

FARM BUSINESS MANAGEMENT



EXPLORING THE FARM BUSINESS MANAGEMENT ANALYSIS REPORT

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AN ADULT EDUCATIONAL PROGRAM



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" EXPLORING THE FARM BUSINESS MANAGEMENT ANALYSIS REPORT"

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FOREWORD

The term "farm business analysis" is a household word among vocational agriculture teachers in Minnesota. The analysis has evolved from manually calculated management tool to the most thorough, sophisticated computerized analysis available to farmers in this country.

This interpretation document was developed to serve a critical need of farm operators and of vocational agriculture instructors. With an increasing number of farm operators enrolling in farm management programs and an increasing number of post-secondary and secondary vocational agriculture students using analysis data in their studies, the need for a detailed, comprehensive interpretation document becomes obvious.

Beginning and experienced instructors will find the materials in this document refreshing in its organization and clarity. Line-by-line, section-by-section, the analysis is laid bare. Examples are used to help enhance everyone's understanding of the analysis.

Vocational agriculture instructors who have lived through the computerization of the analysis often forget that most instructors and farm operators have not had that opportunity. This document should be a significant addition to the course of study for adult farm management education and other curriculum materials.

Rodger E. Palmer
Division of Agricultural Education
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EXPLORING THE FARM BUSINESS MANAGEMENT ANALYSIS REPORT

Donald B. Walker

INTRODUCTION

The Minnesota Adult Farm Business Management Analysis Report contains a wealth of information that may be used in evaluating the farm business. However, information found in the report is not usable unless it can be interpreted and understood. Experience with the Minnesota Farm Business Analysis Adult program has shown that each year a farmer continues in the program he gains additional insight and knowledge about the use and value of the analysis report.

Because of a need and desire to get additional information about their farm business, and because the farm business is becoming more complex, new items are being added to the analysis report periodically. This requires continued exploration and study of the various tables if one is to take full advantage of the information they provide.

The purpose of this series of units will be to provide a guide for teaching the understanding and use of Farm Business Management Analysis Reports.

The 1976 Sample Farm Analysis Report is used as a reference for demonstrating the calculations of many items in the tables. As each table is examined in the analysis report, one finds that some tables are very closely allied with others. Therefore, it is not possible to examine thoroughly each individual table in the report without reference to some of the others. However, for simplicity of organization each table has been dealt with individually, and reference is made to other tables when necessary.

The Minnesota Farm Business Management Analysis Report is made up of both "Operator" and "Whole Farm" tables. Although in these units the tables are not divided into two separate sections, the teacher should be aware of the fact that tables 4, 5, and 6 are for the operator's share only. All other tables in the report are "Whole Farm" tables and include both the operator's and landlord's share. Understanding this concept will aid the student in comprehending the information in this and other analysis reports.

A number of ideas, definitions and student work sheets used in these units did not originate with this author. They have been developed and used by various adult agriculture instructors in farm management for a number of years.

The author would like to give special recognition and thanks to the following people for their advise and contributions to the development of these units.

Dr. Rodger E. Palmer
Division of Agriculture Education
University of Minnesota

Dr. Edgar A. Persons
Division of Agricultural Education
University of Minnesota

Dr. Delane E. Welsch
Dept. of Agriculture and Applied Economics
University of Minnesota

The Preliminary Report

The Preliminary Report is an individual analysis report that the farmer receives within approximately 10 days after his record has been summarized at an area analysis center and sent to the computer center.

It is a summary of all the information found in his record book. The farm record in itself is of very little value, except for income tax purposes, unless it is studied and evaluated. The analysis report makes this task possible and makes it much easier for the farmer to look at the various parts of his farm business in an orderly and systematic manner.

The preliminary analysis report shows how the farmer is using his resources of land, labor, capital and management in the production of farm produce. If a farmer knows how much feed, fertilizer, fuel, labor and other resources are going into the production of various crop and livestock enterprises, then it is easier for him to make changes and improvements for a more profitable farm business.

The farmer can use the preliminary report to make a year to year comparison of his progress. The analysis reports from previous years provide a standard or basis for comparison to determine how successful he has been during the year; data from a single year's record is very difficult to interpret without some basis for comparison.

The farmer may compare his business with previous years as to size, efficiency of the cropping program, livestock programs, and the efficiency of his use of labor, machinery, equipment and buildings. He can also check his growth in net worth from year to year. The preliminary report comes back early enough so the farmer can use it to make budgets and plans for the coming year.

The Annual Summary Analysis Report

The Annual Summary Analysis Report differs from the preliminary analysis report in that it not only contains the farmer's own individual analysis report but it also has the averages of the group or area to which the individual farmer belongs.

The group of farmers in a particular area of the state, called the "Analysis Area", is further broken down into the high income group and the low income group. For each table in the analysis report, the individual farmer can compare his performance with three different groups:

- The average of all farmers in the analysis area
- The high income farmers in the analysis area
- The low income farmers in the analysis area

The individual farmer's own analysis reports from previous years provide a standard or basis for comparison, but these three groups provide him with other standards for comparison. The high income group may provide a good goal for him to aim for.

The Annual Summary Report also has an additional table, Table 8, that was not in the farmer's preliminary report. This table is developed from the information from all the farm records used in the annual report.

This table has 9 items used to measure farm organization. It indicates how the individual farmer performed in relation to the average of the group in each of the 9 measures.

The Annual Summary Report also contains Table 7 which shows work unit values, animal unit values, and prices used throughout the report. Since the report is available for educational purposes and public use there are also pages and various footnotes devoted to explaining parts of the report. Charts and graphs are used to point out trends and year to year changes for the analysis area.

Although the Preliminary Report has the most value to the individual farmer, the Annual Summary does provide additional information that can be used by the farmer in making future plans and improvements.

HOW TO USE

"EXPLORING THE FARM BUSINESS MANAGEMENT ANALYSIS REPORT"

Having a series of units available is not enough. The user must know how the author intended the units to be used if they are to be effective. The brief description which follows is intended to convey these intentions.

PART I. Student Objectives

Each unit begins with Student Objectives. Users will find that these objectives are rather specific and behavioral in structure. Objectives specify under what conditions and to what extent a certain kind of student performance can be expected to take place. Teachers should keep in mind the ways in which the attainment of the objectives will be measured in order to be able to evaluate their instruction.

PART II. Transition of Units

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

PART III. The Lesson

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

The subject content of each lesson is centered around a series of key questions. Each of the key questions in turn is related to the student objectives. Much of the subject content material contains example calculations with appropriate narrative comments. The large type format of each table, usually in two parts, found in the appendices can be used in a duplicated handout form or as transparency masters for overhead projectors.

While the material in each lesson is relatively complete and supported by appropriate appendices, the instructor should, in addition, draw from his/her knowledge of the local area. This will insure that the subject matter is related to situations in which the class members may be more familiar. Data selected from Local Area Analysis Summaries should also be used in addition to the Sample Farm IV data.

PART IV. Summary

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

PART V. At-The-Farm Activity

The activities suggested for individual at-the-farm activity help to bring the generalities of the classroom to the specifics of the students own farm/ranch and home business.

Some students may not have the opportunity to become involved in an at-the-farm activity. In these situations a "canned problem" may be used to supplement the classroom instruction.

PART VI. Resources

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

PART VII. References

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

PART VIII. Appendices

The appendix for each unit includes study guide questions which are intended to be used by the student as the lesson is being presented or individually by the student as a self-study guide.

The large type copies of the analysis tables are included in each unit appendix and may be duplicated for handouts or as a transparency master for the overhead projector.

Unit tests are included and may be used as an evaluation instrument or as questions for further discussion.

A General Appendix in back of the last unit includes the Answer Key to all of the study guide questions for each unit, and completed Computer Data Forms for the Sample Farm IV Analysis Report.

Unit 1 - Table 1

FARM INVENTORIES

PART I. Student Objectives

- A. After a discussion of the various parts of Table 1 and observing the Sample Farm Table 1, the student will be able to identify the three main measures of size of a farm business as listed on Table 1.
- B. Having had the opportunity to inventory items in their pockets, purse, or in the classroom, the students will be able to define the process of taking an inventory.
- C. The student will be able to identify the differences between the inventory of the "whole farm business" and the "operators share only".

PART II. Transition of Units

The stage should be set with the first unit of the series on "Exploring the Farm Business Management Analysis Report" by emphasizing the importance of understanding each of the tables in the report and the influence each table has on other tables throughout the report.

Table 1 has to do with the items on hand at beginning and end of the year, but the next unit will deal with Table 2A and 2B which report the income and expense of the farm business.

PART III. The Lesson

Attention Focuser

Have each student empty the contents of his or her pockets or purse on the table or desk and record each item on a sheet of paper indicating number and value of each item. This in a small way is the process of taking inventory. A farmer does this once a year, but on a much larger scale.

KEY QUESTION 1. Basically what is the purpose of Table 1?

This shows the beginning of year and end of year inventory value for each part of the total farm business. Inventories are taken once a year, usually at or near Dec. 31 or Jan. 1. The ending inventory of the past year becomes the beginning inventory of the current year.

KEY QUESTION 2. How are inventory quantities and values determined?

Beginning and ending inventory value of livestock, crops, seed and feed are determined by the farmer. He takes a

count of each class of livestock and records it in his account book.

For beef and dairy cows he keeps a consistent value per head from year to year. For market animals he uses the market price per pound at the time the inventory is taken. He estimates the weight or weighs several animals to get a more accurate inventory.

The crop, seed and feed inventories are taken by an actual measure of bins, silos and barns. The quantity is multiplied by the market price to get total inventory value.

Power, machinery, equipment and buildings are entered on inventory at book value, that is, cost less depreciation. Land is valued at cost rather than current market value.

KEY QUESTION 3. Of what value is Table 1 to the farmer?

This table has its greatest value in providing the farmer with several measures of farm size.

- a) Item 1 and 2 give the size of farm in total and tillable acres.
- b) Items 3, 4, 5 and 6 give the size of various parts of the farm business in work units and total work units on the farm.
- c) Item 7 lists the total number of workers which is a combination of the operator, unpaid family labor, hired labor, and labor share of custom work hired.
- d) Item 8, the Farm Capital Investment Per Worker is calculated by dividing average capital by the number of workers.
- e) Although Total Farm Capital is not as good an indicator of farm size as Total Work Units and Total Tillable Acres, it does provide another measure of farm size.

KEY QUESTION 4. Why is it important to try to get very accurate inventories?

Inaccurate inventories can distort the entire analysis report, therefore, farmers are urged to take extreme care in estimating weights, measuring bins and making counts of livestock for inventories. Accurate inventories are very important in getting a true picture of the farm business in the analysis report because inventories are used in almost every table of the analysis.

KEY QUESTION 5. How does Table 1 relate to only the operator's share of the farm business?

Table 1 represents whole-farm capital investment. If the operator is renting a farm or farms the table includes not only the operator's share of capital invested but also the landlord's share invested in the farm business.

Table 5 "Net Worth Statement" lists only the operator's share invested in the farm business.

PART IV. Summary

- A. Accurate Farm Inventories are an essential part of the analysis because they are used in other tables throughout the report.
- B. Inventories are taken once a year, usually on or near Dec. 31.
- C. Table 1 provides the farmer with these measures of size of his business: total and tillable acres, work units, and capital investment in the business.
- D. Table 1 provides information on the total operation, not just the operator's share.

PART V. At-the-Farm Activity

- A. Follow up Activity
If students are keeping records on their own farm, check the inventories with them for accuracy.

If they are not keeping farm accounts, have them see how many items in Table 1 they can complete on their own farm.
- B. Evaluation Exercise
Have students complete test at end of unit.

PART VI. Resources

Chalkboard/overhead projector
Transparencies: Part 1 & 2 of Table 1
Study Guide: Seven questions on Table 1

PART VII. References

Farm/Ranch Management Education (a course of study for adults)
4th edition
Sample Farm IV Analysis 1976
Farm Business Analysis-Local Area, Latest edition
Documentation of Farm Business Analysis, Dr. Edgar A. Persons

PART VIII. Appendices

Part 1 & 2 of Table 1
Study guide questions
Unit test

TABLE 1 - FARM INVENTORIES

WINONA AVTI

1	SIZE OF FARM - TOTAL ACRES	568.0	
2	- TILLABLE ACRES	330.0	
3	WORK UNITS - CROPS	166.62	
4	- LIVESTOCK	561.70	
5	- OTHER	42.44	
6	TOTAL SIZE OF BUSINESS IN WORK UNITS	770.76	
7	NUMBER OF WORKERS	2.46	
8	FARM CAPITAL INVESTMENT PER WORKER	\$ 111057	
		JAN. 1	DEC. 31
9	PRODUCTIVE LIVESTOCK		
10	DAIRY COWS	24750	25200
11	OTHER DAIRY CATTLE	10525	11400
12	BEEF BREEDING CATTLE		
13	BEEF FEEDER CATTLE	2100	5120
14	HOGS	12790	11100
15	SHEEP (Including Feeders) & GOATS		
16	POULTRY - ALL TYPES		
17	OTHER LIVESTOCK		
18	TOTAL PRODUCTIVE LIVESTOCK	\$ 50165	52820*

TABLE 1 CONT.

19	CROP, SEED & FEED	45308	38281
20	POWER, MACHINERY & EQUIPMENT		
21	AUTO & TRUCK (FARM SHARE)	3419	5264
22	POWER & MACHINERY	24031	20848
23	IRRIGATION EQUIPMENT		
24	CUSTOM WORK EQUIPMENT		
25	LIVESTOCK EQUIPMENT	4057	5453
26	TOTAL POWER, MACHINERY & EQUIPMENT	\$ 315071	31565*
27	LAND	100417	100417
28	BUILDING-FENCES-ETC.	45275	50642
29	TOTAL FARM CAPITAL	\$ 272672	273725
30	INCREASE OR DECREASE IN TOTAL FARM CAPITAL		\$ 1053

STUDY GUIDE - TABLE 1

Farm Inventories

1. Name three measures in this table that indicate size of business.
 - a)
 - b)
 - c)
2. When does the farmer take inventory on the farm?
Why does it have to be taken at this time?
3. If a farmer is renting land in addition to his owned farm, why should the rented land be included in the inventory on this table?
4. Why should machinery, equipment, buildings and land be valued at book value and not the present day value which may be considerably higher during periods of inflation?
5. If a farm operator wants to find only his investment in the farm business (not the landlord's) where would he look in the report?
6. Why is it important that the farmer be accurate in getting correct weights and value of livestock and crops when taking inventories?
7. If a farmer is keeping records only for income tax purposes, what information on this table would be missing?

