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USING THE MINNESOTA FARM

RECORDS DATA BASE: 1977-82 DATA

A User's Guide for:

"Utility Program (DRSDS) for Data Retrieval
of Specialized Data System Computer Tape
for Southeastern/Southwestern Minnesota Farm
Management Association Records Data, 1977-1982"

by

Lai-Chun Kan
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Department of Agricultural and Applied Economics

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I. BACKGROUND ON THE MINNESOTA FARM MANAGEMENT ASSOCIATIONS

The Department of Agricultural and Applied Economics of the University of Minnesota possesses a potentially valuable data resource in a set of data on a small number of Minnesota farms, starting in 1929 and continuing to the present. The value is only potential, however, because of data storage and retrieval problems. The purpose of this paper is to provide a description and instructions for use of a data retrieval program designed to partially solve these problems.

The University of Minnesota had been actively involved in farm management and collection of farm level data through the use of farm records since the turn of the century. Two current departments of the College -- Agronomy and Plant Genetics, and Agricultural and Applied Economics -- existed at that time as one joint Department of Agriculture. Time and motion studies started about 1910. They led to the cost accounting routes of the '20s which, in turn, led in 1929 to the founding of the Southeast Minnesota Farm Management Association, as a cooperative project between a group of farmers and the University The farmers agreed to keep farm records, to let the University use the data from the records for education and research, and to cooperate in various other ways, the chief of which was to test new record keeping materials and systems. The University agreed to analyze the records at the end of the year, to provide the farmers with the resulting farm business and enterprise analyses, to maintain privacy, confidentiality, and security of the record data, and to provide the farmers with training and assistance in farm management decision making through provision of a fieldman. In 1939, a group of farmers in the southwestern part of the state followed suit and formed the Southwest Minnesota Farm Management Association.

The Associations exist today is much the same form as when they were started. The farms of some of the charter members are still in the Association, now being operated by the second or third generation. Farm accounting systems developed by the University still are the basic method used by the members. The University continues to perform the farm business and enterprise analysis each year for each member, and to retain a copy of the input data and the analysis output for each member in its files. The files constitute the farm records data base. The input data are all collected by hand. The analyses were performed by hand from the start of the Associations through 1966. In 1967, the analysis was computerized and processed at the St. Paul Campus computer Center. In 1977, the computer processing was shifted to Specialized Data System (SDS), a private computer service vendor in Madison, Wisconsin.

B. DESCRIPTION OF THE SDS RAW DATA TAPE

The SDS computer tape for one year consists of millions of pieces of data, stored in the form of farm records which are identified by individual farm ID's. In January, each year, farm records for the previous year are collected from each farm. The main purpose of the data collection is for preparation of an annual farm business and enterprise analysis for each farm and an annual report for each association. Four pages of computer data input sheets (see appendix C) are filled in from each farm account book. The fieldmen or the staff of the Department of Agricultural and Applied Economics or both then

inspect the forms for errors. If any data item is suspected of being incorrect, the farmer will be telephoned about the question so that correction can be made. The input data sheets are then sent to SDS for data processing and computation. After the computer analysis has been completed another error check is performed. Then the Department of Agricultural and Applied Economics compiles the final outputs which are copies of the farm business and enterprise analysis for each individual farmer and also an association annual report which summarizes the performance of each association by presenting averages of all farmers and of the most and least profitable 20 percent. Besides preparing the annual reports for each farmer, the Department also makes a two-page summary report for each farmer to compare his/her performance over the four previous years.

The annual report for each of the associations also serves as a basic document for comparative analysis of farm businesses in southeastern and southwestern Minnesota. The data also have the potential to be valuable and useful for agricultural economists, especially for conducting research on farm business analysis.

Each year approximately 250 (varies year by year) farmers provide the associations and the University with tens of thousands of pieces of data about farming in Minnesota. These data are stored as follows. First, both the raw (uncomputed) input data from the farmer's input sheets for each farm and the analysis (or "computed" data) for each farm from the start (1929) to present are stored in hard copy by the Department. Second, raw data for the period 1967-1976 are stored on magnetic computer tapes by the St. Paul Campus Computer Center. The Center still owns the program

which can be used to process (compute) farm business analyses from the data for the last several years of the 1967-1976 period. Third, raw data for the period 1977-1982 are stored on magnetic computer tapes by the Department. There is no program available locally for computing farm business analyses from the data on the SDS raw data tapes.

Four categories of data are stored on the SDS raw tapes. They are: inventory data; livestock enterprise data; income and expense data (whole farm); and crop enterprise data. The top portion of page one of Form 1A (see Appendix C) contains the inventory data for those assets and liabilities that are not allocated specifically to enterprises, i.e., "whole farm". The assets include current assets such as crop, seed, and feed on hand; business assets with a life of more than one year such as machinery and equipment; real estate such as dwelling and land; and liabilites. Both the whole farm and the landlord's share are listed, with operator's share determined by subtraction.

Livestock enterprise data are listed on the bottom portion of page one of Form 1A and on all of page two of Form 1A. Beginning and ending inventories, and all acquisition and disposal activities as well as transfers to and from other enterprises are listed for each livestock enterprise. Whole farm and landlord's share of value are given as well as physical quantities. The remainder of page one lists the quantities and values of livestock products sold or used in the home. Page two of Form 1A contains information on the numbers of head of each enterprise involved in each of the acquisition and disposal activities. Livestock expense that can be assigned directly to the enterprise is also listed on page two of Form 1A. In some cases, this consists of dollar values only, such as veterinary expense, and in other cases it lists quantities and values, such as of feed fed.

The income and expense data on Form 2 are not allocated to specific enterprises, i.e., they can be considered "whole farm" data   Data on total transactions with financial institutions are also listed, such as borrowings, payments on principle, and interest payments. Data on personal and family living are also included on Form 2 as well as information on labor by the farmer and family and by hired labor.

Form 3 contains crop data allocated by each enterprise. Data include acres owned and rented, total production on each, crop sales, and all items of crop expense that can be allocated directly to each crop.

Because of the many different types of data invloved, we are not in a position to explain the detailed meaning of every variable here   Users may refer to Edgar Persons, "Instructions for Completing Computer Data Forms", Division of Agricultural Education, University of Minnesota, St. Paul, 1978, and Edgar Persons, "Documentation for Farm Business Analysis", Fourth Edition, Division of Agricultural Education, University of Minnesota, St. Paul, 1977. The use of these data is limited only by the scope of the user's imagination. As mentioned earlier, because of the complexity of format used in storing these information, they have not been used as much as they could have been. To make these data more accessable to users, a special program, DRSDS, is designed for retrieving data from the SDS tapes in a matter of minutes, instead of weeks or months. The program was originally written on September 1981, and was revised on August 1983. The next section is devoted to explain the use of the DRSDS program.

