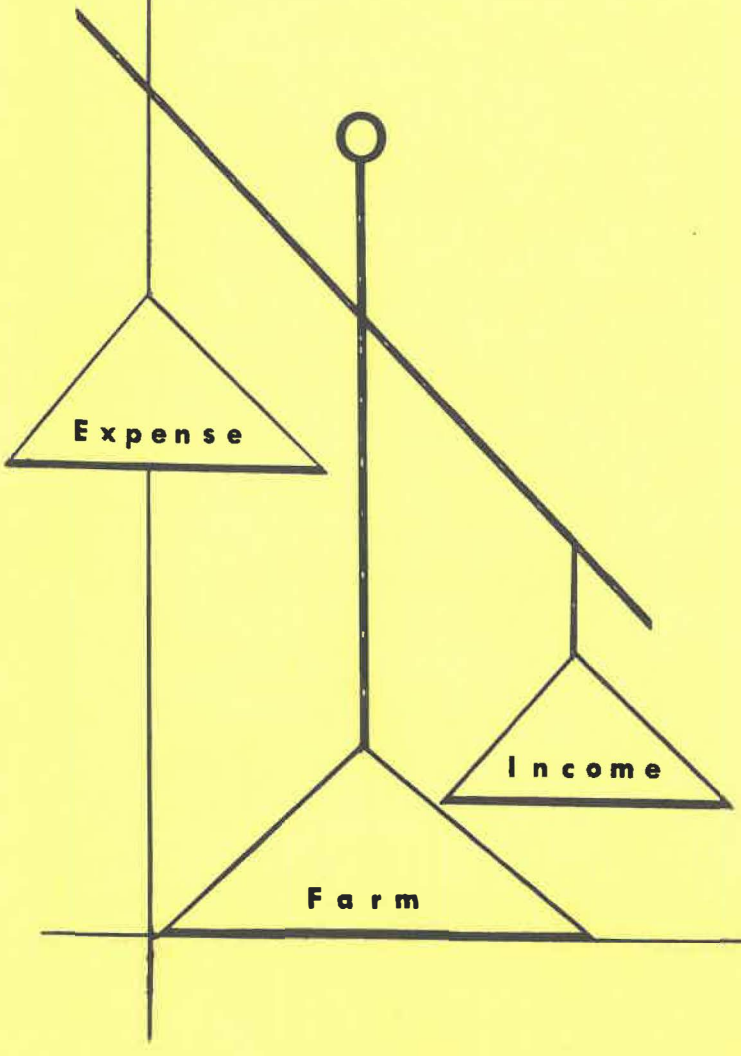
A COURSE OF STUDY FOR ADULT FARMER INSTRUCTION IN FARM MANAGEMENT AND FARM BUSINESS ANALYSIS

THIRD EDITION



Palan AND Persons

University of Minnesota

A COURSE OF STUDY

FOR

ADULT FARMER INSTRUCTION

IN

FARM MANAGEMENT

AND

FARM BUSINESS ANALYSIS

Third Edition

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and

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FOREWORD

This third edition of the Course of Study for Adult Farmer Instruction in Farm Management and Farm Business Analysis is a significant contribution to Agricultural Education. It capitalizes on the advances made in instruction and in research in the field of Farm 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. These problems are both immediate and long range. They are rooted in the economics of Farm Management for it is in the decision making process that a farm operator establishes his level of success of failure. Because this course of study identifies itself with the significant and real needs of operators and of farm businesses, it should prove invaluable to those responsible for instruction in this area.

Teachers who have used the first and second 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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TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

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 accommodate 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 forty years emphasized approved practices as they applied to a variety of enterprises. The adult classes were used primarily to keep interested farmers up to date on whatever their interests happened to be. Under this plan of instruction, each of a series of ten meetings may have dealt with a different topic. Some farmers attended only a few meetings, while others with greater interests attended very regularly. Generally,

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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.

farmers 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 the infrequent contact in the classroom, it was difficult for the vocational agriculture instructor to become well enough acquainted with each farmer to maximize the benefit from on-farm instruction. Such instruction usually dealt with approved practices having little or no relationship to the whole farm business. While this type of adult instruction may have met the needs of farmers 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 operator today have expanded to a greater degree than the physical size or capital investment of the individual farm. Closer margins between cost of production and selling price have made it necessary for the farmer to know more about his business. He must pay more attention to both production and financial details if he expects to compete with others. He must know how to produce crops and livestock to give a return to his capital, land, labor and management. He must know how to combine his crop production with livestock production in a way that will give him optimum return to his capital and family labor. Even after this ideal combination has been determined, he must know how to combine machinery, fertilizer, insecticides, herbicides, varieties and tillage practices for crops. He must know how to combine labor, feed, disease control, housing and equipment and other costs to produce livestock products efficiently. Above all this, he must

know how to study markets and interpret market trends. He also must be skillful in the operation, repair and maintenance of machinery and equipment. He 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, he must also know how to do it.

The purpose of this course of study is to outline a complete program of instruction for adult farmers. 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 the adult farm families face the business management problems that are before them and arrive at sound decisions in a logical and systematic manner.

CHAPTER II

ELEMENTS OF A MODERN ADULT EDUCATION PROGRAM FOR FARMERS

It has been illustrated earlier that the problems of the modern farm 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. 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 it cannot be treated as a single variable. An instructional program for adults must keep each phase of the farm business in proper perspective with the others.

Along with a caution against over-simplification, a program of instruction for adult farmers should include three identifiable phases: (1) farm management, (2) mechanized agriculture, and (3) enterprise. Each phase is related to the others much as the factors which influence farm business are interrelated.

FARM MANAGEMENT

The farm management phase is the foundation for the entire adult program of instruction. It begins with individual farm families enrolled in specific courses composed of definite units taught in an organized sequence. This study of farm 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 management follow the sequence suggested by the ten steps. These steps are as follows:

1. Analyze the present situation.
2. Locate the problems.
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 decisions.

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 farm management to be completed. Management decision making is a continuing process with new problems coming in 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 may be establishing goals; for another problem he may be still analyzing the present situation while for still another he may be choosing a particular course of action which he intends to put into effect immediately. The management education program is simply the starting point in the over-all evaluation of the farm business and a systematized approach to solving problems that will follow.

Developing an understanding of the basic economic and management 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 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 businesses represented in the class.

The farm 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 and home business. 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 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 farm 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 their farm into class discussion. Others, however, are more sensitive to public discussion of their private business.

Any efforts expended on keeping farm 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 at one of the area analysis centers 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 farm business analysis. Farm families can recognize general signs of weaknesses and strength throughout their own farm business by a study of their business analysis. The class material suggested in this book 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 home visits.

The third year of the farm management phase is a continuation of the second in that another year's farm 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 farm business reorganization. Methods for developing reorganization plans can well be illustrated through the use of example farms. Since farm families will approach the actual job of reorganization at varying times, any concrete plans must be developed on an individual basis. Organizing the farm to better meet farm and family goals will be one of the major areas covered on farm and home visits.

MECHANIZED AGRICULTURE

The average farmer in southern Minnesota has more than half of his capital invested in machinery, equipment and buildings. This major area of investment and use cannot be overlooked in any comprehensive education program for adult farmers. 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 man 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 operator must know enough of the principles involved in the operation of his farm machines 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, conveyers and metering devices used for materials handling. Machinery and equipment repair, as well as the construction and repair of buildings, are important skills for many successful farm 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, materials handling or farm 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 pahses.

ENTERPRISE CLASSES

The enterprise phase of a balanced adult farmer program bears the most similarity to adult farmer programs of the past. It is necessary to systematically provide an opportunity for the farmers 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. Topics to be studied should be determined by the needs and interests in the community. The enterprise phase fits in well with the farm management phase in two respects. First,

it furnishes opportunity to members of the farm management group to "sharpen up" enterprises found to be weak through the farm business analysis. Second, it provides a common meeting ground for the vocational agriculture instructor and farmers who may be prospective members of the farm management classes.

The omission of courses of study for the mecahnized farming and enterprise phases in this book was necessary because of limitations of space. This omission does not take away from the importance of either when weighed as part of a complete program of instruction for farmers in agriculture.

CHAPTER III

ORGANIZATION OF AN INSTRUCTIONAL 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 families it must be systematized around the basic principles of farm management.

Adult instruction in agriculture is not unlike other courses offered by the public schools. It must be systematized 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 farm business organization and greatest operating efficiency.
5. Individual on-farm instruction as 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 farm 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 farmers in one course of farm 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 farmer 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 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, though perhaps not directly, "are you a good dairyman?" This question would be just as "loaded" as the first because the farmer would have to ask himself many other questions before he could provide the answers. In some cases this farmer may be able to check back on his records to find information. In many cases, however, he would have to begin keeping records which eventually would furnish part of the basis for the answer. Even if he could be reasonably certain that he was a good dairyman, he would find himself 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 up 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 farm 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 the Minnesota Farm Account Book 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 Management I", "Beginning Farm 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 is a year-round business, keeping farm records must also be a year-round task. The year-round feature of the farm 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 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 instruction during the first year will accomplish several purposes - it will enable the vocational agriculture instructor to become

acquainted with the farm and the farm 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 farm 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 farm family will determine the success or failure with which the family persists in the management program in succeeding years. Some on-farm-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 farm business is concerned, furnishes the opportunity for development of good communication between the instructor and the farm family. A farm and home 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 interest and deal with problems relating to keeping and using the farm accounts. It also permits time to observe cropping and livestock programs on the farm.

Closing out the Minnesota Farm Account Book and sending it to the appropriate area vocational school 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 farm business analysis in general, as well as the individual study and interpretation of the first farm business analysis of the individual farm.

Some instruction during the second year deals with the continuation of farm 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 work units, 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 farm management program may be called "Farm Business Organization", "Advanced Farm Management", or any similar title. During this phase, farm 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 farm business. Studies now can be made to determine income possibilities with various combinations of crops and livestock enterprises. The importance of transitional stages when major changes are contemplated must be given considerable emphasis.

As the farm 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 instruction and less emphasis on group instruction. At this point the help of specialists in buildings, materials handling and evaluation of plans is most worthwhile for both the instructor and the farm family.

While this book 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 farm 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 operation, organization and efficiency is highly individualized. Instructors must be patient to permit their farm 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 farm family.

CHAPTER IV

HOW TO USE THE COURSE OF STUDY FOR ADULT FARMER 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 farm family. Titles may be used in promotion of the management program. Preparation of public relations materials for use with prospective farmer cooperators and other community leaders is a good way to inform the public of the purpose and content of adult agriculture instruction.

Each unit begins with a list of teacher objectives. Users should translate these simple teacher objectives into student objectives. The student objectives should state the behavorial activities in which the farm family is expected to engage as a result of the instruction. 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.

The subject content presents, in brief outline form, the major topics related to the objectives. Each instructor must prepare instructional materials that will more fully present the subject content. A list of references at the close of each part or unit will be helpful in locating relevant material. In addition, the instructor must draw from his knowledge of the local area to insure that the subject matter is related to

the problems in which the class members may be involved. Many of the tables and charts presented in the subject outline can be used as source data for preparing visual aids for class use. The data should be revised each year as new summaries of farm records become available through the area vocational technical school agricultural programs. Instructors will find it useful to be alert for individual farm record summaries that can be used to illustrate the various lesson units.

Often instructors know what they want to teach, but have difficulty in deciding how to proceed. The suggested teaching activities and experiences will demonstrate procedures that have proven successful to the authors. Farm 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 families as a method of focusing their attention on the subject for discussion and stimulating them to participate in the learning activity.

The activities suggested for individual on-farm instruction help to bring the generalities of the classroom to the specifics of the farm families own farm 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 visits. Because on-farm 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 experienced instructors consider it the most valuable phase of instruction. Any

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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.

instruction with such high value and comparatively high costs deserves every effort to maximize the returns to the educational investment.

The on-farm instruction is suggested on the assumption that there has been pre-enrollment contact with the family at which time the instructor became acquanited 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 instruction.

CHAPTER V

FARM MANAGEMENT I - FARM RECORDS AND ACCOUNTS

The vocational agriculture instructor in each community must develop his own method of contacting and enrolling families in Farm 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 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 Minnesota Farm Account Book in December.

Farm 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 business. Because of this interrelated spending, it is very important that

planning in both of these areas be done jointly by the farmer and his wife. This planning can best be done if both the farmer and his wife participate in the farm management phase of the adult program. The interest and participation of the farmer's wife will often result in a more accurate and up-to-date farm account book. Even though the housewife usually has her time fully occupied with regular duties, she most often will find the time to keep farm account book entries of receipts and expenses up-to-date throughout the entire year. Often the farmer will neglect this task during periods of pressing farm work. If the wife keeps this phase of the farm account book and the husband keeps the feed records and inventories, a very accurate and complete record will result. This combination often furnishes opportunity for the partners to duscuss problems relating to the farm and the home that heretofore have not been openly discussed.

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

UNIT I - I

STIMULATING AN INTEREST IN FARM RECORDS

Teacher Objectives:

1. To stimulate the interest of farm families in developing a more profitable farm business and providing a more satisfactory family living.

2. To show changes in farming over the past 20 years.

3. To show that increasing complexity of the farm business has resulted in greater income differences between high earning and low earning families.

4. To illustrate a greater need for an intensive study of the home farm.

5. To stimulate families to establish general short and long term goals for the farm and family.

Part I - How Does The 1971 Farm Compare With The 1948 Farm?

1. Subject Content:

   A. Comparison of farm size in 1971 with 1948.

   B. Comparison of changes in capital investment.

   C. Comparison of cash receipts.

   D. Comparison of cash expenses.

   E. Comparison of family needs.

   F. Comparison of records necessary to operate a farm business.

      1) Business analysis.
      2) Income tax records.
      3) Social security records.

   G. Comparison of output per worker.

   H. Comparison of livestock feeding and management practices.

   I. Comparison of crop production practices.

   J. Comparison of machinery and equipment complexities.

2. Suggested Teaching Activities and Experiences:

Reference material should be used to show how farming has changed in complexity over the past twenty years. Through class discussion this material can be used to illustrate that farming has become both larger and more complex.

3. References:

A. U.S., Minnesota and County Agricultural Census

B. Vocational Agriculture Farm Analysis, Annual Report, 1971.

C. The Visitor.

Part II - How Has Increasing Complexity Affected the Farm Business?

1. Subject Content:

Measures of Farm Earnings*

	1948	1971**
Operator Labor Earnings - High Profit Farms	$ 4,930	$ 19,862
Operator Labor Earnings - Low Profit Farms	186	-2,402
Differences	4,744	22,264
Farm Capital - Average Farms	23,725	125,101
Receipts - Average Farms	10,253	49,724
Expenses - Average Farms	7,876	26,719

*Annual Report in Southeastern Minnesota, 1948, Mimeo No. 178, University of Minnesota

**Vocational Agriculture Farm Business Analysis, Annual Report, Winona Area Vocational School, April, 1971.

2. Suggested Teaching Activities and Experiences:

Through discussion, point out the significance of the differences between 1948 and 1971 farms. Illustrate that earnings of good farms have more than tripled while low profit farms have decreased. Raise the question: How can you be part of the high earning group?

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

Part III - What Does Your Family Want?

1. Subject Content:

A. "Our Family Goals" worksheet.

B. Comparison of the business and the farm family needs to a growing tree.

2. Suggested Teaching Activities and Experiences:

Begin class with a brief introduction of family goals. There was a time when farming was thought of simply as "a way of life". On some farms, the family still thinks in these terms. However, most farm families are no longer satisfied to do without the goods and services which other people enjoy. Consequently, the profit motive has become an important aspect of farm operation. Each family has a different standard of living which stems from different goals and values. Farming today is a highly complex business. In comparing the farm family and farm with the tree, the "soil" of land, labor and capital must be used by the farm family to construct a thriving farm business "tree", (refer to chart of tree). With careful management, the family tries to develop the main root system for the crop and livestock program. Caring for the root system is essential. Good crop varieties, proper fertilization, weed control, balanced rations, etc., are needed for vigorous growth. The products developed flow through the market structure and provide income for use in paying debts, making farm improvements and for family living. The income to be used for family living, together with community facilities and the time, energy, health,

skills and knowledge of the family members are the resources available for family living. From these the family needs of recreation, education, shelter, clothing, food, home improvement and others are met. Whether this proves to be a satisfactory level of living or not will depend upon the family's goals and adequacy of the farm business. Point out that what a family wants is the motivation for good management of the farm and home business. In setting up goals, the following points should be recognized:

a. All family members should contribute.
b. Recognize that there are both individual and family goals.
c. Recognize both long and short term goals.
d. Select goals in terms of available resources.
e. Competition between goals is normal and desirable.
f. Goals must be modified as resources change.

Have farmers and their wives work together in completing "Our Family Goals" worksheet. After allowing sufficient time for completing the worksheet, the dependence of the fulfillment of family goals from a profitable farm business should be brought out in discussion. At this point, the ideas should have been established that a profitable farm business is the key to supplying the wants and satisfactions for the entire family. This leads to a final question--Where does one begin to determine whether the farm business can be more profitable?

Future classes will be pointed toward the answer to this important question.

3. References:

A. U.S. and Minnesota Agricultural Census, latest edition.

B. Vocational Agricultural Farm Analysis, Annual Report, latest edition.

C. Profitable Farm Management

Part IV - Suggested On-Farm Instruction Activities.

Get acquainted with the family and the farm. Walk the farm to get acquainted with the cropping program and to make some estimate of the yield potentials of the farm. Discuss family and farm goals. Go over the "What does your family want?" worksheet with the family. Remember these points.

It is important to:

1. Get expression from everyone in the family. That's the reason for talking about wants, and even sometimes writing them. It's the simplest way to be sure there are no hidden desires and ambitions.

2. Get agreement of what things are most important. It makes for happier relationships among family members and is a method of teaching values to children. Goals based on values of the family will lead to greater satisfactions.

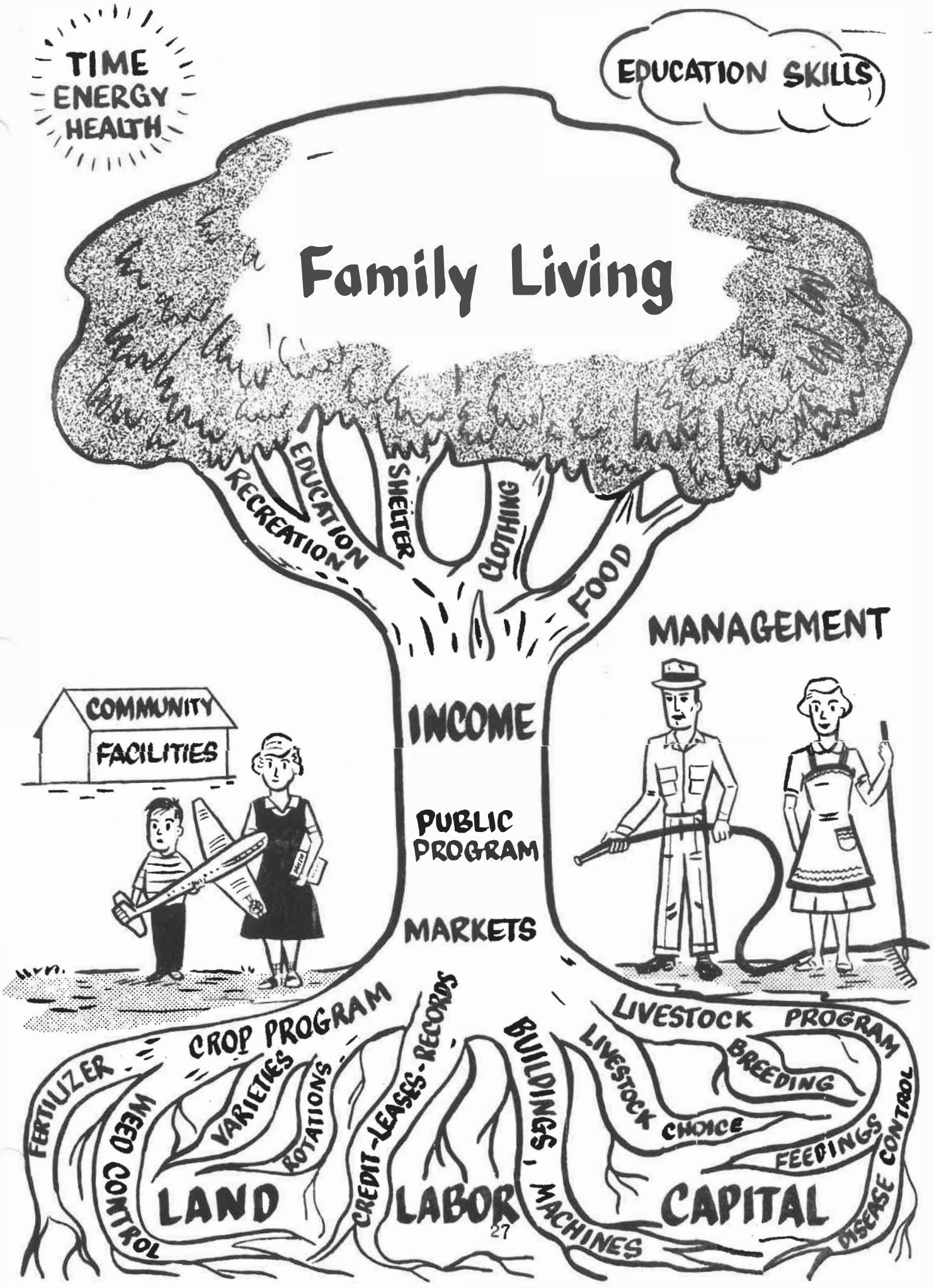
3. Recognize that there are both individual and family goals. John's desire to become a basketball star may be individual while a vacation each year is a family goal. However, the individual goal becomes the family's when they decide to use family resources to make it possible.

4. Recognize both short time and long time goals. Some things can be done immedicately. Others (like a college education for the children) may be far in the future but should be discussed now in order that steps be taken towards getting them.

5. Select goals in terms of available resources. Be realistic about what you have in thinking of your wants or the family can be constantly unhappy and dissatisfied.

6. Competition between goals is normal and desirable. None of us can ever have all we want of everything. Competition helps us to decide what is most important and makes us work harder to use our resources efficiently.

7. Constantly modify goals as resources change or as the family is able to use resources more efficiently.


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

WHAT DOES YOUR FAMILY WANT?

NAME _____ DATE _____

ADDRESS _____

Clarifying ideas of what is wanted is one of the steps in improving the farm and home business. Every family knows of things you've wanted but it takes thought and considerable talking among family members to decide if you have considered the most important things, and that you have agreement as to which things come first. Use the following form to help family members think what you want this year and in the future. After writing them, number them as to which should come first.

	THIS YEAR	LATER
FOR A PROFITABLE FARM BUSINESS:		
FOR SATISFYING LIVING:		
FOR DEVELOPMENT OF FAMILY MEMBERS:		
FOR LONG-TIME FINANCIAL SECURITY:		

UNIT I - II

SHOWING THE NEED FOR FARM RECORDS

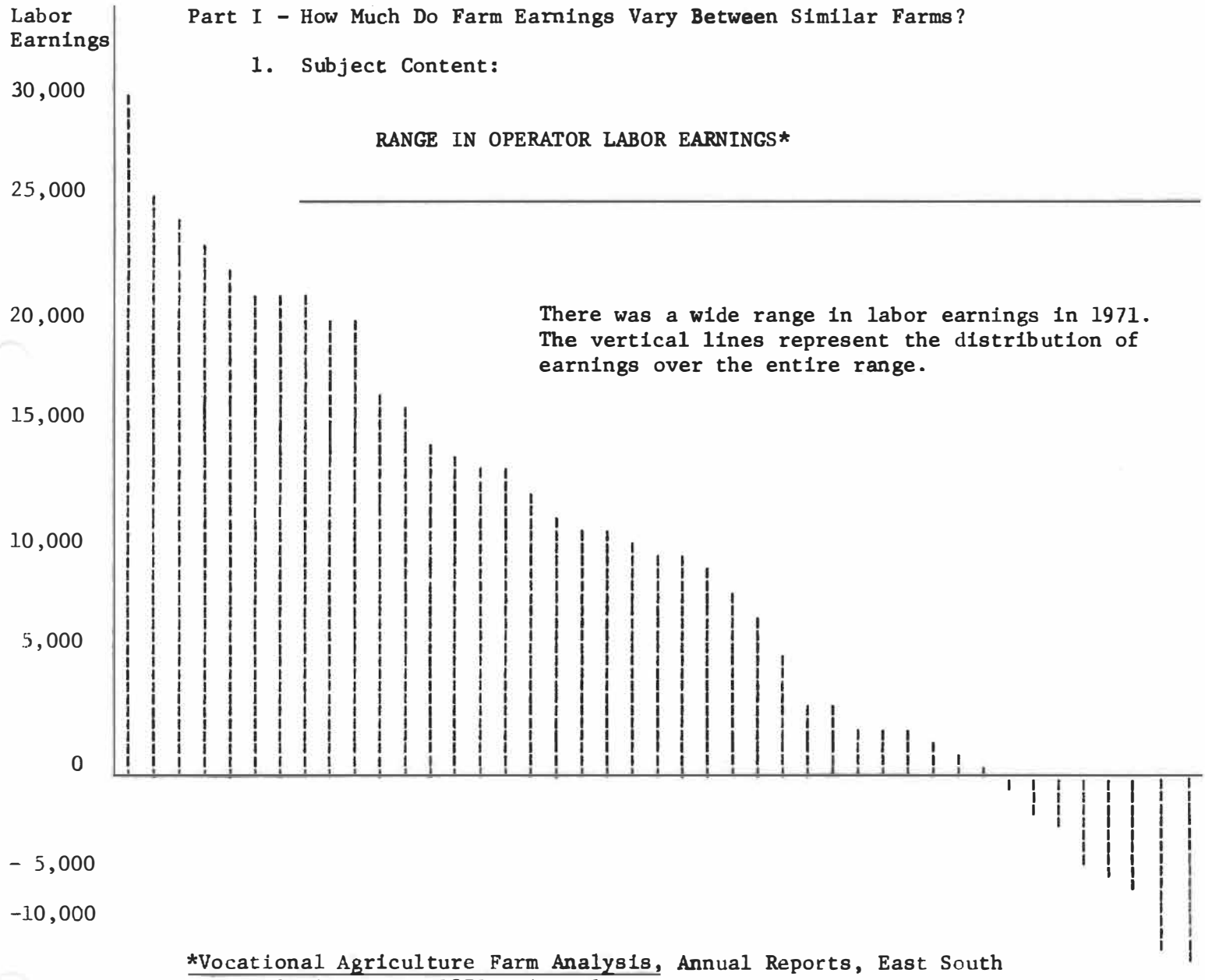
Teacher Objectives:

1. To demonstrate that earnings vary greatly from farm to farm and that reasons for these variations can be shown through a farm business analysis.

2. To present the major factors affecting farm earnings and illustrate the influence of management on these factors.

Part I - How Much Do Farm Earnings Vary Between Similar Farms?

1. Subject Content:



*Vocational Agriculture Farm Analysis, Annual Reports, East South Central Minnesota, 1971. Annual Report.

2. Suggested Teaching Activities and Experiences:

Discuss the range in earnings as shown in the graph. Show how the farms are divided into most profitable and least profitable groups to compare with the average. Point out that each farmer with an analysis can identify his earnings position in the graph and compare this with the standings of other farms or groups of farms.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

Part II - How Can the Reasons for These Income Variations be Explained in A General Way?

1 Subject Content:

MEASURES OF FARM ORGANIZATION AND EFFICIENCY - 1971*

Factors	Average of 152 Farms	30 Most Profitable Farms	30 Least Profitable Farms
Labor Earnings	$8,476	$21,991	$-2,926
Crop Yields - Index	100	104	90
Percent Till. Land in H.R. Crops	69.9	72.6	73.5
Ret. for $100 to Prod. Lvstk. - Index	100	113	81
Gross Ret./Till. Acre (Excl. Past.)	87.61	94.1	79.97
Livestock Units/ 100 Acres	39.4	37.9	38.2
Size of Business-Work Units	457.1	665.6	324
Work Units/Worker	289.9	356.6	246.3
Power Mach., Equip., Bld. Exp./W.U.	23.49	20.63	31.04
Farm Capital Investment/Worker	79,435	95,290	101,016

*Vocational Agriculture Farm Analysis, Annual Report, Southeastern Minnesota, 1971.

2. Suggested Teaching Activities and Experiences:

Begin discussion by raising questions such as: What were your earnings in 1971? How do your crop yields compare with your neighbors? Do you have a high return cropping system?

Are your power and machinery costs in line? What are some of the factors which may make earnings vary? Over which variable factors do you have some control?

After informal discussion on these and related questions, show how the farm management factors point toward the answers. Point out that each family can compare itself with average, the most profitable and the least profitable groups. Illustrate that a summary measure such as the crop yield index can be compared among groups, but more significantly, individual crop yields can be compared. Show how various combinations of livestock can be compared before going to individual enterprise records.

Show briefly how these factors are inter-related. Since a detailed analysis study will not be made at this time, discussion should be kept at a rather general level, even though suggested conclusions may be an over-simplification of the problem. A detailed study of each factor will be made during the second year.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Records for Farm Management.

Part III - Suggested On-Farm Instruction Activities.

Observe the farmstead area; buildings, equipment, livestock. Ask farmer to estimate the production and profit level on his livestock enterprises. Assist him in gathering materials that may be needed for future use such as soil samples for testing, feeds and grains for nutrient analysis. Explain the functions of Soil Conservation Service and encourage the request for a farm plan if not already available.

UNIT I - III

MEASURES OF FARM FAMILY PROGRESS AND USES OF FARM AND HOME RECORDS

Teacher Objectives

1. To stimulate farm families toward a self appraisal of their farm and home situation and to help them establish measures of farm family progress.

2. To define complete farm and home records and to demonstrate the usefulness of these records.

Part I - How Can a Family Make a Self Appraisal of Its Own Sitaution?

1. Subject Content:

Home and Family Self-Appraisal Check Sheet (attached)

2. Suggested Teaching Activities and Experiences:

Begin class with a brief discussion of the seven areas of interest shown on the self appraisal form. Allow about thirty minutes for the farmer and his wife to discuss together the questions raised in the check sheet and to check "yes" or "no" responses. Select the most significant questions in each section for special discussion. Discuss in addition, any further questions that may be raised by the families.

