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Computer Applications Minicourse

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COMPUTER APPLICATIONS MINICOURSE

by

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This minicourse is divided into three segments: (1) Concepts and Hardware; (2) General Applications (Software); and (3) Seed Business Applications. The objective of the minicourse is to familiarize short-course participants with microcomputers and their value or potential value in the seed industry.

Concepts and Hardware

We have entered an age of high involvement with computers whether we like it or not. In the past computers were mysterious machines that only large corporations and universities could afford, and kept hidden in air-conditioned, well guarded rooms. Recent developments, however, have placed computers in the grasp of almost every business, even every household. Most of us are a bit intimidated by computers; however, our children take them in stride and even feel they are deprived if they do not have one. People also fought and resisted the introduction of the "horseless carriage" and the replacement of mules by tractors. It is a natural tendency to resist change; thus, in this respect, computers are not a new phenomenon.

Several definitions useful in any discussion of computer applications are given in Table 1.

In addition to the hardware components shown in Table 2 there are several other hardware components in computer systems. Most systems in use now usually include a CRT, printer, and disk drive. In addition, plotters, digitizers, voice synthesizers, phone modems, hard disk, joy sticks, envelope feeders, and sheet feeders are also available. As with the CPU's shown in Table 2 there exists a wide range in prices for some of these hardware components as follows: printers $250 to $2,700; plotters $250 to $2,000; phone modems $150 to $200; hard disk $2,500 to $5,400 (depending on size).

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Table 1. Pertinent definitions--computer applications.

Microcomputer--A small but complete computer system, including CPU, memory, CRT, input/output (I/O) devices and a power supply.

CPU--Central processing unit. The computer module in charge of fetching, decoding, and executing instructions.

CRT--Cathode Ray Tube. The television-like tube used to display pictures or characters.

Computer Languages--Any unified, related set of commands or instructions that the computer can accept. Examples are Fortran, Pascal, Basic, COBAL.

Memory--Storage for the binary data and programs.

Input/Output--The communication of information to and from the computer.

Input Devices--Can include keyboards, cassette tapes, disks, microphones, light pens, digitizers, and electronic sensors. Common input devices are keyboards and disks.

Output Devices--Include tapes, disks, printers, plotters, robots, and sound synthesizers.

Hardware--(all of the above)--The bolts, nuts, boards, chips, wires, transformers, circuits in a computer--the physically existing components of a system.

Software--(contrasted to hardware)--Any set of data or coded instructions which cause the computer to perform a task.

K--Measurement of computer capacity; 1024 characters.

Telecommunication--Allows for the transfer of information from one computer to another or from a host computer to a terminal. This can be done with phone lines, satellites, radio waves or optical fiber. The most common transmission currently is telephone lines.

System--Any organized collection of hardware and software that works together.

Word Processor--A text editor system for electronically writing, editing, formatting and storing letters and reports prior to printing.

Table 2. Some available hardware-microcomputers (April, 1983)

HARDWARE COMPONENTS	SOME BRANDS & PRICES	SOFTWARE APPLICATIONS
	$99-$499	
Limited memory (2K-16K) Simple keyboard Cassette storage TV is typical monitor Printers - thermal or adding machine	Timex Sinclair 1000 Texas Instruments 99/4A Radio Shack TRS-80 color computer Commodore Vic 20 Atari 400	Simple games Educational Simple home management checkbook balancing, etc. Applications limited due to memory and storage available
	$1000-$4000	
48K-64K memory Keyboard like typewriter 5¼" floppy disk storage Standard monitors All good printers available but interface is usually separate	Apple II Commodore Pet Atari 800	Sophisticated games & educational programs Small business programs - more costly to upgrade than to buy systems specifically designed for business
	$1795 - Osborne $2500 - $5000	
Standard 64K-128K Many are 16 bit Sophisticated keyboard 5¼" or 8" floppy disk and Winchester Interface directly to quality printers and monitors	Xerox 820-11 IBM Personal Computer Heathkit H-89 Eagle NEC:APC Toshiba Apple III Radio Shack TRS-80 Model 16	Good business application Few games or educational programs
	$5000-$1500	
True 16 bit Many have 128K expandable to 1 megabyte Many are multi-user Use 5¼", 8", Winchester or hard disk Fast processing speeds Keyboard sophisticated	Fortune 32.16 Olivetti M-20 Altos Northstar Advantage DEC Rainbow 100	True business application No games or educational programs Challenge not-so-distant minicomputer capability

Which System?