B. Problems and Questions - Table 1

- T F 1. This table lists only the landlord's share of the farm business.
- T F 2. For the purpose of assigning a value at beginning and end of the year, land is entered at current market values.
- T F 3. The value of machinery shown at end of the year has not been depreciated yet.
- T F 4. The value assigned to feed at beginning and end of year would reflect the price of the particular feed at the time of inventory.
- T F 5. Livestock values at beginning and end of year reflect a conservative market value.

6. List the three measures of size of business found on this table.

- a) Acres - tillable and non-tillable
- b) work units - total
- c) total investment in farm capital

7. The total farm capital at beginning of the year is 272,672 and at the end of the year 273,725. What is the average farm capital?

$$\begin{array}{r} 272,672 \\ 273,725 \\ \hline 546,397 \end{array} \div 2 = 273,199$$

8. How was the increase in farm capital calculated?

$$273,725 - 272,672 = \$1053$$

9. How is farm capital per worker calculated?

$$\text{Avg. farm capital of } 273,199 \div 2.46 \text{ workers} = 111,057$$

10. Beginning inventory of Dairy was \$24,750 and ending was \$25,200 an increase of \$450. What might this indicate?
He either had an increase in cow numbers during the year or an increase in the value of the dairy cows during the year.

Unit 2 - Table 2

WHOLE FARM SUMMARY OF CASH RECEIPTS AND EXPENSES

PART I. Student Objectives

- A. Students will be able to identify the kinds of items included in cash sales for livestock and crops.
- B. After inspecting and discussing Sample Farm IV Table 2A, students will be able to explain what goes into an "Increase in Farm Capital" and "Family Living From the Farm".
- C. Students will be able to explain why total cost of livestock, machinery, equipment, and buildings purchased appear as an expense for the year.
- D. Students will be able to define "Labor Earnings" or "Return to Labor and Management".

PART II. Transition of Units

The first unit dealt with the resources the farmer has to work with on the farm, how he inventories them, and puts value on them.

This unit now begins to show the returns and expenses from the farm business. The student is probably already familiar with cash income and expenses as in the table. But he is now being introduced to some new terms, such as "Return to Labor Management", "Unpaid Family Labor", "Increase in Farm Capital", and "Family Living From the Farm".

The next unit will also deal with income and expense, but will approach it in a different way; income and expense by enterprise.

PART III. The Lesson

Attention Focuser

Begin the session by stating that farmers pay income tax on net income after expenses. Ask the question: Can we determine Mr. Sample's taxable income from this table?

The discussion will lead to an inspection of various items of income and expense in the table and will reveal a number of facts: The income and expense may include other than Mr. Sample's since it is a whole farm table and would include landlord's also.

The entire amount for items of livestock, machinery, equipment, and buildings purchased are listed and are not deductible as an expense in one year. A number of other items, such as interest on farm capital, unpaid family labor, and decrease in farm capital cannot be used in figuring income tax.

The discussion will soon reveal that the table cannot be used for income tax, but is useful to the farmer in other ways.

KEY QUESTION 1. What is the purpose of Table 2A?

Table 2A shows all sources of cash income for the whole farm which includes landlord's and operator's shares. The share for the operator only is found in Table 6A.

In addition to cash receipts, an increase in farm capital is shown in item 38. A decrease in farm capital would show up on Table 2B, item 40.

KEY QUESTION 2. Why is "Family Living" included in the summary of cash receipts?

Family Living from the farm represents the market value of all farm produce consumed during the year. This produce whether it be meat, milk, or eggs could have been sold and would have added to farm income.

KEY QUESTION 3. Does Table 2A show total income produced on the farm?

Table 2A gives a quick picture of the total cash sales in the farm business. It also shows sources of cash income.

Table 2A does not show total income produced from each source because changes in inventory are not reflected in the various categories on this table. Changes in inventory are lumped together and result in either a total increase in inventory shown in item 38, Table 2A or total decrease in inventory found in item 40, Table 2B. An example may be shown by the following:

Suppose: Feeder cattle sales were: 3451
Increase in inventory value
of feeders from beginning to
end of year was: 1000
Then total value produced = \$4451

The 3451 shows up as a cash receipt from feeder cattle, item 6, Table 2A, and the \$1000 is included as part of the increase in farm capital of \$1053 in item 38, Table 2B.

KEY QUESTION 4. What kinds of expenses are shown on Table 2B?

Actual cash operating expenses for the farm are shown in items 14 through 32, Table 2B.

Other expenses requiring a cash outlay are purchases of livestock, item 1-13, and power equipment, real estate and improvements purchased during the year, items 34-38, Table 2B.

Since these expenses are of a capital nature and the total cost is usually spread over several years, the question is often asked, "Why does the total expense appear in one year?"

The total purchase price of the capital items appear as an expense on Table 2B but the remaining value after depreciation shows up as an increase in capital on the receipt side of Table 2A, item 3B. The net result is that only that amount taken for depreciation is charged as an expense.

KEY QUESTION 5. Why does interest on farm capital appear on Table 2B?

Interest on farm capital, item 41, Table 2B, is a non-cash expense charged against the farm business. This is the interest charged on the average total invested in the farm business. If it would not have been invested here, it could be invested in some other way and be earning at least 6 percent interest.

The calculation is made by adding the beginning of year capital, Table 1, of 272,672 to the end of year capital 273,725 and dividing by two. This sum is multiplied by 6 percent interest to get interest on average farm capital.

KEY QUESTION 6. What is "unpaid family labor"?

Unpaid family labor is that labor furnished by the wife, sons, daughters, or other members of the family. If this labor had to be hired, the cost would be a cash expense. Likewise, if the members of the family were not working on the farm, it is possible they could be working somewhere else and receive wages.

KEY QUESTION 7. Is "board furnished hired labor" a cash cost?

Board furnished hired labor is the value of meals and laundry used for hired labor. It is an estimated cost and during the year it shows up in the farmer's total grocery and laundry expense for his family.

KEY QUESTION 8. How can we define "Labor Earnings"?

Labor earnings is the amount the farm operator has left for his labor and management after paying all attributable expenses. It is calculated by subtracting total farm expense, item 45, Table 2B, from total farm receipts, Table 2A, item 40.

The term "Labor Earnings" has recently been changed to a more descriptive term "Return to Operator's Labor and Management".

PART IV. Summary

- A. Table 2 shows items of cash income and expense for the whole farm operation.
- B. Table 2 shows not only cash income and expense from the farm, But also value of produce used on the farm, increase or decrease in total farm inventory, value of unpaid family labor and value of board furnished hired labor.

- C. Table 2 shows the amount the operator has left for his labor and management. This item is "Return to Labor and Management" (Labor Earnings).

PART V. At-the-Farm Activity

- A. Follow up Activity
If the student has his own farm record and analysis, check table 2 with him for accuracy or answer questions that may have come up after studying the table.
- B. Evaluation Exercise
Have students complete test at end of unit.

PART VI. Resources

Chalkboard/overhead projector
Transparencies: parts 1 & 2 of Table 2A & 2B
Study Guide: 10 questions on Table 2

PART VII. References

Farm/Ranch Management Education (a course of Study for Adults)
4th edition
Sample Farm IV Analysis 1976
Farm Business Analysis - Local Area, Latest edition
Documentation of Farm Business Analysis, Dr. Edgar A. Persons

PART VIII. Appendices

Part 1 & 2 of Table 2A & 2B
Study guide questions
Unit test

TABLE 2A - WHOLE FARM SUMMARY OF CASH RECEIPTS

1	SALE OF LIVESTOCK & LIVESTOCK PRODUCTS	
2	DAIRY COWS	\$ 5853
3	DAIRY PRODUCTS	57164
4	OTHER DAIRY CATTLE	814
5	BEEF BREEDING CATTLE	
6	BEEF FEEDER CATTLE	3451
7	HOGS COMPLETE & MIXED	27843
8	HOGS FINISHING	
9	HOGS PRODUCING WEANING PIGS	
10	SHEEP, GOATS & WOOL FARM FLOCK	
11	SHEEP & WOOL FEEDER LAMBS	
12	CHICKENS (INCLUDING HENS & BROILERS)	
13	TURKEYS	
14	EGGS	
15	OTHER PRODUCTIVE LIVESTOCK & PRODUCTS	
16	OTHER MISCELLANEOUS LIVESTOCK INCOME	
17	TOTAL SALES OF PRODUCTIVE LIVESTOCK	\$ 95125*

TABLE 2 A CONT.

18	SALE OF CROPS	
19	WHEAT	
20	OTHER SMALL GRAINS	
21	CORN	
22	SOYBEANS	\$ 3068
23	OTHER ROW CROPS	
24	LEGUMES & OTHER FORAGE	
25	GRASS SEED	
26	FRUITS & NUTS	
27	VEGETABLE ROADSIDE MARKET & SPECIALTY	
28	NURSERY, TIMBER & OTHER	
29	SET ASIDE ACRES-GOVERNMENT PAYMENTS	
30	TOTAL SALES FROM CROPS	\$ 3068*
31	CAPITAL ASSETS SOLD	
32	GAS TAX REFUND	637
33	INCOME FROM WORK OFF THE FARM	4111
34	CUSTOM WORK ENTERPRISE INCOME	
35	PATRONAGE REFUNDS	403
36	MISCELLANEOUS FARM INCOME	
37	TOTAL FARM SALES	\$ 103344*
38	INCREASE IN FARM CAPITAL	1053
39	FAMILY LIVING FROM THE FARM	1751
40	TOTAL FARM RECEIPTS (37) + (38) + (39)	\$ 106148*

TABLE 2B - WHOLE FARM SUMMARY OF CASH EXPENSES

1	PURCHASE OF LIVESTOCK	
2	DAIRY COWS	
3	OTHER DAIRY CATTLE	\$ 2150
4	BEEF BREEDING CATTLE	
5	BEEF FEEDER CATTLE	4982
6	HOGS COMPLETE & MIXED	
7	HOGS FINISHING	
8	HOGS PRODUCING WEANING PIGS	
9	SHEEP & GOATS	
10	SHEEP, FEEDER LAMBS	
11	CHICKENS (INCLUDING HENS & BROILERS)	
12	TURKEYS	
13	OTHER PRODUCTIVE LIVESTOCK	
14	MISCELLANEOUS LIVESTOCK EXPENSE	3636
15	FEED BOUGHT	11317
16	FERTILIZER	5412
17	CHEMICALS	1524
18	OTHER EXPENSE (CROP)	2220
19	IRRIGATION OPERATION COSTS	
20	CUSTOM WORK ENTERPRISE OPERATOR COSTS, INCLUDING LABOR	
21	CUSTOM WORK HIRED	2342
22	REPAIR & UPKEEP OF LIVESTOCK EQUIPMENT	209
23	REPAIR & UPKEEP OF FARM REAL ESTATE	312
24	GAS, OIL & GREASE BOUGHT (FARM SHARE)	4765
25	REPAIR & OPERATION OF MACHINERY, TRACTOR, TRUCK AND AUTO	2502
26	REPAIR & UPKEEP OF IRRIGATION EQUIPMENT	

TABLE 2B CONT.

27	REPAIR, CUSTOM WORK ENTERPRISE	
28	WAGES OF HIRED LABOR	10162
29	PERSONAL PROPERTY & REAL ESTATE TAXES	2187
30	GENERAL FARM EXPENSE	605
31	TELEPHONE EXPENSE (FARM SHARE)	233
32	ELECTRICITY EXPENSE (FARM SHARE)	1253
33	TOTAL CASH OPERATING EXPENSE	\$ 55811
34	POWER, CROP & GENERAL MACHINERY BOUGHT (FARM SHARE)	\$ 5450
35	IRRIGATION EQUIPMENT BOUGHT	
36	CUSTOM WORK EQUIPMENT BOUGHT	
37	LIVESTOCK EQUIPMENT BOUGHT	3350
38	NEW REAL ESTATE & IMPROVEMENT	9000
39	TOTAL FARM PURCHASES (33) thru (38)	\$ 73611*
40	DECREASE IN FARM CAPITAL	
41	INTEREST ON FARM CAPITAL	16392
42	UNPAID FAMILY LABOR	2000
43	LABOR CHARGE FOR PARTNERS & OTHER OPERATORS	
44	BOARD FURNISHED HIRED LABOR	1460
45	TOTAL FARM EXPENSE (39) thru (44)	\$ 93463*
46	LABOR EARNINGS (WHOLE FARM) (2A/40) - (45)	\$ 12685*
47	NUMBER OF OPERATORS	1

STUDY GUIDE - TABLE 2A & 2B

Whole Farm Summary of Cash receipts and Expenses

1. Why does this table include the sales of the landlord's share of produce also?
2. A particular farm shows sales of beef feeder cattle of \$20,000, and an increase in beef inventory of \$1,500 from beginning to end of year. Where will the \$1,500 show up in Table 2A?
3. Why doesn't the farmer use retail price for produce used on the farm by the family?
4. A farmer buys fertilizer for next year's crop and puts it on inventory until next year. Will the cost of that purchase show up on Table 2B?
5. A farmer uses fertilizer for this year's crop that was carried on inventory. Will the cost of that fertilizer show up on this table?
6. A farmer buys a tractor for \$20,000 and spreads the cost of that tractor over several years. Explain why the full cost of the tractor shows up on Table 2B the year he purchases it.
7. Why is the farm business charged 6 percent interest on the farm capital?
8. Explain what unpaid family labor is.
9. Why does the farmer charge the farm business for "board for hired labor"?
10. Define "Labor Earnings" or "Return to Operators Labor and Management."

B. Problems and Questions Table 2A & 2B

T F 1. Item 2 Dairy Cows on Table 2A also includes the sale of milk.

T F 2. Total sales of productive livestock, item 17, Table 2A does not include an increase or decrease in inventory of livestock.

T F 3. Capital assets sold, item 31, Table 2A also includes the sale of cull dairy cows.

T F 4. The increase in the farm capital, item 38, Table 2A does not include the increase in value of livestock.

T F 5. Family living from the farm is not the cost of purchasing similar produce from the grocery store but is the value of the produce if sold at market price.

T F 6. Items 2-13 in Table 2B does not include the total purchase price of livestock purchased during the year, but only the yearly cost attributed to that year.

T F 7. Items 34-38, Table 2B includes the full cost of the items purchased during the year in these categories.

8. Show how interest on investment is calculated if total farm capital at beginning of year is 272,672 and end of year it is 273,725 and interest is 6%.

$$\begin{array}{r} 272,672 \\ 273,725 \\ \hline 546,397 \div 2 = 273,198.5 \times .06 = \$16,392 \end{array}$$

T F 9. Unpaid family labor is \$2000. This also includes the operator's labor.