It may be appropriate to relate the discussion to the previous meetings on family and farm goals. Many of the items to which the family will respond can be shown to be highly related to the earning level of the farm business.

Part II - What are Some of the Most Significant Measures of Farm Family Progress?

I. Subject Content:

New Worth Statement for those Families who Kept a Complete Record

of all Assets and Liabilities, 1971*

NET WORTH STATEMENT - OPERATOR - 1971

	Items	Average of 131 Farms		30 Most Profitable Farms		30 Least Profitable Farms	
		Jan.1	Dec.31	Jan.1	Dec.31	Jan.1	Dec.31
1.	Total Livestock	$20,893	$23,200	$29,855	$34,150	$15,129	$17,369
2.	Crop, Seed & Feed	11,539	13,575	19,842	24,463	8,421	10,110
3.	Total Power, Machinery	15,848	17,702	22,598	27,371	13,208	13,829
4.	Land	23,657	24,299	27,457	28,437	28,601	28,836
5.	Buildings, Fences, Etc.	20,772	23,996	30,931	34,549	16,270	19,990
6.	Total Farm Capital	92,709	102,772	130,683	148,970	82,429	90,134
7.	Non-Farm Assets	9,356	10,143	10,106	10,659	8,079	7,666
8.	Dwelling	4,276	4,495	5,113	5,503	4,105	4,420
9.	Total Assets	106,341	117,410	145,902	165,132	94,613	102,220
10.	Real Estate Debt	21,962	22,129	27,043	25,790	26,117	29,945
11.	Chattel Mortgages	12,232	15,568	17,488	21,794	11,019	14,354
12.	Notes	3,989	4,971	3,245	4,699	3,898	5,653
13.	Accounts Payable	1,257	1,660	1,144	2,079	1,983	2,308
14.	Total Liabilities	39,440	44,328	48,920	54,362	43,017	52,260
15.	Farmers Net Worth	66,901	73,082	96,982	110,770	51,596	49,960
16.	Gain in Net Worth	---	$6,181	---	$13,788	---	$(-1,636)

*Vocational Agriculture Farm Analysis, Annual Report, Southeastern Minnesota, 1971.

2. Suggested Teaching Activities and Experiences:

Have each of the families put their net worth down on a worksheet and divide this by the number of year's farming to determine the average net worth gain per year. Point out that this net worth must be adjusted for net worth at the beginning of the farming period. Most of the families will be unable to do this because they have not yet taken inventories and determined their present net worth.

This is a good way to illustrate what can be learned after this record is begun. Emphasize that an annual net worth statement is the best single measure of financial progress.

Use the data included in subject matter to illustrate the different degrees of progress shown by 1971 records of the high and low earning groups. Point out that each of these groups could represent an individual family and through discussion bring out the significance of keeping personal spending within the limits of earnings.

Family living expenses have the first claim on farm income. Is there enough left for payment of debts? Through discussion, bring out that the comfort of the home, recreation, educational progress of the family and hours worked are also measures of family progress that may be evaluated in a more subjective manner.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

Part III - What Do Complete Farm and Home Records Include?

1. Subject Content:

A. Farm receipts and expenses

B. Inventories of livestock, crops and feed.

C. Machinery, equipment and buildings inventory and depreciation.

D. Records of feed to livestock.

E. Record of crops raised.

F. Record of livestock acquisition and disappearance

G. Non-farm assets and total liabilities

H. Household and personal records.

2. Suggested Teaching Activities and Experiences:

Begin class by introducing the Minnesota Farm Account Book to the class members. Discuss each of the areas listed under subject matter, illustrating that the book has been developed

for easy and systematic recording of each of these essential parts of a complete record. Have each family fill in the information on the cover of the book and invite them to make penciled notes throughout the book as they desire.

Part IV - Of What Value Are Complete Farm and Home Records?

1. Subject Content:

   A. Value of Records

      1) To furnish information necessary for income taxes.
      2) To determine farm earnings.
      3) To observe financial progress.
      4) To find which enterprises are most profitable.
      5) To determine weakness and strength in the farm business as a whole and in specific enterprises.
      6) To furnish information to evaluate personal spending.
      7) To perserve information about the business for further references.
      8) To supply necessary information for use when obtaining credit.
      9) To supply feed input and cost data for future planning.

2. Suggested Teaching Activities and Experiences:

   Ask the question, "What do you do with your records?" Many will have used records for tax purposes only. Others may have made limited use of records for other purposes. The ease of determining net farm income from Minnesota Farm Account Book totals for tax purposes should be pointed out. The other values of records listed under subject matter should be discussed briefly to show the association between needed record information in the preceding lesson unit and the use that will be made of it. Records which will not be used are a waste of time to keep; however, records which are not kept cannot be used. IN ORDER FOR FAMILIES TO BE MOTIVATED TO KEEP GOOD RECORDS, THEY MUST UNDERSTAND HOW THE RECORDS WILL BE USED AND HOW SUCH USE WILL BE OF BENEFIT TO THE SUCCESS OF THEIR BUSINESS.

3. References:

A. Minnesota Farm Account Book.

B. Farm Records.

C. "Financial Summaries" included in Minnesota Farm Account Book.

D. Getting Started in Farming.

E. Farm Management, Principles, Budgets, Plans.

Part V - Suggested On-Farm Instruction Activities.

Review an analysis report with the family. Illustrate to them how the estimates they made the previous two visits of production levels and 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.

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?	____	____

UNIT I - IV

THE INVENTORIES. WHY? HOW?

Teacher Objectives:

1. To demonstrate the importance of inventories.

2. To teach families how to take and record the initial inventory.

Part I - Why Are Inventories An Important Part of Farm Business Records?

1. Subject Content:

EXCERPTS FROM A 1971 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	9,704	9,224
Total Productive L.S.	16,979	16,624
Crop, Seed and Feed	10,929	9,722
Power, Machinery & Equipmant		
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

****

	1971
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

2. Suggested Teaching Activities and Experiences:

Begin class by writing the total farm sales of $34,781 and the Total Farm Expense of $36,435 on the chalk board. Explain that these are figures from a farmer's actual record in 1971. Discuss the kind of a year this farmer had from a profit standpoint. Many will come to the conclusion that this farmer had an operating loss of -$1,654. Show the farm inventory data from the subject matter section, pointing out that this farmer had more property at the end of the year than at the beginning. Show that his farm capital, which represents dollars, increased by $9,243. Show that total farm receipts were $44,258 (including $234 family living) and that total farm expenses were $36,435 (including unpaid labor, board for hired labor and interest on farm capital). Illustrate that this farmer actually had labor earnings of $7,823. Labor income could have been used instead of labor earnings; however, at this time, one or the other should be used to avoid confusion. Summarize this unit by empnasizing that little can be learned about the farm business without taking inventories into account.

3. References:

A. Records of a local farmer.

B. Getting Started in Farming.

C. Farm Records.

D. Records for Farm Management.

Part II - How Do You Begin the Inventory?

1. Subject Content:

Because vocational agriculture teachers are familiar with rules for estimating quantities of grain, hay and silage, and because values will vary considerably from area to area, no specific subject matter has been included here. Material may be taken from the back cover of the Minnesota Farm Account Book and from the references shown at the end of this unit to suit the specific situation.

2. Suggested Teaching Activities and Experiences:

Have the families begin on page 5 or 6 or 7 of the Minnesota Farm Account Book with the dairy cow inventory. Point out that values should be consistent, but conservative. Have each family fill in the information called for on the top of the Financial Summaries for Minnesota Farm Account Book. As soon as inventory values for dairy cows has been entered in the book and added, the total should be entered in the appropriate "Beginning of the Year" column under operator's share on the financial summaries. This should be done as each inventory section is completed in the farm account book. When the last line (Farmer's Net Worth) on the financial summaries is reached, the inventories are complete. Stress that an inventory as of January 1 once correctly completed, will never change.

Have the families continue through the account book, page by page, until all inventories have been completed. Emphasize the need for numbers, weights and values in these inventories.

Call special attention to crop, seed and feed inventories, pages 30-31; non-farm assets, page 55; and liabilities, page 54.

The Four Year Depreciation Schedule should be explained. The importance of setting this schedule up in conformity with the past income tax reports should be stressed.

The importance of accurate inventories to good farm records in general and the effect of inaccurate inventories on the year-end analysis should be thoroughly discussed.

The value of this unit is to get all families started on the January 1 inventories. These cannot be completed in class except by the most exceptional farmer. The very next scheduled farm visit should be spent with the family in getting these inventories completed. Since this is a big job which requires prior planning on the part of the farmer, this should be a scheduled visit for the specific purpose of completing this job.

If the vocational agriculture instructor is beginning a large number of families on farm accounts for the first time, he may wish to complete all except the Four Year Depreciation Schedule at this time. This could, in most cases, be completed at a later date when time is available. Unit XI, intended for August or September, deals with the depreciation of all capital assets in detail. It will probably be necessary to give only a brief description of how depreciation is handled at this time to enable families to get started on entering their asset records on the depreciation schedule. Families planning to use the computerized depreciation schedule must have their inventories completed by June 1, however.

3. References:

   A. Minnesota Farm Account Book.

   B. Getting Started in Farming.

C. Records for Farm Management.

D. "Financial Summaries" included in Minnesota Farm Account Book.

E. Vocational Agriculture Farm Analysis, Annual Reports.

F. Farm Records.

G. Current local newspapers and market reports.

H. Farm Management, Principles, Budgets, Plans.

Part III - Suggested On-Farm Instruction Activities

Assist the family in establishing the beginning inventory in the account book. Check carefully for accuracy and completeness. Review the net worth statement with them and calculate some of the common credit ratios. See Table 5 in business analysis and documentation for the procedure to use in calculating ratios.

UNIT I - V

KEEPING FARM ACCOUNTS CURRENT

Teacher Objectives:

1. To teach families a systematic approach for making current entries in the Minnesota Farm Account Book with emphasis on Receipts and Expenses.

2. To aid farmers in developing and maintaining a filing system for farm and home business papers.

Part I - Getting Acquainted with the Minnesota Farm Account Book

1. Subject Content:

   A. Study and preparation of the account book

      1) Index.
      2) Table of contents.
      3) Individual page instructions.

   B. Using a safety spindle

   C. Using a receipt folder or index file

2. Suggested Teaching Activities and Experiences:

   Begin class by re-emphasizing the need for detailed separation of receipts and expenses for analysis purposes. Discuss the index and table of contents on page 1 of the account book. Various systems may be used to aid the record keeper in finding and turning to pages quickly. A system of plastic tabs in an assortment of colors (available through office supply houses) may be used on the first page of each account book section as identified in the table of contents. Even though this may seem like a menial task, it can be done in class to create interest in the account book and it will save much time later on in finding pages in the account book. This may prevent discouragement later on.

Use a safety spindle and an expanding folder to illustrate how income and expense "slips" may be preserved in an orderly manner until being entered in the account book. When items have been entered, the slips should be put into the expanding folder for storage. If a definite system is not used, there will very likely be some confusion during the year as to whether or not certain items have been entered. Point out that all entries should be made with a pencil with sufficient care that each number is clearly legible. Neatness will help to avoid errors.

3. References:

   A. The Minnesota Farm Account Book.

   B. Keeping Farm Records for Analysis.

Part II - What Are Some Special Things to Watch in Making Entries?

1. Subject Content:

   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.

   D. Pages 10-15 - Beef and Feeders

      1) Record number, weight and value of all livestock bought and sold.

   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.
      3) Record market hogs in columns 9 through 16.

F. Pages 18-19 - Sheep

1) Record number, weight and value.
2) Record sheep, wool and incentive in appropriate places.

G. Pages 20 through 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 32 through 36 - Feed Bought

1) Use separate page sections for each livestock enterprise.
   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.
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. Page 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 fertilizers, 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 & Real Estate Bought

1) Ignore columns 3 and 4.
2) Pay special attention to accuracy in column 5 (cash paid).
3) Only items purchased that are to be depreciated are entered in this section.

N. 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 column 9 and again in 13, 15 or 17.

O. Pages 46 through 49 - Repair of Truck and Auto, Tractor and Crop Machinery

1) All items must be recorded in column 3 and again in 6, 7, or 8.
2) Don't forget auto and truck license and insurance.

P. Pages 50-51 - Wages of Hired Labor

1) Record time worked, wages earned and amount paid.

Q. Page 51 - Taxes

1) Be sure to record taxes paid by the landlord on rented land.

R. Page 53 - 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 on page 56.

S. Page 53 - Co-op Patronage Refunds

1) Enter in total value (column 8) and columns 9 or 10.

T. Page 54 - 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. Pages 56 through 62 - Taxes and Household and Personal Expenses.

1) Call special attention to tax payments and refunds.
2) Refer to instructions on page 56 for classifying personal expenses.

2. Suggested Teaching Activities and Experiences:

Discuss the items listed in subject content having each family follow the pages of its own account book as this is done. Encourage penciled notes or checks as reminders of important items. This class is primarily to introduce these items to new recordkeepers. Going over this material is only the beginning. Follow-up on farm visits is imperative. Frequent inquiries such as "how are the accounts coming?" will indicate to families that the instructor is interested in the records and willing to assist when necessary. At least twice during the year the account book should be carefully checked by the instructor. Notes regarding missing and incorrect items should be made on a separate piece of paper and returned to the family with the book to assist in eliminating the deficiencies. This procedure is many more times effective than simply mentioning them. The account book itself is the property of the farm family. The instructor should be very cautious about writing anything in the account book itself. The account book is a permanent record for the family and should not be defaced, even during the teaching process.

3. References:

A. Minnesota Farm Account Book.

B. Keeping Farm Records for Analysis.

Part III - The Farm and Home Office and Filing System

1. Subject Content:

A. Purpose of the office

1) Provides a place to keep valuable papers and material from getting lost.
2) Provides a quiet place to think and work.

C. Show samples of the various components of a filing system such as file folders, dividers, file tabs, etc. Also show prices of each.

D. Develop a sample farm filing system with index and put in a box to show families what it looks like and how it works.

3. References:

A. Your Home Business Center, Extension Bulletin 307.

B. Successful Farming.

C. Teaching Unit for the Farm and Home Office.

Part IV - Suggested On-Farm Instruction Activities

Review the accounting procedures with the family record keepers. Check the correctness of the initial account entries. Show how the accounts will be used to file income tax information the following year. Encourage families to establish a farm office and filing system.

UNIT I - VI

THE CROPPING PROGRAM

Teacher Objectives:

1. To demonstrate the influence of a good cropping program on farm earnings.

2. To encourage families to evaluate their own cropping programs.

3. To review the factors affecting crop yields.

4. To lay the groundwork for detailed crop planning to be done individually on a farm visit.

Part I - How Do Crop Selection and Crop Yield Affect Farm Earnings?

1. Subject Content:

A. How do the cropping programs of high earning farms compare with the low earning farms?

SELECTED MEASURES OF CROPPING ORGANIZATION AND EFFICIENCY*
1971

	Average	High Earning	Low Earning
Crop Yields (Index)	$ 100.00	$ 104.00	$ 90.00
% Land in High Return Crops	69.90	72.60	73.50
Gross Return per Acre	87.61	94.10	79.97
Tillable Acres	240.50	362.30	219.80
Labor Earnings	8,476.00	21,991.00	(-2,926)

*Vocational Agriculture Farm Analysis, Annual Report, Southeastern Minnesota, 1971.

2. Suggested Teaching Activities and Experiences:

Illustrate how high crop yields and high gross return per acre contribute toward high income as shown by the analysis data.

Illustrate also that yields of individual crops can be studied to find strengths and weaknesses in the cropping program.

Point out the common relationships of livestock enterprises to crop selections and illustrate that relative profitability of

livestock in a given year may tend to overshadow crop selection. In years of low hog prices, for example, hogs are less likely to be profitable than dairy cattle and more corn is likely to be produced on hog farms. In such a year, crop selection may not be a factor effecting earnings or is overshadowed by other factors. The number of tillable acres and gross return per acre are most often significant factors.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

Part II - What are the Important Influences on Crop Yields?

1. Subject Content:

A. What factors affect crop yield?

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

2. Suggested Teaching Activities and Experiences:

Briefly discuss the factors that influence crop yields as shown under "Subject Content" to lay the groundwork for this unit. Emphasize that high crop yields usually don't just happen-they are planned. Have each family draw a plot of the farm on page 28 of the Minnesota Farm Account Book. Have them show field arrangements, identify each field by number and indicate the acreage in each.

Have each family fill out the "kind of crop" and "acres" column on page 29, making certain that the "total" on the very

bottom of the page is equal to total farm acres. Hay crops should be listed by individual fields with two blank lines below each field to allow space to record the yield of each crop of hay. Acres listed on page 29 should equal the acres in the plot on page 28.

This lesson will lay the foundation for a scheduled farm visit which will be used to develop a detailed cropping and fertilizer plan. Faribault Agriculture Department, Form 6, "1972 Cropping and Fertilizer Plan", has been used in the Faribault school for several years. It has been well received by the farmers and plans developed through this procedure have been carried out with little modification. This form is completed in duplicate to provide one for the family and one for the instructor's family folder which is taken along on each visit. This planning furnishes opportunity to discuss each field in detail. Crop and fertilizer history for the past two years is recorded, along with manure use. This and soil test information, if available, is used to determine the kind and amount of fertilizer to be used and how it should be applied. Rotations, planting rates and varieties of all crops are discussed before being recorded on the form. Weed and insect control recommendations and plans are also discussed and recorded. This form is completed when total fertilizer requirements and the approximate costs have been calculated. This information is put to considerable use during the entire growing season. It is a good record for the farmer and extremely helpful to the instructor in getting acquainted with and keeping record of various field results.

The Cropping and Fertilizer Plan can be started in class with instructions for the farmer to collect the data necessary to complete the form prior to the next scheduled visit.

3. References:

   A. Minnesota Farm Account Book.

   B. Guide to Fertilizer Use, Extension Bulletin 277.

   C. Chemical Weed Control, Extension Bulletin 12.

   D. Varieties of Farm Crops, Miscellaneous Report 24.

   E. Soil Conservation Service Individual Farm Plans.

   F. Minnesota Hybrid Corn Performance Trials, Miscellaneous Report 28.

   G. 1972 Cropping and Fertilizer Plan.

Part III - Suggested On-Farm Instruction Activities

Develop a detailed crop and fertilizer plan. Show how the soil test information previously gathered can be used in planning the crops program. Prepare an estimated budget of expenses for crops. Include the variable cost items of fertilizer, chemicals, seed, etc.

Faribault Agriculture Department
Form 6 - September, 1971

1972 Cropping & Fertilizer Plan

Name _____
Date _____

Field No.	1970 Crop	1970 Fertilizer	1971 Crop	1971 Fertilizer	Manure History	1972 Crop	1972 Fertilizer Broadcast	1972 Fertilizer Starter	1972 Fertilizer Suppl. N.	1973 Crop	Remarks

Date of last soil tests _____ Rotation _____ Row Spacing: Corn _____ Soybeans _____
Corn Population _____ Planting Rate: Corn _____ Beans _____ Yield Goal _____

Acreages

Corn _____ Div. _____
Oats _____ Rotation Pasture _____
Beans _____ Total Tillable Acres _____
Wheat _____ Other _____
Leg. Hay _____ Buildings, Roads, Waste _____
Can Crops _____
Total fertilizer requirements _____
Varieties: Corn _____ Oats _____
Soybeans _____
Other Crops _____

UNIT I - VII

FEED RECORDS

Teacher Objectives:

1. To motivate families to keep feed records for each livestock enterprise.

2. To teach a method for keeping feed records.

3. To stress the importance of accuracy in feed records.

Part I - Why are Feed Records Important?

1. Subject Content:

A. Feed is the largest single item of cost for all livestock enterprises.

1) Feed represents 45-55% of dairy costs.
2) Feed represents 50-60% of poultry costs.
3) Feed represents 70-85% of feeder cattle, lamb and hog costs.

B. Crops can be either sold as cash crops or fed to livestock Homegrown crops when fed to livestock represent a means of marketing the crop. The returns from feeding should cover all costs including labor and yield a higher than market price for the crops fed. The alternative of marketing crops through livestock or as a cash crop is a management decision farmers must often consider.

C. Uses of feed records in an analysis

1) To determine the profitablity of feed (return over feed)
2) To determine livestock feed efficiencies
   a) Amount of feed used per unit of production.
   b) Value of feed used per unit of production.
3) To improve livestock feeding efficiencies
   a) By comparing with past year's performance.
   b) By comparing with other enterprises.
4) To furnish information for future planning.

2. Suggested Teaching Activities and Experiences:

Follow the outline under "subject content" to illustrate the variety of uses for feed records. This may be supplemented with actual efficiency comparisons from the latest area analysis report. This is not intended to be a detailed interpretation of

the analysis - only to give general ideas of what can be learned. Use examples of cooperators who have improved feed efficiency over several years.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

Part II - A Method of Keeping Feed Records

1. Subject Content:

A. What records are necessary?

1) Farm grown grains.
2) Dry roughages.
3) Silages.
4) Pasture days (regulate by quality of pasture furnished).
5) Purchased feeds.
6) Milk fed to livestock.

B. How should these records be kept?

1) The easiest, accurate way
   a) On basis of an occasional daily weighing of feed.
   b) On basis of feed batches.
   c) On basis of bins or cribs.
   d) On basis of silo capacity.
2) Frequency of feed record entries
   a) Monthly, if this is convenient and accurate.
   b) By any other period of time that is convenient and accurate.
3) Purchased feed
   a) If kept separately, by enterprise in feed bought section - this may be an annual total.

2. Suggested Teaching Activities and Experiences:

Using the outline in "subject content" discuss the general classes of feeds that are necessary. Point out that feed records, with the possible exception of milk fed to livestock, need not be on a monthly basis if another time interval is accurate and more convenient. Have each record-keeper refer to pages 26-27 in the Minnesota Farm Account Book and show how silage, for example, could be distributed between dairy cows and other dairy cattle on a percentage basis, with one entry

being made under each class of livestock for a several month feeding period. Show the simplicity of feed records if hogs are fed from one crib or bin of corn while dairy cows are being fed from another. Emphasize the importance of simplicity, but stress the importance of accuracy.

A farm visit in March or April should be specifically scheduled to review the feed records and to give individual guidance on this topic. Some families will require only the latter. The exceptional ones will have this well in hand without much effort. If early guidance is given the farmer on pages 32-36, Feed Bought, in the account book, these purchased feeds will offer no particular problem in compiling an accurate feed record. One other thought on feed records - they cannot be completed unless they are begun. An early beginning is important.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Farm Business Management, An Instructor's Guide.

C. Minnesota Farm Account Book.

D. Individual analysis reports.

Part III - Suggested On-Farm Instruction Activities:

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 livestock feeding with the family. Show how records can be used to measure some efficiency levels already such as pound of feed per pound of milk. Suggest ways of improving and simplifying the keeping of accurate feed records.

UNIT I - VIII

CHECKING LIVESTOCK ENTRIES

Teacher Objectives:

1. To teach the importance of keeping accurate livestock records.

2. To teach families how to keep livestock records and to check on record accuracy.

Part I - Why Should Livestock Numbers be Kept?

1. Subject Content:

A. Uses of livestock records

1) To check accuracy of sales records.
2) To check accuracy of purchases.
3) To determine livestock efficiencies.
4) To determine production per unit.
5) To determine labor efficiency.

B. Livestock transactions
1) Livestock acquisitions.
a) Beginning inventories.
b) Purchases.
c) Births.
d) Transfers in.
2) Livestock disappearances.
a) Sales.
b) Transfer out.
c) Deaths.
d) Butchered for home use.
e) Ending inventories.
3) Miscellaneous livestock entries.
a) Heifers fresh.
b) Sows and gilts farrowed.
c) Ewes lambing.
d) Number of sheep sheared.
e) Pullets moved to laying house.

2. Suggested Teaching Activities and Experiences:

Through discussion of the points listed in "subject content", illustrate that livestock numbers are used in many ways. Show on the livestock enterprise tables how these items are used in the analysis. Bring out the possibility of overlooking certain entries unless these records are kept and unless periodic checks

are made. Since livestock profits and efficiencies must be compared with others on a unit basis, it is very important that these numbers are recorded accurately and completely.

3. References:

   A. Minnesota Farm Account Book.

   B. Records for Farm Management.

   C. Managing the Farm Business.

   D. Keeping Farm Records for Analysis.

Part II - How Can Livestock Numbers be Checked for Completeness and Accuracy?

1. Subject Content:

   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 Disappearance	

Total acquisition must equal total disappearance.

2. Suggested Teaching Activities and Experiences:

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 been 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 kind 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 individual 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.

3. References:
   - A. Livestock Reports, Form F.A. 12.
   - B. Records for Farm Management.
   - C. Minnesota Farm Account Book.

Part III - Suggested On-Farm Instruction 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.

UNIT I - IX

THE MID-YEAR FEED CHECK

Teacher Objectives:

1. To teach families the technique of making a mid-year feed check.

2. To assist families in making and adjusting the mid-year feed check.

Part I - How Do you Make a Mid-Year Feed Check?

1. Subject Content:

A. Purpose of the mid-year feed check

1) To give greater accuracy to feed records.
2) To adjust feed records when inventories are at the low point of the year.

B. Procedure for making the feed check

1) Inventory farm grown feeds as of June 1. (Another date may be used if desired).
2) Have feed records completed up to the same date.
3) Enter totals on "Crop and Feed Check"
4) Determine the amount "available for feed" in the appropriate space.
5) Add up the various feeds to livestock in the account book as of the same inventory date.
6) Transfer feed totals to feed record for each class of livestock.
7) Add the amount fed to livestock for each feed and compare this with the amount "available for feed".
8) Study the differences between these figures and determine where errors were most likely.
9) Make the appropriate adjustments in the proper column on the crop and feed check form to make "total fed" balance with "available for feed".

2. Suggested Teaching Activities and Experiences:

Follow the procedure listed under "subject content". Emphasize that a feed check when inventories are low will add a great deal of accuracy to the feed records and will also make the year-end feed check easier to accomplish.

The next scheduled farm visit after this unit is covered in

class should be used to check on the progress of families with the feed check and to assist them with its completion, if necessary. This is probably the first experience of the family with this form or this accounting procedure. This activity not only will promote more accurate feed records, but will also serve as good training for the year-end crop and feed check. Any individual instruction during the year in procedures necessary to keep and close out an accurate farm record will ease the workload of the instructor at the end of the year when his schedule will otherwise be very crowded.

3. References:

A. Minnesota Farm Account Book.

B. "Crop and Feed Check", included in Minnesota Farm Account Book.

Part II - Suggested On-Farm Instruction Activities

Assist in completing the mid-year crop and feed check. Give instructions for recording the yields of hay, haylage, grass silage, pasture and other crops approaching maturity. Check the progress of the aforementioned crops and the preparations for harvest.

UNIT I - X

CROP YIELD RECORDS

Teacher Objectives:

1. To teach the importance of accurate crop yield records.

2. To teach a technique for determining and recording crop yields.

Part I - Why are Accurate Crop Yields Important?

1. Subject Content:

A. What are the uses of crop yield records?

1) To determine production per acre.
2) To evaluate cropping efficiencies.
3) To determine available feed.

B. How does the accuracy of crop yields affect the analysis of the farm business?

1) An inaccurate estimate of crop yield:
   a) Results in erroneous cost per unit of production.
   b) Results in erroneous amount available for livestock feed and distorts efficiencies of livestock.
   c) Results in erroneous inventories.

2. Suggested Teaching Activities and Experiences:

Using the information in "subject content", illustrate that crop yield records are used to evaluate the effectiveness of both the crop and livestock program. Without yield records it would not be possible to determine the effectiveness of fertilization, tillage and weed control practices. These records are also used to determine the amount of feed available for livestock. Refer back to material covered in Unit IX to show how an optimistic crop production estimate will make the livestock enterprises appear to be less efficient in the use of feed, while a pessimistic estimate of crop production will have the reverse effect. Illustrate how inaccurate yield

estimates will result in inaccurate end-of-the-year inventories and in turn reflect on farm earnings.

3. References:

A. Profitable Farm Management.

B. Records for Farm Management.

C. "Crop and Feed Check", included in the Minnesota Farm Account Book.

D. Farm Management, Principles, Budgets, Plans.

Part II - How are Crop Production Records Determined and Recorded?

1. Subject Content:

A. Determining total production

1) Hay production
   a) Number of bales times average weight per bale.
   b) Number of loads times tons per load.
   c) Cubic feet in storage divided by cubic feet per ton.
2) Silages
   a) Volume in storage, times weight per cubic foot, divided by 2000 lbs. equals tons.
   b) Refer to tables on back of Minnesota Farm Account Book.
3) Ear corn
   a) Moisture correction tables
   b) Use tables on back of Minnesota Farm Account Book.
4) Adjustments for hay and pasture from the same field
   a) Determine percent of annual production harvested as hay.
   b) Total acres of hay and pasture from a given field must not exceed total acres in the field.

2. Suggested Teaching Activities and Experiences:

This teaching unit will furnish background information for calculating the production of all crops. It is very important to record crop production during harvest or immediately upon completion of the harvest. For this reason this unit should be taught before the first crop of hay has been harvested.

Have each family refer to page 29 in the Minnesota Farm Account Book. Acres have been entered previously. (See Unit VI).

Emphasize that total production (column 4) is of importance here. Disregard yield per acre (column 3) at this time.

Use examples to show how total production of hay can be determined by each of the methods shown in the hay production section of "subject content".

Follow the subject content outline, illustrating methods of determining production for each of the crops.

Assistance must be provided on farm visits to get production data recorded in the Minnesota Farm Account Books. The instructor will become aware of the harvesting progress on each of the farms during his monthly farm visits. This phase of accounting should be covered on the farm visit immediately following the harvest of each crop. Since the harvesting of various crops is spread out over a considerable period of time, this will be a part of several farm visits. Constant but tactful reminders are necessary on this phase of the records to encourage accurate and timely entries.

3. References:

   A. Minnesota Farm Account Book.

   B. Profitable Farm Management.

   C. Records for Farm Management.

Part III - Suggested On-Farm Instruction Activities

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

UNIT I - XI

THE FOUR YEAR DEPRECIATION SCHEDULE

Teacher Objectives:

1. To determine current inventory values of all depreciable capital assets and to record these values in the Four Year Depreciation Schedule.

2. To determine and record tax-base values of bare land and operator's house.

Part I - How Do You Determine Current Inventory Values of Depreciable Property?

