FARM BUSINESS MANAGEMENT

Farm & Ranch Management Education

A Course of Study For Adults
Fourth Edition

Volume I

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AN ADULT EDUCATIONAL PROGRAM

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TABLE OF CONTENTS

FOREWORD

This edition of the Farm & Ranch Management Education; A Course of Study for Adults, is a significant contribution to Agricultural Education. It capitalizes on the advances made in instruction and in research in the field of Farm & Ranch Business Management Analysis and should provide a very useful teaching tool to those who teach in this field.

As we move ahead in program development in vocational agriculture, we must give the highest priority to problems that are crucial to farmers and ranchers. These problems are both immediate and long range. They are rooted in the economics of Farm and Ranch Management for it is in the decision making process that a farm and ranch operator establishes his level of succuss or failure. Because this course of study identifies itself with the significant and real needs of operators and of farm and ranch businesses, it should prove invaluable to those responsible for instruction in this area.

Teachers who have used the first three editions of this course of study will find that the entire content has been revised and rewritten to bring it up to date. Certainly this is not intended as a rigid course of study, but rather as a guide to instruction and a suggestion that will assist those planning programs of instruction at their local level. Basically it represents an approach to what might very well be the most significant aspect of vocational agriculture at this time. The authors are to be congratulated for the contribution that they have made.

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CHAPTER I

INTRODUCTION

"Adult Farmers are becoming increasingly aware of their need for education related to the business of farming. More are enrolling in adult farmer courses each year and most rural communities are now finding enrollment demands so great that several courses must be organized to accomodate them. They not only need vocational education for farm management, but welcome programs specifically organized to meet their particular needs."[1] From the standpoint of results, it is by far the most important phase of vocational education in agriculture. Adult farmers need, want and are in a position to use agricultural instruction.[2]

Adult education in agriculture over the past fifty years emphasized approved practices as they applied to a variety of enterprises. The adult classes were used primarily to keep interested operators up to date on whatever their interests happened to be. Under this plan of instruction, each of a series of ten or more meetings may have dealt with a different topic. Some operators attended only a few meetings, while others with greater interests attended very regularly. Generally, farmers and ranchers were not officially enrolled in the class and were not likely to attend meetings unless particularly interested in the topic. Because of the variation in attendance of farmers and ranchers and the infrequent contact in the classroom, it was difficult for the vocational agriculture instructor to become well enough acquainted with each operator to maximize the benefit from on-farm and ranch instruction. Such instruction usually dealt with approved practices having little or no relationship to the whole business. While this type of adult instruction may have met the needs of farmers and ranchers of a decade or two ago, it is no longer adequate. The tremendous changes in agriculture over this same period point to the need for an instructional program that is complete and thorough. The instruction must aim first at the business as a whole and secondly at the parts which comprise the whole business.

Problems and needs of the farm and ranch operator today have expanded to a greater degree than the physical size or capital investment of the individual production unit. Closer margins between costs of production and selling price have made it necessary for the operator to know more about his business. The operator must pay more attention to both production and financial details if he expects to compete with others. The operator must know how to produce crops and livestock to give a return to his capital, land, labor and management and

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[1] Vocational Education for Rural America, Yearbook 1958-59, Department of Rural Education, Pages 71-72.

[2] Handbook on Teaching Vocational Agriculture, Phipps-Cook, The Interstate, Danville, Illinois, 1956, Chapter 22.

how to combine his crop production with livestock and family labor. Even after this ideal combination has been determined, the operator must know how to combine machinery, fertilizer, insecticides, herbicides, varieties and tillage practices for crops and know how to combine labor, feed, disease control, housing and equipment and other costs to produce livestock products efficiently. Above all this, the operator must know how to study markets and interpret market trends. Being skillful in the operation, repair and maintenance of machinery and equipment is also important. The operator must know the latest techniques of crop production and the most up-to-date practices relating to livestock enterprises. In addition to knowing what to do the operator must also know how to do it.

The purpose of this course of study is to outline a complete program of instruction to be used in studying the management of the farm or ranch. This book is intended to serve as a guide for instructors of vocational agriculture in setting up a program for the local community that will help farm and ranch families face the business management problems that are before them, and to assist them in arriving at sound decisions in a logical and systematic manner.

A special note to instructors:

You will note the interchangeable use of the term "client" and "student." As you progress in the management education program you will probably find that the term "client" is a bettter description of the people enrolled (students) in your program. You will get to know a lot about each other - not only in regard to the business, but also in regard to your personal lives. Your farm or ranch enrollee will confide in you. In fact you may be the only person outside of the family that knows as much about the farm or ranch business as does the operator. With this confidence comes a special responsibility; you must keep all that you hear and discuss with the family in strictest confidence. You can, and will, develop a true client-professional relationship with your students as the course progresses.

CHAPTER II

ELEMENTS OF A MODERN ADULT EDUCATION PROGRAM FOR FARMERS AND RANCHERS

It has been illustrated earlier that the problems of the modern farm and ranch family are vastly different from those of a decade or two ago. In a relatively simple business, each problem can be identified, isolated, studied, evaluated and solved. This is not true in modern agriculture, since farm and ranch businesses are rarely simple. Here there are many factors - each more or less independently involved, but complicated by the fact that each factor is so completely interrelated with the others that is cannot be treated as a single variable. An instructional program for adults must keep each phase of the farm and ranch business in proper perspective with the others.

Along with a caution against over-simplification, a program of instruction for adult farmers and ranchers should include three identifiable phases: 1) farm and ranch management, 2) mechanized agriculture, and 3) enterprise instruction. Each phase is related to the others much as the factors which influence the business are interrelated. A complete program will also provide educational opportunities for young farmers and ranchers who are in the process of getting established as full time operators.

Farm and Ranch Management

The farm and ranch management phase is the foundation for the entire adult program of instruction. It begins with individual families enrolled in specific courses composed of definite units taught in an organized sequence. This study of farm and ranch management should be spread over a period of three or more years to permit families to keep pace with the instruction in carrying out programs to reach their objectives.

Management is primarily a decision making process. To be successful in management instruction it is important that instructors understand the logical organization of activity which leads to making a sound decision. The topics which are suggested in the lessons for farm and ranch management generally follow the sequence suggested by the ten steps. These steps are as follows:

1. Analyze the present situation.
2. Locate the problem.
3. Set up objectives or goals.
4. Size up the resources.
5. Look for various alternatives.
6. Consider probable consequences and outcome.
7. Evaluate the expected results.
8. Decide on the course of action.
9. Put the plan into effect.
10. Evaluate the results of the decision.

Because agriculture is a dynamic industry, it is not possible to locate a problem, follow through on alternatives, put a new plan into effect and expect the job of management to be completed. Management decision making is a continuing process with new problems coming to the fore and new solutions being found. It is likely that several problems will be in the various stages of the decision process at any one time. For some problems the farmer or rancher may be establishing goals; for another problem he/she may be still analyzing the present situation while for still another he/she may be choosing a particular course of action which he/she intends to put into effect immediately. The management education program is simply the starting point in the over-all evaluation of the farm or ranch business and a systematic approach to solving problems that will follow.

Developing an understanding of the basic economic and managment principles is an important activity in management instruction. Many of the units of instruction in this book contain examples of the direct application of economic principles to farm and ranch businesses, even though the principles are not identified in the text. Instructors should be alert to the opportunities to inform their families of the principles which apply to the problems they are studying. However, instructors should avoid directing disproportionate attention to defining and discussing the principles of economics unless there is opportunity to make direct application of the principle to the business represented in the class.

The farm and ranch management phase must have as its beginning, an accurate and realistic source of information which will be used to analyze the present situation, locate the problems, and aid in setting up objectives. Information about the business is also essential to evaluate the resources. There is only one natural place to go for such source material and this is a record of the farm or ranch business, including information about the home and family. No other source can provide the data necessary for sound planning. A full business cycle is necessary before any complete summaries can be made which can be used to aid in the first four steps of the decision process. Therefore, the first year of the farm and ranch management phase will be used to motivate families to keep good records and to instruct them in keeping accurate accounts. The necessary individualization in the program for the first year can be developed through on-farm instruction. On-farm instruction in the early stages of the program is extremely important in developing the confidence of the family in the instructor. The instructor must get acquainted with the family and the business without seeming to pry. Every care must be taken to keep all discussions and problems of the family on a strictly confidential basis. Any breach of this rule can have nothing but harmful effects. The need for confidentiality will offer no problem to the instructor who uses common judgment. Many families enjoy discussing their own business and will often inject problems of the operation into class discussion. Others, however, are more sensitive to public discussion of their private business.

Any efforts expended on keeping farm and ranch and home records are entirely wasted unless some good use is made of the records. Although complete summaries cannot be made until a full business cycle has been completed, many uses can be made of the accounts during the first year. The most obvious of these are checking on feed supplies and other inventories; providing credit information; planning the cropping program; yield information; checking cash balances and cash flow; planning for income tax; collecting a historical record of price; determining and completing livestock information such as births, deaths, sales and purchases. Any of this information that can be put to good use during the year will make the families more aware of the value of these records and increase their motivation to keep a current and accurate account.

An analysis of the first year's records is a most logical starting place for the beginning of the second year. Since this analysis must be done efficiently and accurately, it can best be done through an analysis center where trained personnel can follow carefully planned procedures and benefit from electronic data processing. Organized classroom material during the second year deals with general interpretations of a business analysis. Families can recognize general signs of weaknesses and strength throughout their own business by a study of their business analysis. The class material suggested in this book and its subsequent volume will also furnish background information which will be very useful when the vocational agriculture instructor helps the family with more specific individual interpretations on farm and ranch visits.

The third year of the farm and ranch management phase is a continuation of the second in that another year's business analysis is available for study. Class work emphasizes enterprise efficiencies and deficiencies to a greater degree, since trends within the business as shown by the record analysis, will begin to be significant. Major emphasis during the third year can be pointed toward a beginning study of business reorganization. Methods for developing reorganization plans can well be illustrated through the use of examples. Since families will approach the actual job of reorganization at varying times, any concrete plans must be developed on an individual basis. Organizing the business to better meet farm and ranch and family goals will be one of the major areas covered on farm and ranch and home visits.

Mechanized Agriculture

The average farmer and rancher in anywhere, U.S.A. probably has a sizable proportion of his/her capital invested in machinery, equipment and buildings. These major areas of investment and use cannot be overlooked in any comprehensive education program for adult farmers and ranchers. Mechanized agriculture should include a determination of the need for and selection of machinery, equipment and buildings as well as the economics of ownership. The influence

of machinery and equipment on the labor output per worker is of major significance in modern agriculture. At the same time the capital expenditure must be carefully weighed to determine whether increased production or labor efficiency will justify the acquisition cost. Farmstead planning and building requirements fall into this same important category.

The farm and ranch operator must know enough of the principles involved in the operation of machinery to carry out the proper maintenance and adjustments needed for successful operation. The same general skills and knowledges are necessary to effectively manage and operate choppers and corn pickers, to say nothing of feed mills, augers, conveyors and metering devices used for material handling. Machinery and equipment repair, as well as the construction and repair of buildings, are important skills for many successful farm and ranch operations.

A series of meetings should be conducted each year on some specific area of mechanized agriculture. One year the topic may be operation, adjustment, maintenance and repair of harvesting machinery. Another year planting machines, material handling or farm and ranch building construction may be studied. The topics should be determined according to the needs and interests within the community. Agriculture mechanics is so broad and diversified that all of the important areas cannot be covered before community needs will require a repeat of the more popular phases.

However, because this course of study deals only with the management phase of instruction, none of the teaching guides for mechanized agriculture have been included. It is sufficient to suggest that every instructor will make plans for supplementing the management instruction with a well planned and well taught program in mechanized agriculture.

Enterprise Classes

The enterprise phase of a balanced adult agriculture program for farmers and ranchers bears the most similarity to adult agricultural programs of the past. It is necessary to systematically provide an opportunity for the farmers and ranchers in the community to get up-to-date on new production and management practices within an enterprise. This can be done by offering one or more courses each year in such areas as swine feeding and management, crop production, dairy feeding and management or other enterprises. Areas such as estate planning, how to participate in local government, marketing, etc. should also be part of the enterprise plan. Topics to be studied should be determined by the needs and interests in the community. The enterprise phase fits in well with the farm and ranch management phase in two respects. First, it furnished opportunity to members of the farm and ranch management group to "sharpen up" enterprises found to be weak through the farm and ranch business analysis. Second, it provides a common meeting ground for the vocational agriculture instructor and farmers and ranchers who may be prospective members of the management classes.

Young Farmers & Ranchers Instruction

Most adult programs in agriculture also need to pay special attention to the educational needs of those just getting established in farming and ranching. The management education course of study can provide a good core of instruction for the beginning operator. Some states encourage the enrollment of beginning farmers and ranchers in the same management class as those who are well established. This arrangement allows the beginning farmer and rancher to learn from the class members as well as from the instructional program. Those needs of the young farmer and rancher that are unique to his/her age or degree of establishment are dealt with in special young farmer and rancher classes, much as the enterprise or mechanized agriculture class relate to topics of special interest for selected groups.

Adding the opportunity for a comprehensive study of the total management of the business to an existing young farmer and rancher program would make an important contribution to the education of the beginning farmer and rancher.

The omission of course of study for the mechanized farming and ranching, enterprise phases and young farmers and ranchers instruction in this book was necsary because of limitations of space. This omission does not take away from the importance of any instructional phase when weighed as part of a complete program of instruction for farmers and ranchers. You should look to your State Association of Vocational Agricultural Instructors of your universities and colleges responsible for training teachers of agriculture for guides that may be useful in mechanized agriculture enterprise and young farmer and rancher instruction.

CHAPTER III

ORGANIZATION OF AN INSTRUCTION PROGRAM OF ADULT EDUCATION IN AGRICULTURE

The adult education program in agriculture must be organized in such a manner that at all times the group instruction, as well as the individual instruction, is aimed toward the over-all objectives of the course. To be effective in meeting the needs of the cooperating farm and ranch families it must be systematized around the basic principles of management.

Adult instruction in agriculture is not unlike other courses offered by the public schools. It must be systematic instruction possessing the following five characteristics:

1. Specific enrollees in each course.

2. Specific units taught as part of each course.

3. A definite and regular sequence of courses.

4. Continunity between courses with progression toward the most effective business organization and greatest operating efficiency.

5. Individual on-farm and ranch instruction is an integral part of the teaching plan.

As these five features are analyzed, the importance of each becomes very apparent. A vocational agriculture instructor would not consider teaching a course in welding unless he had a system so that individuals would have Lesson I before going on to Lesson II. The student must learn how to run a bead before he can properly weld a broken machine. Nor would an instructor with facilities for ten consider teaching fifty in one course of welding. If facilities are overloaded any course becomes less effective, but more important, without time for individual supervision, the course would be a dismal failure. The class members must be definitely enrolled so that each client will have Lesson I before he attempts Lesson II. In addition, the class enrollment must be definite and limited to the number that can be given individual attention and on-the-farm and ranch instruction.

Every teacher of vocational agriculture has, at one time or another, been asked a question similar to this: "What is the best kind of a dairy barn to build?" This is, without doubt, a "loaded" question that cannot be answered until many other questions have been asked and answered. The vocational agriculture instructor should be thinking, "are you a good dairyman?"

This question would be just as "loaded" as the first because the farmer would have to answer many other questions before he could provide the response. In some cases this farmer may be able to check back on his records to find information. In many cases, however, he/she would have to begin keeping records which eventually would furnish part of the basis for the answer. Even if he/she could be reasonably certain that he/she was a good dairyman, he/she would be involved in a whole maze of other interrelated questions. How does the dairy enterprise fit the farm, the available labor and the available capital? How does the dairy enterprise compete with, or supplement other enterprises? What is the future market for dairy products in the area? This relates back to the more basic question, "should I have a dairy enterprise?" even before the question, "should I build a dairy barn?" Up to this point nothing has been said about the size of the dairy barn, the cost, the location or the type of barn because all of these are contingent upon the answers to more basic questions. These many interdependent questions point out the need for taking first things first and the necessity of basing instruction first on principles and later on details. There is more or less definite order in which questions must be asked if a logical and sound solution is to be reached.

The adult education program in agriculture must begin with a good foundation. The educational activities should help the families with the first step - that of building up a stockpile of information about their own business upon which they can base judgments at a later time. The best way to accomplish this task is to develop a good set of business records. The use which will be made of record information should be illustrated so record-keeping families realize that every entry made will have some future value. Using a standard account book with the clients enrolled facilitates uniformity of teaching the mechanics of entries and makes possible a comparative analysis of the data contained in the record at the end of the year. The first year may be called "Farm and Ranch Management I," "Beginning Farm and Ranch Records," or a number of other titles. Briefly, the beginning course deals with the reasons for keeping records, what records to keep and how to keep them easily and accurately. Since farming and ranching is a year-round business, keeping records must also be a year-round task. The year-round feature of the business makes it natural to hold organized class meetings throughout the entire year with the most frequent meetings being held in the late fall and early winter when it is easiest to fit meetings into the farm and ranch work schedules. At this time the new year's records are being started and the past year's records are being completed.

The on-farm and ranch instruction during the first year will accomplish several purposes - it will enable the vocational agriculture instructor to become acquainted with the farm or ranch and the family; it will furnish opportunity for the family to get acquainted with the instructor and gain confidence in his understanding and knowledge. In addition, it will furnish opportunity for instruction in accounting procedures that require personal attention not possible in a larger group. The harmony that is developed during this first year between the instructor and the client family will determine the success or

failure with which the family persists in the management program in succeeding years. Some on-farm and ranch instruction during this year will be devoted to improvement practices that obviously are not directly related to efficient management. Many times work of this kind, though relatively unimportant as far as the whole business is concerned, furnished the opportunity for development of good communication between the instructor and the client family. A farm and ranch visit each month during the first year, in addition to one or more class meetings per month, should provide contact frequently enough to maintain high interst and deal with problems relating to keeping and using the business and home accounts. It also permits time to observe cropping and livestock programs.

Closing out the accounting system and sending it to the center for analysis will complete the first year of instruction. This naturally leads to the second year which deals with the study and interpretation of the business analysis in general, as well as the individual study and interpretation of the first business analysis of the individual farm or ranch.

Some instruction during the second year deals with the continuation of farm and ranch and home accounts. As the families become better acquainted with the account book procedures, considerably less time will be spent in this area than was spent during the first year. Refinements in feed records and greater accuracy in inventories and depreciation are stressed as accounts for the second year are begun. The main emphasis during this year is on the study and interpretation of the past year's analysis. The instructor assists in the interpretation and study of the business analysis by illustrating signs of weakness or strength within the business and pointing out the need for further study of these areas. Major study can be made of the capital investments in livestock, machinery, equipment and buildings on the basis of one year's record. Size of the business, as measured in several different ways, can also be emphasized. Feeding efficiencies should also be studied, but only preliminary judgments can be made on the basis of one year's record.

The third phase of the management program may be appropriately called "Farm and Ranch Business Organization." During this phase, farm and ranch and home accounts will be continued. The analysis report for the second year's record will be studied and interpreted. Interpretations now begin to be useful in making plans for future changes or expansion in various areas of the business. Studies now can be made to determine income possibilities with various combinations of crop and livestock enterprises. The importance of transitional stages when major changes are contemplated must be given considerable emphasis.

As the client family progresses toward the development of alternative plans and the selection of the most appropriate alternatives, more emphasis will be placed on work with individual families through on-farm and ranch instruction and less emphasis on group instruction. At this point the help of specialists in buildings, material handling and evaluation of plans is more worthwhile for both the instructor and the client family.

While this set of volumes does not contain a detailed course of study for groups enrolled for more than three years, this omission should not be interpreted as placing little value on continuing instruction. Practice shows that some families require the most assistance beyond the third year. As they plan a reorganization of their business they need additional help in searching out the alternatives and evaluating the outcomes of their many possible decisions. Research shows the returns to management instruction to continue well beyond the third year and in fact, demonstrates the highest returns for educational investments beginning with the sixth and seventh year.

Research serves best to demonstrate that improvement in farm and ranch operation, organization and efficiency is highly individualized. Instructors must be patient to permit their client families ample time to thoroughly weigh their many possible alternative decisions. Management is primarily a decision making process, but making the decision is the prerogative of the client family.

CHAPTER IV

HOW TO USE THE COURSE OF STUDY FOR ADULT INSTRUCTION

Having a course of study available is not enough. The user must know how the authors intended the course of study to be used if it is to be most effective. The brief description which follows is intended to convey these intentions.

The title of each lesson should be descriptive of the content and offer a challenge to the client family. Titles may be used in promotion of the management program. Preparation of public relations materials for use with prospective farm and ranch cooperators and other community leaders is a good way to inform the public of the purpose and content of adult agriculture instruction.

Part I. Student Objectives

Each unit begins with Student Objectives. Users will find that these objectives are rather specific and behavorial in structure. A well written objective should specify under what conditions and to what extent a certain kind of student performance can be expected to take place. Teachers should keep in mind the ways in which attainment of the objectives will be measured in order to be able to evaluate their instruction. Measurement will usually take the form of observing the changes in actual practice in the clients business.

Part II. Transition of Units

To assist the instructor and the client in grasping the sequence of instructional units a brief summary of the previous unit, the current unit and the following unit have been included in this part.

Part III. The Lesson

Each lesson begins with an attention focuser. The purpose of this device is to motivate all of the students into thinking about the lesson. The attention focuser is usually activity orientated and should be viewed as an essential part of each lesson. Hopefully, each instructor will be able to think of even better ways to focus attention on the topic than those suggested.

The subject content of each lesson is centered around a series of key questions. Each of the key questions in turn is related to the student objectives. Much of the subject content material is organized in outline form with appropriate

narrative comments. Each key question contains a suggested teaching strategy. Wherever appropriate, subject content material is put in a large type format in the appendices, with suggestions for how to use it appearing in the suggested teaching strategies. The large type format found in the appendices can be used in a duplicated handout form or as transparency masters for overhead projectors.

While the material in each lesson is relatively complete and supported by appropriate appendices, the instructor must, in addition, draw from his/her knowledge of the local area. This will insure that the subject matter is related to the problems in which the class members may be involved. Data selected from area summaries should be revised each year as new summaries of the records become available through the area vo-ag coordinators of the business analysis centers.

Part IV. Summary

Each lesson should be summarized as the class session is concluded with the students. This part offers a summary of the key points in the lesson.

Part V. At-The-Farm Activity

The activities suggested for individual at-the-farm activity help to bring the generalities of the classroom to the specifics of the farm families own farm and ranch and home business. Many of the activities have been selected from A Guide to On-Farm Instruction[3] by Eugene Francis. They may serve as a basis for scheduling the major activity of many of the farm and ranch visits. Because on-farm and ranch instruction is so vital to the success of the management education program, instructors must plan this phase very carefully. Individual instruction is expensive. Farmers and ranchers and experienced instructors consider it the most valuable phase of instruction. Any instruction with such high value and comparatively high costs deserves every effort to maximize the returns to the education investment.

The on-farm and ranch instruction is suggested on the assumption that there has been pre-enrollment contact with the family at which time the instructor became acquainted with the family, secured an enrollment agreement and explained the operation of the program. The instructor must make clear the obligations the family has for attending classes or group sessions and of availing themselves for on-farm and ranch instruction.

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[3]Francis, Eugene V. A Guide to On-Farm Instruction in Farm Management and Farm Business Analysis, Agricultural Education Department, University of Minnesota, St. Paul, 1967, 147 pages.

Part VI. Resources

This part includes the materials a teacher should have available to teach the material in the lesson.

Part VII. References

The instructor may wish to expand his/her knowledge on the topic of the unit or add to the unit. This part cites a list of references which will be helpful in locating relevant material.

Part VIII. Appendices

All of the teaching aids referred to in the suggested teaching strategies will be found in the appendix.

Often instructors know what they want to teach, but have difficultly in deciding how to proceed. The suggested teaching activities and experiences will demonstrate procedures that have proven successful to the authors. Farm and ranch families will find the activities worthwhile. They will be challenged by many of the procedures to think carefully about their business and to evaluate their own plans and past actions. Many units suggest activities for the farm and ranch families as a method of focusing their attention on the subject for discussion and stimulating them to participate in the learning activity.

CHAPTER V

FARM AND RANCH MANAGEMENT I - FARM AND RANCH RECORDS AND ACCOUNTS

The vocational agriculture instructor in each community must develop his own method of contacting and enrolling families in Farm and Ranch Management I. Personal contact, invitation by letter, announcements in the local newspaper, local radio broadcasts or perhaps contact through high school students; all these methods are appropriate. Probably a combination of several of the above media will work best. An enrollment goal, as well as the maximum number that can be handled in each class, should be determined well in advance.

A carefully laid plan must be followed and special effort put forth to begin Farm and Ranch Management I with a class of interested families. Progress in enrollment and interest in later years will depend on the success of the first year. For this reason, an enthusiastic start and dedicated follow-up will pay future dividends.

All of the preliminary planning and enrolling should be accomplished far enough in advance so that the first organized class can be held no later than October. An early start permits time to present introductory material and motivation units before beginning on the accounting system in December.

Farm and ranch earnings are necessary to make funds available for family living. Choices must often be made between personal expenditures for family living and production expenses connected with the farm and ranch business. Because of this interrelated spending, it is very important that planning in both of these areas be done jointly by the farmer and rancher and his/her spouse. This planning can best be done if both the operator and his/her spouse participate in the farm and ranch management phase of the adult program. The interest and participation of the operators spouse will often result in a more accurate and up-to-date farm and ranch account book. Even though the person in charge of the household usually has his/her time fully occupied with regular duties, often a few minutes a day can be found to keep account book entries of receipts and expenses up-to-date throughout the entire year. Often the farm or ranch operator will neglect this task during periods of pressing farm and ranch work. If the household keeper completes the receipts and expense phase of the account book and the operator keeps the feed records and inventories, a very accurate and complete record will result. This combination often furnishes opportunity for the partners to discuss problems relating to the business and the home that heretofore have not been openly discussed.

The following teaching units are suggested as guides. They should be modified to fit local conditions and kept up to date with the most current information.

Unit I - 1

STIMULATING AN INTEREST IN FARM MANAGEMENT

PART I. Student Objectives

A. Given an opportunity to reflect upon changes that have occured in class members' own farm businesses, and reinforced with illustrative data from past and present farm business analysis summaries, the student will be able to outline five specific trends that illustrate changes in farming in the past 10-20 years.

B. Utilizing current and past data on farm business measures of organization and efficiency, students will be able to identify some of the factors that contribute to the complexity of the modern day farm.

C. Following a discussion of goal setting and the relationship of goals to earnings, families will be able to write a set of family and farm goals that will provide a sense of direction for their business decision making.

PART II. Transition of Units

Since this is the first group session for the participants, it will be important for the members to begin to establish good personal relationships with each other. The instructor should encourage as much discussion as possible to get the families involved in the teaching process, and to feel at ease in the group setting.

With this unit the family will begin the important task of establishing goals for the business and for the family. The rapid changes in the nature of farm businesses and the increasing complexity of the management and operation of farms is emphasized to illustrate the need for advanced planning. An important aspect of this unit is to illsutrate the close tie between farm and family goals.

The unit which follows will direct attention to the need for good farm records. How changes in the farm business that can effect earnings can be illustrated by an analysis of the farm business will be demonstrated. The major summary measures that differentiate between high and low earning farms will be illustrated.

PART III. The Lesson

Attention Focuser

As families arrive, give each family a 3 x 5 note card and pencil. Have the cards numbered. When families have all arrived, pair up the families using the number on their cards (i.e. No. 1 & 3, No. 2 & 4, No. 5 & 7, etc.). Give the families 10 minutes to find out all the information they need to introduce their partners to the class. Suggest that they find out about the family, the family's interests and something about the farm.

Give each family two minutes to introduce their assigned partners.

KEY QUESTION 1. What are some of the changes that have occurred in the farm business in the past 10-20 years?

It is evident from Table 1 that there are a great many changes that have occurred in the farm business in the past 10-20 years. The major changes that are evident from Table 1 are (1) the changes in farm size as measured by acres, (2) changes in the amount of capital required in the business, (3) changes in the cash flow in both cash receipts and cash expenses, (4) marked differences in the earnings level of farms as measured by labor earnings, and (5) major increases in the amount of cash required for family living.

TABLE 1. SOME MEASURES OF FARM ORGANIZATION[1]

	1955	1965	1975
Labor Earnings - High Profit	5,154	19,107	41,188
Labor Earnings - Low Profit	-1,320	1,197	-11,489
Capital Investment (Dec 31)	49,844	86,032	284,025
Cash Receipts	17,207	31,372	89,482
Cash Operating Expenses	10,095	18,988	53,331
Number of Acres in Farm	211	279	356
Cash Farm Living Expenses	2,832	5,686	13,570

[1]East South Central Annual Farm Business Management Summary - 1956, 1966, 1976, Austin Area Vocational Technical Institute, Austin, MN.

Suggested Teaching Strategy

Pose the question: "What are the major changes you have noticed in farming in the past 10 years or so?" Give the class a few minutes to think about the question. Elicit their responses and record them on the chalkboard or overhead. When the discussion has addressed several of the changes, reinforce the issues by utilizing actual farm data from Table 1.

KEY QUESTION 2. How has the business of farming become more complex during the past 10-20 year period?

Some of the complexities in the business are suggested by the items listed in Table 1. Business size, as illustrated by both acres and capital requirements suggest that the complexities have greatly increased. However, many of the complexities are caused by changes in the use of agricultural technology. An example of the way in which such complexities are reflected in the farm businesses can be shown from the analysis of one of the crop enterprises.

Table 2 illustrates the way in which the practices in corn production have been reported in the farm business analysis summaries for 1955, 1965, and 1975. As the business has become more dependent upon the application of technology, those changes have been reflected in the complexity of the crop analysis.

TABLE 2. CROP DATA FOR THE CORN ENTERPRISE

ITEMS		PER ACRE AVERAGE 1955	1965	1975
1	Acres	56.2	86.7	151.4
2	Yield	53.7	73.2	82.2
3	Value Per Production Unit $			2.56
4	Crop Product Return			210.38
5	Other Crop Income			.78
6	Total Crop Return $			211.16
7	Supplemental Costs			
8	Fertilizer			46.47
9	Chemicals			13.92
10	Seed and Other			15.55
11	Special Hired Labor			.16
12	Custom Work Hired			4.19
13	Irrigation Operation			.02
14	Total Supplemental Costs $			80.31
15	Return Over Supplemental Costs $			130.85
16	Allocated Costs			
17	Farm Power and Mach-Ownership			19.15
18	Farm Power and Mach-Operation			15.64
19	Irrigation Equipment-Ownership			--
20	Land Costs			49.12
21	Miscellaneous Costs			--
22	*Interest on Mach + Equip Investment			5.26
23	Total Allocated Costs $			89.17
24	Return Over All Listed Costs $			41.68
25	Supplementary Management Information			
26	Work Units Assigned Per Acre	.70	.70	.55
27	Power Costs Allocation Factor			1.49
28	Total Cost Per Unit of Production $			2.06
29	Return Over Listed Costs Per Unit $			.51
30	Total Listed Costs Per Acre $			169.48
30A	Breakeven Yield			66.20
31	*Does Not Include Interest On Investment In Irrigation Equipment or Land			

Suggested Teaching Strategy

To help illustrate the complexity of the business, select a single enterprise that is common to most of the farmers in your area. Ask the students to list as many changes in practices or new practices that they have used or heard about in the past 10-20 years. Record their responses on the chalkboard or overhead. When you have listed a number of changes or new practices, summarize the idea of a complex business by utilizing data from Table 2. It is likely that you will be able to relate almost every response elicited on the board to one of the items that appear in Table 2. Use no more than 10 minutes of the class period on this key question.

KEY QUESTION 3. What changes are you planning for your farm and your family?

As the previous discussion has suggested, farming is undergoing constant change. There is no evidence to suggest that the rate or complexity of change will decline. But not all farms are alike. Not all farm families are alike. There was a time when farming was thought of as a "way of life" rather than a business. Some farmers still prefer to categorize farming that way. However, most families are no longer satisfied to do without the goods and services which other people enjoy. Each family has a different set of values upon which they base the decisions which affect their farm operation and their level of family living. It is the purpose of the management program to help people farm more effectively so they can attain their family goals more easily.

The visual of the farm family tree helps to illustrate the close tie between the family and the farm. The "soil" of the tree, as represented by land, labor and capital, must be used by the family to produce a healthy tree. With careful management the family tries to develop the main root system of crop and/or livestock enterprises. Caring for the root system is essential. Good crop varieties, proper fertilization, adequate weed control, balanced rations, etc. are needed for vigorous growth.

The products flow through the marketing system to provide the income necessary to support the branches. The branches represent the goals for family living. Here each family has to chart its own course. Some may want a very large, fruitful tree; others may prefer a smaller variety that will satisfy their demands for goods and services. The income to be used for family living, together with community facilities and the time, energy and health of family members, and the skills and knowledge of the family managers are the resources the family can spend to satisfy family goals.

What the family wants is the motivation for good management of the farm and home business. It seems then that the first thing a family must do is to take time to establish a set of short, intermediate and long term goals to assist them in making sound decisions.

Setting goals is not an easy task. For many it is a job they have not done before, at least in any formal way. The cartoon of the two donkeys found in the appendix illustrates one of the problems that families may face when they first try to establish goals for the farm and the family.

Goal setting will require several important steps. Some are illustrated by the cartoon: first, goals must be identified, second, some compromises will need to be made and third, there will have to be some priorities established.

In setting up goals the following additional points should be recognized:

1. All family members should contribute.
2. Recognize that there are both individual and family goals.
3. Recognize both long and short term goals.
4. Select goals in terms of available resources.
5. Competition between goals is normal and desirable.
6. Goals must be modified as resources change.

Suggested Teaching Strategy

Begin this portion of the class by asking for a show of hands of all students who in the past year have sat down with their family and written down the things they wanted to attain in the next 12 months. (It is unlikely that you will get a response.)

Review some of the material in the subject content using the farm family tree. Pass out a "Rate Your Goals" sheet to each member of the class. Ask husbands and wives to complete the worksheet separately. Allow only 5 minutes for them to complete the sheet. Now allow a few minutes for husbands and wives to compare notes. Determine if there was any disagreement between husbands and wives. This discussion will provide a natural lead-in to the use of the "Donkey" visual and references to the subject content.

Following the discussion of goals, hand out 2 copies of the worksheet "What Does Your Family Want?" Ask the families to work together to begin to formalise their goals. Ask each family to hand in a copy of their goals for your working file, so that you, the instructor, can keep in mind the goals the family has developed as you work with them in the coming year.

After the worksheets are completed, the relationship of family goals to a profitable farm business should be brought out in the discussion. At this point, the idea should be firmly established that a well managed business is the key to supplying the wants and satisfactions for the entire family. This discussion will lead to the final question, "Where does one begin to determine how the business can be more effective in meeting the goals?"

Distribute another set of worksheets on goals. Ask each family to take them home and discuss the goals they recorded on the in-class worksheet.

They should, after their discussion, rewrite their goals prior to the first on-farm instructional session.