It can be seen from the above discussion that there are many combinations of hardware that are available to meet the needs of any individual business situation. Selection of a complete system will be addressed later.

Software

Software is as important, or perhaps more important, than the hardware one selects. Computer software should be given prime consideration. As shown in the list of terms software is "any set of data or coded instructions which cause the computer to perform a task."

Even the most elaborate and sophisticated hardware is of no use unless software is available. Software availability is not the problem that it was several years back; however, most of the software is developed for mass consumption and careful consideration must be given to the programs that will be useful in your unique situation.

Factors to Consider in Software Selection

There are several important factors that need to be carefully considered in selection of software. A partial list of these are:

-Simplicity
-Flexibility
-Serviceability
-Easily Maintained (Updated)
-Well Documented
-Portable
-Modular

In almost all cases commercially available software will not be perfectly suited to your individual needs. The list above may be somewhat repetitive.

Programs should be as simple as possible and still get the job done. The program should be easy to operate and should be written so that one could learn to use it with minimal or no prior training. A term often associated with this is "User Friendly".

Programs with flexibility are also desirable. For example, a program should allow the user to alter the number of records to be kept, and allow for varying amounts of data to be handled, etc. With flexibility, programs with minor modifications can be altered to better fill individual needs.

Serviceability and easily maintained (updated) are closely akin to flexibility. Programs should be easy to modify so they will adapt to your situation. In some programs what you consider as minor changes would be minor, however, other programs may be written such that changes would have to be made in many places throughout the program to give the same results, i.e., they would not be minor.

A well documented program helps to make it simpler, more serviceable, etc. Information on what was done and how it was done can often save hours of work for individuals trying to service or maintain program software.

Software is unique to each type of hardware selected for a business. Well written software is often portable. Portable means that the program can be modified to be used on different hardware. If one changes the type of system he is using and has easily adaptable software, this could conceivably save many dollars when moving to a different system.

Software programs are often divided into different elements or modules. A program can have different modules for input, output, editing, and a menu. If a program is in modular form and needs to be changed, one can change just the module he is interested in and not have to change the entire program. When working with large programs this can often save time in loading and editing.

Software Applications

In the seed business there would be at least three basic applications for computer usage. These are: records, decision aids, and office management.

Records could fall in the category of production, financial, inventory, or sales. Word processing, electronic filing, and mailing lists are examples of office management programs available. There are several types of decision-aid programs available from commercial sources and often from public sources. Programs that one can play "What If" games are helpful in the decision making process within a firm. These may be "Spot" programs for a specific question, for example, "Should I buy or rent a specific piece of equipment", or they may be models for making decisions whether to store or sell a particular commodity.

Sources of Software

There are four major sources of software: commercial "Off the Shelf Packages"; custom software development; public agencies; or write your own.

The most inexpensive source of software, if you have the capability, is to write a program that meets your specific needs. This

program will, however, be very expensive with respect to time spent in writing it (presumably, your time is very valuable). One should keep in mind that computers can be "addictive" and take a disproportionate amount of time for their value if one tries to do everything himself.

Many public agencies are writing software specific to production agriculture and agribusiness that are made available at minimal costs. For example, the software package written by one of us (Mike Argo) outlined below, is a package developed specifically for the Foundation Seed Stock project in Mississippi State University. This software, however, would handle many of the aspects of any commercial seed business and should be available to the public in 1984.

Custom software development is the ideal from a standpoint of fitting your business but may be much more expensive than any of the other sources. As mentioned above current charges for custom programmers ranges from $40-75 per hour. One may need several hours of consulting time just to familiarize a consultant with his specific needs, thus making custom programs extremely expensive.

There are many commercial packages available that may be well adapted to most business operations for almost any type of system one chooses. These software packages range in costs from $15 to several hundred dollars depending on their complexity.

Perhaps a combination of all four of the above sources will be necessary if one is to make the most efficient use of a computer system in his business.

