

Module 15

The Managing Risks and Profits Software Program

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Since this software is in a beta test mode, please send suggestions for change to E. Dean Baldwin, 223 Agricultural Administration Building, Ohio State University, 2120 Fyffe Rd., Columbus, Ohio, 43210. His e-mail address is Baldwin.4@osu.edu.

Introduction

The Managing Risks and Profits (MRP) educational program focuses on new global agricultural policies and changes in the global environment. MRP helps grain farmers and agribusiness persons understand contemporary risks associated with crop yields and marketing alternatives. Authors from eight North Central Land Grant universities wrote 14

chapters that explore crop insurance and marketing choices, legal interpretations, financial considerations, cash flow analysis, profit potentials, and methods for creating a farm production and marketing plan. These chapters are on the CD-ROM that you received, are available via the Data Transmission Network, or are available through traditional educational channels.

To use the subject matter to create a unique personalized marketing plan for a farm business, Miller and Associates of Metamora, Illinois were employed to write an MRP software package. This Windows 3.1 or 95 Managing Risks and Profits (MRP) software program is designed to enable the user to apply what is being learned in individual Managing Risks and Profits modules to the user's farm business. This software can be used directly by a farmer; or county agents, insurance companies, and other agribusinesses can enter the data for the farmer to create a personalized marketing and production plan. Variable costs or support data are entered for producing new crop grains and for storing grains into the following crop year. Overhead or fixed costs are entered for the farm. Different marketing alternatives and insurance products can be selected to limit price and production risks and to manage cash flow obligations. Other sources of income and liquid assets are included and may be used to offset cash flow short falls. Risk position summaries, per bushel breakeven costs and cash flows, net open (short or long positions) grain positions, and profits or losses are reported for each crop enterprise. Projected incomes and costs are also reported for the farm.

Applications and the results may vary depending upon the user's financial position. Individuals with high debt-to-asset ratios and/or significant cash flow requirements may need to use insurance products and marketing alternatives to manage crop yields, price risks and profits. Those who are financially secure may also choose to use these risk management tools or they may elect to self-insure. Realizing that one risk management program does not fit the needs of all producers, this software program is designed to help individual farmers design a risk management plan that best fits their unique risk management and profit objectives. This software is not intended to be used as a precise farm accounting system or for income tax computations, but as a tool for evaluating marketing and production risks.

Once a user is familiar with this foundation software program, customized financial and marketing reports can be prepared for the farm. The logic and process for this program will not change as later versions of the program are developed to reflect the introduction of new insurance products, marketing alternatives, public policies, probability distributions and dairy and livestock enterprises. Learning this foundation program will prepare and orient the user to quickly learn updated releases of this software which will reflect changes in policy and economic environment. Changes will also be incorporated based on suggestions by end users.

Example Analysis with MRP Software (or go to [Topics](#))

Before using this computer model, consider reading the MRP modules. As a minimum, read and/or be familiar with the information that is presented by Dr. William Edwards in [Module 3](#), "Financial Considerations in Managing Risks and Profits." The logic, terminology, and formulae from this module are used to create the MRP software program. [Module 9](#) on crop insurance alternatives, and modules discussing pricing alternatives and basis behavior also are helpful in understanding how to use this software

To help grain producers, educators, and agribusiness persons understand how to use this

software, this manual was written as a case study farm for Mr. and Mrs. Peter and Pat Producer. The Producers are farming 1200 acres. Since 200 acres are farmed on a 50:50 share basis, the Producer's input costs and financial returns are based on 1100 acres. The costs and returns for the landlord's 100 acres are not included as inputs or outputs in this software program.

This document is a step-by-step approach that begins with data entry and progresses to reading and understanding the reports. Each input and report screen is reproduced as a figure so that the data can be entered as the user proceeds and all reports can be interpreted. Except for the Producer's name and identification number, all entry screens are initially blank. For teaching purposes or for other uses, all data entries and reports for this case farm are included on the CD-ROM in a file called MRpdata. To load, read the section of the manual **Opening a File or Retrieving Data**.

Installing Software Using Two Floppy Disks (or go to [Topics](#))

MRP will run on either 3.1 or Windows 95 software. If a Windows 95 operating system is being used, insert MRP disk number 1 in the external (A) drive. Using the mouse, place the cursor on the **start** button. Click the right hand mouse button. When the pull up screen appears, place the cursor on **Explore** and click the left hand mouse button. The root directory will appear. Using the mouse, move the directory to the top of the screen and select the External (A) drive icon. That is, click, using the left hand mouse button, on that icon. This action will display all of the files that are on the MRP disk 1. Using the mouse, move through the files until the **Setup Application** file is found. Click on **Setup** to begin installing the program. Thereafter, follow the instructions on the screen. At the appropriate time and as instructed, insert disk number 2 in the external A drive. When installation is complete, use the mouse to turn off the Explore screen. To do this, click on the **[X] close** button in the upper right hand side of screen. Using the mouse, click and drag the MRP icon onto the Windows front page and close the MRP box.

If the operating system is Windows 3.1, insert MRP disk number 1 in the external (A) drive. Using the mouse, select **File Manager**. In the upper right hand corner of the screen, use the mouse to select external (A) drive. This action will display all of the files that are on the MRP disk 1. Using the mouse, move through the files until the **Setup Application** file is found. Click on **Setup** to begin installing the program. Thereafter, follow the instructions on the screen. At the appropriate time and as instructed, insert disk number 2 in the external A drive. When installation is complete, use the mouse to turn off the **File Manager** and drag the MRP icon onto the front page of Windows.

Installing the Software From the CD-ROM (or go to [Topics](#))

If the program is installed from the CD-ROM, use the file manager to list the files that appear on the CD-ROM. Use the mouse to click on the **INSTALL MRP** shortcut and follow the instructions that appear on the screen. When the installation process is complete, drag the MRP icon from the MRP dialog box onto the main Windows screen.

ACTIVATING THE PROGRAM

(or go to [Topics](#))

After the software is installed, use the mouse to click on the Managing Risks and Profits icon that appears on the computer screen. The Managing Risk and Profits front page or [Figure 1](#) appears. The 2.1 in the upper left hand corner of the screen identifies the version of this program. It is possible that a different or higher version number may appear on the screen. There are six choices on the upper bar, **CONTROL SCREEN, SUPPORT DATA, SUMMARY DATA, REPORTS, ABOUT, AND QUIT**. Before using this program, use the mouse to click on the menu choice, **ABOUT**. In this section, the authors, the MRP educational program, and the programmer are identified. Read the **Disclaimer** statement before beginning to use the MRP software. Thereafter, begin working with the program by clicking on the menu choice, **CONTROL SCREEN**.

Control Screen (or go to [Topics](#))

This screen or [Figure 2](#) is used to enter the producer name or to identify the farm. Using the mouse, move the cursor to the **Producer** field. Clicking the left hand button on the mouse will highlight the Producer field in blue. **The name (Peter and Pat Producer), the I.D. Number 1 and the Date have already been entered. Use the Tab key on the keyboard to move to the ID Number field and then to the Date field. Hereafter, the program will assign all current data entries to this record using the ID number one (1). (THE TAB KEY IS USED ON ALL SCREENS TO MOVE FROM ONE FIELD TO ANOTHER. TO RETURN TO A PRIOR FIELD OR TO BACK UP, PRESS THE SHIFT KEY AND THE TAB KEY. THE BACKWARD ARROW KEY CAN ALSO BE USED TO MOVE BACKWARDS. FINALLY, ONE CAN RETURN TO A PRIOR FIELD BY CLICKING THE MOUSE ON THE DESIRED FIELD.**

Notice that the individual can select the type of grains (crops) that are grown on this farm. Since Peter and Pat Producer grow corn, soybeans and soft-red winter wheat, use the mouse to click on each of these crops. It is now specified that Peter and Pat Producer are operating a grain farm consisting of corn, soybeans and SRW wheat. Other grains are not being produced.

1. Saving the Data (or go to [Topics](#))

As data are entered, the data are automatically stored within the program for future use. The user may exit the program with the assurance that upon re-entering the program, the prior data entries will appear in both the input and summary screens. **Three limitations exist, however. (1) If the user enters new data or revises the program, the old records are lost. (2) The user cannot access these data for use in other software programs. (3) If the system were to crash, the data would be lost because it would not be backed up or stored on other sub-directories or disks.** To overcome these limitations, the program is designed to allow the user to store the data to other sub-directories or disks. This is accomplished by clicking on the **SAVE PLAN** button on the **CONTROL SCREEN** ([Figure 2](#)). The **SAVE** button is analogous to the **SAVE** or **SAVE AS** function that appears on most Windows based programs.

To save the **Name (Producer), the I D. Number (1) and the Date (05/04/1998)**, use the mouse to click on the **SAVE PLAN** button. After clicking on the **SAVE** button, a **SELECT DIRECTORY** screen appears, [Figure 3](#). Use the mouse to identify the **DRIVE** and subdirectory where the data will be stored. In this example, the data are being saved to disk

drive A. By clicking on the arrow in the **DRIVE** box, other drive choices appear, such as C, B, and/or D. If a sub-directory needs to be defined or made, exit the MRP program and make the subdirectory using the Window's software. Then, return to the MRP program, select the drive and sub-directory and store the data by clicking on the **SELECT** button. The **CANCEL** button terminates this procedure.

Ten files will be stored by ID number and date. The first file in this example is identified as C0001805.dat. (To see a listing of the files, exit the MRP program and select the directory and subdirectory where the files were stored, or use the mouse to select **OPEN FILE** on the **CONTROL SCREEN**. The file is read in the following way: C always appears and is fixed, the number 01 equals the user ID Number for Peter and Pat Producer, the number 8 equals 1998, the number 05 equals May, and DAT equals data file. The date 05/98 is tied to the date that is generated by the computer. When saved by the user, the current date that is in the user's computer will be assigned to this record. As data are entered into the respective screens, (**SUPPORT DATA** screen for example) return to the **CONTROL SCREEN** and use the **SAVE PLAN** feature to save the entries to prevent loss of data. If records are being maintained for more than one farm or for a group of farmers, save the data for a farm to a separate external disk or to separate subdirectories on the hard drive. Always back up all saved files.

2. Opening a File or Retrieving Data (or go to [Topics](#))

The **OPEN PLAN** button that appears on the **CONTROL** screen ([Figure 2](#)) is analogous to the **OPEN** function (open an existing document or set of files) that appears on most Window's programs. **To illustrate the data retrieving function, use the Tab key to return to the Producer, I.D. Number and Date fields. Use the Delete key on the keyboard to remove these entries from the CONTROL screen. To open or access the file containing the Producer's name, I.D. Number and prior date, use the mouse key to click on OPEN PLAN button. The OPEN screen appears, Figure 4. Select the drive and subdirectory to find the data. If all files are to be retrieved, check the ALL FILES box, click on a data file (c0001805.dat for example), and then click on SELECT. All data files will be loaded. The Producer's name, I.D. Number and the Date are again displayed on the CONTROL screen.**

If an individual file is being retrieved, click on the desired files and click on **the SELECT** button. The **ALL FILES** box would be turned off; that is, select the c00018052.dat file, for example, and then click on **SELECT**. To download other individual files, use the mouse to highlight a file name and then use the mouse to activate the **SELECT** button.