III. THE USER'S GUIDE FOR DRSDS PROGRAM

 A. Identification

   Title: Utility Program of Data Retrieval for Specialized Data
           System Computer Tape.

   Program Calling Name: DRSDS

   Language: Minnesota FORTRAN Time Sharing,

             CDC NOS CYBER 172 Operating System

   Computers: CDC 6000/7000/Cyber Series Machines

   Memory Requirement: 60,000 Words

   Programmer: Lung-Fai Wong, September 1981

   Revised: Lai-Chun Kan, August 1983

             Department of Agricultural and Applied Economics

 B. General Description

   This program is designed to ease the access to SDS generated
farm accounting raw data tapes by potential users who do not have a
knowledge of FORTRAN language. The SDS (Specialized Data System, Inc.)
data tapes contain all of the raw data of the Southeastern and South-
western Minnesota Farm Management Associations. Each farm record may
have up to 1,600 variables, thus, a typical data tape may consist of up
to 3 million characters.

   It has been a very difficult process to retrieve information from
the SDS tapes. Although using the tapes requires a fairly large amount
of knowledge in computer programming, the most difficult part is to
understand the format that is used in storing the data on the tape.
Sometimes it takes a researcher weeks or even months to study the format
and programming before he/she can retrieve any data out from the tapes.

The merit of this DRSDS utility program is that it can enable us to retrieve any part or all of the data from the SDS data tape in a matter of minutes.

C. Capacity and Limitations

   1. Capacity of the DRSDS utility program:

      No. of farm records in one run: unlimited

      No. of years in one run: unlimited

      No. of files that can be read in one run: one file

      No. of variables that can be retrieved in one run: maximum

         100 variables for each Form 1A, 2, 3 (total 300 variables)

      No. of format cards (lines) that can be used: 5 cards

   2. Limitations of the DRSDS utility program:

      All of the input files and output files must be direct access

      files (files that have more than 196 PRUS).

      All of the data must be in INTEGER format

      Neither the year nor the farm identification number will be

         released. However, researchers can identify the year and

         associations by tape (file) identification.

      All missing values will be assigned as zeros.

      The minimum number of variables that can be retrieved in each run is 2.

      It will not compute the analysis from the raw data

D. Procedures for Using the DRSDS Program

      In order to avoid computer errors, certain procedures should

be followed in using the DRSDS.

Step 1: Use the timesharing computer system to log on the MERITSS/ MEEC computer through any computer terminal or microcomputer.

Step 2: Use the command CATLIST to check if the raw data SDS direct file is stored in the user's disk. If not, consult the project leader and load it from tape.

Step 3: Name the new file. The name of the new file must not be the same as any file name that appears in the CATLIST command.

Step 4: Fetch the FORTRAN function library by typing in:

X,FETCH,MINNLIB/V = MNF

If you have the farm management procedure file PROCFIL in your disk, you can accomplish this by typing in -MNF.

Step 5: Get and run the DRSDS program by:

GET, DRSDS/UN = 4530325

X,DRSDS

Step 6: Respond to the computer and enter following information: the raw data SDS file name, the new file name, number of format cards, the format statement(s), and the matrix locations of the variables that you intend to retrieve from each FORM. (Detailed explanation of this step will be discussed in the next section.)

Step 7: Use the command CATLIST again to check if the new file is stored in user's disk. If yes, it is ready to be used for statistical analysis.

E. Explanation of the DRSDS Program

When the program is running, the computer will respond:

ENTER SDS-TAPE DIRECT FILE NAME

? XYZ1234

ENTER NEW DIRECT FILE NAME TO BE STORED

? NEWXXXX

Explanation: XYZ1234 is the file name that consists of all the data.
It should be one of the file names that appears in CATLIST in step 2.
The file name should not be more than seven characters long.

NEWXXXX is the new file name that will be used to store the data
retrieved from XYZ1234. Make sure NEWXXXX is a new file name that did
not appear in CATLIST (step 3).

ENTER NO. OF FORMAT CARDS FOR OUTPUT FILE. MAX. 5 CARDS

? N

ENTER N LINES OF FORMAT STATEMENTS. WITH OPEN AND CLOSED PARENTHESIS

? (5(1X,I10)/2(1X,I9)/2I5)

Explanation: N can be any number from 1 to 5. It tells the computer how
many lines of format statement(s) that will follow. In this example, N is 1.
Notice that 1 line of format statement does not necessarily mean one
line per each record. Here, the format statement means 3 lines for each
record.

The first line consists of 5 variables, 2 variables for the second and third
line. Because all of the data are stored as INTEGERs, only the I-field and
the X-field can be used in the Format statement(s). If F-field is used,
then mixed mode problem will occur, and all data will be lost. Also notice
that no more than 72 characters should be used on one line of format state-
ment.

ENTER THE VARIABLES IN FORM 1A:

ROW NO., COLUMN NO., FORM 1A SET NO.

? Il, Jl, Kl

? I2, J2, K2

? (CR)

Explanation: I, J, K's are the matrix locations for variables in com-
puter worksheet Form 1A. Each Form 1A has 101 rows and nine columns.
Each livestock enterprise uses three columns; thus, each Form 1A can
contain data for three or less livestock enterprises. Because some
farmers have more than 3 livestock enterprises, they can have more than
one Form 1A. None of the farmers in the associations thus far have had
more than nine livestock enterprises, so in practice, three Form 1A's
is the limit. Therefore, unlike Form 2 and Form 3, Form 1A is a three-
dimensional matrix (101 x 9 x 3). All the data in Form 1A will be
converted into a three-dimensional matrix. The user has to instruct
the computer of the matrix locations of all the variables that he wants
to retrieve. For example, 1, 1, 1 means line 1, column A of the first
Form 1A; 101, 8, 2 means line 101, column H of the second Form 1A for
this farmer. Notice that there are only 101 lines and 9 columns in
Form 1A; therefore, Il should be less or equal to 101, Jl should be less
or equal to 9. After you finish entering the variables in Form 1A, hit
the carriage return (CR) key, which tells the computer to proceed to
Form 2.

ENTER THE VARIABLES IN FORM 2:

ROW NO., Column NO.

? Il, Jl

? I2, J2

? I3, J3

? (CR)

Explanation: I's and J's are also the matrix locations for variables in the computer worksheet Form 2. Since there is only one answer for each cell, only the row number and column number are relevant. Thus, the matrix in Form 2 is a 47 x 4 matrix. Notice that the line numbers shown in Form 2 start from 11 and increase with an increment of 10. In order to reduce the size of the matrix, the computer will chop off the last digit of each line number. Thus, location (1, 1) means first line, column A, which is the veterinary expense for the whole farm; location (11, 2) means eleventh line, column B, which is the landlord's labor share. Again, the values for the I's should be less or equal to 47, and the values for the J's should be less than or equal to 4.

ENTER THE VARIABLES IN FORM 3:

CROP CODE NO., COLUMN NO.