PART IV. Summary

A. Farming has changed significantly over the past 20 years.

B. Increasing complexity in farming has had an effect on farm earnings when comparing the high earnings farms to the low earnings farms.

C. To determine where one wants to go a statement of short and long term farm and family goals is important.

PART V. At-The-Farm Activity

Get acquainted with the family and the business. Review the current status of the business and the future plans for the business and the family. Pay careful attention to the "What Does Your Family Want?" worksheet. Assist the family in formalizing some of the goals they have discussed.

PART VI. Learning Resources

Overhead Projector
Chalkboard
Handouts: "Rate Your Goals", "What Does Your Family Want?"
Transparencies: Table 1, Table 2, Farm Management Tree, Donkey Objectives
Supply of Lined Paper and Pencils
3 x 5 Note Cards, Numbered

PART VII. References

Austin Area Vocational Technical Institute, Vocational Agriculture Farm Management Program, Annual Reports, 1955, 1965, 1975, Austin, MN.

PART VIII. Appendices

A. Rate Your Goals

B. What Does Your Family Want

C. Our Objectives: Now and Later

D. Table 1 - Some Measures of Farm Organization

E. Table 2 - Crop Data for the Corn Enterprise

F. Family Living

G. Mutual Objectives

RATE YOUR GOALS

Rate the following goals in terms of their importance to you. List number 1 after the goal that is most important, etc.

1. To provide more leisure time to engage in hobbies, to enjoy good friends, and for self improvement. _____

2. To provide an attractive, comfortable, and efficient home to meet family needs and happiness. _____

3. To provide the needs of a job or business operation with modern tools, equipment or buildings before improving the home. _____

4. To provide economic security (to be reasonably certain of insuring an income adequate for family needs). _____

5. To provide for the needs of the home, using credit and other income before improving the business operation or job needs. _____

6. To provide financially for good educational opportunities for the children. _____

7. To enjoy good health. _____

8. To provide as much income as possible from a business operation or employment _____

9. To provide income levels from work which will enable continued enjoyment of it's freedom and independence. _____

10. To help plan and use influence in guiding policies and activities in the city and the county for worthwhile purposes. _____

List 5 specific things you wish to accomplish in the next couple of years.

1. _____

2. _____

3. _____

4. _____

5. _____

Name _____

"WHAT DOES YOUR FAMILY WANT?"

DREAMS? IDEAS? GOALS? ACTION?

WHAT DOES YOUR FAMILY WANT? Clarifying our ideas as to what we really want is one of the first steps in improving both family living and the farm business. Each family has some idea of its objectives in terms of "absolute necessities", "desirable needs", and "nice-to-have-wants". Too often, however, there has not been adequate communication between family members in identifying common goals, their priorities, and how and when they are to be accomplished.

CONSTRUCTIVE ACTION USUALLY FOLLOWS POSITIVE THINKING. The following pages are an outline for your convenience. Consider them a kind of "goal bin", with some labeled compartments in which to sort out and arrange family ideas. If all the labels don't fit, substitute your own. Get everyone into the act. Some ideas should have attention now; others should wait; some may be only pipe-dreams. Place a priority rating on as many as possible.

WHEN IDEAS GET "RIPE", THEY BECOME GOALS. Merely making a long list of ideas, and filing them away, is like planting a garden and going on vacation for the summer. The weeds will out-do the seeds. It's hard to over-cultivate a good idea. The list should be reviewed as often as possible, and should get a thorough "plowing" at least once a year.

MOST GOALS GROW AND MATURE ON DOLLARS. Tangible goals without money to feed on seldom yield very much. There are many fancy names for money planning, such as "complete budgets", "partial budgets", and "cash-flow projections". They all boil down to the same thing; if ideas are to succeed, money must be planned for ahead of time, and be there when needed. Credit is normally the pivot-point of business money planning. If wisely used, its financial leverage can put ideas into action; if abused, it will transform yesterday's dreams into tommorrow's nightmares.

WHERE DOES RECORD KEEPING FIT IT? Setting goals is one thing, getting there is another. Good records are like sights on a rifle. Properly used, they put us on target; without them, it's mostly point and hope. We need a system of record keeping with defined objectives, and planned use. That is what this course is all about. It needs your understanding, your planning, and your practical application. Plan well, the farm you save may be your own.

OUR OBJECTIVES: NOW AND LATER

PRIORITY	THIS YEAR	PRIORITY	IN THE FUTURE
	For providing a statisfying living		
	For self-development of each person in the family		
	For improving our financial security: Family and business		
	For improving our soil, cropping system, and land use		

OUR OBJECTIVES: NOW AND LATER

PRIORITY	THIS YEAR	PRIORITY	IN THE FUTURE
	For improving our livestock program		
	For improving our use of machinery and equipment		
	For improving use of our buildings, and the farmstead		
	For improving, and using, our farm record system		

TABLE 1. SOME MEASURES OF FARM ORGANIZATION[1]

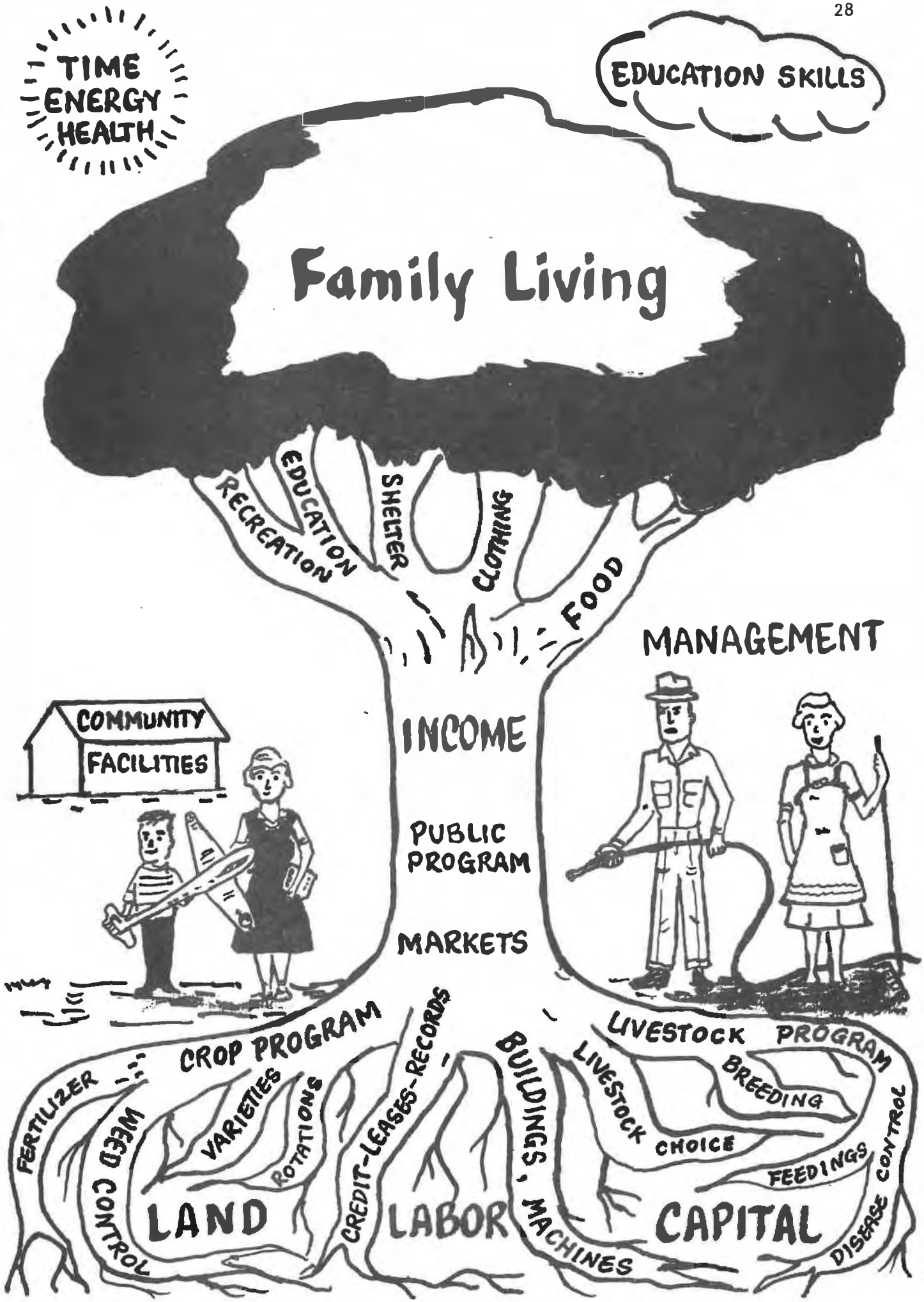
	1955	1965	1975
Labor Earnings - High Profit	5,154	19,107	41,188
Labor Earnings - Low Profit	-1,320	1,197	-11,489
Capital Investment (Dec. 31)	49,844	86,032	284,025
Cash Receipts	17,207	31,372	89,482
Cash Operating Expenses	10,095	18,988	53,331
Number of Acres In Farm	211	279	356
Cash Farm Living Expenses	2,832	5,686	13,570

[1]East South Central Annual Farm Business Management Summary - 1956, 1966, 1976, Austin Area Vocational Technical Institute, Austin, MN.

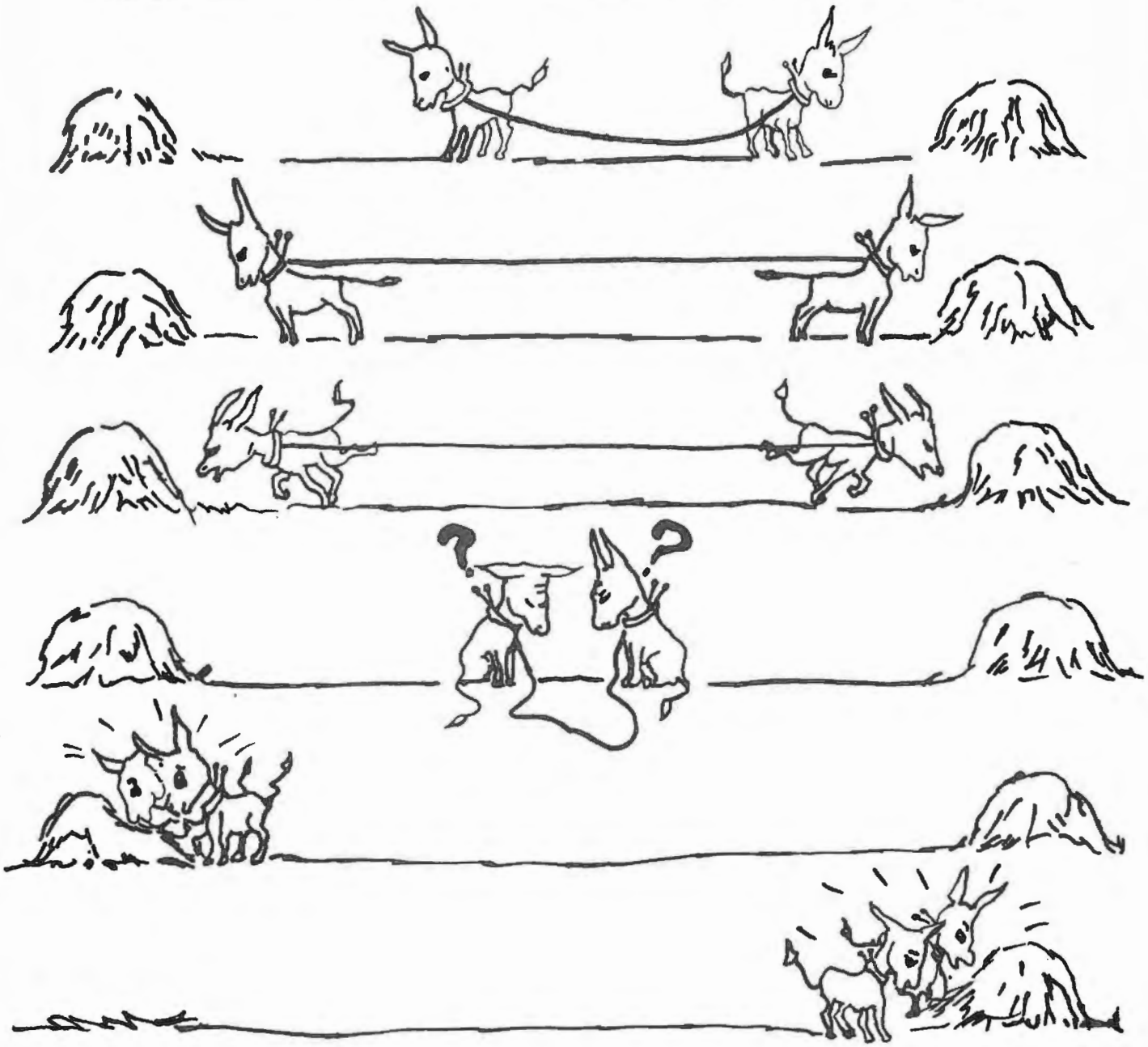
TABLE 2. CROP DATA FOR THE CORN ENTERPRISE

	Items	Per Acre Average 1955	1965	1975
1	Acres	56.2	86.7	151.4
2	Yield	53.7	73.2	82.2
3	Value Per Production Unit $			2.56
4	Crop Production Return			210.38
5	Other Crop Income			.78
6	Total Crop Return $			211.16
7	Supplemental Costs			
8	Fertilizer			46.47
9	Chemicals			13.92
10	Seed and Other			15.55
11	Special Hired Labor			.16
12	Custom Work Hired			4.19
13	Irrigation Operation			.02
14	Total Supplemental Costs $			80.31
15	Return Over Supplemental Costs $			130.85
16	Allocated Costs			
17	Farm Power And Mach-Ownership			19.15
18	Farm Power And Mach-Operation			15.64
19	Irrigation Equipment-Ownership			--
20	Land Costs			49.12
21	Miscellaneous Costs			--
22	*Interest on Mach + Equip Investment			5.26
23	Total Allocated Costs $			89.17
24	Return Over All Listed Costs $			41.68
25	Supplementary Management Information			
26	Work Units Assigned Per Acre	.70	.70	.55
27	Power Costs Allocation Factor			1.49
28	Total Cost Per Unit of Production $			2.06
29	Return Over Listed Costs Per Unit $			.51
30	Total Listed Costs Per Acre $			169.48
30A	Breakeven Yield			66.20

31 *Does Not Include Interest On Investment In Irrigation Equipment or Land


TIME
ENERGY
HEALTH
EDUCATION SKILLS
Family Living
RECREATION
EDUCATION
SHELTER
CLOTHING
FOOD
MANAGEMENT
COMMUNITY
FACILITIES
INCOME
PUBLIC
PROGRAM
MARKETS
CROP PROGRAM
FERTILIZER
WEED CONTROL
VARIETIES
ROTATIONS
LAND
CREDIT-LEASES-RECORDS
LABOR
BUILDINGS, MACHINES
LIVESTOCK PROGRAM
LIVESTOCK CHOICE
BREEDING
FEEDINGS
DISEASE CONTROL
CAPITAL

MUTUAL OBJECTIVES



Unit I - 2

SHOWING THE NEED FOR FARM RECORDS

PART I. Student Objectives

A. Given a sample "Range of Farm Earnings" and the opportunity to discuss variations in earnings, the student will be able to illustrate how the reasons for variations in earnings can be shown through the analysis of the farm business.

B. After studying the many causes of farm earnings variation, students will be able to identify those causes over which they have either immediate or long range management control.

C. Following familiarization with terms that measure managerial organization and efficiency, students will be able to make an estimate of how their business compares with their neighbor's for each factor.

PART II. Transition of Units

The last unit introduced the idea that families must establish goals if they are to succeed. The unit stressed the fact that each family's goals will probably be unique. The unit illustrated some of the changes that have occurred in farming in the past decade and reinforced the notion that changes are likely to continue to occur.

This unit deals with the variations in earnings among farmers. Some of the ways in which the variations can be explained and measured are identified. The unit culminates in the identification of the causes of variation of earnings that can be controlled by management.

The unit which follows will help families identify some of the ways in which the progress of the business can be measured. The kinds of farm records are defined and the usefulness of reccrds to the management of the business is emphasized.

PART III. The Lesson

Attention Focuser

Focus attention on the task by starting with a guessing game. Have a pint jar filled with soybeans or other large seeded crop. Before filling the jar, insert an inverted paper cup or other object in the jar to take up space, but make sure the object is not visable to the guessers. When everyone has had an opportunity to guess, record their guesses on the board. Then ask the students to recount the factors that influenced their guess. Record the items on the board. You should expect to get responses such as the size of the jar, size of the beans, how full the jar happened to be, etc. When you have exhausted the list, reveal the number of beans in the jar and award a prize to the winner. Then pour the beans out to

reveal the object that took up space. Close the focuser by reminding the students that they could have guessed the number of beans more accurately if they had been there to observe you filling the jar--if they had had a record of your activity.

KEY QUESTION 1. How much do farm earnings vary from farm to farm?

Just as estimates at the number of beans in the jar varied, so do the actual number of "beans" or dollars vary from farm to farm. The level of farm earnings is one way to examine farm variability. The last unit used data from high earning and low earning farms to illustrate changes that have occurred in farming over a long period of time. It is important to recognize that even within a single year, there is a wide variation in earnings among farms in the same area. The chart on farm earnings taken from the Austin Summary of farm earnings for 1975 illustrates how extreme the variation is from the highest earning to the lowest earning farm. Given a few minutes to examine the chart, each family should be asked to make a mental note of where they think their farm would have been placed on the chart last year.

Each farmer that participates in the farm management education program will find out where his/her farm falls in the earning chart when their analysis is completed. An added advantage is that each farmer can see how others, as expressed in group averages, have done in the same year. In doing so, one has the opportunity to observe how you are performing in relationship to "par" or the average farmer in your area. Farmers can also be grouped into earning groups. All of the analysis summaries report three groups of averages; an average for the top 20% in earnings, the average of all farmers, and the average of the bottom 20%.

Suggested Teaching Strategy

Secure one or two estimates of the extreme top in labor earnings, the extreme bottom, and the average for last year. Record them on the board. Use the chart of farm earnings in the appendix to illustrate how earnings vary. Develop the materials listed under Key Question 1 to help explain the significance of the chart. Insist that each family place their own earnings on the chart, by making a mental note of where they think they fit. Suggest that they categorize their earnings as high, above average, average, below average of low.

KEY QUESTION 2. What are some of the reasons why the earnings varied so much from high profit to low profit forms.

Obviously the variations in earnings were not an accident. There is almost always a cause for the variation. What are some of the causes? A brief list of the causes of variations should help to illustrate that many of the factors are the result of management decisions. Although there are some factors over which the farmer has little control.

Some of the factors that may be important are:

1. Size of business
2. Yield of crops
3. Productivity of livestock
4. Selling prices
5. Control of costs
6. Kind of crops raised
7. Kind of livestock raised
8. Timeliness of the operations
9. Weather conditions
10. Productivity of the soil
11. Disasters

It will be noted from the list that a majority of the factors can be controlled by the manager, at least in the long term. Differences in earnings do not just happen. They are caused by the decisions each manager makes.

Suggested Teaching Strategy

Having viewed the variations in earnings, elicit from the group reasons why the earnings vary. Split the class into groups of 2 or 3 farm couples. Give each group six minutes to come up with six good reasons why the earnings varied. At the end of six minutes, record their reasons on the board, asking for only one or two reasons from each group until their lists are exhausted. Record the responses in two columns on the board; one for manageable factors and one for things over which the operator has little if any control. Do not put a heading or title on the columns until all reasons are listed. Then label the two "manageable" and "not manageable". As you review the lists, ask if there are any items that should be in the opposite list -- have you made good choices in labeling the factor "manageable" and "not-manageable"? Summarize by emphasizing that the vast majority of factors are manageable and that even the unmanageable factors can be controlled or modified by good management decision making.

KEY QUESTION 3. Is there a relationship between labor earnings and the factors that have been identified as having some effect on earnings?

To answer the question of the relationship of various factors to earnings, one must first ask, "What kind of farm and under what conditions?" It should be obvious that a farm which derives all of its income from crops will be affected by different factors than one dependent primarily upon livestock for income. But in general it is safe to say that a farm that is organized better and managed more efficiently will earn more than a farm treated in a less professional way. To examine that relationship, one can direct attention to Table 1. This table, taken from the 1975 business analysis in the Austin area, shows farms arranged on the basis of earnings, into high profit, average, and low profit farms.

TABLE 1. MEASURES OF FARM ORGANIZATION & EFFICIENCY, AUSTIN AREA FARMS

	Low Profit	Average Profit	High Profit
Labor Earnings	-11,489	10,112	41,188
Crop Yields Index	99	100	109
Percent Land in High Net Crops	65.4	66.9	74.2
Gross Return/Harvested Acres (Excluding Pasture)	169.97	175.54	193.94
Index of Return/$100 Acres	88	100	109
Livestock Units/100 Acres	28.4	34.1	51.6
Size of Business - Work Units	432.9	428.1	565.2
Work Units/Worker	246.8	254.3	295.1
Power, Mach, Equip, Bldg, Exp/W.U.	52.55	46.90	49.00
Farm Cap. Investment/Worker	164.412	161.583	205.825

The relationship of the factors listed to earnings can be most easily illustrated in graphic form. For example:

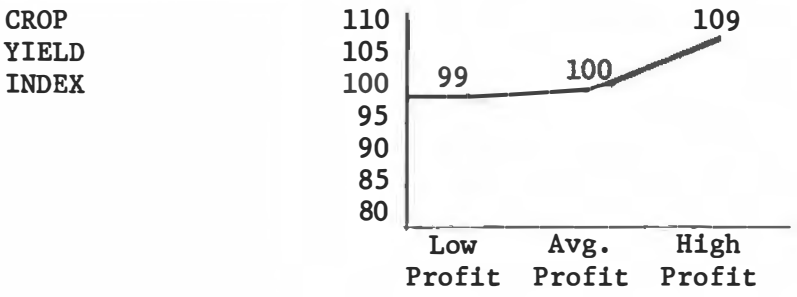


FIGURE 1. RELATIONSHIP OF CROP YIELDS TO EARNINGS

Since the high profit farms have a much higher crop yield index than low profit farms, and since the average falls somewhere in between, it is readily seen that there is some relationship between the two factors: yields and earnings.

The opposite effect can be illustrated in this particular year with power, machinery, equipment and building costs per work unit.

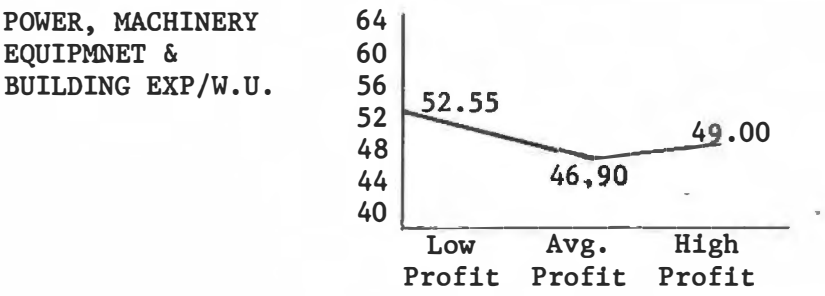


FIGURE 2. RELATIONSHIP OF COSTS CONTROL TO EARNINGS

In this instance, lower costs are not necessarily associated with higher profit.

It should also be noted that in some years, some factors may not appear to have any relation to earnings when looking at all farms in general. However, examining specific kinds of farms may show these same factors to be very important.

In one of the previous Key Questions, a list of factors that cause variations in earnings was outlined. It is important to tie these factors to the measures of farm organization and efficiency shown in Table 1. An example is index of crop yields. From the previous list of factors affecting earnings, it is possible to relate the following to yields:

1. Kind of crop raised
2. Timeliness of operation
3. Weather conditions
4. Soil productivity

Additional factors can be illustrated in a like manner, using the list of variations in earnings elicited from the class.

The fact that the management factors in a general way explain the variation in earnings can also be illustrated from the following chart. This illustration shows clearly that the greater number of factors in which a farm excells, the higher the income produced by the farm.

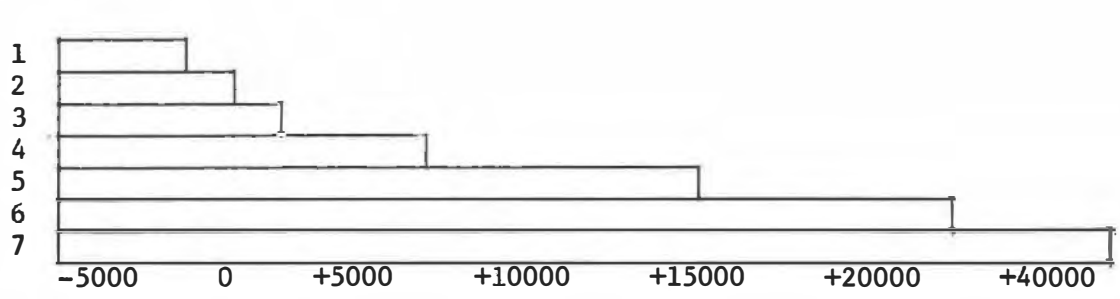


FIGURE 3. RELATIONSHIP OF FARM EARNINGS TO NUMBER OF ABOVE AVERAGE MANAGEMENT FACTORS

An important comparison can be made between the earning level of farms with 6-7 factors above average and the earning level of the 20% most profitable farms shown in Table 1. While the management factors are related to earning, it does not necessarily mean that the high profit farms always excell in all of the factors. As pointed out in an earlier discussion, one has to answer the question, "What kind of farms and under what conditions?" In a particular year, farms may fall in the high profit category (Table 1) because of the way in which they are organized. Thus, for example, farms with little livestock, poorly managed may still be in the high profit groups if the cropping program was extensive and well managed.

Suggested Teaching Strategy

Begin the discussion by giving a very brief, concise definition, in laymen's terms, of each of the factors listed in Table 1. If is not necessary at this time to be precise in definition of the factors; only to develop an understanding of what each factor purports to measure.

Using the diagrams in Figures 1 & 2, illustrate more precisely how the factors relate to earnings. Some of the factors may have little or no relationship in some years. When this phenonmenon occurs, ask the class to suggest reasons for the lack of relationship.

It is important during this session and subsequent ones to refer frequently to the farm business analysis summary for your area. The students should be reminded that the information is from actual farms within their area, and that their farms are subjected to analysis, their records will become part of the averages but their individual farm will not be identifiable among the averages.

Close the discussion by placing the following question on the board or a transparency:

> *"How will my farm fare in the coming year in each of the management factors?"*
>
> *"Will my management show?"*

KEY QUESTION 4. What will my management show for the coming year?

High earnings do not just happen. They are generally the result of careful planning, including the establishment of realistic goals. At the last session each family enumerated individual family and farm goals. While families do not have an analysis on which to base their forward planning, they can nevertheless make some broad estimates of goals related to the management factors. To aid in reminding the families of the management factors, it would be useful to have each family make a self evaluation of how they think they will compare with their neighbors.

Suggested Teaching Strategy

In the appendices is a worksheet entitled "Will My Management Game Be Up To Par?" Have each family complete the worksheet in duplicate. When it is completed, put one copy in their working file and ask that they place their copy in their own file for future reference.

PART IV. Summary

A. Farm earnings not only fluctuate from year to year, but also from farm to farm. The variation among farms is much greater than the variations between years.

B. Variations in earnings do not just happen; most can be shown to result from differences in management decisions.

C. Farm records and the resulting business analysis can be used to determine why the farm performed at a certain level of income.

D. Farms which excell in the management factors generally perform better when performance is measured in earnings.

E. The level at which a farm performs in each of the factors can generally be related back to the management decisions and resulting practices that the farmer implemented.

F. Since good management, as reflected in the management factors, is planned, it is possible to project the level of performance in each factor based upon the level of management planned.

PART V. At-The-Farm Activity

Using the worksheet, "Will My Management Game Be Up To Par?", review the projections the family has made. When you have a good idea of the level of management of the family projects, take time to become familiar with the farm. If the farmer has an aerial photo of the farm, carry the photo with you as you make a walking tour of the farm, noting particular problems associated with drainage, erosion, land capability, weed growth or other factors that might have an effect upon the projections of the factors related to crops.

PART VI. Learning Resources

Chalkboard
Overhead Projector
Handouts: Range In Earnings, Will My Management Game Be Up To Par?
Transparencies: Table 1, Figure 1, Figure 2, Figure 3, & Handouts

PART VII. References

Austin Area Vocational Technical Institute, Vocational Agriculture Farm Management Program, Annual Report, 1976, Austin, MN

Herbst, J.H., Farm Management: Principles, Budgets and Plans, Stripes Publishing Co.

PART VIII. Appendices

A. Range in Farm Earnings
B. Will My Management Game Be Up To Par?
C. Table 1 - Measures of Farm Organization & Figure 1 - Relationship of Crop Yields to Earnings
D. Figure 2 - Relationship of Cost Control & Figure 3 - Relationship of Farm Earnings to Number of Above Average Management Factors

RANGE OF LABOR EARNINGS

THIS CHART SHOWS THE RANGE OF LABOR EARNINGS STARTING WITH THE HIGHEST AND ENDING WITH THE LOWEST IN THE 0 TO 9 PERCENTILE. EACH PERCENTILE GROUP REPRESENTS 46 TO 47 FARMS. THE AVERAGE OPERATOR LABOR EARNINGS LISTED FOR EACH GROUP REPRESENTS ONLY THE AVERAGE OF THAT GROUP. THE RANGE OF EARNINGS GIVES THE LOWEST AND THE HIGHEST INDIVIDUAL OPERATOR LABOR EARNINGS IN THAT GROUP.

PERCENTILE	NO. OF CASES	AVERAGE	RANGE
90-100	47	$56,647	$32,475 & UP
80-89	47	25,089	20,642 - 31,756
70-79	46	16,181	12,295 - 20,623
60-69	46	10,186	8,054 - 11,912
50-59	46	6,460	4,692 - 7,903
**********	**********	**********	**********
40-49	46	$ 3,464	$ 2,179 - 4,637
30-39	46	622	-990 - 2,157
20-29	46	-2,625	-1,079 - -4,298
10-19	47	-6,302	-4,323 - -9,499
0-9	47	-18,121	-9,531 - DOWN

WILL MY MANAGEMENT BE UP TO PAR?

This worksheet is a projection of where you think your farm will rank on each management factor in the coming year. If you manage your farm as you have planned, how will you rank?

FACTOR	Lower than my neighbors	About the same as my neighbors	Higher than my neighbors
Return for my labor & management			
Crop Yields			
Percent of my land in high return crops			
Returns for each $100 of feed fed to my livestock			
Gross crop return for each acre cropped			
Amount of livestock per acre			
Size of my business			
Work accomplished by each worker			
Control of overhead costs			
Amount of capital invested for each worker			

If you have checked any of the items "lower than my neighbors", use the space to jot down some of the reasons you think your neighbor will do better than you in the coming year.

_____

_____

_____

_____

_____

TABLE 1. MEASURES OF FARM ORGANIZATION & EFFICIENCY, AUSTIN AREA FARMS - 1975

	Low Profit	Average Profit	High Profit
Labor Earnings	-11,489	10,112	41,188
Crop Yields Index	99	100	109
Percent Land in High Net Crops	65.4	66.9	74.2
Gross Return/Harvested Acre (Excluding Pasture)	169.97	175.54	193.94
Index of Return/$100 Feed Fed	88	100	109
Livestock Units/100 Acres	28.4	34.1	51.6
Size of Business - Work Units	432.9	428.1	565.2
Work Units/Worker	246.8	254.3	295.1
Power, Mach, Equip, Bldg Exp/W.U.	52.55	46.90	49.00
Farm Cap. Investment/Worker	164.412	161.583	205.825

****

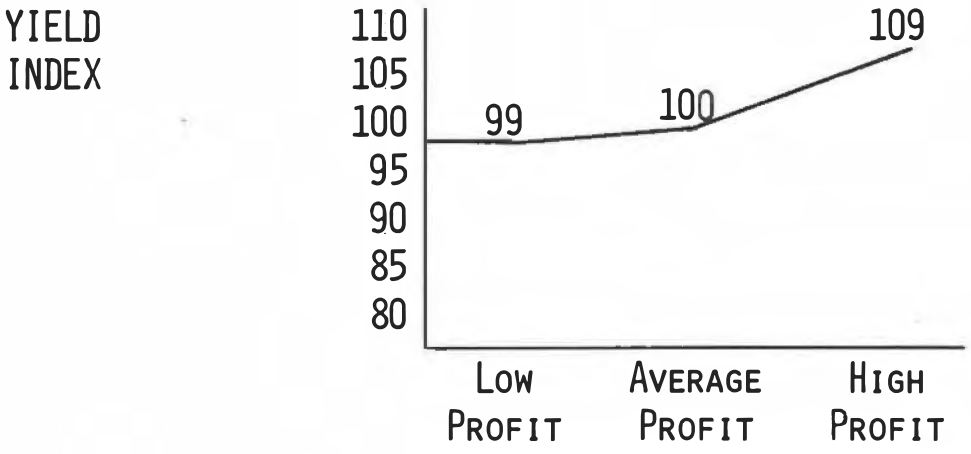


FIGURE 1. RELATIONSHIP OF CROP YIELDS TO EARNINGS

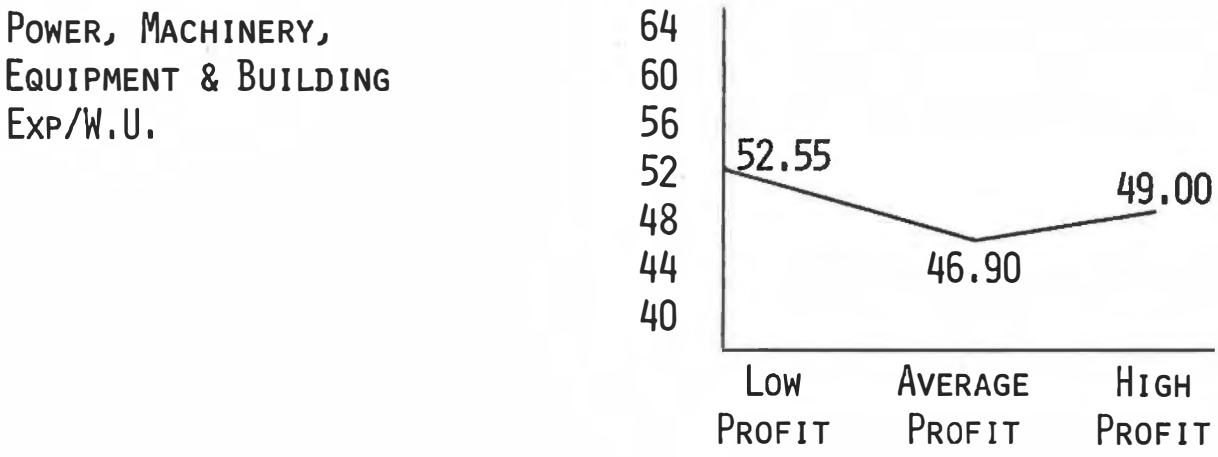


FIGURE 2. RELATIONSHIP OF COST CONTROL TO EARNING

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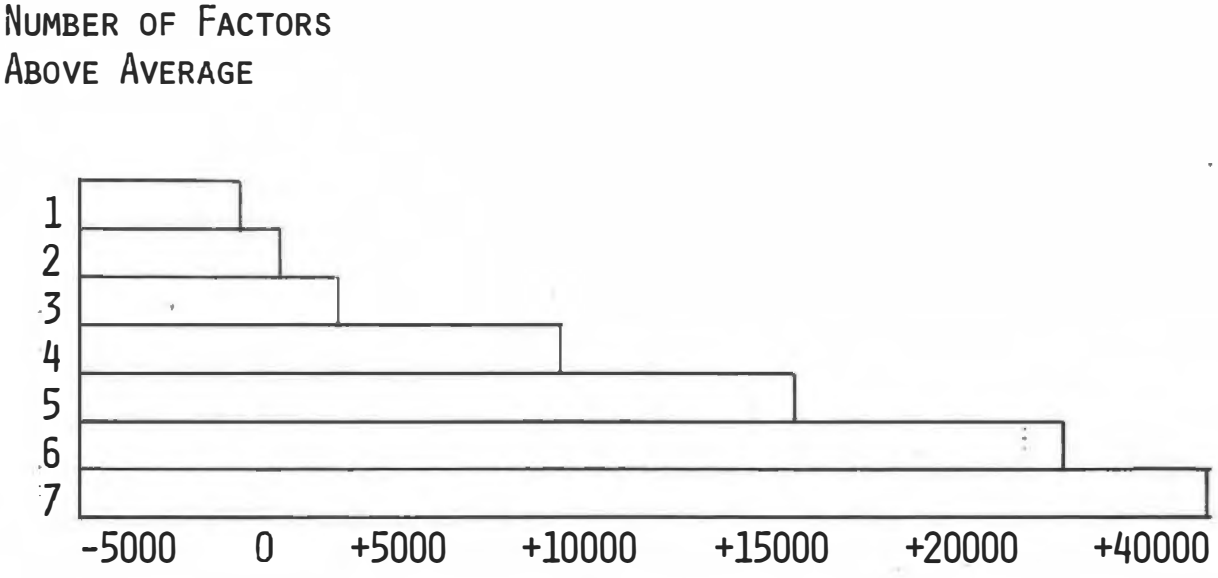

FIGURE 3. RELATIONSHIP OF FARM EARNINGS TO NUMBER OF ABOVE AVERAGE MANAGEMENT FACTORS

Unit I - 3

USING FARM & HOME RECORDS TO MEASURE FAMILY PROGRESS

PART I. Student Objectives

A. Given the home and family self appraisal, families will be able to identify areas under six general headings that are indicators of personal living goals.