1. Subject Content:

   A. Depreciation schedules from past income tax returns.

   B. Records of farm purchase.

   C. Definition of terms:

      1) Cost.
      2) Additional first year depreciation.
      3) Investment credit.
      4) Salvage value.
      5) Years life.
      6) Annual depreciation.
      7) Depreciation charges this year.

   D. Capital asset groups
      1) Truck and auto.
      2) Mechanical power and general machinery.
      3) Livestock equipment.
      4) Bare land.
      5) Operator's house.
      6) Buildings, fencing, tiling.

2. Suggested Teaching Activities and Experiences:

   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 most necessary but it is helpful to have as many past years depreciation schedules as possible. For farm owners it is also necessary to have the depreciation schedule for the year in which the farm was

Purchased or some other source of information related to the allocation of the farm cost to buildings, fences, tiling, bare land and operator's house.

Use examples to show how "Cost Remaining Beginning of Year" can be determined for the beginning of the first analysis year. Show how depreciation is subtracted to easily arrive at end of year value (beginning of next year).

Have each family begin making entries in the four year depreciation schedule. Check individually with each family to see if the proper procedure is being used. Repeat examples of calculating procedures, if necessary.

Point out how to make a memory check of machinery and equipment, section by section, in the depreciation schedule to help families determine if items purchased over the years have been omitted from the depreciation schedule.

Families who have previously enrolled in the computerized depreciation schedule need to bring their depreciation records up to date by completing the monthly report of Capital Assets Purchased and the monthly report which includes the sale of items previously listed on the beginning of the year depreciation schedule. These families should be encouraged to calculate the annual depreciation on their new purchases using two or more alternative depreciation methods so they have a better understanding of the consequences of checking one of the alternative forms of depreciation for each asset purchased.

It would be well to have all families turn in their completed depreciation schedule along with tax schedules at the

next class meeting so each can be carefully checked by the instructor. Families using the computerized schedule should turn in their monthly reports of capital assets purchased and records of asset sales.

3. References:

   A. Minnesota Farm Account Book

   B. Internal Revenue Service, "Guidelines for Depreciation Schedules"

   C. Farmers Tax Guide

   D. Income Tax Management for Farms

Part II - Suggested On-Farm Instruction Activities

Review the procedures for entering items in the depreciation schedule. If not already complete, assist in completing the beginning of 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.

UNIT I - XII

INCOME TAX MANAGEMENT

Teacher Objectives:

1. To teach the value of managing income to minimize taxes.

2. To teach a procedure for and encourage the making of an income tax estimate.

Part I - How Can Income Taxes Be Held to a Minimum?

1. Subject Content:

A. Effect of income fluctuation on income tax

1) Greater fluctuation from year to year results in greater taxes.
   a) Attempt to maintain income that will at least equal deductions and exemptions.
   b) Example:

INCOME AND INCOME TAX LIABILITY FOR TWO FARMERS

	First Year	Second Year	Average Income	2-Year Tax
Jones Family 2 Children - Net Income	$ 0	$7,800	$3,900	$671
Smith Family 2 Children - Net Income	3,900	3,900	3,900	64

2) Increasing deductions to save tax.
3) Tax management of sales or trades.
4) Tax reporting reminders.
5) Tax Management tips.

2. Suggested Teaching Activities and Experiences:

The reference cited for this teaching unit is very complete and well organized. It can be followed very closely and used as the entire teaching material for this income tax management class. For this reason, the material under "subject content" has been held to a minimum. If copies of this reference,

"Income Tax Management for Farmers" are not available in quantities, the instructor should prepare a summary of the important points and provide duplicated copies for the class members. This material can then be followed by the class while the instructor explains the points and enlarges on the examples used. If class discussion is encouraged, this procedure will be both interesting and worthwhile.

3. References:

A. Income Tax Management for Farmers.

Part II - How Can Taxable Income be Estimated Before the End of the Year?

1. Subject Content:

A. Income Tax Estimate Worksheet from page 12 of reference.

2. Suggested Teaching Activities and Experiences:

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 Minnesota Farm Account Book on the income tax estimate sheet. 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.

The instructor may prefer to revise the income tax estimate worksheet to conform to the categories on Form F.M. 7. This can be done very simply by adding a column for estimating the rest of the year and another for the estimated year's total.

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.

3. References:

   A. Income Tax Management for Farmers.

   B. Form F.M. 7.

   C. Minnesota Farm Account Book.

Part III - Suggested On-Farm Instruction 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.

UNIT I - XIII

MAKING THE END OF THE YEAR INVENTORY

Teacher Objectives:

1. To teach the technique of making and recording inventories at the end of the year.

Part I - How Do You Complete the Year-End Inventories?

1. Subject Content:

A. Values to be used

1) Same general price level as beginning inventory for breeding stock.
2) Conservative but realistic values.
3) Current market price for market livestock.
4) Current market price for forages.
5) Purchase price for carry-over feeds.

B. Order in which to complete inventories
1) Dairy cows.
2) Other dairy cattle.
3) Beef breeding cattle.
4) Feeders.
5) Hogs.
6) Sheep.
7) Horses.
8) Chickens.
9) Crop, seed and feed.
10) Items in "Five Year Depreciation Schedule".
a) Set up depreciable items purchased during the year from page 42. Indicate page and line used.
b) Auto and truck.
c) Mechanical power.
d) Crop and general machinery.
e) Livestock equipment.
f) Buildings, fencing, tiling.
g) Bare land.
h) Operator's house.
11) Non-farm assets.
12) Liabilities.

C. Special items to check
1) Heifers freshened - value, page 5, column 3. should agree with end-of-the-year value of the same animals.
2) Make certain that no beginning of year value appears in depreciation schedule for items bought during the year.
3) Beginning value minus depreciation equals ending value on depreciable items.

2. Suggested Teaching Activities and Experiences:

Material from several preceeding teaching units may be reviewed briefly with the class before going into the ending inventories. Unit IV, making the inventory, is a very similar unit. The same procedure of using the Financial Summaries Form from the account book should be followed to furnish a method of keeping track of inventory completions. Unit IX, "Making the Mid-Year Feed Check" may furnish ideas on the crop, seed and feed inventory. Each record-keeper has completed two previous feed inventories. If these have been carefully checked, no great problem will be encountered with this one. Unit X, "Crop Yield Records", will also be useful in determining quantities of grains and forages. 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. 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.

3. References:

A. Minnesota Farm Account Book.

B. "Financial Summaries", included in Minnesota Farm Account Book.

C. Records for Farm Management.

D. Farm Records.

E. Current local newspapers and market reports.

Part II - Suggested On-Farm Instruction Activities.

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. Illustrate how the livestock reports and crop and feed check can be used to help issue 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.

UNIT I - XIV

END OF THE YEAR CROP AND FEED CHECK

Teacher Objectives:

1. To teach the technique of completing the crop and feed check and adjusting feed records.

Part I - How Do You Balance Feed Supply and Disappearance for greatest Accuracy?

1. Subject Content:

A. Items which must be completed prior to this unit

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.

B. Procedure for completing 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.
a) 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.

2. Suggested Teaching Activities and Experiences:

Have each family follow the procedure listed under "subject content". Stress that any figure which is put on the Crop and Feed Check form must be taken from the account book. The purpose of this rule is to check on the accuracy of entries in the account book.

This unit will furnish each family with the information necessary for completing the crop and feed check. However, the instructor should work with each family individually on a farm visit scheduled for this purpose. In all probability, each family will desire assistance; especially in adjusting the amounts fed to livestock.

3. References:

A. Minnesota Farm Account Book.

B. "Crop and Feed Check Form", included in Minnesota Farm Account Book.

C. Records for Farm Management.

Part II - Suggested On-Farm Instruction Activities.

Begin by assisting with the completion of the crop and feed check. Illustrate how this information is used in determining livestock efficiencies. Ask families to make another estimate of the production levels and efficiency of their livestock operations. Encourage them to record them with their previous estimate.

UNIT I - XV

CLOSING THE ACCOUNT BOOK FOR ANALYSIS

Teacher Objectives:

1. To familiarize families with the necessary preparations for closing the Minnesota Farm Account Book for analysis.

2. To familiarize families with the necessary closeout forms and encourage their early completion.

Part I - How Do You Close the Year's Record?

1. Subject Content:

   A. Necessary prerequisites to closing the account book for analysis.

      1) End-of-the-year inventories.
      2) Crop and feed check.
      3) Livestock Report, F.A. 12.
      4) Checklist for closing the Minnesota Farm Account Book.

   B. Closing Procedure:

      1) The checklist for closing the Minnesota Farm Account Book has been designed to cover both major and minor points in closeout. If this form is followed and other forms suggested in it are completed, the closeout will be accomplished. This checklist and the closeout forms should be the subject matter for this unit.

2. Suggested Teaching Activities and Experiences:

Supply each family with a copy of the checklist for closing the Minnesota Farm Account Book and the closeout forms commonly referred to as the Livestock Report, Crop and Feed Check and Supplementary Information form. Have each family follow this checklist as they check their accounts for completeness and accuracy. Have each family fill out Form F.A. 51, Supplementary Information. Considerable work will be necessary with each family on a farm visit following this unit of instruction. On this visit the account book will be checked for accuracy and

completeness, as suggested in this unit. Livestock Report, F.A. 12, Crop and Feed Check, and Supplementary Information, F.A. 51 (Voc.Ag.) will also be checked for completeness and accuracy. The Minnesota Farm Account Book, including the Four Year Depreciation Schedule and these three forms, at this time, are ready to be forwarded to the Analysis Center.

3. References:

   A. Checklist for Closing the Minnesota Farm Account Book.

   B. Supplementary Information, F.A. 51.

   C. Minnesota Farm Account Book.

   D. Livestock Report, F.A. 12.

   E. Crop and Feed Check.

Part II - Suggested On-Farm Instruction Activities.

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 close out 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.

Agriculture Department
Faribault Area Vo-Tech School
11-200-70

Name_____
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?

Pages 4-5 -- Dairy, cont'd.

_____ 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. 13-16, 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, hogs butchered - number, live weight and value.

_____ Col. 18, number farrowing each month.

_____ Col. 19, number born each month.

Pages 16-17 -- Hogs, cont'd.

_____ Col. 20, number died each month (except breeding stock over six months of age.

_____ Cols. 7-9, number, weight and value of hogs on beginning inventory.

_____ Cols. 12-14, number, weight and value of hogs on ending inventory.

_____ Cols. 36, 37, 39, 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. 13-14-15, page 18, complete?

_____ Are inventories complete with numbers, weights and values?

_____ Pounds of wool sold, col. 24, page 19.

Pages 20-21 -- Chickens

_____ Number and value of birds on beginning and ending inventories.

_____ Hens butchered, (cols. 13-14-15).

_____ Other chickens butchered, (cols. 16-17-18).

_____ Eggs used (cols. 19-20).

_____ 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 per cent of roughage from pasture?

_____ Are all farm grown feeds allocated to livestock in the proper columns?

Page 28 -- Crops

_____ Crops used in house, description and VALUE before processing.

Page 29 -- 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 and Small Grains in bushels___ Canning Crops in dollars___Diverted Acres in dollars___

Pages 30-31 -- Crop Inventories

_____ Are amounts and values shown for each item for both beginning and end of year (including undivided share of landlord)?

_____ Are commercial feeds on inventory identified for enterprise: That is Dairy; Other Dairy; Hogs, Beef Breeding, Beef Feeders, etc?

Pages 32-36 -- 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 32-36 carried to the proper place on the bottom page 36, columns 68-70?

Page 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?

_____ Do cols. 8 + 9 + 10 + 11 + 12 + 13 = 5? Do cols. 6 + 7 = 5?

_____ Do cols. 21 + 22 + 23 + 24 + 25 + 26 = 18? Do cols. 19 + 20 = 18?

_____ 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 = col. 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 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 and Machinery, Truck or Auto?

_____ Are gallons of gasoline shown for all purchases?

_____ Do cols. 37 + 39 + 41 = Col. 33? Do col. 34 + 35 = col. 33?

Pages 46-47 -- Repair and Operation - Truck and Auto (Not Machinery)

_____ Are all items shown in total value and again in Truck, Auto 1 or Auto 2?

_____ Do cols. 22 + 23 + 24 = 19? Do cols. 20 + 21 = 19?

Pages 48-49 -- Repair and Operation - Tractors and Crop Machinery (Not Truck & Auto)

_____ Are all items shown in total value and in operator's and landlord's share?

_____ Are items here only tractors and machinery NOT Truck or Auto?

Pages 50-51 -- Wages

_____ Are days or months worked clearly shown?

Page 51 -- Unpaid Labor

_____ Have you shown days of unpaid labor in col. 30?

_____ Days of labor boarded in col. 31?

Page 51 -- Taxes

_____ 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?

Page 51 -- Rent Expense

_____ Have you shown all cash rent expense Paid and Due for the current year?

_____ Pasture rent should be in feed bought section, pages 32-36. Is it there?

Pages 52-53 -- Miscellaneous

_____ Is insurance clearly identified in general farm expense?

_____ Have you shown % or dollars of telephone and electricity for farm business?

_____ Have you clearly identified job done for "Income from Work Off Farm"?

_____ For Coop 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 54-55 -- Borrowed-Debts-Assets

_____ Does col. 13 + 3 = 14 + 10?

_____ Does col. 14, page 54, show everything that you owe to everyone as of December 31st?

_____ Are both beginning and ending non-farm assets complete? (Col. 2, 3, 5 and 6, page 55).

_____ Are all life insurance premiums paid during the year in col. 13?

Page 56 -- Non-farm Income and Income Taxes

_____ Is all Income from non-farm sources (including gifts) shown for both spouses?

_____ Are income taxes, Federal, Social Security and State paid for this year shown?

_____ Are income tax refunds shown? Non-farm income?

Pages 57-62 -- Personal

_____ Are drugs shown separately from other medical expenses?

Yes___ No___ Are your 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?

_____ 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?

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CHAPTER VI

FARM BUSINESS MANAGEMENT II

Because Management Education is a continuing program, there is no natural break between Farm Management I and Farm Management II. The second year of instruction may be called "Farm Business Analysis", or any other appropriate title. The program of instruction begins in January and continues through December with particular emphasis on the interpretation of the first year's analysis. The first two or three teaching units deal with income tax calculation and other background information. The analysis interpretation itself will begin in March or April depending on when the farm business analysis for the past year's record has been returned from the area analysis center. If the complete analysis summary is not yet available, the March meeting can well be based on general information obtained from the individual preliminary reports of cooperators. At this time, all or most of the families have received their perliminary reports and are eager for guidance to begin study of their first complete analysis of their farm business.

The subject matter of many of the lessons in Farm Management II are examples of the application of sound management and economic principles. While the principles are often not explicitly identified, the instructor should be alert to the opportunity to explain the nature of the principle to his farm families, and to name and identify the principles with which the unit is concerned.

UNIT II - I

CALCULATING INCOME AND SOCIAL SECURITY TAXES

Teacher Objectives:

1. To teach families how to calculate "net farm income" using Form 1040, Schedule F.

2. To teach families how to calculate "capital gains income" using Form 1040, Schedule D and supplemental gains and loss losses using Form 4797.

3. To teach families how to determine Federal Income Tax using Form 1040.

4. To teach families how to determine Minnesota Income Tax due using Form M-I.

Part I - How Do You Determine New Farm Profit?

1. Subject Content:

   A. Why should farm management groups study the income tax procedures?

      1) Obligation for all farmers to keep accurate records and to pay the proper taxes to support state and federal government.
      2) Farm families need to know how income taxes and social security are computed in order to properly manage their tax liabilities.
      3) Income taxes are a large item of expense. As with other expense items, controlling this large item may leave more money available to meet family goals.

   B. Completing Form 1040, Schedule F.

      1) Transfer of income totals from account book to appropriate space on Schedule F.
      2) Transfer of expense totals from account book to appropriate space on Schedule F.
      3) Completion of Depreciation Schedule worksheet and transferring totals to Schedule F; or transfer owner group totals from computerized "Depreciation Schedule" tax final.
      4) Determining "net farm income" for tax and social security purposes.

2. Suggested Teaching Activities and Experiences:

   An example farm account or an actual farm record should be used in class to illustrate how easy it is to transfer income,

expenses and depreciation totals onto Form 1040, Schedule F. The completion of the family's actual tax return should not be attempted in class because of the confidential nature of the information. A farm visit should be scheduled with each family to work individually with them on their income tax reporting. This and final closeout of the account book can well be accomplished during one visit. A packet of all forms needed for computing tax liability should be supplied to each family. The forms may then be used by class members to follow the discussion and to make notes that will be helpful in doing their own tax return.

A supplemental depreciation worksheet which follows the format of the "Four Year Depreciation Schedule" should be used to aid in the calculation and reporting of depreciation. Special points should be made during the discussion on entering newly purchased depreciable items in the "Four Year Depreciation Schedule" and bringing it up to date on old items. Cooperators who have elected the computerized depreciation schedule need only check on completeness of having reported new items to the computer.

When explanation and discussion of the Form 1040, Schedule F, has been completed a few minutes should be spent on the completion of Schedule 1040 SE including the calculation of Social Security Tax due.

Part II - How Do You Determine Capital Gains Income?

1. Subject Content:

   A. Completing Form 1040, Schedule D.

      1) Completing short term capital gains.
         a) Breeding livestock held less than 24 months. (Cattle and horses).
         b) Breeding livestock held less than 12 months. (Hogs and sheep).

2) Completing long-term capital gains.
   a) Breeding livestock held more than 24 months. (Cattle and horses).
   b) Breeding livestock held more than 12 months. (Hogs and Sheep).
3) Completing gains from Section 1245, 1250 and 1251 Property.
   a) Depreciable assets held more than 6 months.
4) Completing gains other than capital assets.
   a) Form 4797, Supplemental gains and losses.
5) Determining total gains and losses from sale or exchange of property.

2. Suggested Teaching Activities and Experiences:

Use Form 4797 and Form 1040, Schedule D to illustrate how breeding livestock, machinery and equipment, and other property is treated for tax purposes.

It is important that students learn to recognize gains and losses that fall into the capital gains tax category as contrasted to ordinary income. Stress the importance of following tax forms to the "letter" to arrive at the correct taxable income.

Part III - How Do You Determine Your Federal Income Tax Liability?

1. Subject Content:

A. Completing Federal Form 1040.

1) Determining adjusted gross income.
2) Determining exemptions.
3) Determining non-business deductions.
4) Determining tax credits.
5) Determining tax from table or schedule.
6) Determining balance due with the return.

2. Suggested Teaching Activities and Experiences:

The adjusted gross income is determined by combining on Form 1040, Part II, the "net farm profit", the capital gains income, supplemental gains and losses and other miscellaneous income that may not require a separate schedule. This income combined with income from wages and interest on page 1 is adjusted gross income. Point out that anyone can file their own income taxes if willing to read and follow directions.

With the step by step approach as suggested under "subject content", the determination of tax due is relatively simple. Special forms may be used to help families determine their tentative Investment Credit for the current year and to help them to keep track of Investment Credit used, carried over, accumulated and paid back. Without a special system to keep record of this, there is likely to be much confusion in future years. A checklist of forms and schedules to be filed by the family will prove helpful. (See 1972 Income Tax-Final Reminders). Even though some families may prefer to have an attorney or tax consultant fill out returns and send them in, this exercise should be encouraged. The family will learn more about its own tax problems and, in all probability, will have a more complete return if it is done in this way prior to going to the tax consultant.

Part IV - How Do You Determine Minnesota Income Tax Due?

1. Subject Content:

   A. Completing Minnesota Form M-I.

2. Suggested Teaching Activities and Experiences:

   Determination of Minnesota Income Tax liability is a simple matter after the Federal Tax forms have been completed. Simply referring to the proper table or schedule and carrying forward onto the form will determine the tax due.

3. References for Parts I, II, III and IV.

   A. Tax Forms: U.S. 1040, 1040F, 1040SE, Schedule D, Form 4797, Form 3468, Form 4136, Minnesota Form M-I

   B. Farmer's Tax Guide.

   C. Your Federal Income Tax, Edition for Individuals.

   D. Summary of Income Tax Short Course.

Part V - Suggested On-Farm Instruction Activities.

Some families may ask for assistance in completing their income tax reporting forms. This visit may be used for verifying the information which they have reported on their tax forms and for checking to see that entries have been made correctly. This exercise provides an excellent opportunity for discussing tax planning for the next tax year. Instructors may find it useful to assist families in preparing their own tax forms for the first time even if the family employs a tax consultant to do the final tax filing.

Faribault Area Vocational-Technical School
Agriculture Department

Name _____

INCOME TAX SUPPLEMENTARY WORKSHEET 19___ *
FOR DEPRECIABLE ASSETS SUBJECT TO INVESTMENT CREDIT

Item	New Used	Trade-In Value	Difference Paid	Adjusted Cost	Additional first year	Investment Credit	Date acquired	Adjusted Basis	Useful life	Annual Depreciation	Depreciation this year	Remaining Value

Use a separate form for each year's record. File with your tax records.

Faribault Area Vocational-Technical School
Form 11-66-200-I.C.

Name _____

CUMULATIVE RECORD OF INVESTMENT CREDIT*, 1962-1976

Year	Tentative I.C.**	Current I.C. Used	Current I.C. Carryover	Carryover I.C. Used	Unused I.C. Expired	I. C. Payback***	I. C. Carryback	Accumulated I.C. Carryover	Explanation
1962					XX				
1963					XX				
1964					XX				
1965					XX				
1966					XX				
1967									
1968									
1969									
1970									
1971									
1972									
1973									
1974									
1975									
1976									

*Keep this cumulative record with your most recent income tax record.
**Used for Minnesota Income Tax.
***Called Recapture by Internal Revenue.

Faribault Agriculture Department
12-71-150

1971 Income Tax - Final Reminders

For Federal,State Income Tax, the following (X) forms should be completed:

* Fed	** State	*** Keep	
x	x	x	Form 1040: U.S. Individual Income Tax Return (for anyone filing Federal Income Tax)
x		x	Schedule A & B (Form 1040): Itemized Deductions & Dividend Interest Income
x	x	x	Schedule C (Form 1040): Profit (or Loss) from Business or Profession
x	x	x	Schedule D (Form 1040): Gains or Losses
x	x	x	Schedule 4797: Supplemental Schedule of Gains & Losses
x	x		Schedule E & R (Form 1040): Sup. Income & Retirement Income Credit
x	x	x	Schedule F (Form 1040): Farm Income & Expenses (for all farmers)
x	x	x	and Supplemental Depreciation Form _____ or Computer Tax Final _____
x		x	Schedule G (Form 1040): Income Averaging
x		x	Form 3468: Computation of Investment Credit
x		x	Form 4255: Recomputing Prior Year Investment Credit
x		x	Form 4136: Computation of Credit - Gas & Oil Tax
x	x	x	Schedule SE (Form 1040): Computation of Social Security Self. Emp.Tax
x	MW2	x	Form W-2: Wage & Tax Statement (if you or your spouse worked for wages)
	x	x	Form M-1: Minnesota Individual Income Tax Return
	x	x	Form EAC: Needed for Sales Tax Credit on Electricity
	x	x	PC__RC__M-1SC__NSRC__

****

*The circled forms (Federal) along with a check covering the amount of your Income Tax and Social Security $_____ made payable to "Internal Revenue Service" should be mailed to:

Internal Revenue Service Center
1160 West 1200 South Street
Ogden, Utah 84405

****

**The circled forms (State) and a check $_____ payable to "Commissioner of Taxation" should be mailed to:

Minnesota Individual Income Tax
Centennial Office Building
St. Paul, Minnesota 55101

(Be sure to mark "State Copy" on the top of all Federal forms being sent to the State).

****

***Keep these in a safe place with your permanent records.

****

Be certain that your Social Security number is on Forms 1040 and M-1. Also, both husband and wife should sign both of these forms if joint returns are filed.

UNIT II - II

MEASURES OF FARM PROFITS

Teacher Objectives:

1. To acquaint families with the various methods of measuring farm profits.

2. To acquaint families with the various terms used in the analysis reports.

Part I - How Do We Measure Our Progress?

1. Subject Content:

A. Definitions related to a farm business analysis.

1) Total Farm Capital - The value of real estate (including land and buildings), livestock, machinery, and equipment, feed and supplies.
   a) Average Farm Capital $= \frac{\text{Beginning Inventory + Ending Inventory}}{2}$
   b) Uses
      (1) A measure of farm business size.
      (2) Working capital which must yield a reasonable return.
      (3) Net worth determination (operators share).
2) Total Farm Sales - The sum of all cash sales including breeding livestock, market livestock, livestock products, crops, refunds, work off farm and miscellaneous farm income.
3) Adjusted Total Farm Sales - Total farm sales less capital assets sold.
4) Total Farm Receipts - Total farm sales plus increase in farm capital and family living from the farm. Family living from the farm is often called perquisites. (Value of house rent is sometimes included, but not in the Minnesota Vo-Ag analysis report.)
5) Total Cash Operating Expense - (Whole Farm) - All ordinary cash operating expenses except interest paid and cash rent paid.
6) Total Farm Purchases - Cash operating expense plus capital improvements bought.
7) Total Farm Expense - Total farm purchases plus decrease in farm capital, interest on farm capital, unpaid family labor, labor charge for partners and board for hired labor.
8) Labor Earnings - Total Farm Receipts minus Total Farm Expense.

   Labor earnings are what a farmer receives for his year's work after all farm business expenses, unpaid family labor and interest on the capital invested have been deducted

from the farm receipts. Since interest on farm capital is charged as an expense and actual interest paid is not considered, the farmer with a large indebtedness can be compared equally with one who has no debts.

9) Labor Income - This measure is just like labor earnings except that perquisites are not counted as part of the farm receipts.

10) Farm Income - Income from capital and operator's labor (cash receipts and increase in inventory, less cash expenses and unpaid family labor). This is what is left to pay for the farmer's time and for the use of invested capital.

11) Returns and Net Increases - Net production for the year.

12) Expenses and Net Decreases - Net costs for the year.

13) Farmers Net Worth - Total assets minus total liabilities.

14) Ratio of Farm Expense to Farm Receipts - Shows how much of each dollar of income is an expense.
    a) Total Farm Expense
       Total Farm Receipts = Ratio

15) Ratio of Assets to Liabilities - Shows how much is owed for each dollar of property.
    a) Total Assets
       Total Liabilities = Ratio

16) Net Cash Operating Income - Adjusted total farm sales minus total cash farm operating expense.

17) Labor Earnings (operator's share) - Total farm receipts minus total farm expense (including interest paid, cash rent, and adjusted interest on farm capital).

18) Return to Capital and Family Labor - Labor earnings + interest on farm capital + unpaid family labor. This is the amount the family has to live on, reduce debts and save.

19) Index of Yield - Index of Return - The term index is an expression to show how this item compares with the average of the group. The average is assigned an index value of 100.

20) Supplemental Costs - Crops.
    a) Fertilizer.
    b) Chemicals.
    c) Seed and Other.
    d) Hired Labor (special).
    e) Custom Work.

21) Allocated Costs - Crops.
    a) Power and Crop Machinery Expense.
    b) Land Cost.
    c) Miscellaneous Cost.

22) Supplemental Costs - Livestock.
    a) Miscellaneous Livestock Expense.
    b) Veterinary Expense.
    c) Custom Work.

23) Return Over Feed - Returns and net increases minus value of feed fed.

24) Return for $100 Feed Fed -
   a) $\frac{\text{Returns and Net Increases}}{\text{Value of Feed Fed}}$ X 100 = Return for $100 Feed.

25) Labor Earnings Per Man -
   a) $\frac{\text{Labor Earnings + Labor (Tbl.3,L 31,32)}}{\text{Number of Workers}}$ = Labor Earnings Per Man.

26) Per Cent Return On Investment
   a) $\frac{\text{Farm Income Minus Value of Operator's Time}}{\text{Average Farm Capital}}$ = % Return

27) Return Above All Costs (Also referred to as the return to management or profit).
   a) Labor Earnings Minus Value of Operator's Time = Return Above All Costs.

28) Returns Per Hour of Labor -
   a) $\frac{\text{Labor Earnings + Unpaid Labor}}{\text{Work Units X 10}}$ = Returns Per Hour.

B. Calculating Measures of Farm Profit

1) Supplementary Data
   a) The following information was taken from a farmer's 1968 records. Various receipts and expenses have been grouped to simplify the calculations:

Farm Capital

	January 1	December 31
Productive Livestock	$16,979	$16,624
Crop, Seed and Feed	10,929	9,722
Power Machinery and Equipment	10,553	11,818
Land	12,000	12,000
Buildings, Fences, etc.	17,737	27,277
Total Farm Capital	$68,198	$77,441

****

Total Size of Business in Work Units	592
Number of Workers	1.3

****

Farm Sales

Livestock & Livestock Products Sold	$29,392
Crops Sold & Diverted Acres	4,443
Capital Assets Sold	None
Miscellaneous Farm Income	946
Total Farm Sales	$34,781
Increase in Farm Capital	$ 9,243
Family Living From the Farm	234
Assumed Value of Operator's Labor	4,800

Farm Expenses

Livestock Bought & Misc.	$ 1,468
Feed and Crop Expense	12,175
Repairs, Gas, Oil & Grease	1,425
Wages, Taxes, General Exp.	2,295
Utilities	533
Total	$17,896
Capital Assets Bought	14,149
Unpaid Family Labor	$ 400
Board for Hired Labor	350
Interest Paid	825
Labor (Table 3-Line 31)	1,750
Labor (Table 3-Line 32)	None

****

Calculating Common Measures of Farm Profit

1. (68,198) Beginning Inventory + (77,441) Ending Inventory = (145,639) / 2 = (72,820) Average Farm Capital

2. Total Farm Sales	(34,781)	Total Farm Purchases	(32,045)
Increase in Farm Capital	(9,243)	Interest on Farm Capital	(3,641)
Family Living from Farm	(234)	Unpaid Family Labor	(400)
TOTAL FARM RECEIPTS	(44,258)	Board for Hired Labor	(350)
		TOTAL FARM EXPENSE	(36,436)

TOTAL FARM RECEIPTS (44,258) - TOTAL FARM EXPENSE (36,436) = LABOR EARNINGS (7,822)

3. LABOR EARNINGS (7,822) - PERQUISITES (234) = LABOR INCOME (7,588).

4. (7,588) Labor Income + (3,641) Interest on Farm Capital = (11,229) Farm Income.