? I1, J1

? I2, J2

? (CR)

Explanation: Because the format in Form 3 is different from others, researchers should pay special attention to the following notes·

a) There is no line number in Form 3, it uses the crop code number instead. For the list of crop code numbers, refer to Appendix D.

b) There are two sets of column numbers. The first set is on the left side, the second set is on the right side.

c) Some of the data entries are in decimal values, but the computer will not distinguish the decimal points, i.e., 2.00 will be read as 200.

Determination for the I's and J's values:

a) Look up the crop code number from the appendix, i.e.. 0172 stands for spring wheat.

b) Find out if the variable is in left hand side or right hand side of Form 3. If it is left hand side, attach a "1" at the end of the code number, if it is at the right hand side, attach a "2" at the end of the code number.

For example, value per unit of spring wheat is located at the left side; thus, the code number becomes 01721; the code number for chemical expense for spring wheat will be 01722. The crop code numbers have 4 digits, therefore, the I values have 5 digits, but cannot be larger than 99992.

For the J values, use 1 for column A, 2 for column B,....., 11 for column K, 12 for column L. For example, the matrix location for the variable of "value per unit of spring wheat" is (01721, 3); matrix location for the chemical expense of spring wheat is (01722, 2).

After all the variable locations have been entered, the computer will verify:

          NO. OF VARIABLES IN FORM 1A: X; IN FORM 2: Y;
          IN FORM 3: Z

     O.K. (Y/N)?

If the above information is correct, then enter Y, and the computer will start retrieving data. If the above information is incorrect, enter N, and re-enter all of the variable locations. When retrieving large numbers of variables, user may use a batch submit procedure instead of interactive procedure (see example 2).

After the computer has finished retrieving the data from the SDS tape, it will print out the following information:

          THERE ARE n FARM RECORDS WITH m VARIABLES STORED IN DIRECT FILE
          NAME: NEWXXXX

 * END *

F   Error Messages

When running DRSDS, eight kinds of errors may occur. Although the purpose of this section is to help users to deal with these errors, users are advised to read this user's guide carefully. When errors occur, users may use <back space> or <control H> to correct errors on the current line, or enter STOP to terminate the execution of the program.

ERROR A   :   DRSDS - NOT IN SYSTEM
              User forgot to GET the program.
              Check step no. 5.

ERROR B   :   UNSATISFIED EXTERNAL REF -- ATTACH
   OR   :   UNSATISFIED EXTERNAL REF -- DEFINE
              User forgot to fetch the MNF library.
              Check step no. 4.

ERROR C   :   ERROR NUMBER 52 FOUND IN ATTACH
              A non-existing file name was entered for
              the SDS data file.
              Check step no. 2.

ERROR D   :   TAPE4 ALREADY PERMANENT
              An already existing file name was used
              for storing the would be retrieved data.
              Check step no. 3, assign another file name.

ERROR E   :   ILLEGAL FORMAT CHARACTER
              The format statement(s) consist(s) of some
              illegal character(s), such as F-field, or the
              parenthesis is missing. Notice that only the I-
              field and the X-field can be used in the format
              statement(s).

ERROR F   :   INVALID MATRIX LOCATION, RE-ENTER THE LAST LINE
              This is a run time error message. It happens
              when user enters a wrong matrix location. Recall
              that the max. size for FORM 1A is 101 x 9 x 3;
              FORM 2 is 47 x 4; FORM 3 is "99992" x 2.
              Refer to appendix and re-check the matrix location.

ERROR G   :   ID ERROR IN FARMER XXXXXXXXX, PROGRAM CONTINUE
              A run time error caused by error(s) in the SDS
              data tape. Users are not allowed to access
              the original data tape. DRSDS ignores the
              current record and continues to the next record.

ERROR H : *TIME LIMIT* ENTER T TO CONTINUE
A run time message. Because of length of the
data file, it takes too much time for the computer
to retrieve all the data.
Enter "T" to continue.

IV. REMAINING PROBLEMS WITH PRESENT SYSTEM AND FUTURE SOLUTION

Even with the DRSDS program, because of the complexity, size, and

structure of the data, there are still some problems with the present

system. Currently, data are being stored in different files for each

year. When researchers want to get data for different purposes, they

have to run the DRSDS program many times in order to retrieve data from

different files, as shown in figure 1. Generally, this procedure creates
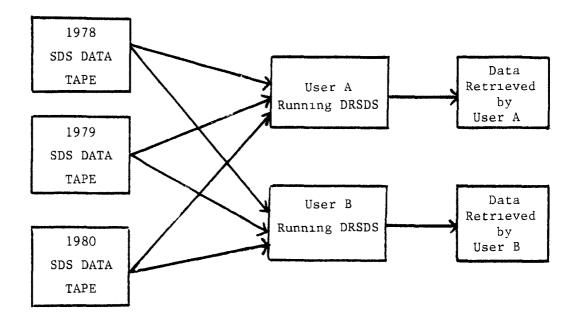
the following problems.

Figure 1: Current Data Retrieval System

Need for Computer Training.

The current method of accessing the raw data that is stored on magnetic tapes requires users to use the specially designed FORTRAN program, DRSDS, to retrieve the formated data and create their own data file. Due to the complexity of the data format, it is not uncommon for users to make small mistakes and have to repeat the retrieval process all over again. Hence, users have to be very familiar with the storage location before they can use the DRSDS program to retrieve the raw data from the storage tapes. In addition, they need to decide the format of the newly created data file for further uses.

Cost of Accessing the Data.

Users often would either copy from the computer output or retrieve from the tapes without knowing what other users have done previously. Each of these users spends a lot of time and computing cost to create their own data files. Many of these data files are probably duplicated. This means money and time have been wasted.

Cost of Error Searching.

Much time and effort has sometimes been spent just searching for the sources of recording mistakes made by the farmers. For example, an obvious error was spotted in the alfalfa category in the averages contained in the annual report. The method for correcting the error was first to find out which farmers had the crop alfalfa, examine each of their records, and then make the correction. It was a tedious job just to identify the farms which had alfalfa.

Difficulty in Aggregation.

Each file consists of a single year's data for all the farms in a single association. Therefore, studying a group of farms, such as a special farm type, over several years is extremely complex and difficult.

Inflexibility of Data Structure.

Since the algorithm of the DRSDS retrieval program depends on the structure of the data, any changes in data structure requires major modification of the retrieval programs. Thus, as the data structure changes due to change in farm analysis, it is becoming an exhaustive job for researchers to dig out any information.

Presently, faculty, researchers, and graduate students are frustrated in using this valuable data source because of its complex storage format. They are also discouraged by the requirement of extensive computer knowledge and high retrieval cost. But agricultural economists rely very much on computer technology for their quantitative analysis, which indirectly requires the availability of accurate data. Yet, it is surprising that there are not too many who have used a data base management system for retrieval of computerized information.