Training

An important part of any system if you are not already trained in the use of microcomputers is the training to handle the computer. Training should incorporate both the "chicken and egg" if your system is to be of value to you.

When a salesman or the fantastic price you see in the magazine ad sells you a system, the literature both written and often verbal will lead you to believe you will be able to operate the system blindfolded. Once you get the system home you may find that handling all that <u>data</u> was not as easy as you were led to believe.

If this happens you might have to call in a consultant to train you if it is not part of the package. Training costs run as high as $50/hour.

If we get a system whereby much of the available software does not fit our business, custom programmers often charge $75 an hour to write or adapt programs.

Therefore, before obtaining the services of consultants, prior planning on your part would be advisable.

Example

As indicated above a software program specific to the Foundation Seed Stock project at Mississippi State University was written and is currently in operation. The program can be run on either the Radio Shack TRS 80 Model II or Model 16 computer.

This program requires a minimum of 64K memory, two disc drives and a printer. Example menus and outputs of the program are given below.

MAFES

FOUNDATION SEED STOCKS

MICROCOMPUTER INVENTORY SYSTEM

EXAMPLE MENUS

AND

OUTPUTS

4/12/83

QUICK REFERENCE TABLE

Menu or Output	
Main Menu	1
Crop and Variety Menu	2
Example of Changing Variety ID	3
Address Menu	4
Example of Updating Buyer Record	5
Example Listing of Buyer Records	6
Grower Information Menu	7
Example Listing of Grower Records	8
Example Update of Grower Records	9
Plant Processing Records Maintenance Menu	10
Example Listing of Processing Plant Records	11
Example Update of a Processing Plant Record	12
Seed Testing Menu	13
Example of Seed Testing Information	14
Buyer Order Menu	15
Example Order Summary	16
Example of Updating Order (Detailed Orders)	17
Example of Current Inventory	18
Allocation Menu	19
Example List of Buyers and Allocations	20
Invoice Menu	21
Lookup and/or Update Invoices Menu	22
Example Invoice Lookup and/or Update	23
Example List of Buyers by Lot Number	24
Letter Menu	25
Example Letter Printed	26

MAIN MENU:

1. ADD OR UPDATE A CROP AND/OR VARIETY
2. ADDRESS MAINTENANCE
3. GROWER INFORMATION MAINTENANCE
4. PROCESSING PLANT RECORD MAINTENANCE
5. SEED TESTING INFORMATION
6. ORDER MAINTENANCE
7. CURRENT INVENTORY STATUS
8. ALLOCATION PROCEDURES
9. INVOICE MAINTENANCE
10. LIST BUYERS BY LOT NUMBER
11. PRINT LETTERS
12. PRINT MONTHLY SALES REPORT
13. SETUP FOR NEXT YEAR
14. FINISHED

CROP AND VARIETY MENU:

1. ADD A NEW CROP
2. CHANGE AN EXISTING CROP ID
3. ADD NEW VARIETIES TO AN EXISTING CROP
4. CHANGE A VARIETY ID AND/OR ABBREVIATION OF AN EXISTING CROP
5. FINISHED

CROP NAME: SOYBEAN

VARIETY / ABBREVIATION

1. CENTENNIAL	/	CT
2. BRAGG	/	BG
3. RANSOM	/	RA
4. FORREST	/	FR
5. DAVIS	/	DA
6. TRACY-M	/	TM
7. BEDFORD	/	BD
8. LEE-74	/	LE
9. BRAXTON	/	BX
10. JEFF	/	JF
11. DUROCROP	/	DU

ENTER NUMBER OF VARIETY TO BE CHANGED OR PRESS ENTER TO QUIT?