5. (34,781) Total Adjusted Farm Sales (Operator's Share) - (18,721) Total Cash Operating Expense (Cash Exp.+ Interest Paid) = (16,060) Net Cash Operating Income.

6.

Labor Earnings (Operator's Share)	(7,822)
Interest on Farm Capital	(2,816)
Unpaid Family Labor	(400)
RETURN TO CAPITAL AND LABOR	(11,038)

7. $\frac{\text{Labor Earnings + Labor (Tbl.3, L 31,32) (9,572)}}{\text{Number of Workers (1.3)}}$ = (7,363) Labor Earnings Per Man.

8. Farm Income (11,220) - Value of Operator's Time (4,800) =

$\frac{(6429)}{\text{Average Farm Capital (72,820)}}$ = (8.84)% Return on Investment.

9. Labor Earnings (7822) - Value of Operator's Time (4800) = Return above all Costs (3022).

10. Labor Earnings (7822) + Unpaid Labor (400) = $\frac{(8222)}{\text{Work Units X 10 (5920)}}$ = $\frac{(\$1.39)}{\text{Returns per Hr.}}$

****

2. Suggested Teaching Activities and Experiences:

Provide each family with the information given in the supplementary data and have them determine the profits of the example farm. A sample worksheet is provided to assist the instructor in preparing for this unit. The worksheet can be used as is with the figures in the parenthesis omitted. The instructor may wish to expand on this unit by providing additional information from a farm record and adding other calculations.

After the families have worked out each of the various measures of profit for the example farm, discuss the

significance of these measures, illustrating the advantages and disadvantages of comparing farms by each of these measures. Emphasize those measures that are used in the current analysis report.

3. References:

   A. Vocational Agriculture Farm Analysis, Annual Report.

   B. Documentation For Farm Business Record Analysis.

Part II - Suggested On-Farm Instruction Activities.

Review the measures of farm earnings which the family completed at the last class. Discuss the applicability of each measure to their own business. Help the family select the measures most appropriate for their farm operation. If the preliminary farm business analysis is available, assist families in interpreting the report. Identify the measures of earnings and ask family to evaluate if the measure indicates a strong or weak position in relation to the average farm in the area.

UNIT II - III

MEASURES OF FARM BUSINESS SIZE

Teacher Objectives:

1. To acquaint families with the various measures of farm business size and to show the relationship between size and earnings.

Part I - What Are the Common Measures of Farm Business Size?

1. Subject Content:

Various Measures of Size of Business*

254 Farms in East South Central Minnesota

Item	Average 254 Farms	Most Profitable 51 Farms	Least Profitable 51 Farms
Total Acres	337.8	460	330.9
Tillable Acres	297.4	414.9	281.8
Farm Capital (Dec.31)	$147,081	$208,533	$143,917
Number of Workers	1.6	1.8	1.6
Work Units	408	539	331
Total Farm Sales	52,538	90,272	37,679
Sales Productive Livestock	35,556	66,054	22,706
Total Sales Crops	13,931	21,096	12,885
Labor Earnings	6,280	18,478	-3,511

*Vocational Agriculture Farm Analysis, Austin Area Vocational Technical School, 1971.

2. Suggested Teaching Activities and Experiences:

Through questions and class discussion, bring out the common measures of farm business size.

List these items on the chalkboard as they are brought up. Supplement the list to include those lsited in the subject content if they are not all mentioned by the class.

Use a visual with recent information similar to that shown in the subject content table. Discuss the relationship of each of these size factors to earnings. It should be noted that some

of these measures are more significant in certain areas of Minnesota than others. Certain factors will be more important in some years than in others. Total work units and tillable acres should be illustrated to be the most reliable measures of size. The discussion at this point should be held to a general level since these measures will be studied in detail in teaching Unit II - VII. At that time, it can be related more directly to the individual family situation. This class may be concluded by pointing out that farm management studies have shown that in general, larger farms pay better than small ones. Larger farms make it possible to use equipment and other investments more efficiently. However, if costs are not under control, large farms can lose more than small ones.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

Part II - Suggested on-Farm Instruction Activities.

Review the measures of farm size. Determine if the parts of the farm business which are making major contributions to farm size are also major contributors to farm income. Encourage the family to discuss ways in which labor might be used more efficiently either through increases in farm size or in distribution of the labor requirements.

UNIT II - IV

GENERAL INTERPRETATION OF THE ANALYSIS

Teacher Objectives:

1. To begin families in a general interpretation of the farm business analysis.

Part I - How Does This Year's Analysis Compare With Former Years?

1. Subject Content:

A. Trends in farm receipts over the past four years.

1) Dairy product sales.
2) Beef cattle sales.
3) Hog sales.
4) Other livestock sales.
5) Sales of soybeans, corn and other crops.
6) Total sales.
7) Farm capital.

B. Trends in farm expenses.

1) Livestock purchases.
2) Other livestock expenses.
3) Fertilizer purchases.
4) Other crop expense (mostly chemical weed control)
5) Custom work.
6) Other farm expenses.
7) Cash operating expense.
8) Capital purchases.
9) Interest on farm capital.
10) Total farm expense in 1971.

C. Comparison with previous year.

1) Study the relationship between total farm sales and cash operating expense.

D. Comparison of relative position among farms in factors of production and management.

1) Earnings and characteristics of farms.
2) Earnings and characteristics of farms by factors.
3) Supplementary information--by farms.

A Selected Summary of Farm Earnings By Years

Farm Receipts	1968	1969	1970	1971
Dairy Products	$8,917	$9,438	$10,187	$10,526
Beef Cattle	5,984	7,521	8,630	10,075
Hogs	11,901	15,141	15,051	11,987
Soybeans & Other Crops	4,365	4,678	6,066	5,960
Total Farm Sales	40,207	48,144	52,508	52,538
Increase to Farm Capital	5,712	7,823	7,892	7,915
Total Farm Receipts	46,298	56,362	60,776	60,828

In this example, receipts which showed no significant trend over the past four years and were not shown in the above table are dairy cattle sales, sheep and wool sold, pountry and egg sales, corn sales, diverted acre payments and family living from the farm.

Farm Expenses	1968	1969	1970	1971
Beef Cattle Purchases	$3,214	$4,438	$5,501	$5,482
Fertilizer	2,314	2,263	2,704	3,150
Miscellaneous Livestock Exp.	962	1,076	1,165	1,315
Other Crop Expense	2,123	2,524	2,903	3,512
Custom Work Hired	1,327	1,475	1,510	1,750
Cash Operating Expense	23,300	27,558	31,078	32,417
Capital Purchases	8,218	9.168	10,623	10,149
Interest on Farm Capital	5,481	7,508	8,238	8,587
Total Farm Expense	38,058	45,500	51,234	54,548
Labor Earnings	$8,240	$10,862	$9,542	$6,280

Expenses which showed no significant trend over the past four years in this example are: dairy cattle purchases, poultry, feed bought, repair of equipment, machinery and buildings, wages of hired labor, taxes, general farm expense and board for hired labor.

2) Compare the most profitable farms in the most recent two years:

Summary of Farm Earnings - 1970 - 1971*

	Items	1970 - 48 Most Profitable Farms	1971 - 51 Most Profitable Farms
1	Returns and Net Increases:		
2	Productive Livestock		
3	Dairy Cattle	$13,248	$12,185
4	Other Dairy Cattle	3,827	3,539
5	Beef Breeding Cattle	371	369
6	Feeder Cattle	6,669	12,677
7	Complete Hog Enterprise	16,138	14,547
8	Hog Finishing Enterprise	1,672	5,464
9	Producing Weaning Pigs	335	---
10	Farm Flock Sheep	---	1
11	Feeder Lambs	---	---
12	Chickens (Incl. Hens & Broilers)	29	9
13	Turkeys	---	---
14	Other Productive Livestock		
15	All Productive Livestock	42,289	48,791
16	Value of Feed Fed to Livestock	23,396	26,188
17	Return Over Feed From Livestock	18,893	22,603
18	Crop, Seed and Feed	37,102	29,777
19	Income From Labor Off the Farm	420	622
20	Cooperative Patronage Refunds	627	329
21	Miscellaneous Farm Income	877	350
22	Total Returns and Net Increases	57,919	53,681
23	Expenses and Net Decreases:		
24	Truck and Auto (Farm Share)	2,078	2,266
25	Tractors and Crop Machinery	6,877	6,613
26	Electricity	834	667
27	Livestock Equipment	1,317	1,245
28	Buildings, Fences & Tiling	3,045	3,233
29	Bare Land	---	178
30	Miscellaneous Livestock Expense	1,153	1,945
31	Labor	2,939	2,957
32	Labor Charge for Other Operator(s)	1,180	965
33	Property Tax	2,481	2,650
34	General Farm Exp. & Telephone	895	833
35	Interest on Farm Capital	11,984	12,007
36	Total Expenses and Net Decreases	35,103	35,203
37	Labor Earnings	22,816	18,478
38	Number of Farm Operators	1	1

*Adapted from Table 3, Vocational Agriculture Farm Analysis, Annual Report, Austin Area Vocational School, Austin, Minnesota, 1970 and 1971.

2. Suggested Teaching Activities and Experiences:

Use the summary of earnings data for the past four years to show the trends in receipts and expenses over this period of time. Only the receipts and expenses that show a significant trend over the period of years need to be included in this data. This makes it easier to focus attention on these items. For example, the instructor can call attention to the fact that the increasing sale of dairy products was due to amount of milk produced and a somewhat better price. This same trend is evident in the beef enterprise, except that higher prices were more responsible than an increase in production. The main points to emphasize here are that total farm receipts have been increasing steadily over the past four years and that families continue to increase their investment in the farm business.

Continue discussing each of the items of expense showing how these have changed over the past five years. The instructor can illustrate that even though farm sales have gone steadily upward, the rise in total farm expenses has continued upward also.

Next, examine the summary of earnings by enterprise for the most profitable farms in 1970 and 1971. Call attention to the items listed under subject content. In summary, the example in this unit shows that dairy farms and hog farms dominate the most profitable group in 1970 but in 1971, beef feeder farms were also among the top three livestock enterprises. Farm expenses were up only $100, but with a decrease in net increases, labor earnings were down. Emphasize that some of these were different farms in 1970 than 1971.

One reason for this change of farms in the high earning group was the relatively more favorable prices of beef cattle in 1971 compared to other livestock and therefore higher profit levels for beef feedlot operators. Dairy farms had about the same total returns and increases in both years.

This discussion should be the starting point for each family to begin study of its own farm business analysis.

Have each family examine their relative standing with others using the earnings and characteristics by farms, by factors and the supplementary information. Impress upon each family the importance of relating their performance in each factor to the goals they have established for themselves and their business. After each family has had an opportunity to chart their own farm on the earning and characteristics by factors, suggest they study each factor to attempt to discern why they ranked where they did in relation to others. This exercise should alert families to look carefully at the remainder of their analysis in an attempt to define the weak and strong points of their business.

This unit points out that comparative earnings will vary from year to year, depending on enterprises and prices. Later units will illustrate how efficiencies cause extreme variations in earnings on farms having the same enterprises.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report

Part II - Suggested On-Farm Instruction Activities.

Review the analysis report with the family. Point out the areas of business strength and weakness. Encourage families to list the things they might do to improve these businesses; particularly those things that are clearly indicated by the analysis report. Ask the family to file the list for future reference.

Faribault Area Vocational-Technical School
Agriculture Department 4/72

Earnings and Characteristics of Faribault F¢H Families by Farms - 1971

	Whole Farm	Opers. Share*	Exp/ Recpt. Ratio	Gross Return per A.	Feed Effic.	Work Units L.S.	Work Units Crops	Work Units Worker	PME Bldg. Ex/WU	* Cap Inv/ Worker	** Dairy Cows	*** Hogs &/or Beef
1.	20369	6960	82	95	127	858	278	340	26.83	93	x	x
2.	18366	18506	76	93	102	471	157	233	21.03	63	x	
3.	17647	22743	85	110	106	573	353	337	35.18	155	x	x
4.	15193	13921	80	92	109	339	140	359	23.28	96	x	x
5.	14116	14115	68	80	155	252	113	254	31.23	77	x	
6.	13472	13472	61	97	116	318	183	317	21.37	90	x	
7.	9896	9896	82	78	119	454	99	442	17.61	103	x	
8.	9742	9742	84	88	114	411	96	290	27.60	68	x	
9.	9525	9524	89	97	110	270	106	323	26.95	88	x	
10.	9328	9327	89	93	102	384	222	347	32.04	122	x	x
11.	9204	14004	86	121	114	330	254	247	31.10	102		x
12.	8736	9528	68	106	103	70	149	337	16.18	163		x
13.	8668	6868	82	63	106	267	97	292	22.21	56	x	
14.	8616	8616	91	83	103	391	246	364	34.25	150	x	x
15.	8596	8596	87	120	108	373	116	419	32.27	151		x
16.	8416	8416	84	86	105	425	81	304	20.94	64	x	x
17.	8353	7791	63	98	111	518	125	258	28.95	52	x	
18.	8326	8331	81	92	99	428	103	325	28.77	74	x	
19.	8296	3304	94	72	122	318	143	267	15.83	57	x	
20.	8259	7197	89	114	108	359	156	281	27.33	102	x	x
21.	8129	8128	81	85	116	283	77	271	30.29	72	x	
22.	7973	7972	84	101	108	257	117	339	31.54	128	x	
23.	7846	7845	92	69	112	415	257	361	21.30	111	x	x
24.	7774	7773	89	90	93	369	190	383	28.16	127	x	
25.	7625	4308	91	75	114	427	127	261	22.42	58	x	
26.	7142	5281	88	106	124	124	178	155	39.81	69		x
27.	7078	7078	93	105	104	438	171	457	33.62	157		x
28.	6681	7484	92	97	72	64	363	345	40.17	349		x
29.	6637	5324	87	87	101	283	99	124	21.86	23	x	x
30.	6512	6511	86	82	114	255	136	235	25.61	86	x	
31.	6458	5988	96	95	96	466	177	246	14.09	85	x	x
32.	6238	6237	90	71	158	73	203	332	44.99	208		x
33.	6043	6328	86	71	96	284	177	331	28.55	107	x	x
34.	5663	5708	84	86	97	264	120	217	27.99	70	x	
35.	5466	5465	88	64	111	391	109	240	22.86	59	x	
36.	5197	4451	88	59	92	256	136	201	19.44	43	x	
37.	4992	4992	71	52	101	209	78	287	15.85	45	x	x
38.	4969	6568	85	81	99	381	87	153	17.65	32	x	
39.	4880	4879	81	65	93	281	62	276	17.95	45	x	x
40.	4807	4806	87	101	93	142	98	189	34.35	68	x	
41.	4765	4610	83	86	75	287	87	328	23.12	61	x	
42.	4747	4626	90	89	108	300	92	239	26.30	54	x	x
43.	4605	11350	90	137	130	143	139	299	46.18	183		x
44.	4564	3839	94	68	96	524	113	408	13.18	66	x	
45.	4526	4525	86	86	104	232	61	263	30.88	60	x	x

*Earnings adjusted to single operator equivalent on multiple operator farms.
**15 or more dairy cows
***20,000 lbs. or more of hogs and/or beef.
Five families have been omitted from this table for various reasons.

Earnings and Characteristics of Faribault F&H Families by Farms - 1971, cont'd.

	Whole Farm	Opers. Share*	Exp./ Recpt. Ratio	Gross Return per A.	Feed Effic.	Work Units L.S.	Work Units Crops	Work Units Worker	PME Bldg. Ex/WU	Cap Inv/ Worker *	Dairy Cows **	Hogs &/or Beef ***
46.	4337	4876	93	92	77	455	145	331	27.92	101	x	x
47.	4147	4147	92	72	109	263	82	262	22.75	62	x	x
48.	4119	2764	84	53	88	310	70	351	15.66	41	x	
49.	3666	3666	97	96	---	---	260	130	80.15	118		
50.	3050	3048	90	74	95	320	83	244	21.37	45	x	
51.	2891	2890	90	68	98	67	106	174	30.63	103		x
52.	2746	2745	95	85	68	341	192	382	22.69	132	x	
53.	2503	2501	94	79	139	227	138	238	31.73	89	x	
54.	2106	6447	93	99	121	112	72	185	49.83	68		x
55.	2053	2052	96	97	80	380	85	310	29.26	70	x	x
56.	1697	1697	88	132	---	---	58	70	53.98	32		
57.	1506	1658	94	78	89	413	91	233	17.89	52	x	x
58.	1491	-131	101	93	119	65	130	123	44.57	60		x
59.	1467	1466	97	96	84	263	88	313	25.34	81	x	x
60.	1162	522	98	73	79	166	85	202	21.46	59		x
61.	994	1945	92	104	80	31	75	159	42.34	77		x
62.	806	-2665	108	89	90	509	132	327	39.37	100	x	
63.	785	742	97	77	80	65	80	108	21.90	69		x
64.	784	783	99	89	94	192	148	290	39.47	145		x
65.	615	5444	84	80	83	273	88	149	22.67	48	x	
66.	141	140	100	70	102	43	75	124	42.61	71		x
67.	-69	2982	93	70	93	342	104	356	26.90	117	x	
68.	-71	540	100	65	88	169	200	246	22.61	98	x	
69.	-150	-151	101	63	98	324	50	281	16.06	72	x	
70.	-178	-179	100	105	92	500	200	281	30.66	124	x	x
71.	-317	-499	103	62	83	185	97	169	23.48	55	x	
72.	-652	7049	85	100	92	177	155	128	30.10	73	x	
73.	-890	-916	101	94	120	28	293	242	35.64	191		x
74.	-1538	-1538	123	46	90	41	38	79	37.17	34		
75.	-1784	-2021	108	78	84	188	45	147	22.66	32	x	
76.	-1878	-1879	102	89	105	326	136	287	31.90	117	x	x
77.	-2697	-2698	126	50	91	41	71	107	34.40	41		x
78.	-3708	-3709	128	73	120	25	36	55	76.85	43		x
79.	-3977	3213	89	82	94	390	265	271	31.16	113	x	x
80.	-5139	-6659	114	93	74	377	176	255	32.99	80	x	
81.	-5531	-5531	104	110	66	245	239	227	33.16	36		x
82.	-5590	-5197	112	94	69	305	140	363	27.05	146	x	x
83.	-6382	-5857	116	65	92	398	98	186	33.25	51	x	x
84.	-7381	-7381	107	84	133	89	417	325	41.39	185		x
85.	-12558	-10871	134	72	54	295	90	247	24.94	84	x	x

*Earnings adjusted to single operator equivalent on multiple operator farms.
**15 or more dairy cows
***20,000 lbs. or more of hogs and/or beef.
Five families have been omitted from this table for various reasons.

Faribault Area Vocational-Technical School
Agriculture Department 4/72

Supplementary Information - by Farms
Earnings and Characteristics of Faribault F&H Analysis Families - 1971

	Return to Capital and Labor	Return Over Feed from Livestock * %			Net Increases Crop - Feed %	Net Increases Misc. Income %
		Dairy	Beef	Hogs		
1.	61876	49			49	2
2.	40463	25	1	12	60	2
3.	26790	54			44	2
4.	23018			43	50	7
5.	19047	52			46	2
6.	18992			58	38	4
7.	17652	59			37	5
8.	17632	6		58	34	2
9.	17542	35		27	34	4
10.	17203	40	-3	5	58	
11.	15531	39		12	47	1
12.	15280	38		9	50	3
13.	15253	39		4	55	2
14.	15214	48			48	4
15.	14737	47			33	12
16.	14490	37		34	26	3
17.	14455	65	1		30	4
18.	13964	21		1	58	20
19.	13378			39	57	4
20.	13353	39		8	43	10
21.	13263	47			50	3
22.	12162	43	-2	1	55	3
23.	11697	24		15	59	2
24.	11587	46		17	34	3
25.	11585	60			36	4
26.	11408	38			58	4
27.	11069	46		3	43	8
28.	11003	59		12	26	2
29.	10925	70			26	4
30.	10796			15	76	9
31.	10684				88	12
32.	10439			2	94	4
33.	10372	43			57	20
34.	9614	45			52	3
35.	9548	64			36	
36.	9497	27		12	53	8
37.	9371	62			36	2
38.	9308			27	72	1
39.	9137	32		24	42	2
40.	9003	55		4	37	4
41.	8846	35			56	9
42.	8771	57	2	9	30	2
43.	8446	60			32	8
44.	8371	50		12	36	2
45.	8294	41	2		54	4
46.	8163	36		25	31	8
47.	7533	56		9	32	3
48.	7249	45			53	2
49.	7101	55		-2	45	2
50.	6447			55	42	3

*Minor income from Hens/Sheep or other productive livestock is not shown.

Faribault Area Vocational-Technical School
Agriculture Department 4/72

Supplementary Information - by Farms
Earnings and Characteristics of Faribault F&H Analysis Families - 1971

	Return to Capital and Labor	Return Over Feed From Livestock%*			Net Increases Crop - Feed %	Net Increases Misc. Income %
		Dairy	Beef	Hogs		
51.	6418	46		2	41	11
52.	5991	44		12	42	2
53.	5890	67			27	6
54.	5719	9		20	70	1
55.	5027	26			71	3
56.	4612	51			45	4
57.	4482	34	2	3	60	1
58.	4317	29			59	12
59.	4274			12	88	
60.	4221		34		64	2
61.	4190	51			42	7
62.	4111	50		5	42	2
63.	3463	17	12	8	59	4
64.	3409	51		9	37	3
65.	3296	48		14	30	8
66.	3231	34			62	4
67.	3194			19	81	
68.	3102	41		9	46	4
69.	3086	42			56	1
70.	2968	72	1		26	2
71.	2967	38	4	29	28	1
72.	2761	27	-6	25	48	6
73.	2697	57			41	2
74.	2241			11	89	
75.	1802				99	1
76.	1586		-10	5	105	
77.	1413		9	26	59	6
78.	1281		-1	12	82	7
79.	253		6	7	85	2
80.	181		28		71	1
81.	71	53			47	
82.	-560		6		92	2
83.	-1172	21		1	75	3
84.	-2477		33	17	45	5
85.	-2904		50		-8	58
86.	-2878	38		-2	63	1
87.	-3069		14	12	58	16
88.	-6441		15		75	10
89.	-8950	12		12	72	4
90.	-28978		18	1	70	11

*Minor income from Hens/Sheep or other productive livestock is not shown.

Faribault Area Vocational-Technical Institute
Agriculture Department 5/72

Name _____

Earnings and Characteristics of Faribault F&H Families by Factors - 1971

Whole Farm Earnings	Opers. Share	Exp./ Rcpt. Ratio	Gross Return per A.	Feed Effic	Work Units L S.	Work Units Crops	Work Units Worker	PME Bldg. Ex/WU	Cap. * Worker
$20000	$20000	60	$135	$160	600	400	450	$13.00	$360
9500	10000	80	110	130	500	250	360	17.00	160
8000	8000	84	100	120	400	180	330	22.00	120
7000	6500	88	95	110	350	145	300	24.00	100
5000	5000	90	90	105	320	135	280	27.00	80
4000	4000	92	85	95	280	110	250	30 00	70
2000	2500	94	80	90	250	90	230	32.00	60
0	0	100	70	80	150	80	160	34.00	50
-1000	-2000	105	60	70	50	70	120	40.00	40
-5000	-8000	125	45	50	25	40	80	60 00	30

*Reported in thousands of dollars

UNIT II - V

THE IMPORTANCE OF INVENTORIES

Teacher Objectives:

1. To teach families how to interpret the summary of inventories in their Farm Business Analysis.

2. To illustrate the importance of inventory changes to earnings statements and enterprise efficiencies throughout the analysis report.

Part I - Does The Distribution of Farm Capital Have An Influence on Earnings?

1. Subject Content:

A. Classification of Farm Capital.

1) Fixed Assets.
   a) Land
   b) Building
2) Working Assets.
   a) Machinery and Equipment
   b) Breeding Livestock
3) Current Assets.
   a) Market Livestock.

B. Correlation between distribution of farm capital and earnings.

1) Do high profit farms have more liquid assets?
2) Do high profit farms have more long term assets?

Summary of Inventories - December 31, 1971*

Item	Average 152 Farms	%**	30 Most Profitable	%**	30 Least Profitable	%**
Productive Livestock	25,204	20.1	37,764	21.3	18,685	15.3
Crop, Seed and Feed	14,257	11.3	23,702	13.4	12,705	10.4
Power, Mach. & Equip.	18,201	14.5	25,491	14.4	16,195	13.3
Land	41,024	32.7	57,846	32.7	47,469	39.1
Buildings, Fences, etc.	26,415	21.4	32,053	18.2	26,495	21.7
Total Farm Capital	125,101	100	176,856	100	121,549	100
Labor Earnings	8,476		21,991		-(2,926)	

*Adapted from Vocational Agriculture Farm Analysis, Annual Report, April, 1971.
** Expressed as a precent of total farm capital.

2. Suggested Teaching Activities and Experiences:

Discuss the classifications of farm assets, pointing out that current assets are considered short term; fixed assets are long term and the least liquid, while working assets are immediate. Using the material presented under "Subject Content", show that the distribution of capital does not appear to be significantly different between the average and high earning group. Although the low profit farms were almost as large as average farms, they had fewer livestock. Since livestock prices were more favorable compared to crops, these farms show less profit. The favorable position of livestock as compared with crops in 1971 shows up in the inventory analysis in that the least profitable group had a lower percent of investment in productive livestock and a higher investment in land. If crop prices were more favorable relative to livestock prices, this relationship would not show up as clearly, if at all. Crop farmers, of course, do not utilize their labor fully throughout the year. On farms where labor utilization is a critical factor in total farm productivity, crop farms cannot expect returns equal to the efficient crops - livestock farmers, since labor is poorly utilized for several months during the year.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Using Farm Analysis Information.

Part II - How Do Inventory Changes During the Year Influence Earnings Statements and Enterprise Efficiencies Throughout the Analysis?

1. Subject Content:

A. Trends in inventory changes:

1) Upward trend in liquid assets - Farm A.
2) Increasing working capital - Farm A.
3) Decreasing farm capital - Farm B.

2. Other significant points:

   A. Change in net worth.

   B. Capital investment per worker.

   C. Capital investment per work unit.

   D. Capital turnover.

Beginning and Ending Inventories Compared

	Farm A		Farm B	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
Productive Livestock	$16,624	$20,778	$18,425	$18,375
Crop, Seed & Feed	9,722	13,021	10,794	10,693
Machinery & Equipment	11,818	9,743	18,816	16,702
Land	12,000	12,000	13,000	13,000
Buildings, Fences, etc.	27,277	27,918	16,685	15,710
Total Farm Capital	$77,441	$83,460	$77,720	$74,480
Change	+$6,019		-$3,240	
Total Liabilities	$23,500		$ 8,213	
Net Worth	77,207		50,007	
Change in Net Worth	+12,478		+ 856	
Capital Investment Per Worker	53,633		63,416	
Capital Investment Per Work Unit	1,707		1,915	
Total Farm Receipts	59,431		25,367	
Capital Turnover	1.4		2.9	
Labor Earnings	$17,681		$ 1,501	

*Adapted from the Vocational Agriculture Farm Analysis from the records of two Faribault area families.

3. Suggested Teaching Activities and Experiences:

   Point out that investment costs are an important part of the cost of operation. It is often said, "it takes money to make money". If the investment per work unit is too high, however, this may indicate that capital is not being used to capacity.

Discuss the inventories of Farm "A" and Farm "B". Show that Farm "B" has liquidated some capital which may influence earnings next year. Point out the differences in net worth change between these two farms.

Capital turnover is the number of years required for total receipts to equal total investment. Two and one-half years are considered to be normal on most general farms in Minnesota. Note that Farm "A" would require 1.4 years while Farm "B" would require 2.9 years for total receipts to equal the investment in farm capital.

Point out that working capital is a real cost in any farm business. An investment made in the farm business should be expected to give a return that would be favorable with any other investments of similar risk. Each family should be directed to raise three questions relative to any investment planned:

A. Will it increase profits?

B. Is it the best use of capital?

C. Will the profits be rapid enough to repay the loan?

Since these points will be covered in detail in a later lesson, the questions should be used only as a thought starter.

Have each family follow its capital change or beginning and ending inventories through the various tables in the analysis report to illustrate that inventories are used in nearly every table in the report. The influence of inventories in tables 2A, 2B, 3, 4, 5, 6A, 6B, 8, 10 and one or more livestock tables should be illustrated. Documentation for Farm Business Record Analysis will be very useful to the instructor in making these points.

4. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Documentation for Farm Business Record Analysis.

Part III - Suggested On-Farm Instruction Activities.

Check with families to be sure beginning inventories have been correctly entered in the new account book. Review the use of inventory information in the analysis report. Using the net worth statement, help families to interpret their financial status. Emphasize the use of gain in net worth as a measure of family progress. Help family to determine capital turnover.

UNIT II - VI

EVALUATING THE CROPPING PROGRAM

Teacher Objectives:

1. To teach the family to use the Farm Business Analysis to evaluate its cropping program.

Part I - What Does The Farm Business Analysis Show A Family About Its Cropping Program?

1. Subject Content:

A. Index of crop yields.

1) Good general information but deceptive if not supplemented with other information.

B. Index of crop selection.

1) Varies considerably with land capabilities.
2) Must be evaluated along with crop yields.
3) Crops-livestock relationship must be considered.
4) Ratings must be geared to the area and individual farm.

C. Gross return per acre.

1) Combined rating of selection and yield.
2) Probably the best single measure of crops.

D. Comparison of individual crop yields.

1) May pinpoint strengths or weaknesses in the cropping program.

E. Return over supplemental and allocated costs.

1) Supplemental costs.
   a) Fertilizer
   b) Chemicals
   c) Seed and Others
2) Allocated costs
   a) Power and machinery expense
   b) Land cost
   c) Miscellaneous costs

Crop Data From Analysis Reports*

Item	Average 258 Farms	51 Most Profitable	51 Least Profitable	Farm A	Farm B
Index of Crop Yields	100	115	90	127	97
% Till. Land H.R. Crops	72.8	75.3	73.3	70.5	51.0
Gross Return Per Acre	82.66	91.24	76.55	95.02	66.03
Corn Bu/A	95.9	103.6	89.3	118	103
Oats Bu/A	62.3	66.5	58.8	---	70
Alfalfa Hay Ton/A	3.3	3.6	3.0	4.1	2.4
Soybeans Bu/A	26.7	28.9	22.0	33.0	---
Labor Earnings	$6,280	$18,478	$-3,511	$12,850	$3,659

*Adapted from Vocational Agriculture Farm Analysis, Annual Report, 1971, East South Central Minnesota, Austin, Minnesota, April, 1972, and from Analysis Reports of two Faribault area families.