10. Total farm expense on Table 2B is \$81,709 and total farm receipts, Table 2A is \$99,928. The interest on farm capital is \$12,758. What is the Labor earnings (Return to Operator's Labor and Management)?

$$\begin{array}{r} 99,928 \\ -81,709 \\ \hline \$18,219 \end{array}$$

Unit 3 - Table 3

ENTERPRISE STATEMENT

PART I. Student Objectives

- A. Having had an opportunity to compare and discuss Table 3 and Table 2 for Sample Farm IV, students will be able to identify the difference between "Return and Net Increase" on Table 3 and cash receipts on Table 2.
- B. Students will be able to explain how the "Return Over Feed From All Livestock" is calculated.
- C. After a discussion of Sample Farm IV calculation of "Return and Net Increases From Crops", students will be able to identify the items of cost deducted from total returns from crops.
- D. Following a discussion and calculation of various "Expenses and Net Decreases" in Sample Farm IV, students will be able to set up a proposed format for making these calculations.

PART II. Transition of Units

The previous unit on Table 2 dealt with the cash receipts and cash expenses of the farm business including a total increase or decrease in farm capital. The residual or remainder is the "Return to Labor and Management".

The remainder in this unit, Table 3, is also "The Return to Labor and Management", but the increase or decrease in capital is included in each of the enterprises on the farm. In Table 2 the increases or decreases in capital is one item, a decrease under expense or an increase under income.

The first three units have dealt with "Whole Farm Tables". The following unit will deal with the first of the "operator's tables". The student should be made aware of the difference as you prepare to study the next unit.

PART III. The Lesson

Attention Focuser

Ask the students to determine the total returns from the dairy cow enterprise using both Table 2 and Table 3. Students will come up with a large difference between the "Return and Net Increases from Dairy Cows" on Table 3 and the cash receipts from dairy cows and dairy products on Table 2A. As they begin to question their answers, show how the two tables differ.

Using the Sample Farm IV calculation for Dairy Cows, show what items are included in the "Returns and Net Increases" from dairy and how this differs from Table 2A receipts only.

KEY QUESTION 1. How does this table differ from Table 2?

The enterprise statement is divided into two parts. The top half includes returns and net increases from each enterprise on the farm and the lower half includes expenses and net decreases from various parts of the farm business.

The principal difference between Table 3 and Table 2 is in the way the increase or decrease in value of farm capital is handled.

- a) In the cash statement, Table 2A, item 38, the increase in farm capital is shown as one item
- b) A decrease in farm capital would also be one item on the cash statement, but would show up on Table 2B, item 40.
- c) In the enterprise statement the increase or decrease in farm capital shows up in each of the individual enterprises and in the various parts of the farm business.

It should be noted that although the increase or decrease in inventory is handled differently in the two tables, the "Return to Labor and Management" is exactly the same in both tables.

KEY QUESTION 2. How is the "Returns and Net Increases for Livestock" calculated?

Below is an example of how the returns and net increases from dairy cows are calculated in Table 3, item 3, for Sample Farm IV. Returns and net increases for each livestock enterprise is calculated in a similar way.

Dairy Cow

Ending Inventory	25,200	Beginning Inventory	24,750
Transferred out	-----	Heifers transferred in	9,000
Cull cows sold	5,853	Cows purchased	-----
Butchered	-----	Total B	33,750
Milk sold	57,164		
Milk used in home	349	Total A	88,566
Milk fed	-----	Total B	- 33,750
Total A	88,566	Returns & net increases	
		from dairy cows	\$ 54,816

Note that beginning and ending inventories, sales of livestock, sale of product (milk), dairy cows purchased, transfers in and out, and dairy cows butchered are used in the calculation of returns and net increase from dairy cows.

KEY QUESTION 3. How is the "Return Over Feed From All Livestock" calculated?

Below is an example of how the return over feed from all livestock is calculated

Total returns and net increases from all livestock: item 15 = 92,399
Value of all feed fed to livestock: item 16 = - 69,577
Equals return over feed from livestock. 22,822

The value of "all feed fed to livestock" includes the value of all home grown feed, purchased feed, and pasture.

KEY QUESTION 4. How is the "Returns and Net Increases From Crops" calculated?

The calculations of returns and net increases from crops, item 18, is shown below.

<u>CROPS</u>			
Ending Inventory	38,281	Beginning Inventory	45,308
Sale of crops	3,068	Feed bought	11,317
Value of crops used in home	-----	Fertilizer bought	5,412
Value of all crops fed	69,577	Crop chem. bought	1,524
		Other crop expense	2,220
		Value of milk fed to calves	-----
		Irrigation operating costs	-----
Total A	110,926	Total B	65,781
Total A	110,926		
Total B	- 65,781		
	\$ 45,145	Crop, seed, and feed, item 18	

KEY QUESTION 5. Does Table 3 give one a clue as to the proportion of total returns coming from crops and the proportion coming from livestock?

The two items "Return Over Feed From All Livestock", item 17 and the "Return and Net Increase From Crops, Seed, and Feed", item 18, are good guides as to the proportion of income coming from livestock and the proportion coming from crops. The returns and net increases from livestock has the feed cost subtracted and the returns and net increases from crops has the fertilizer, chemicals and seed costs and irrigation operating costs subtracted.

Neither of the two items has a charge for machinery, equipment and buildings, and other costs deducted from earnings, but they do provide a clue as to which part of the farm business, livestock, or crops, is contributing the greatest returns and net increases to the farm business.

KEY QUESTION 6. How do expenses on this table differ from those on table 2?

Expenses and net decreases represent the total cost of operation for various parts of the farm business. For example, the truck and auto expense includes depreciation, repairs and gas, oil, and grease.

- a) Below is an example of how item 24, truck and auto expense and net decreases is calculated:

Beginning Inventory	3,419	Ending Inventory	5,264
Truck & auto bought (farm share)	3,750	Truck & auto sold (farm share)	-----
Custom work hired (truck share)	1,405	Income from work off the farm (truck share)	-----
Gas, oil, and grease Truck & auto (farm share)	749	Total B	<u>5,264</u>
Repair & operation Truck & auto (farm share)	429	Total A	9,752
Total A	<u>\$ 9,752</u>	Total B	<u>- 5,264</u>
			<u>\$ 4,488</u>

Truck and auto expense and net decreases, item 24

- b) Below is an example of how item 25, tractors and crop machinery expenses and net decreases is calculated:

Beginning Inventory	24,031	Ending Inventory	20,848
Custom work hired (Pow. & Machinery share)	-----	Power & crop mach. sold	-----
Power and crop machinery bought	1,700	Income from work off the farm (power & crop machinery)	3,050
Gas, oil and grease bought	4,016	Gas tax refund	637
Repairs and operation of power & crop mach.	2,073	Total B	<u>\$ 24,535</u>
Total A	<u>\$31,820</u>	Total A	31,820
		Total B	<u>- 24,535</u>
			<u>\$ 7,285</u>

Item 25, expense and net decrease for tractors & machinery.

- c) The expenses and net decreases for livestock equipment calculations are shown below:

Beginning Inventory	4,057	Ending Inventory	5,453
Custom work hired (live- stock equip. share)	-----	Income from work off farm (livestock equip share)	-----
Repair livestock equip.	209	Livestock equip sold	-----
Livestock equip. bought	3,350	Total B	<u>\$ 5,453</u>
Total A	<u>\$ 7,616</u>	Total A	7,616
		Total B	<u>- 5,453</u>
			<u>\$ 2,163</u>

Item 28, expense and net decrease for livestock equipment.

- d) The expenses and net decreases for buildings, fencing, and tiling are also shown below:

Beginning Inventory	45,275	Ending Inventory	50,642
Repair real estate (farm share)	312	Bldg. and fences sold	-----
Bldgs. and fences bought	9,000	Total B	<u>\$50,642</u>
Total A	<u>\$54,587</u>	Total A	54,587
		Total B	<u>- 50,642</u>
			<u>\$ 3,945</u>

Item 29, expense & net decrease for buildings and etc.

e) Total labor cost, item 32 is calculated as follows:

Wages hired	10,162	Income from work off the	
Unpaid family labor	2,000	farm (labor share)	1,061
Custom work hired		Total B	\$ 1,061
(labor share)	937		
Hired labor		Total A	14,559
boarded	1,460	Total B	-1,061
Total A	\$ 14,559		\$ 13,498

Expense and net decrease for labor,
item 32

PART IV. Summary

- A. The principal difference between Table 3 and Table 2 is in the way the increase or decrease in inventory is handled; in Table 2 the increase or decrease is handled as one item, in Table 3 the increase or decrease is applied to each individual enterprise or part of the farm business.
- B. In the section of Table 3 entitled "Return and Net Increases," one is given a clue as to the proportion of total returns coming from crops and the proportion coming from livestock.
- C. "Expenses and Net Decreases" represents the total cost of operation for various parts of the farm business.
- D. Although the method of calculation differs between Table 2 and 3, the "Return to Labor and Management" figure is the same.

PART V. At-The-Farm Activity

- A. Follow up activity
If the student has a home farm analysis, have him compare Table 2 and Table 3 and note the similarities and differences.
- B. Evaluation exercise
Have students take the unit test.

PART VI. Resources

Chalkboard/overhead projector
Transparencies: parts 1 & 2 of Table 3
Study Guide: Table 3 - enterprise statement 8 questions

PART VII. References

Farm/Ranch Management Education (a course of study for adults)
4th edition
Sample Farm IV Analysis 1976
Farm Business Analysis - Local Area, Latest Edition
Documentation of Farm Business Analysis, Dr. Edgar A. Persons

PART VIII. Appendices

Part 1 & 2 of Table 3
Study guide questions
Unit test

TABLE 3--ENTERPRISE STATEMENT

1	RETURNS & NET INCREASES	
2	PRODUCTIVE LIVESTOCK	
3	DAIRY COWS	\$ 54816
4	OTHER DAIRY CATTLE	9279
5	BEEF BREEDING CATTLE	
6	FEEDER CATTLE	1399
7	HOGS, COMPLETE & MIXED	26905
8	HOG FINISHING ENTERPRISE	
9	PRODUCING WEANING PIGS	
10	SHEEP & GOATS	
11	SHEEP, FEEDER LAMBS	
12	CHICKENS (INCLUDING HENS & BROILERS)	
13	TURKEYS	
14	OTHER PRODUCTIVE LIVESTOCK	
15	TOTAL ALL PRODUCTIVE LIVESTOCK	\$ 92399*
16	VALUE OF FEED FED TO LIVESTOCK	69577
17	RETURN OVER FEED FROM LIVESTOCK	22822
18	CROP, SEED & FEED	45145
19	COOPERATIVE PATRONAGE REFUNDS	403
20	MISCELLANEOUS FARM INCOME	
21	CUSTOM WORK ENTERPRISE	
22	TOTAL RETURNS & NET INCREASES	\$ 68370*
23	EXPENSES & NET DECREASES	
24	TRUCK & AUTO (FARM SHARE)	4488
25	TRACTORS & CROP MACHINERY	7285
26	IRRIGATION EQUIPMENT	
27	ELECTRICITY	1253

TABLE 3 CONT.

28	LIVESTOCK EQUIPMENT	2163
29	BUILDINGS, FENCES & TILING	3945
30	BARE LAND	
31	MISCELLANEOUS LIVESTOCK EXPENSE	3636
32	LABOR	13498
33	LABOR CHARGE FOR OTHER OPERATOR(S)	
34	PROPERTY TAX	2187
35	GENERAL FARM EXPENSE & TELEPHONE	838
36	INTEREST ON FARM CAPITAL	16392
37	TOTAL EXPENSES & NET DECREASES	\$ 55685*
38	LABOR EARNINGS	\$ 12685
39	NUMBER OF FARM OPERATORS	1

STUDY GUIDE - TABLE 3

Enterprise Statement

1. Why is this table called the "Enterprise Statement"?
2. Explain the principal difference between Table 2A and 2B and Table 3.
3. Explain how items 17 and 18 in Table 3 can be used to show the relative contribution to income from crops and livestock.
4. Why is feed subtracted to arrive at "Return Over Feed From Livestock" and fertilizer, chemical and seed subtracted to arrive at "Crop, Seed and Feed"?
5. Explain what the "Expense and Net Decrease for Truck and Auto" means to the farmer.
6. Explain how "Labor" on Table 3 differs from "Wages of Hired Labor" on Table 2B.
7. What items of expense are the same on Table 2B and Table 3?
8. Explain why the "Labor Earnings" (Return to Operators Labor and Management) figure is the same on Table 2B and Table 3, yet most of the figures for the various items are different in the two tables.

B. Questions - Table 3

- T F 1. Returns and net increases from dairy cows, item 3 Table 3 would be identical to item 2 dairy cows on Table 2A.
- T F 2. The return and net increases from hogs, item 7 Table 3 would include everything except the increase or decrease in inventory of hogs.
- T F 3. The purchase of dairy cows would included in item 3 (returns and net increases from dairy cows) on Table 3.
- T F 4. Value of feed fed to livestock, item 16 Table 3, does not include feed purchased.
- T F 5. The cost of fertilizer, chemical and seed are subtracted to arrive at returns and net increases from crop seed and feed, item 18 Table 3.
- T F 6. Expenses and net decreases for truck and auto, item 24 Table 3 includes repairs for truck and auto.
- T F 7. Expenses and net decreases for tractors and crop machinery includes the cost of gas, oil and grease.
- T F 8. Expenses and net decreases for buildings, fences, and tiling, item 29 would also include the purchase of a new barn in its calculation.
- T F 9. Expenses and net decreases for labor, item 32 would include the labor share of custom work hired.
- T F 10. Interest on farm capital, item 36 Table 3, would be identical to interest on farm capital, item 41 Table 2B.

PART I. Student Objectives

- A. Students will be able to identify the main reasons for keeping household accounts.
- B. Following a discussion of the household accounts as they relate to the farm business, students will recognize how household spending is in competition for money available to expand and develop the farm business.
- C. Students will be able to recognize the reason for assigning "Adult Equivalents" to each member of the family.
- D. Students will be able to explain why it is important to include home-raised produce in household accounts.

PART II. Transition of Units

The last unit dealt with the whole farm table, the enterprise statement. It included both income and expense for the total farm operation and the residual was the "Return to the Operator's Labor and Management."

This unit deals with the first of the operator's tables, which is the household and personal share of expenses and is for the operator's share only. This unit will emphasize that although household expenses are not unique to farming alone, they are a most important part of record keeping, since these expenses have to be met first.

The unit that follows deals with Table 5 which is also an operator's table and is a most important part of the total farm analysis report. It is the only table that really indicates how a farmer is progressing financially from year to year.

PART III. The Lesson

Attention Focuser

Ask each student to put down on a piece of paper their estimate of total family living costs for a family of five. Compare these figures with the averages, the high income group, and the low income group in your area analysis report. The discussion should reveal the fact that there is a wide range between families in the cost of living and the only accurate way to determine cost of living is to keep household accounts.