ADDRESS MENU:

1. ADD A GROWER ADDRESS
2. UPDATE A GROWER ADDRESS
3. ADD A BUYER ADDRESS
4. UPDATE A BUYER ADDRESS
5. LIST GROWERS
6. LIST BUYERS
7. FINISHED

BUYER ADDRESSES

Apr 8, 1983

NAME	BUYER NUMBER	ADDRESS
ARGO MA	27	P.O. BOX 201 HOLLY GROVE AR 72069 501-462-3621
B&L SEED FACTORY	2	RT.1 DUNCAN MS 38740
BILL SIMPSON	30	DRAWER N WISNER LA. 71378
BRADSHAW T	26	P.O. BOX 43 STUTTGART AR. 72160
BURNIE SMITH	18	RT.1 BOX 302 SMITHVILLE MS 38870
CARLOS PEREZ	13	P.O. BOX 830 FERRIDAY LA. 71334
DELTA BR STA	4	P.O BOX 197 STONEVILLE MS 38776 686-9311

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                    BUYER# 27

          1.NAME                 : ARGO MA
          2.LINE 1 OF ADDRESS: 2108 PLUM RD
          3.LINE 2 OF ADDRESS: STARKVILLE
          4.LINE 3 OF ADDRESS: MS
          5.ZIP CODE             :     39759
          6.PHONE NUMBER         : 601-323-9068



ENTER NUMBER OF LINE TO BE CHANGED OR PRESS ENTER TO QUIT?

_____  ____  _____  ____  _____  ____  _____


GROWER INFORMATION MENU:

1.ENTER NEW GROWER INFORMATION
2.LIST GROWER RECORDS
3.UPDATE EXISTING GROWER INFORMATION
4.FINISHED
```

GROWER INFORMATION

Apr 8, 1983

UPDATE RECORD NUMBER	GROWER	VARIETY	ACRES	INSPECTION APPLIED	ACCEPTED	PASSED
		SOYBEAN				
1	B&L SEED FACTORY	FORREST	223	YES	YES	YES
2	RALPH SAMPSON	RANSOM	579	YES	YES	YES
3	BROWN LOAM	CENTENNIAL	90	YES	YES	YES
4	JACK WILSON	LEE-74	284	YES	YES	YES
5	JACK WILSON	BRAXTON	150	YES	YES	YES
6	JACK WILSON	BRAGG	680	YES	YES	YES
7	JACK BURK	TRACY-M	100	YES	YES	YES
8	RICHARD SIMPSON	DAVIS	420	YES	YES	YES
9	DAVID WELLBORN	CENTENNIAL	150	YES	YES	YES
10	DAVID WELLBORN	BEDFORD	150	YES	YES	YES
11	NORTHEAST BR STATION	CENTENNIAL	40	YES	YES	YES
12	RALPH MCCOY	JEFF	30	YES	YES	YES
13	REGGIE BROOKS	DAVIS	84	YES	YES	YES
23	FOUNDATION SEED	CENTENNIAL	3	NO	NO	YES
24	FOUNDATION SEED	DAVIS	3	NO	NO	YES
25	FOUNDATION SEED	TRACY-M	4	NO	NO	YES
26	FOUNDATION SEED	BEDFORD	4	NO	NO	YES
27	FOUNDATION SEED	DUROCROP	1	NO	NO	YES

END OF LISTING