We at Minnesota are not unique in our problems. For example, the University of Illinois in Urbana has a much larger farm record data collection system which consists of about 3,000 farmers in their program. This huge amount of information, raw data and computed information, is being stored in their computer in a fixed format, similar to our system. Their users also have to write special programs for each retrieval attempt. Hence, their researchers have to understand very well about the

data storage system and FORTRAN computer language Without taking

advantage of a data base management system (DBMS), thev have the same

problems as we have in Minnesota.

As a solution for the future, it is therefore necessary to start

searching for alternative solutions to the problems which exist in our

current storage system. We should first start to investigate the

possibility of adopting the concept of Management Information System

(MIS) with special emphasis on Data Base Management Systems (DBMS)

software in order to improve and encourage the use of the existing farm

management data. We should then adopt a set of criteria for the selec-

tion of a DBMS for Minnesota farm records. After selecting the most

appropriate DBMS, we should reorganize the present Minnesota farm

records into a data base.

A small experimental Minnesota Farm Records Data Base was recently

developed by Lai Chun Kan as part of her Master's Plan B Project. In

that project, the SIR (Scientific Information Retrieval) system was used

as the DBMS and 30 variables for four years (1978-81) were inputted into

the data base system. For further information on that project, the

reader may refer to Lai Chun Kan, "Creation and Management of a Farm

Records Data Base,' Department of Agricultural and Applied Economics,

University of Minnesota, St. Paul: July 1983.

APPENDIX A

Two Examples of Using DRSDS

Example 1 = Interactive Procedure


```
X,FETCH,MINNLIB/V=MNF
:GET, DRSDS/UN=4530325
:X,DRSDS
ENTER SDS-TAPE DIRECT FILE NAME
? SDS1980
ENTER NEW DIRECT FILE NAME TO BE STORED
? LAI2
ENTER NO. OF FORMAT CARDS FOR OUTPUT FILE. MAX.5 CARDS
? 1
ENTER 1 LINE(S) OF FORMAT STATEMENT.  WITH OPEN AND CLOSING PARENTHESIS.
? (10I9)
ENTER THE VARIABLES IN FORM 1A:  ROW NO., COLUMN NO., FORM 1A SET NO.
? 1 1 1
? 1 2 1
? 1 3 1
?
ENTER THE VARIABLES IN FORM 2:  ROW NO., COLUMN NO.
? 1 1
? 1 2
? 13 2
? 1 4
?
ENTER THE VARIABLES IN FORM 3:  CROP CODE NO., COLUMN NO.
? 1721,3
? 3401,2
?
NO. OF VARIABLES IN FORM 1A:  3; IN FORM 2:  4; IN FORM 3:  2
OK. (Y/N) ?
? Y
 RETRIEVING DATA FROM SDS1980 PLEASE WAIT '
 ◆TIME LIMIT◆
 ENTER T TO CONTINUE OR CR KEY TO STOP:
T
THERE ARE 276 FARM RECORDS WITH  9 VARIABLES STORED IN DIRECT FILE NAME: LAI2
:
```

Example 2 = Batch Submit Procedure

The interactive procedure used in example 1 is convenient only if
several variables are to be retrieved. In the case of retrieving a
large number of variables, it is very easy to make mistakes in the
interactive procedure. To avoid mistakes, the user may use XEDIT
(or any text editor) to create a job file and submit it to the
computer as batch image.

```
KAN,T90.
ACCOUNT,XXXXXXX,YYYYY.
GET,DRSDS/UN=GQM6087.
FETCH,MINNLIB/V=MNF.
DRSDS.
RETAIN,OUTPUT=SOUT.
COST.
--EOR--
SDS1980
LAI2
1
(10I9)
1 1 1
1 2 1
1 3 1
--EOR--
1 1
1 2
13 2
1 4
--EOR--
1721 3
3401 2
--EOR--
Y
--EOR--
--EOF--
```