2. Suggested Teaching Activities and Experiences:

Discuss the index of crop yields as shown in the analysis report. Point out that this shows a comparison of composite yields of all crops. Use the information on Farm "A" to show that this index may be reliable if crop yields of all crops are on a comparable level. The yields of all crops on Farm "A" are above average. Using the information on Farm "B", show that the index of crop yields is not a reliable measure. The yield of corn on this farm is 107 percent of average while the yield of alfalfa hay is only 73 percent of average. This farmer may be getting satisfactory corn yields but should study his fertilization, seeding and management practices of alfalfa. Concentrated efforts on this crop will be needed to strengthen the program.

Discuss the index of crop selection. Show that farms vary considerably in the amount of corn that can be grown because of the varying topography. One farm with an index of crop selection of 51 may be approaching the limits of corn, while another farm

with an index of 70.5 should consider growing more corn. In general, without considering soil losses, a farm should have as many acres in high return crops as possible without depressing yields in a significant way. This factor must be considered only after the farm capabilities, the livestock program and the yields are taken into account. Farms that raise a great deal of corn are more likely to have hogs and/or beef than a farm which grows a small acreage of corn. For this reason a high index of crop yields will tend to go along with high earnings when these enterprises are most profitable. In years, such as 1970, when dairy cows and hogs were both generally profitable, the index of crop selection may have little meaning until the capabilities of the farm are studied.

Gross return per acre is perhaps the best single measure of the cropping program because it combines yield and crop selection into one value. Gross return must be used as a factor with some reservations because those crops with high production costs will tend to look better than they are. Supplemental costs of fertilizer, chemicals, seed and other as well as allocated costs of power and machinery and land are also being used to evaluate individual crops. These inputs are important in contributing to yields and must be considered in the final evaluation of individual crop selection. These costs and return over these costs will be taken up in a later unit.

Point out how allocated costs are determined. Have farmers review their power and machinery costs carefully. Discuss how such costs may be taken into consideration when determining the

relative profitablility of various crops or when comparing crops on the basis of gross return per acre.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Modern Farm Management.

C. Profitable Farm Management.

D. Documentation for Farm Business Record Analysis.

E. Using Farm Analysis Information.

Part II - Suggested On-Farm Instruction Activities.

Assist with preparation of the crop and fertilizer plan for the current crop season. Refer to the analysis report to evaluate past management practices. Show how crop yield index can be affected with improved yields of specific crops. On the basis of projected yields or yield goals, determine gross income per acre. Introduce idea of opportunity costs of growing low producing crops. Aid in preparing a mid-year crop and feed check.

UNIT II - VII

ANALYZING THE SIZE OF BUSINESS

Teacher Objectives:

1. To teach families how to evaluate the size of their farm business.

2. To illustrate the relationship between size of business and farm earnings.

Part I - What Is the Correlation Between Size of Business and Farm Earnings?

1. Subject Content:

   A. Size of business as measured by work units.

      1) Total work units.
         a) A good measure of farm size.
      2) Distribution of work units.
         a) Work units on crops.
         b) Work units on livestock.

   B. Number of workers.

   C. Number of animal units.

   D. Number of tillable acres.

      1) Increasingly important with higher mechanization.
      2) Importance depends on productivity potential of the area.

   E. Total farm capital.

Measures of Farm Business Size*

Item	Average of 258 Farms	51 Most Profitable	51 Least Profitable	Farm A	Farm B	Farm C
Total Work Units	408	539	332	624	281	420
Work Units Crops	143	200	137	114	93	113
Work Units Livestock	245	308	176	510	188	285
Work Units Per Worker	269	301	219	499	281	194
Number of Workers	1.6	1.8	1.6	1.3	1.0	2.2
Total Animal Units	96	156	67	153	108	60
Tillable Acres	297	415	282	205	434	225
Total Farm Capital	147,081	208,533	143,917	146,006	190,043	82,292
Labor Earnings	6,280	18,478	(-3,511)	20,612	9,009	2,233
Gross Return/Acre	$83	$91	$77	$97	$70	$64
Index of Return for Feed	100	105	85	102	108	65

*Adapted from Vocational Agriculture Farm Analysis, Annual Report, East South Central Minnesota, Austin, Minnesota, April 1972, and the Farm Business Analysis of three Faribault area families.

2. Teaching Activities and Experiences:

Discuss briefly the significance of work units as a measure of farm size. Illustrate that work units per worker is one of the best measures of labor efficiency. These points have been covered in a previous unit, but a brief review will set the stage for the following discussion.

Refer to the previous table and show the strong relationship between total work units and labor earnings when dealing with group averages. Everything else being equal, the farms with the greatest number of work units will have the highest earnings. Greater business size will contribute to earnings only if each unit of work is profitable. Discuss Farm "A" and point out that adequate size contributes to high earnings in an efficient business. Farm "C" illustrates that size can work to the disadvantage of the family, if the enterprises are not efficient. Farm "B" has respectable earnings, even though it is small in size by these measures.

Work units per worker measure the accomplishment of the individual worker. A high accomplishment per worker will contribute toward higher earnings, if the enterprises are efficient. Just keeping busy with inefficient enterprises does not contribute to high earnings. The number of workers contributes toward high earnings only if these workers are engaged in profitable enterprises. Care must be used in interpreting analysis reports in such a way that size and efficiency are interpreted together.

Generally, work units on crops and the number of tillable acres can be studied together. In productive soil areas, a given amount of time spent on a cropping enterprise will pay a higher return for

labor than the same amount of time spent on livestock enterprises. Highest labor earnings will generally result from a combination of crops and livestock enterprises that will fully utilize the available labor throughout the entire year.

The number of livestock units on a farm gives an indication of how much feed is required, but is not a good indication of the amount of labor required; for example Farm "B" is a Beef-Hog Farm with 108 animal units and 188 work units on livestock, while Farm "C" is a dairy farm with a few hogs having 60 animal units and 285 work units on livestock. Increased livestock could not be expected to increase earnings on Farm "C" with the Index of Return for feed being only 65.

Business size has a high statistical correlation with earnings. However, in many farm businesses the efficiency of the enterprises is more important than size. A good slogan might be "Get Better Before Bigger."

The accomplishments per worker are influenced to a large extent by buildings, machinery and equipment on the farm. The relationship of mechanization to cost of production and the accomplishment per worker will be illustrated in Teaching Unit VIII.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Profitable Farm Management.

C. Records for Farm Management.

D. Documentation for Farm Business Record Analysis.

Part II - Suggested On-Farm Instruction Activities.

Review the measures of farm size for the family's individual business. Determine the distribution of work units on their farm. Discuss mechanization of their business in relation to the work units per worker reported in the analysis. Review family plans for any business changes which may affect a change in business size. Explore the relationship proposed changes may have to other measures of business organization and efficiency.

UNIT II - VIII

ANALYZING MACHINERY, EQUIPMENT AND BUILDING COSTS

Teacher Objectives:

1. To teach families how to evaluate machinery, equipment and building costs and to encourage them to make use of the evaluation along with other available information to guide them in future investments.

Part I - How Can Machinery, Equipment and Building Costs Be Evaluated?

1. Subject Content:

A. Methods of comparison.

1) Total farm capital.
   a) Capital investment per work unit.
   b) Capital investment per worker.

2) Power, machinery, equipment and building cost per work unit.
   a) Tractor and crop machinery expense per work unit.
   b) Farm share of auto and truck expense per work unit.
   c) Livestock equipment expense per work unit.
   d) Building, fencing, tiling expense per work unit.

3) Tractor and crop machinery expense per crop acre.
   a) Allocation of power and crop machinery expense to individual crops.
   b) Allocation of custom work hired to individual crops.
   c) Allocation of power and machinery costs to livestock

4) Allocating building and equipment costs to livestock.

Machinery, Equipment and Building Costs*

Item	Average 258 Farms	51 Most Profitable	51 Least Profitable	Farm A	Farm B
Total Farm Capital	147,081	208,533	143,917	124,812	82,292
Capital Investment/Worker	96,869	117,717	98,850	78,203	38,757
Power, Machinery, Building Expenses/W.U.	28.91	26.13	34.56	25.07	15.33
Tractor & Crop Mach. Exp./W.U.	14.95	13.11	18.08	11.44	5.74
Truck & Auto Expense/W.U.	4.86	4.23	5.54	4.60	4.00
Livestock Equip. Expense/W.U.	2.19	2.07	1.92	1.83	2.87
Buildings, Fencing, Tiling/W.U.	5.57	5.53	7.43	6.13	2.05
Tractor & Crop Mach. Exp/Acre	19.80	16.86	20.88	19.89	10.71
Power & Crop Mach Exp/A. Corn	20.46	18.70	20.79	25.14	11.33
Custom Work/Acre Corn	4.39	3.32	5.77	----	4.74
Work Units per Worker	268	301	219	269	194
Labor Earnings	6,280	18,478	(-3,511)	14,184	2,233

*Adapted from Vocational Agriculture Farm Analysis, East South Central Minnesota, Austin, Minnesota, April 1972, and from the analysis reports of two Faribault area families.

2. Suggested Teaching Activities and Experiences:

Machinery, equipment and building costs are very difficult to evaluate on the basis of group averages or standards because the efficiency level, product prices and accomplishment of the worker are all closely interrelated with these costs.

Families are very interested in these costs and are eager to search for clues that will help them to improve their farm business. This unit can be used to begin to acquaint students with the various measures and to illustrate that the lowest investment that will make the best use of all resources will result in the greatest income. As can be illustrated from the group averages as well as Farm A and Farm B data, there is no indication that high or low costs on a work unit basis or acre basis can be correlated with earnings. As each of these expenses are discussed, it should be brought out that these costs vary widely with each type of operation and must be studied on an individual basis. The following questions will emphasize the importance of study before making investments.

A. How do you determine whether or not to make a purchase?

1) Will it increase profits?
   a) Increase volume? Acres? Cows? Bushels?
   b) Will it save labor costs?
   c) Will labor saved be put to productive use?
   d) Will it improve efficiency?
   e) Will it lower costs? Save heat? Lower Vet Costs? Lower operating costs?
2) Is it the best use of capital?
   a) Tiling or building a hog house?
   b) Invest in equipment for narrow rows or spend money on the dairy barn?
   c) Buy a new combine or spend more on weed control and fertilizer?
   d) Will the capital expenditure force a cutback in necessary production expenses?
3) Will profits repay the loan as fast as needed?
   a) How soon will the investment result in more spendable income?

These questions all point to the need for a partial budget and it is a good opportunity to schedule a farm visit to work individually with those who are contemplating major capital expenditures.

3. References:

   A. Vocational Agriculture Farm Analysis, Annual Report.

   B. Records for Farm Management.

   C. Farm Management Economics.

   D. Documentation for Farm Business Record Analysis.

Part II - Suggested On-Farm Instruction Activities.

Generally review the machinery, equipment and building costs for the farm unit. Assist the family in determining the costs of ownership of one or more machines. Discuss alternatives to capital investments in machinery, equipment and building. If family goals include investment in these items, assist families in preliminary plans for acquisition.

UNIT II - IX

ANALYZING LIVESTOCK EFFICIENCIES

Teacher Objectives:

1. To teach families how to use their analysis reports to determine relative enterprise efficiencies.

2. To teach families how to interpret the factors of costs and returns from individual livestock enterprises.

Part I - What are the common measures of profitability of livestock enterprises?

1. Subject Content:

A. Levels of production or net increases

1) Rates of production per unit
2) Quality of production
   a) Milk test
   b) Weight of market livestock sold

B. Feed consumed per unit of production

1) Amount of farm grains
2) Amount of purchased feed
3) Amount of dry roughages
4) Amount of succulent feeds

C. Feed cost per unit of production

1) Price of feed
2) Balance of ration

D. Return over feed per unit of production

E. Return in relation to feed cost

1) Return for $100 of feed
2) Index of return for $100 of feed

F. Supplemental costs

1) Miscellaneous livestock expense
2) Veterinary expense
3) Custom work

G. Profit of the enterprise

1) NI = (SP-C)Q
   [Net Income = (Selling Price - Cost) Times Quantity]

2. Suggested Teaching Activities and Experiences:

Discuss the items outlined under "subject content". Illustrate that it is necessary to evaluate livestock enterprises from a number of different viewpoints because of the variation of input costs between enterprises. Show briefly how net increases and/or total value produced is determined. Emphasize the importance of physical quantities and value in evaluating the production efficiency of an enterprise. Caution families against jumping to conclusions on the basis of one analysis report while stressing the fact that these figures are only as accurate as the inventories, production and feed distribution that was used in their account book.

Refer to the analysis report to show that feed represents varying proportions of the total cost of production with different livestock enterprises. Return for $100 of feed might be a good method of comparing one dairy herd with another, but cannot be used to compare one enterprise with another. Break-even points may be illustrated to emphasize this point. Supplemental costs may be used to show one group of costs that are not reflected in the return per $100 of feed or in return over feed cost per unit of production. Building costs, interest and labor and some overhead costs that are not allocated to specific enterprises in the analysis must all be considered in evaluating the enterprise.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

Part II - How Do You Interpret the Factors of Costs and Returns for the Dairy Enterprise?

1. Subject Content:

A. Evaluation of returns from dairy cows.

1) Production
   a) Pounds of butterfat per cow.
   b) Pounds of milk per cow.
   c) Percent of butterfat in milk.
2) Value of produce per cow.
   a) Products sold.
   b) Products used in home.
   c) Milk fed to calves.
   d) Net increases in value.
3) Amount of feed per cow (lbs.).
   a) Corn.
   b) Small grain.
   c) Commercial feeds.
   d) Legume hay.
   e) Other hay
   f) Silage.
4) Feed costs per cow.
   a) Concentrates.
   b) Roughages.
   c) Pasture.
5) Returns above feed cost per cow.
6) Returns for $100 of feed.
7) Feed cost per pound of butterfat.
8) Amount of milk per lb. of concentrate.
9) Size of the enterprise.
   a) Number of cows.
   b) Total value produced.
10) Supplemental costs.
11) Allocated costs for power & machinery, equipment & buildings.

B. Evaluation of returns from other dairy cattle.

1) Net increases in value of other dairy cattle.
2) Amounts of feed per head.
   a) Concentrates.
   b) Hay and fodder.
   c) Silage.
   d) Whole milk.
3) Cost of feed per head.
   a) Concentrates.
   b) Roughages.
   c) Milk.
   d) Pasture

4) Returns above feed cost per head
5) Returns for $100 of feed
6) Size of enterprise
    a) Number of head
    b) Net increase in value
7) Supplemental costs

C. Evaluation of returns from all dairy cattle

1) Dairy cows and other cattle combined
    a) All data is on per cow basis
    b) Valid comparisons only if cow replacement ratio is typical

D. Supplementary data:

1) Comparison of Faribault Dairy Enterprises, 1971 - by Farms
2) Herd No. 1
3) Herd No. 28

Faribault Area Vocational-Technical School
Agriculture Department 4/72

Comparison of Faribault Dairy Enterprises, 1971 - by Farms

Ret./ Feed Cost	B.F. per Cow	Farm Grain	Purch. Feed	Total Conc.	Milk/ Grain	Dry Rough.	Silage	Past. Cost	Total Feed Cost	Cost lb. B.F.	Ret./ $100 Feed	Index Cow	Index O.D.
1. 556	527	3732	150	3882	3.8	6169	6494	31.82	197	37	382	152	165
2. 535	548	7896	527	8423	1.8	6845	5016	-----	271	50	297	118	118
3. 519*	504	5329	648	5977	2.4	4031	11990	20.36	245	49	312	124	54*
4. 497	486	4902	167	5069	2.7	6065	10782	11.39	213	44	333	133	176
5. 494	505	5071	392	5463	2.6	6644	10222	-----	233	46	312	124	75
6. 483	495	5724	297	6021	2.2	8419	8382	-----	245	50	297	118	81
7. 482	480	4024	474	4498	2.3	6143	1286	14.64	188	39	356	142	125
8. 480	535	5022	881	5903	2.3	7222	16667	-----	283	53	270	107	102
9. 475	477	4179	749	4928	2.8	6903	10705	-----	220	46	316	126	76
10. 474	494	4595	895	5490	2.3	5590	6211	20.99	242	49	296	118	82
11. 470	509	7684	186	7870	1.9	7527	5215	-----	263	52	279	111	132
12. 469	534	6264	632	6896	2.0	7606	8108	7.53	281	53	267	106	98
13. 467	458	4591	411	5002	2.5	5960	11161	-----	215	47	317	126	97
14. 467*	467	3611	1491	5102	2.5	6779	4228	15.03	249	53	288	114	54*
15. 461	546	4697	611	5308	2.7	9677	11613	7.06	276	51	267	106	113
16. 457	484	5111	572	5683	2.4	3780	7165	24.88	225	46	304	121	116
17. 456	471	3686	323	4009	3.5	4769	11077	14.81	192	41	337	134	83
18. 455	482	4521	460	4981	2.6	6466	6867	16.99	221	46	305	121	103
19. 454*	496	6151	721	6872	2.1	7162	4527	-----	258	52	276	110	58*
20. 453	483	4836	648	5484	2.5	4381	10540	28.98	243	50	287	114	83
21. 420	468	5952	2329	8281	1.6	7203	4628	-----	284	61	248	98	63
22. 420	453	3037	1004	4041	3.1	8836	8327	24.85	238	53	276	110	73
23. 420	470	4159	800	4959	2.8	11162	12500	-----	293	63	243	97	144
24. 418	418	4318	224	4542	2.6	8162	6029	-----	196	47	313	125	93
25. 413	423	4360	485	4845	2.6	7166	9121	-----	216	51	291	116	112
26. 411	423	3835	217	4052	2.9	5438	6465	17.43	178	42	331	131	103
27. 407	463	4333	276	4609	2.9	9841	12302	-----	250	54	263	104	86
28. 404	450	5597	1043	6640	1.9	5357	=-----	16.04	238	53	270	107	86
29. 386	400	4234	507	4741	2.4	3896	7908	22.84	185	46	308	122	64
30. 378	413	4392	294	4686	2.5	9524	7619	-----	222	54	270	114	51
31. 366**	500	4411	1703	6114	2.2	1747	24096	-----	291	58	226	90	174**
32. 359*	380	3570	257	3827	2.8	7570	9960	11.04	203	54	276	110	54*

*Feed distribution needs study. Young stock may have been charged for feed which cows ate.

**Feed distribution needs study. Cows may have been charged with feed that young stock ate.

Faribault Area Vocational-Technical School
Agriculture Department 4/72

Comparison of Faribault Dairy Enterprises, 1971 - by Farms

Ret./ Feed Cost	B.F. per Cow	Farm Grain	Purch. Feed	Total Conc.	Milk/ Grain	Dry Rough.	Silage	Past. Cost	Total Feed Cost	Cost lb. B.F.	Ret./ $100 Feed	Index Cow	Index O.D.
33. 356**	385	4157	285	4442	2.5	8136	8339	-----	209	54	270	108	160**
34. 352	436	3944	675	4619	2.6	6317	3985	26.57	227	52	255	101	71
35. 351	427	4142	687	4829	2.4	4580	15522	23.59	235	55	249	99	79
36. 350	399	5439	960	6399	2.0	6010	8894	14.09	243	61	244	97	62
37. 350	443	4764	510	5274	2.3	9299	7898	-----	249	56	240	96	63
38. 349**	425	5711	981	6692	1.8	7624	6857	-----	270	64	229	91	174**
39. 347	461	4831	677	5508	2.3	5238	4762	25.24	223	48	256	102	150
40. 342	428	4339	595	4934	2.5	7176	7405	11.49	222	52	254	101	71
41. 341*	407	4599	427	5026	2.3	3917	16129	3.73	224	55	252	100	55*
42. 339	430	4828	866	5694	2.2	6364	6742	7.42	247	57	237	94	125
43. 335	453	5629	736	6365	2.0	5280	16866	-----	261	58	228	91	295
44. 330	403	5440	219	5659	2.1	4656	7619	26.19	229	57	244	97	67
45. 321	379	2643	661	3304	3.0	4772	11790	-----	176	47	282	112	111
46. 318	496	6682	1464	8146	1.7	5449	11827	-----	317	64	200	80	97
47. 293	375	3608	731	4339	2.4	7662	6494	15.45	225	60	230	91	104
48. 292	410	5056	244	5300	2.3	11415	6634	-----	272	66	208	83	64
49. 287	374	4338	428	4766	2.1	4049	4195	24.59	193	52	248	99	87
50. 283	402	3246	686	3932	2.5	7649	9654	-----	203	50	240	95	132
51. 268	418	3776	470	4246	2.7	12568	9910	19.10	275	66	198	79	100
52. 263	293	2835	147	2982	2.8	8458	6965	18.36	190	65	238	95	106
53. 246*	325	2468	330	2798	2.3	3006	4451	18.41	131	40	288	114	39*
54. 244	439	5069	1527	6596	2.0	7779	8284	6.79	302	69	181	72	95
55. 238	395	4332	1269	5601	2.0	9851	9970	20.99	303	77	179	71	117
56. 206	388	5363	123	5486	2.1	6575	2968	21.55	245	63	184	73	136
57. 200	311	3027	559	3586	2.5	3961	5770	9.29	166	53	221	88	144
58. 180	345	3251	550	3801	2.5	12179	10894	4.41	259	75	170	67	105
59. 162	338	4792	296	5088	1.9	11648	9802	4.84	264	78	161	64	87
60. 156	220	3519	578	4097	1.6	3099	2296	28.94	162	74	197	78	89
61. 142	357	5348	581	5929	1.8	12256	7519	16.80	307	86	146	58	37
62. 138	379	4667	1313	5980	1.7	11485	6515	2.95	296	78	147	58	104
63. 127	259	3847	657	4304	1.5	3817	10687	-----	187	72	168	67	88

*Feed distribution needs study. Young stock may have been charged for feed which cows ate.
**Feed distribution needs study. Cows may have been charged with feed that yong stock ate.

Supplementary da (2)

Faribault Area Vocational-Technical Institute
Agriculture Department 5/72

Name Herd No 1

Comparison of Faribault Dairy Enterprises, 1971 - by Factors

Ret./ Feed Cost	B.F. Per Cow	Farm Grain	Purch. Feed	Total Conc.	Milk/ Grain	Dry Rough.	Silage	Total Feed Cost	Cost Lb. B.F.	Ret./ $100 Feed	Index Cow	Index O.D.
560	550	7800	120	8450	3.8	13000	1000	140	35	380	150	180
510	520	5800	250	6550	3.0	10000	4000	190	46	320	130	150
460	490	5200	380	5850	2.6	9400	6000	210	49	300	120	125
410	460	4800	480	5450	2.5	7800	7000	225	51	280	110	105
360	430	4500	580	5010	2.4	6800	8000	240	53	260	104	95
340	410	4200	680	4800	2.3	6000	9500	250	56	240	98	80
320	390	3800	880	4400	2.1	5000	11000	270	62	220	90	65
240	340	3200	1280	4000	1.9	4000	14000	290	70	180	70	55
120	240	2400	1680	2000	1.5	2000	24000	320	78	140	60	35

Supplementary Data (2)

Faribault Area Vocational-Technical Institute
Agriculture Department 5/72

Name Herd No 28

Comparison of Faribault Dairy Enterprises, 1971 - by Factors

Ret./ Feed Cost	B.F. Per Cow	Farm Grain	Purch. Feed	Total Conc.	Milk/ Grain	Dry Rough.	Silage	Total Feed Cost	Cost Lb. B.F.	Ret./ $100 Feed	Index Cow	Index O.D.
560	550	7800	120	8450	3.8	13000	1000	140	35	380	150	180
510	520	5800	250	6550	3.0	10000	4000	190	46	320	130	150
460	490	5200	380	5850	2.6	8400	6000	210	49	300	120	125
410	460	4800	480	5450	2.5	7600	7000	225	51	280	110	105
360	430	4500	580	5050	2.4	6800	8000	240	55	260	104	95
340	410	4200	680	4800	2.3	6000	9500	250	56	240	98	80
320	390	3800	880	4400	2.1	5000	11000	270	62	220	90	65
240	340	3200	1280	4000	1.9	4000	14000	290	70	180	70	55
120	240	2400	1680	2000	1.5	2000	24000	320	78	140	60	35

2. Suggested Teaching Activities and Experiences:

Using the outline shown under "subject content", discuss the various items that are used to compare the diary enterprise. Have each family follow its analysis report as these are discussed. Show that the dairy enterprise is compared on the basis of cows, replacement cattle and then a combination of the two.

Using individual farm data shown in the supplementary tables, show that commercial feed and farm grown concentrates have the greatest effect on feed costs. Show how this may be related to the quality of roughage or that it may be a result of overfeeding or underfeeding of high protein feeds. Use Herd No. 1 as an example to illustrate that high production coupled with reasonable feed cost will give greatest returns above feed cost. Show how Herd No. 28 has combined medium production and a high amount of purchased feed to give about $150 less profit than Herd No. 1. A more extreme example could be used to illustrate the same point more dramatically. These examples can raise the question - "Why is one dairy herd so much more profitable than another?" This could well lead into a discussion of breeding, culling practices, milking practices and the many other practices that make some dairymen extremely successful while others make little if any net return.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

Part III -How Do You Interpret The Factors of Costs and Returns For Complete Hog Enterprises?

1. Subject Content:

A. Net increase in value or total value produced per 100 lbs.

Faribault Area Vocational-Technical School
Agriculture Department 4/72

Faribault F&H Analysis - Hog Enterprise Performance, 1971 - by Farms*

Per cwt. Hogs Produced								Return / $100 Feed	Pigs per Litter	Weaned per Litter	Weight / Hog Sold	Price / cwt. Ration	--
Return Over Feed Cost	Farm Grains	Comm. Feed	Total Conc.	Feed Cost	Suppl. Cost	Price Rec.	Net Increase						
1. 12.12	391	108	499	11.38	1.62	18.88	23.50	206	8.6	6.9	226	2.28	a
2. 11.81	430	79	509	14.87	1.20	20.76	26.68	179	8.9	7.7	164	2.92	d
3. 11.51	401	60	461	12.91	1.04	30.95	24.42	189	9.0	7.4	48	2.80	b,c
4. 11.06	291	78	369	12.01	1.91	20.57	23.07	192	11.8	10.0	125	3.26	c
5. 10.83	273	81	354	12.00	1.81	21.64	22.83	190	9.8	7.9	123	3.39	d
6. 9.97	308	44	352	9.73	.36	18.01	19.70	203	11.2	10.6	246	275	
7. 9.67	393	81	474	13.94	3.11	22.16	23.61	169	10.7	9.2	123	2.94	a,c
8. 9.61	241	79	320	10.06	2.05	18.18	19.67	195	9.1	8.6	245	3.14	a
9. 9.38	281	81	362	12.10	1.07	19.03	21.48	177	10.3	8.7	233	3.34	a
10. 9.35	326	76	402	11.62	.73	18.21	20.97	180	9.6	8.0	245	2.86	a
11. 9.18	314	55	369	10.37	.63	18.21	19.55	188	7.8	5.4	230	2.81	
12. 9.11	310	76	386	12.63	.97	17.91	21.74	172	7.5	6.0	213	3.27	
13. 8.96	288	59	347	10.25	.88	17.53	19.21	187	8.2	7.4	221	2.95	
14. 8.89	465	174	639	22.15	3.74	25.47	31.04	140	9.1	7.0	77	3.47	b,c
15. 8.62	203	66	269	8.37	.11	18.37	16.99	203	7.3	4.6	159	3.11	b,d
16. 8.34	286	73	359	12.45	4.19	19.32	20.79	167	10.5	9.2	180	3.47	a,d
17. 7.98	318	66	384	12.24	.44	18.54	20.22	165	9.7	8.6	233	3.19	a
18. 7.97	351	68	419	7.97	.32	19.33	19.86	167	9.8	7.6	214	2.84	a
19. 7.80	447	28	475	12.50	.53	17.66	20.30	162	9.8	8.4	244	2.63	
20. 7.29	392	62	454	12.94	1.51	18.06	20.23	156	9.2	4.6	222	2.85	
21. 7.29	396	53	449	10.91	1.22	17.58	18.20	167	6.7	5.6	273	2.43	
22. 7.17	394	50	444	13.02	.59	18.94	20.19	155	9.5	8.2	232	2.93	a
23. 6.92	478	114	592	17.89	1.38	19.85	24.81	139	8.2	5.5	174	2.97	d,e
24. 6.72	304	82	386	13.10	1.03	18.28	19.82	151	8.8	6.9	229	3.39	a
25. 6.67	356	46	402	12.81	.73	18.25	19.48	152	7.6	5.6	205	3.19	
26. 6.43	329	83	412	12.58	1.61	19.28	19.01	151	9.2	7.4	235	3.05	a
27. 6.11	390	67	457	13.41	1.85	19.00	19.52	146	9.2	7.2	235	2.93	
28. 5.95	602	159	761	18.75	.47	15.62	24.70	132	12.5	9.5	365	2.46	b
29. 5.65	442	75	517	14.12	1.44	17.96	19.77	140	6.7	5.1	240	2.73	
30. 5.06	566	202	768	25.71	1.34	23.28	30.77	120	8.6	7.4	86	3.35	b,c

Faribault Area Vocational-Technical School
Agriculture Department 4/72

Faribault F&H Analysis - Hog Enterprise Performance, 1971 - by Farms*

	Per cwt. Hogs Produced							Return / $100 Feed	Pigs per Litter	Weaned per Litter	Weight / Hog Sold	Price / cwt. Ration	
	Return Over Feed Cost	Farm Grains	Comm. Feed	Total Conc.	Feed Cost	Suppl. Cost	Price Rec.	Net Increase						
31.	4.32	145	314	459	17.09	2.82	17.28	21.41	125	8.0	3.2	260	3.72	b
32.	4.28	460	71	531	15.87	.07	19.06	20.15	127	---	---	191	2.99	
33.	4.25	448	46	494	12.60	1.19	18.22	16.85	134	9.8	6.8	215	2.55	
34.	3.24	401	56	457	12.09	1.67	18.74	15.33	127	7.3	5.1	235	2.65	
35.	2.48	691	109	800	22.90	1.36	22.34	25.38	111	10.1	6.7	96	2.85	b,c
36.	1.92	298	87	385	13.02	1.41	17.68	14.94	115	10.1	7.7	237	3.38	
37.	.48	435	91	526	15.11	1.31	17.91	15.59	103	7.8	6.9	223	2.87	
38.	-2.53	740	117	857	24.33	.48	17.47	21.80	90	9.0	6.3	281	2.84	e
39.	-3.37	527	110	637	17.55	.66	16.58	14.18	81	6.3	2.2	228	2.76	b

*This information includes complete hog programs as well as those where purchased pigs were finished and weaning pigs were sold. Care should be used in comparing farms. Farms with footnote (a) provide most reliable information for complete hog programs.

a) Over 100,000 lbs. produced; b) Under 20,000 lbs. produced; c) Mostly weaning pigs sold; d) Some weaning pigs sold; e) Feed allocation questioned

Faribault Area Vocational-Technical Institute
Agriculture Department 5'72

Name Hogs No9

Comparison of Faribault Complete Hog Enterprises - 1971, by Factors

Per cwt. Hogs Produced								Ret / $100 Feed	Pigs Per Lit.	Wean Per Lit.	Wt./ Hog Sold	Price /cwt. Feed	Index	Lb. Prod.
Ret./ Feed Cost	Farm Grain	Purch Feed	Total Feed	Feed Cost	Suppl * Cost	Price Rec	Net Inc							
12.00	180	35	275	8	.10	30.00	-30.00	205	12.5	10.6	50	2.30	130	350000
10.50	280	45	350	10	.40	22.00	-25.00	195	11.0	9.0	120	2.60	125	200000
9.50	300	55	375	11	.70	19.50	-22.00	185	10.0	8.0	170	2.80	120	110000
8.50	320	65	400	12	1.00	19.00	-21.00	170	9.5	7.4	210	2.85	110	90000
7.50	390	75	450	13	1.20	18.50	-20.20	155	9.1	7.2	225	2.90	100	50000
6.50	400	80	470	14	1.40	18.00	-19.60	140	8.5	6.8	230	3.00	90	30000
4.50	450	90	510	16	1.70	17.50	-19.00	125	8.0	6.0	240	3.20	85	20000
2.50	500	115	600	20	2.70	17.00	-15.60	110	7.0	5.0	260	3.40	75	10000
-2.50	700	315	800	24	3.70	15.00	-14.00	80	6.0	2.2	360	3.60	55	0

Faribault Area Vocational-Technical Institute
Agriculture Department 5 '72

Name Hogs No 26

Comparison of Faribault Complete Hog Enterprises - 1971, by Factors

Ret./ Feed Cost	Per cwt. Hogs Produced: Farm Grain	Purch Feed	Total Feed	Feed Cost	Suppl.* Cost	Price Rec	Net Inc	Ret / $100 Feed	Pigs Per Lit.	Wean Per Lit.	Wt./ Hog Sold	Price /cwt. Feed	Index	Lb. Prod.
12.00	180	35	275	8	.10	30.00	-30.00	205	12.5	10.6	50	2.30	130	350000
10.50	280	45	350	10	.40	22.00	-25.00	195	11.0	9.0	120	2.60	125	200000
9.50	300	55	375	11	.70	19.50	-22.00	185	10.0	8.0	170	2.80	120	110000
8.50	320	65	400	12	1.00	19.00	-21.00	170	9.5	7.4	210	2.85	110	90000
7.50	350	75	450	13	1.20	18.50	-20.20	155	9.1	7.2	225	2.90	100	50000
6.50	400	80	470	14	1.40	18.00	-19.60	140	8.5	6.8	230	3.00	90	30000
4.50	450	90	510	16	1.70	17.50	-19.00	125	8.0	6.0	240	3.20	85	20000
2.50	500	115	600	20	2.70	17.00	-15.60	110	7.0	5.0	260	3.40	75	10000
-2.50	700	315	800	24	3.70	15.00	-14.00	80	6.0	2.2	360	3.60	55	0

of hogs.