```
UPDATE RECORD     5

1.GROWER     :      7    JACK WILSON
2.CROP       :      1    SOYBEAN
3.VARIETY    :      9    BRAXTON
4.ACRES      :    150
 INSPECTION:
  5.   APPLIED : YES
  6.   ACCEPTED: YES
  7.   PASSED  : YES
```

ENTER NUMBER OF LINE TO BE CHANGED OR PRESS ENTER TO QUIT?

PLANT PROCESSING RECORDS MAINTENANCE MENU:

1.ADD PROCESSING RECORDS
2.LIST PROCESSING PLANT RECORDS
3.UPDATE PROCESSING RECORDS
4.REVIEW AND/OR UPDATE USABLE AND NON-USABLE LOTS
5.FINISHED

PROCESSING PLANT RECORDS

Apr 8, 1983

SOYBEAN

GROWER	LOT NUMBER	YEAR GROWN	DATE PLANT INSP.	DATE SEED PROC.	NUMBER OF SU'S	WEIGHT OF SU'S	TAGS REC	TAGS USE	TAGS ADV
REGGIE BROOKS	DA-82-01	82	10/25/82	10/25/82	480	60	480	480	YES
REGGIE BROOKS	DA-82-02	82	10/25/82	10/25/82	480	60	480	480	YES
REGGIE BROOKS	DA-82-03	82	10/25/82	10/25/82	480	60	480	480	YES
REGGIE BROOKS	DA-82-04	82	10/25/82	10/26/82	480	60	480	480	YES
REGGIE BROOKS	DA-82-05	82	10/25/82	10/26/82	480	60	480	480	YES
REGGIE BROOKS	DA-82-06	82	10/25/82	10/26/82	267	60	480	267	YES
RICHARD SIMPSON	DA-82-07	82	11/ 1/82	11/ 1/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-08	82	11/ 1/82	11/ 1/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-09	82	11/ 1/82	11/ 1/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-10	82	11/ 1/82	11/ 2/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-11	82	11/ 1/82	11/ 2/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-12	82	11/ 1/82	11/ 2/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-13	82	11/ 1/82	11/ 3/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-14	82	11/ 1/82	11/ 3/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-15	82	11/ 1/82	11/ 3/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-16	82	11/ 1/82	11/ 4/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-17	82	11/ 1/82	11/ 4/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-18	82	11/ 1/82	11/ 4/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-19	82	11/ 1/82	11/ 5/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-20	82	11/ 1/82	11/ 5/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-21	82	11/ 1/82	11/ 5/82	480	60	480	480	YES
RICHARD SIMPSON	DA-82-22	82	11/ 1/82	11/ 8/82	480	60	480	480	YES

```
                PROCESSING PLANT RECORD   SU = SELLING UNIT

                 1.GROWER        :     1          MITCHELL R
                 2.LOT NUMBER    :   BR-82-01
                 3.YEAR GROWN    :  82
                 4.DATE INSP.    :   8/ 5/82
                 5.DATE SEED
                    PROCESSED    :   8/12/82
                 6.NUMBER SU'S   :   100
                 7.WEIGHT SU'S   :   60
                 8.TAGS REC'D    :  150
                 9.TAGS USED     :  104
                10.ADV. TAGS     :  YES

                ENTER NUMBER OF LINE TO BE CHANGED
                PRESS ENTER TO QUIT?
```

SEED TESTING MENU:

1.ADD, UPDATE OR VIEW SEED TESTING INFORMATION RESULTS
2.LIST ALL SEED TESTING RESULTS
3.FINISHED

SORGHUM

PAGE 1

Apr 5, 1983

LOT# TH-82-01

DATE REPORTED: 10/11/82 LAB NUMBER: 8431 DATE RECEIVED: 10/ 4/82

MOISTURE: 0.00% YEAR GROWN: 82 SU'S/LBS.: 70/ 50 TAG COLOR: WHITE

MISSISSIPPI CERTIFIED SEED

CROP	: SORGHUM	DATE TESTED	: 10/ 4/82
VARIETY	: THEIS	GERMINATION	: 0.00%
		HARD SEEDS	: 0.00%
		PURITY	: 0.00%
GROWER	: CHARLES SCIPLE	CROP SEEDS	: 0.00%
		INERT	: 0.00%
RESAMPLE	: NO	WEED SEEDS	: 0.00%
PASSED	: NO	NOXIOUS WEEDS	: 0.00%
REMARKS	:		
FOREIGN SEEDS	:		

MITCHELL R
HAS AN EXISTING ORDER
ENTER:
1 = ORDER STATUS
2 = LOOK AT OR UPDATE ORDER (DETAILED ORDERS)
3 = ADD TO ORDER
4 = ENTER NEW BUYER NUMBER

DATE: Apr 8, 1983

MITCHELL R ORDER SUMMARY

SU = SELLING UNIT

CROP	VARIETY	# SU'S DEP.	# SU'S NO DEP	# SU'S CAN	# SU'S ALLOC	# SU'S PICKUP
SOYBEAN	DAVIS	280	0	0	280	0
SOYBEAN	CENTENNIAL	30	0	0	30	0
SOYBEAN	TRACY-M	115	0	0	115	0
SOYBEAN	RANSOM	60	0	0	60	0
SOYBEAN	FORREST	100	1	0	100	0
SOYBEAN	BRAXTON	165	0	0	165	0
SOYBEAN	BRAGG	390	0	0	390	0
SOYBEAN	BEDFORD	100	0	0	100	0

MITCHELL R

SU = SELLING UNIT

	CROP	VARIETY	# SU'S	DEPOSIT	DATE RECEIVED	SU'S ALLOCATED
1.	SOYBEAN	DAVIS	10	YES	2/20/83	10
2.	SOYBEAN	CENTENNIAL	30	YES	2/20/83	30
3.	SOYBEAN	TRACY-M	115	YES	2/20/83	115
4.	SOYBEAN	RANSOM	60	YES	2/20/83	60
5.	SOYBEAN	FORREST	1	NO	0/ 0/ 0	0
6.	SOYBEAN	FORREST	100	YES	2/20/83	100
7.	SOYBEAN	DAVIS	270	YES	2/20/83	270
8.	SOYBEAN	BRAXTON	165	YES	2/20/83	165
9.	SOYBEAN	BRAGG	390	YES	2/20/83	390
10.	SOYBEAN	BEDFORD	100	YES	2/20/83	100

ENTER NUMBER OF ORDER TO BE UPDATED, 0 TO ADD, OR PRESS ENTER TO RETURN?

DATE: Apr 5, 1983

CURRENT INVENTORY OF SELLING UNITS FOR CROP SORGHUM

VARIETY	PROC	PASS	CARRY	ORDER	REST	DAMAG	BF-ALLOC	ALLOC	A-SALE
THEIS	148	148	0	0	0	0	148	0	148
BRANDES	0	199	0	199	0	0	199	0	199
DALE	0	0	0	12	0	0	0	0	0
M-81E	0	0	0	0	0	0	0	0	0