If data are being maintained for more than one farm, each set of farm data should be saved to a separate disk or to a separate sub-directory on the hard drive or disk. This procedure avoids confusion when opening or retrieving data. To retrieve the saved data for a specific farm, click on the open button and access the disk or subdirectory where the data are located.

The **UPDATE** plan button on [Figure 2](#) is used to revise the current plan. Revising the plan will be discussed after all data for the following examples are entered. The **CLOSE** button closes the **CONTROL SCREEN** ([Figure 2](#)) returning the user to the main menu ([Figure 1](#)).

Support Data (or go to [Topics](#))

On the main menu ([Figure 1](#)), use the mouse to click on **SUPPORT DATA** to get a pull down screen, [Figure 5](#). This set of input screens is used to enter new crop data, grain assets or grain that is in storage, as well as fixed or general overhead costs, marketing alternatives, insurance products, and miscellaneous or financial records. Yield futures will be added at a later time. Each label on the pull down screen (**NEW CROP, GRAIN ASSETS, GENERAL OVERHEAD COSTS, MARKETING ALTERNATIVES, INSURANCE PRODUCTS** and **MISCELLANEOUS**) is discussed in succession. Begin by using the mouse to click on **NEW CROP**.

1. NEW CROP: (or go to [Topics](#))

This screen or [Figure 6](#) is used to enter grain production and variable cost data. By definition, variable costs are "out of pocket" expenditures that would not be paid if a crop was not planted. All variable costs are included in cash flow obligations and as total costs ([Table 1](#)). Although the importance of costs and cash flow obligations is not discussed here, it is important for the reader to note that all variable costs are reported on the **RISK POSITION** report as operating costs ([Figure 14](#)). The variable costs also are included as one facet in the new crop cash flow/bu field on [Figure 14](#). On the **PROJECTED NET FARM INCOME** screen, all variable costs are summed and are reported as new crop costs in the **OPERATING AND INSURANCE COST** field ([Figure 52](#)). The **RISK POSITION** and **PROJECTED NET FARM INCOME** reports will be discussed thoroughly in succeeding sections of this manual.

Variable costs may be entered for the Producer's farm, for a number of different farms that are operated by Peter and Pat Producer, or for a number of fields on the Producer's farm. If the Producers were farming a piece of land that they owned, a second rented for cash, and a third rented on the shares, the data should be entered separately for all three farms. Alternatively, if different fields have different production capacities, costs, and risks, all data could be entered by field. After the data are entered, the software program sums all entries and keeps all corn data together. That is, entering corn data for three different farms or for three different fields is possible because the program sums all the corn data together for the Producer's farm business.

Before creating a new data set, select the **DELETE** button on the **NEW CROP** screen ([Figure 6](#)). Clicking the mouse on the **DELETE** button deletes any data that are in this file. If a new plan is being developed, always delete the old data. If, on the other hand, the plan is being revised, **do not** delete existing data. Clicking on the **NEXT** and **PREVIOUS** buttons reveals whether there are data in this database. After all data are deleted, clicking on the **NEXT** button generates the statement "end of file" and clicking on **PREVIOUS** button generates the statement "beginning of file." When these statements appear in the upper left hand corner of the **NEW CROP** screen and zeroes (0) appear in all fields, the screen is void of all data.

TABLE 1. ITEMIZATION OF COSTS AND CASH FLOWS
(or go to [Topics](#))

ITEMS	DATA INPUT SCREEN	COSTS	CASH FLOW
All variable costs	New Crop, Figure 6	Yes	Adds
Machinery Costs	General Overhead Costs	-	-
1. Depreciation	General Overhead Costs	Yes	No
2. Insurance	General Overhead Costs	Yes	Adds
3. Interest on Equity	General Overhead Costs	Yes	No
4. Interest on Loans	General Overhead Costs	Yes	Adds
5. Repairs	General Overhead Costs	Yes	Adds
Labor	General Overhead Costs	-	-
1. Income Tax & S.S.	General Overhead Costs	Yes	Adds
2. Value of Unpaid Labor	General Overhead Costs	Yes	No
3. Wages Paid	General Overhead Costs	Yes	Adds
Land Improvement	General Overhead Costs	-	-
1. Depreciation	General Overhead Costs	Yes	No
2. Insurance on Buildings	General Overhead Costs	Yes	Adds
3. Interest on Loans	General Overhead Costs	Yes	Adds
4. Interest on Equity	General Overhead Costs	Yes	No
5. Property Tax	General Overhead Costs	Yes	Adds
All Living Expenses	General Overhead Costs	Yes	Adds
Miscellaneous Costs	General Overhead Costs	Yes	Adds
Payments	General Overhead Costs	-	-
1. Down Payments	General Overhead Costs	No	Adds
2. Principal Payments	General Overhead Costs	No	Adds
3. Fair Payments	General Overhead Costs	No	Subtracts

IMPORTANT: To begin entering data, use the mouse to click on the **ADD** button on the **NEW CROP** screen, [Figure 6](#). Before entering data into any of these screens, one must first select the **ADD** button. **(If this procedure is not followed, the data will not be correctly entered into the database).** Selecting the **ADD** button highlights the Farm/Field Name field in blue.

A. Entering Corn Data for Home Farm (or go to [Topics](#))

In this example, data will be entered for two farms. It is assumed that the Producers grow corn on their home farm and on a share-rent farm. Soybeans and wheat will be grown only on the home farm. To begin entering the data for corn, enter Home Farm in the highlighted

Farm/Field Name field ([Figure 7](#)). Selecting the Tab key on the keyboard highlights the Grain field. Use the mouse to click on the **GRAIN** button. A pull down screen appears. The crop names that appear were identified on the **CONTROL SCREEN**. In this example, corn, soybeans and SRW wheat are the three crops grown by the Producers.

Use the mouse to click on corn and then select the Tab key which highlights the **Farm/Field Acreage** field. Enter 500 acres into this field and select the Tab key. This highlights the **Production Share %** field. In this field, enter the share of production that the Producers will receive. In this example, 100% is entered representing that 100% of the production will be received by Peter and Pat Producer. Striking the Tab key highlights the **Expected Bu. Yield/Acre** field. The Producers base their yield estimate on a five or 10 year moving average for their farm or field. If crop yield data are not available for your farm, selected county data and yield probability distributions may be obtained from a second software program, AgRisk. This program is included on the CD ROM. For this example, enter 130 bushels and select the Tab key. The software program calculates that 65,000 bushels are expected (**Total Farm/Field Bushels**) and the **Normal Yield/Acre** field is highlighted. (**Note:** If a crop failure is expected or occurs and/or there is a need to estimate the indemnity payment from an insurance policy, reduce the estimated bushels in the **Expected Bu. Yield/Acre**. To simulate a complete crop failure, one would enter zero (0) in the **Expected Bu. Yield/Acre** field. The payout from a crop failure will be discussed in more detail when the **INSURANCE PRODUCT** screen is examined). For this example, enter 130 bushels in the **Normal Yield/Acre** field and select the Tab key. This highlights the **Seed** field in the **Expenses/Acre** variable cost section. Enter the following variable cost data into each field, seed \$24/acre, fertilizer & lime \$70, herbicide \$19, insecticide \$0.00, custom hire \$5, drying cost \$15 and fuel and lube \$15/acre. In this section, the drying cost is the expense to dry corn to the 15% moisture level. If corn is stored, the additional drying costs are reported in the **GRAIN ASSETS** section of the program.

Since the Producers are owners and are receiving 100% of the production share, they also must pay 100% of the cost share. (If the Producers were farming on a 50:50 share basis, the Producers would enter 50% in this field). Based on the above entries, the software estimates **Total Expenses** or total variable cost at \$74,000. Since the **Expected Harvest Date** is highlighted, enter 11/01/98 and select the Tab key. All corn data entries for the home farm are summarized in [Figure 7](#).

After the corn production and cost data for the home farm are entered, add the corn data for the share rent farm and the soybean and wheat data for the home farm (these input data are recorded in [Figures 8, 9, and 10](#)). **Before entering each set of data for each crop, use the mouse to click on the ADD button.** Therefore, click on the **ADD** button before entering the corn share rent data, the soybean data and the wheat data.

B. Entering Corn Data for Share Rent Farm (or go to [Topics](#))

A current assumption in this model is that all variable costs or expenses per acre will be split by the same percentage between the renter and the landlord. For example, in [Figure 8](#), all expenses were split between the two parties by 50%. In that example, total variable costs to produce 200 acres of corn were \$29,800 and the renter's share of that cost was \$14,900. Since agreements vary, all expenses may not be split by the same percentage. For example, the agreement could require that the renter pay 100% of all seed costs while all other

expenses would be split 50:50. Future releases of the program will automatically permit percentages to vary by cost category.

In this release, the user must manually adjust the cost data if the renter is paying different proportions for the different variable costs. For example, assume that the renter will pay 100% of the seed cost, 30% of the fertilizer and lime, and 50% of all other variable costs to meet the obligations of this share crop agreement. Assume further that the data in [Figure 8](#) reflects the total cost per acre to produce corn on this share rent farm. In **Table 2**, it is illustrated how to enter the data to reflect differences in the percentages of the cost that must be paid by the renter.

Since the renter must pay 100% of all seed cost, the total seed cost per acre must be doubled because the software program multiplies the total cost per acre by 50%, the percentage entry in the **COST SHARE** field . Therefore, entering \$48.00 per acre and allowing the software program to multiply that number by 50% results in a payment by the renter of \$24.00 per acre or 100% of the total seed cost.

For fertilizer and lime, the renter must pay only 30% of this \$70.00 per acre cost or must pay \$21.00 per acre ($\$70.00 * 30\%$). To adjust this entry, use the following proportion:

$$50\% / \$70.00 = 30\% / (X)$$

$$0.5(X) = \$21.00 ;$$

$$(X) = \$42.00$$

When the \$42.00 per acre is entered by the user and the software automatically multiplies that number by 50%, the renter pays \$21.00 per acre or 30% of the \$70.00 per acre fertilizer and lime expense.

In this example, the renter's share of all variable costs would be \$14,500 (**Table 2**). In the prior example where the renter paid 50% of all expenses, the renter's share was \$14,900 ([Figure 8](#)). Each of these totals is calculated by the software using the following formula:

$$\text{total expenses} = (\text{expenses per acres} * \text{total acres}) * \text{cost share percentage.}$$

Table 2. Process to Input Data into the New Crop Input Screen (Figure 8) to Capture Differences in Percentage of Costs that must be Paid by the Renter
(or go to [Topics](#))

Item	Percent Obligation for Renter	Total Expenses per Acre	Total Payment Per Acre Renter	Required Data Entries to Adjust Percentages by Item
Seed	100	\$24.00	\$24.00	\$48.00
Fertilizer & Lime	30	\$70.00	\$21.00	\$42.00
Herbicide	50	\$20.00	\$10.00	\$20.00
Insecticide	50	\$00.00	\$00.00	\$00.00
Custom Hire	50	\$ 5.00	\$2.50	\$ 5.00
Drying Cost	50	\$15.00	\$7.50	\$15.00
Fuel & Lube	50	\$15.00	\$7.50	\$15.00
Total Expense for Renter Based on Different Entries in Cost Share % field is:				\$14,500

The **NEXT** and **PREVIOUS** buttons that appear on the **NEW CROP** screens or [Figures 7, 8, 9, and 10](#) are used to review all entries for each specific crop. After the wheat data are entered ([Figure 10](#)), click on the **PREVIOUS** button. The data that were entered for soybeans appears ([Figure 9](#)). Clicking on the **PREVIOUS** button a second and third time reveals all corn data ([Figures 7 and 8](#)). Use the **NEXT** button to move forward from the corn data to soybeans and finally to the wheat data.