B. Feed used to produce 100 lbs of hogs.

1) Corn
2) Small grain
3) Protein, salt and mineral
4) Complete ration

C. Cost of feed used to produce 100 lbs. of hogs.

1) Concentrates
2) Pasture

D. Returns above feed per 100 lbs. of hogs produced.

E. Supplementary costs.

F. Returns for $100 of feed.

G. Price received per 100 lbs. of hogs sold.

H. Management factors.

1) Number of litters farrowed
2) Number of pigs born per litter
3) Number of pigs weaned per litter
4) Per cent death loss
5) Average weight of hogs sold
6) Price per cwt. concentrate fed

I. Supplementary data:

1) Complete hog enterprise performance, 1971 - by farms
2) Hogs No. 9
3) Hogs No. 26

2. Suggested Teaching Activities and Experiences:

Discuss the items shown under "subject content". Have the families refer to the average, most profitable and least profitable groups in table 11A of the latest analysis report. Illustrate how total value produced is calculated and point out that this figure should correlate fairly well with price received per cwt. if inventory weights and values have been accurately estimated. Discuss all other points under "subject content" while families follow along on their own analysis report.

When discussing cost of feed, point out that differences in cost may be a result of "peddled" feeds or other over-priced feeds as compared with those from local retail feed establishments.

Discuss the "break even" point of "return per $100 of feed". In 1971 this break even point was about $128 return for each $100 of feed when $1.50 per hour of labor was assumed. It will be necessary to make this calculation each year. Using local records, show how time of marketing, weight of hogs sold and quality of hogs influences price received per 100 pounds of hogs sold.

Using the analysis report, show the high correlation between the number of pigs per litter and return above feed cost. Have each family refer to Table 11A of the analysis report to see how the size of the hog enterprise influences the total returns above feed cost for the enterprise.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Documentation for Farm Business Record Analysis.

Part IV - How Do You Interpret The Factors of Costs and Returns for Other Livestock Enterprises?

1. Subject Content:

A. Feed costs and returns from hog finishing enterprise.

B. Feed costs and returns from weaning pig enterprise.

C. Feed costs and returns from beef breeding cattle.

D. Feed costs and returns from feeder cattle

E. Feed costs and returns from sheep flock.

F. Feed costs and returns from laying flock chickens.

2. Suggested Teaching Activities and Experiences:

The principles used in interpreting the returns and efficiencies for all enterprises are very similar to those used in dairy cattle and hogs. For this reason, a detailed explanation is not being given here for each separate enterprise. In each livestock enterprise the amounts of the various feeds, as well as the value of these feeds becomes the basis for the study. The proportion of the total cost represented by feed is the main factor in determining the return needed for each $100 of feed to cover all costs. The size of the enterprise is very important when evaluating its effect on a total farm business. An extremely profitable small enterprise may not add as much to farm earnings as a larger enterprise of moderate profitability.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Documentation for Farm Business Record Analysis.

Part V - Suggested On-Farm Instruction Activities.

Review the enterprise analysis for each class of livestock on the farm. Ask family to recall (or find) the estimates they made previously of the production and efficiency of each enterprise. Compile a list of the management practices that should be reviewed for each enterprise. Note changes in practices that have been made and are now in use. Help to determine the break-even point for return over feed cost for each enterprise. Check the current livestock numbers report for accuracy.

NOTES

UNIT II - X

EVALUATION OF THE FARM BUSINESS

Teacher Objectives:

1. To furnish the opportunity and a method for farm families to evaluate their farm business and evaluate the use that has been or is being made of past analysis reports.

Part I - Where Are the Strengths and Weaknesses of Our Business?

1. Subject Content:

Farm families who have had an analysis of their farm business will need encouragement to study and to make adjustments in their businesses as suggested by the report. This unit is designed to put the family in a position of self evaluation. They must tell themselves what is strong and what is weak about their business - what they could do to take advantage of this knowledge - what they did to take advantage of it and what adjustments or investments were made that were contrary to analysis indications. An analysis report that does not lead to some action on the part of the farm family is not of great value.

2. Suggested Teaching Activities and Experiences:

The following worksheet, with space provided for the responses, should be filled in by the farmer and his wife, together. It would be helpful for the instructor to indicate to the families where to look in the analysis report for ideas on the various responses. Direct answers to all of the responses will not be found in the analysis report, but general weaknesses within the report may suggest needed improvement. It may be worthwhile for the family to decide for themselves that their weed control is not satisfactory or that they are not getting things done in a timely manner.

WORKSHEET

Name_____
Date_____

Evaluation Of The Farm Business

1. WHAT ARE THE STRONG POINTS OF OUR BUSINESS?

   A. What can we do to take advantage of these strong points?

   B. What have we done?

2. WHAT ARE THE WEAK POINTS OF OUR BUSINESS?

   A. What can we do to strengthen these points?

   B. What have we done to strengthen or eliminate the weak points?

3. EVALUATION OF OUR FARM BUSINESS

	Weak	Satisfactory	Very Good
Size of business			
Livestock production			
Crop selection			
Crop yields			
Fertilizer			
Weed control			
Labor efficiency			
Machinery costs			
Cost control			
Feed costs			
Roughage program			
General timeliness			
Household spending			

4. Changes in practices, enterprises, machinery, building or equipment additions that your analysis report did not indicate or that your analysis report indicated should not be done:

5. Unusual circumstances in last year's analysis that would not give a true average picture of the farm business or family spending. (Weather, disease, inventory errors, low prices, etc.):

After each family has completed the worksheet, a general class discussion can be held regarding the uses of an analysis report. This unit furnishes a good opportunity to remind families that records or the analysis report is worth very little unless it is used.

3. References:

A. Individual families analysis reports.

Part II - Suggested On-Farm Instruction Activities:

Review the worksheet "Evaluation of the Farm Business" used in the preceeding class. Ask the family to examine the list of activities they prepared early in the year (Unit IV). Discuss ways in which they plan to respond to the indicators of needed business improvement.

UNIT II - XI

INCOME TAX PLANNING AND MANAGEMENT

Teaching Objectives:

1. To teach families how to minimize income taxes through the use of an income tax estimate and careful tax management.

This teaching unit is very similar to teaching Unit XII, Farm Management I.

More empahsis will be placed on the acceleration or delay of sales and purchases to minimize the fluctuation of income from one year to the next.

Since the procedure for making an income tax estimate is exactly the same from one year to the next, a special teaching unit has not been developed for Farm Management II.

The instructor may wish to gather material to show by several examples how income may be shifted from one year to another for the purpose of minimizing taxes.

2. References:

A. Income Tax Management for Farmers.

B. "Form F.M. 7", Minnesota Farm Account Book.

C. Farmers' Tax Guide.

D. Minnesota Farm Account Book.

E. References from "Farm Income Tax Short Course."

3. Suggested On-Farm Instruction Activities.

On-farm instruction for income tax planning and management may be done similar to the procedure used in Unit I. Assist in compiling an estimate of tax liability and planning sales and purchases to manage the extent of this liability. Instruction should also be given in closing out the record for analysis using

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CHAPTER VII

FARM MANAGEMENT III - FARM BUSINESS REORGANIZATION

The continuation of families into Farm Management III or Farm Business Reorganization will necessitate no radical changes in the program. This advancement into a third year of adult farmer education follows the preceding instruction in such a natural way that families will not be especially aware of the intensive study which they are making of their business.

These families have been meeting together for more than two years. They are very likely to offer discussion and present problems to the group that would have been strictly personal problems when they first entered the program. For this reason, the families are likely to add more flexibility to the instruction as the year progresses. On-farm instruction will also become more flexible and individualized as some of the families begin to make changes in their business as a result of the two-year study. To some families, adjustments or changes in management practices will be major accomplishments. Others will already be considering major changes in cropping and livestock organization. The job of the vocational agriculture instructor should never be that of retarding progress. In this third year of farm management, some families may think they are ready for major changes in livestock enterprises when in reality they should do a great deal more investigation and planning before reorganization is undertaken. The instructor should strongly urge these families to complete the planning before beginning any major changes.

Each instructor may wish to change the empahsis during this third year. His community is different from any other and each of the farm management groups within the same community may also have different interests and different approaches to their own problems. Whatever the empahsis, it is important that the instruction remain systematic and well planned.

UNIT III - I

ATTRIBUTES OF SUCCESSFUL FARMERS

Teacher Objectives:

1. To create an awareness in the families that there are differences between good and bad farmers.

Part I - What Are the Differences Between Successful and Unsuccessful Farmers?

1. Subject Content:

The growing complexity of modern farming places more and more emphasis upon the ability of the man. Landlords and their farm managers are seeking the best tenants. Parents want to pass the home farm on to the son or son-in-law who is best qualified to operate it. Bankers and other creditors want help in evaluating the personal characteristics of prospective borrowers. Agriculture teachers want to encourage their best qualified students to seek careers in farming. Farm families may wish to evaluate themselves to determine what changes they might make for self improvement.

A study of farm operators in Illinois produced a series of items used by farmers and farm leaders in describing good and poor farmers. Those items with the highest discriminatory power were correlated with the labor and management earnings of a sample of account keeping farmers.

Among the items that were found to be most characteristic of high-ranking farmers, and also least characteristic of low-ranking farmers, were the following indicators of personal attributes: [1]

Takes pride in his farm and his work
Ambitious
A good manager
Plans his work

[1] Reiss, Attributes of Good and Bad Farmers

On time with his work
Financially successful
Builds up his soil
Progressive
Good business judgement
Enjoys working with livestock
Decides what is important and then does it
Buildings are well kept
Thrifty
Has the know-how for modern farming
Well informed about farming
Spends money wisely
Keeps his place neat
Profits by experiences of others
Thinks things through before taking action

Among the items that were found to be most characteristic of low-ranking farmers, and also least characteristic of high-ranking farmers, were the following personal attributes:

Easy going
Just a poor manager
Does not keep good farm records
Farmstead messy and unkept
Farms in a haphazard fashion
Knows about new methods, but uses old ones
Needs a boss
Poor training as a boy
His crops are weedy
Satisfied with just enough to get by
Lacks vision
Slow in getting up-to-date in his farming
Does not get things done

The fifteen items that showed the highest correlation between rating scores on the operator and his labor and management earnings are listed below in order of degree of correlation:

1. Not interested in farming (negative correlation)
2. Uses limestone when needed
3. Poor training as a boy (negative correlation)
4. Makes good investments
5. Well informed about farming
6. Satisfied with just enough to get by (negative correlation)
7. Takes pride in his farm and his work
8. Uses fertilizers and phosphate
9. Reads and studies farm publications
10. Raises hogs on clean ground
11. Has a love for farm work and farm life
12. Just a poor manager (negative correlation)
13. Financially successful

14. Industrious
15. Does not understand farming (negative correlation)

2. Suggested Teaching Activities and Experiences:

Introduce this unit by pointing out that people generally have farmers classified as good farmers or poor farmers. Have the farmer and his wife work together and list under the heading, "good", all of the things they think of as being characteristic of good farmers. Have them list under the heading, "poor", all the things they think of as being characteristic of poor farmers. Point out that these might be attitudes, (how the farmer thinks), behavior, (how the farmer acts), or anything else that may classify him as good or bad.

During discussion list the characteristics of good farmers in one column on the chalkboard and the characteristics of poor farmers in another column. This discussion will be very worthwhile because families cannot discuss these items without consciously or unconsciously putting themselves into some of the categories. This list may be supplemented by those included under subject matter which have not been suggested by families.

Call attention to the survey done at Illinois correlating these attributes of good and poor farmers to earnings. Pass out a list of these attributes in order of degree of correlation and have each family check any of the items that may apply to themselves. A question may be raised as to why keeping records is not included in the correlation list. Only families with records were included in this study - therefore no correlation could be determined.

Even though the study on which this unit is based is rather old, it does point out the fact that there are differences

among farmers in their backgrounds, their attitudes and the farming practices carried out. One of the differences not brought out in this study, perhaps because it is not possible to observe, is the selection and combination of livestock and crop enterprises. There are many possible combinations from which a farmer can choose. The specific combination that he chooses should be dependent on the resources available and be consistent with the personal goals of the farm operator and his family. Illustrations of income differences are shown in Economic Information Report, R71-7, R71-8 Minnesota Farm Business Summary by Type of Farming, Nodland and Persons, University of Minnesota, St. Paul, Minnesota, 1971.[2] The instructor may wish to supplement this unit from the above report or he may wish to develop the major part of a lesson unit from the report and supplement it with the material shown under "subject content" of this unit.

3. References:

   A. Attributes of Good and Bad Farmers.

   B. Getting Started in Farming.

   C. Annual Minnesota Farm Business Summary

   D. Farm Management Principles, Budgets, Plans.

Part II - Suggested On-Farm Instruction Activities.

Review the attributes of good and poor farmers with the family. Ask them to estimate their relative standing in the group of farms having records analyzed, in regard to income, production levels, and enterprise efficiency. Review their operation plan for the coming year. Help review their family

[2]Published annually under same title.

goals and urge revisions if necessary. Inquire to determine if the family has completed their opening inventory.

UNIT III - II

DETERMINING THE MOST PROFITABLE LEVEL OF PRODUCTION

Teacher Objectives:

1. To teach families a method of determining the optimum level of production.

Part I - What Is the Most Profitable Level of Production?

1. Subject Content:

   A. Determining the marginal product with fixed machinery and variable labor.

Number of Labor Units	Quantity of Product	Product Per Unit of Labor	Marginal Product
1	5	5	XXXX
2	12	6	(7)
3	21	7	(9)
4	32	8	(11)
5	45	9	(13)
6	60	10	(15)
7	77	11	(17)
8	84	10.5	(7)
9	88	9.8	(4)
10	90	9.0	(2)
11	90	8.2	(0)

1) Where is the maximum production per unit of labor?
2) At what point are costs of production the lowest?
   a) This depends on cost of production.
   b) Probably not at point of maximum production.

B. Determining the marginal costs with increasing units of labor at $4 per unit and fixed costs of $50.

Quantity of Labor Units	Fixed Costs	Total Costs	Total Product	Average Costs	Marginal Cost of Unit
1	50	54	5	10.80	XXXX
2	50	58	12	4.83	($.57)
3	50	62	21	2.59	($.44)
4	50	66	32	2.06	($.36)
5	50	70	45	1.56	($.30)
6	50	74	60	1.23	($.27)
7	50	78	77	1.01	($.24)
8	50	82	84	.97	($.57)
9	50	86	88	.98	($1.00)
10	50	90	90	1.00	($2.00)
11	50	94	90	1.44	($4.00)

1) At what point does the operator have the highest profit?
   a) When marginal cost is equal to marginal return.
   b) In agriculture, marginal return is equal to the price of the product.
2) If the price of the product is $1.00, what is the most profitable level of production?
3) If the price is $1.50, what is the most profitable level of production?
4) If the price is $3.00, what is the most profitable level of production?
5) What is the most profitable level of production with labor at $6.00 per unit and ....
   a) Price of product $1.00?
   b) Price of product $1.50?
   c) Price of product $2.00?

C. Determining the most profitable level of grain feeding with grain at $2.00 per cwt. and milk at $3.00 per cwt.

Grain Feeding	Grain Cost	Other Cost	Total Cost	Milk Production	Average Cost per 100#	Marginal Cost/$100
1000#	($20.00)	$150	(170)	6000#	($2.83)	XXXX
1500	($30.00)	150	(180)	7500	($2.40)	(.67)
2000	($40.00)	150	(190)	8500	($2.23)	(1.00)
2500	($50.00)	150	(200)	9000	($2.22)	(2.00)
3000	($60.00)	150	(210)	9300	($2.25)	(3.33)
3500	($70.00)	150	(220)	9500	($2.31)	(5.00)
4000	($80.00)	150	(230)	9600	($2.40)	(10.00)

1) What would be the most profitable level of production if the price of milk is $4.00?

2. Suggested Teaching Activities and Experiences:

Begin this unit by raising the question, "What is the most profitable level of production - maximum production per acre or production per animal? At the lowest cost per unit of production? When the output is greatest per man? When the production is greatest per unit of feed?"

After discussing these questions in a general way, turn to problem "A" under "Subject Content". Have each family determine the marginal product for the varying units of labor. From this they can determine the optimum production per unit of labor but cannot determine the most profitable level without knowing cost.

Have each family determine the marginal costs with increasing units of labor (problem "B"). Discuss the most profitable level of production with the price of the product at $1.00, $1.50 and

$2.00. Empahsize marginal cost and marginal return, illustrating that marginal return and price of the product are equal in an agricultural market.

Have each family determine the total cost, average cost and marginal cost with labor at $6.00 per unit. Discuss the most profitable level of production with price at $1.00, $1.50 and $2.00.

Have each family work out the average cost of producing 100 pounds of milk at varying levels of grain feeding (problem "C") and the marginal cost of producing 100 pounds of milk. Discuss the most profitable level of production (grain feeding) with milk at $3.00 per hundredweight and milk at $4.00 per hundred-weight.

3. References:

   A. Farm Management Workshop.

   B. Farm Management Economics.

   C. Getting Started in Farming.

   D. Farm Management Principles, Budgets, Plans.

Part II - Suggested On-Farm Instruction Activities.

Assist in compiling a table of the most profitable level of production for one or more of the farm enterprises. Using the analysis reports for the previous two years, attempt to establish the break-even points for these enterprises. Encourage activity that aids in establishing the rates of marginal return by planning demonstrations in crops and livestock.

UNIT III - III

SELECTION OF ENTERPRISES

Teacher Objective:

1. To begin teaching families how to determine the combination of enterprises that will result in the greatest profit.

2. To illustrate the principle of competitive enterprises and to apply the principle to a farm business.

Part I - How Do We Select the Most Profitable Enterprises?

1. Subject Content:

A. Competition for land.

1) Present cropping program.

Crop	Acres	Yield	Production	Price	Value	Work Units
Corn (grain)	65	90/Bu.	5,850 Bu.	$1.05	$6,142.50	35.75
Corn Silage	31	11/T.	341 T.	7.00	2,387.00	24.80
Oats	10	60/Bu.	600 Bu.	.60	360.00	3.00
Hay & Pasture	16	2.5/T.	40 T.	20.00	800.00	9.60
Total	122				$9,689.50	73.15

2) Alternative cropping program.

Crop	Acres	Yield	Production	Price	Value	Work Units
Corn (grain)	122	90	10,980	$1.05	$11,529	67.10

B. Competition for other resources

1) Labor
2) Capital
   a) Buildings
   b) Investment in livestock
   c) Cash costs
3) Present livestock program

	Bushels Corn Used	Total Value Produced	Total Feed Cost	Return Over Feed	Work Units
25 Dairy Cows*	1,750	$10,126	$6,993	$3,133	235**
632 cwt. Hogs Produced	4,001	13,297	6,225	7,072	76
	5,751	$23,423	$13,218	$10,205	311

*Dairy cow and her replacement.
**9.4 work units assumed for cow and replacements.

4) Alternative livestock program.

	Bushels Corn Used	Total Value Produced	Total Feed Cost	Return Over Feed	Work Units
1734 cwt. Hogs Produced	10,980	$36,483	$17,080	$19,403	208

C. Comparison of present and alternative plans.

	Total Value	Work Units
Present Plan Crops	$ 9,689.50	73
Present Plan Livestock	10,205.00	311
	$19,894.50	384
Alternative Plan Crops	$11,529.00	67
Alternative Plan Livestock	19,403.00	208
	$30,932.00	275
Difference	+$11,037.50	-109

2. Suggested Teaching Activities and Experiences:

Prepare a handout showing the present and alternative crop and livestock programs as well as the comparison of the present and alternative plans. Prepare visuals to be used with the overhead projector, of these same materials.

Discuss the economic principle of enterprise combination calling attention to independent, competitive, complimentary, and supplementary relationships. Point out that only the competitive relationship is to be emphasized in this lesson.

Use the data from an actual record from a farm business analysis to show that the crops now being grown are all in competition for land and in some respects for labor and capital. Bring out that the best use of the resource land will be that which gives the highest return. During the discussion, it will be brought out that costs of production have not been taken into account. Point out that a detailed cost of producing crops could

be used but that gross return per acre is the best single measure of evaluating the potential profit of a cropping program. The data shows that the alternative cropping program gives over $1,800. more gross return with less labor and without the need for machinery for silage, small grain and hay production.

Using the data on present and alternative livestock programs show that dairy and hogs are in competition for corn, buildings, investment in livestock and labor. Under the efficiency levels of this farm business, the hog enterprise is making the best use of all of these resources. Show how material has been drawn from the analysis report and used as this example. Suggest to the families that they can draw similar data from their reports to evaluate their own enterprise .

Using a visual comparison of present and alternative plans, show that the alternative plan gives over $11,000 more adjusted gross income with over 100 days less labor. The optimum combination of enterprises will be that which gives the highest net income when all resources are considered. A more detailed budget would have to be developed to determine the capital needs of the alternative enterprise. The cost of making the transition including loss of income during the transition must also be calculated.

Conclude the lesson by pointing out that a method of comparing enterprise combinations has been explored here and that this is only the beginning stages of planning for a possible reorganization.

3. References:

A. Farm Management Economics.

B. Documentation for Farm Business Record Analysis.

C. Farm Management Principles, Budgets, Plans.

Part II - Suggested On-Farm Instruction Activities:

Discuss any questions the family has about their analysis report. Review the opportunity cost principle as it relates to the enterprises on their farm. Examine any plans the family has for organizing the business and be prepared to suggest the study of feasible alternatives.

UNIT III - IV

WHAT DO TWO YEARS RECORDS MEAN?

Teacher Objectives:

1. To teach families the increasing significance of the second year's farm business analysis.

Part I - What Does the Second Year's Record Show?

1. Subject Content:

A. Does the second year's record tell more than the first?

1) Increased experience makes some records more likely to be reliable.
   a) Inventories may be more accurate.
   b) Feed records may be more accurate.
2) Value of two consecutive year's records
   a) Unusual economic or production pressures may be evened out.
   b) Changes may become evident.
   c) Trends will begin to be evident.

Comparison of Capital Investment

Operator's Share	Jan. 1, 1970	Jan. 1, 1971	Jan. 1, 1972
Total Livestock			
Crop, Seed & Feed			
Total Power, Machinery			
Land			
Buildings, Fences, etc.			
Total Farm Capital			
Non-Farm Assets			
Dwelling			
Total Assets			
Real Estate Debt			
Chattel Mortgages			
Notes			
Accounts Payable			
Total Liabilities			
Farmers Net Worth			
Gain in Net Worth	XXXX		

Comparison of Receipts, Expenses and Income

	1970	1971
Returns and Net Increases		
Productive Livestock		
Dairy Cattle		
Other Dairy Cattle		
Beef Breeding Cattle		
Feeder Cattle		
Complete Hog Enterprise		
Hog Finishing Enterprise		
Producing Weaning Pigs		
Farm Flock Sheep		
Feeder Lambs		
Chickens (Including Hens & Broilers)		
Turkeys		
Other Productive Livestock		
All Productive Livestock		
Value of Feed Fed to Livestock		
Return Over Feed from Livestock		
Crop, Seed and Feed		
Income from Labor Off the Farm		
Cooperative Patronage Refunds		
Miscellaneous Farm Income		
Total Returns & Net Increases		
Expenses and Net Decreases		
Truck and Auto (Farm Share)		
Tractors and Crop Machinery		
Electricity		
Livestock Equipment		
Buildings, Fences & Tiling		
Bare Land		
Miscellaneous Livestock Expense		
Labor		
Labor Charge for Other Operator(s)		
Property Tax		
General Farm Expense & Telephone		
Interest on Farm Capital		
Interest Paid (From Table 6B)		
Total Expenses & Net Decreases		
Labor Earnings (Whole Farm)		
Labor Earnings (Operator's Share)		
Return to Capital & Labor		

2. Suggested Teaching Activities and Experiences:

Discuss the increased reliability of inventories and feed records. Improvements will result from the experience of doing these tasks a second time and perhaps profiting from errors of the first year. Having two consecutive years of records also tends to even out differences that may have resulted from unusual circumstances. Even though the second year's record may be more reliable because of increased accuracy, the big advantage comes from having two consecutive records and analyses of the same items.

Have each family fill in their figures on the "comparison of capital investment" form. There are actually three comparisons because the beginning inventory of the first year's record is also the ending inventory of the previous year. Families may wish to make a more detailed study of inventory changes to show further trends within the farm capital inventory.

Have each family fill out the "comparison of receipts, expenses and income" form. Differences in income and expense items should then be discussed. Since some of this information is taken from Table 3 and some from 6A and 6B, a good opportunity is afforded to discuss the differences between these two tables and Tables 2A and 2B. There is sometimes confusion as to why these tables are not the same. It is extremely important for the family to understand why it is necessary to consider the whole farm business to evaluate tenure arrangements and to measure progress of the operating family. The "summary of earnings by years" data in the farm analysis will be very helpful in determining and discussing trends in receipts, expenses and earnings.

This unit may be summarized by pointing out that each year of analysis becomes more important than the last because of the accumulation of data. Next year's analysis will be the beginning of information upon which to base major reorganization of the farm business.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Documentation for Farm Business Analysis.

Part II - Suggested On-Farm Instruction Activities.

Look for trends in the farm business. Be alert for consistant improvements in production levels and enterprise efficiency. Relate the results of two years of analysis to plans the family has for organizational change. Help to compile a list of general management practices that need to be reviewed. Have the family check their relative position in the group in earnings, production and enterprise efficiency against the estimates they made previously.

UNIT III - V

ANALYZING THE CROPPING PROGRAM

Teacher Objectives:

1. To teach families how to evaluate their crop yields.

2. To teach families how to evaluate their crop costs.

3. To teach families how to evaluate the over-all efficiency of their cropping program.

Part I - How Do Crop Yields Compare With Others and With Last Year?

1. Subject Content:

	Average 1971	Our Farm 1970	Our Farm 1971
A. Index of crop yields	100		
B. Crop production			
1) Yield of Corn (grain)			
2) Yield of Corn(silage)			
3) Yield of Oats			
4) Yield of Wheat			
5) Yield of Alfalfa Hay			
6) Yield of Soybeans			

C. Comparison with other farms in class.

1) Yield graph of common crops (see attachment).
a) Supplementary Crop Analysis by Factors, 1968.