APPENDIX B

PROGRAM LISTING OF DRSDS

```
00100C  **********************************************
00110C THIS PROGRAM READS VARIABLES FROM SDS TAPE AND
00120C REFORMATS DATA BACK TO ORIGINAL TABLE FORMATS
00130C THAT USED BY THE MINNESOTA FARM MANAGEMENT ASSOCIATION.
00140C PROGRAMMER: LUNG-FAI WONG; SEPTEMBER, 1981.
00150C REVISED    : LAI-CHUN KAN; AUGUST,1983.
00160C THIS PROGRAM USES SOME ROUTINES THAT WERE
00170C ORIGINALLY WRITTEN BY HENRY HWANG AND GREG HANSON
00180C FOR FURTHER INFORMATION, CONTACT PROF. DELANE WELSCH
00190C DEPT. OF AGRICULTURAL AND APPLIED ECON.
00200C UNIVERSITY OF MINNESOTA, ST.PAUL
00210C VARIABLES: A=DATA IN FORM 1A;
00220C            B=DATA IN FORM 2;
00230C            C=DATA IN FORM 3;
00240C            Y=DATA FROM TAPE FOR EACH RECORD;
00250C            IA,IB,IC=IND ICES FOR PARAMETERS IN FORMS 1A,2,3
00260C            D=THE SPECIFIED DATA TO BE RETRIEVE;
00270C            F=FORMAT CARD INFORMATION
00280C  **********************************************
00290C
00300C
00310 PROGRAM SDSTAPE(INPUT,OUTPUT,TAPE1=INPUT,
00320+TAPE2=OUTPUT,TAPE3,TAPE4)
00330 INTEGER OUTFILE,A,B,C,D,Y,F,NFARM
00340 DIMENSION A(101,9,3),B(47,4),C(60,12),Y(11),
00350+ IA1(100),IA2(100),IA3(100),IB1(100),IB2(100),
00360+IC1(100),IC2(100),D(300),F(400)
00370  DATA A/2727*0/ B/188*0/ C/720*0/ D/150*0/Y/11*0/
00380 WRITE (2,10)
00390C READING IN FILE NAMES
00400 READ (1,20) INFILE
00410 WRITE (2,12)
00420 READ (1,20) OUTFILE
00430 CALL ATTACH(5HTAPE3,INFILE,0,0,0,0)
00440 CALL DEFINE(5HTAPE4,OUTFILE,0,0,0,0)
00450C READING IN FORMAT CARDS
00460 WRITE (2,30)
00470 READ (1,32) NFORM
00480 WRITE (2,34) NFORM
00490 NB=1
00500 NE=8
00510 DO 90 IFM=1,NFORM
00520    READ (1,36) (F(J),J=NB,NE)
00530    NB=NE+1
00540    NE=NE+8
00550 90 CONTINUE
00560C READING IN PARAMETERS FOR VARIABLES AND THEIR LOCATIONS
00570 92 WRITE (2,14)
00580 IA=1
00590 110 READ (END=120,1,*) IA1(IA),IA2(IA),IA3(IA)
00600 IF(IA1(IA).GT.101.OR.IA2(IA).GT.9.OR.IA3(IA).GT.3) GOTO 112
00610 IA= IA+1
00620 GO TO 110
00630 112 WRITE(2,54)
00640 GO TO 110
00650 120 IA=IA-1
```

```
00660 IB=1
00670  WRITE (2,16)
00680 122 READ (END=130,1,*) IB1(IB),IB2(IB)
00690 IF (IB1(IB).GT.47 .OR. IB2(IB).GT.4) GOTO 126
00700 IB=IB+1
00710 GO TO 122
00720 126 WRITE(2,54)
00730 GOTO 122
00740 130 IB=IB-1
00750 IC=1

00760  WRITE (2,18)
00770 132 READ (END=140,1,*) IC1(IC),IC2(IC)
00780 IF (IC1(IC).GT.99992 .OR. IC2(IC).GT.12) GOTO 134
00790 IC= IC+1
00800 GO TO 132
00810 134 WRITE(2,54)
00820 GOTO 132
00830 140 IC=IC-1
00840  IIC=1
00850  WRITE (2,58) IA,IB,IC
00860  READ (1,21) IANSWER
00870  IF (IANSWER .EQ. 1HY) GO TO 142
00880  WRITE (2,60)
00890  GOTO 92
00900 142 WRITE (2,62) INFILE
00910C READING IN DATAS FROM SDS TAPES
00920 REWIND 3
00930 REWIND 4
00940 IDOLD=23010102
00950 NFARM= 1
00960 1000 READ (3,50) ID1,ID2,LN,Y
00970 JCHECK = 0
00980 IF(ID1 .EQ. 99999999) GOTO 2000
00990 IF (ID1 .LT. 23010000 .OR. ID1 .GT. 23030000) WRITE (2,56) ID1
01000  IF (EOF(3) .NE. 0.0 ) GO TO 2000
01010  JCHECK = 1
01020 IF (LN .GT. 101) JCHECK = 0
01030 IF ( ID1 .NE. IDOLD ) GO TO 2000
01040 5000 IF ( ID2 .EQ. 1HA ) K=1
01050    IF ( ID2 .EQ. 1HB ) K=2
01060    IF ( ID2 .EQ. 1HC ) K=3
01070    IF ( ID2 .EQ. 1H2 ) GO TO 1002
01080    IF ( ID2 .EQ. 1H3 ) GO TO 1004
01090 DO 1001 L = 1,9
01100 1001  A(LN,L,K)=Y(L)
01110  GO TO 1000
01120 1002 LN1=LN/10
01130 DO 1003 L=1,4
01140 1003  B(LN1,L)=Y(L)
01150  GO TO 1000
01160 1004 C(IIC,1)=LN
01170 DO 1005 L=1,11
01180 1005 C(IIC,L+1)=Y(L)
01190   IIC=IIC+1
01200  GO TO 1000
01210C WRITE DATA ON NEW FILE NAME
01220  2000 NFARM=NFARM+1
01230  IF ( IA .EQ. 0 ) GO TO 2110
01240  DO 2100 KK=1,IA
01250 2100 D(KK)=A(IA1(KK),IA2(KK),IA3(KK))
```

```
01260 2110 IF (IB .EQ. 0 ) GO TO 2120
01270 DO 2200 KK= IA+1, IA+IB
01280 2200 D(KK)=B(IB1(KK-IA),IB2(KK-IA))
01290 2120 IF ( IC .EQ. 0 ) GO TO 3000
01300   IKK= IA+IB+1
01310 DO 2310 MN = 1,IC
01320   DO 2300 M = 1,60
01330   IF( C(M,1) .EQ. IC1(MN)) GO TO 2320
01340 2300 CONTINUE
01350     D(IKK)=0
01360     IKK=IKK+1
01370     GO TO 2310
01380     2320 D(IKK)=C(M,IC2(MN)+1)
01390     IKK=IKK+1
01400 2310 CONTINUE
01410 3000 WRITE (4,F) (D(NN),NN=1,IA+IB+IC)
01420   IDOLD=ID1
01430C RESET ALL VALUES TO ZERO
01440   DO 710 K1=1,101
01450     DO 710 K2=1,9
01460       DO 710 K3=1,3
01470   710 A(K1,K2,K3)=0
01480   DO 720 K4=1,47
01490     DO 720 K5=1,4
01500   720 B(K4,K5)=0
01510   DO 730 K6=1,60
01520     DO 730 K7=1,12
01530   730 C(K6,K7)=0
01540   IIC=1
01550 IF ( JCHECK .EQ. 1 ) GO TO 5000
01560   WRITE (2,40) NFARM-1,IA+IB+IC,OUTFILE
01570 10 FORMAT (*ENTER SDS-TAPE DIRECT FILE NAME*)
01580 12 FORMAT (*ENTER NEW DIRECT FILE NAME TO BE STORED*)
01590 14 FORMAT (*ENTER THE VARIABLES IN FORM 1A: *,1X,
01600+ * ROW NO., COLUMN NO., FORM/A SET NO.
01610 16 FORMAT (*ENTER THE VARIABLES IN FORM 2: *,1X,
01620+ * ROW NO., COLUMN NO. *)
01630 18 FORMAT (*ENTER THE VARIABLES IN FORM 3: *,1X,
01640+ * CROP CODE NO., COLUMN NO.*)
01650 20 FORMAT (A7)
01660 21 FORMAT (A1)
01670 30 FORMAT (*ENTER NO. OF FORMAT CARDS FOR OUTPUT FILE. MAX.5 CARDS*)
01680 32 FORMAT (I1)
01690 34 FORMAT (*ENTER *,I1,* LINE(S) OF FORMAT STATEMENT. *,1X,
01700+ *WITH OPEN AND CLOSING PARENTHESIS.  *)
01710 36 FORMAT (8A10)
01720 40 FORMAT (*THERE ARE *,I4,* FARM RECORDS WITH *,I4,
01730+* VARIABLES STORED IN DIRECT FILE NAME: *,A7)
01740 50 FORMAT (I8,A1,I5,12I7)
01750 54 FORMAT (*INVALID MATRIX LOCATION, RE-ENTER THE LAST LINE*)
01760 56 FORMAT(*ID ERROR IN FARMER *,I8,* PROGRAM CONTINUES*)
01770 58 FORMAT (*NO. OF VARIABLES IN FORM 1A: *,I3,
01780+*; IN FORM 2: *,I3,*; IN FORM 3: *,I3,/,*OK. (Y/N) ?*)
01790 60 FORMAT (*RE-ENTER ALL VARIABLE LOCATIONS AGAIN !*)
01800 62 FORMAT(* RETRIEVING DATA FROM *,A7,* PLEASE WAIT !*)
01810 STOP
01820 END
```