KEY QUESTION I. Why is it important to keep household accounts?

Family living is another expense that competes for available dollars just as various farm expenses do. Therefore, it is very important for beginning families to know how much of their income is being spent for living. One of the tests of a young farm family's management ability comes when household goods are bought. Too much money spent on lavish furnishings and finer things for the home in the early years may seriously limit the amount of capital available for the developing business and therefore the future income of the family.

It takes good management on the part of the family to decide how much money will furnish the home comfortably and still leave enough for important farm investments. The young farm family will soon learn that there will be time when family living wants and desires will be in direct competition with farm operation needs for whatever money is available.

KEY QUESTION 2. How can we compare families of different sizes and ages?

It is important to know the number in the family and also the ages of members in the family for comparison with other groups. Younger children usually require less for family living than do the older children.

A number of years ago the University of Minnesota developed a method of assigning adult equivalents to a family depending on their age and sex. This method is as follows:

Adult Equivalents Per Person

Children under 7 years	.4
Children 7 - 12 years	.6
Girls 13 - 18 years	.8
Boys 13 - 18 years	.9
Women	.8
Men	1.0

Because the size of families and the ages of families vary considerably it is more meaningful to compare on the basis of adult equivalents than by total family expense.

KEY QUESTION 3. Why are purchases of auto, trucks, and dwelling and investments charged to household?

Items 7, 17, 18, and 20 may be investments that should be charged over a period of years rather than one year. However, these expenses need to be accounted for in total since an accurate cash check cannot be made otherwise.

KEY QUESTION 4. Why is family living from the farm on this table?

Family living from the farm should be accounted for. A family that uses large amounts of meat, milk, and eggs and other farm produce should consider the market price of these products. If they had not been consumed they could have been sold and these returns would have added to gross income. On the other hand, if they had not gotten them from the farm they would have had to purchase a like amount and this would added to the family living cost.

PART IV. Summary

- A. There is a wide variation between families in total living cost, therefore, it is extremely important for each family to keep household accounts so they know how much of their income is required for living.

- B. Assigning adult equivalents to each member of the family makes it possible to compare living costs for families of unequal size on the basis of costs per adult equivalent.
- C. Including the value of family living from the farm on this table makes a comparison possible among families that buy all their food with those who raise a large portion of their food on the farm.

PART V. At-the-Farm Activity

- A. Follow up Activity
If students have a home farm family living record, have them make comparisons with the Sample Farm IV or the averages for various items.
- B. Evaluation Exercise
Have students take the unit test

PART VI. Resources

Chalkboard/overhead projector
Transparencies: part 1 & 2 of Table 4
Study Guide: Table 4 Household Expenses 5 questions

PART VII. References

Farm/Ranch Management Education (a course of Study for Adults)
4th edition
Sample Farm IV Analysis with area averages
Farm Business Analysis - Local Area, Latest edition
Documentation of Farm Business Analysis, Dr. Edgar A. Persons

PART VIII. Appendices

Part 1 & 2 of Table 4
Study guide questions
Unit test

TABLE 4 - HOUSEHOLD EXPENSE -

	TOTAL	PER ADULT EQUIVALENT
1 NUMBER OF PERSONS - FAMILY	4	
2 NUMBER OF ADULT EQUIVALENTS - FAMILY	3.0	
3 CHURCH & WELFARE	\$ 566	188.67
4 MEDICAL CARE & HEALTH INSURANCE	1438	479.33
5 FOOD & MEALS BOUGHT	2429	809.67
6 OPERATING EXPENSE AND SUPPLIES	849	283.00
7 FURNISHINGS & EQUIPMENT	2252	750.67
8 CLOTHING & CLOTHING MATERIALS	981	327.00
9 PERSONAL CARE, PERSONAL SPENDING	266	88.67
10 EDUCATION	49	16.33
11 RECREATION	509	169.67
12 GIFTS & SPECIAL EVENTS	287	95.67
13 PERSONAL SHARE TRUCK & AUTO EXPENSE	388	129.33
14 OPERATOR SHARE UPKEEP ON DWELLING	36	12.00
15 PERSONAL SHARE TELEPHONE & ELECTRICITY EXPENSE	371	123.67
16 TOTAL CASH LIVING EXPENSE	\$ 10421	3473.67*
17 PERSONAL SHARE NEW TRUCK & AUTO	1250	416.67
18 NEW DWELLING BOUGHT	1500	500.00
19 TAXES AND OTHER DEDUCTIONS	1584	528.00
20 LIFE INSURANCE & OTHER SAVINGS AND INVESTMENTS		
21 TOTAL HOUSEHOLD & PERSONAL (16) - (20)	\$ 14755	4918.33*
22 TOTAL FAMILY LIVING FROM THE FARM (33)	1751	583.67
23 TOTAL CASH & NON-CASH EXPENSES (21) + (22)	16506	5502.00*

TABLE 4 CONT.

FAMILY LIVING FROM THE FARM

	Quantity	Oper. Share
25		
26 MILK & CREAM (QUARTS)	1745	349
27 BEEF & BUFFALO (POUNDS)	2000	650
28 PORK (POUNDS)	1530	752
29 LAMB, MUTTON, GOAT (POUNDS)		
30 POULTRY, ALL FOWL (POUNDS)		
31 EGGS (DOZEN		
32 VEGETABLES, FRUITS, SPUDS, & FUEL -ALSO OTHER PRODUCE		
33 TOTAL FAMILY LIVING FROM THE FARM		\$ 1751*

STUDY GUIDE - TABLE 4

Household Expense

1. Why is it important for a family to know how much money is needed for living expenses?
2. What use does the number of family members and their ages have in the Household Expense Table?
3. There are several items in this table where the full expense is shown in the year of purchase, yet the items purchased may be used for several years. What items are they?
4. Why is it important for a family to list the amount and values of farm produce used in the home?
5. Why is this table for the operator only?

B. Questions - Table 4

- T F 1. Children under 7 years of age are disregarded in arriving at adult equivalents.
- T F 2. Sex has no bearing on the determination of total adult equivalents in a family.
- T F 3. In comparing living expenses with various groups it is more accurate to use adult equivalents than total expenses of a family.
- T F 4. Food and meals bought, item 5, also includes family living from the farm.
- T F 5. The personal share of new truck and auto includes the total personal share of that item rather than the yearly charge.
- T F 6. If a new dwelling was built, the total expense would be listed rather than the annual expense.
- T F 7. Family living from the farm includes milk at the price you would pay for it at a grocery store.
- T F 8. If you chop or saw your own wood for fuel, it should be considered as a part of family living from the farm.
- T F 9. This table also includes the landlords share of expenses.
- T F 10. It is important to know what your household and personal expenses are because these expenses need to be met first.

Unit 5 - Table 5

NET WORTH STATEMENT

PART I. Student Objectives

- A. Following an inspection and discussion of the Sample Farm IV Net Worth Statement, students will be able to calculate "Net Worth" and "Increase in Net Worth" for a hypothetical situation.
- B. The student will be able to identify the two major items of income available to the farmer for increasing net worth and household spending.
- C. Students will be able to recognize and differentiate between the various ratios in the net worth statement with respect to the purpose and use to the farmer.

PART II. Transition of Units

The previous unit was concerned with the importance of keeping household records and their value in providing a complete and accurate record and analysis.

This unit deals with another operator's table and is likewise an important part of the total farm record and analysis. It will emphasize the importance of Table 5 in showing financial progress during the year and from year to year.

The unit which follows will be concerned with Table 6, which is another operator's table. It will deal with the similarities and differences of this table and Table 2 of the report.

PART III. The Lesson

Attention Focuser

Most students have some assets that they claim as their own such as clothes, jewelry, watches, guns, bikes, autos, etc. Have the students list their assets on one side of a sheet of paper, and if they have liabilities, ask them to list these on the other side of the paper. Total each side and subtract liabilities from assets. This exercise will show the student how net worth is calculated. Some students will have a larger net worth than others. An interesting discussion may evolve as to how one increases net worth from year to year.

KEY QUESTION I. Is this an operator's or whole farm statement?

This is another operator's statement and does not include any landlord share.

This table shows the progress from year to year in terms of net worth.

The table also shows the operator's share of total farm capital. Table 1 shows the total farm capital while Table 5 shows the operator's share.

Items 1 through 5 show the operator's distribution of farm capital in the various parts of the farm business.

KEY QUESTION 2. How is the farmer's net worth calculated?

The farmer's net worth and increase in net worth is calculated as follows:

	January 1	December 31
Total Assets	\$ 262,778	\$ 268,506
Total Liabilities	- 72,068	-66,684
Farmers Net Worth	\$ 190,710	\$ 201,822
	Net Worth Dec. 31	\$ 201,822
	Net Worth Jan. 1	- 190,710
	Increase in Net Worth	\$ 11,112

KEY QUESTION 3. What income is actually available to the operator for increasing his net worth and family spending?

The return to capital and family labor plus the non-farm income is the total income available to the family for increasing their net worth and for household and personal expense. In the Sample Farm IV example this is shown as follows:

Item 16 - Gain in Net Worth	\$11,112
Item 27 - Total Household & Personal Cash/non-cash Expense (4/23)	16,506
Sum of 16 and 27	<u>27,618</u>
Item 23 - Total Family Farm and non/farm Income	23,206
Difference	<u>\$ 4,412</u>

The difference is found in checking items 7, 17, and 18 in Table 4. These are items of a capital nature and need to be adjusted so they reflect only the annual cost rather than the full cost. The difference may be an error in the records or an adjustment necessary in household and personal records to reflect only the expense attributable to this year. Below is the remaining cost to be assigned to future years.

Item 7 - Household furnishings	2,027
Item 17- Personal Share of truck and auto bought	908
Item 18- New Dwelling	1,500
	<u>\$ 4,435</u>

The difference now is only \$23 (\$4435 - \$4412), which is a very small error.

KEY QUESTION 4. What ratios are useful to the farmer in evaluating his business?

Items 28 - 35 are ratios that may be used by the farmer in evaluating the financial situation on his farm.

a. Item 28 - The Ratio of Total Farm Expense to Total Farm Receipts.

Sometimes called the Gross Ratio, it expresses the percentage of each dollar of income consumed by expenses. It is calculated by dividing item 46, Table 6B by item 40, Table 6A.

$$\$95049 \div \$106148 = .895$$

b. Item 29 - The Ratio of Total Assets to Total Liabilities.

Sometimes called the Net Capital Ratio, it measures the degree of financial safety in the farm business. It shows the number of dollars in assets available to cover each dollar of debt. It is calculated by dividing item 9 by item 14 both at the beginning and end of the year. The end of year calculation is:

$$\$268506 \div \$66684 = 4.027$$

c. Item 30 - The Ratio of Non-Real Estate Assets to Non-Real Estate Liabilities.

Sometimes called the Intermediate Ratio, it is calculated by dividing the sum of items 1, 2, 3, and 7 by the sum of items 11, 12, and 13. The end of year calculation is:

\$ 52,820			
38,281			
31,565		\$14,874	
22,781		110	
<u>\$145,447</u>	\div	<u>\$14,984</u>	$= 9.707$

The farmer has \$9.71 in assets to cover each dollar of debt.

d. Item 31 - The Ratio of Real Estate Assets to Real Estate Liabilities.

Lending agencies are often interested in the relationship of item 30 to 31. If real estate is purchased and put on short term loans instead of real estate long term loans, the farmers cash flow may not be sufficient to cover the operating expenses plus payments on the loans. Therefore, it is important to take the loan out for the proper term so payments may be spread out.

This ratio is calculated by dividing the sum of items 4, 5, and 8 by item 10. This calculation is shown below for the end of the year:

\$ 58,417			
50,642			
14,000			
<u>\$ 123,059</u>	\div	<u>\$51,700</u>	$= 2.380$

The farmer has \$2.38 in Real Estate assets to cover each dollar of real estate debt.

e. Item 32 - The Ratio of Net Worth to Total Liabilities.

This is a ratio of owners equity to his total debt. It expresses the percentage of his liabilities that are covered by net worth. The calculations for the end of the year are:

$$\$201,822 \div \$66,684 = 3.027$$

The farmer has \$3.03 in net worth to cover each dollar of debt.

f. Item 33 - The Ratio of Cash Operating Expense to Adjusted Total Farm Sales.

This ratio differs from the ratio in item 28 in that it does not include the sale or purchase of capital assets. It is calculated by dividing item 35, Table 6B by item 41, Table 6A.

$$\$66,827 \div \$103,344 = .647$$

It shows the proportion of each dollar's worth of adjusted farm sales consumed by cash operating expense.

g. Item 34 - The ratio of Total Farm Receipts to Average Farm Capital-Whole Farm.

Sometimes called the Capital Turnover Ratio, it indicates to the farmer the amount of gross income received for each dollar's worth of capital used in the business. It is calculated by dividing item 40, Table 2A by the average total farm capital in Table 1.

$$\$106,148 \div \$273,199 = .389$$

h. Item 35 - The Ratio of Total Farm Receipts to Average Farm Capital-Operator's Share.

This ratio is the same as item 34 except it is for operator's share only and will not be the same as the whole farm business if an operator is renting some land. It is calculated by dividing item 40, Table 6A by the operator's average farm capital on Table 5.

$$\$106,148 \div \$231,199 = .459$$

PART IV. Summary

- A. The net worth statement, Table 5 is the best single table in the analysis report for indicating progress made during the year and from year to year.
- B. The "Return to Capital and Family Labor" plus "Non-Farm Income" is the amount the farmer has available during the year to increase his net worth and to spend for living expense.
- C. The Net Worth Statement contains a number of ratios that have been developed and used by credit people as signals of favorable or unfavorable performance and safety in the business.

- D. Ratios have their greatest value as indicators of progress and safety on each individual farm. They should be used with caution in making comparisons with other farms or groups.

