1.

8. In order to speed data entry, the recalculation mode must be set to manual. The sequence to do this is:

O	("Options" command)
SPACE	(Highlights "NO" recalculation)
RETURN	(Carries out the command)

9. When entering data, it is useful for the titles to always be present on the screen. To do this, the "Window" command, especially "Titles," is used. As the manner of data entry (e.g., by line or column) to be used will determine which type of window is most appropriate, it is suggested that the MULTIPLAN manual be consulted for directions.

10. Begin data entry.

When you first load a CRSP template, the "cursor" is positioned in cell R1C1. Since this is not where you want to make the first data entry, you will need to move the cursor. (Note that the coordinates of the cursor's position are always shown at the bottom left of the screen).

The cursor can be moved by one of three methods. The first one is more useful for making short moves, and is the one you will probably use most often. By pressing the arrow keys (lower right portion of the keyboard) you can move the cursor in the directions indicated on the keys. Pressing one of these keys once will move the cursor one cell in the indicated direction, while holding the arrow key down will move the cursor continuously in that direction. To move from cell R1C1 to cell R9C7, for example, you could press the right arrow key six times and the down arrow key eight times. To move on to the next cell to the

right in the same row (cell R9C8), simply press the right arrow key once; or to move to the next cell below in the same column (R10C7), simply press the down arrow key once.

The second method of moving the cursor is more useful for making large jumps around the worksheet. In the previous example, with the cursor starting at cell R1C1, you could have moved directly to cell R9C7 using the "GoTo" command. To use the "GoTo" function, type "G". Then type "R" (for row-column option) and type in the row number of the cell to which you want to go. press the "Tab" key and type the column number. Press the "Return" key and the cursor will move to the specified cell.

The third method is used for intermediate-size moves around the worksheet. MULTIPLAN allows you to scroll up or down an entire page at a time by pressing "Control" and "R" and "E" simultaneously (to scroll up) or "Control" and "R" and "X" (to scroll down).

With the cursor in the cell into which you wish to make a data entry, type in the data. If the data is alphabetic (e.g., site code), press "A" (the Alphabetic command) first and then enter the data. Numeric data does not have to be specified before entry. To have the data you typed actually entered into the cell by MULTIPLAN, however, you must give it a command to that effect. This can be done by pressing the "Return" key after typing in the data. If you use this method, however, the cursor will remain in the same cell after the entry is made, and this wastes your time by forcing you to take the extra step of using one of the arrow keys to get the cursor to the next cell for the next entry. Also, using the "Return" causes the command line to reappear (or remain). A faster and better way is to use the appropriate arrow key instead of the "Return" key after typing in the data; this will simultaneously enter your typed value into the cell, move the cursor to the next cell, and leave you in the alphabetic/value mode. For example, if you intend to make a series of entries in column 7, starting with row 9 and going down through row 21, your steps should look like this:

a. Position the cursor at cell R9C7, using one of the cursor movement methods described above.
b. Type in the entry for cell R9C7.
c. Press the down arrow key once.
d. Type in the entry for cell R10C7.

e. Press the down arrow key once.
f. Type in the entry for cell R11C7.
g. Press the "down arrow" key once.
h. Continue in this manner until all the entries have been made.

After making the entry for cell R21C7, you might want to go to the top of the next column to make another series of entries. This can be accomplished quickly and easily using the "GoTo" command, as discussed above. (If you have been using the arrow keys for data entry, first press "ESC" to display command options).

a. Press the "G" key.
b. Press "R" (for row-column option).
c. Type in "8" , press the "Tab" key once and then type in "8". (the coordinates (R8C8) of the first empty cell at the top of the next column).
d. Press the "Return" key.

For further information on the methods of moving around the worksheet and making data entries, please refer to the MULTIPLAN Instruction Manual and the MULTIPLAN "Quick Reference Guide." Don't forget the "online guide" provided by the MULTIPLAN program, which is accessible from the System disk. In addition, there is no substitute for lots of practice for becoming familiar with the MULTIPLAN program and the CRSP templates.

11. When you have finished entering data, close any windows and then return the cursor to the "home" position (cell R1C1) by depressing the "Control" and "Q" keys simultaneously. You will find that it is much more convenient, when reloading completed data files for later use, to have saved them with the cursor "at home" than with it out in the middle of the spreadsheet somewhere.

12. You may now save the DATA FILE. The command sequence is:

ESC	(access command menu),
T	("Transfer" command),
S	("Save" command),
Filename	(Enter the filename under which this data file is to be saved. This is not the same as the filename of the template into which you have entered the data; a list of the filenames which are to be used for the various data files is attached.
RETURN	(carry out the command [save the file]).

13. Remove the DATA DISK with the saved file on it from the disk drive, record the file name on the disk, and put it away.

14. If you have more reporting to do, for example on a different "form" or template, place the CRSP TEMPLATE DISK in drive 1, load the desired template, and go back to work.

15. If you do not have any more reporting to do you may "Quit" the MULTIPLAN program at this time. Type "Q", remove the disk and put it away. Turn off the computer.

APPENDIX E -USING CRSP TEMPLATES WITH MULTIPLAN ON THE IBM PC OR COMPATIBLES

The primary difference between using MULTIPLAN on the IBM PC and the APPLE IIe is the procedure used to format diskettes before starting data entry. The instructions on how to format diskettes are contained in item 1 of the LOTUS instructions. After you have formatted sufficient numbers of DATA DISKS, place your MULTIPLAN system diskette in the A: drive and type MP . When the command line appears at bottom of the page, follow the instructions listed under MULTIPLAN for the APPLE IIe starting at item 5. MULTIPLAN on the IBM has more flexibility regarding file locations than is possible on the APPLE. See your manual on directions to access drives other than A. The diskette containing the MULTIPLAN templates also contains the LOTUS templates. Just ignore the LOTUS templates as MULTIPLAN will not read them.