The **CALCULATE** button on the **NEW CROP** screens is used to sum up the data that were entered. The calculation button is used when an entry is revised and the user does not Tab all the way through the screen. Tabbing through all of the entries on the screen automatically activates the calculation button.

The **DISPLAY TOTALS** button that appears on the **NEW CROP** screen reveals a spreadsheet summary of grain, [Figure 11](#). This summary spreadsheet sums together the bushels of corn and variable costs for each field or farm that is listed. In this example, the Producers are expecting to produce 79,000 bushels of corn on the home place and share rent farms. The total variable cost is \$88,900. The landlord's share of production and cost are not displayed. Similar data are presented for the Producer's wheat and soybeans ([Figure 11](#)). To exit this spreadsheet, use the mouse to click on the minimize button (negative sign, [-]) in the upper right corner of the **NEW CROP SCREEN**.

After all data are entered, the **LIST GRAIN PRODUCTION** button provides a spreadsheet summary of grains, total bushels, total costs, and harvest date by farm(s) and/or field(s), [Figure 12](#). To exit this spreadsheet, use the mouse to click on the minimize button [-] in the upper right hand corner of the **NEW CROP LIST** screen.

Click on the **EXIT** button on the **NEW CROP** screen ([Figure 7](#)) to return to the main menu, [Figure 1](#). Select the **CONTROL SCREEN** button and then save the data to the preferred drive and sub-directory by using the **MRP CONTROL SCREEN**, [Figure 2](#) and

by clicking on the **SAVE PLAN** button. After saving the data, close the **CONTROL SCREEN** to return to the main menu.

C. Summaries of Variable Cost Data (or go to [Topics](#))

To view the summary of the production and variable cost data, use the mouse to click on the **SUMMARY DATA** button on the main Menu, [Figure 1](#). A pull down screen is revealed and includes **RISK POSITION, PROJECTED NET FARM INCOME, CASH FLOW, NEW CROP POSITION** and **PRICES AND YIELDS** ([Figure 13](#)). Clicking on the **RISK POSITION** button reveals a **RISK POSITION** screen ([Figure 14](#)) for corn. The importance and usefulness of this screen will be discussed in more detail in a later section of this manual. For the moment, the screen is being examined to illustrate how the production and variable cost data are summarized.

In this example, the Producers expect to produce 79,900 bushels of corn. Since the storage data have not been entered, the total bushels for sale also equals 79,900 bushels. Operating or variable costs equaling \$88,900 are reported in the **Operating And Insurance Costs** field. At this time, insurance costs have not been entered and are not included in this field. Since fixed costs have not been entered, **Total Costs** also equal variable costs. Variable or operating costs are also included as cash flow obligations and are one component of the **New Crop Cash Flow/ Bu.** (\$1.13) and the **New Crop Cash Flow Risk Ratio** fields. When all data are entered, the importance of the ratio will be explained.

The Producers expect to plant 55% of the **Total Acres** or 600 acres of corn on the home place and share rent farms. The **Cost per Acre** is identified as \$148. The only data entry that can be made on this screen is the **New Crop Expected Price**. Enter \$2.50 in this field and press the tab key. The expected crop price is the producer's best estimate of prices at harvest time. These estimates may be based on outlook information, localized futures prices (the harvest futures prices minus basis) and/or on the farmer's own estimates. The importance of this price entry and the associated risk will be discussed later. To calculate the **New Crop Cash Flow Risk Ratio**, use the mouse to click on the **CALCULATE** button. The significance of the **New Crop Cash Flow Risk Ratio** (0.45) will also be discussed later.

The data for wheat and soybeans are summarized on separate **RISK POSITION** screens ([Figures 15](#) and [16](#)). To see these reports, use the mouse to click on the **PREVIOUS** or **NEXT** buttons, [Figure 14](#)). To acquire the **Cash Flow Risk Ratios** for wheat and soybeans, enter \$3.55 in the **New Crop Expected Price** field for wheat and \$6.50 in the **New Crop Expected Price** field for soybeans. On both screens, click on **CALCULATE** button to acquire the respective risk ratios. To exit the **RISK POSITION** screen, use the mouse to click on the **EXIT** button. This returns the user to the main **MENU**, [Figure 1](#).

2. GENERAL OVERHEAD COSTS (or go to [Topics](#))

To enter the fixed cost, cash flow living expenses, and payment data, use the mouse to click on the **SUPPORT DATA** button on the main menu ([Figure 1](#)). The pull down screen re-appears ([Figure 5](#)). Use the mouse to click on the **GENERAL OVERHEAD COSTS** button. The **GENERAL OVERHEAD COSTS** screen pops up ([Figure 17](#)).

In this program, fixed cost data are entered into **MACHINERY, LABOR, LAND**

IMPROVEMENT, and **MISCELLANEOUS** categories. Cash flow **LIVING EXPENSES** and **PAYMENTS** including down payments for purchases, principal payments and **FAIR** payments from the federal government are entered here. All six of these categories are accessed in the **Category Of Cost** field. How each of these is accessed is discussed in the following paragraphs. But first, it is important to differentiate between fixed costs, living expenses, and payments and how these items are treated in this program.

Fixed costs are the costs that must be paid in the short run time period even if grain is not planted or produced. If the fixed costs are out of pocket expenses, they are also included in cash flow obligations. See **Table 1** to identify which fixed cost items are included as cash flow obligations. Living expenses are the cash flow obligations that must be met to support the household. These include such items as food, housing, etc. The living expenses categories are based on the Bureau of Census recording system. Use your historic records or your best estimates to enter the data for each living expense category. If you want to compare your living expenses with averages and standard deviations, data are available from the Bureau of Census. All three items in the **PAYMENT** section, **Down Payment**, **Principal Payment** and **FAIR** payment are not costs but do affect cash flow. Down payments on depreciable assets and principal payments add to cash flow requirement while the **FAIR** payment decreases cash flow obligations. **FAIR** is an acronym for Federal Agricultural Improvement and Reform Act. Often referred to as the Freedom to Farm Act, this legislation was signed into law in the Spring of 1996. The amount of the **FAIR** payment to farmers will decrease annually and at this writing is scheduled to cease in the year 2002.

In this program, the user must identify what percent of total fixed costs and cash flows are allocated to the grain enterprises. Since this version of the software can only be used to analyze cash-grain (no livestock) farms, 100% is the default entry. Thus, the percentage share allocated to grains defaults to 100% on this screen. If part of the fixed costs are allocated to other enterprises such as livestock, the user may override the default entry in the **% Allocated to Grains** by entering a lower percentage.

The program also asks what percentage of living expenses are allocated to grain enterprises. Since living expenses can be covered from crop production, storage, non-grain enterprises, and off-farm employment and businesses, the entry here may vary from (0) zero to 100%. That is, if you need to cover 100% of all living expenses from crop production, enter 100%. On the other hand, if 40% of your living expenses are covered by off-farm employment, other farm businesses, and/or from storage, then only 60% would be entered in the **% Allocated To Grains** field.

The portion of your fixed costs and living expenses that must be covered by grain production will be allocated by the respective crops based on the percent of acreage that is planted to each crop. In this example, 600 acres are in corn, 300 are in soybeans, and 200 acres are in wheat. Thus, 55% of the general operating fixed costs, living expenses, and payments are allocated to corn, 27% to soybeans and 18% to wheat. This assumption may change in later releases of this software program when livestock enterprises are included.

A. Machinery Costs (or go to [Topics](#))

To begin entering data into the **GENERAL OVERHEAD COST** screen ([Figure 17](#)), click the **ADD** button. Except for the name Peter and Pat Producer, there are no entries on the

screen; however, the **Description** field is highlighted. Since machinery fixed cost data will be entered, type in tractor 1 and hit the Tab key. The **Category Of Cost** field is highlighted. Use the mouse to click on the arrow and then click on **MACHINERY**. Tab down to **Type Of Cost** field and use the mouse to click on **REPAIR** from the pull down screen. (Note that when entering the last entry for each Category of Costs, the Type of Cost label does not appear in its box until the Tab key is used to move to the next field. For example, Labor costs contains three entries, Wages Paid, Income Tax / Social Security, and Value of Unpaid Labor. Since Value of Unpaid labor is the last entry in the Labor Costs Category, the Unpaid labor label does not appear in its box until after the Tab key is pressed. Use the tab key to move to **% Allocated To Grains** field. Since it is assumed that 100% of all repairs will be allocated to grains, the default of 100% is accepted. (If part of this cost is to be allocated to livestock enterprises, a lower percentage could have been entered). Tab down to the **Cost** field and enter \$700. The total **Dollar Amount** is \$700 for tractor 1. Thus, \$700 or 100% of the total will be allocated as a fixed cost to the grain enterprises ([Figure 18](#)).

Whether the data are entered for individual units or for the whole category will determine how the data are collected and entered into the individual sheets. In the above example, machinery costs were entered for one tractor. Alternatively, repair costs could be entered as a total for all machinery. In that case, one would enter all repairs in the **Description** field.

To enter all additional repair costs, click on the **ADD** button. Enter all repairs and the corresponding value of \$5,000. Since it costs \$700 to repair tractor 1 and all additional repairs are \$5,000 ([Figure 19](#)), the total machinery (repair) cost is \$5,700. By clicking on the **LIST GENERAL COSTS** button, a summary spreadsheet is generated, [Figure 20](#). Notice that each repair is listed separately **and in alphabetical order. The entries are not listed as they are entered.**

By first selecting the **ADD** button on the **GENERAL OVERHEAD COSTS** screen, [Figure 17](#), enter all remaining machinery cost data that appear in **Table 3**. Repairs for tractor 1 and all repairs have been entered. Therefore, the next entry is for depreciation.

Table 3. Machinery Cost Data Entries (or go to [Topics](#))

Description	Category of Cost	Types of Cost	Percentage	Cost
Tractor 1	Machinery	Repairs	100	\$ 700
All	Machinery	Repairs	100	\$ 5,000
All	Machinery	Depreciation	100	\$60,000
All	Machinery	Insurance	100	\$ 3,000
All	Machinery	Interest on loans	100	\$10,000
All	Machinery	Interest on equity	100	\$ 8,000

The definitions for most of the types of machinery costs are self-explanatory. Except for depreciation and interest on equity, all other costs are "out of pocket" expenses and are included in the cash flow (**Table 1**). By definition, interest on equity is an opportunity cost for the investment in the machinery. If the Producers have \$100,000 invested in machinery and expect to get an 8% return on their investment, interest on equity is \$8,000. It, too, is

not an "out of pocket" cost and is not included in the cash flow.