PART V. At-The-Farm Activity

- A. Follow up Activity
If students have a home farm record that includes a net worth statement, check it over with them and help them with the interpretation of the ratios.
- B. Evaluation Exercise
Have students take the unit test

PART VI. Resources

Chalkboard/overhead projector
Transparencies: part 1 & 2 of Table 5
Study Guide: Table 5-Net worth statement-operator, 10 questions

PART VII. References

Sample Farm IV Analysis with area averages
Farm Business Analysis-Local Area, Latest edition
Nelson, Aaron G. and William G. Murry, Agricultural Finance,
Iowa State University Press, Ames, IA, 1967
Farm/Ranch Management Education (a course of Study for Adult)
4th edition
Documentation of Farm Business Analysis, Dr. Edgar A. Persons

PART VIII. Appendices

Part 1 & 2 of Table 5
Study guide questions
Unit test

TABLE 5 - NET WORTH STATEMENT -OPERATOR

	Jan. 1	Dec. 31
1 TOTAL PRODUCTIVE LIVESTOCK	\$ 50165	52820
2 CROP, SEED & FEED	45308	38281
3 TOTAL POWER, MACHINERY & EQUIPMENT	31507	31565
4 LAND	58417	58417
5 BUILDINGS, FENCES, ETC.	45275	50642
6 TOTAL FARM CAPITAL	\$ 230672	231725*
7 NON-FARM ASSETS	19606	22781
8 DWELLING	12500	14000
9 TOTAL ASSETS	\$ 262778	268506
10 REAL ESTATE MORTGAGES	56700	51700
11 CHATTEL MORTGAGES		
12 NOTES	15008	14874
13 ACCOUNTS PAYABLE	360	110
14 TOTAL LIABILITIES	\$ 72068	66684*
15 FARMER'S NET WORTH	190710	201822*
16 GAIN (OR LOSS) IN NET WORTH		\$ 11112*
17 SUPPLEMENTARY MANAGEMENT INFORMATION		
18 OPERATOR'S LABOR EARNINGS (6B/47)	\$ 11099	
19 RETURN TO CAPITAL & FAMILY LABOR (6B/48)	20061	
20 NON-FARM INCOME		
21 OUTSIDE INVESTMENT INCOME	205	
22 OTHER PERSONAL INCOME & INCOME TAX REFUND	2940	
23 TOTAL FAMILY FARM & NON-FARM INCOME	23206	
24 TOTAL NON-FARM INCOME	3145	

STUDY GUIDE - TABLE 5

Net Worth Statement - Operator

1. Why doesn't this table include landlord's share?
2. If this table shows only the operator's share of capital invested in the farm, how could we determine the landlord's share of the farm capital invested?
3. Explain how a farmer's net worth is calculated.
4. Why are non-farm assets and liabilities included in calculating net worth?
5. The total amount of money the farmer has for increasing his net worth and personal and household spending is the sum of two figures on this table. What are they?
6. A farmer has a .80 ratio of total farm expense to total farm receipts, what does this mean?
7. Another farmer has a ratio of total assets to total liabilities of 4.25, what does this mean?
8. What are non-real estate assets?

What are non-real estate liabilities?
9. What are the real estate assets on a farm?

What are the real estate liabilities?
10. What importance does the ratio of total farm receipts to average farm capital have for the farmer?

25.	TOTAL MONEY BORROWED	4300	
26.	TOTAL PAID ON DEBT (PRINCIPLE)	9684	
27.	TOTAL HOUSEHOLD & PERSONAL CASH/NON-CASH EXP. (4/23)	16506	
28	RATIO: TOTAL FARM EXP. TO TOTAL FARM RECEIPTS (o.s.)	.895	
		Jan. 1	Dec. 31
29	RATIO: TOTAL ASSETS TO TOTAL LIABILITIES	3,646	4,027
30	RATIO: NON-REAL ESTATE ASSETS -NON-REAL ESTATE LIABILITIES	9,538	9,707
31	RATIO: REAL ESTATE ASSETS TO REAL ESTATE LIAB.	2,049	2,380
32	RATIO: NET WORTH TO TOTAL LIABILITIES	2,646	3,027
33*	RATIO: CASH OPERATING EXPENSES TO ADJ. TOT. FARM SALES (O.S.)		.647
34	RATIO: TOTAL FARM RECEIPTS TO AVERAGE FARM CAPITAL (W.F.)		.389
35	RATIO: TOTAL FARM RECEIPTS TO AVERAGE FARM CAPITAL (O.S.)		.459

*ADJUSTED TOTAL FARM SALES DOES NOT INCLUDE SALE OF CAPITAL ASSETS

B. Questions - Table 5

- T F 1. Item 6, total farm capital also includes the landlord's share.
- T F 2. Non-farm assets would also include a house in town owned by the farmer.
- T F 3. Real Estate mortgages, item 10 would not include a mortgage on a house in town.
- T F 4. Item 15, farmer's net worth, includes only the net worth pertaining to the farm.
- T F 5. Table 5 gives the best clue of any of the tables in the analysis report as to a farmer's financial progress from year to year.
- T F 6. The ratio of total farm expense to total farm receipts indicates how much out of every dollar of income is consumed by expense.
- T F 7. The ratio of total assets to total liabilities indicates to the farmer how much he has to cover each dollar of debt.
- T F 8. The ratio of real estate assets to real estate liabilities would include farm machinery.
- T F 9. The ratio of net worth to total liabilities expresses the proportion of each dollar of income covered by liability.
- T F 10. The ratio of total farm receipts to average farm capital indicates the amount of gross income received for each dollar's worth of capital used in the business.

Unit 6 - Table 6A & 6B

OPERATOR'S SHARE OF CASH RECEIPTS AND EXPENSE

PART I. Student Objectives

- A. After comparing Tables 2A & 2B with 6A & 6B of Sample IV, students will be able to identify differences between the two.
- B. Students will be able to differentiate between "Return to Labor and Management" and "Return to Capital and Family Labor".

PART II. Transition of Units

The previous lesson directed attention to the ways in which one can increase net worth and the importance of the Net Worth Statement in the total analysis report.

This unit will again be concerned with income and expense from the farm, but only for the "operator's" share. Table 1, 2, and 3 were dealing with "whole-farm" business.

The unit which follows, while not a part of the farm's preliminary report, does provide information needed in interpreting the entire analysis report.

PART III. The lesson

Attention Focuser

Having studied and discussed Table 2A & 2B in Unit 2, students will probably remember how "interest on farm capital", item 41, Table 2B was arrived at. Ask them to try and determine how "interest on farm capital" item 43, Table 6B is figured.

After a few minutes have been allowed to try to work this out, show them how actual interest paid by the operator and interest on equity both are used in this table.

KEY QUESTION 1. How does this table differ from Table 2A & 2B?

This table shows only the operator's share of income and expense.

If the operator is an owner and rents no land, there is very little difference between this table and Tables 2A & 2B.

One difference in this table from 2A is that item 41, "adjusted total farm sales," item 42, "total cash farm operating expense," and item 43, "net cash operating income," appear on this table but not on Table 2A.

On the expense side, Table 6B, there are a number of differences:

- a. only the operator's real estate tax is included in Table 6B.
- b. cash rent is an item on Table 6B, but it is not on Table 2B.
- c. Interest expense (interest actually paid) by the operator appears in item 34, Table 6B but not in Table 2B. In Table 2B the interest appears as one item and is a 6 percent charge on the average total farm capital from Table 1. In Table 6B the interest appears in two places, item 34, Table 6B interest expense is the actual interest paid and item 43, Table 6B is the interest charged on the operator's equity. The sum of these two items is equal to 6 percent of the farm operator's average farm capital found in Table 5.

Example:

Item 34, Table 6B	Interest expense	\$ 6,910
Item 43, Table 6B	Interest on farm capital	6,962
		<u>\$13,872</u>

From Table 5 we find the operator's average farm capital

$$\$231,199 \quad \times \quad .06 \quad = \quad \$13,872$$

KEY QUESTION 2. What is the "Return to Capital and Family Labor"?

The Return to Capital and Family Labor (Table 6B) represents the amount available for debt service, living expense, and savings. Calculation is as follows:

Item 47	Labor Earnings (operator's share)	\$ 11,099
Item 44	Unpaid family labor	2,000
Item 43	Interest on farm capital (equity)	6,962
Item 48	Return to capital & family labor	<u>\$ 20,061</u>

PART IV. Summary

- A. Table 6 is the statement of cash income and expense for the operator only.
- B. Table 6 is the only table that shows the return to the operator's Labor and Management if the total farm operation includes rented land.
- C. This table shows Return to the Operator's Labor and Management, but it also shows the "Return to Capital and Family Labor." This is the amount that is available for debt service, living expense and savings.

PART V. At-the Farm Activity

- A. Follow up Activity
If the student has a home farm record and analysis, check Table 6 with him.
- B. Have student take the unit test.

PART VI. Resources

Chalkboard/overhead projector

Transparencies: parts 1 & 2 of Table 6A & 6B

Study Guide: Table 6 5 questions

PART VII. References

Farm/Ranch Management Education (A Course of Study for Adults)
4th edition

Sample Farm IV Analysis with averages

Farm Business Analysis Report-Local Area, latest edition

Documentation of Farm Business Analysis, Dr. Edgar A. Persons

PART VIII. Appendices

Part 1 & 2 of Table 6A & 6B

Study guide questions

Unit test

TABLE 6A - OPERATORS SHARE OF CASH RECEIPTS

1	SALE OF LIVESTOCK & LIVESTOCK PRODUCTS	
2	DAIRY COWS	\$ 5853
3	DAIRY PRODUCTS	57164
4	OTHER DAIRY CATTLE	814
5	BEEF BREEDING CATTLE	
6	BEEF FEEDER CATTLE	3451
7	HOGS COMPLETE & MIXED	27843
8	HOGS FINISHING	
9	HOGS PRODUCING WEANING PIGS	
10	SHEEP, GOATS & WOOL, FARM FLOCK	
11	SHEEP & WOOL, FEEDER LAMBS	
12	CHICKENS (INCLUDING HENS & BROILERS)	
13	TURKEYS	
14	EGGS	
15	OTHER PRODUCTIVE LIVESTOCK & PRODUCTS	
16	OTHER MISCELLANEOUS LIVESTOCK INCOME	
17	TOTAL SALES OF PRODUCTIVE LIVESTOCK	\$ 95125*
18	SALE OF CROPS	
19	WHEAT	
20	OTHER SMALL GRAIN	
21	CORN	
22	SOYBEANS	\$ 3068
23	OTHER ROW CROPS	
24	LEGUMES & OTHER ROUGHAGE	
25	GRASS SEED	

TABLE 6A CONT.

26	FRUITS & NUTS	
27	VEGETABLES, ROADSIDE MARKET & SPECIALTY	
28	NURSERY, TIMBER & OTHER	
29	SET ASIDE ACRES - GOVERNMENT PAYMENTS	
30	TOTAL SALES FROM CROPS	\$ 3068*
31	CAPITAL ASSETS SOLD	
32	GAS TAX REFUND	637
33	INCOME FROM WORK OFF THE FARM	4111
34	CUSTOM WORK ENTERPRISE INCOME	
35	PATRONAGE REFUNDS	403
36	MISCELLANEOUS FARM INCOME	
37	TOTAL FARM SALES	\$103344*
38	INCREASE IN FARM CAPITAL	1053
39	FAMILY LIVING FROM THE FARM	1751
40	TOTAL FARM RECEIPTS (37) + (38) + (39)	\$ 106148
41	ADJUSTED TOTAL FARM SALES (37) - (31)	103344
42	TOTAL CASH FARM OPERATING EXPENSE	66827
43	NET CASH OPERATING INCOME	\$ 36517*

TABLE 6B - OPERATOR'S SHARE OF CASH EXPENSES

1	PURCHASE OF LIVESTOCK	
2	DAIRY COWS	
3	OTHER DAIRY CATTLE	\$ 2150
4	BEEF BREEDING CATTLE	
5	BEEF FEEDER CATTLE	4982
6	HOGS COMPLETE	
7	HOGS FINISHING	
8	HOGS PRODUCING WEANING PIGS	
9	SHEEP, FARM FLOCK	
10	SHEEP, FEEDER LAMBS	
11	CHICKENS	
12	TURKEYS	
13	OTHER PRODUCTIVE LIVESTOCK	
14	MISCELLANEOUS LIVESTOCK EXPENSE	3636
15	FEED BOUGHT	11317
16	FERTILIZER	5412
17	CHEMICALS	1524
18	OTHER CROP EXPENSE	2220
19	IRRIGATION OPERATION COST	
20	CUSTOM WORK OPERATOR COSTS, INCLUDING LABOR	
21	CUSTOM WORK HIRED	2342
22	REPAIR & UPKEEP OF LIVESTOCK EQUIPMENT	209
23	REPAIR & UPKEEP OF FARM REAL ESTATE	312
24	GAS, OIL, GREASE BOUGHT (FARM SHARE)	4765
25	REPAIR & OPERATION OF MACHINERY, TRACTOR, TRUCK AUTO (F.S.)	2502
26	REPAIR & UPKEEP OF IRRIGATION EQUIPMENT	

TABLE 6B CONT.

27	REPAIR, CUSTOM WORK ENTERPRISE	
28	WAGES OF HIRED LABOR	10162
29	PERSONAL PROPERTY & REAL ESTATE TAXES	1543
30	CASH RENT	4745
31	GENERAL FARM EXPENSES	605
32	TELEPHONE EXPENSE (FARM SHARE)	233
33	ELECTRICITY EXPENSE (FARM SHARE)	1253
34	INTEREST EXPENSE	6910
35	TOTAL CASH OPERATING EXPENSE	\$66827*
36	POWER, CROP & GENERAL MACHINERY BOUGHT (FARM SHARE)	5450
37	IRRIGATION EQUIPMENT BOUGHT	
38	CUSTOM WORK ENTERPRISE EQUIPMENT BOUGHT	
39	LIVESTOCK EQUIPMENT BOUGHT	3350
40	NEW REAL ESTATE & IMPROVEMENTS	9000
41	TOTAL FARM PURCHASES (35) thru (40)	\$ 84627*
42	DECREASE IN FARM CAPITAL	
43	INTEREST ON FARM CAPITAL (EQUITY)	6962
44	UNPAID FAMILY LABOR	2000
45	BOARD FURNISHED HIRED LABOR	1460
46	TOTAL FARM EXPENSE (41) thru (45)	\$ 95049*
47	LABOR EARNINGS (OPERATOR'S SHARE) (6A/40) - (46)	11099*
48	RETURN TO CAPITAL & FAMILY LABOR (47) + (44) + (43)	20061

STUDY GUIDE - TABLE 6A - 6B

Operator's share of cash receipts and expenses

1. If a farmer is an owner-operator and does not rent additional land, this table resembles quite closely another table. What is it?
2. If a farmer is cash renting his farm, the landlord's taxes and interest on investment are shown on Table 2B. What corresponding operator's expense would be shown on Table 6B?
3. A farmer has interest expense on item 34, Table 6B of \$5,000 and interest on farm capital, item 43, Table 6B of \$4,000, rate of interest on investment is at 6 percent. What was the total amount of investment in the farm?
4. A farmer's labor earnings is \$12,000, unpaid family labor is \$1,000 and interest on farm capital (equity is \$7,000. His interest actually paid was \$4,000. What was his return to capital and family labor?
5. Why don't we have "Return to Capital and Family Labor" on Tables 2 and 3?