B. Having had an opportunity to complete a net worth worksheet estimate, families will be able to identify and calculate measures of family financial progress as shown by estimated gain in net worth.

C. Families will be able to identify the eight kinds of records essential for a complex business analysis and describe how each kind of record contributes to the understanding of their farm businesses.

D. Following discussion of uses for farm and home records, families will be able to identify at least six sound reasons for keeping complete farm and home accounts.

PART II. Transition of Units

The previous unit demonstrated the wide variation in earnings among farmers. The majority of the reasons for variation were due to factors over which the farmer had either immediate or long term managerial control. The management level of the farms can be measured in some degree by the management factors available through analysis. These factors can in turn be associated with practices which the manager implements. Evaluation of the success of his management can be shown at year end by a business analysis.

This unit addresses the record system used to compile analysis data. A link is made between the collection of data (the record), measures of progress (the analysis) and family living (goals).

The unit which follows will introduce families to the first step in keeping a good farm record: keeping inventories.

PART III. The Lesson

Attention Focuser

As families assemble, ask each family to complete the "Home and Family Self Appraisal" farm. Ask each family to number the three most important items they think their family should address their effort toward in the coming year. Request that they number the items 1, 2, 3 in order of importance. Encourage family members to discuss the items as they complete the check list so that there is no misunderstanding among family members as to the importance and priority of the items.

KEY QUESTION 1. How far has your family progressed in reaching goals for satisfying family living

The previous unit illustrated that there is a wide variation in the earning level among farms. One of the items that was not suggested in the list of reasons is that families often have diverse views as to what constitutes satisfying living, and thus have different motivations for experiencing financial success.

It is also evident that families have reached differing levels of success in terms of satisfying family living requirements. Some families may have checked almost all items "yes" while some may have indicated "yes" to only a few. Probably more diverse will be the order in which families assigned priorities to the items they check "no".

One of the key points in managing the farm business is to understand the relationship between farm success and family satisfaction. A number of the items in the checklist are closely related to the financial success of the business. Only when the business succeeds financially will the family be able to satisfy their goals for family living.

Suggested Teaching Strategy

When the students have completed the checklist and have ranked the top three items in priority order, begin discussing the six general areas of the checklist. Make a tally on the chalkboard or overhead transparency of the number of families who have chosen one or more of the items in the section as among the top priority items for family consideration. Develop a chart as follows:

Item	*No. of Families with High Priority*
Sound Farm-Home Business	xx
An Attractive Home	xx
Family Member Development	xx
Family Relationships	xx
Family Health	xx
Financial Security	xx

Based upon the class responses, direct the discussion at the areas where the most people responded by listing some item under the general heading as having a high priority.

Impress upon the family that just like farm earnings, the items they responded to are subject to management. Each of the items represents to some degree a measure or direction of family progress. Determine by a show of hands if any of the items checked as having high priority can be reached if the business is not profitable? Relate business success to family satisfaction, but emphasize that the measure of what constitutes family satisfaction is dependent upon the value system of the family.

KEY QUESTION 2. How can you measure the success of the farm business?

The success of the family enterprise can be measured by the things that give family members satisfaction. The success of the farm business is usually measured in dollars and cents. But what dollar and cents measurement is the best for measuring progress? Most managers would agree that a gain (or loss) in net worth provides one of the best measures of how the business has progressed.

The point was made previously that labor earnings and family progress both vary a great deal from farm to farm. Gains or losses in net worth are also variable. Table 1 illustrates the gains (and losses) in net worth that are associated with the low, average, and high earnings groups who are enrolled in the farm/ranch management education program.

TABLE 1. NET WORTH STATEMENT OF LOW, AVERAGE, AND HIGH PROFIT FARMS, 1975 (AUSTIN AREA)

	Low		Average		High	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 31
Total Livestock	$22,670	$24,062	$24,679	$28,852	$41,492	$51,420
Crop, Seed & Feed	39,098	33,522	39,271	38,282	62,134	67,528
Total Power & Mach.	30,335	31,326	28,294	32,999	39,617	48,319
Land	60,709	62,917	53,579	59,300	76,376	88,202
Buildings	27,741	31,948	28,728	35,020	43,973	56,193
Total Farm Capital	$180,553	$183,775	$174,551	$194,453	$263,592	$311,662
Non-Farm Assets	18,186	17,892	17,595	19,532	26,005	30,188
Dwelling	8,645	8,753	9,414	10,717	11,675	14,376
Total Assets	$207,384	$210,420	$201,560	$224,702	$301,272	$356,226
Real Estate Debt.	44,613	45,349	41,680	47,121	45,810	55,029
Chattel Mortgages	27,868	34,224	21,720	29,742	22,536	31,750
Note Pay.	7,462	11,646	8,117	10,956	9,829	12,533
Accounts Pay.	1,965	2,671	2,111	2,503	3,207	3,096
Total Liabilities	$81,908	$93,890	$73,628	$90,322	$81,382	$102,408
Net Worth (9-12)	$125,476	$116,530	$127,932	$134,380	$219,890	$253,818
Gain in Net Worth		$(-8,946)		$6,448		$33,928

While gain in net worth is the best single measure of financial progress it is important to note that gain in net worth does not have first claim on family income. Family living necessary for survival has first claim on income. Once the basic necessities of life have been satisfied, families must work to keep expenditures for the family within the level of family income. Obviously families that earn more have more freedom to choose the way in which family needs will be satisfied. Good records of the farm and family enterprise can help to guide a family to a balance between income and expense.

Suggested Teaching Strategy

Hand out the net worth worksheet found in the appendix. Indicate that now that the family has shown the progress of the family enterprise through the use of the checklist, they can do the same to show financial progress by using the net worth worksheet (measuring your financial progress). Allow about 10 minutes for the family to complete the worksheet. Many families will be unable to complete the worksheet without frustration since they will not have had a recent inventory of either assets or liabilities. When the families are finished, ask them to write the responses to two questions on the bottom of their sheet.

1. *Are you satisfied with your progress?*

   (satisfied) *(dissatisfied)*

2. *Was your financial progress less than, equal to, or greater than that of others in your neighborhood?*

   (less than) *(equal to)* *(greater than)*

Using Table 1 as a transparency (see appendix) discuss the elements of a net worth statement and the records that are necessary to obtain an accurate statement.

KEY QUESTION 3. What are some of the uses that can be made of a complete set of farm and home business records?

An accurate net worth statement has already been demonstrated as one of the outcomes of a good record system. What are some of the other uses that farm families may have for good farm and home records?

1) Furnish information for income tax purposes.
2) Determine level of farm earnings.
3) To observe financial progress.
4) To find enterprises that are most profitable.
5) To determine weaknesses and strengths of the farm business in total and in specific enterprises.
6) To evaluate personal spending.
7) To preserve information about the business for futher references.
8) To aid in obtaining credit.
9) To supply data for future planning.
10) To plan future cash flow.

Suggested Teaching Strategy

Most families have kept some form of records of their business. Ask families to enumerate the uses they have made of their records so far. (The list will probably be short.) Then ask the families to suggest uses that could be made of records if they were available. Add to the list until all of the uses listed above have been enumerated.

KEY QUESTION 4. What kind of records should one keep if records are to be used as the list of uses indicates?

A complete set of records for analyzing the total business and its individual categories should contain the following:

1) Farm receipts and expenses.
2) Inventories of livestock, crops and feed.
3) Machinery, equipment and building inventories and depreciation.
4) Records of feed fed to livestock.
5) Crops raised.
6) Livestock acquisition and disappearance.
7) Non-farm assets and liabilities.
8) Household and personal records.

One of the keys to keeping good records is understanding how each record will be used. Records which will not be used are a waste of time to keep, but records that are not kept cannot be used. Each of the records suggested in this key question can be used in one or more of the items suggested in Key Question 3. For example, in order to find which enterprises are most profitable, records 1, 2, 3, 4, and 6 must be kept. In order for the operator to check the accuracy of 4, 5 must also be kept.

Household and personal records, while not part of the farm record will be useful in evaluating personal spending and also as part of the accuracy checks for the farm record and for projections of cash flow.

Suggested Teaching Strategy

Either through class discussion or by instructor presentation, list the kinds of records that should be kept. Spend considerable time on illustrating how each record can be used to satisfy the reasons for or uses of good farm records.

Hand out an account book to each family. Ask them to complete the information called for on the cover. When that task is complete, illustrate how the book is organized to provide a place to keep each kind of record that you have listed. Encourage families to examine the account book at their leisure and make any notations or questions in the account for future reference.

PART IV. Summary

A. Family progress can be measured by the things that provide the family with satisfaction.

B. Farm financial progress can best be measured by changes in net worth.

C. There are numerous uses of a good farm record system, but probably the most important are those that provide information helpful in making management decisions.

D. Complete farm records are made up of a number of distinct kinds of records, each of which has a use in helping discover information that will be helpful in managing the farm and the family resources.

E. There is a link between the farm and family record, the analysis of the business and family goals.

PART V. At-The-Farm Activity

Review an analysis report with the family. Illustrate to them how the estimates they made the previous two visits concerning production levels & profits can be verified by accounts. Encourage them to make notes in their account book about their estimates of livestock and crop efficiency. Review any questions they have about the accounting system to be used. Ask about the results of the soil or feed samples taken at the previous visit. Help the family record or file the information for future reference. In the case of feed samples, be prepared to assist in examining and adjusting the feeding program.

PART VI. Learning Resources

Overhead Projector
Chalkboard
Record Books
Handouts: Measuring Your Financial Progress, Home & Family Self Appraisal
Transparencies: Table 1, Uses of Farm Records, Types of Farm Records To Keep

PART VII. References

Nodland, Truman R., Minnesota Farm Account Book, Burgess Publishing Co., Minneapolis, MN

Hopkins, John and Earl O. Heady, Farm Records, Iowa State College Press, Ames, Iowa 1952

Herbst, J.H., Farm Management: Principles, Budgets, Plans, Stipes Publishing Co., Champaign, Ill., 1968

PART VIII. Appendices

A. Measuring Your Financial Progress

B. Home and Family Self Appraisal

C. Table 1

D. Uses for Farm Records and Types of Farm Records to Keep

MEASURING YOUR FINANCIAL PROGRESS

1. What is your best estimate of your present net worth?* _____

2. What was your net worth when you started farming?* _____

3. How many years have you farmed? _____

What Progress Have You Made?

4. Present Net Worth _____

5. Less Beginning Net Worth _____

   Total Gain in Net Worth _____

6. Total Gain in Net Worth* _____ ÷ _____ (Years Farming) =

7. Average Net Worth Gain per Year _____

*Subtract any property that was a gift.

HOME AND FAMILY SELF APPRAISAL

Name_____ Address_____ Date_____

Although the goals of each family differ in many respects from those of other families, the 6 types of things listed below are long time goals of interest to many. Use this check list to help clarify the possibilities you have. "No" answers may indicate places where you wish to raise further questions, discuss possible changes or ask for information.

	Yes	No
1. Sound Farm-Home Business to Give Adequate Farm Income		
Have you been getting ahead financially during the time you have been farming?	_____	_____
Do you consider your income adequate to meet farm, home and family needs? (Retire debts, save for education, build equity)	_____	_____
Do you know your living costs?	_____	_____
Do you feel you spend about right for each area of family living?	_____	_____
2. An Attractive, Comfortable, Efficient House to Meet Family Needs		
Do all family members take pride in and enjoy their home?	_____	_____
Do all family members enjoy entertaining friends in their home?	_____	_____
Are sleeping space and furnishings adequate for needed rest?	_____	_____
Is equipment adequate for doing work easily, quickly, and well?	_____	_____
Is the home easy to keep clean and uncluttered?	_____	_____
3. Family Members Who Are Developing and Living Happy Useful Lives		
Is everyone given responsibilities which help him grow?	_____	_____
Are recreational and educational reading materials provided?	_____	_____
Are home and community providing cultural development?	_____	_____
Have you had a family vacation in the past two years?	_____	_____
Is everyone given experiences in handling money of his own?	_____	_____
4. Family Relationships Which Build Security and Happiness		
Are family plans, including business, discussed by all members?	_____	_____
Is there time in the family schedule for talking together and enjoying each other?	_____	_____
Does the family enjoy meals together each day?	_____	_____
5. Family Members Who Have Good Health		
Does everyone in the family seem to be in good health?	_____	_____
6. Financial Security - Now and For the Future		
Are living expenses kept within your spending plan?	_____	_____
Do you have a definite plan for paying debts?	_____	_____
Are risks of loss by fire, accident, storm decreased by insurance?	_____	_____
Do you have some type of emergency fund?	_____	_____
Is life insurance and social security adequate to cover indebtedness, death expense, and to provide a minimum income for dependents?	_____	_____
Have you considered financial plans for retirement?	_____	_____

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USES OF FARM RECORDS

1) Furnish information for income tax purposes.
2) Determine level of farm earnings.
3) To observe financial progress.
4) To find enterprises that are most profitable.
5) To determine weaknesses and strengths of the farm business in total and in specific enterprises.
6) To evaluate personal spending.
7) To preserve information about the business for further references.
8) To aid in obtaining credit.
9) To supply data for future planning.
10) To plan future cash flow.

****

TYPES OF FARM RECORDS TO KEEP

1) Farm receipts and expenses.
2) Inventories of livestock, crops and feed.
3) Machinery, equipment & building inventories & depreciation.
4) Records of feed fed to livestock.
5) Crops raised.
5) Livestodk acquisition and disappearance.
7) Non-farm assets and liabilities.
8) Household and personal records.

Unit I - 4

THE INVENTORIES - WHY? HOW?

PART I. Student Objectives

A. Given a sample farm business analysis, the students will be able to determine at least four major measures of farm organization or efficiency that are dependent upon accurate inventory data.

B. Given a list of assets and liabilities for the farm business, the student will be able to devise a balance sheet or net worth statement.

C. Students will be able to record the inventories and assign reasonable values for all of the common crop and livestock enterprises grown in the area.

D. Students will be able to determine the proper inventorying procedure for all fixed assets, depreciable machinery and equipment and liabilities to be recorded in their account.

PART II. Transition of Units

The previous lesson directed attention at some of the ways in which farm family progress can be measured. Included was an attempt to estimate the net worth of the farm family to determine the progress made since becoming established in farming.

This unit will concentrate on why and how inventories should be kept. Considerable emphasis will be placed on what inventories can add to the managers knowledge of the business. Some basic rules for taking inventory are reviewed, as well as the specific rules for placing value on all items inventoried.

The unit which follows addresses the problem of making the normal transaction entries in the account book and introduced the idea that the farm business must be operated as a business by suggesting procedures for establishing an office system and filing mechanism for each farm.

PART III. The Lesson

Attention Focuser

Before families arrive, write the following on the chalkboard or overhead.

Farmer Brown's Record - 1975

Total Farm Sales	*$34,781*
Total Farm Expenses	*$36,435*

What kind of a year did Mr. Brown have in 1975?

As families arrive call their attention to the items on the board. Tell each family that you will expect them to prepare an oral statement about the success of Mr. Brown's farm operation, and give some suggestions as to how his income could have reached its present state.

When all families have had an opportunity to study the problem for a few minutes, call on two or three families to discuss Mr. Brown's situation.

Using the complete excerpt from a 1975 farm business analysis from the appendix, illustrate that Mr. Brown did not have as bad a year as the figures indicate. Show how the increase in inventory must be considered in order to get a complete picture of the farm business.

KEY QUESTION 1. What is a complete inventory?

An inventory could be likened to a snapshot of the farm business, taken with a wide angle lense. It is a "picture" of all of the tangible assets of the business, the home and the money owed to others, at a particular time during the year.

While it would be possible to take an inventory of the business each day, most farmers take a complete inventory only once during the year. This inventory marks the beginning and end of the accounting period.

Suggested Teaching Strategy

Ask one of the men in the class to remove everything from his pocket except his handkerchief and place it on the table in front of him. Give him a sheet of paper and pencil and ask him to record everything he has placed on the table, noting the date and time on his record. Inquire of him what he has just done. He will probably respond that he has "taken an inventory." Now pick up one of the items from the table and ask him if his inventory is correct. He will probably cross the item you have removed from his list. The object of this exercise is to remind the class that an inventory has several important features.

1. *It is a complete list of the assets and liabilities of the farm and household.*

2. *It must be recorded in some form.*

3. *Once an inventory has been taken, subsequent actions that add to or delete from the assets and liabilities do not alter the inventory taken on a specific time. It is a "snapshot" and not a moving picture.*

KEY QUESTION 2. When should an inventory be taken?

As mentioned previously, an inventory could be taken every day, but as a practical matter a complete inventory is taken usually once during the

year. The inventory will usually be taken at the beginning of the accouning year. While for most farms the record year runs from January 1 - December 1, there are an increasing number of farmers who operate on a different fiscal year. The complete inventory must coincide with the record year.

Although most inventories are taken as of midnight, December 31, it is unlikely that many farmers complete an inventory on New Year's Eve. It is more likely that the inventory will be completed in the first days of January. Since it has been established that an inventory is a "snapshot" of the business, it will be important that the inventory taken be adjusted to reflect the actual inventory on midnight, December 31. For example, the inventory will have to be adjusted upward to reflect feed fed between December 31 and January 5, livestock sold, crops sold, etc. Conversely, the inventory for December 31 will have to be adjusted downward if livestock were added, feed bought or other changes made in the assets between the inventory official date and the time the actual physical count was made.

KEY QUESTION 3. How can inventory data be used?

As demonstrated in the attention focuser, one of the uses of inventory is to determine the actual earnings of the farm business. But the inventory has other uses as well. Some of the most common are illustrated below:

1. Inventories can be used to determine the net worth of the business, and evaluate the progress the business has made.

2. Inventories are used in helping to determine the production of livestock enterprises for the year.

3. Inventories can be used to help plan the cash flow patterns for the coming year by highlighting the products that will be available for sale.

4. Inventories will be useful in establishing the amount of collateral available for securing credit.

Suggested Teaching Strategy

Now that you have identified what an inventory is, elicit from the class ways in which they think an inventory will be useful. After you have recorded several suggestions on the chalkboard, use a transparency of analysis tables 1, 2a, 2b, 5 and one of the livestock tables for an enterprise common to your area to illustrate the four uses listed above. Stress that the inventories will be useful only if they are accurate.

KEY QUESTION 4. How should the inventory be organized?

How you organize the inventory depends a lot on how it will be used. Since the records kept in the farm and ranch management education program will be used to provide information for a business analysis, there are

some specific rules that should be followed. Generally the asset inventory will be recorded in the following categories:

1. Livestock Enterprises (each enterprise separately, e.g. dairy cows, other dairy cattle, complete hogs, etc. Use the Master Livestock Code List to determine how enterprises should be categorized -- See Documentation or Master Enterprise List.
2. Crop, Seed and Feed
3. Auto's and Trucks
4. Power and Crop Machinery
5. Irrigation Equipment
6. Livestock Equipment
7. Custom Work Equipment
8. Land
9. Buildings
10. Non-Farm Assets

The liability inventory will also need to be recorded & categorized in the following manner.

1. Mortgages on Real Estate
2. Chattel Mortgages and Intermediate Term Contracts
3. Notes, including C.C.C. loans
4. Accounts Payable

An inventory organized in this manner will not only be useful for the business analysis, but will also fit the needs of credit agencies who generally classify assets and liabilities according to the degree of liquidity. The credit agency may ask that assets be categorized as a) Current Assets (those assets that can readily be converted to cash and are for the purpose of producing immediate cash income. Such things as cash in the bank, livestock ready for sale, grains and other feedstuffs, and accounts receivable); b) Working Assets (assets used in the course of the business to produce income or carry out the functions of the business, such things as dairy cows, beef cows, other breeding stock and machinery); c) Fixed Assets (assets that can generally not be readily converted to cash, and when converted, cause the business to cease. Land and buildings are the primary examples).

Suggested Teaching Strategy

Using a transparency that captures the key points in the discussion, outline briefly how the inventory should be organized. Point out that the account book is organized in that same fashion, so it will not require any special adaptations to follow the rules outlined.

KEY QUESTION 5. How should the inventory be taken?

STEPS	KEY POINTS
1. Proceed systematically to record the inventory	1.1 Starting at the front of the account book, follow through page by page, completing each inventory item as it is called for.

STEPS	KEY POINTS
	1.2 If an item must be skipped to allow time to gather the information, place a note in the account book as a reminder.
2. Record all quantities in the units requested.	2.1 Livestock that require only numbers on hand (Dairy for example) should be physically counted. The actual number on hand does not always agree with the number you think are on hand. 2.2 Livestock that require weights must be estimated carefully. If possible, weigh a few representative head to improve accuracy. 2.3 Grains should be adjusted for both moisture content and bushel test weight. See the account book cover for ways in which to estimate quantity. 2.4 Roughages should be estimated carefully with adjustments in weights made for moisture. Hay and haylage should be adjusted to standard moisture content.
3. Depreciable Item Inventory should be taken from the latest tax schedule. (This step may be omitted at this time if time has been set aside for completing the record of depreciable assets later in the year.)	3.1 Utilizing the latest tax schedule for depreciation will keep the values consistent for tax and analysis purposes. 3.2 Watch the tax schedules for errors and omissions. The 4 year depreciation schedule in the account book will be helpful in spotting omissions. 3.3 Record the items in the special asset categories as described previously in Key Question 4.
4. Complete Inventory of Liabilities.	4.1 Inventories must be actual not estimates: The farmer should secure the data direct from the lending source if his own records are inadequate or unclear. 4.2 Be sure to include liability accrued for items purchased late in the previous year on a deferred payment plan. Both the item and the liability incurred must be recorded.

STEPS	KEY POINTS
5. Record all household and personal assets.	5.1 Enter only cash surrender value of life insurance. 5.2 Shares in co-op marketing organizations should include both voting stock and equity stock. 5.3 Values on household goods, furniture, etc. should be based on a depreciated replacement cost.
6. Place a value on all items included in the inventory.	6.1 Raised dairy cows, beef cows and brood mares should be given a conservative market value. Once the value is established, it remains with the animal as long as it is in the herd. In the case of dairy and beef cows, the value will be a compromise between the salvage or slaughter price and the cost of buying a replacement. 6.2 Raised Market Stock should be valued at market prices with adjustments for cost of sale. 6.3 Purchased breeding stock should be valued at cost less allowable depreciation. 6.4 Livestock purchased for resale should reflect purchase cost with adjustment for gain (or loss) in weight.

Suggested Teaching Strategy

Develop the lesson through discussion. List the steps on an overhead transparency and utilize the chalkboard to emphasize the main key points. Encourage families to make notes in their account book as you proceed through the account. While the discussion of gathering physical quantities and recording values are handled separately in the outline, they may be done simultaneously if each enterprise is handled separately.

KEY QUESTION 6. Now that the inventories are recorded, what use can be made of the data?

The first use that can be made of the inventory data is to compile a balance sheet or net worth statement. (If the students are using the Minnesota Farm Account Book, they will find a financial summary sheet in the back cover). In a previous lesson, students were asked to measure their financial progress. Most found they were unable to do so because they lacked adequate information. One of the first steps in the mangement process is finding your current status. The inventories just kept should be the first step in determining how much progress has already been made.

Suggested Teaching Strategy

Make sure each family has a copy of the Financial Summaries Worksheet from their account book, or make copies from the specimen found in the appendix to this unit. Also distribute another copy of the worksheet - "Measuring Your Financial Progress" from the previous lesson. Ask each family to complete both items prior to your next on-farm-instructional visit.

PART IV. Summary

A. Inventories are an essential part of a complete farm and ranch report.

B. Inventories should be taken at least once a year, preferable at the beginning and end of the accounting period.

C. The inventory must be taken in a systematic fashion, with the items categorized according to a scheme that will permit business analysis.

D. Inventory quantities and values must be estimated with great care.

E. An accurate inventory will provide a net worth statement useful in measuring progress and many other aspects of the business.

PART V. On-The-Farm Instruction

Families will need assistance in completing the inventory correctly. Check the inventory carefully to be sure that all quantities and values have been recorded accurately. Assist the families in completing the Net Worth Statement. Spend some time discussing the "Measuring Your Financial Progress" worksheet. Review the Net Worth Statement by calculating the ratio of assets to liabilities for the three categories of assets. Ask the family to recall the list of family and farm goals devised at the beginning of the course. Discuss the relationship of their goals to the new evidence of available resources as shown by the Inventory.

PART VI. Resources

Overhead Projector/Chalkboard
Transparencies: Analysis Table 1, 2a, 2b, 5, Livestock Tables, Excerpts from a Farm Business Analysis, Rules for Categorizing the Inventory (Key Question 4), Steps in Taking Inventory (Key Question 5), Farm Financial Summary (Class Quantity), Measuring Your Financial Progress (Class Quantity.

PART VII. References

Summary of Farm Business Records, (Latest Edition), Any Area Analysis Center.

Nodland, Truman R., Minnesota Farm Account Book, Burgess Publishing Co., Minneapolis, MN

Persons, Edgar A., Documentation For the Farm Business Analysis, Division of Agricultural Education, University of Minnesota, 1977

PART VIII. Appendices

A. Excerpts From A Farm Business Analysis

B. Steps in Taking Inventory

C. Rules for Categorizing the Inventory

D. Financial Summaries for Minnesota Farm Account Book

E. Measuring Your Financial Progress

EXCERPTS FROM A FARM BUSINESS ANALYSIS OF A FARIBAULT AREA FARMER

Items	Jan. 1	Dec. 31
Size of farm (Total acres)	185.0	
Size of business (Work units)	591.61	
Number of workers	1.3	
Productive Livestock	$ 6,200	$ 6,000
Dairy Cows		
Other Dairy Cattle	1,075	1,400
Hogs	9,075	9,224
Total Productive L.S.	16,979	16,624
Crop, Seed and Feed	10,929	9,722
Power, Machinery & Equipment		
Auto & Truck (Farm Share)		1,514
Power & Machinery	7,442	5,909
Livestock Equipment	3,111	4,395
Total Power, Mach. & Equip.	10,553	11,818
Land	12,000	12,000
Buildings, Fences, Etc.	17,737	27,277
Total Farm Capital	$68,198	$77,441

****

SUMMARY

Total Farm Sales	$34,781
Total Farm Expense (including interest on capital)	36,435
Apparent net loss	-1,654
Total Farm Receipts	44,258
Total Farm Expense	36,435
Labor Earnings	7,823

STEPS IN TAKING INVENTORY

1. PROCEED SYSTEMATICALLY TO RECORD THE INVENTORY.

2. RECORD ALL QUANTITIES IN THE UNITS REQUESTED.

3. DEPRECIABLE ITEM INVENTORY SHOULD BE TAKEN FROM THE LATEST TAX SCHEDULE.
   (THIS STEP MAY BE OMITTED AT THIS TIME IF TIME HAS BEEN SET ASIDE FOR COMPLETING THE RECORD OF DEPRECIABLE ASSETS LATER IN THE YEAR.)

4. COMPLETE INVENTORY OF LIABILITIES.

5. RECORD ALL HOUSEHOLD AND PERSONAL ASSETS.

6. PLACE A VALUE ON ALL ITEMS INCLUDED IN THE INVENTORY.

RULES FOR CATEGORIZING THE INVENTORY

Asset Inventory

1. Livestock Enterprises (each enterprise separately, e.g. dairy cows, other dairy cattle, complete hogs, etc.) Use the master Livestock code list to determine how enterprises should be categorized - See Documentation
2. Crop, Seed and Feed
3. Auto's and Trucks
4. Power and Crop Machinery
5. Irrigation Equipment
6. Livestock Equipment
7. Custom Work Equipment
8. Land
9. Buildings
10. Non-Farm Assets

Liability Inventory

1. Mortgages on Real Estate
2. Chattel Mortgages and Intermediate Term Contracts
3. Notes, Including C.C.C. Loans
4. Accounts Payable

FINANCIAL SUMMARIES
FOR
MINNESOTA FARM ACCOUNT BOOK
(Third Edition)

Name: .....

Address .....County .....State .....

For Year Beginning .....19 .....and Ending ..... 19.....

GENERAL INSTRUCTIONS

These financial summaries are provided for use with the Minnesota Farm Account Book (ninth revision). It provides a convenient form for bringing together the information for the year. A careful study of these summaries, and a comparison with similar summaries for previous years, will give many ideas for improvement of the farm business.

The columns labeled "From Page" indicates the page in the Minnesota Farm Account Book from which the information shown is taken. If the page number is preceded by a "D" (as D 4-5) it refers to the Depreciation Schedule. If the letters A, B, or C appear in this column, pick up the figures from section A, B, or C of this summary sheet.

SUMMARY OF FARM CAPITAL AND NET WORTH — A

Item	From Page	Whole Farm		Operator's Share		Landlord's Share	
		Value Beginning of Year	Value End of Year	Value Beginning of Year	Value End of Year	Value Beginning of Year	Value End of Year
Dairy Cows	5 or 7	$	$	$	$	$	$
Other Dairy Cattle	8						
Beef Breeding Cattle	10						
Feeders	12						
	14-15						
Hogs	16						
Sheep	18						
Chickens	20						
Horses	23						
Crops, Seed and Feed	31						
Auto and Truck (Farm share)	D2-3						
Mechanical Power and Crop and General Machinery	4-11						
Livestock Equipment	12-15						
Buildings, Fencing, Tiling (Omit Operator's House)	16-19						
Bare Land	14-15						
Total Farm Capital							
Operator's House	D16-17						
(+) Non Farm Assets	55						
Total Assets							
(—) Liabilities	54						
Farmer's Net Worth							

MEASURING YOUR FINANCIAL PROGRESS

1. What is your best estimate of your present net worth?* _____

2. What was your net worth when you started farming?* _____

3. How many years have you farmed? _____

What Progress Have You Made?

4. Present Net Worth _____

5. Less Beginning Net Worth _____

   Total Gain in Net Worth _____

6. Total Gain in Net Worth* _____ ÷ _____ (Years Farming) =

7. Average Net Worth Gain per Year _____

*Subtract any property that was a gift.

Unit I - 5

KEEPING FARM RECORDS CURRENT

PART I. Student Objectives

A. Students will be able to enter all of the ordinary items of income and expenditures for their farm business in their account book within allowable tolerance for error.

B. Having posted all bills and receipts in the accounting system, the student will be able to organize the filing and storage of such items for future reference.

C. Having examined the kinds of records that must be kept for the business, the family will establish a plan for keeping the appropriate records.

PART II. Transition of Units

The previous lesson concentrated on one aspect of complete farm accounts-inventories. The job should now be completed, with each family having a current net worth statement.

This unit will deal with the every day tasks of keeping the account up to date and handling the paper after the items have been posted to the account. Families will develop a plan and procedure for keeping the accounts current.

The unit which follows will establish the plans for the cropping program for the coming crop year. It will be the first step in comprehensive planning for the farm business. It will relate to the family goals established in Unit 1 and to the resources listed in Unit 4.

PART III. The Lesson

Attention Focuser

Prior to the meeting prepare index tabs for all of the major sections of the account book. Have enough tabs available for each class member. As families arrive invite them to pick up the tabs for their account book and place them on the appropriate pages. Note: Because the Minnesota Farm Account Book will not fit in a filing cabinet if tabbed on the end, encourage families to place the tabs on the top of the account book pages.

KEY QUESTION 1. How can you develop a system that will simplify the bookkeeping process?

A good system of record keeping begins with an orderly process of keeping the bills and receipts in order until they are posted. While several

systems could be used, select one that is simple and accessible to all members of the family. The easiest to use is a safety spindle. Each paper is placed on the spindle as it is received. When the items are posted, the pile can be removed from the spindle and inverted. The items will then be in the order in which they were placed on the spindle.

If some separation of accounts prior to posting is desired, an expanding folder works well to store the slips prior to posting. This system requires more time and is probably not necessary except for the more sophisticated farm operations.

One of the most important elements is to simply develop good record keeping habits. The family will have to determine who is "in charge" of the record system. Often this will be a shared responsibility with the wife keeping the income and expense sections and the husband supplying information about crop and livestock production. Some time should be set aside each week to bring the records up to date. Records should be kept in pencil the first year so that errors can be easily corrected.

Suggested Teaching Strategy

Using a handful of bills and receipts, illustrate how the safety spindle and the expanding file can be used to keep papers in order until they are posted. Through discussion, establish the need for developing a good "system." The system will probably be different for each family. The key point to emphasize is that good records will not just happen; there will have to be a simple plan developed and agreement among family members as to how the system will function.