MINNESOTA VO-AG
COMPUTER DATA SHEET
FORM IA
OCTOBER   1982

FARM BUSINESS MANAGEMENT

EDUCATION PROGRAM

CODE _ _ _ _ _ _ NAME _____ Appendix C
AREA CENTER _____ SCHOOL _____
DATE _____ CITY _____ STATE _____

INVENTORY DATA

Form ___ of ___

LINE NO	DESCRIPTION	BEGINNING INVENTORY			ENDING INVENTORY			STATE CODES			
		WHOLE FARM	OPER. SHARE	L L SHARE	WHOLE FARM	OPER. SHARE	L L SHARE				
1	CROP, SEED, & FEED	$ (1,1)	$ (1,2)	$ (1,3)	$	$	$ (1,6)	01 AL	26 MT		
2	AUTO & TRUCK FARM SHARE							02 AK	27 NB		
								03 AZ	28 WV		
3	POWER CROP & GEN MACH							04 AR	29 NH		
4	IRRIGATION EQUIPMENT							05 CA	30 NJ		
								06 CO	31 NM		
5	CUSTOM WORK EQUIPMENT							07 CT	32 NY		
6	LIVESTOCK EQUIPMENT							08 DE	33 NC		
								09 FL	34 ND		
7	BARE LAND							10 GA	35 OH		
8	BLDGS, FENCES & TILING							11 HI	36 OK		
								12 ID	37 OR		
9 *	TOTAL NON-FARM ASSETS							13 IL	38 PA		
10	DWELLING							14 IN	39 RI		
								15 IA	40 SC		
11	REAL ESTATE MTGE							16 KS	41 SD		
12	CHATTEL & CROP LOANS							17 KY	42 TN		
								18 LA	43 TX		
13	NOTES							19 ME	44 UT		
14	ACCOUNTS PAYABLE							20 MD	45 VT		
								21 MA	46 VA		
15*	CASH ON HAND & IN BANK	(15,1)					(15,6)	22 MI	47 WA		
								23 MN	48 WV		
								24 MS	49 WI		
16'	NON FARM REAL ESTATE							25 MO	50 WY		

LIVESTOCK ENTERPRISES

19	CODE NUMBER	CODE NO _ _ DESCRIPTION _ _			CODE NO _ _ DESCRIPTION _ _			CODE NO _ _ DESCRIPTION _ _		
LINE NO	DESCRIPTION	QUANTITY	WHOLE FARM	L L SHARE	QUANTITY	WHOLE FARM	L L SHARE	QUANTITY	WHOLE FARM	L L SHARE
20	BEGINNING INVENTORY	(20,1)	$	$		$	$		$	$
21	ENDING INVENTORY									
22	TRANSFERS IN		■			■			■	
23	TRANSFERS OUT		■			■			■	
24	BUTCHERED									
25	SALES									
26	PURCHASES									
	PRODUCT INFORMATION									
30	WHOLE MILK USED/HOUSE	QTS			QTS			QTS		
31	SKIM MILK USED/HOUSE	QTS			QTS			QTS		
32	CREAM USED/HOUSE	QTS			QTS			QTS		
33	CREAM SOLD	LBS BF			LBS BF			LBS BF		
34	WHOLE MILK SOLD	LBS			LBS			LBS		
35	BUTTERFAT IN MILK SOLD	LBS	■		LBS	■		LBS	■	
36	NO. SHEEP/GOATS SHEARED	NO	■		NO	■		NO	■	
37	WOOL/HAIR SOLD INCL INCENTIVE PYT	LBS			LBS			LBS		
38	PELTS SOLD	NO			NO			NO		
39	EGGS SOLD	DOZ			DOZ			DOZ		
40	EGGS USED IN HOUSE	DOZ			DOZ			DOZ		
41	CROPS USED IN HOUSE	■			■			■		
42	HONEY USED IN HOUSE	LBS			LBS			LBS		
43	WAX SOLD	LBS			LBS			LBS		
44	QUEENS & PKGS SOLD	NO			NO			NO		
45	MISC LVSTK INCOME	■			■			■		(45,9)

Use Whole Number Only Unless A Decimal Is Specified
Round All Cents To The Closest Dollar
Decimal Number Must Be Complete If Called For
For Example, 10 Tons of Complete Ration Must Be
Reported As 10.0 Tons

* Line 15 and 16 should NOT be included in the total at line 9

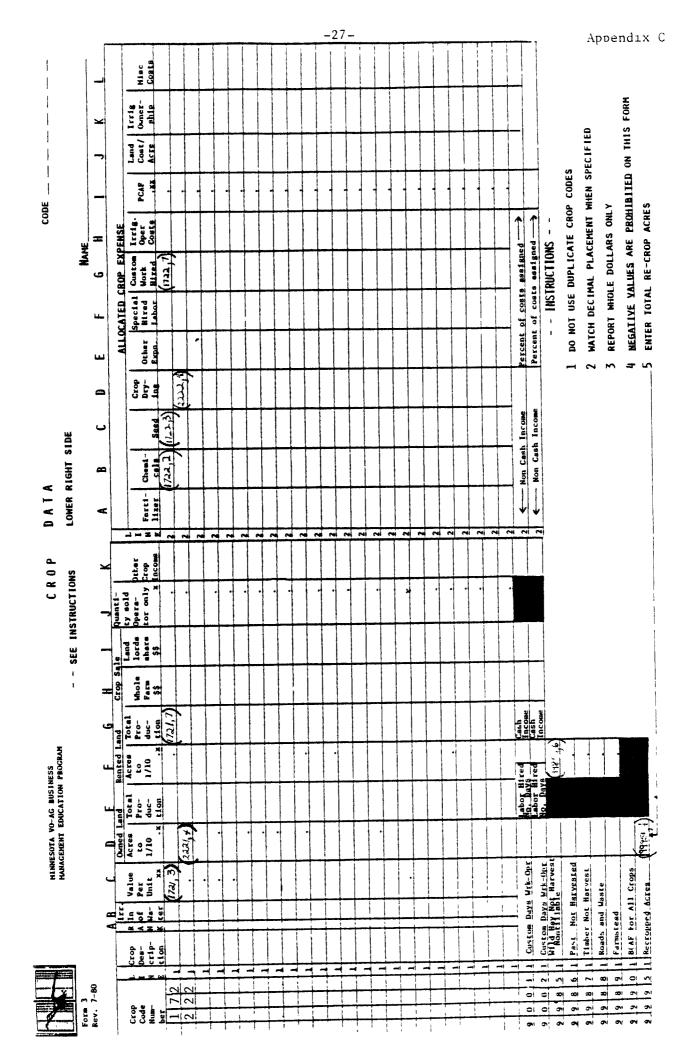FORM 1A - PAGE 2
MINNESOTA VO-AG
OCTOBER 1982