B. Questions - Table 6A and 6B

- I F 1. This table does not include the landlord's share of receipts and expenses.
- I F 2. Only the operator's share of personal property and real estate tax appear here.
- I F 3. Cash rent paid appears on Table 6B but not on Table 2B.
- I F 4. Net cash operating income appears on Table 6A but not on Table 2A.
- I F 5. Interest expense on Table 6B appears in two places, one the actual interest expense and the other the interest charged on the farmer's equity.
- T F 6. Repair and upkeep of farm real estate does not appear on Table 6B.
- I F 7. The interest on farm capital is added back to get "Return to Capital and Family Labor."
- I F 8. Unpaid family labor is added back to get "Return to Capital and Family Labor."
- T F 9. Board furnished hired labor is also added back to get "Return to Capital and Family Labor".
- T F 10. "Labor Earnings" (Return to Operator's Labor and Management) on Table 6B will always be the same as on Table 2B.

Unit 7 - Table 7

WORK UNITS FOR CROPS, LIVESTOCK, AND WORK OFF THE FARM

PART I. Student Objectives

- A. Students will be able to define a "work unit".
- B. Following a discussion and inspection of various tables in the Sample IV report, students will be able to identify at least 10 different places where the work unit is used in the analysis report.
- C. Students will be able to distinguish between a "work unit" and "livestock units".

PART II. Transition of Units

The previous unit was concerned with the "operator's income and expense" and directed attention to the similarities and differences between Tables 2 & 6.

This unit will deal with Table 7 which lists the work unit values of crops, livestock, and labor off the farm. It also gives animal unit values for each type of animal on the farm.

The unit which follows will direct attention to the various measures of farm organization. These measures indicate how well the individual farmer performed compared to the other farmers in the particular analysis area.

PART III. The Lesson

Attention Focuser

From the master copy in the appendices, make enough copies of the sheet "calculating total work units". Distribute a copy to each class member and ask them to use the individual crops tables and individual livestock tables and calculate the total work units on Sample Farm IV. (They will be able to calculate labor off the farm from computer worksheet 2 in the appendix, Line 451.)

KEY QUESTION 1. What is the purpose of this table?

This table appears only in the analysis summary of averages and does not appear in the individual farm report.

The table provides work unit values for each type of livestock, each crop raised on the farm and work done off the farm.

Total work units indicate the size of a farm business. As a result of research, work unit values have been assigned to each of the items listed on the table. The work unit values are used in computing the total work units on each individual farm business. A work unit represents the accomplishment of a worker in a 10 hour day.

KEY QUESTION 2. Where is the work unit used in this report?

The work unit is used in a number of tables throughout the analysis report. Below are the tables where the work unit appears:

- a. Table 1, Items 3, 4, 5, and 6
- b. Table 8, Items 7, 8, 32, 33, and 34
The work unit is also used in calculating item 9, and items 36-40 in Table 8.
- c. All crop tables - Item 26
- d. The work unit is also used as a factor in computing various allocated costs throughout the crop and livestock tables.

KEY QUESTION 3. What are animal units?

Accompanying Table 7 is a table listing the animal unit value for each class of livestock. Animal units are used to indicate the concentration of livestock for each 100 acres. Item 6 on Table 8 gives the number of livestock units per 100 acres of tillable land and non-tillable pasture.

Livestock units for each 100 acres provide another way in which a farm business may be compared with other groups. It indicates how much livestock the farm business has in relation to the tillable land and non-tillable pasture.

PART IV. Summary

- A. The work unit is a unit of measure which represents the accomplishment of an average farm worker in a 10 hour day.
- B. Summing up all work units on a farm makes it possible to better compare farms with different kinds of livestock and crop enterprises with one another as to size of business.
- C. An "animal unit" is a measure which makes it possible to add up livestock of different kinds into a single measure of size and determine the livestock density of a farm.

PART V. At-the-Farm Activity

- A. Follow up Activity
Have students calculate the "work units" on their own farm or a problem farm.
- B. Evaluation Exercise
Have student take the test for Table 7.

PART VI. Resources

Chalkboard/overhead projector
Transparencies: parts 1 & 2 of Table 7
Study Guide: Table 7 - 5 questions

PART VII. References

Sample Farm IV Analysis with averages
Farm Business Analysis Report-Local Area, Latest edition

PART VIII. Appendices

Table 7
Study Guide questions
Unit test
"Calculating Total Work Units" Work sheet

Table 7

WORK UNITS FOR CROPS, LIVESTOCK AND WORK OFF THE FARM

Item	No. of Work Units	Item	No. of Work Units
DAIRY COWS	7.0/cow	Canning Peas	.40/acre
OTHER DAIRY CATTLE	1.2/head	OAT SILAGE	.40/acre
BEEF BREEDING COWS	1.5/head	CANNING CORN	.50/acre
BEEF FEEDERS	.12/cwt	CORN FOR GRA IN	.55/acre
HOGS - COMPLETE	.12/cwt	SOYBEANS	.45/acre
HOGS - FINISHING	.06/cwt	CORN & CANE SILAGE	.60/acre
HOGS - WEAN, PIGS	1.4/litter	ALFALFA HAY	.60/acre
SHEEP, FARM FLOCK	.60/head	O. LEG. & MIX HAY	.40/acre
LAMBS, FEEDERS	.30/cwt	OTHER GRASS HAY	.30/acre
CHICKENS, LAY, FLOCK	5.0/100	ANNUAL HAY	.40/acre
BROILERS	.20/cwt	LEG. & GRASS SILAGE	.40/acre
TURKEYS, LAY, FLOCK	25.0/100	LEG. & GRASS SEED	.40/acre
TURKEY POULTS	.12/cwt	SUMMER FALLOW TILLED	.20/acre
LABOR OFF THE FARM	1.0/\$20	WILD HAY	.20/acre
SET ASIDE ACRES, IDLE	.05/acre	TILLABLE GRASS PAST.	.05/acre
LEGUME PASTURE	.05/acre	NON-TILL. PASTURE	.01/acre
BARLEY, WHEAT, OATS & RYE	.30/acre		

THE FOLLOWING VALUES ARE USED FOR EACH TYPE OF ANIMAL IN CALCULATING TOTAL NUMBER OF ANIMAL UNITS ON TABLE 8, ITEMS 6 and 30.

Type of Animal	Animal Units	Type of Animal	Animal Units
DAIRY COWS	1.0/head	PIGS	.2/head
OTHER DAIRY (YOUNG ST.)	.5/head	SHEEP, ADULTS	.143/head
BEEF COWS	.8/head	LAMBS	.071/head
OTHER BEEF (YOUNG ST.)	.3/head	CHICKENS, LAY, HENS	.02/head
BEEF FEEDERS	1.0/head	BROIL, & TUR. POULTS	1.0/1100 lb.
HOGS, ADULTS	.4/head	TURKEYS, LAY. FLOCK	.04/head

STUDY GUIDE - TABLE 7

Work Units For Crops, Livestock, and Work Off Farm

1. What is the main purpose of this table?
2. Define "work unit".
3. Why doesn't the total number of work units on a farm or per worker indicate how hard a farmer works?
4. List 10 places in the analysis report where the work unit is used as a factor in the calculation.
5. What is the difference between a work unit and an animal unit?

B. Questions - Table 7

- T F 1. Total work units provide a good measure of how hard a farmer is working.
- T F 2. Work units per worker indicate how much work is being accomplished by each worker.
- T F 3. A work unit represents the accomplishment of a worker in a ten hour day.
- T F 4. According to the work unit values assigned, one man could easily take care of four head of beef cows with the amount of labor it takes for one dairy cow.
- T F 5. The work unit value for an acre of corn would be higher for a farmer who picks his corn by hand than for one who combines his corn.
- T F 6. Alfalfa hay has a higher work unit value per acre than grass hay because more than one crop is harvested per year.
- T F 7. Work units per worker are influenced by the degree of mechanization on the farm.
- T F 8. Animal units are synonymous with livestock work units.
- T F 9. The number of animal units per 100 acres would not be influenced by the degree of mechanization on the farm.
- T F 10. Animal unit values for beef cows on pasture are different than those fed on dry lot.

CALCULATING TOTAL WORK UNITS

The total work units on any farm is a measure of the size of that farm business. A work unit, as used in the analysis program is the average accomplishment of a farm worker in a ten hour day. Total number of work units is a measure of how much is being accomplished on the farm.

Each livestock enterprise, each crop grown and labor done off the farm is assigned a specific work unit value. The sum of all these work units is the total work units on the farm.

<u>ENTERPRISE</u>	<u>NO. OF WORK UNITS</u>	<u>NO. HEAD CWT., ACRES ETC.</u>	<u>TOTAL</u>
DAIRY COWS	7.0/Cow	x	=
OTHER DAIRY	1.2/head	x	=
BEEF BREEDING	1.5/head	x	=
BEEF FEEDERS	.12/cwt	x	=
HOGS-COMplete	.12/cwt	x	=
HOGS-FINISHING	.06/cwt	x	=
HOGS-WEAN. PIGS	1.4 /11t.	x	=
SHEEP, FARM FLOCK	.60/head	x	=
LAMBS, FEEDERS	.30/cwt	x	=
CHICKENS, LAY. FLOCK	5.0 /100	x	=
BROILERS	.20/cwt	x	=
TURKEYS, LAY. FLOCK	25.0 /100	x	=
TURKEY POULTS	.12/cwt	x	=

TOTAL FOR ALL LIVESTOCK

SET ASIDE ACRES IDLE	.05/acre	x	=
LEGUME PASTURE	.05/acre	x	=
BARLEY, WHEAT, OATS, RYE	.30/acre	x	=
CANNING PEAS	.40/acre	x	=
OAT SILAGE	.40/acre	x	=
CANNING CORN	.40/acre	x	=
SOYBEANS	.45/acre	x	=
CORN + CANE SILAGE	.60/acre	x	=
ALFALFA HAY	.60/acre	x	=
O. LEGUME & MIX HAY	.40/acre	x	=
OTHER GRASS HAY	.30/acre	x	=
ANNUAL HAY	.40/acre	x	=
LEG. & GRASS SILAGE	.40/acre	x	=
LEG. & GRASS SEED	.40/acre	x	=
SUMMER FALLOW TILLED	.20/acre	x	=
WILD HAY	.20/acre	x	=
TILLABLE GRASS PASTURE	.04/acre	x	=
NON-TILLABLE PASTURE	.01/acre	x	=
CORN FOR GRAIN	.55/acre	x	=

TOTAL FOR ALL CROPS

LABOR OFF THE FARM 1.0/\$20 x _____ = _____

TOTAL WORK UNITS ON FARM

MEASURES OF FARM ORGANIZATION

PART I. Student Objectives

- A. Given the information and forms, students will be able to calculate a least five of the nine measures of farm organization for the Sample Farm IV. ("total work units" will have been computed and "index of crop yield" will be used in the unit that follows.)
- B. Students will be able to explain the reason for not getting a Table 8 with the farmers individual preliminary analysis report.
- C. Following a discussion of the nine measures of farm organization, students will be able to color in the thermometer chart for Sample Farm IV.

PART II. Transition of Units

The previous unit dealt with the work unit and the calculation of work units on the farm. Total work units on the farm is only one of the measures of farm organization.

This unit will demonstrate the procedure in calculating the remaining eight measures of farm organization in Table 8.

The unit which follows will address itself to the distribution of crops and crop acres on the farm.

PART III. The Lesson

Attention Focuser

Ask the students how much they think high performance in "measures of farm organization" influences the "Return to Labor and Management." A comparison between the averages, high income group, and low income group will indicate there is a direct relationship. The graph (figure 2) developed from the total number of records each year and entitled "How Measures of Farm Organization Influence Labor Earnings" will show a more direct relationship between the number of measures in which farmers excelled and their "Return to Labor and Management."

Have students answer the study guide questions as the unit is presented. The teacher may want to duplicate a copy of each of the forms for calculating the measures of farm organization for each student.

KEY QUESTION 1. Why is this table not a part of the farmers preliminary individual report?

Table 8 is compiled after all farmers in a particular group, whose records will be used in the averages, have submitted their record for analysis. There are a number of indices in this table and the individual farm index for each item indicates how well he performed compared to the rest of the farmers in the group.

Some of the farmer indices are influenced by management ability, some by price, some by weather, and some may be due to other circumstances beyond the farmer's control.

KEY QUESTION 2. How are the various measures in this table calculated?

Each of the indices will be considered separately and examples of the calculations of these indices will be shown.

- 1) Labor Earnings (Return to Operators Labor and Management)- this figure is influenced by many of the measures of farm organization in Table 8.

Since this is a "Whole Farm" table the Labor Earnings figure comes from Table 2B or Table 3.

- 2) Crop Yield Index -A measure of the crop yield level for all crops raised, expressed as a percentage of the averages-- the average being 100 percent. An example of the calculation for Sample Farm IV is as follows:

<u>Crop</u>	<u>Grown</u>	<u>Production</u>	<u>Avg. Yield For Area</u>	<u>Acres Required With Average Yield</u>
Oats	29.0	1520 bu.	61.5	24.71
Corn	126.0	9000 bu.	94.0	95.74
Corn Silage	35.0	508 ton	13.8	36.81
Soybeans	22.0	440 bu.	28.7	19.16
Alfalfa Hay	93.0	333 bu.	3.4	97.94
<hr/>				
Total	305.0 acres			274.36

$$274.36 \div 305.0 \times 100 = 89.9 \text{ Crop Yield Index}$$

This means that considering all crops raised that had a measurable yield, Sample Farm IV had yields that were 89.9 percent as good as the average.

- 3) Percent Tillable and in High Return Crops - A measure of crop selection based on a rating of individual crops. Various crops are classified into one of four groups(A, B,C or D) on the basis of their suitability and profitability in the various types of farming areas within the state.

Crop ratings take into account such things as dollar return, effect on soil, TDN, yield, labor required, etc. "A" crops are given a value of 1.00, "B" crops a value of .50, "C" crops a value of .25, and "D" crops a value of .00.

Below is the example of Sample Farm IV Calculation:

Crop	Rank	Weighting		Acres		Adjusted Acres
Oats	D	.00	X	29.0	=	0.00
Corn	A	1.00	X	126.0	=	126.00
Corn Silage	A	1.00	X	35.0	=	35.00
Soybeans	B	.50	X	22.0	=	11.00
Alfalfa Hay	B	.50	X	93.0	=	46.00
Legume Pasture	B	.50	X	25.0	=	12.50
				<u>330.0</u>		<u>231.00</u>

$231.00 \div 330.0 \times 100 = 70.0$ percent tillable land in high return crops.