KEY QUESTION 2. What special things should you watch for when completing the account?

Each enterprise has some unique records that must be maintained in order for the record to be useful for analysis. The following items should be given special attention.

A. Page 2 - Dairy Products Sold

    1) Quantity, Lbs. of Butterfat and Gross Value.

B. Page 3 - Expenses Usually Deducted from Milk Check

    1) End of the Year Transfer

C. Page 9 - Other Dairy Cattle Sold

    1) Record number, weight and value.
    2) System for identifying capital gains sales. Key all capital gains sales so they can be easily retrieved at tax time.

D. Pages 10-15 - Beef and Feeders

1) Record number, weight and value of all livestock brought and sold.
2) For the breeding herd, make a note of the number of cows and heifers that were supposed to drop calves - used in determing % calf crop.

E. Pages 16-17 - Hogs

1) Record number, weight and value of all hogs bought and sold.
2) Record breeding hogs (capital gains) in columns 1 through 8, page 17.
3) Record market hogs in columns 9 through 16, page 17.

F. Pages 18-19 - Sheep

1) Record number, weight and value.
2) Record sheep, wool and incentive in appropriate places.
3) To get the % lamb crop it will be necessary to make a note of the number of Ewes and Ewe Lambs that were supposed to drop lambs.

G. Pages 20-22 - Chickens

1) Record dozens and value of eggs sold.
2) Use proper column for hens and for other chickens bought and sold.

H. Pages 24-25 - Miscellaneous Livestock Expense

1) Record entries in separate columns for each class of livestock.
   a. Record dairy cows and other dairy expenses in separate columns.
2) Separate and identify veterinary expenses from all other miscellaneous L.S. expense.

I. Pages 28-31 - Feed Bought

1) Use separate page sections for each livestock enterprises.
   a. Record feed bought for cows separate from other dairy.
2) Record quantities in pounds or bushels.
3) Record farm type grains such as corn or oats separately from commercial feeds. This can be easily done by recording the commercial feeds starting at the top of each column and the grains and roughages from the bottom up.
4) Total commercial feed (quantity and value) purchased is essential. It is not necessary to separate salt, mineral or vitamins from protein feeds.
5) If a complete ration is purchased, clearly identify it as such.

J. Pages 36-37 - Crops Sold

1) Record quantity sold and value.
2) Record all sales of landlord's crops.
3) Record diverted acre payments separately - in appropriate place.

K. Pages 38-39 - Crop Expenses

1) Record fertilizer, chemicals and other crop expenses in place indicated on the pages.
2) Allocate each expense according to crop.
   a. Record expenses for corn grain separate from corn for silage.

L. Page 40 - Custom Work Hired

1) Identify each custom work job in the description column.
2) Allocate the custom work in columns 6 through 12 to the crop or livestock enterprise for which the custom work was hired.

M. Page 42 - Machinery, Equipment and Real Estate Bought

1) Pay special attention to accuracy in cash paid column.
2) Only items purchases that are capital assets are entered in this section.
3) Review the special instructions on handling sales tax.

N. Page 43 - Taxes

1) Be sure to include actual or estimated taxes on rented land under the total value and landlords share.

O. Pages 44-45 - Gas, Oil, Grease Bought

1) Be sure to record quantity (gallons). This is needed for gas tax credit and refund.
2) All items must be recorded in the total value column as well as being allocated to the proper use - Fuel for irrigation and/or custom work should be kept separate from other fuel costs.

P. Pages 46-51 - Repair of Truck and Auto, Tractor and Crop Machinery and Livestock Equipment

1) All items must be recorded in column 3 and again in the appropriate use category.
2) Don't forget auto and truck license and insurance.

Q. Pages 52-53 - Wages of hired Labor

1) Record time worked, wages earned and amount paid. Be sure to keep track of all deductions for state and federal income tax and FICA contributions.

R. Income from Work off the Farm

1) Identify the job done and indicate machines used.
2) Work done for which social security or income tax has been withheld should not be entered here but as non-farm income.

S. Co-op Patronage Refunds

1) Enter total value, (cash & equity), as well as the cash and equity.

T. Money Borrowed, Payment on Debts

1) Payments on debts are entered only for money owed at the beginning or borrowed during the year.
2) Payments on items purchased during the year on open accounts are not to be recorded here.
   a. Discuss systems for recording charged items throughout the account book.

U. Taxes and Household and Personal Expenses

1) Call special attention to tax payments and refunds.
2) Refer to instructions for classifying personal expenses.

Suggested Teaching Strategy

Each student should follow through the account book page by page as the instructor reviews the items for special attention and emphasis. Encourage the families to take notes in their account book. Skip those enterprises not represented by class membership.

KEY QUESTION 3. What should you do with the papers after they have been posted?

Most farmers are not by nature good organizers of receipts, bills, records, reference materials, and in general, paper work needed to carry out their farm business. They can, however, be taught to improve themselves in this area.

Because the farm business is becoming more and more complex each year, it is apparent that the farm family needs a place where they can carry out the day-to-day transactions and make important decisions. Sound decisions do not just happen, they are the result of careful study, research and

planning on the part of the operator. A most valuable tool to aid the operator in decision-making is a place where he can work and think undisturbed by noise and family interruptions.

To illustrate to the families how they might improve their filing system and home office, the following activities are suggested:

A. Develop slides and overlays that will show several different farm office arrangements.

B. Show slides and overlays of various kinds of equipment that can be used in the office, such as desks, chairs, lighting, file cabinets, etc.

Some portion of the house should be set aside as the office center for the business. It need not be elaborate nor necessarily separated from other areas, but should provide a central location where all of the recordkeeping work for the farm can take place.

Keeping track of the papers of the business so they can be easily retrieved is also an important part of the record process. Families will find the task easier if they develop or purchase a good filing system. A filing system should be developed that fits the farm business and is capable of being expanded or modified as the business changes. Families would not think of doing the field work without the proper equipment, recognizing that the equipment will require an investment. Neither should they consider developing a good management system without the proper tools. A filing system and office space are some of the essential tools.

Suggested Teaching Strategy

Inquire of the class where the record keeping is done in their home. Some of the class members may have an office, but most will probably use the kitchen table as their record center. If a member has an office, ask them to describe how they decided to equip their office. What features do they think an office must have? Show slides or overlays of various office arrangements pointing out the features of each. It would be helpful to have several pieces of office equipment available to illustrate the kinds of furnishings families would find most useful.

Have one or more samples of filing systems available to illustrate how a filing system might be constructed to facilitate the storage and retrieval of farm business papers. Instructors may wish to have one or more copies of the Farm & Ranch Filing System, available from PACE Productions, 2565 Fernwood Avenue, St. Paul, MN 55114 available for review.

PART IV. Summary

A. Keeping farm records is relatively easy if the family develops a system and has one member of the family "in charge."

B. Keeping records requires attention to details and the details may be slightly different for each livestock and crop enterprise. It is important that the family follow instructions.

C. Organizing an office work space will make the job or record keeping easier. Since good management requires good tools, families should consider the equipment and fixtures of files for the farm business part of the investment necessary to carry out the management of the firm.

PART V. At-The-Farm Activity

Review the accounting procedures with the family record keepers. Check the correctness of the initial account entries and assist families in recording unusual transactions. Show how the accounts will be used to file income taxes and how they will be used in the business analysis procedure. Encourage families to establish a farm office. Assist them in securing or developing a good filing system.

PART VI. Resources

Class quantities of index tabs for all major account headings.
Overhead Projectors (Chalkboard)
Transparencies or slides of office arrangements for farms.
Sample filing system.
Specimens of common office machines useful to the farm business.
Safety spindle, expanding file.

PART VII. References

Farm & Ranch Filing System, PACE Productions, Inc., 2565 Fernwood Ave. St. Paul, MN 55114

Your Home Business Center, Bulletin C-344, Cooperative Extension Service, Kansas State University, Manhattan, Kansas.

Minnesota Farm Account Book, Burgess Publishing Company, Minneapolis, MN

Unit I - 6

PLANNING THE CROPPING PROGRAM

PART I. Student Objectives

A. Students will be able to identify the influence that cropping programs have on farm income and the proportion of income that is attributable to the crops enterprise.

B. Students will be able to identify at least six important factors that affect crop yields that are manageable.

C. Given a crop planning sheet, students will be able to plan a realistic crop program for their farm that is within the limits of their resources and consistent with their farm goals.

PART II. Transition of Units

The last session concentrated on the business of keeping farm accounts current and setting up the home office in a business-like manner. Special emphasis was placed on the necessity of keeping accurate records so that a meaningful business analysis could be devised at year end.

This unit concentrates on another form of record, the cropping plan. Here it is illustrated how historical data on the cropping program is put to use in planning the current crop. The farmer will have to recall past cropping, yield, fertilizer and pesticide treatments to do an effective job of planning. The result of this session should be a cropping plan that combines the elements of goal planning and resource use with the information gained from historical crop program data.

The unit which follows will examine the procedures used in keeping the feed record. Costs of feed, methods of keeping records and the analysis information which will result are all part of the plan.

PART III. The Lesson

Attention Focuser

On a transparency, illustrate the crop table (Table 10) for corn grain (1975, Austin Area), showing only the 179 high and 179 low farms. Use only the first six lines in the illustration. When families have had a few minutes to study the illustration, ask them to help you devise a list of 6-7 key questions you should ask the low profit farms to help them discover why they are not as profitable as the high profit group. Compile a list of the questions on the chalkboard. Point out that you have looked at only one crop, and there are many possible causes for poor performance. It is natural then to lead to the first key questions as to the relationship of the performance of all crops to the profitability of the farm.

KEY QUESTION 1. In general, how does the cropping program affect farm earnings?

It would be safe to say that in most years, high earnings farms have higher yields, plant a larger proportion of their land in high return crops, have a higher crop gross return per acre, and plant more acres than average or low profit farms. But are more acres the only key to profitability? You will note that in Table 1 the low earnings farms had only 313 acres, while the average had 314 acres and the high profit had 445 acres. If acres were the only criteria for profitability, the high profit farm would have had crop production worth only $67,896, based upon the gross return per acre for the low profit farms rather than the $86,330 production actually obtained. Viewed another way, the low earnings farms would have increased their earnings by $7,512 if they had attained the same gross earnings as high profit farms. While size is certainly an important factor in total farm productivity, the kind of crops grown (% land in high return crops) and the yield from those crops (index of crop yields) also are important income factors.

TABLE 1. SELECTED FACTORS OF CROPPING ORGANIZATION AND 1975 FARM BUSINESS SUMMARIES--AUSTIN AREA--EFFICIENCY

	LOW	AVERAGE	HIGH
Index of Crops Yields	99	100	109
% Land in High Return Crops	65.4	66.9	74.2
Gross Return/Cropped Acres	169.97	175.54	193.94
Tillable Acres	313	314	445
Labor Earnings - Whole Farm	-$11,489	$10,112	$41,188

Some farmers may not recognize the importance of crops to the success of their business if crops are fed rather than sold. The excerpts from Table 3 in the farm business analysis help point out the net increases in earnings attributable to crops even for farms that have large amounts of livestock. It is easy to see that increasing the crop return by 10% on low profit farms would increase the net contribution to earnings by $2,917.

TABLE 2. EXCERPTS FROM THE FARM BUSINESS ANALYSIS

(Table 3) - 1975	LOW	AVERAGE	HIGH
Line 17 Return over Feed - All Livestock	3,532	18,551	50,060
Line 18 Net Increases - Crop Seed & Feed	29,176	34,435	55,202

Suggested Teaching Strategy

Using the information contained in Table 1 and Table 2, discuss the key question. It will be necessary to make only a very simple explanation of the management factors so that the students will understand the origin and significance of the measures. Both Tables 1 and 2 should be prepared on a transparency or placed on the chalkboard for discussion.

KEY QUESTION 2. Are the organization and efficiency factors shown in Table 1 always related to earnings in the same way as illustrated?

Cropping programs and livestock programs are almost always related. The dairy farm, for example, may have a large acreage of forage crops, while the beef/hog farm may have mostly corn. It stands to reason then, that if the price relationship between dairy products and hogs is out of line, the factors that measures crop selection (% land in high return crops) will not necessarily show a high relationship to earnings. Since crop selection is usually related to the livestock enterprises, relative prices of livestock will affect the apparent relationship to earnings.

Index of crop yields and gross return per acre are almost always positively related to earnings except in years when one or more livestock enterprises suffer serious losses.

Suggested Teaching Strategy

Choose two farmers from the class who have different livestock enterprises and approximately the same size farms (tillable acres). Ask each farmer to list his normal cropping program, (check before class to gain their consent). Record the list on the board. Use the farms to illustrate how livestock selection & crop selection go hand in hand. Point out how a poor livestock year with the farmer with the most land in high return crops can nullify the effect that selecting high return crops can have on income. The 1975 year is an illustration of a case where livestock prices for hogs and beef, (the farms that also raise much corn) were more favorable than the prices for dairy products.

KEY QUESTION 3. What causes crop yields and gross return/acre to vary?

Good crop yields do not just happen; they are managed. There are, of course, a great many factors that affect crop yield--some that are manageable, and some that are not. When a list of the factors is assembled, it can be easily seen that a large majority of the factors are under the control of the manager.

Some of the more important factors that affect the total crop production of the farm, other than size, are listed below.

1. Weather conditions

2. Native soil capabilities, including drainage
3. Crop rotation and selection
4. Fertilizer and manure use (both prior and present)
5. Varieties
6. Weed and insect control practices
7. Planting rates
8. Disease control
9. Tillage practices
10. Pasture management
11. Timeliness of all operations

Suggested Teaching Strategy

In one of the previous classes, you asked the class to indicate the factors that make total farm earnings vary from farm to farm. Ask the group to try and recall the factors you listed, and to sort out those factors that affect crop yields and the gross return per acre. Give the families a few minutes to jot down some items they recall, or to compile a new list. Call upon several farmers in turn to establish a list of factors that influence crop yields and gross return. List them in two columns on the chalkboard - (manageable and not manageable). When the lists are complete, label the columns manageable and not manageable. Establish the idea that the majority of factors are manageable to some degree. Good management should be reflected in yields and in gross return/acre.

KEY QUESTION 4. If crop yields can be managed, how does one lay out a crop management plan?

Most good plans start with an inventory of the resources. In the case of crops, this is a plot of the farm with fields and their native capabilities laid out for review. Many farmers will have a map prepared by the S.C.S. which will outline fields and indicate land class and soil type. Others will have to provide their own map if they are to really attack the problem of crop planning.

Noting prior crop history is the second step in the plan. Kind of crop, fertilizer treatment, herbicide use, yields and special seasonal problems are important things to note, since each will have some bearing on the current plan.

Organization of the cropping program should be considered next. Most farmers will need to match the cropping program to the livestock program even though they recognize that good management would usually match in the reverse order - livestock to the cropping program. Because of building facilities, livestock programs are often fixed in the short term, and can be altered only with a major organization of the business.

Establishing yield goals is an important part of the plan. Each crop needs to be examined individually. Given that a certain crop is to be planted on a certain field, what yield should the farmer strive to reach? To answer that question, it is important to consider the following:

1. Capability of the soil

2. Past cropping history and yields obtained
3. Fertilizer and manure used in prior years
4. Resources available for fertilizer, herbicides, etc.
5. Expected rainfall or irrigation intent

Crop planning is not complete until the details of the plan have each been considered. The final plan should include:

1. Variety of crops
2. Plant population, including row spacing
3. Kind, quantity and timing of fertilizer application
4. Kind, quantity and timing of herbicide application
5. Standby insect and disease control plans
6. A timetable for planting, giving the critical last day for planting without reduced yields

Suggested Teaching Strategy

Distribute copies of the crop and fertilizer plan to each student. Have them begin by filling out a rough sketch of the farm on page 32 of the account book. The purpose of this plan is to be able to identify each field and to note any of the factors mentioned in the process of plan development. Each field should carry a notation of the total acres and the crop grown in each of the prior two years. It is not necessary to draw the plot to scale.

Since the crops to be grown and the acres of each are usually decided by this time of year, have each family complete the "kind of crop" and "acres" columns on the crop data page of the account book. To facilitate recording yields, illustrate how to leave 3 or more lines for each alfalfa field, one for each harvest. Acres for such crops as corn silage should be estimated since the total corn acres devoted to silage will probably be dictated by the yields obtained and silo capacity. Make sure that the total acres listed on the crop data page agree with the total known acres of both owned and rented land.

Have families begin the crop and fertilizer plan by recording the fields, crops to be grown and whatever pieces of history they can remember at the time. The plan will be completed at the next on-farm visit. Families should be instructed to complete as much of the plan as possible prior to that time.

PART IV. Summary

A. Farm earnings are related to the management factors that indicate the organization and efficiency of the cropping program.

B. The influence of crop factors on earnings is tempered by the relative profitability of livestock enterprises.

C. Crop yields are controlled to a large extent by the management of the operator. While some factors cannot be managed, they at least can be considered in the management plan.

D. Crop management begins with a management plan. Without a good plan, a farmer cannot expect to produce good yields.

PART V. At-The-Farm Activity

Develop a complete crop and fertilizer plan for the farm. Show how the soil test and other data gathered previously can be used in planning the crop. Prepare an estimated budget of expenses for crops which includes fertilizer, herbicide, seed and other ordinary costs.

PART VI. Resources

Chalkboard/Overhead Projector
Transparencies: Table 1, Table 2, Factors Affecting Crop Yields, Crop and Fertilizer Plan, Crop Data page from Account Book, Class quantities: Crop and Fertilizer Plan

PART VII. References

Minnesota Farm Account Book, 4th Edition, Burgess Publishing Co., Mpls.

Guide to Fertilizer Use, Extension Bulletin 277 (Latest edition), University of Minnesota.

Chemical Weed Control, Extension Bulletin 12, (Latest edition), University of Minnesota.

Varieties of Farm Crops, Miscellaneous Report 24, Extension Bulletin, University of Minnesota.

PART VIII. Appendices

A. Table 1 & Table 2

B. Factors Affecting Crop Yields & Crop Planning

C. 1978 Cropping & Fertilizer Plan

TABLE 1. SELECTED FACTORS OF CROPPING ORGANIZATION AND 1975 FARM BUSINESS SUMMARIES--AUSTIN AREA--EFFICIENCY

	LOW	AVERAGE	HIGH
Index of Crop Yields	99	100	109
% Land in High Return Crops	65.4	66.9	74.2
Gross Return/Cropped Acres	169.97	175.54	193.94
Tillable Acres	313	314	445
Labor Earnings - Whole Farm	-$11,489	$10,112	$41,118

****

TABLE 2. EXCERPTS FROM THE FARM BUSINESS ANALYSIS

(Table 3) - 1975	LOW	AVERAGE	HIGH
Line 17 Return Over Feed--All Livestock	3,532	18,551	50,060
Line 18 Net Increases--Crop Seed & Feed	29,176	34,435	55,202

FACTORS AFFECTING CROP YIELDS

1) WEATHER CONDITIONS
2) NATIVE SOIL CAPABILITIES, INCLUDING DRAINAGE
3) CROP ROTATION AND SELECTION
4) FERTILIZER AND MANURE USE (BOTH PRIOR AND PRESENT)
5) VARIETIES
6) WEED AND INSECT CONTROL PRACTICES
7) PLANTING RATES
8) DISEASE CONTROL
9) TILLAGE PRACTICES
10) PASTURE MANAGEMENT
11) TIMELINESS OF ALL OPERATIONS

****

FACTORS AFFECTING CROP YIELDS

1) CAPABILITY OF THE SOIL
2) PAST CROPPING HISTORY AND YIELDS OBTAINED
3) FERTILIZER AND MANURE USED IN PRIOR YEARS
4) RESOURCES AVAILABLE FOR FERTILIZER, HERBICIDES, ETC.
5) EXPECTED RAINFALL OR IRRIGATION INTENT

****

CROP PLANNING

1) VARIETY OF CROPS
2) PLANT POPULATION, INCLUDING ROW SPACING
3) KIND, QUANTITY AND TIMING OF FERTILIZER APPLICATION
4) KIND, QUANTITY AND TIMING OF HERBICIDE APPLICATION
5) STANDBY INSECT AND DISEASE CONTROL PLANS
6) A TIMETABLE FOR PLANTING, GIVING THE CRITICAL LAST DAY FOR PLANTING WITHOUT REDUCED YIELDS

Date of last soil test_____
Rotation_____

1978 CROPPING & FERTILIZER PLAN

Name_____
Date_____

Field No.	Acres	1976 Crop	1976 Fertilizer	1977 Crop	1977 Fertilizer	Manure History	1978 Crop	1978 Fertilizer Broadcast	1978 Fertilizer Starter	1978 Fertilizer Suppl. N.	Crop	Remarks

PLANNING DATA	CROP: CORN	SOYBEANS					
YIELD GOAL							
DESIRED PLANT POPULATION							
PLANTING RATE (SEEDS/ACRE, LBS/ACRE)							
PLANTING DATE GOAL							
VARIETIES							
HERBICIDE							
RATE OF APPLICATION							
HERBICIDE							
RATE OF APPLICATION							
FERTILIZER SUMMARY: TOTAL							
N							
P							
K							
OTHER							
LIME							
TOTAL FERT. & LIME COST							

ACREAGES: (1) TOTAL TILLABLE LAND_____ (2) WILD HAY_____ (3) ROADS & WASTE_____ (4) FARMSTEAD_____
(5) TOTAL LAND IN FARM_____ HAS ALL LAND IN FARM BEEN ACCOUNTED FOR?
TRANSFER INFORMATION TO CROP DATA PAGE OF ARM ACCOUNT BOOK.

Unit I - 7

FEED RECORDS

PART I. Student Objectives

A. Families will be able to identify at least three places in the business analysis where feed records will provide valuable management information.

B. Families will be able to differentiate the proportion of total livestock production costs attributed to feed among various classes of livestock.

C. Each family will devise a system for keeping accurate feed records.

PART II. Transition of Units

The previous unit addressed the importance of developing a good cropping plan by emphasizing that most of the factors associated with crop yields can be controlled by the producer. The effect of high crop yields was illustrated, even for farms that utilize almost all of the crop for livestock feed. The unit resulted in a complete crop plan for each farm.

This unit will concentrate on the feed record portion of the complete farm record. The importance of good feed records will be emphasized. Each family will devise a plan for keeping good feed records for their livestock enterprises.

The unit which follows will direct attention to livestock records, particularly to the importance of an accurate monthly count of livestock numbers and some of the miscellaneous livestock records for which no provisions may be made in the account book.

PART III. The Lesson

Attention Focuser

From the master copy in the appendices, make enough copies of the sheet: "How much of my cost is feed cost?" Distribute a copy to each class member and ask them to complete the items. When they have finished, collect the responses by placing them on the chalkboard under the headings:

DAIRY COWS COMPLETE HOGS BEEF FEEDERS

Establish a range for each class of stock and an appropriate avereage based upon the responses from the class. Organize the estimate on a corner of the chalkboard and save for future references.

KEY QUESTION 1. Why do you feed livestock?

When asked this question, farmers may have a variety of responses--all of which may be correct for their own farm. The most common responses are as follows:

1. As an alternative to marketing crops directly. It is possible with a good livestock program to gain a better price for crops by feeding livestock than by simply marketing the saleable crops.

2. To utilize crops that have no alternative uses. Pastures, some roughages, and crop aftermath have no ready market. In fact, some are not even harvestable except by the use of livestock. Without livestock, this kind of crop production would have no value.

3. To utilize buildings and facilities that are on the farm. When families try to maximize the use of their resources, they find little or no alternative use for already established livestock facilities.

4. To utilize excess labor. Families with a large labor supply or an uneven labor supply may find livestock a good solution to the utilization of family labor since some livestock can be managed in such a way as to demand maximum labor inputs during an otherwise slack season.

5. To provide a steady cash flow. Some livestock operations can be organized to provide steady monthly income, thus reducing the necessity of long term spending budgets from periodic crop income.

6. To reduce risk. Livestock operations spread risks that would be associated with a crop-only farm organization. Feed can be purchased even when local crops fail, thus providing some continuity to the farm business and assurance of at least some farm income.

7. Personal satisfaction. Some families raise livestock simply because they want to. They take personal pride in having high quality livestock.

Suggested Teaching Strategy

In a question-answer discussion, elicit the various reasons why members of the class have livestock on the farm. It is likely that you will get almost all of the reasons listed in the lesson. Emphasize that items A, B, C, and D are probably the most important from an economic standpoint, but

each farm has to establish its own rationale for having livestock. Given that farmers have livestock for a variety of reasons, almost all do so to increase profits. Since feed is among the most costly inputs, even when home-grown, it will be important to manage the feeding program carefully.

KEY QUESTION 2. What proportion of livestock cost is made up of feed cost?

There are some rules of thumb farmers should keep in mind when examining feed costs. Under normal price conditions for feed and other costs, feed contribution to total costs generally is close to the proportions illustrated in Table 1.

TABLE 1. PROPORTION OF TOTAL COSTS MADE UP OF FEED, CAPITAL AND LABOR COSTS

Livestock	Feed	Capital	Labor
Hogs, complete	70	21	9
Feeder Pigs	70	22	8
Dairy Herd	45	28	27
Beef Cow Herd	56	30	14
Feeder Cattle	75	18	7
Sheep Flock	44	35	21
Laying Flock	48	32	20

It can be illustrated from the table that for the complete hog enterprise, for example, the farmer would need to have a return of $1.43 for each dollar of feed fed to cover the costs of production.

(100 ÷ 70 = $1.43)

For dairy, on the other hand, it would require a much larger return per $1.00 of feed fed since the non-feed costs make up a much larger share of total costs.

(100 ÷ 45 = $2.22)

While these are bench mark figures, it should be remembered that the factor relationship will vary from farm to farm depending on feeding efficiency, value of non-feed capital inputs and labor recovery charges.

Table 2 illustrates how the breakeven return per $100 feed fed varies from enterprise to enterprise, based upon the information in Table 1.

TABLE 2. RETURN PER $100 FEED FED REQUIRED TO COVER ALL COSTS

	Percent Feed Cost of Total	Breakeven Return Per $100 Feed Fed
Hogs, Complete	70	143
Feeder Pigs	70	143
Dairy Herd	45	222
Beef Cow Herd	56	179
Feeder Cattle	75	133
Sheep Flock	44	227
Laying Flock	48	208

KEY QUESTION 3. How do variable labor costs affect the break-even point (return/$100 feed fed) in different enterprises?

The effect of labor costs, as an example, can be illustrated by the record from a particular farm with a dairy cattle operation. When examining his business, the following costs were determined:

		% Total Costs
Feed Costs	$9,408	45.7%
Labor Costs (@ $2.00/hr.)	5,884	28.4%
Capital Costs	5,408	25.9%

You will note that the proportion of costs consumed by each major input is close to that shown in Table 1. If labor costs are increased, the break-even point needed to cover all costs, based on the return per $100 feed fed changes.

TABLE 3. BREAK-EVEN POINT FOR A DAIRY HERD UNDER VARYING LABOR WAGE RATES

With Labor At	Feed Cost % of Total	Return/$100 Feed Fed Needed to Break-even
2.00/hour	45.7%	$218.80
3.00/hour	39.8%	$251.00
4.00/hour	35.4%	$282.50

Controlling feed costs, or at least managing the feed inputs, is a vital part of the management function.

Suggested Teaching Strategy

From the attention focuser, you should have a series of estimates of the proportion of total livestock costs which are made up of the feed input. Utilize a transparency of Table 1 to illustrate the benchmark figures that have been gleaned from past business records. Table 2 can be used to illustrate the level of return needed in various livestock enterprises to cover feed and other costs, including labor. Use Table 3 to illustrate how these benchmarks change as the inputs are given different values. Stress the fact that only through a good knowledge of the feeding program will it be possible to determine if the livestock enterprises are utilizing feed efficiently enough to cover all costs, including labor.

KEY QUESTION 3. How will feed records be used in the business analysis?

Because feed is such an important livestock cost input (even when all feed is home-grown), it is important to determine the level of return. Feed record information will be used to determine the return per $100 feed fed to each livestock enterprise and also to get a picture of the overall feeding efficiency compared to other farmers. The index of return per $100 feed fed, illustrated in previous lessons is one way of comparing farms on the basis of feed efficiency.

Livestock feeding efficiencies are also shown by the use of feed record information. The pounds of feed required to produce a given quantity of product helps the farmer to determine his current feeding efficiency but also helps evaluate changes he may have made in feeding practices. For some classes of stock (fattening hogs, for example) the feed record will provide a measure of the quality of the ration by allowing the farmer to determine the approximate protein level of the ration compared to other farmers. Since feed efficiencies in pounds is more stable and manageable than efficiencies based on costs, the physical quantities provide better information for planning.

The total cost of feed, both by production unit, and by herd or flock totals is an important tool for planning. The analysis will pinpoint the costs for each enterprise, thus allowing comparison among farms and among enterprises on the same farm.

Suggested Teaching Strategy

The points stressed in the preceding discussion can best be illustrated by some of the tables in the business analysis. Tables 1 and 2B can be used to illustrate potential feed on hand at the beginning of the year and the amount spent for livestock feed. The livestock tables will specify the feed costs and quantities consumed for each class of stock. They can be used to illustrate the kind of information each farmer would have available on each livestock enterprise. Table 8 can serve to illustrate the overall feeding efficiency referred to in this key question.

KEY QUESTION 4. What kinds of feed records must be kept?

A complete feed record will list all feeds consumed, regardless of the source. It will include:

1. Farm grown grains
2. Dry roughages
3. Silages
4. Pasture days
5. Purchased feeds
6. Milk fed to livestock

A few simple rules may be necessary to insure that feed records are kept in a uniform manner.

1. Farm grown grains should be adjusted to standard moisture contents and bushel weights so the amount reported as fed is on the same basis as the inventory and the record of crops raised.

2. Dry roughages should be adjusted to an air dry basis. For poor quality roughage where there is considerable waste, the quantity should be adjusted to reflect the proportion consumed.

3. Silage quantity can be checked back against capacity tables to determine if the amount reported as fed agrees with the disappearance. Since weight can vary considerably with moisture content, the weight fed may need to be adjusted to compensate for water content. It should be noted that the dry matter content of the silo will be approximately the same regardless of the moisture content and the weight of the silage.

4. Pasture days should reflect the number of animal days from which full roughage feed was obtained from pasture. If the dairy herd was on pasture, but had to be fed a 1/3 ration of dry roughage or silage to supplement the pasture, you would record only 20 pasture days in a 30 day month, even if the cows had access to the pasture for the entire period.

5. Purchased feeds need not be entered monthly in the feed record pages, if good records are kept of feed purchases by enterprise. It is not necessary to divide purchased feeds (commercial supplements) into more than two categories: a) Protein, Salt, Mineral & Vitamins and b) Complete Ready to Feed Rations. All grains and roughages (not part of complete rations) should be recorded separately. Take care to record purchased commercial feeds that are fed from inventory and are relegated to inventory at year's end.

6. Milk fed should include colostrum as well as saleable milk.

Suggested Teaching Strategy

Using a transparency, outline the kinds of feeds that must be recorded. Briefly discuss any special rules for each kind of feed as suggested in the outline.

KEY QUESTION 5. How should feed records be kept? How frequently should they be recorded?

The procedure for keeping track of the feed fed will probably vary from farm to farm, depending upon the facilities and the kind of livestock fed. There are four systems or variations of systems that farmers may find useful:

1. On the basis of an occasional daily weighing of feed.

   Feed should be weighed whenever the ration is changed or when a new source of feed is introduced into the ration. A simple notstion on the farm calendar when feed is weighed will provide a basis for making a monthly estimate of the total quantity fed.

2. On the basis of feed batches.

   With the majority of the feed being processed on the farm with portable mixer mills, it is easy to keep track of feed by the batch method. Some method should be devised for weighing the quantity of each feed stuff used in a batch. Weighing needs to be repeated only when the ration content changes or a new source of feedstuffs is used.

3. Bins or cribs for specific enterprises.

   Some farmers simplify the feed record by utilizing separate bins or cribs for each enterprise. Dairy cows may get fed from the slat crib while all hog feed is taken from the round bin. When the bin or crib is empty, a record is made charging the feed against the appropriate enterprise.

4. Feedstuffs such as silage are often assigned on the basis of depletion rather than on a basis of daily feeding. Since silos are frequently emptied during the year, this sytem works well in balancing the feed fed against available supply. This system does not work satisfactorily, however, for silos that are continually refilled with available feeds as is the case with many glass lined steel units.

It is obvious that no single system will work for all farmers or for all classes of livestock on a single farm. Farmers must decide how they can

best record the feed fed as accurately as possible. Some farmers may find feed information of enough value to invest in scale equipment that will permit weigh-in and weigh-out of all non-roughage feeds.

Feed records must be recorded with a frequency that fits the farm best. Generally, the more frequently the record is made, the greater the accuracy since an error in a single weighing or estimation will not be multiplied as many times in arriving at quantities.

Suggested Teaching Strategy

Using a transparency of kinds of records to keep, review the few simple rules that must be followed to increase feed record accuracy. Concentrate on trying to get each family to develop a system for keeping the feed record.

A transparency of the feed record pages from the account book will be helpful in illustrating how account book entries should be made. Make out a sample feed record ahead of time to illustrate how the data from a secondary source (pocket note book, barn calendar, etc.) can be used to complete the feed record in the account book.

PART IV. Summary

A. While people feed livestock for various reasons, the principal reason is economic; farm income in the long run can be greater with livestock than without, given limited land availability.

B. Feed is the largest single item of livestock expense and thus more gains can be made in livestock income by improving the feeding program than by any other single management improvement.

C. The importance of feed to total cost, or necessary return to break even is dependent on the level of cost recovery assigned to items such as labor.

D. Feed records have many uses in the analysis of the business.

E. Good feed records require a system. Each farmer has to devise a system that best fits his own resources and type of feeding program.

PART V. At-The-Farm Activity

Review the feed records. Check the records for feasibility and completeness. Check purchased feed sections to be sure feed is assigned by enterprise and that quantities purchased are recorded. Discuss the livestock feeding with the family. Show how records can be used to measure some efficiency levels already, such as pounds of feed per pound of milk. Suggest ways of improving and simplifying keeping accurate feed records.