To see a listing of machinery costs, click on the **LIST GENERAL COST** button on [Figure 19](#). This displays [Figure 21](#), **GENERAL OVERHEAD COST LIST** for machinery. Minimize this screen ([Figure 21](#)) by clicking on the minimize button [-]. To see the total machinery cost of \$86,700 or [Figure 22](#), click on the **DISPLAY TOTALS** button on [Figure 19](#). To view how these machinery data are summarized, exit the **GENERAL OVERHEAD COSTS** screen and click on the **SUMMARY DATA** button ([Figure 1](#)). When the pull down screen appears, click on the **RISK POSITION**. Since 55% of the acres are in corn, \$47,290 of the \$86,700 total machinery costs are allocated to the corn crop ([Figure 23](#)). Clicking on the **NEXT** button retrieves the wheat risk position where \$15,763 of machinery costs are allocated to the wheat crop. Clicking on the **NEXT** key again reveals that \$23,645 of the total machinery costs are allocated to the soybean crop. By clicking on the **EXIT** button and then the **SUPPORT DATA** button, return to the **GENERAL OVERHEAD COST** section.

B. Labor Costs (or go to [Topics](#))

Use the process described above to enter the following labor data that are displayed in **Table 4**. Begin by clicking on the **ADD** button to enter the first set of data and then click on **ADD** for each additional type of labor cost data.

Table 4. Labor Cost Data Entries (or go to Topics)				
Description	Category of Cost	Type of Cost	Percentage	Cost
All	Labor	Wages paid	100	\$ 6,000
All	Labor	Income tax & Soc. Sec.	100	\$ 7,700
All	Labor	Value of unpaid labor	100	\$12,600

Wages paid and income tax and social security are cash flow obligations (**Table 1**). Value of unpaid labor is an opportunity cost (wages that could be earned from the next best employment opportunity) and is not included as a cash flow obligation. Click on **DISPLAY TOTALS** and **LISTS GENERAL COSTS** to see the summary spreadsheets.

C. Land Costs (or go to [Topics](#))

Using the process described above, enter the following land improvement data that are displayed in **Table 5**. To enter the following data for land improvement, begin by clicking on the **ADD** button and click on **ADD** for each type of costs that is entered. Since cash rent is zero (0) in this example, it will not be entered.

Each of the categories is self-explanatory. Except for depreciation on improvements and interest on owner's investments, all other land costs are cash flow obligations (**Table 1**). Interest on owner's investment is an opportunity cost. It depends upon the estimated rate of return that could be earned from the next best investment. Click on **DISPLAY TOTALS** and **LIST GENERAL COSTS** to see the summary spreadsheets. The entries are listed in alphabetical order rather than in the order in which each was entered.

Table 5. Land Cost Data Entries (or go to [Topics](#))

Description	Category of Cost	Type of Cost	Percentage	Cost
All	Land	Property tax	100	\$8,000
All	Land	Insurance on buildings	100	\$2,700
All	Land	Interest on loans	100	\$8,000
All	Land	Cash rent	100	\$0.00
All	Land	Depreciation on improvements	100	\$2,000
All	Land	Interest on owner's investments	100	\$25,000

D. Living Expenses (or go to [Topics](#))

Based on the data in **Table 6**, enter living expenses. It is assumed that only 50% of the living expenses are allocated to grains by the Producers. The remaining 50% is covered by off-farm income or revenues from other farm enterprises. To allocate only 50% of the living expenses to grain production, override the 100% default data in the **% Allocated To Grains** field by entering 50%. For example, entering 50% in the **% Allocated To Grains** field and \$4,400 in the **Cost** field causes the program to allocate \$2,200 to the grain enterprises. The \$2,200 appears in the **Dollar Amount** field. All living expenses or costs are included as cash flow obligations. Remember to click on the **ADD** button before entering data for each category of cost (living expenses).

E. Payments (or go to [Topics](#))

To enter payment data, click on the **ADD** button to select the **Payment** item in the **CATEGORY OF COST** pull down screen. Both the **Down Payment** and **Principal Payment** categories add to cash flow requirements while the **FAIR Payment** reduces cash flow obligations (**Table 1**). Include \$10,000 as a down payment and \$5,000 as principal payment, with the FAIR payment equaling \$31,700.

F. Miscellaneous Costs (or go to [Topics](#))

To include all other miscellaneous costs or payments, click on the **ADD** button to select the **Miscellaneous** item in the **Category of Cost** pull down screen. Miscellaneous income does not contribute to total cost or to cash flow. It is recorded on the **PROJECTED NET FARM INCOME** screen. Miscellaneous cost adds to total cost and to cash flow requirements. Thus, do not put a non-cash flow entry in the miscellaneous cost category. In this example, assume that the Producers earn \$10,000 of miscellaneous income and have \$5,000 of miscellaneous costs.

G. Summaries of Fixed Costs and Payments (or go to [Topics](#))

Click on the **LIST GENERAL COSTS** button to see a summary of all entries. Since this is a pull down screen, all data cannot be seen at one time. Thus, drag the bar on the right hand

side of the screen downward to see all data. [Figure 24](#) displays the first set of data and [Figure 25](#) displays the remaining general cost data. **These data are listed in alphabetical order rather than in the order in which the data were entered.** A summary of the **GENERAL OVERHEAD COSTS** by category is viewed by clicking on the **DISPLAY TOTALS** button. [Figure 26](#) lists total costs and payments.

Table 6. Living Expenses Data Entries (or go to [Topics](#))

Description	Category of Cost	Type of Cost	Percentage	Total Cost	Cost Share: Grains
All	Living expenses	Food	50	\$4,400	\$2,200
All	Living expenses	Housing	50	\$6,000	\$3,000
All	Living expenses	Utilities	50	\$3,600	\$1,800
All	Living expenses	Household	50	\$2,000	\$1,000
All	Living expenses	Clothing	50	\$1,500	\$ 750
All	Living expenses	Transportation	50	\$3,500	\$1,750
All	Living expenses	Health care	50	\$3,000	\$1,500
All	Living expenses	Insurance	50	\$1,000	\$ 500
All	Living expenses	Education	50	\$2,000	\$1,000

In the **RISK POSITION** under the **SUMMARY DATA** pull down screen, all cost data are now summarized, total cost per acre is calculated, and the breakeven price is presented. [Figure 27](#) displays the data for corn. Using the next button, the wheat and soybean data may be viewed. For corn, the breakeven price is \$2.35 per bushel. The cash flow per bushel obligation is \$1.49 per bushel. At this point, the AgRisk program (on the CD-ROM) may be used to determine the probabilities that localized futures prices will cover the projected breakeven prices and cash flow obligations for corn and for the other respective grains. If you are not familiar with the AgRisk program, see Chapter 5 or [Module 5](#) of the CD ROM. AgRisk also appears on the World Wide Web at the following address, <http://www-agecon.ag.ohio-state.edu/agrisk/agrisk.htm>

H. Entering Cost Data by Category Rather than by Individual Unit (or go to [Topics](#))

Some users may prefer to enter all cost data by category rather than by individual unit. To save data collection and computer entry time, the user may prefer to enter the cost for machinery as a total cost for all machinery rather than entering individual costs for depreciation, insurance, interest on loans and equity, and repairs. This is an acceptable approach; however, the data must be accurately aggregated by category and classified by its impact on cash flow. That is, there must be an entry for those items that add to cash flow and an entry for those that are excluded from cash flow. For machinery, repairs, interest on loans, and insurance adds to cash flow obligations and must be entered as one entry. In the **TYPE OF COST** field, the cash flow costs may be labeled as repairs, interest on loans, or as insurance. The non-cash flow items, depreciation and interest on equity, must be added as a second machinery cost item. In the **TYPE OF COST** field, the non-cash flow items may be identified as either depreciation or interest on equity. For the machinery and other cost and

payment categories, use the information in **Table 1** to separate cash flow items from non-cash flow items.

3. GRAIN ASSETS (or go to [Topics](#))

Grain Assets is a pull down screen from the **SUPPORT DATA** button on the main menu ([Figure 1](#)). Use the mouse to click on **SUPPORT DATA** and then click on **GRAIN ASSETS**. This entry screen ([Figure 28](#)) is used to manage and market grain in storage, calculate drying costs to store grain and to estimate storage costs including interest, and to feed grain. All of the buttons, **NEXT**, **PREVIOUS**, **ADD**, **CALCULATE**, **DELETE**, **EXIT**, **DISPLAY TOTALS**, and **LIST GRAIN ASSETS** perform the same functions as they performed in the previous input screens. Thus, each is not discussed here. To begin entering the data that appear in the following paragraphs, use the mouse to click on the **ADD** button. Except for the name, (Peter and Pat Producer) all fields are blank.

In this example, it is assumed that the Producers are storing corn at the farm and elevator. Soybeans and wheat are also stored at the farm. **NOTE!! DELAYED PRICE GRAIN AND BASIS GRAIN WOULD NOT BE ENTERED IN THIS SECTION. ENTER ONLY GRAIN THAT IS BEING STORED FOR SALE!**

A. Farm Storage for Corn (or go to [Topics](#))

After clicking on the **ADD** button, the **Description** field is highlighted ([Figure 29](#)). Enter farm storage and hit the Tab key on the keyboard. This will highlight the **Grain** field. Use the mouse to select corn. Strike the Tab key again highlighting the **Type** field. Use the mouse to select on-farm storage.

Storage Start Date is the date that most of the corn was moved into farm storage. In this example, it is assumed that the corn was stored on the farm on October 15, 1997. If corn is stored at three different dates, October 15, November 1, and November 15 for example, three separate entries could be made. The program would manage all three entries. Before each individual entry is submitted by the user, the **ADD** button must be activated.

Storage Start Price is the local cash price (futures price minus basis, or the local cash bid) for the corresponding **Storage Start Date**. It is assumed that the local cash bid on October 15, 1997 was \$3.00/bu. To enhance one's understanding of the futures market, basis, and cash prices, read and study **Modules 6** and **8** on the CD ROM.

Storage End Date is the expected or actual date at which time the corn is removed from storage for sale in the local market. In this example, it is assumed that the corn will be removed on May 1, 1998.

Storage End Price is the cash price at the end of the storage period. In this example, it would be the cash price on May 1, 1998. At the time grain is stored, this price is estimated from outlook information, a localized futures price (futures minus/plus basis), a forward contract price, or it may be the price that is needed to cover all storage costs and interest charges. The minimum price that is needed to cover storage cost is determined by the computer program; however, there is no guarantee that the market will achieve an equilibrium that will cover pending storage costs.

At the time the grain is removed from storage, the price actually received for storing grain is entered in this field. The final price may differ from the original estimate if the futures price or basis changes during the storage period. In this example, it is assumed that the minimum price that is needed to cover storage costs and interest charges will be entered into this field. Thus, use the tab key to move to the **Bushel Quantity** field to enter 10,000 bushels.

The **Remove % Moisture** field is the amount of additional moisture that must be removed to store the corn rather than selling it at harvest time. For example, number 2 yellow corn sold at harvest time contains 15.0% moisture. Reducing the moisture level to 15.0% to sell at harvest time is a part of production costs and was recorded as a drying cost in the **NEW CROP** section (Figures 7 and 8). If it is necessary to reduce the moisture level below 15.0% to store corn on farm, an entry would be made in the **Remove % Moisture** field. For this example, it is assumed that corn will be stored at the 13% moisture level. Thus, enter a two (2) in the **Remove % Moisture** field and strike the tab key.