- 4) Gross Return Per Tillable Acre - This measure combines the effect of crop selection, price and yield into a single measure of cropping efficiency and organization. Prices used are usually the market price at harvest time and to permit comparisons the price used is the same for all farms in an area. This measure is based on cropped acres only and does not include pasture, idle land or non-tillable acres.

The Sample Farm IV calculation of gross return per tillable acre is shown below:

Crop Grown	Acres	Total Production	X	Price Per Unit	Value of Production	+ Other Crop Income	Total Val. of Production
Oats	29.0	1,520		1.50	2,280.00	775	\$ 3,055
Corn	126.0	9,000		2.25	20,250.00	630	20,880
Corn Silage	35.0	508		16.00	8,128.00	---	8,128
Soybeans	22.0	550		6.50	3,575.00	---	3,575
Alfalfa Hay	93.0	333		65.00	21,645.00	---	21,645
Total acres	<u>305.0</u>				Total Value of Prod.		<u>57,283</u>

$57,283 \div 305 = \$187.81$ Gross Return Per Tillable Acre

- 5) Return Per \$100 Feed Fed to Productive Livestock Index - One measure of livestock production efficiency is the return to each \$100 worth of feed fed. This index combines the feeding efficiency of all the livestock enterprises on an individual farm. Each of the livestock enterprises are weighted according to the total value of feed consumed by the enterprise before being combined into one overall index.

Since feed is the major cost in the production of all livestock, this measure is a very important one in evaluating the livestock enterprises on the farm.

The calculation of Sample Farm IV index is as follows:

Enterprise	Sample IV Return/\$100 Feed Fed		Avg. Return Per \$100 Feed Fed		Enter- Prise Index		Dollars Worth of Feed Fed		Weighted Index of Feed Fed
Hogs	\$138.64	÷	140.25	=	.989	x	\$19,407	=	\$ 19,194
Dairy Cows	150.33	÷	184.72	=	.814	x	36,463	=	29,681
Other Dairy	77.60	÷	96.34	=	.805	x	11,957	=	9,625
Feeder Cattle	79.85	÷	84.07	=	.950	x	1,752	=	1,664
							\$69,579		\$ 60,164

Weighted index \$60,164 ÷ Feed Fed \$69,579 x 100 = 86.4 Return per \$100 Feed Fed Index

Each individual index of return is shown in items 12-15 in Table 8. This gives the farmer a more detailed picture of his efficiency with each enterprise.

- 6) Livestock Units Per 100 Acres - This is a measure of the relative intensity of livestock production on the farm in relation to the acres of land available for producing feed for livestock.

The animal unit is used to determine the total amount of livestock per 100 acres since it provides a means of adding up livestock of different kinds into a single measure of size. It is based in general on the amount of T.D.N. required to support each kind of livestock with the dairy cow as the basis for comparison. Animal unit values are shown in the table that accompanies work units.

In this measure only the acres that could contribute to the support of the livestock enterprise are included. Acres in timber, roads, and waste and farmstead are not included.

The calculation of Sample Farm IV is shown below:

Livestock	Number		Animal Unit Value		Total Animal Units
Hogs-Adults	28.2	x	.4	=	11.28
Hogs-Other	166.8	x	.2	=	33.36
Dairy	54.9	x	1.0	=	54.90
Other Dairy	58.2	x	.5	=	29.10
Beef Feeders	10.1	x	1.0	=	10.10
Total Livestock Units				=	138.74

138.74 ÷ (396.5 acres ÷ 100) = 34.99 Livestock units per 100 acres

- 7) Size of Business in Work Units - This is a measure of farm size based upon the work unit. The work unit is a measure of the amount of work accomplished under average conditions in a 10 hour day. The measure provides a means for comparing farms with different kinds of livestock and crop enterprises.

Table 7 lists the work unit value of each kind of crop, livestock enterprise, and work done off the farm. The Sample Farm IV calculation is shown on the next page.

<u>Enterprise</u>	<u>Unit</u>	<u>Number</u>	<u>Work Unit Value</u>	<u>Total Work Unit</u>
Hogs complete	cwt.	84,600 lbs	.12/cwt.	101.52
Dairy cows	head	54.9	7 /head	384.30
Other dairy	head	58.2	1.2 /head	69.84
Beef feeders	cwt.	5,035 lbs	.12/cwt	6.04
Oats	acre	29	.30/acre	8.70
Corn	acre	126	.55/acre	69.30
Corn silage	acre	35	.60/acre	21.00
Soybeans	acre	22	.45/acre	9.90
Alfalfa Hay	acre	93	.60/acre	55.80
Alfalfa Pasture	acre	25	.05/acre	1.25
Non-till Pasture	acre	66.5	.01/acre	.67
Labor off-farm	dollars	1,061	1.0 /\$25	42.44
Total Work Units				770.76

- 8) Work Units Per Worker - a measure of the efficiency with which work is accomplished on the farm. Total labor available is determined by adding the time contributed by the operator, partner, family, hired labor, and labor share of custom work hired.

The calculation of the Sample Farm IV Work Units per worker is:

<u>Item</u>	<u>Month</u>
Months worked by operator	12.0
Day of unpaid family labor ÷ 25 (100÷25)	4.0
Months of labor hired	12.0
(Labor Share of custom work hired ÷ 25) ÷ 25 (\$937 ÷ \$25) ÷ 25 = 1.499	1.5
	29.5 months

29.5 mos. ÷ 12 mos. = 2.46 workers

770.76 work units ÷ 2.46 workers = 313.32 work units/worker

- 9) Power Machinery, Equipment, Building Expense Per Work Unit - This is a measure of the cost control within the business. It is important to watch this from year to year and also to look at work units per worker along with costs as you compare with other groups.

There are a number of items that need to be considered when evaluating this factor. They are:

- Depreciation methods used
- Repairs from year to year
- Custom work hired or done

The calculation of this factor for Sample Farm IV is:
(using Expenses and Net Decreases from Table 3)

Item 24 - truck and auto (farm share)	\$4488
Item 25 - tractor and crop machinery	7285
Item 27 - electricity	1253
Item 28 - livestock equipment	2163
Item 29 - buildings, fences, and tiling	3945
	<u>\$19,134</u>

$\$19,134 \div (\text{total work units}) 770.76 = \24.82 Power, Machinery Equipment,
Building expense per work
unit

- 10) Farm Capital Investment Per Worker - This factor gives some indication as to the investment required per worker to produce a given amount of income. It will vary considerably depending on the type of farming the operator is engaged in. Although the most profitable farms tend to have higher investments per worker, they also have more work units per worker. The net result is a lower investment per work unit. Therefore, in evaluating this factor, a number of other factors such as, output per worker, income per worker, type of farming, etc. should be considered.

The calculation for Sample Farm IV is:

Beginning Inventory, Table 1	\$ 272,672
End Inventory Table 1	273,725
	\$ 546,397 $\div 2 = \$273,198$ average farm capital

$\$273,198 \div 2.46 \text{ workers} = \$111,056$ investment per worker.

- 11) The work unit is also used in calculating the various expenses in items 36-40, Table 8.

These factors may be used to further identify a problem in a particularly high Power, Machinery, Equipment and Building Expense per work unit in item 9, Table 8.

The Sample Farm IV calculations are: (using Expenses and Net Decreases from Table 3)

Item 25 - tractor & crop machinery expense	$\$7285 \div 770.76 = \$ 9.45$
Item 24 - farm share auto & truck expense	$4488 \div 770.76 = 5.82$
Item 27 - farm share of electric expense	$1253 \div 770.76 = 1.63$
Item 28 - livestock equipment expense	$2163 \div 770.76 = 2.81$
Item 29 - building, fence, & tiling expense	$3945 \div 770.76 = 5.12$

Some farm operators are interested in knowing the tractor and crop machinery expense per crop acre. The acres in this calculation include all tillable land plus acres in non-tillable hay.

Item 25 - tractor & crop machinery expense $\$7285 \div 330 \text{ acres} = \$22.08/\text{acre}$.

- 12) The farm power and machinery cost allocated to livestock and the building, fence and tiling cost allocation to crops is determined by a number of extensive formulas requiring several steps and calculations. An attempt to demonstrate these calculations will not be shown here. Students who are interested in working through these calculations should refer to the Documentation by Dr. Edgar Persons, Table 10, line 17 and Table 11A, line 30.

PART IV. Summary

- A. Table 8 provides several management measures which indicate how well the individual farmer performed compared to the rest of the farmers in his analysis area.
- B. This table shows measures of organization as to size of business, performance in crops and livestock and control of expenses in power, machinery, equipment, and buildings.
- C. The table further pinpoints the performance in return per \$100 feed fed to livestock for each individual livestock enterprise.
- D. The "Power, Machinery, Equipment, and Building Expense" is further illustrated by breaking the cost down into truck and auto, tractor and crop, machinery, electricity, livestock equipment, and buildings and fences.

PART V. On-the-Farm Activity

- A. Follow up Activity
Have the students calculate one or two of the measures on their own farm or a problem farm developed by the teacher.
- B. Evaluation Exercise
Have students take the test at the end of the unit.

PART VI. Resources

Chalkboard/overhead projector
Transparencies: parts 1 & 2 of Table 8
Study Guide: Table 8 - 12 questions

PART VII. References

Farm/Ranch Management Education (A Course of Study for Adults) 4th edition
Sample Farm IV Analysis with averages
Farm Business Analysis Report-Local Area, Latest edition
Documentation of Farm Business Analysis, Dr. Edgar A. Persons

PART VIII. Appendices

Part 1 & 2 of Table 8
Study guide questions
Unit test
"Calculating the Index of Crop Selection"
"Calculating Gross Return Per Tillable Acre"
"Calculating Return for \$100 to Productive Livestock Index"
"Calculating Number of Workers and Work Units Per Worker"
"Calculating Power, Machinery, Equipment, and Building Expense Per Work Unit"
"Calculating Farm Capital Investment Per Worker"

TABLE 8 - MEASURES OF FARM ORGANIZATION

YOUR FARM

1	LABOR EARNINGS	\$ 12685
2	CROP YIELD INDEX	89.9
3	PERCENT TILLABLE LAND IN HIGH RETURN CROPS	70.0
4	GROSS RETURN PER TILLABLE ACRE (EXCLUDING PASTURE)	\$ 187.81
5	RETURN PER \$100 FEED FED PRODUCTIVE LIVESTOCK INDEX	86.4
6*	LIVESTOCK UNITS PER 100 ACRES	34.99
7	SIZE OF BUSINESS - WORK UNITS	770.76
8	WORK UNITS PER WORKER	313.32
9	POWER, MACHINERY, EQUIPMENT, BUILDING EXPENSE PER WORK UNIT	\$ 24.82
10	FARM CAPITAL INVESTMENT PER WORKER	\$ 111057
11	INDEX OF RETURN PER \$100 FEED FED	
12	6140 BEEF FEEDERS FEEDLOT	95.0
13	6290 DAIRY COWS, COMMERCIAL, GENERAL	81.4
14	6310 OTHER DAIRY, COMMERCIAL REPLACEMENTS	80.5
15	6470 HOGS, FARROW, FINISH, GENERAL	98.9
30	NUMBER OF ANIMAL UNITS	138.74
31	WORK UNITS	
32	CROPS	166.62
33	PRODUCTIVE LIVESTOCK	561.70
34	OTHER PRODUCTIVE WORK UNITS	42.44
35	EXPENSES PER WORK UNIT	
36	TRACTOR & CROP MACHINERY EXPENSE	\$ 9.45
37	FARM SHARE OF AUTO & TRUCK EXPENSE	5.82
38.	FARM SHARE OF ELECTRIC EXPENSE	1.63
39	LIVESTOCK EQUIPMENT EXPENSE	2.81
40	BUILDING, FENCE & TILING EXPENSE	5.12

TABLE 8 CONT.

41** TRACTOR & CROP MACHINERY EXPENSE PER CROP ACRE	\$	22.08
42 FARM POWER & MACHINERY COST ALLOCATION TO LIVESTOCK		2249.86
43 BUILDING, FENCE & TILING COST ALLOCATION TO CROPS		903.40
44 * ACRES INCLUDE ALL TILLABLE LAND, NON-TILLABLE HAY & PASTURE		
45 ** ACRES INCLUDE ALL TILLABLE LAND PLUS ACRES IN NON-TILLABLE HAY		

STUDY GUIDE - TABLE 8

Measures of Farm Organization

1. Why can't Table 8 be a part of the original individual farm analysis report that the farmer gets back in January?
2. What is an index?
3. Explain what an index of crop yields of 105 would mean to a farmer.
4. Name some high return crops in your area.
5. What are the three factors that would tend to influence a farmer's "Gross Return Per Tillable Acre".
6. Why is the "Return per \$100 Feed Fed Index" a good measure of livestock production efficiency?
7. A farmer has only 5 dairy cows and has a "Return per \$100 Feed Fed Index" on dairy of 150. The size of his hog enterprise is 100,000 lbs pork produced, but the "Return per \$100 Feed Fed Index" on hogs is only 50. Would his overall return per \$100 feed fed be 100? Explain.
8. Explain why the work unit may be a better measure of farm size than tillable acres.
9. What are some important factors that need to be considered when evaluating the power machinery, equipment, and building expense per work unit?
10. What items of labor are taken into consideration when calculating the number of workers on the farm?
11. In what table would you find the total expenses used for the calculation of power, machinery, equipment, and building expense per work unit?
12. Tractor and crop machinery expense per work unit is shown in item 36. Can you think of a reason why a farmer would want to know this expense per crop acre as in item 41?

B. Table 8 - Questions

- T F 1. Labor Earnings (Return to Operator's Labor and Management) on this table is the operator's labor Earnings and not the whole farm.
- T F 2. A Crop Yield Index of 110 would indicate that the operator was doing a good job as far as crop yields were concerned.
- T F 3. The only consideration in determining Percent of Tillable Land in High Return Crops is income from each crop.
- T F 4. Gross Return Per Acre combines the effects of crop selection, price and yield into a single measure.
- T F 5. In calculating the Return Per \$100 Feed Fed Index, the value and quantity of feed consumed by each enterprise is considered.
- T F 6. The Return Per \$100 Feed Fed Index is an important factor for evaluating livestock efficiency because feed is the major cost in the production of livestock.
- T F 7. If you added up the individual indices of Return Per \$100 Feed Fed Index in Table 8 and divide this sum by the number of livestock enterprises on the farm you would get the correct overall Return Per \$100 Feed Fed Index.
- T F 8. The Livestock Units Per 100 Acres uses the animal unit to determine the amount of livestock per 100 acres. This unit is based on the amount of TDN required to support each kind of livestock.
- T F 9. The labor share of custom work hired is also added into the calculation in determining number of workers on the farm.
- T F 10. Work Units Per Worker is a good measure of how efficiently work is being accomplished on the farm.
- T F 11. Hired labor is not considered in calculating Work Units Per Worker.
- T F 12. The source of the expense items used in the calculation of Power, Machinery, Equipment, and Building Expense Per Work Unit is the expenses and net decreases in Table 3.
- T F 13. Taking accelerated depreciation on the purchase of a \$40,000 machine would not affect the Power, Machinery, Equipment, and Building Expense Per Work Unit.
- T F 14. Farm Capital Investment Per Worker is a good measure of production efficiency.
- T F 15. A farmer with a heavy concentration of livestock will find that Tractor and Crop Machinery Expense Per Crop Acre gives him a better picture of his crop machinery costs than the Tractor and Crop, Machinery Expense per Work Unit.