PART VI. Resources

Chalkboard/Overhead Projector
Transparencies: Table 1, Table 2, Kinds of Feed Records (from text), Table 1, 2b, 8, 11A-19 from Farm Business Analysis Summary, Feed Record Page from Account Book
Class Quantities: How much of my cost is feed cost?
Sample Feed Record
Examples of Secondary Feed Data Sources

PART VII. References

Minnesota Farm Account Book, Burgess Publishing Co., Minneapolis

Vocational Agriculture Farm Analysis Annual Report, East-South Central Minnesota, Austin (or comparable reference)

PART VIII. Appendices

A. Table 1, Table 2 and Table 3

B. How Much of My Total Cost of Production is Feed Cost?

C. Kinds of Feed Records

TABLE 1. PROPORTION OF TOTAL COSTS MADE UP OF FEED, CAPITAL AND LABOR COSTS

Livestock	Feed	Capital	Labor
Hogs, Complete	70	21	9
Feeder Pigs	70	22	8
Dairy Herd	45	28	27
Beef Cow Herd	56	30	14
Feeder Cattle	75	18	7
Sheep Flock	44	35	21
Laying Flock	48	32	20

****

TABLE 2. RETURN PER $100 FEED FED REQUIRED TO COVER ALL COSTS

	Percent Feed Costs of Total	Breakeven Return Per $100 Feed Fed
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Dairy Herd	45	222
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Sheep Flock	44	227
Laying Flock	48	208

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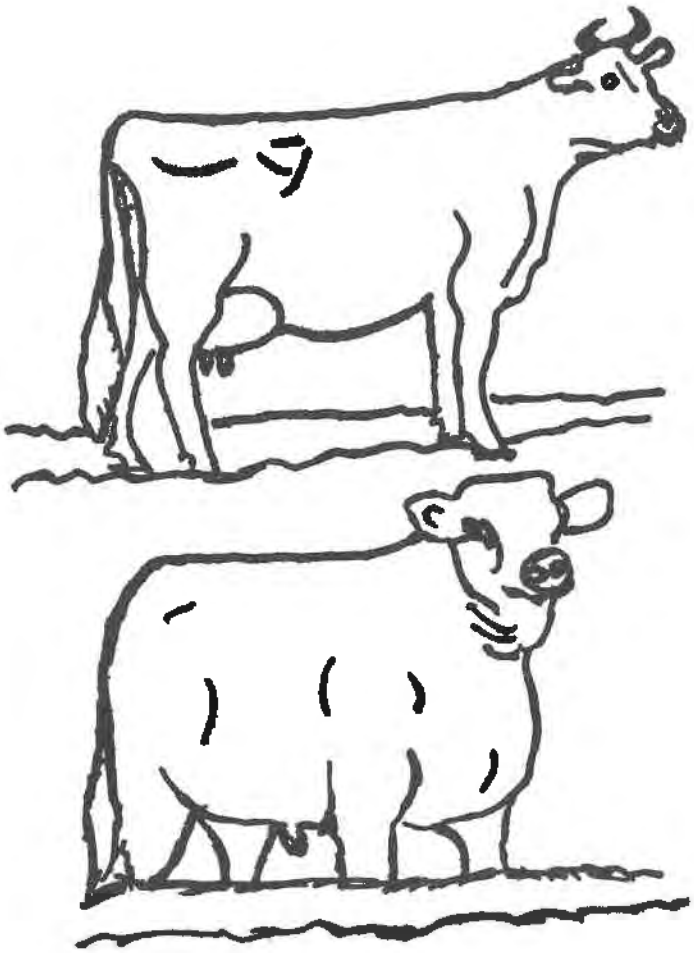
TABLE 3. BREAK-EVEN POINT FOR A DAIRY HERD UNDER VARYING LABOR WAGE RATES

With Labor At	Feed Cost % Of Total	Return/$100 Feed Fed Needed To Break-even
2.00/Hour	45.7%	$218.80
3.00/Hour	39.8%	$251.00
4.00/Hour	35.4%	$282.50

HOW MUCH OF MY TOTAL COST OF PRODUCTION IS FEED COST?

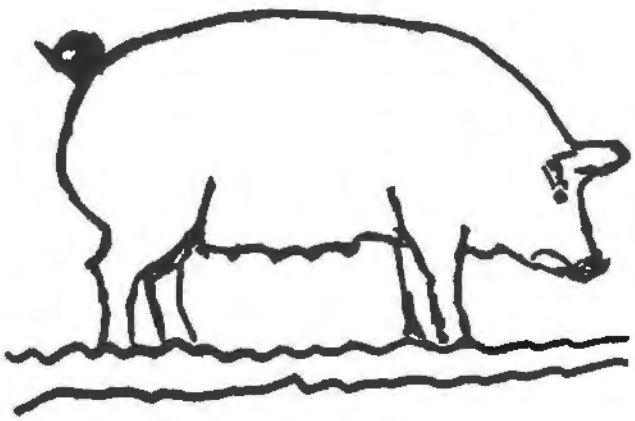


DAIRY - How much of my cost is feed costs?

_____%

BEEF FEEDING - How much of my cost is feed cost?

_____%



SWINE FARROW TO FINISH - How much of my cost is feed cost?

_____%

KINDS OF FEED RECORDS

1) Farm grown grains
2) Dry roughages
3) Silages
4) Pasture days
5) Purchased feeds
6) Milk fed to livestock

Unit I - 8

LIVESTOCK RECORDS

PART I. Student Objectives

A. Students will be able to identify at least three measures of farm business organization and efficiency that are dependent upon accurate livestock records.

B. Students will be able to illustrate at least two management areas for each livestock enterprise where knowledge of livestock numbers will provide useful measures of management success.

C. Given a farm record listing livestock transactions, students will be able to determine if the livestock records are accurate.

PART II. Transition of Units

The previous unit described the reasons for and procedure for keeping accurate feed records. The unit illustrated the relationship of feed costs to other costs for each livestock enterprise and the return needed to cover feed and other costs. Procedures were outlined for keeping an accurate record of feed fed to each class of livestock.

This unit addresses the problem of keeping complete and accurate livestock records. The principal emphasis is on keeping the quantity measures associated with livestock productions. The ways in which livestock records will affect the final business are emphasized as well as the clues one can obtain about management problems or successes through good livestock records.

The unit which follows introduces students to the first checking procedure--the mid year crop and feed check. This check will help build confidence in the family's ability to keep accurate records and will illustrate the uses to which the records can be applied.

PART III. The Lesson

Attention Focuser

As the first six families arrive, give each family a card with one of the following bits of information:

1.	*Dairy cows on hand - Jan. 1*	*26 Head*
2.	*Dairy cows on hand - Dec. 31*	*30 Head*
3.	*Heifers freshened*	*12 Head*
4.	*Cows purchased during the year*	*2 Head*
5.	*Cows died*	*1 Head*
6.	*Dairy cows sold*	*8 Head*

When the class is assembled, ask the six families to get together for a few minutes to determine how accurate the dairy records are for this dairy herd. Do not give them any instructions, other than they must determine from the information they have in hand, if the farmer has kept an accurate record of his Dairy Herd.

When they have finished, ask one of the members of the group to tell the group what information they had to work with, and what the group decided about the accuracy of the record system from which the data was taken.

KEY QUESTION 1. How are records of livestock numbers used?

The group involved in the attention focuser should have pointed out that the record appeared to be inaccurate, since the number of animals acquired did not agree with the record of disposition, thus illustrating that one use of livestock numbers in the accounting procedure is to determine if all of the livestock have been accounted for.

Livestock numbers are also important in determining some of the factors of management used in decision making. The efficiency of livestock in turning feed into products is an important factor to examine. Accurate livestock records are useful in determing the effective rate of daily gain for meat producing livestock. The business analysis utilizes the total production of meat products in enterprises such as fattening hogs, beef feeders and feeder lambs to calculate the effective daily gain. Since rate of gain is an important consideration in these enterprises, a factor upon which such decisions as quality of rations, market timing, and cash flow projections are based, it is imperative that all of the livestock be accounted for.

For some enterprises, feed conversion becomes an important consideration. Since prices often vary widely from year to year, progress in improving the feeding program can often be judged more effectively if the physical quantities of feed can be related to the production of physical quantities of livestock products. Without an accurate accounting of livestock numbers there will be no assurance that the quantity of product produced will be accurate enough to evaluate the decisions made in livestock feeding.

The simple measure of the amount of production per unit is often used to compare the enterprises on a farm to area or benchmark averages. Such measures as the amount of milk produced per cow, pork produced per sow, beef produced per beef cow, etc., are used in evaluating the relative productivity of a farm's enterprise agianst like kinds of farms. In these measures, misstating the numbers of head of livestock by only one or two head can alter the production per unit measurably. For example, if the unverified livestock numbers count for dairy showed 29 head with a production level of 406,000 pound milk produced, the analysis would show the average production at 14,000 pounds of milk per cow. If a verified livestock numbers count showed the actual average number of head to be 30, the production per cow would be only 13,533 pounds of milk per cow. Knowing milk production was at the latter level rather than 14,000 pounds may provoke a different set of management decisions.

In summary, accurate livestock records can be effectively used to:

1. Check accuracy of sales and purchases.
2. Determine livestock efficiencies.
3. Determine comparative levels of production per unit.
4. Determine labor efficiency.

Suggested Teaching Strategy

Begin the session by placing the material from the attention focuser in the proper order to illustrate that the acquisitions do not equal the disappearances. Ask the class to speculate on where an error could have been committed.

Beg. Inv.	*26*	*End. Inv.*	*30*
Heif. Fresh.	*12*	*Sold*	*8*
Purchased	*2*	*Died*	*1*
Acquisition	*40*		*39*

When the class has given several suggestions which you have written on the board, pull the seventh card from your pocket which reads.. "Cow Molly - Broken Leg - Butchered." Now complete the acquisition-disappearance chart to illustrate that all livestock have been accounted for and that you now have some confidence in the analysis that may be derived from the record.

Using transparencies of the livestock analysis, point out how livestock records are used in determing the three measures listed in the lesson content for key question 1. Do not get involved in a lengthy discussion of each table, but utilize only to illustrate the importance of accurate numbers.

KEY QUESTION 2. Will livestock numbers affect any of the measures of organization and efficiency?

Of course, the knowledge that the livestock numbers are <u>not</u> accurate will destroy any confidence that one may have in any part of the analysis. These are some of the management factors that are affected directly.

The index of return/$100 feed fed will be a questionable measure if the productivity of the livestock is in error. Since the measure is a reflection of the ability to convert feed to livestock products, an inaccurate accounting of the products will alter the measure. While numbers of livestock on hand are not used directly in this measure, the accurate productivity of the livestock derived from an accounting of all animals is critical.

Livestock units per hundred acres will be affected directly, since this measure is based upon an average monthly inventory of livestock. While this measure may not be as critical as some other in comparing unlike farms, it is important in like farm comparisons and in evaluating the intensity of the livestock operations relative to the land resource.

Size of business (work units) and labor efficiency (work units per worker) will both be correct only if livestock accounting has been carefully done. Studies have shown both these factors to have a high relationship to farm earnings.

Suggested Teaching Strategy

Utilizing a transparency of Table 8 in the latest business analysis will assist the class in recognizing the importance of numbers to record accuracy.

KEY QUESTION 3. What kind of livestock records must be kept to insure the possibility of cross checking record accuracy?

The kinds of records can be most easily kept in mind by answering the questions: (acquisition) "How can livestock be acquired?" and (disappearances) "How can livestock be disposed of?"

The following sample chart lists the possible transactions:

Acquisitions	No. Head
Beginning Inventory	_____
Purchases	_____
Births	_____
Transferred In	_____
Total Acquisitions	_____
Disappearances	
Sales	_____
Transferred Out	_____
Deaths	_____
Butchered for Home Use	_____
Ending Inventory	_____
Total Disappearances	_____

By keeping careful track of each kind of transaction and periodically checking the actual number on hand against the arithmetic balance, the record keeper will be assured that none of the records essential to a sound business analysis are missing.

Suggested Teaching Strategy

Explain briefly, using the form suggested in "subject content," what is included in acquisitions and what is included in disappearances. Also show why these two must be equal if all livestock have benn correctly entered. Supply each family with a copy of Form F.A. 12. Instruct them to use pencil, not ink, so numbers can be erased when necessary. Have each family transcribe the livestock numbers (marginal totals and monthly records) from the account book pages to Form F.A. 12 and make the appropriate additions in the left hand column. The

first livestock check of this kinds should be done no later than April 1. When subsequent checks are made, the left hand totals should be erased and new totals should be made to include all months up to the time of the livestock check.

Illustrate how an individaul animal or groups of animals can be traced if numbers do not check out correctly. Other dairy cattle may be used for this example. If there were eight two-year olds on the beginning inventory , did some freshen? Were some sold? Did some die? How many are still on hand? This should be done with each group of animals until the numbers check out. When the Form F.A. 12 is completed, it should be kept in the family's folder by the instructor for his use when making thorough account book checks. This form will later be submitted to the analysis center, along with the farm account book.

KEY QUESTION 4. What other livestock numbers or entries are important?

In addition to the items suggested in key question 3, other livestock numbers must be recorded also. The miscellaneous items are each described below.

1. Heifers freshened: This item should be recorded both on the Other Dairy Cattle page and on the Dairy Cow Enterpriae. The number of heifers fresh and the value assigned is the same on both pages.

2. Sows and gilts farrowed: Here the record keeper must be careful to get an accurate count. It is sometimes easy to overlook the sows or gilts that should have farrowed but for some reason failed to give birth to live pigs. If the information on litter size is to be useful, the record must include all sows and gilts that were supposed to farrow.

3. Ewes lambing: The account book provides a space for recording the number of ewes that dropped lambs. To get an accurate measure of the percent lamb crop, it is important to record the number of ewes that were supposed to lamb. Serious sheep men will be interested in both numbers. The number of ewes that were supposed to lamb compared to the number of lambs born will provide a % lamb crop useful in comparisons with industry averages. A count of the number of ewes lambing compared to the number of lambs born will provide a measure of the twinning rate, another important management measure.

4. No sheep sheared: Because of the importance of wool clip to profitability of the sheep enterprise, an accurate measure of the number sheared is important. Both live and dead sheep sheared should be counted. Lambs shorn should also be noted for feedlot operators and farm flock producers.

5. No. of beef cows that should have calved: Perhaps no single measure separates high profit from low profit beef herds as does the percent calf crop. The measure is not meaningful unless it is based upon the number of cows and heifers that were supposed to calve. Thus this measure should be made of the cows and heifers that were thought to be bred and were subsequently wintered in anticipation of the production of a calf.

Suggested Teaching Strategy

The instructors should utilize the latest analysis tables to illustrate how the measures in this unit are used in the analysis process. Transparencies of several account book pages will be useful in demonstrating where and how the miscellaneous livestock records are kept. If this unit is offered in May as suggested, the items on "Ewes kept for lambing" and "Beef cows that should have calved" should be completed at this time.

PART IV. Summary

A. Accurate livestock numbers records are essential to the accuracy of measures of efficiency and per unit production in each livestock enterprise.

B. At least three of the summary measures of farm organization and efficiency are affected directly by the accuracy of the livestock numbers.

C. When livestock numbers have been recorded accurately, the acquisitions will equal the disappearances.

PART V. At-The-Farm Activities

Review livestock entries in the account book. Assist the family in attaining a livestock numbers balance. Be alert to questions on home beautification, fruit and vegetable production and field crops.

PART VI. Resources

Chalkboard/Overhead Projector
Transparencies: Livestock Enterprise Tables, Table 8, Selected Livestock pages from the Account Book, Sample Chart & possible transactions and Class Quantities fo F.A. 12 Livestock Report.

PART VII. References

Farm Management Education - Annual Report Farm Business Analysis Summaries, Austin (or alternate) Area Vocational Technical Institute.

Persons, Edgar, Documentation For Farm Business Analysis, Division of Agricultural Education, University of Minnesota, Latest Edition.

PART VIII. Appendices

A. Livestock Records are Used to -

B. Livestock Transactions

C. The Livestock Report

D. Form for Checking Livestock Numbers

E. F.A. 12 - Livestock Reprot

LIVESTOCK RECORDS ARE USED TO--

Check Accuracy of Sales & Purchases

Determine Livestock Efficiencies

Determine Production Per Unit

Determine Labor Efficiencies

LIVESTOCK TRANSACTIONS

ACQUISITION:

- BEGINNING INVENTORIES
- PURCHASES
- BIRTHS
- TRANSFERS (IN)

DISAPPEARANCES:

- SALES
- DEATHS
- BUTCHERED FOR HOME USE
- ENDING INVENTORIES
- TRANSFERS (OUT)

ACQUISITIONS MUST EQUAL DISAPPEARANCES!!!!

THE LIVESTOCK REPORT

KEEPING THE MONTHLY DETAILED DAIRY COW INVENTORY

ITEM	MONTH	NUMBER
BEGINNING INVENTORY	JANUARY 1	45
DAIRY COWS BOUGHT	MARCH	1
	OCTOBER	1
DAIRY COWS SOLD	JANUARY	1
	MARCH	2
	MAY	1
	JULY	1
	SEPTEMBER	1
	OCTOBER	2
	DECEMBER	3
HEIFERS FRESHENED	JANUARY	1
	FEBRUARY	1
	MAY	1
	SEPTEMBER	5
	OCTOBER	2
	NOVEMBER	1
	DECEMBER	2
TRANSFERRED OUT TO BEEF AS NURSE COWS	MAY	3
BUTCHERED	OCTOBER	1
DIED	JUNE	1
ENDING INVENTORY	DECEMBER 31	44

A. FORM FOR CHECKING LIVESTOCK NUMBERS

1) LIVESTOCK REPORT, F.A. 12

ACQUISITIONS	NO. HEAD	DISAPPEARANCES	NO. HEAD
BEGINNING INVENTORY	_____	SOLD	_____
PURCHASED	_____	DIED	_____
BORN	_____	TRANSFERRED OUT	_____
TRANSFERRED IN	_____	BUTCHERED	_____
		ENDING INVENTORY	_____
TOTAL ACQUISITIONS	_____	TOTAL DISAP-PEARANCE	_____

TOTAL ACQUISITION MUST EQUAL TOTAL DISAPPEARANCE.

F.A. 12

LIVESTOCK REPORT

Name _____ County _____ Year _____

Dairy Milk Cows

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
First of Month												
Purchased												
Heifers Fresh												
Sold												
Died												
Transferred Out												
Butchered												
End of Month												

Other Dairy Cattle

First of Month												
Purchased												
Calves Born												
Sold												
Died												
Butchered												
Heifers Fresh												
Trans. to Feeders												
End of Month												

Miscellaneous Livestock

First of Month												
Purchased												
Trans. In/Born												
Sold/Trans. Out												
Died												
Butchered												
End of Month												

Farm Flock of Sheep

Lambs / Sheep

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
First of Mo./Sheep												
Lambs												
Purchased	/	/	/	/	/	/	/	/	/	/	/	/
Transferred In	/	/	/	/	/	/	/	/	/	/	/	/
Lambs Born												
Sold	/	/	/	/	/	/	/	/	/	/	/	/
Sheep Died												
Lambs Died												
Butchered	/	/	/	/	/	/	/	/	/	/	/	/
Transferred Out	/	/	/	/	/	/	/	/	/	/	/	/
End of Mo./Sheep												
Lambs												

Hogs

Hogs / Pigs

First of Mo./Hogs												
Pigs												
Purchased	/	/	/	/	/	/	/	/	/	/	/	/
Transferred In	/	/	/	/	/	/	/	/	/	/	/	/
Pigs Born												
Sold	/	/	/	/	/	/	/	/	/	/	/	/
Hogs Died												
Pigs Died												
Butchered	/	/	/	/	/	/	/	/	/	/	/	/
Transferred Out	/	/	/	/	/	/	/	/	/	/	/	/
End of Mo./Hogs												
Pigs												

Beef Cows and Bull

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
First of Month												
Purchased												
Transferred In												
Heifers Fresh												
Sold												
Transferred Out												
Died												
Butchered												
End of Month												

Other Beef Cattle

First of Month												
Purchased												
Transferred In												
Calves Born												
Sold												
Transferred Out												
Died												
Butchered												
End of Month												

Feeders - Beef or Sheep

First of Month												
Purchased												
Transferred In												
Sold												
Died												
Butchered												
Transferred Out												
End of Month												

Unit 1 - 9

THE MID-YEAR CROP & FEED CHECK

PART I. Student Objectives

A. Given sample data for crops and feed usage, families will be able to organize the material into the proper format for completing a mid-year crop and feed check.

B. Families will be able to devise a procedure for adjusting reported feed fed to maximize the accuracy of the feed fed data.

C. Given the reasons for and the procedures for making a mid-year feed check, families will be able to select an appropriate date and complete the mid-year feed check on their home farm.

PART II. Transition of Units

The previous unit illustrated the procedure for checking livestock entries to insure that there were no omitted transactions or duplicated entries. The uses of livestock numbers in the analysis was emphasized. Special attention was given to the keeping and utilization of miscellaneous livestock number information not included in the monthly record checks.

This unit introduces the procedure for determining the accuracy of the crop and feeding program. The mid-year crop and feed check provides the opportunity to make a mid-year correction in all of the crop and feed items reported to date.

The unit which follows will concentrate on improving the accuracy of crop yield records, including a procedure for determing harvesting losses. The primary emphasis will be on using yield record information as a tool to evaluate the practices planned for and implemented as a result of the crop planning unit.

PART III. The Lesson

Attention Focuser

Write the following on the chalkboard or overhead projector:

Actual corn yield	-	*12,500*	*Bushels*
Actual hay yield	-	*125*	*Tons*
Reported corn yield	-	*11,000*	*Bushels*
Reported hay yield	-	*140*	*Tons*

If the crop yields are used in the planning, management and analysis of the farm business, what effects will the inaccuracies in yield record have?

Give the families 5 minutes to jot down the problems that the inaccuracies may cause. Make a list on the board of the suggestions from the class. You might expect some of the following responses:

1. *The comparison of returns from the two crops will be misleading.*

2. *If all corn is fed, livestock will be charged with more corn than they consumed, thus making measures of efficiency inaccurate; the converse will be true of hay; livestock will be charged with less feed than they consumed, thus making them appear more efficient than they are.*

3. *Evaluations of cultural practices will not be meaningful if evaluations are based on yield results.*

4. *Feed supplies will be inaccurately projected.*

5. *If production is to be sold, projections of cash flow will be in error.*

If possible, leave the list of possible problems on the board or overhead until key question 1 has been discussed.

KEY QUESTION 1. What are some of the advantages of making a mid-year crop and feed check?

As illustrated in the attention focuser, innaccuracies in the feed and crop record will make it very difficult to interpret the business analysis. In fact much of the information that will appear in the business analysis will be misleading.

Accuracy will be improved if the crop and feed record is checked in mid-year, and adjustments made in the record at that time.

There are a number of reasons why mid-year is a good time to check the accuracy of this portion of the farm record.

1. For most farms, no new crop will have been harvested, thus avoiding the errors that may occur due to inaccurate estimations of yields.

2. Stored feed stocks are usually at the low point, with the winter feed supply expended and many crops stored over the winter disposed of through sale.

3. Almost all of the planting has been done, so purchased seeds or seeds from stored crops have already been used.

4. Forage crops, particularly silage has frequently all been fed so few problems exist in estimating the quantities on hand.

5. It could be assumed that the procedure for keeping feed records should improve with practice, so more error in estimation will occur early in the year when farmers are first keeping complete feed records. The opportunity to make adjustments in mid-year will help in improving the accuracy of the record in subsequent months.

Suggested Teaching Strategy

The key points in the discussion can be displayed on an overhead transparency. As each point is discussed, determine if the class is in agreement that the statement is true. You may expand upon one or more of the points raised in the attention focuser to motivate families to complete the mid-year crop and feed check.

KEY QUESTION 2. What is a mid-year crop and feed check?

In the previous unit a procedure was outlined for checking on livestock numbers. All animals that were acquired or were on hand at the beginning of the year had to be accounted for. The same procedure applies to the cropping program. All feeds or crops that were on hand at the beginning of the year or were acquired since that time by purchase or harvest must be accounted for. The only change is in the description of the transaction.

For the cropping program, (as with the livestock) each type of crop is handled as a separate enterprise. The formula for the crop and feed check is as follows:

Feed and Crops Purchased	_____
Crops Harvested	_____
Beginning Inventory	_____
Total Acquisition	_____ (A)
Sales	_____
Seeded	_____
Used in the House	_____
Wasted	_____
Ending Inventory (On hand at date mid-year crop & feed check is completed)	_____
Fed	_____
Total Disappearance	_____ (B)

If the crop and feed record is accurate, the acquistion (A) will equal the disappearances (B). In fact the purpose of the mid-year crop and feed check is to adjust the records so that the total acquisition does equal disappearances.

Suggested Teaching Strategy

You may begin by asking the class how many different ways they could acquire feed or crops. Compile a list on the board. Do the same with ways in which the feed supply can disappear. When the lists are fairly complete, utilize a transparency of the formula to show how the crop and feed check is organized.

KEY QUESTION 3. What procedure should you use for making a mid-year crop and feed check?

It should be emphasized that the crop and feed check only deals with physical quantities. It is not necessary at this time to assign a cost or price to any of the items, but it is a good opportunity to determine if prices for all sales and purchases have been recorded.

STEPS	KEY POINTS
1. Inventory all feeds & crop on hand as of date of mid-year crop & feed check, or some convenient near date, such as June 1.	1.1 Use same adjustments for moisture content, bushel wt. & quality as used for the beginning inventory. 1.2 Inventory must be accurate. 1.3 Record in the account book on page 34, Col. 1,2,3.
2. Record the periodic inventories on the crop and feed under "Ending Inventory."	2.1 Keep all crops and feeds in their respective categories. Label the columns in the crop and feed check for each crop.
3. Record the beginning inventories from the account book on the crop and feed check under beginning inventory.	3.1 Record all crops; even those not fed to insure an accurate crop record.
4. Sum the feeds and crops purchased in the account book.	4.1 Keep different crops separate. 4.2 Combine all forms of protein, salt, minerals & vitamins into one category.
5. Record the feed & crop purchases on the "Purchased" line of the crop & feed check.	5.1 When all crops have been recorded, the total of the Purchased line from the crop and feed check for all crops should equal the total feed bought from the account book.
6. If crops have been harvested, transfer the crops raised to the crop and feed check.	6.1 Make the appropriate adjustments for moisture content, bushel weight and quality.

STEPS	KEY POINTS
7. Record the sales of crops on the crop and feed check.	
8. Record the amount of seed used from the crop data page.	8.1 It is not necessary to record purchased seed if the seed was not included in step 5, purchases.
9. Record crops used in house and waste.	9.1 Waste may be recorded if there was waste that should not be charged to a livestock enterprise. For example, spoilage from a silage stack or pile that is not edible should be charged to waste. Do not use the waste category as a mechanism to balance the account.
10. Add up the amount of feed fed to each livestock enterprise and enter on the crop & feed check under feed fed-reported.	10.1 Time period for feed fed should coincide with the date of the crop and feed check. 10.2 Commercial feeds can be transferred directly from the feed purchased account if beginning and ending inventories are taken into account.
11. Sum the lines "Purchased," "Raised" and "Beginning Inventory." This quantity becomes the total supply. Sum the lines "Sales," "Seeded," "Ending Inventory," "Waste" and "used In House." Record this total in line B. Total. Subtract total B from the total supply. The resulting sum should be recorded in line "C", difference. Sum the feed reported fed. Record this total in line D, total feed used. The total reported fed should equal the amount available for feed recorded in line C, difference.	11.1 This step is purely mechanical. Make sure all addition and subtraction is done correctly.

STEPS

12. Adjust the amounts reported so that total D equals total C.

Suggested Teaching Strategy

Use a transparency of the crop and feed check to illustrate how the crop and feed check is organized. Refer back to Key Question 2 to demonstrate that the formula for completing a crop and feed check is complete when the form has been properly filled out. Use the transparency of a completed crop and feed check to illustrate how the supply must equal the disappearances. Using transparencies of the appropriate account book pages and the crop and feed check, follow through the steps and key points. Allow the families time to actually complete those steps for which they have the information available. If you have instructed them to bring a periodic inventory to class, you will be able to complete almost all of the crop and feed check at this class session.

KEY QUESTION 4. What do you do when the total feed reported (Line D) does not agree with the amount of crop available for feed?

First of all, don't panic! It would be unusual if the two quantities were exactly the same without some adjustments to the records. But since a crop and feed check must balance, there are some simple procedures for making adjustments.

The first question to ask is when are errors most likely to occur? The most obvious is in the arithmetic, but if you have checked the work carefully, and are sure the addition and subtraction is correct, you will have to consider the most likely places to make adjustments. The second question to ask is where are you confident that the record is correct? Since both purchases and sales are usually recorded from weight slips, the quantities are probably accurate, if all purchases and sales for the period have been reported.

The beginning and ending inventory may be adjusted, but only if the client is sure that they are inaccurate. Discourage adjusting the beginning inventory if the client was sure at the time the inventory was taken that the inventory was correct.

Most of the error will probably occur in the feed reported fed. If the client is confident that all the records are equally accurate, then the difference between the amount available for feed and the amount reported fed should be prorated among the livestock enterprises on the basis of the amount of feed reported fed. For example if the record shows 500 more bushels of corn fed than available, and the record shows 8000 bushels fed to beef feeders and 2000 bushels fed to hogs, the record would be adjusted by reducing the amount reported by 400 bushels for beef feeders and 100 bushels for hogs.

Sometimes certain livestock records are more accurate than others. If the farmer is sure that the feed to hogs in the previous example was accurate because it was measured or weighed, but the corn to beef feeders was only estimated, all of the adjustment would be made in the record of feed fed to beef.

When you are satisfied that the adjustments are accurate, make the appropriate entries in the feed fed record of the account book.

Suggested Teaching Strategy

Gather the feed record information from one of the students where feed fed does not equal the amount available for feed. Using his farm as an illustration, point out the adjustments that can be made to balance the account. You may use the following check list to emphasize the points in the key question and to stimulate discussion.

1. *Is the arithmetic on the crop & feed check correct?*
2. *Are all sales and purchases recorded?*
3. *Are the inventories accurate? If not how should they be adjusted?*
4. *Which of the livestock feed records is most likely to be in error?*
5. *What procedure can you use to adjust the amount of feed fed?*

Allow some time for the class to continue to work on the crop and feed check, providing supervision and assistance where necessary.

PART IV. Summary

A. An accurate mid-year crop and feed check will help insure that the record of all crops is correct and that the feed is being charged to the right livestock enterprise.

B. Even crops that are not fed should be reported on the mid-year check to monitor the accuracy of purchases and sales.

C. When done systematically, the crop and feed check will improve the accuracy of the farm record and improve the reliability and validity of the year and business anlysis.

D. The record of feed available must equal the amount fed. Adjustments will most likely have to be made in order for the two to balance. There should be some logic behind every adjustment.

PART V. At-The-Farm Activity

Assist each farm family in completing the mid-year crop and feed check and making the necessary correcting entries in the account book. Review the procedure they use for keeping track of feed fed. If their system is resulting in large errors, work to improve the system. Review the progress they have made on following the cropping plan. Be alert to changes that should be made in the plan for the coming year. Be especially cognizant of the timeliness of the farm operations. Did the family meet its plan for last planting dates?

PART VI. Resources

Chalkboard/Overhead Projector
Transparencies: Attention Focuser, Reasons for mid-year check, Feed check formula, Crop & feed check, and Account book pages: Crop Data, Feed Record, Feed Bought, Crop Sales

PART VII. References

Minnesota Farm Account Book, 4th Edition, Burgess Publish Co., Mpls.

Farm Business Analysis Summary, Local Area, Latest Edition

PART VIII. Appendices

A. Attention Focuser

B. Reasons for Mid-Year Check

C. Crop & Feed Check Formula

D. Crop & Feed Check

E. Crop & Feed Check Example

ATTENTION FOCUSER

1. THE COMPARISON OF RETURNS FROM THE TWO CROPS WILL BE MISLEADING.

2. IF ALL CORN IS FED, LIVESTOCK WILL BE CHARGED WITH MORE CORN THAN THEY CONSUMED, THUS MAKING MEASURES OF EFFICIENCY INACCURATE; THE CONVERSE WILL BE TRUE OF HAY; LIVESTOCK WILL BE CHARGED WITH LESS FEED THAN THEY CONSUMED, THUS MAKING THEM APPEAR MORE EFFICIENT THAN THEY ARE.

3. EVALUATIONS OF CULTURAL PRACTICES WILL NOT BE MEANINGFUL IF EVALUATIONS ARE BASED ON YIELD RESULTS.

4. FEED SUPPLIES WILL BE INACCURATELY PROJECTED.

5. IF PRODUCTION IS TO BE SOLD, PROJECTIONS OF CASH FLOW WILL BE IN ERROR.

REASONS FOR MID-YEAR CHECK

1. FOR MOST FARMS, NO NEW CROP WILL HAVE BEEN HARVESTED, THUS AVOIDING THE ERRORS THAT MAY OCCUR DUE TO INACCURATE ESTIMATIONS OF YIELDS.

2. STORED FEED STOCKS ARE USUALLY AT THE LOW POINT, WITH THE WINTER FEED SUPPLY EXPENDED AND MANY CROPS STORED OVER THE WINTER DISPOSED OF THROUGH SALE.

3. ALMOST ALL OF THE PLANTING HAS BEEN DONE, SO STORED STOCK OR SEEDS OR SEEDS FROM STORED CROPS HAVE ALREADY BEEN USED.

4. FORAGE CROPS, PARTICULARLY SILAGE HAS FREQUENTLY ALL BEEN FED SO FEW PROBLEMS EXIST IN ESTIMATING THE QUANTITIES ON HAND.

5. IT COULD BE ASSUMED THAT THE PROCEDURE FOR KEEPING FEED RECORDS SHOULD IMPROVE WITH PRACTICE, SO MORE ERROR IN ESTIMATION WILL OCCUR EARLY IN THE YEAR WHEN FARMERS ARE FIRST KEEPING COMPLETE FEED RECORDS. THE OPPORTUNITY TO MAKE ADJUSTMENTS IN MID-YEAR WILL HELP IN IMPROVING THE ACCURACY OF THE RECORD IN SUBSEQUENT MONTHS.