When water is removed from grain, shrinkage occurs. Since most elevators shrink the grain volume by 1.4% for each 1% of water removed, a default value of 1.4% appears in the **Shrink Per %** field. The user may choose to override this default value. For this example, the 1.4% shrink is accepted. Notice that the quantity of dry corn available for sale is now 9,720 bushels. This figure appears in the **Net Bushel Quantity** field.

In the **Dry Cost Per %** field, the default value for removing 1% of moisture is \$0.036. Again, the user may input a different entry. In this example, the default value is accepted.

The **Base Storage Fee** is the fixed cost of storage on farm or the fixed charge that is made by the commercial house. On-farm fixed costs include insurance on storage bins and equipment, interest, and depreciation. In this example, it is assumed that fixed costs are \$0.01 per bushel. Since this is a fixed farm storage cost, the data entered into the **Until** field is the same as the storage date, 10/15/97. This implies that the variable cost of farm storage begins at the time the grain enters the bin. (In contrast, the fixed fee for storage at a commercial house often delays the monthly elevator charge fee for some time. Thus, monthly fees paid to the commercial house may not begin until 12/15/97, for example. If grain is stored in a commercial house and monthly fees are not paid until 12/15/97, this would be the date that is entered in the **Until** field).

The fixed cost for farm storage may or may not be entered into this program. If storage facilities are in place, the user must only cover variable cost of storage and interest charges to store grain in the short run time period. In that case, a zero (0) would be entered into the **Base Storage Fee** field. If the user is planning on investing in storage facilities and/or wants to know if all costs of storage are being covered in the long run, then a fixed cost entry is required. In contrast, the **Base Storage Fee** for commercial storage must always be included as this is a variable cost of storage.

The **Monthly Fee Thereafter** is the variable cost of storage for on-farm storage or is the monthly charge paid to the elevator or commercial house. On-farm variable costs include insurance on grain, electricity charges, rodent and insect control, quality deterioration, labor, and management charges. In this example, variable costs are paid monthly beginning with the **Storage Start Date**, 10/15/97. As indicated above, monthly storage fees paid to a

commercial house may be delayed until 12/15/97, or later. In this example, it is assumed that the variable cost for storing grain at the farm is \$0.015 per month.

Interest Cost is the foregone interest that could be earned if the grain was sold at harvest time and the funds were invested in a money market account or were used to pay off loans. The interest charge or cost could be as low as 5% for a money market account or as high as 18% if credit card bills are being paid. In this example, 8% is used. (Enter the percent as a whole number not as a decimal). The computer program multiplies the percentage times the storage start price and determines the cost based on the length of storage time. It is a daily calculation.

Based on these data entries, the **Net Accumulated Cost** to store corn on the farm from 10/15/97 to 05/01/98 is \$3048.26 or \$0.31361 per bushel. To cover these cost, the basis improvement plus the spreads must increase by \$0.31 per bushel. Alternatively, the cash bid must increase relative to the **Storage Start Price** by \$0.31. That is, by May 1, 1998, the cash bid must be \$3.31 per bushel to cover the storage cost and interest charge. Enter the \$3.31 in the **Storage End Price** field. Using the mouse, click in the **Storage End Date** field and then tab to the **Storage End Price** field, or press the shift and tab keys to move the cursor backward until the **Storage End Price** field is highlighted. Remember that outlook data or localized futures prices can be entered in the **Storage End Price** field in place of the price that is required to cover the cost of storage. Both outlook data and localized futures prices are forecasts.

[Figure 29](#) lists the data that were entered for storing corn on the Producer's farm. Click on **LIST GRAIN ASSETS** and **DISPLAY TOTALS** to see a summary of the data that have been entered.

To view how these storage data are summarized into the risk position, use the mouse to click on **EXIT** and move to **RISK POSITION**. Observe that the 9,720 bushels of corn are now entered in the **Bushels On Farm Available For Sale** field. Total bushels for sale or the net long position are 88,720 bushels. Notice that production costs for the new crop are not affected by these entries. The MRP program separates storage costs and returns from new crop production costs and returns. However, storage costs and total grain asset values appear in the **PROJECTED NET FARM INCOME** section. The **PROJECTED NET FARM INCOME** screen is summarized in the last section of this paper.

B. Consult Storage Expert (or go to [Topics](#))

Return to the **GRAIN ASSET** screen ([Figure 29](#)) and use the mouse to select **CONSULT STORAGE EXPERT**. This section is designed to clarify the storage choices, risk exposure, and possible outcomes ([Figure 30](#)). The storage expert examines three choices, **OPEN** or a long speculation position, **FORWARD CONTRACTING** (a forward cash price with a commercial house), and **HEDGING** (selling a futures contract or accepting a short futures position with a broker). One-year non-roll Hedge-to-Arrive data may be entered in the forward contracting or hedging sections. If the basis is set in the non-roll Hedge-to-Arrive, then it is a forward contract. If, on the other hand, the basis is left open, the Hedge-to-Arrive contract includes basis risk and would be entered into the **HEDGE** section.

In the **OPEN** section, storage cost is summarized (\$0.31361) and the break-even price bid is

listed (\$3.31). The risks that are being assumed also are identified ([Figure 30](#)). If a forward contract is a possible marketing alternative, enter the forward contract price in the **Forward Contracting** field. In this example, assume that the local elevator is offering at harvest time a \$3.10 forward contract for delivery on May 1, 1998. Based on the cost data, this action would lock in a \$0.21 per bushel loss. The signal is (1) either do not forward contract and store corn or (2) find a way to reduce storage cost by at least \$0.21 per bushel. The associated risks are also identified. If hedging is an alternative, enter the futures price for the nearby futures month in the **Hedging price** field for this storage end date. Assuming that the nearby futures price on October 15, 1997 is \$3.25, enter that price in the price field. In the **Basis** field, enter the expected basis. Assume that the expected basis during the first part of May is -\$0.10 or is \$0.10 under the futures. Enter these data. The expected loss for storing corn to May is \$0.16/bushel. This loss could be offset if basis strengthens or by reducing storage costs. Other risks are identified. Close the **STORAGE EXPERT** screen to enter the remaining data into **GRAIN ASSETS**.

C. Elevator Storage of Corn and Wheat and Farm Storage of Soybeans *(or go to [Topics](#))*

To complete this example and exercise, enter the following data into **GRAIN ASSETS** for corn stored at the elevator, soybeans stored on the farm, and wheat stored at the elevator (**Table 7**). Before entering the data for each grain, remember to click the **ADD** button.

After entering these data, review the summaries by clicking on **LIST GRAIN ASSETS** and **DISPLAY TOTALS**. Also review the data that have been transferred to the **RISK POSITION** screens. Use the **NEXT** and **PREVIOUS** buttons to move from screen to screen or from the corn risk position to the wheat risk to the soybean risk position.

Table 7. Storage Data (Grain Assets) for Corn, Soybeans and Wheat
(or go to [Topics](#))

Grain	Corn stored elevator	Beans stored farm	Wheat stored elevator
Type	elevator	farm	elevator
Start date	10/15/97	10/01/97	07/25/97
Start price	\$3.00	\$6.55	\$3.50
End Date	03/15/98	01/30/98	01/15/98
Storage end price	\$3.30	\$6.80	\$3.55
Quantity	10,000	8,000	5,000
Moisture removed	0%	1%	0%
Shrink	0%	1.0%	0%
Drying cost	\$0.00	\$0.02	\$0.00
Base fee (fixed cost)	\$0.07	\$0.02	\$0.05
Storage fee until	12/15/97	10/01/97	09/01/97
Monthly fee	\$.01	\$.02	\$.04
Interest cost	8%	8%	8%

D. Feeding Grain (or go to [Topics](#))

If wheat or corn is fed to livestock, that entry would be identified in the **Type** field where the mouse would be used to click on feed. An entry here reduces the amount of grain that is available for sale on the **RISK POSITION** screen and the grain's value is included as projected income on the **PROJECTED NET FARM INCOME** screen. Since it is assumed that the Producers are only selling grain, an entry is not made for feed in this example.

Total storage costs are reported on the **PROJECTED NET FARM INCOME** screen. To see the \$9,185.67 cost for storing corn, soybeans, and wheat, click on **Summary Data** on the main screen and then click on **PROJECTED NET FARM INCOME** on the pull down screen. All entries on the **PROJECTED NET FARM INCOME** screen are discussed in a later section of this Manual.

All production and storage inputs and costs have been entered for the Producer's grain farm. The remaining three choices on the **SUPPORT DATA** pull down screen are used to sell grain (**MARKETING ALTERNATIVES**), to buy insurance products (**INSURANCE PRODUCTS**), and to enter financial information (**MISCELLANEOUS**). **YIELD FUTURES** will be added as a choice in a future release or update of this program.

4. MARKETING ALTERNATIVES (or go to [Topics](#))

Using the mouse, select **MARKETING ALTERNATIVES** from the **SUPPORT DATA** pull down screen. This screen ([Figure 31](#)) allows the user to sell new crop or stored grain via hedges, options contracts, and cash contracts. Although not advocated, the user can also

speculate by using long futures positions and by buying a call. Buying a call in conjunction with a short hedge, H-T-A, or with a forward contract is recognized as a synthetic put. However, the call is treated as a speculative activity. Returns to all speculative activity are analyzed as speculative profits or losses on the **PROJECTED NET FARM INCOME** screen. The **HELP** button on the **MARKETING ALTERNATIVE** screen is used to define or explain each marketing alternative ([Figure 32](#)). The marketing alternatives are discussed in more detail in the CD ROM **Modules 6, 7, 8, and 14**.

The Producers may sell new crops or stored grain via cash sales (**PRICED**), forward contracts (**PRICED**), hedged to arrive (**NON-ROLL H-T-A**), minimum price contracts (**MINIMUM PRICE**), delayed price contracts (**DP**), basis contracts (**BASIS**), short hedge (**SHORT FUTURE**), and via an option (**PUT**). If a user selects a short hedge or a forward contract and a call, this is a synthetic put. However, the returns from the call are treated as returns to speculation and any gain or loss is not added or subtracted from the price of the grain. The user may elect to sell different quantities of grain via different contracts and at different times. The software program tracks these sales, manages the long and short positions, and records income earned.

A. Forward Contract (Priced) Sale (or go to [Topics](#))

To begin selling grain for the Producers, use the mouse to click on the **ADD** button ([Figure 33](#)). The **Contract Number** field is highlighted in blue. The contract number could be the order in which grain is sold, the number from the scale ticket, or a forward contract brokerage account number. In this example, type the number one (1) and hit the Tab key. This action highlights the **Grain** field. Use the mouse to click on the arrow key, click on **CORN**, and select the Tab key. This highlights the **Grain Source** field. Use the mouse to click on the arrow key, select **NEW CROP**, and touch the tab key. This highlights the **Contract Type** field. Using the mouse, click on **PRICED** to forward contract grain for the Producers. (Note that for the **PRICED** selection to appear in the pull down screen, the user must click on the scroll down bar on the right hand side of the pull down screen). Again, select the tab key to highlight the **Delivery Period** field. Since this is a new crop, enter 10/15/98. This entry implies that this is a pre-harvest forward contract sale. Yield risks exist in that a crop failure would prevent delivery against this contract. Choices to minimize this outcome are discussed in the **INSURANCE PRODUCT** section.