2. Suggested Teaching Activities and Experiences:

Provide each family with a worksheet to record the crop yield index and the raw yields of the common crops in the community. Have each family record information from the past two analysis reports on this worksheet for an easy comparison with the average for this year and their own information for last year. Supply each family with a form similar to "Supplementary Crop Analysis - By Factors, 1968" and have each mark its own yield levels under the appropriate crops and draw connecting lines to form a graph. (See attached graph). The recording of this information will

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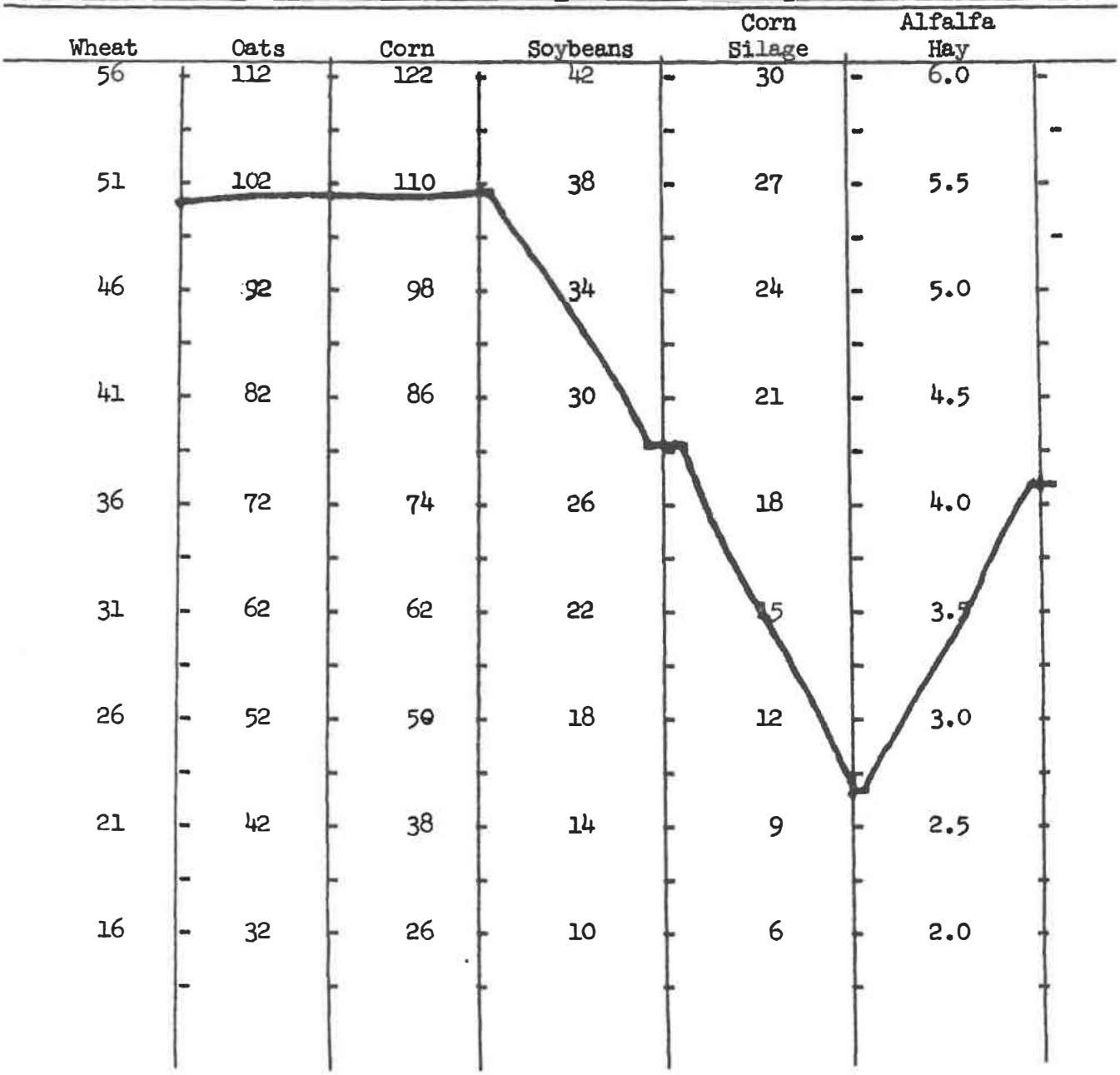
Agriculture Department 4/69

Name _____

Supplementary Crop Analysis - by Factors, 1968



Faribault Area Vocational-Technical School
Agriculture Department 4/69

Yields, Costs and Returns - Selected Crops - 1968

	CORN				BEANS				ALFALFA HAY			
	Yield	Suppl. Cost.	Alloc. Cost	Return over Cost	Yield	Suppl. Cost	Alloc. Cost	Return over Cost	Yield	Suppl. Cost.	Alloc. Cost.	Return over Cost
1.	122	30	39	53	32	8	36	33	4.3	15	40	31
2.	119	31	46	43	28	12	42	14	4.0	13	47	20
3.	118	41	47	30	33	9	43	28	4.1	15	49	18
4.	116	40	44	31	38	15	41	35	3.4	14	46	8
5.	115	35	38	43	22	13	36	5	3.9	11	39	28
6.	115	33	50	32	31	5	46	23	4.5	14	52	23
7.	113	42	39	31	23	20	37	-2	3.7	5	41	28
8.	113	24	41	48	28	8	38	21	5.3	--	42	64
9.	112	40	39	32	--	--	--	--	5.1	14	41	47
10.	111	40	32	39	32	5	31	40	--	--	--	--
11.	110	44	44	22	--	--	--	--	3.0	--	46	14
12.	110	20	42	48	32	12	39	25	3.1	4	44	15
13.	109	32	43	34	29	21	40	8	4.1	10	45	28
14.	109	54	52	2	23	27	47	-20	2.4	41	30	-23
15.	108	34	40	33	31	6	38	30	--	--	--	--
16.	108	34	41	33	--	--	--	--	2.9	4	42	12
17.	108	62	45	--	24	18	41	-2	3.8	6	47	23
18.	107	32	37	39	30	3	35	35	4.4	14	38	36
19.	107	32	37	37	22	8	35	9	--	--	--	--
20.	106	24	41	41	23	5	38	11	3.7	14	43	18
21.	104	44	41	19	20	6	38	3	--	--	--	--
22.	104	38	41	24	30	5	38	28	3.4	7	43	18
23.	103	31	43	29	--	--	--	--	2.4	12	45	-9
24.	103	43	40	20	28	7	38	23	3.3	13	42	11
25.	102	37	47	19	32	4	43	30	3.0	32	49	-21
26.	101	39	43	19	24	21	40	-4	3.1	4	44	14
27.	101	51	36	14	28	8	34	25	--	--	--	--
28.	100	36	42	22	25	7	39	14	4.8	9	44	44
29.	100	40	45	15	--	--	--	--	4.7	14	47	33
30.	100	42	36	22	25	19	34	7	3.0	16	37	7
31.	100	35	55	10	32	20	50	6	3.8	38	58	-20
32.	100	42	36	21	24	22	34	2	2.3	4	37	4
33.	99	34	40	25	32	25	37	15	1.6	18	42	-28
34.	98	35	56	7	25	9	50	1	3.9	15	59	5
35.	97	32	45	21	23	10	41	5	5.4	13	46	49
36.	97	28	43	26	--	--	--	--	4.2	9	45	30
37.	97	22	46	29	21	--	42	7	2.5	--	48	2
38.	96	30	46	19	27	11	42	13	2.5	8	48	-7
39.	95	44	40	11	20	13	38	-4	2.7	11	42	1
40.	95	57	50	-12	23	17	45	-7	--	--	--	--
41.	95	48	38	10	31	20	35	30	--	--	--	--
42.	94	30	50	14	48	36	46	33	3.6	8	53	12
43.	94	24	38	31	28	4	35	28	3.0	3	39	18
44.	92	40	40	12	26	15	38	10	4.6	12	42	38
45.	92	55	34	3	26	23	32	7	4.2	14	35	35
46.	92	25	34	33	35	8	32	44	2.7	3	35	16
47.	90	46	41	3	--	--	--	--	3.0	8	43	9
48.	90	44	47	-1	19	16	43	-14	3.0	14	49	-3
49.	89	28	43	18	24	6	39	12	2.7	3	44	7
50.	88	31	51	6	--	--	--	--	3.4	7	54	7

Faribault Area Vocational-Technical School
Agriculture Department 4/69

Yields, Costs and Returns - Selected Crops - 1968

	CORN				BEANS				ALFALFA HAY			
	Yield	Supply Cost.	Alloc. Cost.	Return over Cost	Yield	Supply Cost	Alloc. Cost	Return over Cost	Yield	Suppl. Cost	Alloc. Cost	Return over Cost
51.	88	42	45	1	20	21	41	-15	3.2	9	47	9
52.	87	43	41	2	11	15	41	-29	2.5	4	51	-4
53.	86	30	42	15	28	13	39	14	3.8	10	43	23
54.	86	59	39	-12	31	18	36	20	4.4	2	40	45
55.	85	23	42	20	--	--	--	--	3.6	20	43	9
56.	82	47	39	-3	21	18	36	-5	2.3	--	40	6
57.	82	23	43	16	--	--	--	--	2.6	21	45	-14
58.	82	39	42	1	14	11	39	-17	3.4	14	43	10
59.	82	39	40	3	15	15	38	-17	--	--	--	--
60.	81	31	44	7	26	9	40	13	--	--	--	--
61.	81	25	38	18	27	10	35	18	3.6	9	39	24
62.	78	33	40	5	27	12	37	16	1.8	5	41	-10
63.	78	35	45	-2	--	--	--	--	3.5	3	47	19
64.	77	46	44	-13	--	--	--	--	2.5	26	46	-22
65.	77	38	45	-6	37	8	41	39	3.8	17	47	13
66.	76	27	39	10	27	14	36	15	2.7	4	40	10
67.	75	40	42	-7	--	--	--	--	2.5	33	43	-27
68.	75	29	38	8	18	15	36	-6	--	--	--	--
69.	70	39	46	-15	10	11	42	-30	4.5	18	48	24
70.	67	37	41	-11	--	--	--	--	4.6	16	43	34
71.	62	31	45	-14	20	9	41	-2	3.1	13	47	3
72.	60	28	43	-11	18	2	40	2	4.3	6	45	35
73.	58	35	37	-14	16	9	35	-7	--	--	--	--
74.	57	23	40	-6	24	13	37	8	3.4	7	41	20
75.	54	25	36	-7	22	19	34	--	1.8	20	37	-21
76.	50	45	36	-31	13	12	34	-15	4.1	4	37	41
77.	46	48	38	-40	--	--	--	--	--	--	--	--
78.	45	23	41	-19	21	3	38	10	1.6	5	42	-15
79.	36	18	43	-26	--	--	--	--	3.9	9	46	24
80.	20	36	44	-61	--	--	--	--	3.5	7	46	16

make it easy for each family to see any increase or decrease in yields of individual crops and will make it possible for a comparison of each crop with other class members. Promote some discussion relative to the kind of a crop year experienced and ask each family to indicate why their yields are up or down from the previous year or why they are above or below average. Although index of crop yields has been covered in an earlier unit, it may be well to review the calculation and meaning of the yield index. At this time do not get into a detailed discussion of reasons for yield changes since this will be covered in Part III of this unit.

Now is an appropriate time to remind farmers that the analysis reports can be used as effective tools in evaluating their past decisions. As they review their progress, they should make at least a mental list of the changes they have made in their management practices. Reference should be made to Unit X of Farm Management II as a reminder that they must evaluate their response to analysis information.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

Part II - How Do Crop Costs Compare With Others and With Last Year?

1. Subject Content:

A. Per acre crop costs.

	Average 1971	Our Farm 1970	Our Farm 1971
1) Tractor and Crop Machinery Expense Per Crop Acre			
2) Fertilizer Cost Per Acre			
3) Crop Chemicals Per Acre			
4) Seed & Other Costs Per Acre			
5) Gas, Oil, Grease Per Acre			

B. Costs of individual crops per acre

1) Corn for Grain			
a) Fertilizer			
b) Chemicals			
c) Seed & Other			
d) Hired Labor			
e) Custom Work			
Total Supplementary			
f) Power & Crop Machinery Expense			
g) Land Cost			
h) Miscellaneous Cost			
Total Allocated Costs			
i) Return Over Total Csots			

2) Repeat table similar to that used in the corn for grain example for the other common crops in the community.

2. Suggested Teaching Activities and Experiences:

Provide the forms suggested under "subject content" and have the families fill in the information as suggested in Part I of this unit. Since these figures are taken from Tables 8, 9, and 10 in the analysis report, it might be well to point this out when instructions are being given. Refer to the "Documentation" to show how power and crop machinery expense per acre is calculated and to show that a residue expense has been set aside for livestock and that the livestock portion has in turn been allocated to the various livestock enterprises.

Through discussion, bring out the significance and limitations of the various supplementary and allocated costs. Even though these families are now in their third year of record keeping under this system, it may be well to point out the importance of accurate crop expense and custom work allocation in the Minnesota Farm Account Book.

Completion of Part II of this unit will prepare the families for a full discussion in Part III.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Documentation for Farm Business Analysis.

C. Using Farm Analysis Information.

Part III - Evaluating the Over-All Efficiency of the Cropping Program.

1. Subject Content:

A. Comparison of Local Area Cropping Programs, 1971 - by Farms.

B. Comparison of Local Area Cropping Programs, 1971 - by Factors.

C. Self-Evaluation of Crops.

1) Were improvements due to:
   a) More Favorable Weather _____
   b) Improved Yields _____
   c) Lower Machinery Costs _____
   d) Improved Fertilizer Use _____
   e) Variety Selection _____
   f) Improved Weed Control _____
   g) More Suitable Tillage _____
   h) Improved Insect Control _____
2) Poorer results were due to:
   a) Weather _____
   b) Weeds _____
   c) Insects _____
   d) Disease _____
   e) Poor Timing _____
   f) Other _____
3) What are the strongest features of your cropping program?
4) What are the weakest features of your cropping program?
5) What changes are planned for this year to take advantage of strong points or eliminate weak points?

2. Suggested Teaching Activities and Experiences:

Using a transparency with the overhead projector, show how "Comparison of Local Area Cropping Programs - by Farms" can be used by each family to compare the various factors of crop production with other families. Show several examples of strong and weak cropping program graphs on "Comparison of Local Area Cropping Programs - by Factors". This furnishes opportunity to discuss strengths and weaknesses of an individual family's cropping program without revealing the identity of the farm. Any individual farm graphs should be used only to illustrate specific points and never to embarrass a family or ridicule the practices. Both of these materials should be used as handouts for the families' future reference.

Have each family complete the self-evaluation on a form provided. This will be the main tool to bring out discussion on the wide variety of variables that enter into the cropping program. An analysis of the cropping program as suggested in this unit should also stimulate the interest of the families in attending any crops enterprise classes to be offered in the near future.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Individual Farm Business Record Analysis Reports from the local program.

C. Faribault Cropping Program.

D. Documentation for Farm Business Analysis.

Part IV - Suggested On-Farm Teaching Activities.

Help evaluate the effect of changes in cropping practices on crop production and net return from crops. Review the principles of opportunity cost as it affects crop selection. Discuss the implementation of new cropping practices and the criteria by which the successes of these practices will be evaluated.

Faribault Area Vocational-Technical Institute
Agriculture Department 5/72

Name Farm No 12

Comparison of Faribault Cropping Programs, 1971 - by Factors

Labor Earnings	Net Increases Crop-Feed	Crop Yield Index	Gross Ret./ Acre	Fert. Cost/ Acre	Chem. Cost/ Acre	Seed & Other Acre	Gas, Oil Grease/ Acre	Tractor & Mach. /Acre
$20000	$50000	145	$140	$25	$16	$18	$1.00	$8.00
9000	30000	125	110	19	11	12	2.00	13.00
8000	22000	115	100	15	9	9	2.50	16.00
7000	18000	110	95	14	8	8	2.75	18.00
5000	14000	102	90	13	7	7	3.00	20.00
4000	12000	95	80	11	6	6	3.50	24.00
1000	10000	90	75	10	5	5	3.75	25.00
0	8000	80	70	8	4	4	4.25	28.00
-3000	6000	70	60	5	3	3	5.00	32.00
-10000	2000	50	40	2	1	1	6.00	42.00

Faribault Area Vocational-Technical Institute
Agriculture Department 5/72

Name Farm No 23

Comparison of Faribault Cropping Programs, 1971 - by Factors

Labor Earnings	Net Increases Crop-Feed	Crop Yield Index	Gross Ret./ Acre	Fert. Cost/ Acre	Chem. Cost/ Acre	Seed & Other Acre	Gas, Oil Grease/ Acre	Tractor & Mach. /Acre
$20000	$50000	145	$140	$25	$16	$18	$1.00	$8.00
9000	30000	125	110	19	11	12	2.00	13.00
8000	22000	115	100	15	9	9	2.50	16.00
7000	18000	110	95	14	8	8	2.75	18.00
5000	14000	102	90	13	7	7	3.00	20.00
4000	12000	95	80	11	6	6	3.50	24.00
1000	10000	90	75	10	5	5	3.75	25.00
0	8000	80	70	8	4	4	4.25	28.00
-3000	6000	70	60	5	3	3	5.00	32.00
-10000	2000	50	40	2	1	1	6.00	42.00

Faribault Area Vocational-Technical School
Agriculture Department 4/72

Comparison of Faribault Cropping Programs, 1971 - by Farms

Labor Earnings Whole Farm	Net Increases Crop & Feed	Crop Yield Index	Gross Return /A.	Fert. Cost /A.	Chem. Cost /A.	Seed Other /A.	Gas, Oil Grease /A.	Tractor & Machinery Cost /A.
1. 20369	32585	109	95.46	18.75	8.14	7.13	3.46	22.21
2. 18366	24443	119	93.10	7.37	2.22	6.89	5.09	16.19
3. 17647	56649	127	109.83	14.37	10.29	8.59	2.79	16.93
4. 15193	14538	101	91.98	12.25	4.88	5.84	2.28	18.21
5. 14116	17835	91	79.57	13.48	3.66	8.86	3.69	24.20
6. 13472	22993	114	96.98	11.39	8.92	9.76	2.72	30.06
7. 9896	10547	95	77.72	9.09	4.04	3.37	2.18	26.34
8. 9742	11921	111	87.72	10.15	5.41	6.71	4.20	38.27
9. 9525	14441	112	96.76	9.29	4.11	6.31	5.14	25.54
10. 9328	29033	111	93.18	12.75	8.42	9.11	3.18	23.86
11. 9204	30020	124	120.73	21.84	5.56	8.79	2.81	17.00
* 12. 8736	21798	113	105.91	14.99	8.91	6.98	2.36	12.67
13. 8668	9294	73	63.20	5.15	5.61	2.90	3.85	18.53
14. 8616	33916	95	83.47	16.09	9.22	11.71	3.09	21.50
15. 8596	13948	127	119.98	17.32	7.43	13.00	2.66	24.88
16. 8416	9174	93	85.50	14.87	10.54	13.87	2.90	23.33
17. 8353	17135	119	98.45	14.03	7.28	4.53	5.07	30.40
18. 8326	14112	116	92.26	10.81	4.70	4.30	4.27	39.78
19. 8296	10916	80	71.98	14.65	12.87	8.64	2.45	18.71
20. 8259	18601	119	113.84	15.08	14.21	16.19	2.97	27.40
21. 8129	8215	105	85.21	8.67	10.81	8.00	3.64	33.91
22. 7973	17677	124	100.61	12.65	4.25	6.24	3.23	20.19
* 23. 7846	22233	77	68.92	9.02	6.62	8.52	2.36	12.94
24. 7774	25930	103	90.10	9.67	7.84	4.29	3.14	21.60
25. 7625	10822	89	74.58	7.29	3.83	4.35	5.23	30.79
26. 7142	26772	112	106.12	17.53	9.70	8.73	2.63	18.96
27. 7078	19384	108	105.33	18.38	11.83	6.52	2.87	30.83
28. 6681	59430	117	97.19	11.30	4.65	7.58	2.95	13.65
29. 6637	14560	104	86.73	8.34	3.50	4.29	5.15	20.38
30. 6512	17217	96	81.73	8.56	5.30	10.27	4.46	21.17
31. 6458	26688	111	94.73	14.68	6.16	5.29	4.41	17.90
32. 6238	21997	82	70.77	7.69	1.93	4.12	2.26	14.09
33. 6043	19474	84	71.32	7.77	5.44	5.35	2.06	16.57
34. 5663	15976	100	86.01	10.93	7.60	7.69	3.28	18.75
35. 5466	8838	78	64.02	11.50	3.65	7.82	4.15	23.48
36. 5197	12225	67	59.26	7.25	7.66	7.45	3.22	15.30
37. 4992	6313	65	52.01	3.20	2.43	4.52	4.80	14.59
38. 4969	11592	102	80.68	5.35	5.07	2.87	5.61	18.85
39. 4880	5903	87	65.20	6.83	1.12	7.41	3.59	23.07
40. 4807	12627	118	100.91	14.12	8.29	10.19	2.32	21.17
41. 4765	10887	112	86.26	9.36	3.44	6.37	3.83	30.61
42. 4747	8427	97	89.23	17.25	8.45	13.42	2.96	29.43
43. 4605	21435	146	137.43	22.65	15.54	15.59	4.39	25.37
44. 4564	14869	80	67.73	2.17	1.64	4.88	1.23	17.08
45. 4526	7435	99	85.86	20.47	3.78	6.40	3.66	27.52
46. 4337	23172	117	91.73	4.10	4.59	4.91	2.25	23.84
47. 4147	7920	88	72.12	14.39	3.83	8.89	3.33	19.01
48. 4119	6263	66	53.40	7.27	3.16	3.26	2.71	19.78
49. 3666	42342	111	95.59	16.92	7.60	6.09	.91	20.81
50. 3050	7962	86	74.04	15.01	7.76	4.73	3.51	37.60

Page 1 of 2

Faribault Area Vocational-Technical School
Agriculture Department 4/72

Comparison of Faribault Cropping Programs, 1971 - by Farms

Labor Earnings Whole Farm	Net Increases Crop & Feed	Crop Yield Index	Gross Return /A.	Fert. Cost /A.	Chem. Cost /A.	Seed Other /A.	Gas, Oil Grease /A.	Tractor & Machinery Cost /A.
51. 2891	11928	77	67.85	8.98	5.40	5.46	2.57	11.18
52. 2746	24738	102	85.00	7.11	5.36	5.34	3.05	14.91
53. 2503	13560	85	78.62	13.57	8.15	8.36	4.41	21.95
54. 2106	7853	105	99.25	15.09	9.27	14.69	4.04	24.05
55. 2053	12621	117	96.56	13.07	11.02	6.56	4.94	29.36
56. 1697	8970	156	131.64	20.96	10.46	17.30	2.29	20.79
57. 1506	8545	93	78.00	15.66	5.36	10.41	3.21	19.01
58. 1491	19377	111	92.93	11.01	4.16	5.47	3.78	20.14
59. 1467	10036	104	95.89	25.39	9.18	2.84	4.59	26.00
60. 1162	6972	77	73.25	12.96	6.56	7.37	5.03	18.31
61. 994	9177	107	103.58	19.55	8.37	7.50	2.09	16.25
62. 806	22332	108	89.24	13.15	8.69	8.36	2.91	41.39
63. 785	11778	94	76.66	4.66	3.74	3.88	1.50	9.16
64. 784	18235	103	88.59	14.31	6.69	9.09	3.37	28.95
65. 615	10913	100	80.39	10.08	5.37	7.88	4.24	20.57
66. 141	6912	75	70.38	8.11	7.31	6.80	3.72	18.31
67. -69	10595	90	70.26	10.90	4.27	4.88	2.79	27.15
68. -71	13359	75	64.81	13.38	7.57	10.51	2.65	10.24
69. -150	3901	71	62.91	12.21	4.24	6.29	4.90	24.61
70. -178	28439	130	105.03	15.44	7.63	9.50	3.46	29.30
71. -317	9348	76	62.47	7.74	5.21	4.04	4.12	18.59
72. -652	19962	101	100.46	14.27	8.75	6.31	2.68	20.03
73. -890	30102	96	93.59	23.81	14.36	6.71	2.03	12.17
74. -913	2550	46	34.90	2.76	1.20	1.63	2.30	8.37
75. -1538	3682	73	46.33	4.31	.67	1.28	3.72	15.95
76. -1784	5614	85	77.68	8.95	2.26	6.67	3.72	24.35
77. -1878	10108	97	89.03	22.25	14.35	11.72	4.02	24.43
78. -2697	4129	56	49.94	9.31	2.01	4.69	3.33	13.16
79. -3106	10208	86	85.98	12.57	8.49	14.75	3.88	25.30
80. -3708	2462	78	73.20	15.50	15.62	8.96	3.39	39.94
81. -3977	27608	92	81.55	12.88	8.69	8.11	2.72	23.34
82. -4498	5504	42	38.40	4.01	2.37	3.61	1.99	17.09
83. -5139	21668	103	93.26	10.70	6.61	5.43	2.93	27.72
84. -5531	30050	119	109.84	23.87	11.18	8.07	3.64	17.50
85. -5590	16689	99	94.28	13.26	7.72	13.31	5.80	21.72
86. -6382	10808	81	64.51	3.33	2.88	8.93	6.05	30.91
87. -7381	46744	94	84.27	19.24	11.21	8.68	1.44	13.21
88. -12558	9376	90	71.60	12.14	5.19	5.56	2.74	24.45
89. -45927	26550	74	67.54	18.22	11.16	6.76	2.85	24.12

UNIT III - VI

EVALUATING THE LIVESTOCK PROGRAM

Teacher Objectives:

1. To teach families how to study their livestock enterprises and make self analysis of them.

Part I - Studying the Livestock Enterprises.

1. Subject Content:

A. How does our dairy enterprise compare with others and last year?

	Average 1971	Our Farm 1970	Our Farm 1971
1) Index of return from dairy cows	100		
2) Index of return from other dairy	100		
3) Index of return from all dairy	100		
4) Dairy cows - Table 12			
a) Average number of cows			
b) Pounds of milk			
c) Pounds of butterfat			
d) Total value produced (per cow)			
e) Total value produced (herd)			
f) Protein, salt & mineral			
g) Total concentrates			
h) Legume hay			
i) Silage			
j) Total feed cost			
k) Return over feed cost (per cow)			
l) Return over feed cost (herd)			
m) Total supplemental costs			
n) Return over feed and supplemental costs			
o) Return for $100 feed fed			
p) Feed cost per cwt. milk			
q) Feed cost per pound of butterfat			
r) Pounds milk per pound of concentrate			
s) Average price per cwt. milk sold			
5) Other dairy cattle - Table 13			
a) Number of head			
b) Net increase in value(head)			
c) Net increase in value(herd)			
d) Pounds of concentrate fed			
e) Total feed cost			
f) Return over feed (head)			
g) Return over feed (herd)			
h) Return for $100 feed fed			

	Average 1971	Our Farm 1970	Our Farm 1971
6) All dairy cattle - Table 14			
a) Total value produced (per cow)	_____	_____	_____
b) Total value produced(herd)	_____	_____	_____
c) Total feed cost (per cow)	_____	_____	_____
d) Return over feed cost (per cow)	_____	_____	_____
e) Return over feed cost(herd)	_____	_____	_____
f) Return over feed and supplemental costs (per cow)	_____	_____	_____
g) Return for $100 feed fed	_____	_____	_____
7) Comparison of dairy enterprises by farms.			
8) Comparison of dairy enterprises by factors.			
a) A high earning herd.			
b) A low earning herd.			

2. Suggested Teaching Activities and Experiences:

Provide each family with a worksheet and have them fill in the information from their analysis reports. Since some of the information will be taken from Tables 8, 12, 13, and 14, it may be well to suggest a procedure so this will be done in a minimum of time. Review the significance of the index of return and use the "Documentation" to illustrate how it is calculated. Point out that the index does not necessarily show profitability but rather how the herd compares with the average. Stress that expansion of the herd and efficiency are both reflected in return over feed cost for the herd while only increased production or efficiency is reflected on the per cow basis. In discussing return per $100 feed fed, it should be pointed out that costs other than feed must also be considered in determining profitability. Illustrating the break-even point step-by-step, is an easy way to bring in all costs related to the enterprise.

Use a transparency to show that "Comparison of Dairy Enterprises - by Farms" enables each family to study and compare its herd with all other herds in the class.

Using transparencies show graphs of a higher earning and a low earning dairy herd using "Comparison of Dairy Enterprises-by Factors". Have each family graph its own herd on a factors hand-out. Although some discussion will be worthwhile at this time, the major class discussion should be conducted in Part II of this unit.

3. References:

A. Vocational Agriculture Farm Analysis, Individual Families.

B. Documentation for Farm Business Analysis,

C. Farm Management Principles, Budgets, Plans.

Part II - Evaluating the Dairy Enterprise.

1. Subject Content:

A. Reasons for Improvement of Dairy Enterprise:

1) Higher milk price _____
2) Higher production _____
3) Improved feeding practices _____
4) Lower feed costs _____
5) Improved roughage _____
6) Culling _____
7) Improved breeding _____
8) Improved herd health _____
9) Improved milking practices _____

B. What are the strong points in our dairy herd?

C. What are the weak points in our dairy herd?

D. What changes are planned for this year or the future to take advantage of the strong points and minimize or eliminate the weak points?

2. Suggested Teaching Activities and Experiences:

Supply each family with a form on which to make the responses suggested under "subject content". Invite class discussion on each of these factors. This unit provides good opportunity for a class discussion on the many problems with which dairymen are faced.

During the discussion it would be most worthwhile to illustrate points using additional graphs of "Comparison of Dairy Enterprises - by Factors". This teaching device makes it possible to discuss real situations without introducing personalities.

The dairy enterprise has been used in this teaching unit as an example. Similar study and comparisons should be developed and used for each major livestock enterprise in the community.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Using Farm Analysis Information.

Part III - Suggested On-Farm Instruction Activities.

Help evaluate the effect of changes in livestock practices on production levels and net returns. Aid in examining the need for changes in the management procedures for livestock. Discuss the implementation of new livestock practices and changes in organization. Determine the criteria by which changes will be evaluated. Inquire to determine if the mid-year crop and feed check has been completed.