Form____of____

CODE ____ ____ ____ NAME _____
AREA CENTER _____ SCHOOL _____
DATE _____ CITY _____ STATE _____

LINE NO	DESCRIPTION	CODE NO DESCRIPTION _____			CODE NO DESCRIPTION _____			CODE NO DESCRIPTION _____		
		A QUANTITY	B WHOLE FARM	C L L SHARE	D QUANTITY	E WHOLE FARM	F L L SHARE	G QUANTITY	H WHOLE FARM	I L L SHARE
	LIVESTOCK NUMBERS									
50	BEGINNING INVENTORY	(50,1) NO			NO			NO		
51	PURCHASED	NO			NO			NO		
52	TRANSFERRED IN	NO			NO			NO		
53	BORN	NO			NO			NO		
54	SOLD	NO			NO			NO		
55	YOUNG DIED	NO			NO			NO		
56	OLD DIED	NO			NO			NO		
57	TRANSFERRED OUT	NO			NO			NO		
58	BUTCHERED *(Acres Pollinated)*	NO			NO			NO		
59	ENDING INVENTORY	NO			NO			NO		
60	FEMALES BEARING YOUNG	NO			NO			NO		
61	FEM SUPPOSED TO BEAR YG	NO			NO			NO		
62	AVERAGE NO ADULTS x	NO			NO			NO		
63	AVERAGE NO OTHERS x	NO			NO			NO		
64	WORK UNITS/UNITS OTHER PROD LVSTK ONLY xx									
	MISC LIVESTOCK INFO					S			S	
70	MISC LIVESTOCK EXP									
71	VETERINARY EXPENSE									
72	CUSTOM WORK HIRED									
73	NO SOLD OR TRANSFERRED	NO			NO			NO		
74	SOLD OR TRANSFERRED	LBS			LBS			LBS		
75	SPECIAL HIRED LABOR									
76	PCAF xx									
77	ECAF									
78	BCAF									
	FEED FED	BU	S		BU	S		BU	S	
80	CORN 56#Bu/Wt	BU			BU			BU		
81	OATS 32#Bu/Wt	BU			BU			BU		
82	BARLEY, MILLET, BUCKWHEAT	BU			BU			BU		
83	RYE, FLAX 56#Bu/Wt	BU			BU			BU		
84	WHEAT, SOYBEANS, PEAS 60# Bu/Wt									
85	PROT, SALT, MIN & VIT *(FISH FERT)*	CWT			CWT			CWT		
86	COMPLETE RATIONS *(WORM BED)*	TON			TON			TON		
87	LEGUME HAY *(PEAT MOSS)*	TON			TON			TON		
88	OTHER DRY HAY *(COW MANURE)*	TON			TON			TON		
89	CORN SILAGE *(OTHER MANURE)*	TON			TON			TON		
90	GRASS SILAGE	TON			TON			TON		
91	FODDER & STOVER	TON			TON			TON		
92	PASTURE	DAY			DAY			DAY		
93	WHOLE MILK FED	LBS			LBS			LBS		
94	FARM SKIM MILK FED	LBS			LBS			LBS		
95	HONEY	LBS			LBS			LBS		
96	SUGAR	LBS			LBS			LBS		
97	CHEMICALS & OTHER	LBS			LBS			LBS		
98	HAYLAGE ***	TON			LBS			LBS		
99	RED MEATS & BY-PRODUCTS	LBS			LBS			LBS		
100	POULTRY MEATS & BY-PROD	LBS			LBS			LBS		
101	FISH PRODUCTS	(101,1) LBS			LBS			LBS (101,8)		

Use whole number only unless a decimal is specified.
Round all cents to the closest dollar
Decimal number must be complete if called for
For example, 10 tons of complete ration **must** be
reported as 10.0 tons.

COMPUTER WORK SHEET   MINNESOTA VO-AG FARM BUSINESS MANAGEMENT EDUCATION PROGRAM
FORM 2
REVISED OCTOBER, 1977

CODE ___ NAME _____
AREA CENTER _____ SCHOOL _____
DATE ___ CITY ___ STATE ___

INCOME AND EXPENSE DATA

LINE		PAGE	WHOLE FARM (A)	OPERATOR'S SHARE	LANDLORD'S SHARE (B)	HOUSEHOLD & PERS. EXP (C)
11	VETERINARY EXPENSE	24-25	(1,1)		(1,2)	
21	MISCELLANEOUS LIVESTOCK EXPENSE	24-25				
31	FEED BOUGHT	28-31				
41	FERTILIZERS	38				
51	CROP CHEMICALS	38				
61	OTHER CROP EXPENSES (EXCL IRRIG OPERATING COST)	39				
71	CUSTOM WORK HIRED	39				
81	FOR TRUCK SHARE	40				
91	FOR POWER AND CROP MACHINERY	40				
101	FOR LIVESTOCK EQUIPMENT SHARE	40				
111	LABOR SHARE	40				
121	REPAIR OF REAL ESTATE	41				
131	TRUCK AND AUTO BOUGHT	42				(12,3)
141	POWER AND CROP MACHINERY BOUGHT	42				
151	LIVESTOCK EQUIPMENT BOUGHT	42				
161	BUILDINGS AND FENCES BOUGHT	42				
171	LAND BOUGHT	42				
181	DWELLING BOUGHT	42				
191	TRUCK AND AUTO SOLD	43	(19,1)			
201	POWER AND CROP MACHINERY SOLD	43				
211	LIVESTOCK EQUIPMENT SOLD	43				
221	BUILDINGS AND FENCES SOLD	43				
231	LAND SOLD	43				
241	DWELLING SOLD	43				
251	PROPERTY TAXES - REAL AND PERSONAL	43				
261	CASH RENT EXPENSE	44				
271	CASH TAX REFUND	44-45				
281	GAS, OIL, GREASE BOUGHT TOTAL	44-45				
291	FOR TRACTOR AND CROP MACHINERY	44-45				
301	FOR TRUCK	44-45				
311	FOR AUTO	44-45				
321	REPAIR & OPERATION OF POWER, MACH TOTAL	46-51				
331	FOR TRACTOR & CROP MACHINERY	46-51				
341	FOR TRUCK	46-51				
351	FOR AUTO	46-51				
361	REPAIR OF LIVESTOCK EQUIPMENT	46-51				
371	GAS FOR HIRED LABOR	52-53				
381	ELECTRICITY EXPENSE	53				
391	TELEPHONE EXPENSE	53				
401	GENERAL FARM EXPENSE	54				
411	INCOME FROM WORK OFF THE FARM					
421	FOR TRUCK	54				
431	FOR POWER & CROP MACHINERY	54				
441	FOR LIVESTOCK EQUIPMENT	54				
451	LABOR SHARE	55				
461	CO-OP PATRONAGE REFUNDS	55				
471	MISCELLANEOUS FARM INCOME	55	(47,1)		(47,2)	