Use the Tab key to highlight the **Bu. Quantity** field and enter 10,000 bushels. After the **Contract Price** field is highlighted, enter the forward contract price (\$2.50) offered by the elevator. The **Net Price** is \$2.50 and the **Contract Value** is recorded as \$25,000. There are no premium or computed costs associated with a forward contract. These data entries are displayed in [Figure 33](#). The fields and data entries will change as different marketing alternatives are selected. For example, when hedges are used, basis data requirements, fees, and margin requirements appear.

Exit the **MARKETING ALTERNATIVE** screen and move to the **RISK POSITION** screen. Note that the 10,000 bushels of grain are priced using the **Open Priced Contracts**. Also note that the **Net Open (Long)** position has been reduced by 10,000 bushels from 98,720 bushels for sale in the **Total Bushels For Sale** field to 88,720 bushels in the **Net Open Position**. Reducing the net open position limits some of the price risks. Minimum price contracts, short futures or hedges, H-T-A contracts, and puts also reduce the open position.

DP contracts and basis contract sales do not reduce the open position as these contracts are also long open positions. Adding a long futures position or buying a futures contract, increases the net open position. Since the call is used to create a synthetic put, it is assumed that buying a call has a neutral effect on the open position. However, the returns to the call is considered returns to speculation and is not used to offset production or storage costs.

Remember that a long or open position is defined as one in which losses occur when prices decline. In most cases, producers are in long positions when grain is stored, is sold on DP or basis contracts, or is growing in the field and a hedge, forward contract, or options position is not in place. Losses occur whenever corn is in a long or open position and prices fall. If corn prices at the time of storage are \$2.50 per bushel and later decline to \$2.40, the producer loses \$0.10 per bushel plus all storage costs. In contrast, a short position is defined as one in which losses occur when prices increase. In most cases, producers do not face short risk positions.

B. H-T-A Priced Sales (or go to [Topics](#))

Return to the **MARKETING ALTERNATIVE** screen and enter data to sell and speculate on corn, wheat and soybeans using the different marketing alternatives (**Table 8**). Remember to click on the **ADD** button prior to entering data for each **Contract Number** and grain. Observe the data input requirements change on the **MARKETING ALTERNATIVE** screen as different **CONTRACT TYPES** are selected. View the changes that appear in the net open position, average price received, and the breakeven price for open position on the **RISK POSITION** screen.

Table 8. Marketing Alternative Entry Data for Contract Types and Grains
(or go to [Topics](#))

Grain	Corn			Beans	Wheat
Contract number	2	3	4	5	6
Grain source	New	New	Speculate	Assets	Speculate
Contract type	HTA	Short futures	Long futures	Minimum price	Call
Delivery period	10/15/98 for all three (3) contracts			01/30/98	01/15/98
Bu. quantity	10,000	10,000	5,000	1,000	5,000
Contract price	\$2.50	\$3.00	\$2.75	\$6.50	3.75
Current basis	-\$0.10	-\$0.10	N.A.	-\$0.10	N.A.
Premium fee	N.A.	\$0.01	\$0.01	\$0.18	\$0.11
Current futures price	\$2.50	\$2.50	\$2.50	\$6.50	\$4.00

Figures 34, 35, 36, 37 and **38** display some of marketing alternative data entries and the results as they appear in the **RISK POSITION** reports. As discussed in the previous section, **Figure 33** displays the data that were entered for selling corn via a forward contract. The data for a non-roll HTA is displayed in **Figure 34**. The entry for the **Current Basis** is the forecast or estimate of the basis at the time the corn will be delivered. Thus, the **Net Price**

and **Contract Value** are estimates. For an HTA contract, the basis can be set or fixed by the producer prior to or at the time the grain is delivered. When the basis is locked in, the entry in the **Current Basis** field is changed to reflect this action and the basis risk associated with **Net Price** and the **Contract Value** are eliminated. When the basis is locked in or is known, the HTA becomes a cash forward contract. Like the forward contract, production risk or the risk of a crop failure remains.

C. Hedged and Put Sales (or go to [Topics](#))

Entering data for grain sold via a hedge or a put is very similar to that for the HTA. For hedges and puts, **Premium & Fees** must be paid and **Margin Calls** are calculated. At the time the hedge contract or the put becomes a signed contract, the basis is estimated and is entered into the **Current Basis** field. For both hedge and put contracts, the basis is locked in at the time the grain is delivered or at the time the hedge or put position is offset. That is, if the put position is offset or the futures position is lifted before the grain is sold in the cash market, the basis that is entered is the basis at the time the put is offset or the futures position is lifted; it is not the basis that exists when the grain is sold in the cash market

D. Speculation (or go to [Topics](#))

[Figure 35](#) is a **MARKETING ALTERNATIVE** entry screen for speculation using a long futures position or for buying grain on the futures market. The important entries on this screen are the **Contract Price** (price at the time the long position is accepted), **Premium & Fees**, and the **Current Futures Price**. The difference between the **Contract Price** and the **Current Futures Price** determines the profit or loss or the **Margin Call** and **Contract Value**. In this example, futures prices have declined from \$2.75 per bushel to \$2.50 per bushel. This results in a margin call of \$1,250, or a negative contract value or loss of \$1,250. The margin requirement and contract value will change with the change in the **Current Futures Price** until the long position is offset.

E. Summary for Marketing Corn via Marketing Alternatives (or go to [Topics](#))

The results for the **MARKETING ALTERNATIVE** choices are displayed in [Figures 36](#), [37](#) and [38](#). For the corn sales, the **Open Price Contracts** (forward contract), **Short Futures** (hedge) and the **HTA Contract** reduced the long position by 30,000 bushels. Adding the **Long Futures** position increases the long position by 5,000 bushels. The net outcome reduced the long **Total Bushels For Sale** from 98,720 bushels to a **Net Open Position** (long position) of 73,720 bushels. **Average Price Received** for selling corn via a forward contract, hedge, and a HTA is \$2.60 per bushel ([Figure 36](#)).

F. Summary for Marketing Wheat via a Marketing Alternative (or go to [Topics](#))

For wheat, a call contract was purchased. Although a 5,000 bushel entry appears in the **Call** field, the net long position is unchanged ([Figure 37](#)). That is, **Total Bushels For Sale** and the **Net Open Position** both equal 20,000 bushels. Buying the call does not reduce the risk that futures prices would fall. **Average Price Received** remains at \$0.00 per bushel because grain has not been priced via a forward contract, hedge, HTA, and/or put contract.

G. Summary for Marketing Soybeans via a Marketing Alternative (or go to [Topics](#))

For soybeans, 1,000 bushels were sold via a **Minimum Price Contract** ([Figure 38](#)). This reduces the long position from 22,920 bushels to 21,920 but the **Average Price Received** is not calculated. The **Average Price Received** number is calculated when the minimum price is known.

5. INSURANCE PRODUCTS *(or go to [Topics](#))*

This screen or [Figure 39](#) is used to offset yield or revenue risks. That is, the user can select among six insurance products to manage yield or revenue risks. These include Multiple Peril (MCI) insurance, Crop Revenue Coverage (CRC), Hail, Revenue Assurance (RA), Catastrophic, and other insurance. Except for other, the **HELP** button provides a short description of each of the insurance products, [Figure 40](#). For more information, read [Module 9](#) that is a part of the CD ROM. The requirements, premiums, and payoff for any **OTHER** insurance product may be specified by the user to reflect unique products that are offered by different insurance companies. In this analysis, it is assumed that the user will select two types of insurance to protect against yield or income loss.

The **NEXT** and **PREVIOUS** buttons are used to shift among grains by farm(s) and field(s). In this example, corn is displayed for both the home and the share rent farms. Soybeans and wheat are displayed for the home farm. Even though the data are displayed separately for farm or field, the Producers must buy the same insurance product for a specific grain for all farms or fields located in the same county. If the Producers elect to buy insurance for the corn grown on the home farm, they must also buy a policy for their share of corn produced on rented land that is in the same county. That is, they are not allowed to insure corn on the home farm and not on the rented acres. They do not, however, have to insure corn that is being produced in other counties. Finally, soybeans or wheat do not have to be insured when corn is insured.

A. Multi-Peril Crop Insurance *(or go to [Topics](#))*

Enter the data that appears on [Figure 41](#) where corn is produced on the home farm. To select an insurance product, use the mouse to click on the arrow in the **Selected Insurance Product** field. Click on Multiple Peril Crop insurance. Use the Tab key to highlight the **Percent Covered** field. Clicking on the arrow in this field permits the user to select 50 to 75% coverage. In this example, select 50% coverage and press the Tab key. The **Insured Yield** is 65 bushels or 50% of the Normal yield, 130 bushels. Remember that the normal yield was an entry on the **NEW CROP** screen. In the **Insured Price** field, enter \$2.25. The total **Insured Value** is \$73,125. Use the Tab key to enter the **Premium Cost/Acre**, \$8.00. The total **Insurance Premium** is \$4,000. Since the expected yield does not reflect a crop failure, the **Indemnity Payment** is not recorded. Without a crop failure, the data in the **RISK POSITION** screen is unchanged and the insurance premium is recorded on the **PROJECTED NET FARM INCOME** screen.

Since the Producers must also insure their corn production on the rented farm, use the mouse key to click on the **NEXT** button. The share rent corn farm appears. Enter the insurance data that appear on [Figure 42](#).

B. Impact of Corn Crop Failure: Simulation Example *(or go to [Topics](#))*

To see the impact of a corn crop failure, return to the **NEW CROP** screen and enter zero (0) in the **Expected Bu. Yield/Acre** field for the home farm. Either click on the **CALCULATE** button or use the tab key to tab through all entries on the screen. Return to the **INSURANCE PRODUCT** screen and note that the **Indemnity Payment** equals \$73,125, an amount equal to the **Insured Value** ([Figure 43](#)). Also move to the **RISK POSITION** screen ([Figure 44](#)). Note that the **Expected Production, Operator Share** equals 14,000 bushels or the expected share from the rented farm. The net open position is 8,720. The crop failure reduced the long position. The grain in storage is offsetting the new crop short position. If the producers elect to use the stored corn to meet their new crop grain delivery obligations, the data that were entered into the **GRAIN ASSET** (storage) section would change. Storage costs would increase as grain would be stored into October of the following year. Alternatively, the Producers could use the indemnity payment to buy grain to deliver against the forward contract or to meet the obligations of the short position. A third choice is to negotiate with the grain buyer to use the indemnity payment to settle or offset the priced positions.

In preparation for completing this exercise, return to the **NEW CROP** input screen and enter 130 bushels of corn in the **Expected Bu. Yield/Acre:** field for the home farm. This exercise assumes that there has not been a corn crop failure. Return to the **INSURANCE PRODUCTS** screen. Observe that indemnity payment is again \$0.00 for corn for the home farm.

C. Crop Revenue Insurance (or go to [Topics](#))

Click on the **NEXT** button two times on the **INSURANCE PRODUCT** screen to display the soybean home farm screens ([Figure 45](#)). Click on the **Selected Insurance** field and then select **CROP REVENUE COVERAGE**. Since the crop revenue insurance payout is based upon the higher of two averages, notice that there are two new fields, **Feb. Average Of Nov. Futures** and **Oct. Average Of Nov. Futures**. For corn, the fields are **Feb. Average Of Dec. Futures** and **Nov. Average Of Dec. Futures**. For this example, highlight the **Feb. Average Of Nov. Futures** by striking the tab key. Enter \$6.00 per bushel, strike the tab key, and enter \$6.00 per bushel in the **Oct. Average Of Nov. Futures** field. For **Percent Coverage**, enter 50%. For the **Premium Cost/ Acre** enter \$10 ([Figure 45](#)).