Faribault Area Vocational-Technical School
Agriculture Department 4/72

Comparison of Faribault Dairy Enterprises, 1971 - by Farms

Ret./ Feed Cost	B.F. per Cow	Farm Grain	Purch. Feed	Total Conc.	Milk/ Grain	Dry Rough.	Silage	Past. Cost	Total Feed Cost	Cost lb. B.F.	Ret./ $100 Feed	Index Cow	Index O.D.
1. 556	527	3732	150	3882	3.8	6169	6494	31.82	197	37	382	152	165
2. 535	548	7896	527	8423	1.8	6845	5016	-----	271	50	297	118	118
3. 519*	504	5329	648	5977	2.4	4031	11990	20.36	245	49	312	124	54*
4. 497	486	4902	167	5069	2.7	6065	10782	11.39	213	44	333	133	176
5. 494	505	5071	392	5463	2.6	6644	10222	-----	233	46	312	124	75
6. 483	495	5724	297	6021	2.2	8419	8382	-----	245	50	297	118	81
7. 482	480	4024	474	4498	2.3	6143	1286	14.64	188	39	356	142	125
8. 480	535	5022	881	5903	2.3	7222	16667	-----	283	53	270	107	102
9. 475	477	4179	749	4928	2.8	6903	10705	-----	220	46	316	126	76
10. 474	494	4595	895	5490	2.3	5590	6211	20.99	242	49	296	118	82
11. 470	509	7684	186	7870	1.9	7527	5215	-----	263	52	279	111	132
12. 469	534	6264	632	6896	2.0	7606	8108	7.53	281	53	267	106	98
13. 467	458	4591	411	5002	2.5	5960	11161	-----	215	47	317	126	97
14. 467*	467	3611	1491	5102	2.5	6779	4228	15.03	249	53	288	114	54*
15. 461	546	4697	611	5308	2.7	9677	11613	7.06	276	51	267	106	113
16. 457	484	5111	572	5683	2.4	3780	7165	24.88	225	46	304	121	116
17. 456	471	3686	323	4009	3.5	4769	11077	14.81	192	41	337	134	83
18. 455	482	4521	460	4981	2.6	6466	6867	16.99	221	46	305	121	103
19. 454*	496	6151	721	6872	2.1	7162	4527	-----	258	52	276	110	58*
20. 453	483	4836	648	5484	2.5	4381	10540	28.98	243	50	287	114	83
21. 420	468	5952	2329	8281	1.6	7203	4628	-----	284	61	248	98	63
22. 420	453	3037	1004	4041	3.1	8836	8327	24.85	238	53	276	110	73
23. 420	470	4159	800	4959	2.8	11162	12500	-----	293	63	243	97	144
24. 418	418	4318	224	4542	2.6	8162	6029	-----	196	47	313	125	93
25. 413	423	4360	485	4845	2.6	7166	9121	-----	216	51	291	116	112
26. 411	423	3835	217	4052	2.9	5438	6465	17.43	178	42	331	131	103
27. 407	463	4333	276	4609	2.9	9841	12302	-----	250	54	263	104	86
28. 404	450	5597	1043	6640	1.9	5357	------	16.04	238	53	270	107	86
29. 386	400	4234	507	4741	2.4	3896	7908	22.84	185	46	308	122	64
30. 378	413	4392	294	4686	2.5	9524	7619	-----	222	54	270	114	51
31. 366**	500	4411	1703	6114	2.2	1747	24096	-----	291	58	226	90	174**
32. 359*	380	3570	257	3827	2.8	7570	9960	11.04	203	54	276	110	54*

*Feed distribution needs study. Young stock may have been charged for feed which cows ate.

**Feed distribution needs study. Cows may have been charged with feed that young stock ate.

Faribault Area Vocational-Technical School
Agriculture Department 4/72

Comparison of Faribault Dairy Enterprises, 1971 - by Farms

Ret./ Feed Cost	B.F. per Cow	Farm Grain	Purch. Feed	Total Conc.	Milk/ Grain	Dry Rough.	Silage	Past. Cost	Total Feed Cost	Cost lb. B.F.	Ret./ $100 Feed	Index Cow	Index O.D.
33. 356**	385	4157	285	4442	2.5	8136	8339	-----	209	54	270	108	160**
34. 352	436	3944	675	4619	2.6	6317	3985	26.57	227	52	255	101	71
35. 351	427	4142	687	4829	2.4	4580	15522	23.59	235	55	249	99	79
36. 350	399	5439	960	6399	2.0	6010	8894	14.09	243	61	244	97	62
37. 350	443	4764	510	5274	2.3	9299	7898	-----	249	56	240	96	63
38. 349**	425	5711	981	6692	1.8	7624	6857	-----	270	64	229	91	174**
39. 347	461	4831	677	5508	2.3	5238	4762	25.24	223	48	256	102	150
40. 342	428	4339	595	4934	2.5	7176	7405	11.49	222	52	254	101	71
41. 341*	407	4599	427	5026	2.3	3917	16129	3.73	224	55	252	100	55*
42. 339	430	4828	866	5694	2.2	6364	6742	7.42	247	57	237	94	125
43. 335	453	5629	736	6365	2.0	5280	16866	-----	261	58	228	91	295
44. 330	403	5440	219	5659	2.1	4656	7619	26.19	229	57	244	97	67
45. 321	379	2643	661	3304	3.0	4772	11790	-----	176	47	282	112	111
46. 318	496	6682	1464	8146	1.7	5449	11827	-----	317	64	200	80	97
47. 293	375	3608	731	4339	2.4	7662	6494	15.45	225	60	230	91	104
48. 292	410	5056	244	5300	2.3	11415	6634	-----	272	66	208	83	64
49. 287	374	4338	428	4766	2.1	4049	4195	24.59	193	52	248	99	87
50. 283	402	3246	686	3932	2.5	7649	9654	-----	203	50	240	95	132
51. 268	418	3776	470	4246	2.7	12568	9910	19.10	275	66	198	79	100
52. 263	293	2835	147	2982	2.8	8458	6965	18.36	190	65	238	95	106
53. 246*	325	2468	330	2798	2.3	3006	4451	18.41	131	40	288	114	39*
54. 244	439	5069	1527	6596	2.0	7779	8284	6.79	302	69	181	72	95
55. 238	395	4332	1269	5601	2.0	9851	9970	20.99	303	77	179	71	117
56. 206	388	5363	123	5486	2.1	6575	2968	21.55	245	63	184	73	136
57. 200	311	3027	559	3586	2.5	3961	5770	9.29	166	53	221	88	144
58. 180	345	3251	550	3801	2.5	12179	10894	4.41	259	75	170	67	105
59. 162	338	4792	296	5088	1.9	11648	9802	4.84	264	78	161	64	87
60. 156	220	3519	578	4097	1.6	3099	2296	28.94	162	74	197	78	89
61. 142	357	5348	581	5929	1.8	12256	7519	16.80	307	86	146	58	37
62. 138	379	4667	1313	5980	1.7	11485	6515	2.95	296	78	147	58	104
63. 127	259	3847	657	4304	1.5	3817	10687	-----	187	72	168	67	88

*Feed distribution needs study. Young stock may have been charged for feed which cows ate.
**Feed distribution needs study. Cows may have been charged with feed that yong stock ate.

Faribault Area Vocational-Technical Institute
Agriculture Department 5/72

Name Dairy Herd No 4

Comparison of Faribault Dairy Enterprises, 1971 - by Factors

Ret./ Feed Cost	B.F. Per Cow	Farm Grain	Purch. Feed	Total Conc.	Milk/ Grain	Dry Rough.	Silage	Total Feed Cost	Cost Lb. B.F.	Ret./ $100 Feed	Index Cow	Index O.D.
560	550	7800	120	8450	3.8	13000	1000	140	35	380	150	180
510	520	5800	250	6550	3.0	10000	4000	190	46	320	130	150
460	490	5200	380	5850	2.6	8400	6000	210	49	300	120	125
410	460	4800	480	5450	2.5	7600	7000	225	51	280	110	105
360	430	4500	580	5050	2.4	6800	8000	240	53	260	104	95
340	410	4200	680	4800	2.3	6000	9500	250	56	240	98	80
320	390	3800	880	4400	2.1	5000	11000	270	62	220	90	65
240	340	3200	1280	4000	1.9	4000	14000	290	70	180	70	55
120	240	2400	1680	2000	1.5	2000	24000	320	78	140	60	35

Faribault Area Vocational-Technical Institute
Agriculture Department 5/72

Name Dairy Herd No 46

Comparison of Faribault Dairy Enterprises, 1971 - by Factors

Ret./ Feed Cost	B.F. Per Cow	Farm Grain	Purch. Feed	Total Conc.	Milk/ Grain	Dry Rough.	Silage	Total Feed Cost	Cost Lb. B.F.	Ret./ $100 Feed	Index Cow	Index O.D.
560	550	7800	120	8450	3.8	13000	1000	140	35	380	150	180
510	520	5800	250	6550	3.0	10000	4000	190	46	320	130	150
460	490	5200	380	5850	2.6	8400	6000	210	49	300	120	125
410	460	4800	480	5450	2.5	7600	7000	225	51	280	110	105
360	430	4500	580	5050	2.4	6800	8000	240	53	260	104	95
340	410	4200	680	4800	2.3	6000	9500	250	56	240	98	80
320	390	3800	880	4400	2.1	5000	11000	270	62	220	90	65
240	340	3200	1280	4000	1.9	4000	14000	290	70	180	70	55
120	240	2400	1680	2000	1.5	2000	24000	320	78	140	60	35

UNIT III - VII

EVALUATING OVERHEAD AND GENERAL FARM COSTS

Teacher Objectives:

1. To teach families how to identify and evaluate overhead and general farm costs.

Part I - The Overhead Costs.

1. Subject Content:

A. Land.

1) Interest on investment.
2) Taxes.

B. Buildings, fences, tiling, and other real estate.

1) Expenses and net decreases.
2) Interest on investment.

C. Truck and Auto.

1) Expenses and net decreases.
2) Interest on investment.

D. Tractors and crop machinery.

1) Expenses and net decreases.
2) Interest on investment.

E. Livestock equipment.

1) Expenses and net decreases.
2) Interest on investment.

F. General farm costs.

1) Electricity.
2) Labor.
3) Taxes.
4) General farm expenses.
   a) Insurance.
   b) Telephone.
   c) Office and bookkeeping expense.
   d) Other general expense.
5) Interest
   a) Assumed interest on farm capital
   b) Interest paid.

Comparison of Overhead and General Farm Costs

	Average	Our Farm	
	1971	1970	1971
Truck & Auto (Farm Share)			
Tractors & Crop Machinery			
Electricity			
Livestock Equipment			
Building, Fences & Tiling			
Bare Land Value (Table 5)			
Labor			
Property Tax			
General Farm Expense & Telephone			
Interest on Farm Capital (Table 6)			
Interest Paid (Table 6)			
Cash Rent Paid (Table 6)			
Labor Earnings (Table 6)			

****

Investment and Cost Comparisons Per Unit

	Average	Our Farm	
	1971	1970	1971
Capital Investment Per Worker			
Tractor & Crop Machinery Per Work Unit			
Auto & Truck Expense Per Work Unit			
Electricity Per Work Unit			
Building, Fencing, Tiling Per Work Unit			
Power, Machinery, Equipment & Building Per Work Unit			
Investment Per Work Unit*			
Tractor & Crop Machinery Expense Per Crop Acre			

*Average Farm Capital Divided by Total Work Units.

2. Suggested Teaching Activities and Experiences:

Begin class by pointing out that the Minnesota Vo-Ag analysis procedure is providing more detailed information as the computer program becomes more sophisticated. Power and machinery expenses

are allocated to the various crops and livestock to give a more complete picture. Point out that there are expenses remaining that must be carried by the farm business as a whole and that these expenses must ultimately be charged against one or more enterprises if one is to get a true picture of net profit.

Although one can get a relative picture of enterprise profitability without further allocation of costs, it is important to have the realization of these additional costs.

Supply each family with worksheets on which to record the information called for under "subject content". Some guidance must be provided to help families find this information in the past two year's analysis reports. When this has been completed, begin the class discussion.

Point out that land cost, which is charged against individual crops, may be simply interest on bare land value plus land taxes and land maintenance expense. A more realistic cost may be cash rent value for the land since this return could be realized if the land were rented out or additional land resources would be available, at least theoretically, at this cost. Discuss the remaining costs emphasizing that some part of the farm business must bear these costs. As each item is brought up, point out whether or not all or part of the cost has already been allocated to an enterprise. For those costs not allocated to an enterprise, raise the question of what enterprise should bear the cost. Discuss "interest on farm capital" and "interest paid", being certain to show the relationship between the two. With the high cost of borrowed money, some families may have a negative expense of interest on farm capital on Table 6A. Illustrate how this is reflected in Return to Capital

and Family Labor and relate this to the amount of money that is available for family living, savings and debt reduction.

Although it may not be possible to correlate high or low unit costs with farm earnings, these items are of significance to the individual family. The objective should be to keep these costs at a level that will assure maximum income. Other factors being equal, the lowest cost per unit of accomplishment should result in the highest earnings. A review of the three general questions related to investments may be a good conclusion for this unit.

1. Will it increase profit?
2. Is it the best use of capital?
3. Will the profit be fast enough to repay the loan?

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Farm Business Management, An Instructor's Guide.

Part II - Suggested On-Farm Instruction Activities:

Review ways in which overhead costs for operating the farm can be reduced. Discuss the allocation of the overhead costs to the various enterprises or groups of enterprises to determine liability for paying for these costs. Review plans for changing the organization of the business and determine how these changes will affect overhead costs; both in total amount and in the distribution among enterprises. Examine the possible improvements in income that may occur as a result of better distribution of capital among the various enterprises.

UNITS III - VIII, IX AND X

MAXIMIZING INCOME

Teacher Objectives:

1. To teach families how to study their present program, develop alternative possibilities of crops and livestock and to develop a program to maximize income.

Part I - Developing the Plan.

1. Subject Content:

   A. Determining the Normal Crop and Livestock Program.

   B. Evaluating the Present Crop and Livestock Program.

   C. Determining Alternative Crop and Livestock Programs.

   D. Determining Building and Equipment Needs.

   E. Determining Changes in Expenses.

   F. Determining Changes in Income.

2. Suggested Teaching Activities and Experiences:

   The subject content of maximizing income falls into three natural categories; the present plan, alternative crop and livestock plans, and changing facilities, expenses and income.

   This is a very comprehensive and challenging lesson which will require at least three class meetings to complete. It has been identified as three teaching units to empahsize the need for considerable time for its completion.

   These units are not intended to be the final answer to farm reorganization. They are, however, an appropriate place for families to begin considering various possibilities of crops and livestock for their own situations. Each reorganization study is complicated by individual resources, desires, and abilities. These individual differences make it necessary to work closely with each family on

a partial substitution budget to determine more reliable income possibilities. When doing this task, home farm production information will be taken from the farm analysis records and applied to the alternative budgets. The substitution budget demands such individualized treatment that it does not lend itself well to completion in large groups or classroom situations. It, however, will be one of the most worthwhile accomplishments on farm visits.

The Farm Organization and Income Possibility Worksheets suggested here illustrate many of the principles that can be applied to an individualized substitution budget. The worksheets can be used effectively in the classroom to introduce families to the processes of making alternative farm plans. It has the advantage of rapid, though sometimes misleading, conclusions. Calculations move along fast enough to hold interest and raise many questions which can be answered by a more complete study.

Supply each family with worksheets similar to those included with this unit. Using transparencies with the overhead projector, use a sample farm to illustrate the step-by-step procedure of determining first the normal crop and livestock program followed by alternative plans #1, #2, and #3. Have each family complete on worksheet #1, its normal crop and livestock program using information from its own analysis report. A handout of supplementary information relating to prices, expected gains and other costs should be prepared to supply information not available from the analysis reports. After the completion of this section, invite class discussion related to the normal plan.

The second class session should begin with a discussion of the objectives of alternative plans. The approach to this kind

of reorganization plan is to develop the most profitable cropping program within the limits of acceptable soil conservation practices. Reference should be made to Unit III for a review of the factors which may affect the most profitable combination of enterprises. This should be followed by a livestock plan in which roughage consuming livestock is planned to use the available roughages and concentrate consuming enterprises are added to the limits of available feed supply. Alternative plans #1, #2, and #3 should be completed during the second class meeting. After each step is completed an open class discussion should be invited and the objectives of the next step clarified.

Worksheet #4 will be completed during the third meeting. Considerable time should be spent discussing the planning and calculation of expenses brought about by the alternative enterprise plans. Guidelines for building and equipment needs should be made available by the instructor and several references should be available for the class members use.

Some caution should be exercised in the use of Units VIII, IX and X. Care should be taken to discourage families from concluding that they have arrived at a practical reorganization plan for their farm. Any reorganization to be undertaken by a family should be preceded with much study and consultation. Such study can best be done with families during individual on-farm instruction.

3. References:

A. Vocational Agriculture Farm Analysis, Annual Report.

B. Farm Management Principles, Budgets, Plans.

C. Farm Management Economics.

D. Planning Production for Desired Farm Earnings.

E. Modern Concepts of Farm Machinery Management.

F. Planning Grain-Feed Handling.

G. Midwest Farm Planning Manual.

Part II - Suggested On-Farm Instruction Activities.

If a family is interested in examining alternative business organization schemes, help to compile the data necessary to assess the feasibility of each scheme. Using analysis data from the farm, project the costs and returns from the alternative organization plans. Be prepared to assist in determining capital needs and the return on capital investment that may be expected. Examine credit sources for needed capital and feasible repayment plans. It is the job of the instructor during these planning stages to assist with gathering and assembling data for evaluation of the alternatives but he must remain cognizant of the effect that changing a segment of the business through reorganization will have on the entire business operation.

Our Normal Crop and Livestock Program

Alt.#1 Effect of Improved Operational Efficiency On Income

CROPS	Acres	Yield per acre	Total Prod.	Operator's Sales			Labor Hours		Good ave. Yield	Increase Per Acre	Increase Total	Value of Increase
				Bu. Ton	Price	Value	Per U	Total				
Corn												
Soybeans												
Small Grain												
Hay												
Silage												
Pasture												
TOTAL CROP		xxx	xxx	xxx	xxx		xxx		Inc. Crop Sales			

LIVESTOCK	No.	Prod per unit	Total Prod	Operator's Sales			Labor Hours		Good Prod. Level	Total Prod.	Operator's Sales		
				Units	Price	Value	Per U	Total			Units	Pr.	Value
Dairy: Milk													
Cattle													
Beef Cows													
Feeder Cattle													
Sheep: Wool													
Meat													
Hogs													
Hens													
TOTAL LVSTK	xxx	xxx	xxx	xxx	xxx				xxx	xxx	xxx	xxx	
GRAND TOTAL	xxx	xxx	xxx	xxx	xxx		xxx						

Total Lvstk.
Normal crop sales
Inc. crop sales
GRAND TOTAL

Use Space For Calculations:

Alt.#2 Effect of Improved Organizational Efficiency on Income

1. Medium to Large Farm

   A. Select the highest return cropping program and convert feed crops to hay and corn equivalents; cash crops to gross sales.

Crops	Acres	Yield	Total	Factor	Equivalent or sales	Labor Hours Per Acre	Labor Hours Total
Feed Crops							
Hay and T. Past.				=			
Pasture, perm				=		xxx	xxx
Silage				÷ 3			
				Total hay equiv.			
Corn				=			
Oats				÷ 2			
Barley				x .75			
				Total corn equiv.			

Cash Crops (Operator's Sales)	Acres	Yield	Total	Units	Price	Value	Labor Hours Per Acre	Labor Hours Total
Soybeans								
Wheat								
TOTAL		xxxxx	xxxxx	xxxxx	xxxxx		xxxxx	

   B. Balance the crop and livestock program using average feed requirements shown on page 6.
      1. Above hay equivalents will feed _____(number) of _____(dairy cows, etc.)
      2. The livestock in B, 1 would require how many bushels of corn equiv.? _____.
      3. The amount of corn equiv. left for other livestock = _____.
      4. The number of hogs or hens that could be handled = _____.
         (consider feed, labor, facilities)
      5. Corn equiv. left for sale if any = _____ x $_____.

   C. Summarize the results

Livestock	No.	Unit	Prod.	Operator's Sales Units	Price	Value	Labor Hours Unit	Labor Hours Total
Total livestock	xxx	xxx	xxx	xxx	xxx		xxx	
Corn equiv. sales	xxx	xxx	xxx	xxx	xxx			
Cash crop sales	xxx	xxx	xxx	xxx	xxx			
Total crops & lvstk. (transfer total sales to page 4)								

2. Small Farm - Select the highest return per acre livestock enterprises

   A. If highest return enterprise is a grain - consuming one, follow steps under 1. above.

   B. If highest return enterprise is dairy:
      1. Select number of cows desired and calculate hay equiv. and corn equiv. needed.
      2. Determine whether acreage is sufficient to at least supply roughage needs.
      3. Increase or decrease livestock numbers till desired balance is reached.
      4. Consider purchasing additional grain if needed to obtain desired volume.

Alt #3 Effect of Acreage Expansion On Income

A. Select the highest return cropping program and convert feed crops to hay and corn equivalents; cash crops to gross sales.

Crops	Acres	Yield	Total	Factor	Equivalent or sales	Labor Hours Per acre	Labor Hours Total
Feed Crops							
Hay and T. Past.				=			
Pasture, perm				=		xxx	xxx
Silage				÷ 3			
			Total hay equiv.				
Corn				=			
Oats				÷ 2			
Barley				x .75			
			Total corn equiv.				

Cash Crops (Operator's Sales)				Units	Price	Value		
Soybeans								
Wheat								
TOTAL		xxxxx	xxxxx	xxxxx	xxxxx		xxxxx	

B. Balance the crop and livestock program using average feed requirements shown below.

1. Above hay equivalents will feed _____(number) of _____(dairy cows, etc.)
2. The livestock in B, 1 would require how many bushels of corn equiv.? _____.
3. The amount of corn equiv. left for other livestock = _____.
4. The number of hogs or hens that could be handled = _____. (consider feed, labor, facilities)
5. Corn equiv. left for sale if any = _____ x $_____.

C. Summarize the results

Livestock	No.	Unit	Prod.	Operator's Sales Units	Price	Value	Labor Hours Unit	Labor Hours Total
Total livestock	xxx	xxx	xxx	xxx	xxx		xxx	
Corn equiv. sales	xxx	xxx	xxx	xxx	xxx			
Cash crop sales	xxx	xxx	xxx	xxx	xxx			
Total crops & lvstk. (transfer total sales to page 9)								

Average Feed Requirements

	Dairy	Dairy Steers to: 700#	Dairy Steers to: 950#	Sheep	Beef cows	Feeder Cattle: high roughage, calves	Feeder Cattle: high roughage, yrlgs.	Feeder Cattle: high grain, calves	Feeder Cattle: high grain, yrlgs.	Hogs	Hens
Hay Equiv.(Tons)	8-9	1.3	1.6	.4	2-3	1.5	1.4	.5	.4	-	-
Corn Equiv.(Bu.)	70-40	20	60	3	-	46	36	62	60	15	1.5
Protein Sup. (#)	300	150	400	0	0	400	340	400	320	115	45

UNIT III - XI

FARMSTEADS, BUILDINGS, MATERIALS HANDLING

Teacher Objectives:

1. To teach the principles of efficient farmstead arrangements.

2. To make families aware of the intense need for detailed planning before investments in buildings and materials handling systems.

Part I - Planning An Efficient Farmstead.

1. Subject Content:

A. Purpose of farm buildings.

1) An important farm resource - the production plant.
2) Each building a segment of the production system.
3) Protects machinery, crops, livestock and supplies.
4) Saves labor and time.
5) Provide a safe and healthful environment.
6) Furnish attractive setting for the farm home.

B. Justification of farm buildings.

1) Must contribute to higher net income.
   a) Provide environment for the efficient use of feed.
   b) Provide for the efficient use of labor.

C. Arrangement of farm buildings.

1) Locate farm buildings away from residence.
   a) Away from prevailing winds to minimize odors and flies.
   b) At least 100 to 150 feet from residence to livestock.
2) Space major buildings apart to reduce fire hazard.
3) Arrange for efficient movement of livestock.
4) Arrange for an efficient flow of crops and feed.
5) Space buildings for convenient access to fields and pastures.
6) Locate buildings, lots, drains and wells to prevent contamination of water supply.
7) Place shelterbelt on north and west sides of farmstead.
8) The farm court should be 100 feet or more in its smallest dimension.
9) Machine shed should be convenient to residence and to field lanes.
10) Consider noise nuisance when placing large fans and motors.
11) Provide all weather service road to livestock area and feed processing centers.

D. Special considerations.

1) Plan the centers of operation.
   a) The machinery storage and service center.
   b) Feed storage and processing center.
   c) Separate livestock centers.
2) Plan materials handling in detail.
   a) Provide for organized material flow.
   b) Think and plan in terms of a system not individual units.
3) Compliance with pollution control agency rules.

E. Types of buildings to consider

1) Simple but substantial structures.
2) As flexible as possible for future changes or expansion without losing efficiency in present use.
3) Mechanized or adaptable to mechanized materials handling.
4) Insulated and ventilated for year around use.
5) Attractive or inconspicuous in appearance.

2. Suggested Teaching Activities and Experiences:

Discuss the material outlines under "subject content". Systems should be the emphasis in this unit. As farms become larger and the output per man increases it becomes more important to think of the entire farmstead as a production plant with each production center organized to coordinate with the other production centers. Promote discussion from the class on their own farmsteads. Since most families have not been involved in the original layout of their own farmsteads, they will be free with their discussion of problems to consider. Buildings crowded together, no room for expansion, poor drainage, no room for a shelterbelt, too far from feed to livestock, will be a few of the comments offered. This will provide the mood and setting for this unit. Stress that every building, over its period of useful life, must pay its own way through savings or production. Using overlays on the overhead projector or a flannel graph, the instructor should show an ideal building arrangement. The relationship among parts of the farmstead can be illustrated with a

diagram showing the major movements of materials about the farmstead.

The instructor may wish to prepare a checklist for each family to use in evaluating its own farmstead arrangement. A good checklist of this kind is found on pages 135-137 of Getting Started in Farming.

Have each family draw up the present farmstead arrangement to approximate scale. Have them temporarily sketch in buildings which they plan in the near future. This job should be completed at home so the distance and locations will be relatively accurate. A farm visit may be used to assist the family in completing this task. The farmstead arrangement plan will be used to help determine building locations in the future.

The farm building unit may generate interest in some specific area of the farmstead. Planning the grain-feed handling system is an area of high interest at this time and could well take up an entire class period.

3. References:

   A. Midwest Farm Planning Manual.

   B. Planning Grain-Feed Handling.

   C. Farm Management Principles, Budgets, Plans.

   D. Getting Started in Farming.

Part II - Suggested On-Farm Instruction Activities:

Review plans for buildings and improvements. Discuss the checklist used in the class. Aid the family in preparing or improving the diagram of their farm building layout. Relate the building arrangement to the planned business organization. If

necessary, secure the services of a specialist to assist in planning any changes in the building arrangement.

UNIT III - XII

PLANNING TRANSITIONAL STAGES

Teacher Objectives:

1. To furnish background information for transitional plans of farm reorganization.

Part I - Making Plans for Changes in the Farm Business.

1. Subject Content:

   A. When to make adjustment in the farm business.

      1) Major adjustments seldom and sparingly.
      2) Minor adjustments continually.

   B. Basis for making adjustments.

      1) After complete plans and budgets.
      2) On basis of recent records analysis.

   C. Transitional problems.

      1) What will be the effect on income?
      2) What buildings will be needed?
      3) What equipment will be needed?
      4) What capital will be needed?
      5) How will labor requirements change?
         a) Amount.
         b) Distribution.
      6) How long will the transition take?
      7) When is the best time to begin the change?
      8) Where can I go for needed help and information?

2. Suggested Teaching Activities and Experiences:

When a farm family decides to make major changes in the organization of the crop and livestock program, it brings on many new possibilities and problems. Because of the nature of the whole farm business, it is not possible to discontinue one enterprise and immediately begin with another in its place. Buildings, equipment, feed, labor and management skills will need to be adjusted or added. All of the intermediate steps in making the changes should be carefully planned. Because transitional stages will be different in every reorganization,

it is very difficult to find a tried procedure to follow. References even relating to this area of planning are both very general and very sketchy. A group discussion on the questions raised in the subject content outline will make the families aware of the need for searching out the information that is needed. This discussion may also raise other questions that have not been apparent to this writer. Transitional planning will require many farm visits before the reorganization, during the reorganization and after the change-over has been completed.

3. References:

   A. Farm Management Economics.

   B. Midwest Farm Planning Manual.

   C. Farm Management Principles, Budgets, Plans.

Part II - Suggested On-Farm Instruction Activities.

If the family is planning a major change in business organization, assist them in drawing up a plan for business operation during the transition. Be alert to the need for planning income for family living during any reduced income period of the transition. With the aid of analysis reports, help determine what these needs are. Be prepared to aid in securing the counsel of specialists while planning for and during the transition to a different business organization. It would be worthwhile for instructors to review the decision making process to remind themselves of those steps for which they have little or no responsibility. Inquire to determine if any assistance is needed in closing the record for analysis.

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CHAPTER VIII

POSTSCRIPT

The tremendous technological revolution in agriculture over the past two decades has intensified the problems of the farm family. Adult instruction in agriculture over this period of time has contributed materially to farming and to farm life. It is evident, however, that the values of adult farmer instruction lie more in their potential than in the contributions thus far.

This program of instruction has been set up with core material in farm management classes which progress from beginning farm records through the farm business analysis toward farm reorganization. One of the strengths of this program is the involvement of the farm operator and his wife in a serious study of the home farm business. This farm management core should be supported by intensive units in mechanized farming and individual enterprises during each of the years of instruction. The entire program is strengthened by planned farm visits which will serve to individualize the instruction.

Farm management in the public schools is intended to be a year around continuing program with more empahsis on "what to do" and "why" than "how to do it." The analysis centers at the area vocational-technical schools become a vital part of the total program, not only in the mechanics of analyzing the completed farm record but also in the interpretation of the analysis reports.

Vocational agriculture instructors must continually develop new materials for use in group and individual instruction. Preparation of

these materials often requires more information than is readily available in the local vocational agriculture department. Agriculture coordinators in the area vocational-technical schools, researchers at the universities, branch experiment stations and commercial firms must remain alert to the needs for reliable information to be used in the management education program. Management is primarily a decision process. Sound decisions are dependent upon good information.

Vocational agriculture instructors in other states who use the farm management approach to adult education should find this course of study of interest. While the farm record book in use and the business analysis may be slightly different, the method of instructing families interested in studying their own business should not be much different.

Tha authors believe that a strong America is dependent upon a vigorous and productive agricultural sector. This course of study is designed to help educators build strength and vigor in the farm businesses of rural America.