```
ALLOCATION MENU:

1.UPDATE RESTRICTED AND/OR DAMAGED SELLING UNITS
2.PERFORM COMPUTERIZED ALLOCATION
3.PERFORM MANUAL ALLOCATIONS
4.LIST BUYERS AND ALLOCATIONS
5.FINISHED
?
```

STARBONNETT RICE

ALLOCATION PERCENTAGE = 100%

BUYER #	NAME	ORDERED	ALLOCATED
1	DRAPALA WJ	25	25

```
INVOICE MENU:

1.ENTER A NEW INVOICE
2.UPDATE AND/OR ADD TO AN EXISTING INVOICE
3.FINISHED
```

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LOOKUP AND/OR UPDATE INVOICES MENU:

1.LOOKUP AND/OR UPDATE BY BUYER
2.LOOKUP AND/OR UPDATE BY INVOICE NUMBER
3.LOOKUP AND/OR UPDATE BY BUYER AND INVOICE NUMBER
4.FINISHED
```

1.INVOICE # : 19

BUYER : DRAPALA WJ
2.DATE : 1/ 5/83

	QUANTITY OF SU'S	CROP	LOT #	UNIT PRICE	TOTAL PRICE
3.	1	SOYBEANS	BR -82-01	$22.00	$ 22.00
4.	5	SOYBEANS	BR -82-01	$22.00	$ 110.00

	TOTAL COST	$	132.00
12.DISCOUNT		$	2.25
13.SHIPPING		$	1.25
NET COST		$	131.00

ENTER 1 UPDATE 4 VOID INVOICE
2 GET NEXT INVOICE 5 ADD TO INVOICE
3 LIST PRESS ENTER TO QUIT?

BR-82-01

DATE: Apr 8, 1983

BUYER NUMBER	BUYER	QUANTITY	INVOICE NUMBER
3	TONY GARRAD	25	8
1	DRAPALA WJ	49	10
1	DRAPALA WJ	20	0
1	DRAPALA WJ	5	2
2	ARGO MA	10	21
4	BENNIE KEITH	4	22
4	BENNIE KEITH	4	23

PAGE 1

AMOUNT ALLOCATED TO:

B&L SEED FACTORY
RT.1
DUNCAN
MS
38740

SOYBEAN	VARIETY	SELLING UNITS
	CENTENNIAL	200
	BRAGG	300
	FORREST	50
	DAVIS	300
	TRACY-M	200
	BEDFORD	50

LETTER MENU:

1. PRINT ALL LETTERS
2. PRINT A RANGE OF LETTERS
3. FINISHED