CROP AND FEED CHECK FORMULA

Feed and Crops Purchased	_____
Crops Harvested	_____
Beginning Inventory	_____
Total Acquisition	_____ (A)
Sales	_____
Seeded	_____
Used in the House	_____
Wasted	_____
Ending Inventory (On hand at date mid-year crop & feed check is completed)	_____
Fed	_____
Total Disappearance	_____ (B)

CROP AND FEED CHECK

Name: _____ County: _____

Crop or Feed		Corn											
Unit of Measure		Tons, Bu., Lbs.		Value		Tons, Bu., Lbs.		Value		Tons, Bu., Lbs.		Value	
WHERE FEED CAME FROM	Purchases, Pgs. 32-36												
	TOTAL PURCHASES												
	Beg. Inventory, Pgs. 30-31												
	Crops Raised, pg. 29												
	A. TOTAL SUPPLY												
SALES SEEDED WASTE ENDING INVENTORY	Sales pg. 37												
	TOTAL SALES												
	Seeded, pg. 29												
	Ending Inventory, pgs. 30-31												
	B. TOTAL												
C. Difference (A-B = C)													

FED		Reported	Adjusted	Value		Reported	Adjusted	Value		Reported	Adjusted	Value	
FEED USED BY LIVE-STOCK (Totals from pages 26-27)	Dairy Cows												
	Other Dairy Cattle												
	Beef Breeding Herd												
	Feeder Cattle												
	Hogs												
	Sheep Farm Flock												
	Chickens												
D. Total Feed Used (D must equal C)													

CROP AND FEED CHECK

Name: _____ County: _____

Crop or Feed		Corn		Oats		Concentrate	
Unit of Measure		Tons, Bu., Lbs.	Value	Tons, Bu., Lbs.	Value	Tons, Bu., Lbs.	Value
WHERE FEED CAME FROM	Purchases, Pgs. 32-36					Cows 42620	
		338				O.D. Cattle 11522	
		232					
		339					
		1120				Hogs 27220	
		168		494			
						Sheep 200	
	TOTAL PURCHASES	2197		494		81562	
	Beg. Inventory, Pgs. 30-31	2910		400			
	Crops Raised, pg. 29	3100		928			
	A. TOTAL SUPPLY	8207		1822			
SALES SEEDED WASTE ENDING INVENTORY	Sales pg. 37						
	TOTAL SALES						
	Seeded, pg. 29			40			
	Ending Inventory, pgs. 30-31	2642		968		Cows 1000 Hogs 2700	
	B. TOTAL	2642		1008		3700	
C. Difference (A-B = C)		5565		814		77862	

FED		Reported	Adjusted	Value	Reported	Adjusted	Value	Reported	Adjusted	Value
FEED USED BY LIVE-STOCK (Totals from pages 26-27)	Dairy Cows	2049	2200		142	134		41620		
	Other Dairy Cattle	724	787		390	370		11522		
	Beef Breeding Herd									
	Feeder Cattle	73	79							
	Hogs	2184	2376		318	300		24520		
	Sheep Farm Flock	113	123		12	10		200		
	Chickens									
D. Total Feed Used (D must equal C)		5143	5565		862	814		77862		

Unit 1 - 10

CROP YIELD RECORDS

PART I. Student Objectives

A. Students will be able to identify at least three major measures of farm organization and efficiency that will be affected by crop yield records.

B. Students will be able to develop a plan for accurately measuring yields of all their crops.

C. Students will be able to accurately record yield records in the account book in such a way that they can be collected for a business analysis.

PART II. Transition of Units

The previous unit assisted students in making a crop and feed check for the first half of the year. Procedures were developed for adjusting the feed records so that all available feed was accounted for. The importance of accuracy in the crop and feed records was stressed with special attention given to the procedure for checking the accuracy of all crop related records.

This unit will help families develop the skills necessary to accurately measure and record crop yield. Of primary importance is developing an understanding of the way in which the accuracy of the crop yields records will affect not only the crop analysis but also the analysis and evaluation of the livestock enterprise.

The unit which follows will assist families in bringing the schedule of depreciable assets up to date. Special attention will be focused on the alternative procedures for claiming depreciation and the tax and income implications associated with each alternative.

PART III. The Lesson

Attention Focuser

This attention focuser will require some preparation. Select three ears of corn that are as near alike as you can find. Shell one of the ears of corn by hand (discard the cob); place the shelled corn in a dish or container for use in class. Shell about half of the second ear. Take the remainder of the cob and smash the cob and corn with a hammer. Mix with the shelled corn from the first half of the ear. Leave the third ear whole, but soak it in water for a few hours to raise the moisture content.

You should now have three separate containers of corn: (1) a container of clean, dry shelled corn, (2) a container of dry corn with mixtures of broken kernels and cob, and (3) an ear of damp corn.

When the class has assembled, ask three farmers or wives to help you with some yield estimates. Provide a postage scale or some other device for weighing the corn if they desire. Tell the three volunteers that their sample represents 1/100,000 of the yield from a farm. Each farmer is to determine the yield produced.

When they have finished, write their yield estimates on the board. Ask each to describe how he/she determined the yield.

*Yield Record 197_*

Field A *Field B* *Field C*

Leave the yield estimates on the board while you continue with the lesson.

KEY QUESTION 1. Now that estimates of yields have been made, how will these estimates be used?

The uses of crop yield records can be expressed in three broad categories, each addressed to a different aspect of the farm planning and analysis process.

A. To determine production per acre.

The best single measure of the productivity of a single crop in comparison with other farms or past performance is the yield produced. Not only is this measure uniform from farm to farm, but it is a universally accepted measure of performance. While the law of diminishing marginal return may affect the net returns per acre, the relationship between yields and net earnings is high. Since most crop goals are expressed in terms of yields, it is an easy way to measure progress toward goals.

B. To evaluate cropping efficiencies.

Since crop income is most easily expressed as a per bushel price of value, it is important to be able to express costs the same way. The efficiency of the cropping program can be on the basis of the variable and fixed costs associated with the production of each unit of production.

C. To determine available feed supply and/or project cash flow.

One of the functions of management is to make forward projections. Certainly determining the amount of feed available for the coming feeding year is an important part of the projection, as illustrated in the last unit. For farms with little or no livestock, the production of crops will be necessary to accurately project cash flow. To project cash flow on the basis of an exaggerated yield estimate could spell trouble when there is no crop left in the bin to meet cash flow needs.

Probably the most common reason for making accurate estimates of yields is to determine production per acre. Per acre production is the most universal method of comparing one farm with another. Since goals for crop production are often expressed in per acre yields, it becomes a means of determining if production goals have been met.

It is also true that of the measures of farm organization and efficiency calculated in the farm business analysis, the yield of crop per acre has a higher relationship to earnings among farms than any other single measure. Thus being able to accurately describe crop yields will assist in determining if there are management or cultural practices that should be examined to raise the level of farm income.

If crop yields are related to earnings, then we would expect farmer __ (highest yield reported from the attention focuser) to have the highest earnings from his farm business, other things being equal. The excerpt from Table 8 of the farm business analysis shows that high earning farms are also farms that have the highest index of crop yields.

TABLE 1. EXCERPTS FROM THE FARM BUSINESS ANALYSIS--TABLE 8--CROP RELATED FACTORS OF MANAGEMENT ORGANIZATION & EFFICIENCY--AUSTIN, 1976

	Low Profit	Average Profit	High Profit
Index of crop yields	99	100	109
Index of crop selection	65.4	66.9	74.2
Gross return/cropped acre	169.97	175.54	193.94

As one would expect, this relationship between yields and earnings is even greater on farms of similar size if there are no livestock to spread the risk or to utilize the part of the crop normally not harvested.

Of course, yields are only part of the picture. Costs must also be considered. Most farmers are familiar with the principle of fixed and variable costs. Using crop production as an illustration, it is possible to show that fixed and variable costs are spread across the total yield of the crop. When accurate yield data is available, those costs can be carefully analyzed. By examining a crop analysis table from the business analysis, it is apparent that yields are tied to the costs of production. When examining costs on a per acre basis, it would be common to have higher costs associated with higher yields because of the differences in inputs. However, on a per bushel or ton basis, per unit costs are often lower on high yielding farms because of the spreading of the fixed costs of crop production over more production units. Since profit per unit of production is important to almost allfarms, accurate yield data will help the farmer understand exactly how efficient his crop production is.

When a large portion of the crop is marketed through livestock and livestock products, accurate yield data has another important function---estimating the feed supply. When feed supplies are known in advance of need, short supplies can be supplemented by purchases when the buying market is most favorable.

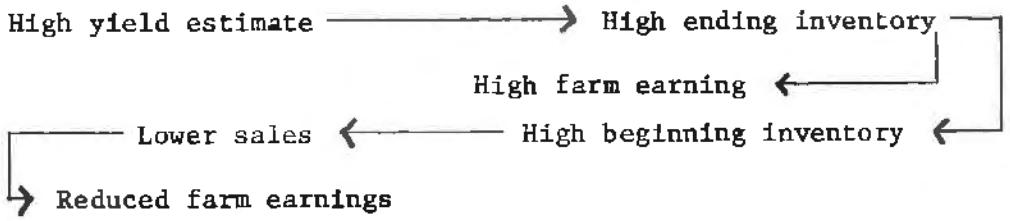
Suggested Teaching Strategy

Using data in the key question and from Table 10 in the business analysis, elaborate on the three points which relate to the use of crop yield records. Elicit from the class as many uses as you can for accurate yield records. The three points suggested in this unit will probably serve as summary points for the suggestions made by the class. Utilize the different estimates made in the attention focuser to illustrate each of the three points.

KEY QUESTION 2. How does the accuracy of crop yield records affect the analysis of the business?

Several of the effects of erroneous crop yield data have been suggested in Key Question 1; inaccurate yields per acre, poor cost allocations and erroneous feed supply projections. But errors in yield estimates have even greater potential for causing analysis errors. As shown in the previous unit, yield estimates are used to establish feed available. If estimates are too high, feed records will have to be adjusted upward, thus causing an apparent lower level of feed efficiency for livestock. Conversely, low yield estimates will cause feed fed estimates to be adjusted downward. The lowered estimate will show livestock to be more efficient in feed utilization than they actually are.

A second result of the error may occur in the inventory. High yields may inflate ending inventories, thus making the income from the farm erroneously high. In the year which follows, the erroneous beginning inventory will depress income.



Suggested Traching Strategy

Uisng a copy of the mid-year crop and feed check, show how the erroneous yield estimates carry through to the feed fed categories. Using Table 1 of the business analysis, illustrate how an erroneous yield can inflate or deflate inventory and how this effect carries through to the earning statements.

KEY QUESTION 3. How are crop production records determined & recorded?

Each crop harvested presents its own unique problem in deteriming actual yields. Some can be determined accurately at the time of harvest--others may need an interim storage period before yields can be accurately determined. The procedures can best be explained by examining the various kinds of crops separately. It should be remembered that determining total production is more important to total record accuracy than yields per acre. Per acre yields will be determined in the analysis process.

Hay Production: Hay presents unique problems in determing yields because of the variety of harvesting methods. Each harvest method needs to be considered separately.

1. Baled Hay - regular square or rectangular bales, small round bales.

   A bale count is the first important step. Since most balers are equipped with counters, a very accurate count can be obtained. Records of bale counts should be kept separately for each crop and kind of hay, since dry bale weights will vary depending upon the kind and maturity after they have had two months or more to dry down to an air dry basis.

2. Baled Hay - large round bales.

   The same rules apply as for small square bales. Since there are fewer bales, an exact count is fairly easy to obtain. The problem lies in weighing the bale. The whole bale or a portion of the bale should be weighed. Each farm will have to devise its own method of weighing the bale after it has sufficient time to dry down to air dry storage moisture.

3. Loose hay in mow or stack.

   Yields under these conditions will have to be made on a volume basis. The tables in the rear page of the account book will be useful. Again, it is important to delay measuring the stacks or mow until the hay has time to settle and dry down to storage moisture levels.

4. Compressed chopped stacks.

   The only accurate way to determine yield is by weighing an air dry stack. Where this is not practical, a measured portion of the stack should be weighed to determine

the weight per cubic yard or cubic foot. The normal procedures for determining volume can then be used, with the measured weight per unit of volume used to determine yield.

Silage Production: Silage in stacks or piles can be determined by calculating volume and multiplying by the weight per cubic foot as found in silage charts. Volume must be measured only after the stack or pile has been allowed to settle.

When stored in an upright silo, the easiest and most accurate method is to refer to the standard silage tables in the account book or other reference. Silage must be allowed to settle before the measurement is made. When the silage table method is used, feed fed should be recorded using the same process.

Silo: 16' x 38' settled silage
Table quantity: 176 tons

Amount remaining on date xx: 18' of settled silage

Top 20 feet of silage is reported in the table to weigh 70 tons: The feed records should then show 70 tons fed, even though the amount fed by scale weight may be more or less depending upon the moisture content.

Ear Corn: Three problems exist when measuring ear corn production: moisture content, shelling percentage, and bushel weight. With a little extra caution, yield estimates can be adjusted to compenstate for each. Volume measures should be taken after corn has had an opportunity to settle. Farmers should be encouraged to take a moisture sample of the corn when the estimate is taken as well as a measure of shelling percentage and bushel weight.

Grains: Grains other than ear corn can usually be accurately measured at the time of harvest since harvest moisture is usually at safe storage levels. If it is not, some adjustments for moisture will need to be made. Probably of greater importance are adjustments for bushel weight.

Suggested Teaching Strategy

When each of the kinds of crop yield records have been discussed, refer back to the estimates made during the attention focuser. Since only one of the estimates was based on a clean, dry sample of corn, the estimate should be considered most accurate. The sample containing excess cob can be used to illustrate how bushel weight and trash can affect crop yields.

The wet ear can be used to illustrate the effect of moisture content and shelling percentage.

Utilize examples to illustrate the procedures to be followed for each kind of crop. Have illustrations worked out ahead of time.

KEY QUESTION 4. How do you handle crops harvested by more than one method?

When a crop is subject to multiple utilization, problems arise in recording yield. When the same field is used for silage and grain production, the problem is simple--acres can easily be determined and assigned to the appropriate crop.

Forage is not so easy, since the entire field is often used for multiple purposes. A hay crop on field A may be cut for silage (first crop), harvested for hay (second crop) and grazed to utilize the third crop.

If a similar field (field B) was cut for hay each time (all three cuttings), it is fairly simple to determine the proportion of the total crop assigned to each cutting. On the basis of this information, it is possible to determine the acres that should be assigned to each alternative use on field A. The following example may illustrate the procedure.

Field A - Total 40 Acres
First crop used for silage
Second crop for hay - 40 bales/acre
Third crop grazed

Field B - Total 20 acres		% Hay each crop
First crop yield	- 50 bales/acre	50%
Second crop yield	- 30 bales/acre	30%
Third crop yield	- 20 bales/acre	20%
	100 bales/acre	

Field A would then be assigned as follows to each of the crops:

Hay silage - 40 x 50% = 20 acres
Dry hay - 40 x 30% = 12 acres
Pasture - 40 x 20% = 8 acres

Where a comparison field does not exist, a close estimate will have to be made of the proportion of acres assigned to each crop.

Suggested Teaching Strategy

Have each family refer to the crop data page in the Minnesota Farm Account Book. Acres should have been entered previously. Make sure families have left sufficient lines for recorded multiple crops of hay and provisions for dividing a crop in the event it is used for multiple uses.

Illustrate also that the acres must be adjusted when a field is double cropped such as soybeans following peas or silage corn following alfalfa hay.

KEY QUESTION 5. How can you determine if the yields produced are actually harvested?

Harvest losses can greatly reduce profits. Some losses are unavoidable due to weather or other factors, but much of the loss under normal conditions can be attributed to poor harvesting techniques. While the procedures are too complex to enumerate in this unit, it is important to recognize that cultural practices will be hard to evaluate if harvest losses are not taken into account when evaluating yields. The procedures for determining harvest losses should be studied by each harvest machine operator and checked whenever field conditions and crop harvested change. Records of harvest losses should be recorded in the remark section of the crop data page.

PART IV. Summary

A. Accurate crop yields will affect several measures of farm organization and efficiency.

B. Errors in crop yields will be reflected in the efficiencies calculated for livestock enterprises.

C. When inaccurate crop yields affect inventories, there will be errors in the reported income of the farm business.

D. Each crop has some unique problems associated with determining accurate yields. Care must be exercised to adjust yields for moisture, bushel weight and settled volumes.

E. Double croppings or multi-use crops pose special yield problems. Adjustments must be made in the acres reported when multi-use is recorded.

F. Harvest losses affect actual yields and thus distort the evaluations that can be made of cultural and management practices.

PART V. At-The-Farm Activity

Assist families in accurately recording total yields of all crops harvested or maturing. Instruct how adjustments are made for moisture, test weight, quality. Exsmine adequacy of storage facilities and the storage procedures. Demonstrate how to determine harvesting field losses.

PART VI. Resources

Chalkboard/Overhead Projector
Transparencies: Table 1 (Key Question 1), Table 10; Latest Business Analysis, Crop & Feed Check Form, Crop Data Page (Account Book) and Silage Tables
Prepared Samples for Attention Focuser

PART VII. References

Minnesota Farm Account Book, Burgess Publishing Co., Minneapolis

PART VIII. Appendices

A. Table 1

B. Crop and Feed Check

TABLE 1

EXCERPTS FROM THE FARM BUSINESS ANALYSIS--TABLE 8--CROP RELATED FACTORS OF MANAGEMENT ORGANIZATION AND EFFICIENCY-AUSTIN, 1976.

	LOW PROFIT	AVERAGE PROFIT	HIGH PROFIT
INDEX OF CROP YIELDS	99	100	109
INDEX OF CROP SELECTION	65.4	66.9	74.2
GROSS RETURN/CROPPED ACRE	169.97	175.54	193.94

CROP AND FEED CHECK

Name: _____ County: _____

Crop or Feed		Corn											
Unit of Measure		Tons, Bu., Lbs.		Value		Tons, Bu., Lbs.		Value		Tons, Bu., Lbs.		Value	
WHERE FEED CAME FROM	Purchases, Pgs. 32-36												
	TOTAL PURCHASES												
	Beg. Inventory, Pgs. 30-31												
	Crops Raised, pg. 29												
	A. TOTAL SUPPLY												
SALES SEEDED WASTE ENDING INVENTORY	Sales pg. 37												
	TOTAL SALES												
	Seeded, pg. 29												
	Ending Inventory, pgs. 30-31												
	B. TOTAL												
C. Difference (A-B = C)													
FED		Reported	Adjusted	Value		Reported	Adjusted	Value		Reported	Adjusted	Value	
FEED USED BY LIVE-STOCK (Totals from pages 26-27)	Dairy Cows												
	Other Dairy Cattle												
	Beef Breeding Herd												
	Feeder Cattle												
	Hogs												
	Sheep Farm Flock												
	Chickens												
D. Total Feed Used (D must equal C)													

Unit 1 - 11

THE DEPRECIATION SCHEDULE

PART I. Student Objectives

A. Given a standard item of depreciable farm machinery in an example of straight line depreciation and reinforced by the instructors explanation the student will be able to identify and define at least seven terms common to depreciation calculation.

B. Utilizing a record or listing of farm and home capital asaets the student will be able to place each item within the appropriate capital asset category.

C. Given sample computations of straight line, declining balance, and sum of the year digits depreciation methods, the student will be able to determine the effects of each method in calculating farm earnings.

D. Following a discussion on depreciation and illustrated examples of the various depreciation methods, the student will be able to complete or up-date a farm and home depreciation schedule.

PART II. Transition of Units

The previous unit dealt with accurately measuring and recording crop yields. Special emphasis was placed on the affect of accurate yield records on the analysis of crop and livestock enterprise.

This unit will help families develop the skills necessary to establish and maintain the depreciation schedule. The varioua aspects of depreciation will be related to tax and income calculation alternatives.

The following unit will cover the management of income to minimize taxes. Procedures for making income tax estimates will be stressed.

PART III. The Lesson

Attention Focuser

Have each student write a definition of depreciation as he/she understands it. Collect the brief definitions, shuffle the papers to avoid identification, and read five of the definitions to the class. Ask for comments or criticism by the class on each one as you read it. After six to eight minutes of discussion put the complete definition as found in Key Question 1 on the chalkboard or overhead projection.

KEY QUESTION 1. What are some of the important terms and procedures you should know in calculating depreciation?

DEPRECIATION

A. Defined

Depreciation is a reasonable allowance for the exhaustion, wear and tear, and obsolescence of depreciable property having a useful life of more than one year and is used in a trade or business or held for production of income.

B. Basis for Depreciation

Same as adjusted basis for determining gain on the sale of the assets.

1. Purchased asset - basis is cost, unreduced by liens on the assets or unpaid purchase price.

2. Gift property - basis is same as in hands of donor.

3. Inherited asset - Tax Law of 1976 change the basis for real estate. The process of determining value is complicated, but is designed to limit the basis of appreciable property such as land to the value calculated for Jan. 1, 1977.

4. Asset converted to business use basis is lesser of fair market value on date of conversation or adjusted basis of property at that time.

5. Asset acquired along with other properties for a lump sum, basis is that part of the lump sum that its value at date of acquisition bears to total value of all properties obtained at that time.

   Example: Taxpayer pays $9,000 for two assets valued at $4,000 & $6,000 at time of purchase. Basis for depreciation is computed as follows:

   $4,000/$10,000 x $9,000 = $3,600

   $6,000/$10,000 x $9,000 = $5,400

C. Useful Life

1. Determined from taxpayer's particular operating conditions and experience and may be influenced by:

   a. Frequency of use.
   b. Age at acquisition.
   c. Policy of repairs and replacement.

d. Economic changes.
e. Advances in technology, and other developments within an industry and a trade or business.

2. Useful life may also be selected from the Aaset Depreciation Range if ADR is used.

3. Useful life may be modified because of conditions known to exist at the end of any tax year. The change may be made when necessary regardless of the method of computed depreciation.

D. Salvage Value

1. The amount expected to be realized in cash or trade-in allowance when the property is disposed of or is no longer useful.

2. Salvage value is subtracted from the depreciation basis before applying the depreciation rate:

a. Under straight line method.
b. Under sum of the years digits method.
c. BUT NOT under the declining balance method or for the Additional First Year Depreciation.

3. Regardless of method chosen, an asset can never be depreciated below its salvage value.

4. The salvage value of personal property (except livestock) with at least a three (3) year life may be reduced by up to 10% of its cost or other basis (Sec. 167(f) IRC).

E. Additional First Year Depreciation

1. Section 179 IRC allows a taxpayer (except a trust) to elect to deduct an additional first-year depreciation allowance on new or used tangible personal property having a remaining useful life of six (6) years or more.

2. Amount of deduction.

a. 20% of up to $10,000 ($20,000 on joint return) of the cost of a selected item or items.
b. The maximum deduction is $2,000 a year ($4,000 on joint returns).
1. NOTE: This limitation is per taxpayer per year, not per item!

3. The basis for depreciation is reduced by any additional first-year depreciation claimed before applying the depreciation rates to calculate the regular depreciation allowance.

Examples: Additional first-year depreciation claimed on a $13,000 asset (no joint return) would be $2,000 (20% of $10,000 max.) and the basis for regular depreciation would be $11,000 ($13,000 less the $2,000 first-year depreciation).

4. The additional allowance is not allowed on purchase transactions between related taxpayers, related partners and partnerships, and certain members of the same affiliated group of corporations.

F. Methods of Computing Depreciation

1. Any reasonable method that is consistently applied may be used in computing depreciation. The methods most often used are:

   a. Straight Line
      1. Simplest method
      2. Assumes a deduction in equal amounts over the period of its estimated life.
      3. May be used for any depreciable property.
      4. Compute deduction by dividing the cost less salvage by the useful life.
   b. Declining Balance Method
      1. In using the declining balance method the rate is always determined by referring to "times the straight line rate," e.g. 150% declining balance is 1½ times the normal straight line rate.
      2. The depreciation taken each year is subtracted from the cost or other basis of the property before computing the next year's depreciation.
      3. The same rate applies to a smaller, or declining balance each year.
      4. The property must be tangible, have been acquired and put in use by the taxpayer after 12-31-53, and must have a useful life of at least three (3) years.
   c. Sum of the Years Digits
      1. May be used only on property that meets the requirements for "twice the straight line rate" under the declining balance method.
      2. Apply a different fraction each year to the cost or other basis of property reduced by estimated salvage. The denominator of the fraction, which remains constant, is the total (sum) of the digits representing the useful life. The numerator of the fraction changes each year to represent the remaining useful life of the property at the beginning of that year.

INVESTMENT CREDIT

A. Direct credit against tax liability based on the cost of "Sec. 38" Property acquired during the year.

1. Basis of computation - A portion of all of the cost or basis will be a qualified investment based on the expected useful lives:

a.	7 or more years	100% of investment qualifies
b.	5 & 6 years	66 2/3% of investment qualifies
c.	3 & 4 years	33 1/3% of investment qualifies
d.	Less than 3 years	property does not qualify

2. Credit computation

   a. 10% of the qualified investment (11% for corporations available as explained below).
      1. 10% rate applies until 1980.
   b. Limitation of credit
      1. May not exceed $25,000 of tax liability plus 50% of tax liability in excess of $25,000 (Married filing separate base this limit on $12,500 rather than $25,000).
      2. Total credit may not in any case exceed tax liability.

3. Effect on depreciation

   a. May still use the class life ADR system of depreciation.
   b. May still deduct the additional first-year depreciation.
   c. Does not reduce the basis in the property.

B. Qualifying Property

1. Investment credit property (Section 38 property) must:

   a. Be depreciable (new or used).
   b. Have a useful life of at least 3 years.
   c. Be placed in service by the taxpayer during the tax year for use in the taxpayer's trade or business or for the production of income. It can be the year:
      1. Depreciation begins, or
      2. In which the property is placed in a condition or state of readiness for service.
   d. Be tangible, personal property or other tangible property (except buildings or their structural components) if it is used as an integral part of:
      1. Manufacturing
      2. Production
      3. Extraction, or
      4. Furnishing transportation, communication, electrical energy, gas, water, or sewage disposal services.

e. Be used in the U.S. or its possesstions (with some exceptions).

2. Leased equipment can qualify for investment credit if:

a. The owner elects to pass the credit on to the lessee, and
b. The property is new to both the owner and to the lessee.

C. Non-Qualifying Property

1. Used property acquired from a related person, which includes:

a. Members of the immediate family.
b. An individual and a corporation of which more than 50% of value of the outstanding stock is owned by that individual.
c. Certain corporations of which more than 50% of the value of outstanding stock of each is owned by the same individual.
d. A trust fiduciary and a corporation of which more than 50% in value of the outstanding stock is owned by the trust or by the grantor of the trust.
e. The grantor and fiduciary, and fiduciary and beneficiary, of any trust.

D. Examples of Qualifying & Non-Qualifying Property

1. Qualifying -

Drain tile
Grain storage bins
Paved barnyards
Silos
Storage facilities
Water wells
Vending machines
Fences used to confine livestock
Display racks & shelves
Office equipment
Orchards & groves
Production machinery
Transportation equipment
Wall-to-wall carpeting

2. Non-Qaulifying -

Barns
Apartment houses
Trailer park launderettes
Paved parking areas
Stores
Warehouses

E. Tax Reduction Act of 1975

1. Major changes

a. Temporary rate increase to 10% for property acquired after 1-21-75 and before 1-1-77 and placed in service before 1-1-77.

b. Corporations may obtain 11% investment credit if the additional 1% is used to finance an employee stock ownership plan.
c. Temporary increase in used Sec. 38 property to $100,000.
d. Advance credits for "progress payments."

F. Carrybacks & Carryovers

1. An unused credit can generally be carried back 3 years and carried forward 7 years.

2. Unused credit from 1970 & prior years has a 10 year carryover period.

3. Unused credit from prior years can be used prior to credit for the current year.

4. Credit for current year is applied next.

5. Post 1970 carryovers are applied next in order (subject of course to the limitaiton based on tax liability for the current year).

6. The Tax Reform Act of 1971 limited the amount that could be claimed in 1971 as a carryover or carryback credit to 50% for a calendar year taxpayer (other than calendar year taxpayers = 20% plus 6% per month in tax years after August 15, 1971).

7. Carrybacks & carryovers to 1969 & 1970 were limited to 20%.

8. Net Operating Loss Effect - For tax years ending after 7-31-67 an unused credit created by a NOL is first carried back 3 years and then carried forward 7 years (previously a credit released by a NOL could be carried forward only).

G. Recapture

1. Generally, if property on which investment credit has been previously claimed is disposed of prior to the end of the estimated useful life previously considered, some or all of the investment credit must be recaptured in the year of disposal.

a. Disposals not triggering recapture:
1. Transfer because of death.
2. Change in form of organization.
3. Revocation of Sub-chapter S election for corporations.

Suggested Teaching Strategy

The material above is a lengthy treatment of the subject. To accomplish student objective A utilize Appendices A & B as student handouts. Appendix

A illustrates a "trade in" situation to arrive at the "cost" of the new equipment. The $4,000 cost then becomes the basis for the calculations shown on Appendix B under the three standard depreciation methods. While the Declining Balance and Sum of the Year Digits methods have their place in the management of income for tax purposes, these methods will be covered in Key Question 3.

KEY QUESTION 2. What are the categories in which assets should be organized?

Four Year Depreciation Schedule (hand calculated)

1. Truck & Auto
2.* Mechanical Power and General Machinery
3. Livestock Equipment
4. Bare Land
5. Operators House
6. Building, Fencing, Tiling

*Irrigation equipment & equipment used exclusively in the custom work enterprise should be kept separate from general machinery & mech. power.

Computerized Depreciation Schedule

1. Building & Improvements
2. Furniture & Fixtures
3. Transportation Equipment
4. Machinery & Other Equipment
5. Land
6. Land Improvements
7. Trees in Orchards & Groves
8. Stocks & Bonds
9. Dairy Cattle
10. Beef
11. Sheep & Goats
12. Hogs
13. Horse & Mules
14. Other Productive Livestock
15. Other Assets

In addition to the categories listed here, each asset must be identified according to ownership - Operators and Landlords.

Suggested Teaching Strategy

Families should have been instructed to bring along to class copies of depreciation schedules submitted as part of the income tax returns. The most recent year is essential, but past years depreciation schedules may also be helpful. Additional information for the year in which the farm was purchased relating to the allocation of the farm cost to buildings, fences, tiling, bare land and operator's house is also important.

Have each family begin making entries in the four year depreciation schedule or on the computerized depreciation schedule input form. Assets should be keyed to the proper category prior to entry allowing the instructor to assist families in making correct initial entries.

KEY QUESTION 3. What are the consequences for using alternative methods of depreciation for capital assets purchased?

1. Alternative Depreciation Methods

   a. Straight Line
   b. Declining Balance
   c. Sum of Year Digits

2. Asset Bought or Sold During the Year - Various averaging conventions are allowable if reasonable and applied consistently, e.g.:

   a. Treat an asset as having been held a full month if it was acquired on or before the 15th of the month.
      1. If acquired after the 15th, the month would not be counted.
      2. Count the disposition month only if the asset is disposed or after the 15th of the month.
   b. Another way would be to count the month of acquisition and exclude the month of disposition regardless of the day acquired or disposed of.
   c. May also make computation of the exact number of days held.
   d. NOTE: If the sum of the years digits method is used, allocations must be made throughout the useful life of the asset.
      Example:
      If an asset is held three months in the year it is bought, 3/12 of the first full year's depreciation is deductible in that year. In the second taxable year held, 9/12 of the first full year's depreciation and 3/12 of the second full year's depreciation are deductible.

Suggested Teaching Strategy

Appendix C should be utilized to illustrate the effects of the alternative depreciation methods. The more traditional straight line method is compared to four alternatives, each of which are designed to increase the amount of depreciation allowed in the early years of the asset.

PART IV. Summary

A. It is important for the farm family to have an understanding of depreciation of capital assets even though a computer, or a service agency may be employed to do this task.

B. Control of depreciation as a large farm expense item can have a significant effect on farm earnings.

PART V. At-The-Farm Instruction

Review the procedures for entering items in the depreciation schedule. If not already complete assist in completing the beginning of the year entries from income tax records. Illustrate how new or traded items are entered on the depreciation schedule. Show how the depreciation schedule can be used to arrive at the annual cost of ownership.

PART VI. Resources

Overhead Projector & Chalkboard
Transparencies of Appendices A, B & C
Quantity copies of the Farmers Tax Guide
Quantity copies of the Computerized Depreciation Schedule Input Forms

PART VII. References

Nodland, Truman R., Minnesota Farm Account Book, Burgess Publishing Co., Minneapolis, MN.

Internal Revenue Service, "Guideline for Depreciation Schedule," Washington, D.C., U.S. Government Printing Office.

Internal Revenue Service, Farmers Tax Guide, Washington, D.C., U.S. Government Printing Office.

Agricultural Extension Service, Office of Special Programs, Farm & Individual Income Tax Short Course, IRS Workshop, University of Minnesota, St. Paul.

Persons, Edgar A., Guidelines For Using The Computerized Depreciation Schedule, University of Minnesota, 1976.

PART VIII. Appendices

A. Sample Depreciation Computations

B. Methods of Depreciation

C. Depreciation Under Various Methods

APPENDIX A

SAMPLE DEPRECIATION COMPUTATIONS

A.	Equipment Traded In (Old)		
	Cost of Old Equipment		$3,500
	Accumulated Depreciation at End or Preceding Year	$2,000	
	Depreciation for Current Year	500	2,500
	Undepreciated Value at Date of Exchange		$1,000
B.	Equipment Acquired (New)		
	Price of New Equipment		$5,000
	Trade In Allowance of Old Equipment		2,000
	Cash Paid (Boot)		$3,000
C.	Gain Recognized		
	Trade-In Allowance on Old Equipment		$2,000
	Undepreciated Value of Old Equipment		1,000
	Gain on Exchange		$1,000
D.	Method of Computing the Tax Basis or Cost of the New Equipment		
	Undepreciated Value of Old Equipment		$1,000
	Boot Given (Cash Paid)		3,000
	Cost of the New Equipment		$4,000

APPENDIX B

METHODS OF DEPRECIATION

STRAIGHT LINE, DECLINING BALANCE AND SUM OF THE YEARS DIGITS

1 ASSET GROUP OR NAME	2 DATE ACQUIRED	3 COST OR OTHER BASIS	4 SALVAGE VALUE	5 DEPRECIABLE VALUE	6 ACCUML. DEPREC. TO LAST YEAR	7 UNDEPREC. VALUE 5-(6+10)	8 METHOD	9 LIFE OR RATE (%)	10 CURRENT DEPREC.
FORD PICKUP	1-1-74	$4,000	$ 500	$3,500	$1,400	$1,400	S.L.	5 YRS 1 $700 2 700 3 700 4 700 5 700	$ 700
FORD PICKUP	1-1-74	$4,000	$ 500	$4,000	$2,560	$ 864	D.B.	40% 1 $1600 2 960 3 576 4 346 5 212	$ 576
FORD PICKUP	1-1-74	$4,000	$ 500	$3,500	$2,100	$ 700	S.Y.D	3-15 1 5-15 2 4-15 3 3-15 4 2-15 5 1-15	$ 700 1,155 945 700 455 245

APPENDIX C
DEPRECIATION UNDER VARIOUS METHODS

COST OF ITEM: $10,000: LIFE: 7 YEARS

YEAR	STRAIGHT LINE	DECLINING BALANCE 200%	SUM OF YEARS DIGITS	DECLINING BALANCE 150%	DECLINING BALANCE 125%
ADDITIONAL 1ST YEAR	$2,000	$2,000	$2,000	$2,000	$2,000
FIRST YEAR ORDINARY	1,143	2,286	2,000	1,714	1,428
TOTAL DEPREC. 1ST YEAR	$3,143	$4,286	$4,000	$3,714	$3,428
2ND YEAR	1,143	1,632	1,714	1,346	1,173[C]
3RD YEAR	1,143	1,166	1,429	1,058[B]	964
4TH YEAR	1,143	833[A]	1,143	832	791
5TH YEAR	1,143	595	857	653	650
6TH YEAR	1,143	425	571	513	534
7TH YEAR	1,142	304	286	404	439
TOTAL	$10,000	$9,241	$10,000	$8,520	$7,979
UNRECOVERED COST	--	759*	--	1,480*	2,021

*DEPRECIATION WOULD CONTINUE AFTER THE 7TH YEAR AT THE SAME PERCENTAGE OF REMAINING VALUE UNTIL SALVAGE VALUE IS REACHED.