LINE		PAGE	RECORD TOTALS (D)
481	MONEY BORROWED	55	(1,4)
491	PAID ON DEBTS-PRINCIPAL	56	
501	-INTEREST	56	
511	INVESTMENTS MADE	58	
521	INCOME FROM INVESTMENTS	57	
531	OTHER NON-FARM INCOME	58	
541	INCOME AND SELF-EMPLOYMENT TAXES	58	
551	INCOME TAX REFUNDS	58	
561	CONTRIBUTIONS TO CHURCH AND WELFARE	59	
571	MEDICAL EXPENSES	59	
581	FOOD AND MEALS BOUGHT	60-61	
591	OPERATING EXPENSES AND SUPPLIES	61	
601	FURNISHINGS AND EQUIPMENT	62	
611	CLOTHING	62	
621	PERSONAL CARE AND SPENDING	63	
631	EDUCATION	63	
641	RECREATION	64	
651	GIFTS AND SPECIAL EVENTS	64	(19,4)
661	NUMBER OF PERSONS IN FAMILY		
671	ADULT EQUIVALENT IN FAMILY (TO NEAREST 1/10)		
681	DAYS OF DAY LABOR HIRED		
691	MONTHS OF MONTHLY LABOR HIRED (TO NEAREST 1/10)		
701	HIRED LABOR BOARDED -OPERATOR		$
711	-PARTNERS		$
721	DAYS OF UNPAID FAMILY LABOR		
731	VALUE OF UNPAID FAMILY LABOR		$
741	NUMBER OF OPERATORS ON THE FARM		
751	MONTHS WORKED BY OPERATOR (TO NEAREST 1/10)		
761	MONTHS WORKED BY PARTNERS (TO NEAREST 1/10)		
771	VALUE OF PARTNER'S LABOR		$
781	WHEN 1 RENTER 2 PARTNER 3 (CHECK)		1 2 3
791	NET WORTH STATEMENT (CHECK YES OR NO)		YES NO

LINE	DESCRIPTION	PAGE	WHOLE FARM (D)	LANDLORD'S SHARE (E)
861	OPERATING COSTS - IRRIGATION	39		
871	REPAIR OF IRRIGATION EQUIP.	46-51		
881	IRRIGATION EQUIPMENT BOUGHT	42		
891	IRRIGATION EQUIPMENT SOLD	43		

LINE	CUSTOM WORK ENTERPRISE ONLY (F)		
801	GAS, OIL & GREASE/CUST WK	54	
811	REPAIRS/CUST WK	54	
821	CUSTOM WORK LABOR HIRED	54	
831	SUPPLIES FOR CUSTOM WORK	55	
841	CUSTOM WORK EQUIPMENT BOUGHT	55	
851	CUSTOM WORK EQUIPMENT SOLD	55	

Round all cents to the closest dollar   Decimal numbers must be complete if called for   Both the number only unless a decimal is specified

MINNESOTA VO-AG BUSINESS
MANAGEMENT EDUCATION PROGRAM

Form 3
Rev. 7-80

CODE _ _ _ _ _

NAME _ _ _ _ _

CROP   DATA

-- SEE INSTRUCTIONS --

LOWER RIGHT SIDE

CROP DATA (LEFT SIDE)

Crop Code Number	L I N E	A Crop Description	B Irr In A of N Water K	C Value Per Unit .xx	D Owned Land Acres to 1/10	E Total Production .x	F Rented Land Acres to 1/10	G Total Production .x	H Whole Farm $$	I Crop Sale Land lords share $$	J Quantity Operator only .x	K Other Crop Income .x
1 7 2 1	1			(721,3)	(222,4)			(721,7)				
2 2 2 1	1											

9 0 0 1	1	Custom Days Wrk-Opr					Labor Hired No Days
9 0 0 2	1	Custom Days Wrk-Opr					Labor Hired No. Days	(112,46)
9 1 8 5	1	Wild Hay Not Harvest Non Tillable					
9 8 8 6	1	Past Not Harvested					
9 8 8 7	1	Timber Not Harvest					
9 8 8 8	1	Roads and Waste					
9 8 8 9	1	Farmstead					
9 9 8 0	1	BCAF for All Crops					
9 9 9 5	1	Recropped Acres (995,1)					

ALLOCATED CROP EXPENSE

L I N E	A Fertilizer	B Chemicals	C Seed	D Crop Drying	E Other Expn.	F Special Hired Labor	G Custom Work Hired	H Irrig. Oper Costs	I PCAF .xx	J Land Cost/ Acre	K Irrig Owner- ship	L Misc Costs
2	(721,7)	(722,1)	(1,2,3)	(222,14)			(722,7)					
2												

← Non Cash Income — Percent of costs assigned →

Cash Income ← Non Cash Income — Percent of costs assigned →

-- INSTRUCTIONS --

1. DO NOT USE DUPLICATE CROP CODES
2. WATCH DECIMAL PLACEMENT WHEN SPECIFIED
3. REPORT WHOLE DOLLARS ONLY
4. NEGATIVE VALUES ARE PROHIBITED ON THIS FORM
5. ENTER TOTAL RE-CROP ACRES

CROPS MASTER LIST

Code Number	Crop Description	Production Unit	Work Unit	Rank
0023	Barley	Bu.	.30	D
0048	Flax Market	cwt.	.30	C
0072	Oats - Feed	Bu	.30	D
0172	Spring Wheat	Bu.	.30	C
0181	Winter Wheat	Bu.	.30	C
0091	Rye	Bu.	.30	D
0205	Beans, Navy	cwt.	.50	C
0206	Beans, Pinto	cwt.	.50	C
0213	Canning Corn	Ton	.50	B
0220	Corn for Seed	Bu.	.60	A
0222	Corn - Grain	Bu.	.55	A
0281	Sorghum - Grain	cwt.	.50	C
0291	Soybeans	Bu.	.45	A
0300	Sugar Beets	Tons	2.00	A
0311	Sunflowers	Pounds	.40	B
0340	Canning Peas	$	.40	B
0401	Alfalfa Hay	Tons	.60	B
0491	Other Legume Hay	Tons	.40	C
0600	Wild Hay (Non-Tillable)	Ton	.20	D
0610	Other Grass Hay	Ton	.20	D
0700	Alfalfa Silage	Ton	.40	B
0710	Corn Fodder	Ton	60	D
0720	Corn Silage	Ton	.60	A
0750	Oat Silage	Ton	.40	C
0770	Sorghum	Ton	.60	C
0810	Alfalfa & Mixed Pasture	$	.05	D
0820	Other Legume Pasture	$	.05	D
0860	Pasture - Non-Tillable	$	.01	D
1996	Other Tillable Land - Idle		.05	D
1994	Set Aside Acres - Tilled	$	.20	B

Double Cropped Land

0293	Soybeans
0402	Hay
0226	Corn

Rented Out Land Share

0225	Corn
0294	Beans
0176	Wheat
0403	Alfalfa
1996	Other Tillable Land (tenants portion)

Rented Out Land for Cash

1997	Land rented out tillable	$
1998	Land rented out non-tillable	$