The **Insured Yield** is 25 bushels per acre and the **Min Insured Revenue** and the **Final Insured Revenue** equals \$45,000, respectively. The total **Insurance Premium** is \$3,000. Changing the data in the **Oct Average Of Nov. Futures** field illustrates one of the unique features of Crop Revenue Coverage insurance. That is, this insurance provides a minimum payment if the **Feb. Average Of Nov. Futures** price is equal to or greater than the **Oct. Average Of Nov. Futures** prices. If, in contrast, prices increase and the October average futures prices are greater than the February averages, the final insured revenue is greater than the minimum insured revenue. For example, enter \$5.00 per bushel in the **Oct. Average Of Nov. Futures** field. Both the **Min. Insured Revenue** and the **Final Insured Revenue** entries are unchanged each equaling \$45,000. Since the average for the November futures prices was higher in February than in October, the coverage is based on February prices. Entering \$7.00 per bushel in the **Oct. Average Of Nov. Futures** field results in an increase in the **Final Insured Revenue** field equaling \$52,500 ([Figure 46](#)). The **final Insured Value** is greater than the **Minimum Insured Value** because futures prices averaged more in

October than they did in February. Whether a producer elects to use Crop Revenue Coverage insurance will depend upon the correlation between crop failure and prices. If prices increase for this farmer when a crop failure occurs, then the payout from this insurance may more than offset the additional cost of the premium. If, on the other hand, the correlation between a crop failure and price levels is low, other types of insurance may be more beneficial. For more information on the crop yield/price correlations, read the probability and insurance modules that are a part of the CD ROM.

D. Partial Soybean Crop Failure (or go to [Topics](#))

To complete this exercise, it is assumed that futures prices in February average \$6.00 per bushel and in October futures prices average \$7.00 per bushel. Therefore, the **Final Insured Revenue** is \$52,500 ([Figure 46](#)). It is also assumed that there was a soybean crop failure. Return to the **NEW CROP** input screen and click on the **NEXT** button until the soybean **NEW CROP** screen appears ([Figure 9](#)). In the **Expected Bu. Yield/Acre** field enter 10 bushels per acre. Observe that the Producers are expected to harvest only 3,000 bushels of soybeans. Exit this screen and return to the **INSURANCE PRODUCTS** screen. Click twice on the **NEXT** button until the soybean **INSURANCE PRODUCT** screen appears. Based on the \$7.00 per bushel October average futures price, 50% coverage, and 10 bushel per acre yield, the Producers would receive a \$31,500 indemnity payment ([Figure 46](#)). The partial soybean crop failure affects the data that are transferred to the **RISK POSITION** and **PROJECTED NET FARM INCOME SCREENS**.

In summary, to select alternative insurance products, enter **NONE** in the **SELECTED INSURANCE PRODUCT** field. This clears the screen of all insurance products. Then select an alternative such as **CROP REVENUE, HAIL, REVENUE ASSURANCE, CATASTROPHIC, or OTHER**. At the present, only one insurance type can be entered at one time. In the next release, hail insurance may be tied to other alternative products. The next release will also include any changes in the insurance products that may be announced for next year.

6. MISCELLANEOUS (or go to [Topics](#))

This pull-down screen is used to enter miscellaneous records relating to the farm's financial position ([Figure 47](#)). Notice the **Type Of Miscellaneous Record** field is highlighted. Use the mouse to click on the arrow key to get the pull-down screen. Short term investments (**S-T INVEST**), non-grain inventory (**NON-GRM INV.**), margin account balances (**MGN. ACCT BAL**), checking account balances in any of three banks (**OC BANK 1, OC BANK 2, and OC BANK 3**), and bank deposits in any one of three banks (**OD BANK 1, OD BANK 2 and OD BANK 3**) are entered here. These data are transferred to the **LIQUID ASSETS AND FAMILY LIVING COSTS** screen. This screen and the **BANKS** entry screen lie behind the **PROJECTED NET FARM INCOME SCREEN**. Use the mouse to click on either screen to move them in front of the **PROJECTED NET FARM INCOME SCREEN**. The **BANKS** entry screen may be used in conjunction or in place of the **MISCELLANEOUS** screen to enter data for bank accounts. The entries for the **BANK** screen are discussed in the **PROJECTED NET FARM INCOME SCREEN** section.

A. Short Term Investments (or go to [Topics](#))

To enter data, use the mouse to click on the **ADD** button ([Figure 48](#)). Using the mouse, select short term investments, **S-T INVEST**. Use the tab key to enter the following data into **Commodity** (money account), **Due Date** (none), **Broker** (local), and **Dollar Amount** (\$10,000). By **first** clicking on the **ADD** button, enter \$10,000 dollars of bank deposits in **OD BANK 1**. In miscellaneous records, **OC** is an abbreviation for checks (liabilities) and **OD** is an abbreviation for deposits (assets). The user may insert a checking account balance or may enter the data by check number and by individual deposit.

7. YIELD FUTURES (or go to [Topics](#))

The yield futures analysis will be added in a future release.

SUMMARY DATA (or go to [Topics](#))

This section contains five summary reports, **RISK POSITION**, **PROJECTED NET FARM INCOME**, **CASH FLOW**, **NEW CROP POSITION**, and **PRICES AND YIELDS** ([Figure 49](#)). Each report is discussed in succession. Lying behind the **PROJECTED NET FARM INCOME** screen are the **LIQUID ASSETS AND FAMILY LIVING COSTS** and the **BANKS** screens. In this release, **PRICES AND YIELDS**, a correlation report, is not operational.

Risk Position (or go to [Topics](#))

The risk position is a summary report by enterprise. In this example, three reports are available, corn, soybeans, and soft-red winter wheat. Much of the information in this summary has already been discussed. Thus, a short review will be provided and selected entries will be discussed in detail for corn ([Figure 50](#)) and soybeans ([Figure 51](#)). The data for wheat may be reviewed and analyzed on the **RISK MANAGEMENT SCREEN** in the **MRP** program.

1. Net Long Positions for Corn and Soybeans (or go to [Topics](#))

All production, cost data, and marketings (sales) were discussed in reference to the **SUPPORT DATA** discussion. The **Net Open Position** is a significant indicator of the amount of price risk faced by this farm. Since the **Net Open Position** is a net long position, the firm is at risk if prices decline. The Producers have a 73,720 bushel net long position for corn ([Figure 50](#)). Because of the partial soybean crop failure, the net long position for soybeans is 9,920 bushels ([Figure 51](#)). These net open long positions add price risk to projected income or **Open Grain Value** on the **PROJECTED NET FARM INCOME** sheet. If prices decline before the grain is sold, income or open grain value also declines. The **Expected Price** entry that appears on the **RISK POSITION** screens is used to generate the **Open Grain Value**. That is, the expected price is multiplied by the number of bushels in the net open position. **Expected Price** may be based on outlook information, futures prices, and/or breakeven cost requirements. The latter does not have any forecasting reliability and probably should not be used.

2. Fair Payments for Corn and Soybeans (or go to [Topics](#))

The **FAIR** payment, which is \$17,290 for corn and \$8,645 for soybeans, is a government

payment ([Figures 50](#) and [51](#)). FAIR payments reduce cash flow obligations. These payments are scheduled to terminate in the year 2002.

3. Break-Even Price for Corn and Soybeans (or go to [Topics](#))

The **Break-Even Price Needed** is the total cost divided by total bushels or expected production. That is, it is the price that is required to offset the estimated production costs (See **Table 1** for list of all costs). For corn, the breakeven price is estimated at \$2.41 per bushel ([Figure 50](#)). Because of the soybean crop failure, the breakeven price is an unrealistic \$25.51 per bushel ([Figure 51](#)). Since the Producers had soybean crop insurance, the indemnity payment will offset part of this price requirement. At this point, the AgRisk software program may be used to estimate the probability that prices at harvest time will cover production costs.

4. Cash Flow Break-Even for Corn and Soybeans (or go to [Topics](#))

The **Cash Flow Per Bushel** is the total cash flow requirement (minus the FAIR payment) divided by the expected production. That is, it is an estimate of the required price that is needed to offset the cash flow obligations of this firm (See **Table 1** for a list of all cash flows). For corn, \$1.55 per bushel is needed to offset the cash flow obligations ([Figure 50](#)). In contrast for soybeans, \$14.21 per bushel is needed to offset soybean cash flow requirements ([Figure 51](#)). Since the Producers had crop insurance, the indemnity payments can be used to offset the soybean cash flow obligations. Again, the AgRisk model may be used to estimate the probability that prices will cover the cash flows for each crop.

5. Cash Flow Risk Ratio for Corn and Soybeans (or go to [Topics](#))

The **Cash Flow Risk Ratio** identifies what percent of the crop that must be sold at the expected market price to meet all cash obligations. The ratio is calculated as follows:

cash flow risk ratio = cash flow breakeven price/expected market price

The smaller the ratio the greater the ability to bear risk. For corn, the Producers must sell 62% of the corn crop at the expected price to cover cash flow. Since 73,720 bushels or 80% of the total crop are in a long position, the Producers are at risk if prices begin to decline. If cash prices decline, more of the corn crop will have to be sold to meet the cash flow requirement. For soybeans, the 2.19 cash flow risk ratio indicates that the Producers cannot meet cash flow obligations from this year's soybean crop unless prices double. Again the indemnity payment from the crop insurance will provide financial relief. Future releases of the MRP program will analyze cash flow obligations by the month.

6. Average Price Received for Corn and Soybeans (or go to [Topics](#))

The **Average Price Received** is the weighted average price for all grain that is sold via forward contracts, hedges, H-T-As, minimum price contracts, and puts. Open positions such as basis contracts and DP contracts are not included in this calculation. For corn, average price received is \$2.60 per bushel ([Figure 50](#)). The **Break Even Price For Open Position** is the required average price that is needed to cover the cost for the grain that has not been priced. Notice that for corn, the remaining unsold bushels must be priced at \$2.29 per bushel

to cover total costs. This is a \$0.12 per bushel decrease relative to the **New Crop Breakeven Price Needed**, the price estimate when all bushels are in a long position.

For soybeans, the **Average Price Received** equals zero (0) because the minimum priced grain has not been priced. However, the net open position has been reduced by 1,000 bushels. Thus, the break even price for the 2000 bushels of grain that remains to be sold is \$38.26 per bushel. The next version will reduce the costs by the amount of the indemnity payments from the insurance resulting in lower break even price requirements ([Figure 51](#)).

PROJECTED NET FARM INCOME (or go to [Topics](#))

This summary sheet is designed to analyze the income and costs for this firm ([Figure 52](#)). Notice that lying behind the **PROJECTED NET FARM INCOME** screen is a second screen identified as **BANKS**. Clicking on the **BANKS** screen moves the **BANK ACCOUNT INFORMATION** screen forward ([Figure 53](#)). This screen may be used in place of, or in conjunction with the **MISCELLANEOUS RECORDS** screen to manage bank records. In this example, the \$10,000 deposits from the **MISCELLANEOUS RECORDS** appears. If the user preferred to just enter the total bank balance in the **Begin Balance** field, checks and deposits would not need to be entered in the prior **MISCELLANEOUS** screen.