[A]IF THE DEPRECIATION METHOD WERE CHANGED TO STRAIGHT LINE AFTER THE FOURTH YEAR, $694 OF DEPRECIATION WOULD BE TAKEN EACH OF THE NEXT 3 YEARS. THE ENTIRE COST WOULD THEN BE RECOVERED.

[B]IF DEPRECIATION WERE CHANGED TO STRAIGHT LINE AFTER THE THIRD YEAR, $971 WOULD BE TAKEN EACH OF THE 4 YEARS AND THE ENTIRE COST WOULD BE RECOVERED.

[C]IF DEPRECIATION WERE CHANGED TO STRAIGHT LINE AFTER THE SECOND YEAR, $1,080 WOULD BE TAKEN EACH OF THE NEXT FIVE YEARS AND THE ENTIRE COST WOULD THEN BE RECOVERED.

Unit I - 12

INCOME TAX MANAGEMENT

PART I. Student Objectives

A. Give examples of income fluctuation, varying deduction & sales or trades of assets as they affect income tax liability, the student will be able to explain the value of managing income to legally minimize income taxes.

B. Given an income tax estimating worksheet and an explanation by the instructor for completing it, the student will be able to complete the estimating worksheet for his/her farm.

PART II. Transition of Units

The previous unit covered the subject of depreciation. Various methods of depreciation and their effects on long range farm business planning were discussed.

This unit will deal with income tax management, looking at those items a person can control to minimize taxes. Income tax estimating will also be covered.

The following unit will cover end of the year inventory with emphasis on the value of accurate year-end inventories.

PART III. The Lesson

Attention Focuser

State, Justice Oliver Wendell Holmes has stated that "taxes are what we pay for civilized society." However, only the amount required by the law is due as a liability. Ask the class for their reaction to this.

KEY QUESTION 1. How can income taxes be legally held to a minimum?

A. Try to avoid wide fluctuation in income from year to year. A high increase in income in a certain year may throw the farm operator into a higher tax bracket. It is to the farmers advantage to increase his/her income over a period of years rather than to increase the income all in one year.

1. Example:

Income and Income Tax Liability For Two Farm Families***

	Net Income 1st Year	Net Income 2nd Year	Average Income	2-Year Tax
Jones Family (2 children)	$ 0	$9,800	$4,900	$734*
Smith Family (2 children)	$4,900	$4,900	$4,900	$ 0**

*Using the 1975 standard deduction, tax rate and personal exemption tax credit (4x$30).
**Using low-income allowance for 1975.
***Income Tax Management for Farmers.

Suggested Teaching Strategy

This class should be held in late October or early November to allow time for adjustment in purchases or sales which may help to minimize taxes. Have each family list up-to-date totals from the Farm Account Book on the income tax estimate sheet. The FM7 worksheet is also included to simplify tax estimation for those using the Minnesota Farm Account Book. Suggest that they refer to inventories on hand as a guide to determine possible receipts and expenses for the remainder of the year. Have them estimate tax obligation on the basis of this estimated income. Prior year tax records, cash flow and budgeting forms are valuable if they are available.

After each family has calculated the estimated income tax, the consequences of delaying sales or making advanced purchases should be thoroughly discussed. It should be emphasized that the amount of income taxes paid over a period of years is the determining factor. Any adjustments that are to be made must be in line with sound farm management practices if savings are to result. For most families, it is the amount of income left after taxes that is important, rather than a mere reduction in the amount of taxes paid.

PART IV. Summary

A. The farm family can usually legally minimize income tax payments by avoiding great fluctuations of income from year to year.

B. The ability to estimate income taxes prior to the end of the taxable year is a valuable tool in tax management.

PART V. At-The-Business Activities

Assist families in completing an estimate of their income tax liability. Discuss with them adjustments that could be made in delayed sales or early purchases to affect income level and final tax liability.

PART VI. Resources

Chalkboard & Overhead Projector
Transparencies: Income Tax Estimate Worksheet
Class Quantities: "Income Tax Management For Farmers," "Farmer's Tax Guide," and Income Tax Estimate Worksheet.

PART VII. References

Agricultural Extension Service, University of Minnesota, Income Tax Management For Farmers, North Central Regional Publication No. 2, St. Paul, Revised 1975.

Internal Revenue Service, U.S. Dept. of Treasury, Farmer's Tax Guide 1976 Edition, Publication 225, Washington, D.C., U.S. Government Printing Office, Revised, October 1975.

Internal Revenue Service, U.S. Dept. of Treasury, Fundamentals of Tax Preparation - Coursebook, Publication 796, Washington, D.C., U.S. Government Printing Office, Revised July 1975.

Nodland, Truman R., Minnesota Farm Accoumt Book, Burgess Publishing Co., Minneapolis, Minnesota.

PART VIII. Appendices

A. Income Tax Estimate Worksheet

B. Form FM 7 - Schedule of Parm Income & Expenses

INCOME TAX ESTIMATE WORKSHEET

RECEIPTS:		Amount to Date	Estimated Rest of Year	Estimated Year's Total
Sales of products raised* and miscellaneous receipts:				
Cattle, hogs, sheep and wool, etc.		$		
Poultry, eggs and dairy products		$		
All crop sales		$		
Custom work, prorations and refunds agriculture program payments		$		
Total sales and other farm income	(1)	$		
Sales of purchased market livestock	†$			
Purchase cost (subtract)	‡$			
Gross profits on sales of purchased livestock	†(2)	$		
Gross farm profits (Item 1 + 2)	(3)	$		

FARM EXPENSES:

Labor hired	$	Veterinary, medicine	$
Repairs, maintenance		Gasoline, fuel, oil	
Interest		Storage, warehousing	
Rent of farm, pasture		Taxes	
Feed purchased		Insurance	
Seed, plants purchased		Utilities	
Fertilizers, lime		Freight, trucking	
Machine hire		Conservation expenses	
Supplies purchased		Other	
Breeding fees		Other	

Total cash farm expenses	(4)	$		
Depreciation on machinery improvements, dairy and breeding stock	(5)	$		
Total deductions (Item 4 + 5)	(6)	$		
Self employment farm income (Item 3 less item 6)	‡(7)	$		
Net taxable gain from Schedule D (Sales of dairy and breeding stock, machinery and other capital exchanges)	(8)	$		
Taxable non-farm income	(9)	$		
Adjusted gross income (Item 7 + 8 + 9)	(10)	$		
Less larger of 16% of Item 10 (limit $2,600)** or itemized deducations	§$			
$750 x _____ personal exemptions***	$			
Total non-business deductions and exemptions	(11)	$		
Taxable income (Item 10 less item 11)	(12)	$		
Estimated income tax (calculated from applicable tax computation table or rates)	(13)	$		
Estimated self-employment tax (Item 7 x current rate)	(14)	$		
TOTAL TAX (Item 13 + 14)	(15)	$		
Less Credits: allowable investment credit and carryover, gas tax, income tax withheld and estimated tax paid	(16)	$		
Estimated tax due (Item 15 less item 16)	(17)	$		

† Omit for accrual method.

‡ For accrual method adjust for change in inventory and new livestock purchases.

§ Use itemized deductions if larger.

* For accrual method include sales of all livestock.

** Limit for 1975 Joint Return, see current tax regulation for subsequent years.

***Exemption for 1975, see current tax regulation for subsequent years.

Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Roland H. Abraham, Director of Agricultural Extension Service, University of Minnesota, St. Paul, Minnesota 55108. We offer our programs and facilities to all people without regard to race, creed, color, sex, or national origin.

FOR USE WITH THE MINNESOTA FARM ACCOUNT BOOK. TRANSFER TOTALS TO APPROPRIATE PLACES ON THE SCHEDULE F.

SCHEDULE OF FARM INCOME AND EXPENSES

(COMPUTE SOCIAL SECURITY SELF-EMPLOYMENT TAX ON SCHEDULE SE (FORM 1040))

Attach this schedule to your income tax return, Form 1040

FOR CALENDAR YEAR 19____

Name as shown on Form 1040 | Social security number

Business name and address

Location of farm(s) and number of acres in each farm

If you filed Form 943, enter employer identification number here

Part I Farm Income—Cash Receipts and Disbursements Method

Do not include sale of livestock held for draft, breeding, or dairy purposes; report such sales on Schedule D — F.M. 7, Page 2 or 4797.

Sales of Purchased Livestock and Other Items Purchased for Resale

a. Description	PAGE	b. Amount received	c. Cost or other basis
1. Livestock: (Feeder cattle)	13-15	$	$
(Feeder pigs)	13-17		
2. Other Items:			
3. Totals		$	$
4. Profit or (loss), subtract line 3, column c from line 3, column b ▶			$

Sales of Market Livestock and Produce Raised and Held Primarily for Sale and Other Farm Income

KIND	PAGE	QUANTITY	AMOUNT
5. Dairy products	2		
6. Other dairy cattle	9		
7. Beef cattle	11		
8. Hogs	17		
9.			
10. Sheep and wool	19		
11. Chickens	21		
12. Eggs	22		
13.			
14. Crops sold	37		
15.			
16. Gas tax refund — State	44		
17. Gas tax refund — Federal	44		
18. Work off farm	54		
19.			
20. Co-op dividends (farm share)	55		
21. Miscellaneous	55		
22. Agricultural program payments	xxx	xxxxx	xxxxxxx
(1) In cash	37 or 55		
(2) In materials and services	55		
23. Commodity Credit loans under election (or forfeited)	37 or 55		
24. Other (Specify)			
25.			
26. Add lines 5 through 25			$
27. Amount from line 4, above			
28. Gross Profit*(add lines 26 and 27)			$

Part II Farm Deductions—For Cash and Accrual Method Taxpayers

Do not include personal or living expenses not attributable to production of farm income, such as taxes, insurance, repairs, etc., on your dwelling.

ITEMS	PAGE	AMOUNT
29. Chicks bought (cash method only)	20	
30. Misc. livestock expense	25	
31. Feed bought	31-36	
32. Crop expenses	39	
33. Custom work hired	40	
34. Repair-farm buildings and fences	41	
35. Taxes (not income taxes)	43	
36. Rent	43	
37. Gas, oil, grease (farm share)	45	
38. Repair-tractor and crop machinery	51	
39. Repair-truck (farm share)	51	
40. Repair-auto (farm share)	51	
41. Repair-livestock equipment	51	
42. Wages of hired labor	53	
43. Board of hired labor	53	
44. Retirement plans (for hired labor)	53	
45. Telephone (farm share)	53	
46. Electricity (farm share)	53	
47. General farm expense (farm share)	54	
48. Interest (farm share)	56	
49.		
50.		
39a. Truck — miles	@12¢	
40a. Auto — miles	@12¢	
(For use in lieu of actual expenses on lines 37, 39, and 40 and depreciation)		
51. Add lines 29 through 50		$
52. Depreciation (from Part III, col. 7)		
53. Total deductions. Add lines 51 and 52		$

54. Net farm profit (or loss) (subtract line 53 from line 28). Enter here and include in total on line 32, Form 1040. ALSO enter on Schedule SE, Part I, line 1a $

*Use this amount for optional method of computing net earnings from self-employment. (See line 1a, Part I, Schedule SE.)

1. Prepared by the Department of Agricultural and Applied Economics in cooperation with the Agricultural Extension Service, Institute of Agriculture, Forestry, and Home Economics, University of Minnesota, St. Paul, Minnesota 55108.

Schedule D – F.M. 7. Sale of Depreciable Property and Livestock held for Dairy, Breeding, or Draft Purposes – for use with cash or accrual basis

(A) Disposition of Section 1245 Property – machinery and equipment.

(A) DESCRIPTION	(B) DATE ACQUIRED	(C) DATE SOLD	(D) GROSS SALES PRICE	(E) REMAINING VALUE TO RECOVER	(F) TOTAL GAIN OR LOSS	(G) DEPRECIATION TAKEN AFTER 12-31-61	(H) ORDINARY GAIN (LESSER OF F OR G)	(I) OTHER GAIN OR LOSS (F LESS H)
1.								
2. Total ordinary gain. Section 1245 property. (to 4797 or to Form 1040)					XX	XX		X
3. Net other gain or loss. Section 1245 property. (to 4797 or to Form 1040)							XX	

(B) Livestock held for 24 months or more for Dairy or Draft purposes, and other Section 1231 property. (12 months for Sows & Boars)

(A) DESCRIPTION	(B) PAGE	(C) DATE ACQUIRED	(D) DATE SOLD	(E) GROSS SALES PRICE	(F) REMAINING VALUE TO RECOVER	(G) GAIN OR LOSS
4. Cows	5 or 11					
Heifers	9 or 11					
Bulls	9 or 11					
Brood sows	17					
Other						
5. Net gain or loss from line 4 (to 4797 or 50% to Form 1040)				XX	XX	

(C) Property Other Than Capital Assets. (Includes depreciable property held less than 6 months and breeding livestock held less than 24 months – 12 months for Sows & Boars)

6.						
7. Net gain or loss from line 6 (To 4797 or to Form 1040) (Columns here are continued from Part (B) above.)				XX	XX	

Part III Depreciation Schedule Enter below the totals of depreciation and remaining values at beginning and end of year from the Four Year Depreciation Schedule with the Minnesota Farm Account Book.

1. DESCRIPTION	6. REMAINING VALUE AT BEGINNING OF YEAR	7. DEPRECIATION CHARGED THIS YEAR	8. REMAINING VALUE AT END OF YEAR
1. Power and Crop and General Machinery total from pages 10-11 $			
2. Add purchases this year (new money or boot only)			
3. New total			
4. Subtract any remaining value of machinery sold (not traded)			
5. New total			
6. Livestock Equipment total from pages 14-15			
7. Add purchases this year (new money or boot only)			
8. New total			
9. Subtract any remaining value of equipment sold (not traded)			
10. New total			
11. Buildings, Fencing, Tiling total from pages 18-19			
12. Add purchases this year (new money or boot only)			
13. New total			
14. Subtract any remaining value of buildings or fencing sold			
15. New total			

1. DESCRIPTION (Enter farm share figures only. If the optional 12¢ per mile is used leave column 7 blank.)	2. DATE ACQUIRED	3. COST OR OTHER BASIS	4. EST. LIFE	5. ANNUAL DEPRECIATION	6. REMAINING VALUE AT BEGINNING OF YEAR	7. DEPRECIATION CHARGED THIS YEAR	8. REMAINING VALUE AT END OF YEAR
16. Auto 1 (From pages 2-3)							
17. Auto 2							
18. Pickup							
19. Truck							
20							
22.							
23.							
24.							
Depreciation from lines 1 through 24							

If necessary, use spaces below for depreciable items, such as livestock, which are not in depreciation booklet or for itemizing your depreciation schedule.

25.													
26.													
27.													
[illegible]													
.													
30.													
31.													
32.													
33.													
34.													
35.													
36.													
37.													
38.													
39.													
40.													
41.													
42.													
43.													
44.													
45.													
46.													
47.													
48.													
49.													
50.													
51.													
52.													
53.													
54.													
[illegible]													
57.													
58.													
59.													
60.													
61.													
62.													
63.													
64.													
65.													
66.													
67.													
68.													
69.													
70.													
71.													
72.													
73.													
74.													
75.													
76.													
77.													
78.													
79.													
80.													
81.													
[illegible]													
84.													
85.													
Total depreciation enter in Part II, line 52 for cash or accrual method.													

Total depreciation equals totals from lines 5, 10 and 15 plus individual items on lines 16 through 85 which are not included on lines 1 to 15.

Unit I - 13

MAKING THE END OF THE YEAR INVENTORY

PART I. Student Objectives

A. Given the sources for valuing inventory items the student will be able to accurately select and apply appropriate values to the end of the year inventory items.

B. Utilizing a step-by-step discussion method concerning end of the year inventory tasks, the student will be able to accurately complete those portions of his/her record dealing with end of the year inventories.

PART II. Tranaition of Units

The previous unit covered income tax management. It dealt with those items a person can control to minimize taxes, and with the procedures for estimating income tax.

This unit covers the value of accurate inventories, the steps required to complete the inventories and their relationship to farm business management.

The following unit will deal with the techniques for completing the crop and feed check, and adjusting feed records.

PART III. The Lesson

Attention Focuser

Place the formula for balancing the liability section of the farm business record on the chalkboard: Beginning Inventory of Liabilities + Money Borrowed - Amount Paid on Debt (principle) = Ending Inventory of Liabilities. Ask each family to balance the liability section of their record utilizing this formula. Have class members share their concerns or problems in getting this section to balance.

KEY QUESTION 1. What is a complete end of the year inventory?

The end of the year inventory marks the end of the farm business accounting period. It is a "picture" of all the tangible assets of the business, the home and the money owed to others, at a specific time -- the end of the year. Thus, it is a "snapshot" and not a moving picture.

Suggested Teaching Strategy

Briefly review some of the activities the families were involved in at the beginning of the year utilizing the transparency on "Activities... and the Business Process" from Appendix A.

1. Actual head counts of livestock
2. Measuring feed supplies
3. Setting up a complete depreciation schedule
4. Establishing a complete record of personal assets & liabilites

Remind the families of the business process which occured during the year:

1. Purchases and Sales of Assets
2. The raising and growing of livestock and crops
3. Payments on debts -- borrowing of money
4. Increased value of some assets -- cash surrender value of insurance.

The purpose of this discussion is to remind the families that as it was possible to take a beginning inventory which was followed by a year of business activity, it is again possible (and necessary) to take an ending inventory. However, this ending inventory does not infer a stopping of activity, but simply a point in time.

While the end of the year inventory should reflect the actual inventory on midnight, December 31st, it is unlikely it will be completed at that exact time. If the inventory is taken after that date the families should be reminded to adjust "upward" to account for feed that was fed after December 31st. Conversely, the inventory for December 31st will have to be adjusted downward if livestock were added, feed bought or other changes made in the assets between the inventory official date and the time the actual physical count was made.

KEY QUESTION 2. How do you arrive at inventory values?

Utilizing beginning inventory records, purchase records, local papers and market reports the following areas should be valued:

1. Use conservative but realistic values.
2. Current market price for market livestock.
3. Current market price for forages.
4. Purchase price for carry-over feeds.
5. Same general price level as beginning inventory for raised breeding stock.
6. Purchased breeding stock should be valued at cost less allowable depreciation.

Suggested Teaching Strategy

In some areas the area Vo-Ag Coordinator will publish a list of recommended year end values, after consultation with adult farm management instructors. Use this list, local papers and market reports to arrive at values with the class based on the guidelines under this Key Question. Appendix B will aid the discussion under this Key Question.

Point 1 should be stressed to avoid distortions in apparent net worth and earnings. When this unit is completed each class member should know what values are to be put on all year-end inventory items.

KEY QUESTION 3. In what order should the inventories be completed?

To complete end of the year inventories in a systematic manner the farmer should proceed through the farm business record in the following order:

1. Dairy cows
2. Other dairy cattle
3. Beef breeding cattle
4. Feeders
5. Hogs
6. Sheep
7. Chickens
8. Horses
9. Crop, seed and feed
10. Items in Depreciation Schedule
    a. Enter depreciable items (from page 42) in the Four Year Depreciation Schedule or check that they have all been entered on the Computerized Depreciation Schedule.
    b. Auto and truck
    c. Mechanical power
    d. Crop and general machinery
    e. Irrigation equipment
    f. Livestock equipment
    g. Custom work equipment
    h. Operators house
    i. Bare land
    j. Buildings, fencing, tiling
    k. Purchased breeding stock
11. Liabilities
12. Non-farm assets

Suggested Teaching Strategy

It might be desirable to review Unit IV, "The Inventory-Why? How?," especially Key Questions 4 and 5 dealing with how the inventory should be organized and actually taken. The steps and key points listed might be a good review for the class.

If Unit IX on the "Mid-Year Crop & Feed Check" and Unit XI on the "Depreciation Schedules" were covered thoroughly there should be little problem in these two areas. However, if the Crop, Seed, Feed area has been neglected, additional time should be spent on this topic. Unit X on "Crop Yield Records" will also be a valuable review to aid in determining quantities of grains and forages.

If a Computerized Depreciation Schedule is being used be sure it is current, so that the "tentative" depreciation schedule will be accurate when run.

KEY QUESTION 4. What special items should be closely checked on the Ending Inventory?

1. Heifers freshened-value, page 5, column 3, of the Minnesota Farm Account Book should agree with end of year value of the same animals.

2. Make sure no beginning of year value appears for items purchased during the year.

3. Beginning value minus depreciation equals ending value on depreciable items.

4. Accuracy of quantities, weights and values are important.

5. Completeness of year-end inventory of liabilities.

Suggested Teaching Strategy

Utilize the transparency in Appendix C, "Special Items to Check On Ending Inventory" to focus attention on this Key Question. The accuracy of all inventories, including quantities, weights and values, should again be stressed. This is such an important point that it must be stressed at every opportunity throughout the year.

Special attention should be called to the year-end inventory of liabilities. This should include all money owed at the end of the year, whether it is long-term, short-term, or unpaid bills and accounts.

KEY QUESTION 5. How will errors in ending inventory values affect the farm business analysis?

Common Sources of Ending Inventory Errors

1. Livestock Counts
2. Weights
3. Prices

TABLE 11B. FINISHING HOGS

Item	Reported Value	Corrected Value
Number Pigs - Ending Inventory	180	190
Average Weight	200	220
Price Per Cwt	$35	$40
Value - Ending Inventory	$12,600	$16,720
Difference		4,120
Pounds of Hogs Produced	110,000	115,800
	Per Cwt.	Per Cwt.
Total Value Produced	$30.00	$32.53
Total Costs	22.15	22.15
Return Over all Listed Costs	7.85	10.38
Return for $100 Feed Fed	$150.00	$162.60

TABLE 15B. FEEDER CATTLE

Item	Reported Value	Corrected Value
Number Feeders - Ending Inventory	140	145
Average Weight	900	900
Price Per Cwt.	$35	$35
Total Value	$44,100	$45,675
	Per Cwt.	Per Cwt.
Net Increase in Value of Animal	$55.00	$57.10
Total Feed Cost	45.00	45.00
Total Suppl. & Allocated Cost	5.00	5.00
Return Over all Listed Costs	5.00	7.10
Return for $100 Feed Fed	$122.00	$127.00

TABLE 10. CORN FOR GRAIN

Item	Reported Value	Corrected Value
Acres	140	140
Yield	110	100
Value Per Bushel	$2.40	$2.40
Total Crop Return	$264.00	$240.00
All Listed Costs	$200.00	$200.00
Return Over all Listed Costs Per Acre	64.00	40.00
Return Over all Listed Costs Per Bushel	$.58	$.40

Suggested Teaching Strategy

It is essential for families to see how errors in the ending inventory find their way into the farm business analysis. Three examples are shown in appendices D, E and F which illustrate Reported Value (in error) and Corrected Value. Use these appendices to illustrate the difficulty involved in analysis interpretation when errors exist.

Appendix D shows errors in numbers, weights and price. The errors compound resulting in an understatement of ending inventory value of $4,120. This amount affects the analysis in several areas. Table 1 will show a reduced December 31 value. This will carry through to Table 2A, line 26 and Table 2B, line 32 resulting in a decreased labor earnings figure. Table 3 will reflect the error in lines 8,17,22,35,36 and 37. Table 5 will show the error in lines 1,6,9,15,16,18,19,27,28,29,31,33, and 34. Tables 6A and 6B are influenced similar to Tables 2A and 2B. Table 8 shows the affect in lines 1,5,6,7,8,9,10,13,27,30,33,34,35,36,37,39 and 40. (The major error affecting this table is due to work units being in error.) Appendix D is a summary of items from Table 11B illustrating a before and after picture of the finishing hog enterprise.

Appendix E shows only an error in livestock count, however, the affect of the error traces the same path through the analysis as the error illustrated in Appendix D.

Appendix F shows an error in yield calculation due to a failure to adjust for moisture content.

The yield of 110 bushel per acre was determined using the standard table for 15 percent moisture. The stored corn actually contained 20 percent moisture when inventoried. When adjusted for the actual moisture content the yield really was 100 bushel per acre. The affect on Table 10, Corn for Grain is clearly shown. If the error had been let stand and the farmer had allocated the "extra" corn to livestock as feed, the livestock enterprises would have absorbed $3,360 of non-existant costs.

PART IV. Summary

A. The End of the Year Inventory is a "picture" of all the tangible assets and liabilities of the farm business at a specific time.

B. It is important to utilize guidelines in arriving at year-end inventory values.

C. A systematic approach to completing the year-end inventory will help assure that nothing is missed.

PART V. At-The-Farm Activity

Assist in making a complete year end inventory. Special attention should be paid to balancing the money borrowed, paid on debts, inventory of liability section. It is possible to accurately estimate the year end figures from "Schedule of Payments" tables; especially on long-term liabilities.

Illustrate how the livestock reports and crop and feed check can be used to help assure record accuracy. A final check on yield records and crop inventories should be made to insure that consideration for moisture, test weight and quality has been given.

PART VI. Resources

Overhead Projector & Chalkboard
Transparencies of Appendices A,B, & C
Current local newspapers and market reports
Class members Minnesota Farm Account Books

PART VII. References

Nodland, Truman R., Minnesota Farm Account Book, Burgess Publishing Co., Minneapolis, MN

Current Local Newspapers

Marketing Reports

PART VIII. Appendices

A. Activities of the Farm Family, The Business Process

B. How Do You Arrive At Inventory Values?

C. Special Items to Check on Ending Inventory

D. Table 11B Finishing Hogs

E. Table 15B Feeder Cattle

F. Table 10 Corn for Grain

APPENDIX A

ACTIVITIES OF THE FARM FAMILY

1. Actual head counts of livestock
2. Measuring feed supplies
3. Setting up a complete depreciation schedule
4. Establishing a complete record of personal assets and liabilities

THE BUSINESS PROCESS

1. Purchases and sales of assets
2. The raising and growing of livestock and crops
3. Payment on debts --- borrowing of money
4. Increased value of some assets --- cash surrender value of life insurance

APPENDIX B

HOW DO YOU ARRIVE AT INVENTORY VALUES?

1. USE CONSERVATIVE BUT REALISTIC VALUES
2. CURRENT MARKET PRICE FOR MARKET LIVESTOCK
3. CURRENT MARKET PRICE FOR FORAGES
4. PURCHASE PRICE FOR CARRY-OVER FEEDS
5. SAME GENERAL PRICE LEVEL AS BEGINNING INVENTORY FOR RAISED BREEDING STOCK
6. PURCHASED BREEDING STOCK SHOULD BE VALUED AT COST LESS ALLOWABLE DEPRECIATION

APPENDIX C

SPECIAL ITEMS TO CHECK ON ENDING INVENTORY

HEIFERS FRESHENED ---
VALUE SHOULD AGREE WITH END OF YEAR VALUE

MAKE SURE NO BEGINNING OF YEAR VALUE APPEARS FOR ITEMS PURCHASED DURING THE YEAR

BEGINNING VALUE MINUS DEPRECIATION EQUALS ENDING VALUE ON DEPRECIABLE ITEMS

ACCURACY OF QUANTITIES, WEIGHTS AND VALUES ARE IMPORTANT

COMPLETENESS OF YEAR-END INVENTORY OF LIABILITIES

APPENDIX D

TABLE 11B. FINISHING HOGS

Items	Reported Value	Corrected Value
Number Pigs - Ending Inventory	180	190
Average Weight	200	220
Price Per Cwt.	$35	$40
Value - Ending Inventory	$12,600	$16,720
Difference		4,120
Pounds of Hog Produced	110,000	115,800
	Per Cwt.	Per Cwt.
Total Value Produced	$30.00	$32.53
Total Costs	22.15	22.15
Return Over All Listed Costs	7.85	10.38
Return for $100 Feed Fed	$150.00	$162.60

APPENDIX E

TABLE 15B. FEEDER CATTLE

Items	Reported Value	Corrected Value
Number Feeders - Ending Inventory	140	145
Average Weight	900	900
Price Per Cwt.	$35	$35
Total Value	$44,100	$45,675
	Per Cwt.	Per Cwt.
Net Increase in Value of Animal	$55.00	$57.10
Total Feed Cost	45.00	45.00
Total Suppl. & Allocated Cost	5.00	5.00
Return Over All Listed Costs	5.00	7.10
Return for $100 Feed Fed	$122.00	$127.00

APPENDIX F

TABLE 10. CORN FOR GRAIN

Item	Reported Value	Corrected Value
Acres	140	140
Yield	110	100
Value Per Bushel	$2.40	$2.40
Total Crop Return	$264.00	$240.00
All Listed Costs	$200.00	$200.00
Return Over All Listed Costs Per Acre	64.00	40.00
Return Over All Listed Costs Per Bushel	$.58	$.40

Unit I - 14

END OF THE YEAR CROP AND FEED CHECK

PART I. Student Objectives

A. Given a list of items which must be completed prior to doing the end-of-year crop and feed check, and the rationale for their completion, the families will be able to state if they are ready to complete the crop and feed check.

B. Given a step-by-step procedure for completing the end-of-year crop and feed check and utilizing the Crop and Feed Check form from the Farm Account Book families will be able to accurately complete the check.

C. Given an example showing how the Feed Used By Livestock section of the Check Form can be adjusted to equal the Amount Available For Feed families will be able to accurately make necessary adjustments to their own Check Forms.

PART II. Transition of Units

The previous unit described the area and procedures for completing an accurate end of the year inventory. Livestock, crops and feeds, assets and liabilities were covered. The importance of strict attention to accurate weights, dollar amounts and measures was stressed to arrive at a meaningful analysis.

This unit will cover the items in the record book that need to be completed prior to completing the year-end crop and feed check. A step-by-step procedure will be outlined for completing the year-end check, and suggestions will be made for making the final balancing adjustments. With feed constituting a major expense item for all classes of livestock the year-end crop and feed check becomes the key step in completing the livestock analysis.

The final unit of Year I will describe the procedures for closing out the farm business record in preparation for the annual business analysis. It is the culmination of a years effort to keep an accurate and complete record of the farm business and family transactions.

PART III. The Lesson

Attention Focuser

The following illustration may be found in Appendix A and should be shown on the overhead projector.

WAS IT POSSIBLE

1. *Farmer Olson had 100 tons of hay on inventory on January 1st. During the year Olson's farm produced 400 tons of hay.*

2. *On December 31st inventory showed the Olson farm to have 150 tons of hay on hand.*

3. *Farm Olson has feed records to show that during the year 400 tons of hay was fed to livestock.*

4. *Was the situation described above possible?*

Give the class a minute to study the example and then ask for comments on the situation. With only 350 ton of hay available for feed (100 + 400 - 150 = 350) there is an error of 50 ton of hay between what should have been available for feed, and what was reported as having been fed.

KEY QUESTION 1. What items must be completed in the farm business record prior to doing the end-of-year crop and feed check?

1. Beginning Inventories
2. Crop Production Records
3. Mathematical Addition of Purchased Feeds
4. Mathematical Addition of Crops Sold
5. Ending Inventories on Crops and Feed
6. Feed Records by Enterprise

Suggested Teaching Strategy

Utilize the transparency from Appendix B to illustrate the key items under this Key Question. Have each family page through their farm account book to determine if each key item has been completed. Each family should take notes on items they have yet to complete. This exercise will give an additional opportunity to locate inventory problems and incomplete recording of purchases and sales.

KEY QUESTION 2. What is the step-by-step procedure for completing the year end crop and feed check?

The step-by-step procedure for completing the year end crop and feed check:

1. Enter purchases, amount and value, by individual feeds on Crop and Feed Check form (provided with account book).

2. Enter beginning inventory, amount and value by individual feeds on Crop and Feed Check form.

3. Enter crops raised on Crop and Feed Check form.

4. Add the items entered to get total supply on the Crop and Feed Check form.

5. Enter crop sales on Crop and Feed Check form.

6. Enter crops seeded on Crop and Feed Check form.

7. Enter ending inventories on Crop and Feed Check form

8. Add the last three items and subtract this sum from the total supply. Enter this remainder on the appropriate line on the Crop and Feed Check form.

9. Enter amounts of each feed fed from the feed records on page 26-27 of the account book in the appropriate place for each class of livestock.

10. Add up the individual feeds fed to all classes of livestock.

11. See if the amount "available for feed" corresponds with the total amount "fed".

12. If these are not the same, study the differences to determine where the error was most likely to occur.

13. Make adjustments in feed to the various classes of livestock in the appropriate column. In rare cases it may be necessary to adjust the raised or ending inventory. This should not be done unless there is complete assurance that amounts fed are entirely reliable.

Suggested Teaching Strategy

Utilize Appendices C,D,E & F to illustrate the step-by-step procedure under this Key Question. The example in the appendices only illustrates CORN as it might flow through a typical farm business.

Begin this Key Question by displaying the Appendix C transparency which illustrates the first four steps of the year end crop and feed check procedure. Have each family locate the page in their farm account book where the data was derived from. Follow this procedure for the transparencies of Appendices D and E. By utilizing Appendix F you will be able to illustrate that the amount "available for feed" (step 11) on line C is not the same as the amount reported on line D as "fed". The example shown assumes that the amount of 785 bushels for Other Dairy Cattle was omitted in the initial recording. By "adjusting" this area the "balancing adjustment" causes line D to equal line C.

If more examples are desired utilize Appendix G as a "handout" for class members. Vary the crop and situation to provide additional practice for the class in "balancing adjustments." Figures to use may be derived from actual farm records.

PART IV. Summary

A. It is essential for families to have certain key items completed in the account book prior to the year end crop and feed check.

B. The step-by-step procedure for completing the year end crop and feed check will help to assure completeness and accuracy.

C. With feed as a major expense item it is essential to accurately adjust reported feed records to arrive at the amount available for feed.

PART V. At-The-Farm Activity

Work with each family individually on a farm visit scheduled specifically for the purpose of completing the crop and feed check. Illustrate how the completed information can be used in determining livestock efficiencies. Ask families to again make estimates of production levels and efficiencies of their livestock operations, and to record them.

PART VI. Resources

Chalkboard and Overhead Projector
Transparencies of Appendices A,B,C,D,E & F
Handout of Appendix G
Families Farm Account Books
"Crop and Feed Check Form," included in Minnesota Farm Account Book

PART VII. References

Minnesota Farm Account Book, 4th Edition, Burgess Publishing Co., Mpla.

PART VIII Appendices

A. Was it Possible

B. Items Which Must be Completed Prior to Year End Crop and Feed Check

C. Where Feed Came From

D. Sales, Seeded, Waste, Ending Inventory

E. Feed Used by Livestock

F. Final Balancing Adjustments

G. Crop & Feed Check for Minnesota Farm Account Book

APPENDIX A

WAS IT POSSIBLE

1. Farmer Olson's January 1st Inventory of Hay . . . . . 100 Tons

   Hay Raised During Year . . . . . 400 Tons

2. Farmer Olson's December 31st Inventory of Hay . . . . . 150 Tons

3. Feed Records on Farmer Olson's Farm -- Hay fed to livestock during year . . 400 Tons

4. Are the above records accurate?

APPENDIX B

ITEMS WHICH MUST BE COMPLETED PRIOR TO YEAR END CROP AND FEED CHECK

1. Beginning Inentories
2. Crop Production Records
3. Mathematical Addition of Purchased Feeds
4. Mathematical Addition of Crops Sold
5. Ending Inventories on Crops and Feed
6. Feed Records by Enterprise

APPENDIX C

WHERE FEED CAME FROM

1. Enter purchases, amount and value, by individual feeds on Crop and Feed Check form (provided with account book).

2. Enter beginning inventory, amount and value by individual feeds on Crop and Feed Check form.

3. Enter crops raised on Crop and Feed Check form.

4. Add the items entered to get total supply on the Crop and Feed Check form.

Crop or Feed		Corn		
Unit of Measure		Tons, (Bu.), Lbs.	Value	
WHERE FEED CAME FROM	Purchases Pgs. 28-31			
		338	416	85
		232	310	88
		339	427	50
		1120	1368	25
		168	200	90
	TOTAL PURCHASES	2197	2724	38
	BEG. INVENTORY, PGS. 34-35	2910	3201	00
	CROPS RAISED P.33	3100	3906	00
	A. TOTAL SUPPLY	8207	9831	38

APPENDIX D

SALES, SEEDED, WASTE, ENDING INVENTORY

5. Enter crop sales on Crop and Feed Check form.

6. Enter crops seeded on Crop and Feed Check form.

7. Enter ending inventories on Crop & Feed Check form.

8. Add the last three items and subtract this sum from the total supply. Enter this remainder on the appropriate line on the Crop and Feed Check form.

		Corn	
		Tons, (Bu), Lbs.	Value
	A. TOTAL SUPPLY	8207	9831 38
SALES SEEDED WASTE ENDING INVENTORY	Sales pg. 37		
	TOTAL SALES		
	SEEDED, pg. 29		
	ENDING INVENTORY pgs. 30-31	2642	3443 48
	B. TOTAL	2642	3443 48
C. Difference (A-B=C)		5565	1.15/Bu

APPENDIX E

FEED USED BY LIVESTOCK

9. ENTER AMOUNTS OF EACH FEED FED FROM THE FEED RECORDS ON PAGE 26-27 OF THE ACCOUNT BOOK IN THE APPROPRIATE PLACE FOR EACH CLASS OF LIVESTOCK.

10. ADD UP THE INDIVIDUAL FEEDS FED TO ALL CLASSES OF LIVESTOCK.

		CORN			
		TONS, (BU.), LBS.		VALUE	
FED		REPORTED	ADJUSTED	VALUE	
FEED USED BY LIVE-STOCK (TOTALS FROM PAGES 26-27)	DAIRY COWS	2200		2530	00
	OTHER DAIRY CATTLE				
	BEEF BREEDING HERD				
	FEEDER CATTLE	80		92	00
	HOGS	2375		2731	25
	SHEEP FARM FLOCK	125		143	75
	CHICKENS				
D. TOTAL FEED USED (D MUST EQUAL C)		4780		5497	00

APPENDIX F

ADJUSTMENTS

11. See if the amount "Available for Feed" corresponds with the total amount "Fed."

12. If these are not the same, study the differences to determine where the error was most likely to occur.

13. Make adjustments in feed to the various classes of livestock in the appropriate column. In rare cases it may be necessary to adjust the raised or ending inventory. This should not be done unless there is complete assurance that amounts fed are entirely reliable.

C. Difference (A-B=C)		5565 Bu.		6399.75 1.15/Bu.	
		Corn			
		Tons, (Bu.), Lbs.		Value	
Fed		Reported	Adjusted	Value	
Feed Used By Livestock (Totals from pages 26-27)	Dairy cows	2200	2200	2530	00
	Other dairy cattle		785	902	75
	Beef breeding herd				
	Feeder cattle	80	80	92	00
	Hogs	2375	2375	2731	25
	Sheep farm flock	125	125	143	75
	Chickens				
D. Total Feed Used (D must equal C)		4780	5565	6399	75

APPENDIX G

CROP AND FEED CHECK
FOR
MINNESOTA FARM ACCOUNT BOOK
(Fourth Edition)

Name: _____ County: _____

Crop or Feed		Corn											
Unit of Measure		Tons, Bu., Lbs.		Value		Tons, Bu., Lbs.		Value		Tons, Bu., Lbs.		Value	
WHERE FEED CAME FROM	Purchases, Pgs. 28-31												
	TOTAL PURCHASES												
	Beg. Inventory, Pgs. 34-35												
	Crops Raised, pg. 33												
	A. TOTAL SUPPLY												
SALES SEEDED WASTE ENDING INVENTORY	Sales pg. 36-37												
	TOTAL SALES												
	Seeded, pg. 33												
	Ending Inventory, pgs. 34-35												
	B. TOTAL												
C. Difference (A-B = C)													
FED		Reported	Adjusted	Value		Reported	Adjusted	Value		Reported	Adjusted	Value	
FEED USED BY LIVE-STOCK (Totals from pages 26-27)	Dairy Cows												
	Other Dairy Cattle												
	Beef Breeding Herd												
	Feeder Cattle												
	Hogs												
	Sheep Farm Flock												
	Chickens												
D. Total Feed Used (D must equal C)													

UNIT I - 15

CLOSING THE ACCOUNT BOOK FOR ANALYSIS

PART I. Student Objectives

A. Given the list of items which are prerequisites to closing the farm account book for analysis and an explanation of each item, the families will be able to identify the importance of each item to the closing procedure.

B. Given the Checklist For Closing the Minnesota Farm Account Book, the Livestock Report (F.A. 12), the Crop and Feed Check, the Cash Check, and the Supplementary Information Form (F.A. 51), the families, with a considerable amount of assistance from the instructor, will be able to accurately and completely close the account book for analysis.

PART II. Transition of Units

The previous unit covered a step-by-step procedure for completing the year end crop and feed check. With feed constituting a major expense item in the analysis of the livestock enterprises this unit was an important prerequisite to the following unit.

This unit gives the detailed procedure for closing the account book for analysis. It culminates the years effort in trying to keep a complete and accurate record of farm business and family transactions. The family and instructor should pay strict attention to details in this final procedure to assure the most accurate farm business analysis possible.

The following unit will begin the second year of instruction. The essential topic of cash flow will be covered to show how funds flow into and out of the farm business, and how they can be controlled. This unit will begin the Farm Management II - Business Analysis 12 Units which make up the second year of instruction.

PART III. The Lesson

Attention Focuser

At the beginning of the class, hand a road map to one of the students and state, "Plan a trip for me, will you!" After a few minutes of discussing other preliminary things with the class, come back to that student and ask: "Do you have that trip planned yet?" The student may comment that you didn't say where you were going; thus it was impossible to plan the trip. Use this to point out that accurate records properly analyzed may provide the "road map" to help families reach their goals.

KEY QUESTION 1. What are the necessary prerequisites to closing the account book for analysis?

1. End-of-the Year Inventories
2. Checklist for Closing the Minnesota Farm Account Book
3. Livestock Report, F.A. 12
4. Crop and Feed Check
5. Cash Check
6. Supplementary Information Form, F.A. 51

Suggested Teaching Strategy

Families should each have their account book, End-of-the-Year Inventories, Checklist for Closing the Minnesota Farm Account Book (Appendix B; this unit), Livestock Report, F.A. 12 (Appendix of Unit I-8), Crop and Feed Check (Appendix of Unit I-9), Cash Check (Appendix C; this unit), and the Supplementary Information Form, F.A. 52 (Appendix D; this unit). Give a brief explanation of the importance each item holds for the close-out procedure.

KEY QUESTION 2. How do you accurately and completely close the account book for analysis?

The Checklist for Closing the Minnesota Farm Account Book has been designed to cover both major and minor points in closeouts. However, since the checklist only includes the most frequently missed items you, of course, should complete any other items in the book that are obvious.

Suggested Teaching Strategy

Have each family follow the checklist as they check their Farm Account Book for completeness and accuracy. Lead the class through the checklist -- making appropriate references to the other closeout forms and the account book -- and answer questions as they occur. It will not be possible to complete this procedure in class, but many questions can be answered for the benefit of all.

Appendix C, "Making a Cash Check of Your Accounts" is a valuable tool in determining the cash reliability of the account book. It has been said that a "difference" between receipts and expenses of 1% of gross receipts is excellent. When the families have their account books totaled you should recommend that they complete a cash check utilizing this form.

KEY QUESTION 3. How you do you use PCAF, BCAF & ECAF designations, and what effect do they have on the analysis?

Power Cost Allocation Factor. Each enterprise table reports the power and machinery costs allocated to each crop or livestock enterprise. The basic unit for making the allocation is the work unit listed in the master crop list and the master livestock list. Studies have proven that in very typical farm operations where the common agronomic crops are grown and common livestock enterprises are raised under intensive conditions, this procedure works very well. However, on farms where the power and machine use is atypical or where the crop is unusual, the work unit method of allocation is not as effective as it should be. Likewise, livestock enterprises that are not common or are raised under less intensive conditions may require modification of the allocation process by use of the PCAF. The power cost allocation factor is for the purpose of modifying the work unit for use in the allocation process.

Values for the power cost allocation factor (PCAF) can range from 10.00 to .01. Thus a crop of livestock enterprise can be charged with as much as 10 times the power and machine cost as the work unit indicates or as little as 1/100 of the normal work unit allocation.

Instructors and their clients must decide for each farmer and for each enterprise if the work unit is a good representation of the power and machine cost to be allocated. If they decide that the work unit as defined in the master crops list and master livestock list is appropriate, then the PCAF should be reported as 1.00. If it is not a good allocation factor in comparison to other enterprises grown by that farmer, the PCAF must be either greater or less than 1.00.

Examples of when the PCAF should be less than 1.00 (Not all inclusive).

Custom Work Used to Harvest Crop. If custom hired was used to harvest the crop, the PCAF should reflect the proportion of the total machine use completed by custom hire. For example, if the farmer determined that custom harvest accounts for 20% of the total machine use on a particular crop, he would report a PCAF of .80.

Reduced Harvest. If normal practice is to take three cuttings of alfalfa, and the farmer only takes 2 cuttings, he may decide that his power and machine cost should be reduced by 10 percent. He would then report a PCAF of .90.

Crop with High Labor-Low Machine Inputs. If the farmer grows strawberries, for example, which carries a work unit designation of 35 per acre,

he may decide that the acre of berries required only 7 hours of machine time or only 2% of the time designated by the work unit. He then would assign a PCAF of .02 to the strawberries.

Double Cropping. When the same land is used to produce two crops in the same year, it is unlikely that the full range of tillage operations would be performed on the second crop. In that event, the PCAF would be reduced to reflect lower costs.

Extensive Livestock Enterprise. A beef cow herd raised under range conditions may make little use of power and crop machinery. Thus the PCAF may be adjusted downward to reflect less use than would be assigned if the work unit designation were not adjusted by PCAF.

Caution. Reducing the PCAF on selected crops and livestock enterprises will increase the dollars assigned to power and machinery costs to the other crops and livestock. If the PCAF is reduced by the same proportion on all crops and livestock the dollars assigned to power and machinery will be the same as if no modification was made in the work unit. The PCAF should be less than 1.00 only when there is a logical reason for making the reduction and then it should be done only on selected crop and livestock enterprises.

Examples of when the PCAF should be greater than 1.00 (Not all inclusive).

Unusual Tillage Practice. Acts of God. When a crop required an unusual tillage operation, for example, replanting due to freezeout or wind damage, the PCAF may be increased to reflect the added expense. If harrowing and seeding were required for the second time, the farmer may decide to increase the power allocation by 15%. Thus the PCAF would be reported as 1.15.

Unusual Tillage - Soil Conditions. If the soil type is unusual so that it requires measurably more tillage than would normally be required, the PCAF should reflect the increased machine use. For example, if the field required 2 additional tillage operations the farmer may choose to record an additional 18% power and machine cost to that crop; thus he would record a PCAF of 1.18.

Additional Harvest. When crop residue is harvested for forage or bedding, the PCAF may be adjusted to reflect a greater power and machine cost than that recorded for crops where residue is not harvested. This factor is important when the value of crop residue harvested is included in the other crop income as a means offsetting the added income.

Livestock. In some instances, a livestock enterprise may utilize an inordinate amount of power and machine expense. In these cases, the PCAF should be adjusted upward. Users should be reminded that livestock

work units are assessed only 1/10 - 1/12 the amount of power and machine costs assigned to crop work units.

Caution. Increasing the PCAF on selected crop and livestock enterprises will reduce the dollars assigned to other crops and livestock. Increasing the PCAF proportionately on all crops and livestock to reflect excess machine use on the farm will result in the same power and machinery charges that would have been listed had the PCAF been recorded as 1.00.

BCAF - Building Cost Allocation Factor. Serves to adjust the allocation of the net costs of owning and operating buildings between the two general categories of "crops" and "livestock" and further to allocate building costs among the livestock enterprises.

BCAF must be assigned to each livestock reported for analysis and to the crop category. The values are reported in whole numbers ranging from 0 to 10. BCAF modifies the work unit as an allocation factor. A simple illustration will demonstrate the impact of the BCAF factor and serve to stimulate thought on its proper use.

Example: Net costs of owning and operating buildings, fences and tiling from Table 3 in the Farm Business Analysis, is $2100.

Enterprises	Total W.U. Assigned	$ Assignment W/O BCAF
Dairy	100	700
Other Dairy	50	350
Complete Hogs	50	350
Crops	100	700

If the farmer, in assessing his building determined that the hog and crop facilities contributed proportionately more to costs than did the dairy facilities, he may adjust the allocation by using the BCAF factor on a scale of one to ten.

	Values	Dairy	Other Dairy	Hogs	Crops
High	9-10				9
Above Average	7-8			7	
Average	4-6	5			
Below Average	2-3		3		
Low	0-1				

The building costs would not be assigned as follows.

Enterprises	Total W.U.	BCAF	Adjusted W.U.		Cost/Enterprise
Dairy	100	5	500	(1)	552.63
Other Dairy	50	3	150	(2)	165.78
Complete Hogs	50	7	350	(3)	386.85
Crops	100	9	900	(4)	994.74
			1900		2100.00

(1) $\frac{500}{1900} \times 2100 = 552.63$

(2) $\frac{150}{1900} \times 2100 = 165.78$

(3) $\frac{350}{1900} \times 2100 = 386.85$

(4) $\frac{900}{1900} \times 2100 = 994.74$

The BCAF information for completing the data sheets should be taken from the supplementary information form. It must be recorded in whole numbers only. A BCAF must be assigned to crops.

ECAF. The ECAF allocation process is identical to that used for building costs except that crops are not considered in allocating livestock equipment costs. The same 0-10 scale applies and is determined in the same manner as previously illustrated for building costs.

Failure to record a BCAF or ECAF value will result in no allocation of buildings and equipment costs to livestock. If the column is left blank, a zero will automatically be input at the computer center. (BCAF and ECAF adjustments are to be recorded in Lines 101-131, Columns 7 and 8 and in Lines 151-251, Columns 7 and 8.)

Suggested Teaching Strategy

Use the narrative under this Key Question to explain the PCAF, BCAF and ECAF designators. Utilize Appendix E to show the effect of a BCAF modification on enterprise analysis.

PART IV. Summary

A. It is important for families to familiarize themselves with the necessary preparations for closing the Minnesota Farm Account Book for Analysis.

B. It is essential that a systematic closing procedure is followed by families to assure accuracy and completeness. This can best be done by using the Checklist for Closing the Minnesota Farm Account Book.

PART V. At-The-Farm Activity

It may take more than one visit to accomplish the final closeout of the account book and additional forms to be forwarded to the analysis center. Some instructors have utilized a procedure of having "small group" closeout sessions. This can work well for families that need moderate or little direct assistance, and can work well with just a few instructions.

The final closing sessions should be devoted to attaining the highest degree of accuracy possible with the farm account. Follow a step-by-step procedure of closeout to insure that no important information is overlooked. The final closeout should include the completion of Checklist for Closing the Minnesota Farm Account Book, the Crop and Feed Check, the Livestock Report (F.A. 12) and Supplementary Information Form (F.A. 51). It would also be desirable to complete a Cash Check as a measure of record accuracy.

PART VI. Resources

Overhead Projector & Chalkboard
Handout of Appendices A,B,C,D,E
Handouts of Livestock Report Form, F.A. 12 (Appendix; Unit I-8)
Handout of Crop and Feed Check (Appendix; Unit I-9)

PART VII. References

Checklist for Closing the Minnesota Farm Account Book

Supplementary Information, F.A. 51

Minnesota Farm Account Book, Burgess Publishing Co., Mpls., MN

Livestock Report, F.A. 12

Crop and Feed Check

PART VIII. Appendices

A. Necessary Prerequisites to Closing the Account Book for Analysis

B. Checklist for Closing the Minnesota Farm Account Book

C. Making a Cash Check of Your Accounts

D. Supplementary Information Form

E. BCAF Adjustment Example

APPENDIX A

NECESSARY PREREQUISITES TO CLOSING THE ACCOUNT BOOK FOR ANALYSIS

1. End-of-the-Year Inventories
2. Checklist for Closing the Minnesota Farm Account Book
3. Livestock Report, F.A. 12
4. Crop and Feed Check
5. Making a Cash Check of your Accounts
6. Supplementary Information Form, F.A. 51

APPENDIX B

Name _____

1977 Date _____

CHECKLIST FOR CLOSING THE MINNESOTA FARM ACCOUNT BOOK

"Closing" the Minnesota Farm Account Book is the term that is used in making the final entries in the book at the end of the year in preparation for a farm business analysis. In addition to the "closed" account book three forms are completed and turned in with your book. These are the "Crop and Feed Check," Form F.A. 11; the "Livestock Report," F.A. 12; and the "Supplementary Information," F.A. 51. These forms are used to check on the completeness and accuracy of various sections of the records. Care should be taken that all figures used on these forms are taken directly, and exactly from the farm account book. If this is not done, the forms do not serve the purpose of promoting accuracy. Also, make CERTAIN that beginning inventories of all items - Livestock Feed and Non Farm Assets - is exactly the same as the ending from last year. If a change has been made, please explain.

It is not a difficult job to "close" the Minnesota Farm Account Book, but it does take time. The main deficiency is not usually incorrect entries, but rather missing items. For this reason, the following checklist has been prepared to help you check on the completeness of your book.

Read each of the items on the checklist as you are going through your account book. If you have the page or item complete, place a check (x) in that blank space. If the item does not apply to your business, place a zero (0) in the blank space. For example: if you don't have dairy cows, place a zero for pages 2-3, 4-5, 6-7, 8-9. When you have every blank space filled, the book should be complete. Since this list only includes the most frequently missed items you, of course, should complete any other items in the book that are obvious.

Pages 2-3 -- Dairy

Have you entered:

_____ Milk and cream used in the home - Cols. 2-3. Is milk in quarts? Cream in pints?

_____ Milk fed to calves - Cols. 4-5. Is milk recorded in gallons?

_____ Amount (Cols. 8 & 10) and value (Col. 11) before any deductions from milk sold.

_____ Landlord's share of milk sold (Col. 13).

_____ Have you entered hauling expense and other deductions (Col. 14, Page 2 through Col. 12, Page 3) for each pay period of the year? Is each deduction clearly identified?

Pages 4-5 -- Dairy

_____ Number, weight and value of all COWS butchered?

_____ Does Item 1, Col. 7, Page 4, agree with Col. 8 total, Page 5?

_____ Does Col. 18 (last line), Page 4, agree with Col. 13 total, Page 5?

_____ Number and value for heifers freshened, Col. 2-3, Page 5.

_____ Number, WEIGHT, and value for transferred, Col. 4-5-6, Page 5.

_____ Dates, number and value of cows bought, Col. 19-24, Page 4.

_____ Dates, number and value of cows sold, Col. 17-28, Page 5.

_____ Number, total value, operator's and landlord's share beginning inventory of dairy cows, Col. 7-11, Page 5.

_____ Number, total value, operator's and landlord's share end of year inventory of dairy cows, Col. 12-16, Page 5.

Pages 6-7 -- Dairy

_____ These pages are for your personal record of individual cows. Have you transferred these TOTALS to Page 5?

Pages 8-9 -- Other Dairy

_____ Number, weight and value of other dairy (Not Cows) butchered, Cols. 3-5.

_____ Heifers fresh, number and value (Cols. 7-8). Does this agree with Cols. 2-3, Page 5?

_____ Transferred to feeders NUMBER, WEIGHT, and value, Cols. 9-11.

_____ Do Cols. 13 (Page 8) + 16 (Page 9) + calves born (Line 3, Page 9) = Cols. 22 (Page 9) + 7 (Page 8) + Col. 9 (Page 8) + calves died (Line 8, Page 9) + others died (Line 9, Page 9) + Col. 3 (Page 8) + Col. 19 (Page 8)?

Pages 10-11 -- Beef Breeding

_____ Are all entries complete with Number, Weight and Value?

Pages 12-13-14-15 -- Feeders

_____ Do you have Number, Weight and Value for all entries?

Pages 16-17 -- Hogs

_____ Cols. 1-5, Page 16, hogs butchered - number, live weight snd value.

_____ Col. 18, Page 16, number farrowing each month.

_____ Col. 19, Page 16, number born each month.

_____ Col. 20, Page 16, number died each month (except breeding stock over six months of age).

_____ Cols. 7-9, Page 16, number, weight and value of hogs on beginning inventory.

_____ Cols. 12-14, Page 16, number, weight and value of hogs on ending inventory.

_____ Cols. 36-41, Page 16, number, WEIGHT and value of pigs bought.

_____ Are breeding hogs sold shown in Cols. 3-8 (Page 17) (including number, weight and value)?

_____ Are market hogs sold shown in Cols. 11-16 (Page 17) (including number, live weight and value)?

Pages 18-19 -- Sheep

_____ Are Cols. 6-8, Page 18, complete?

_____ Are inventories complete with number, weights and values?

_____ Pounds of wool sold, Col. 30, Page 19.

Pages 20-21 -- Chickens

_____ Number and value of birds on beginning and ending inventories.

_____ Hens butchered, (Cols. 13-14-15, Page 20).

_____ Other chickens butchered, (Cols. 16-17-18, Page 20).

_____ Eggs used (Cols. 19-20, Page 20).

_____ Chickens sold, number and value (Cols. 16-20, Page 21). (Are they identified as hens or others?)

_____ Do you have dozens indicated for all egg sales?

Pages 24-25 -- Misc. Livestock Expense

_____ Have sub-totals been carried over from Page 3?

_____ Are livestock enterprises identified on top of sections? Are other dairy expenses separated from cow expenses?

_____ Are veterinary expenses clearly identified? "V"

Pages 26-27 -- Feed Records

_____ Have you entered number of head on pasture and days on pasture according to percent of roughage from pasture?

_____ Are all farm grown feeds allocated to livestock in the proper columns?

Pages 28-31 -- Feed Bought

_____ Are amounts and values of feed bought shown for each entry?

_____ Are commercial feeds, amount and value, shown separately from farm grains?

_____ Is the cost of grinding and other feed processing subtracted and recorded under custom work hired (Page 40)?

_____ Are feeds for various enterprises separated and identified?

_____ Are Column totals from Pages 28-31 carried to the proper place on the bottom Page 31, Columns 54-56?

Page 32 -- Crops

_____ Crops used in house, description and VALUE before processing.

Page 32 -- Crop Data

_____ Does Col. 2 add up to be the actual owned acres in your farm?

_____ Does Col. 8 add up to be the actual acres rented?

_____ Is total production shown in Col. 4?

_____ Is total production including Landlord's share shown in Col. 10?

Hay in tons ___ Corn Silage in tons ___ Corn & Small Grains in bushels ___
Canning Crops in dollars ___ Diverted Acres in dollars ___

Pages 34-35 -- Crop, Seed and Feed Inventories

_____ Are amounts and values shown for each item for both beginning and end of year (including undivided share of landlord)?

Pages 34-35 -- Crops, Seed and Feed Inventories

_____ Are commercial feeds on inventory identified for enterprise: That is Dairy; Other Dairy; Hogs; Beef Breeding; Beef Feeders; etc?

Pages 36-37 -- Crops Sold

_____ Is each crop sold identified, and quantity -- hay in tons, corn and grain in bushels, canning crops in dollars -- given as well as total value?

_____ Are diverted acre payments for both operator and landlord shown in the designated place?

Pages 38-39 -- Crop Expenses

_____ Are fertilizers, crop chemicals and other crop expenses each put in the designated place in the book?

_____ Page 38, Do Cols. 8 + 9 + 10 + 11 + 12 + 13 + 14 = 5? Do Cols. 6 + 7 = 5?

_____ Page 39, Do Cols. 22 + 23 + 24 + 25 + 26 + 27 + 28 = 19? Do Cols. 20 + 21 = 19?

_____ Are expenses for corn silage separate from corn for grain?

Page 40 -- Custom Work Hired

_____ Is each job clearly identified?

_____ Do Cols. 6 + 7 + 8 + 9 + 10 + 11 + 12 = 3? Do Cols. 4 + 5 = 3?

_____ Is each Column 6-12 identified as to enterprise, NOT job done?

_____ Has milk hauling been transferred here from Cols. 14-16, Page 2?

Page 41 -- Repairs

_____ Are only livestock equipment and real estate repairs on this page? (Supplies go on Pages 24-25)

_____ Are landlord's actual or estimated real estate repairs entered?

Page 42 -- Machinery Equipment and Real Estate Bought

_____ Is every depreciable item purchased during the year listed here?

Page 43 -- Machinery, Equipment & Real Estate Sold, Taxes & Rent

_____ Is every depreciable item sold during the year listed here?

Page 43 -- Machinery, Equipment & Real Estate Sold, Taxes & Rent (Cont.)

_____ Have you shown both 1st and 2nd half taxes?

_____ Have you shown landlord's real estate taxes (actual or estimated) on all partnership and rented land?

_____ Has the household share of taxes been identified?

_____ Have you shown all cash rent expense Paid & Due for the current year?

_____ Pasture rent should be in feed bought section, Pages 28-31. Is it there?

Pages 44-45 -- Gas, Oil and Grease

_____ Is Federal gas tax credit taken on last year's tax shown as this year's income in Col. 3?

_____ Are all items listed in total value and also under Tractor & Machinery, Truck or Auto?

_____ Are gallons of gasoline shown for all purchases?

_____ Do Cols. 19 + 21 + 23 + 25 = 15? Do Cols. 33 + 35 + 37 + 39 = 29?

_____ Do Cols. 16 + 17 = 15? Do Cols. 30 + 31 = 29?

Pages 46-51 -- Repair & Operation - Tractors, Crop Machinery, Trucks, Auto & Livestock Equipment

_____ Are all items shown in total value and again in Tractor, Crop Machinery, Truck Auto or Livestock Equipment?

_____ Does the total of Col. headed Tractor, Crop Machinery, Truck, Auto and Livestock Equipment equal the Col. Total Value on all pages?

_____ Does the total of Col. headed Operators Share and Landlords Shares equal the Col. Total Value on all pages?

_____ Have the totals from Pages 46-50 been carried to Page 51, subtotal section?

Pages 52-53 -- Wages, Electricity, Telephone, Unpaid Family Labor

_____ Are days or months worked clearly shown?

_____ Have you shown % or dollars of telephone & electricity for farm business?

_____ Have you shown days of unpaid labor in Col. 32, Page 53?

_____ Days of labor boarded in Col. 33, Page 53?

Pages 54-55 -- Miscellaneous Categories

_____ Is insurance clearly identified in general farm expense?

_____ Have you clearly identified job done for "Income from Work Off Farm?"

_____ For Co-op refunds have you shown total value and cash and equity?

_____ Have you deducted personal share of refunds for tax purposes? (No provision in the book for this)

Pages 55-57 -- Borrowed-Debts-Assets

_____ Does Col. 13 (Page 55) + Col. 11 (Page 56) = Col. 7 (Page 56) + Col. 12 (Page 56)?

_____ Does Col. 12 (Page 56, show everything that you owe to everyone as of December 31st?

_____ Are both beginning and ending non-farm assets completed? (Col. 2 & 3, Page 57)

Pages 57-58 -- Non-Farm Income, Investment and Income Taxes

_____ Is all income from non-farm sources (including gifts) shown for both spouses (Page 57)?

_____ Are all life insurance premiums paid during the year in Col. 3 (Page 58)?

_____ Are income taxes, Federal, Social Security and State paid for this year shown (Page 58)?

_____ Are incomes tax refunds ahown (Page 58)? Non-farm income (Page 58)?

Pages 59-64 -- Personal

_____ Are drugs shown separately from other medical expenses?

Yes ____ No ____ Are you personal spending accounts fairly complete?

Four Year Depreciation Schedule - (Those on Computerized Depreciation may skip this section and check only the section below)

_____ Have you entered depreciation charges this year for every item and subtracted it from the beginning value to get ending value?

_____ Has every item purchased on Page 42 been entered in your depreciation schedule?

Four Year Depreciation Schedule (Cont.)

_____ Have you entered bare land value for your land and rented land?

_____ Have you estimated the value and depreciation of landlord's building?

Computerized Depreciation Schedule Participants

_____ Have you checked your report forms to make sure that all depreciable items purchased this year have been reported to the computer?

Yes ____ No ____ Would you be willing to keep more detailed accounts if the analysis would give you more information?

What additional information would you like your analysis to give you?

APPENDIX C

1977

Name _____

Date _____

MAKING A CASH CHECK OF YOUR ACCOUNTS

A. Kind of Receipt	From Page	Operator's Share
Milk & cream sold	2	$_____
Dairy cows sold	5	_____
Other dairy cattle sold	9	_____
Beef breeding cattle sold	11	_____
Feeders sold	13	_____
Feeders sold	14	_____
Feeders sold	15	_____
Hogs sold	17	_____
Sheep & wool sold	19	_____
Chickens sold	21	_____
Eggs sold	22	_____
Horses sold	23	_____
Crops sold	37	_____
Mach, Equip & Real Estate sold	43	_____
Gas sales & tax refunds	44	_____
Income from work off farm	54	_____
Misc. farm income	55	_____
Co-op refunds (cash)	55	_____
TOTAL FARM RECEIPTS		$_____
Unpaid accounts for current year*	55	$_____
Money borrowed	55	_____
Savings account 1-1-7_	57	_____
Cash in bank 1-1-7_	57	_____
Cash on hand 1-1-7_	57	_____
Investment Income	57	_____
Other non-farm income**	58	_____
Income tax refunds	58	_____

B. Kind of Expense	From Page	Operator's Share
Dairy cows bought	4	$_____
Other dairy cattle bought	9	_____
Beef breeding cattle bght	11	_____
Feeders bought	13	_____
Feeders bought	14	_____
Feeders bought	15	_____
Hogs bought	16	_____
Sheep bought	19	_____
Chickens bought	20	_____
Horses bought	23	_____
Misc. livestock expense	25	_____
Feed bought	31	_____
Misc. crop expense	39	_____
Custom work hired	40	_____
Repair & upkeep of Real Estate	41	_____
Mach, Equip, Real Estate bought	42	_____
Taxes	43	_____
Cash expense - rent	43	_____
Gas, oil & grease	45	_____
Repair & operation of tractor, crop machinery, trucks, autos & lvstk Eqp.	51	_____
Hired Labor	53	_____
Telephone (total operator's share)	53	_____
Electricity (total operator's share)	53	_____
General farm expense	54	_____
TOTAL FARM PURCHASES		$_____
Interest paid	56	_____
Paid on debts	56	_____
Investments	58	_____
Savings acc't 12-31-7_	57	_____
Gash in bank 12-31-7_	57	_____
Cash on hand 12-31-7_	57	_____
Income & self employment tax paid	58	_____
Household & personal expense	59-64	_____

GRAND TOTAL (A) $_____ GRAND TOTAL (B) $_____

Difference (A-B)***

*Include only items purchased during the year which has been recorded as purchased elsewhere in the book and not yet paid for.

**Include cash gifts from others.

***If no household cash and personal records are kept, an accurate cash balance cannot be made.

The difference under receipts, as shown above, may be assumed to be personal spending.

F.A. 51 (Revised 11/76) APPENDIX D Record Year_____

SUPPLEMENTARY INFORMATION FORM

Operator's Name_____ Age_____ Address_____

Wife's Name_____ School_____

I. Family information (include operator and wife)

Members of Family	No. of Persons		Adult Equiv. Per Person		Adult Equivalent
Children Under 7 yrs.	_____	x	.4	=	_____
Children 7-12 yrs.	_____	x	.6	=	_____
Girls 13-18 yrs.	_____	x	.8	=	_____
Boys 13-18 yrs.	_____	x	.9	=	_____
Woman	_____	x	.8	=	_____
Men	_____	x	1.0	=	_____
TOTAL:	_____		TOTAL:		_____

II. Farm Labor Information

Days of hired labor, day labor	_____days
Months of labor hired, monthly basis	_____months
Hired labor boarded by operator @ $2.00/day	$_____
Hired labor boarded by partners @ $2.00/day	$_____
Unpaid family labor, _____days @ $10.00	$_____
Unpaid family labor, _____months @ $250.00	$_____
Number of operators or partners	_____
Number of months each partner worked (25 days per month)	_____
Number of months others were boarded not including hired help.	_____months

III. Information For Crop Analysis

Land charge to be used for crop summaries (if the charge is different for each crop, please specify details on crop data page in the account book). $_____per acre

Production Cost Allocation Factor if different than 1.00 (PCAF may range from 10.00 to .01)

Crop	PCAF	Enterprise	PCAF	Livestock ECAF	BACF
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

TOTAL CROP %CAF: _____

IV. Status of Operator

In what year did you start farming?_____

Check each of the following that applies to you this year.

Owner_____, Partnership (own land in partnership)_____,

Cash renter_____, Crop share renter_____,

Part owner (owner renting additional land_____,

Describe your lease arrangement:_____

APPENDIX E

BCAF ADJUSTMENT EXAMPLE

Net Costs of owning and operating buildings, fences and tiling from Table 3, in the Farm Business Analysis, is $2100.

If the farmer, in assessing his building determined that the hog and crop facilities contributed proportionately more to costs than did the dairy facilities, he may adjust the allocation by using the BCAF factor on a scale of one to ten.

$ Assigned Without BCAF Adjustment

Enterprise	Total W.U. Assigned	$ Assignment W/O BCAF
Dairy	100	700
Other Dairy	50	350
Complete Hogs	50	350
Crops	100	700

BCAF Adjustment

	BCAF Values	Dairy	Other Dairy	Hogs	Crops
High	9-10				9
Above Average	7-8			7	
Average	4-6	5			
Below Average	2-3		3		
Low	0-1				

The building costs would now be assigned as follows.

Enterprises	Total W.U.	BCAF	Adjusted W.U.		Cost/ Enterprise
Dairy	100	5	500	(1)	552.63
Other Dairy	50	3	150	(2)	165.78
Hogs, Complete	50	7	350	(3)	386.85
Crops	100	9	900	(4)	994.74
			1900		2100.00

(1) $\frac{500}{1900} \times 2100 = 552.63$

(2) $\frac{150}{1900} \times 2100 = 165.78$

(3) $\frac{350}{1900} \times 2100 = 386.85$

(4) $\frac{900}{1900} \times 2100 = 994.74$