Many of the items that are displayed on the **PROJECTED NET FARM INCOME** screen ([Figure 52](#)) are self-explanatory, or were explained in the prior sections. **Total Projected Income** is presented in one column and **Total Projected Costs** is in a second. Notice that the program separates out speculative gains and losses from production and storage incomes and costs. No data entries can be made on this screen. Instead, the program is summarizing and reporting the data which were entered in the **SUPPORT DATA** section. For example, the open grain value is \$203,146. This value is based upon expected production and prices. Since crop insurance is in place, some of the yield risk is eliminated. In contrast, the large open long grain positions allow for significant price risk. That is, if prices begin to decline, the open grain value will also decline.

Marketing proceeds equaling \$84,400 represents the grain that has been sold ([Figure 52](#)). Speculation proceeds of \$1,250 are earned from the purchase of the call for the wheat crop. The \$31,500 of insurance proceeds represents the indemnity payment for the partial soybean crop failure. Miscellaneous income of \$10,000 is from an off-farm source and the **FAIR** payment is the payment from the federal government.

The costs are summarized from the data entries into the **NEW CROP, GENERAL OVERHEAD COSTS** (machinery ownership, labor costs, land/crop improvement, and miscellaneous costs), **GRAIN ASSETS, MARKETING ALTERNATIVES**, and **INSURANCE PRODUCTS** screens. The speculative loss of \$1,250 is the loss associated with the long corn position. It is a coincidence that the speculative loss equals the speculative proceeds. Contract charges paid represent brokerage fees, and option premiums are for the purchase of puts, calls, and minimum price contracts.

Projected Net Farm Income is the difference between projected income and costs. The larger the net farm income, the less risk is faced by a firm. Based on the data entered, it is projected that net income will equal \$47,680 for this crop year. A caveat, though, is that

most of the Producer's net farm income is based on open grain value which signals significant price risk exposure.

LIQUID ASSETS AND FAMILY LIVING COSTS (or go to [Topics](#))

This screen or [Figure 54](#) lies behind the **PROJECTED NET FARM INCOME** screen. To view this screen, click on it with the mouse. The bank balance, short term investments, margin account balance, and non-grain inventory are all entered in the **MISCELLANEOUS RECORDS** screen. These are liquid assets that may be used to offset cash flow shortfalls. Based on the entries, total liquid assets equal \$20,000. Family living costs are reported on this screen and equal \$13,500. This is the portion of the family living expenses that must be paid by the three grain enterprises.

Projected Cash Flows and Receipts (or go to [Topics](#))

This summary screen is designed to evaluate net cash flows by enterprise and for the farm as a whole ([Figure 55](#)). The **Cash Flow** refers to the "out of pocket" obligations that must be met to produce grain (new crops), store grain, speculate, buy insurance and to maintain the margin (See **Table 1** for a list of cash flows). The **Receipts** are the returns to each of the enterprises and are estimates until all grain is sold or priced and contracts have been closed. At the end of the crop year, the user can determine which enterprise provided the highest net cash return. When livestock enterprises are added into this program, this summary sheet may provide insights for making management and investment decisions for crops and livestock for the whole farm.

Based on the data entered in this example, the Producers can expect a **Total Net Cash Flow** of \$102,855. If the net assets and cash flows were negative, then a loan would be required or assets would have to be sold to meet current cash flow obligations. Until all grain has been priced, the final cash flow position may only be projected and the farmer is at risk if prices decline.

1. New Crop (or go to [Topics](#))

These entries are for the production of next year's crops. In the model, the cash flow is calculated by summing for all grains the **New Crop Cash Flow Per Bushel** by grain (from **RISK POSITION** screens) times **Expected Production** by grain (from **RISK POSITION** screens). For the Producers, the cash flow obligation for all new crop production is estimated at \$192,230 ([Figure 55](#)). Receipts are calculated by summing for all grains the new crop expected production that is in an open or long position (unsold new crop by grain) times the **Expected Price** by grain plus the value of the sold or pre-priced new crop grain (all data acquired from **RISK POSITION** screens). For the producers, it is estimated that total receipts from new crop sales will be \$273,250 with a positive net cash position of \$81,020. Since these estimates are based on open long positions, the **Net Cash** flow is at risk, a measure being the **Weighted Cash Flow Risk Ratio**.

The **Weighted Cash Flow RISK Ratio** identifies the percent of all crops that must be sold at the weighted average price to meet all cash obligations. The smaller the ratio, the less risk that this firm faces. Based on expected prices, the Producers would need to sell 65% of all three crops to cover their cash flow obligations. If prices begin to fall, this ratio would

increase signaling that the Producers were facing significant price risks on their long open grain positions.

After all open grain has been priced by harvest time, the **Net Cash** position is confirmed as is **Weighted Cash Flow Risk Ratio**.

2. Grain Assets (storage) (or go to [Topics](#))

This is the net cash position for storing all grains. The cash flow obligation is the **Accrued Storage Costs** that is reported on the **PROJECTED NET FARM INCOME SCREEN**. If fixed costs for storing grain on the farm are entered into the **Base Storage Fee** field on the **GRAIN ASSETS** screen, cash flow for storing grains will be over-estimated. That is, fixed cost for storing grain is not an "out-of pocket" expenditure or cash flow. To get an accurate estimate of the storage cash flow obligations, return to the **GRAIN ASSETS** screen and enter zero (0) into the **Base Storage Fee** field for all grain stored on the farm. For the Producers, the storage cash flow is estimated at \$8,930 and receipts are estimated at \$7,566. The net cash flow is estimated at -\$1,364 ([Figure 55](#)). For this year, it is estimated that the storage enterprise will not cover storage cash flow obligations.

3. Speculation (or go to [Topics](#))

This is the net cash position for buying long futures positions and for buying calls. The cash flow calculation is the sum of the premiums on calls and long futures positions plus financial losses on long futures positions. These data are acquired from the **MARKETING ALTERNATIVES** screen. For the Producers, the cash flow obligation for speculation was \$1,850. Receipts are the sum of the **Positive Contract Values** for calls and long futures positions. These data are also acquired from the **MARKETING ALTERNATIVES** screen. Since the Producers have speculative receipts equaling \$1,250, the net cash flow for speculation is -\$600 ([Figure 55](#)).

4. Crop Insurance (or go to [Topics](#))

The net cash flow position for insurance is based on the premiums (cash out flow) and on the indemnity payments (receipts). All data are summarized on the **PROJECTED NET FARM INCOME** screen. For the Producers, net cash flow for buying crop insurance equals \$23,900.

5. Margin (or go to [Topics](#))

The margin cash flow is the sum in the **Computed Cost** fields on the **MARKETING ALTERNATIVES** screen where the marketing alternative is a short futures (hedge) or a put (short hedge using a put) plus the sum in the **Margin Call** fields for all short futures positions. The intent is to show the cash flow obligation that is associated with hedging. In this example, the Producers had a \$100 cash flow obligation for hedging new crop corn. All data are recorded on the **MARKETING ALTERNATIVES** screen. Receipts will always be zero (0) because the software does not calculate the returns to hedging. That is, it does not calculate the difference between the pre-harvest price and the harvest price.

New Crop Position (or go to [Topics](#))

This summary screen is designed to calculate the profits or losses for an enterprise. It is accessed under the **SUMMARY DATA** pull down screen. [Figure 56](#) illustrates the profit or loss statement for corn. Clicking on the **NEXT** button provides similar information for wheat and soybeans. At the end of the crop year, the user would enter the **Harvest Price** for all unpriced grain which will be sold at harvest time or will be stored on the farm or at the elevator. The assumption is that any increase in prices after harvest is a return to storage or speculation and should not be used to offset new crop production costs. In this example, it was assumed that the harvest price was \$2.50 per bushel. Since corn was priced prior to harvest at prices above \$2.50 per bushel, the **Average Price Received** (weighted average price for unpriced and priced grain) was \$2.54 per bushel. The total cost for producing corn is subtracted from total receipts to determine profits or losses. In this example the Producers may earn **Profits** equaling \$10,505. The results for soybeans and wheat can be viewed by clicking on the **NEXT** button. [Figure 57](#) is the report for soybeans. Since there was a soybean crop failure, a \$57,027 loss is expected. Again, the insurance indemnity payment would offset part of this loss. By comparing the profit or losses for different enterprises, the user will get some insight for making management and investment decisions.

REPORTS (or go to [Topics](#))

By clicking on **REPORTS**, ([Figure 1](#)) all input screens and summary screens can be previewed and/or printed to a hard copy ([Figure 58](#)). The **RISK POSITION** screen always appears in this pull down screen. By clicking on the arrow on the pull down screen, all other input and output screens may be accessed. To preview a screen, click on **PREVIEW** and then click on **PROCEED**. A second screen or [Figure 59](#) appears. To read the data, the user must click on the **ZOOM IN** button and use the scroll bars to move about the screen ([Figure 60](#)). **NEXT**, **PREVIOUS**, and **PAGE** permits the user to move from one grain to another.

To print a report, click on **REPORTS** ([Figure 58](#)). For this example, the **Risk Position** reports will be printed. Click on **Current Printer** and then on **Proceed**. The examples of output for the **RISK POSITION REPORTS** are displayed in [Figures 61](#), [62](#), and [63](#). Although not shown here, all other input and report screens can be printed.

CONCLUSIONS (or go to [Topics](#))

This manual was developed to help the user understand the assumptions that underlie the MRP model, the process for entering data into the input screens, and the methods for analyzing the reports. This software was developed in conjunction with 14 modules or chapters focusing on profits and risks. This reading material is available on the CD ROM, from the Data Transmission Network (DTN) or from any one of the authors. Please refer to the modules to gain additional understanding of the logic and concepts that support this software. As a minimum, please read [Module 3](#) written by Dr. William Edwards of Iowa State University.

Every effort has been made by the authors and programmer to test this model for errors and "bugs." However, this program is in a test mode and it cannot be guaranteed that all problems have been identified and eliminated. Before using this program to generate data for your specific farm, read the **DISCLAIMER** that appears in the **ABOUT** pull down screen.

If any errors or bugs are found in the program, please notify Dean Baldwin, Department of Agricultural, Environmental, and Development Economics, Ohio State University, 223 Agricultural Administration Building., 2120 Fyffe Rd., Columbus, Ohio 43210. His e-mail address is baldwin.4@osu.edu. and his FAX number is **614-292-4749**. To the extent possible, please document your data entries and errors. If there are suggestions that would improve the usefulness of this software, please forward them to Baldwin as well. These comments will be incorporated into future releases.

Future releases will be forthcoming. If new insurance products are created for the following crop year, a new release will be available prior to the planting season. If the **Save** function is used properly, all prior data entry into the old software can be accessed via the new release. Other revisions are also planned for development and release in 1999. When new releases are available, every effort will be made to contact those who are using the software. From time to time, the user may want to contact Baldwin at the above address to see whether a new release is available. Announcements for all MRP software releases will appear on the Managing Risks and Profits Web site, (<http://idea.exnet.iastate.edu/idea/marketplace/risk-mgmt/>). As part of the Managing Risks and Profits educational program, the Web site is under development and will be modified as new information and requests become available

End of Module (or go to [Topics](#))

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