Various crops are classified into value groups on the basis of their suitability and profitability in the various areas of the state. The groups are A, B, C, and D. The most profitable are 'A' crops, given a weighting of 1.00. The 'B' crops are next most profitable and given a value of .50. Those crops with low returns are rated as 'C' and given a value of .25, while the crops rated as very low are classified as 'D' and given a value of .00.

Small Grains & Cultivated Crops		Tillable Land in Hay		Tillable Land in Pasture	
Canning Peas	A	Alfalfa Hay	B	Alfalfa &	
Oats, Rye, Barley	D	Red Clover Hay	B	Mixtures	B
Barley	D	Soybean Hay	C	Other Legumes &	
Wheat	C	Mixed Legumes and		Mixtures	C
Rye, Millet	D	Non Legumes	C	Sudan Grass or	
Corn Grain	A	Legumes for Seed	C	Rape	C
Corn Silage	A	Timothy, Brome	D	Other Till. Pastured	D
Sweet Corn	A	Other Annual Hay	D	Tillable Land	
Soybeans	B	Diverted Acres	A	Not Cropped	D

[illegible]

TOTAL ADJUSTED ACRES

$$\frac{\text{Total Adjusted Acres}}{\text{Total Acres}} \times 100$$

CALCULATING GROSS RETURN PER TILLABLE ACRE (EXCLUDING PASTURE)

<u>CROP</u>	<u>ACRES</u>	<u>TOTAL</u> <u>PRODUCTION</u>	<u>PRICE</u> <u>PER UNIT</u>	<u>VALUE OF</u> <u>PRODUCTION</u>	<u>OTHER CROP</u> <u>INCOME</u>	<u>TOTAL VALUE OF</u> <u>PRODUCTION</u>

TOTAL
ACRES _____ XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXSUM OF CROP VALUE _____

GROSS RETURN
PER TILLABLE ACRE

_____ = SUM OF CROP VALUE _____ ÷ TOTAL ACRES _____

CALCULATING RETURN PER \$100 FEED FED TO PRODUCTIVE LIVESTOCK INDEX

The index of return per \$100 feed fed to productive livestock is an index weighted by each class of livestock and the total amount of feed consumed by each class of livestock on the farm.

The index is obtained by dividing the returns per \$100 of feed fed to each class of livestock on a particular farm (from the analysis report) by the average return per \$100 feed fed for these enterprises in the analysis area and then multiplied by the total feed cost for each enterprise on the particular farm.

These products are then added and the sum is divided by the total feed cost for all enterprises on the farm to give the index of return per \$100 feed fed to all productive livestock on the farm.

<u>LIVESTOCK ENTERPRISE</u>	<u>RETURN/\$100 FEED FED</u>	<u>÷</u>	<u>AVERAGE RETURN PER \$100 FEED FED</u>	<u>×</u>	<u>TOTAL FEED COST</u>	<u>=</u>	<u>ADJUSTED RETURN</u>
_____	_____		_____		_____		_____
_____	_____		_____		_____		_____
_____	_____		_____		_____		_____
_____	_____		_____		_____		_____
_____	_____		_____		_____		_____
_____	_____		_____		_____		_____
_____	_____		_____		_____		_____
_____	_____		_____		_____		_____

XXXXXXXXXX

XXTOTALS

SUM OF THE
ADJUSTED RETURNS _____

÷ _____
SUM OF TOTAL FEED COSTS X 100 = _____

RETURN PER \$100
FEED FED TO PRODUC-
TIVE LIVESTOCK
INDEX

CALCULATING NUMBER OF WORKERS AND WORK UNITS PER WORKER

WORKERS

MONTHS LABOR

MONTHS WORKED BY OPERATOR OR OPERATORS

DAYS UNPAID FAMILY LABOR _____ ÷ 25 =

MONTHS OF HIRED LABOR

CUSTOM WORK HIRED-LABOR SHARE

\$ _____ ÷ \$25 = \$ _____ ÷ 25 =

TOTAL MONTHS

TOTAL MONTHS _____ ÷ 12 = _____ WORKERS

TOTAL NUMBER WORK

UNITS ON FARM _____ ÷ WORKERS _____ ÷

WORK UNITS
PER WORKER

CALCULATING LIVESTOCK UNITS PER 100 ACRES

To calculate livestock units per 100 acres, use the table of animal units found on Table 7 in the Southeast Vo-Ag Farm Management Program Analysis Report.

<u>LIVESTOCK ENTERPRISE</u>	<u>AVERAGE NO. OR UNITS</u>	<u>X</u>	<u>VALUE PER UNIT</u>	<u>=</u>	<u>TOTAL UNITS</u>
_____	_____		_____		_____
_____	_____		_____		_____
_____	_____		_____		_____
_____	_____		_____		_____
_____	_____		_____		_____
_____	_____		_____		_____
_____	_____		_____		_____
_____	_____		_____		_____
XXXXXXXXXX	XXXXXXXXXX		XXXXXXXXXX	TOTAL LIVE-STOCK UNITS	_____

SUM OF TOTAL LIVESTOCK UNITS _____ ÷ TOTAL TILLABLE LAND + TILLABLE PASTURE _____ X 100 = LIVESTOCK UNITS PER 100 ACRES _____

CALCULATING POWER, MACHINERY, EQUIPMENT AND BUILDING
EXPENSE PER WORK UNIT

FROM ANALYSIS TABLE 3

EXPENSES AND NET DECREASES:

ITEM 24 - TRUCK & AUTO _____

ITEM 25 - TRACTOR & CROP MACHINERY _____

ITEM 27 - ELECTRICITY _____

ITEM 28 - LIVESTOCK EQUIPMENT _____

ITEM 29 - BUILDING, FENCING & TILING _____

TOTAL EXPENSES
AND NET DECREASES _____

TOTAL EXPENSES & NET DECREASES _____ ÷ TOTAL WORK UNITS _____ =

_____ POWER, MACHINERY, EQUIPMENT AND
BUILDING EXPENSE PER WORK UNIT

FARM CAPITAL INVESTMENT PER WORKER

BEGINNING INVENTORY, TABLE 1, ITEM 29 _____

ENDING INVENTORY, TABLE 1, ITEM 29 _____

TOTAL _____

TOTAL _____ ÷ 2 = _____
AVERAGE TOTAL FARM CAPITAL

_____ ÷ _____ NO. OF WORKERS = _____
AVERAGE FARM CAPITAL CAPITAL INVESTMENT PER WORKER

Unit 9 - Table 3

CROP ACRES AND YIELDS

PART I Student Objectives

- A. Following a discussion and inspection of Sample Farm IV Table 9, students should be able to identify the three major pieces of information provided in this table.
- B. Upon completion of a study of this table, students should be able to identify the source of information for the crop cost in the table.

PART II Transition of Units

The preceding unit dealt with the measures of farm organization for the entire farm.

This unit concentrates on only the crop data for the farm which includes number of acres of each crop, crop rank, crop yields and certain selected crop expenses.

PART III The Lesson

Attention Focuser

Using the master copy from the appendix entitled "Calculation of Index of Crop Yield" make one copy for each student and have them calculate this index for Sample Farm IV.

The average yield for each crop will come from the averages.

Have students use the study guide and complete the answers to the questions during the presentation.

KEY QUESTION 1. What purpose does Table 9 serve?

Table 9 lists all the acres in the farm, acres in each crop category, number of acres of each crop, crop rank and crop yield. Table 9 also lists the percent of total land farmed that is tillable and the percent land in high return crops, which is found also in Table 8.

KEY QUESTION 2. Why are crop costs shown on this table?

The fertilizer cost, chemical cost, and seed and other costs per acre are the actual costs for material applied per acre that year. It does not include fertilizer, chemicals and seed purchased and placed on inventory for the coming year.

Gas, oil, and grease bought per acre is the net cost per tillable acre. Gas tax refund has been subtracted from the total cost of gas, oil, and grease for the year.

PART IV. Summary

- A. Table 9 gives all the acres in the farm with a breakdown of number of acres in each crop, each crop category, and crop yield.
- B. Also listed on this table are the fertilizer cost, chemical cost, seed and other cost per tillable acre.

PART V. On-the-Farm Activity

- A. Follow up activity
Have student calculate the index of crop yields on their farm using the area averages as a comparison.
- B. Evaluation Exercise
Have student take the unit test

PART VI. Resources

Chalkboard/overhead projector
Transparencies: parts 1 & 2 of Table 9
Study Guide Table 9 - 5 questions

PART VII. References

Farm/Ranch Management Education (A Course of Study for Adults) 4th ed.
Sample Farm IV Analysis with averages
Farm Business Analysis Report-Local Area, Latest edition
Documentation of Farm Business Analysis, Dr. Edgar A. Persons

PART VIII. Appendices

Part 1 & 2 of Table 9
"Calculation of Index of Crop Yields"
Study guide questions
Unit test

TABLE 9 - CROP ACRES AND YIELDS

CODE	CROP	CROP RANK	ACRES	YIELDS
0072	OATS -FEED (1)	D	29.0	52.4
A	TOTAL SMALL GRAIN & CANNING PEAS		29.0*	
0222	CORN - GRAIN (1)	A	65.0	63.8
0223	CORN - GRAIN (2)	A	61.0	79.5
0291	SOYBEANS (1)	B	22.0	25.0
B	TOTAL ROW CROP		148.0*	
0401	ALFALFA HAY (1)	B	93.0	3.6
C	TOTAL LEGUMES, INCLUDING SEED		93.0*	
0720	CORN SILAGE (1)	A	35.0	14.5
E	TOTAL SILAGE & FODDER		35.0*	
0810	ALFALFA & MIXTURES PAST. (1)	B	25.0	55.48
F	TOTAL TILLABLE PASTURE		25.0*	
L	TOTAL TILLABLE LAND		330.0*	
0860	PASTURE-NON-TILLABLE		65.5	
M	TOTAL NON TILLABLE HAY/PASTURE		66.5	
9987	TIMBER NOT HARVESTED		150.0	
9988	ROADS & WASTE		13.5	
9989	FARMSTEAD		8.0	
O	TOTAL LAND NOT HARVESTED		171.5*	
P	TOTAL NON TILLABLE LAND		238.0*	
Q	TOTAL LAND IN FARM OR RANCH		568.0*	
9992	SUPPLEMENTARY MANAGEMENT INFORMATION			
9993	PERCENT LAND TILLABLE		58.1	
9994	PERCENT LAND IN HIGH RETURN CROPS		70.0	
9995	*FERTILIZER COST PER ACRE		20.37	
9996	*CROP CHEMICALS PER ACRE		5.00	
9997	*SEED & OTHER COSTS PER ACRE		7.96	
9998	*GAS, OIL & GREASE BOUGHT PER ACRE		11.08	
9999	*TILLABLE LAND (-) TILLABLE PASTURE, FALLOW & IDLE LAND			

1. CALCULATION OF INDEX OF CROP YIELDS

<u>CROP GROWN</u>	<u>ACRES</u>	<u>YIELD</u>		<u>=</u>	<u>TOTAL PRODUCTION</u>	<u>÷</u>	<u>AVERAGE YIELD</u>	<u>=</u>	<u>ADJUSTED ACRES</u>
		X	<u>PER ACRE</u>						
_____	_____	X	_____	=	_____	÷	_____	=	_____
_____	_____	X	_____	=	_____	÷	_____	=	_____
_____	_____	X	_____	=	_____	÷	_____	=	_____
_____	_____	X	_____	=	_____	÷	_____	=	_____
_____	_____	X	_____	=	_____	÷	_____	=	_____
_____	_____	X	_____	=	_____	÷	_____	=	_____
_____	_____	X	_____	=	_____	÷	_____	=	_____
_____	_____	X	_____	=	_____	÷	_____	=	_____
_____	_____	X	_____	=	_____	÷	_____	=	_____
_____	_____	X	_____	=	_____	÷	_____	=	_____
_____	_____	X	_____	=	_____	÷	_____	=	_____

TOTAL
ACRES

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

TOTAL ADJUSTED
ACRES

INDEX OF CROP YIELDS _____ = ADJUSTED ACRES _____ DIVIDED BY
TOTAL ACRES _____ X 100.

STUDY GUIDE - TABLE 9

Crop Acres

1. What is the difference between a crop with a Rank of A and one with a Rank of D?
2. Why might the crop rank differ from one analysis area of the state to another?
3. If all fertilizer used on the farm were taken from inventory and none purchased this year would this show up on item 9995, "fertilizer costs per acre"? Explain.
4. Why would gas, oil and grease bought per acre vary from one farm to another?
5. How would the gas, oil and grease bought compare with the tractor and crop machinery expense per acre on Table 8?

B. Questions - Table 9

- ☐ F 1. Crop rank is the same for each crop in all areas of the state.
- ☐ F 2. Percent land in high return crops is the same as on Table 8.
- ☐ F 3. Fertilizer costs per acre includes fertilizer taken from inventory and spread on fields in spring before planting corn.
- ☐ F 4. Fertilizer costs per acre does not include the cost of fertilizer purchased and put on inventory after corn harvest.
- ☐ F 5. Seed and other costs per acre would not include the value of seed used out of the bin.

Unit 10 - Table 10

THE CROP TABLES

PART I. Student Objectives

- A. Students will be able to identify the various parts of crop production and income that are used in "Total Crop Return".
- B. Students will be able to identify the expenses that are included in supplementary (direct) costs.
- C. Students will be able to identify the costs that are included in allocated costs.
- D. Students will be able to explain the items under "Supplementary Management Information."

PART II. Transition of Units

The last unit, Table 9, was concerned with all the land, tillable and non-tillable on the farm. It gave the student a picture of the total cropping program on the farm including the acres grown, yield per acre, and some of the average costs per tillable acre.

This unit will concentrate on the individual crop tables. These tables go into detail in identifying the various kinds of income and costs associated with each crop.

The following unit will concentrate on the table for "Hogs - Farrow to Finish," and direct attention to the income and expenses associated with this enterprise.

PART III. The Lesson

Attention Focuser

Explain that although the corn crop table was used for this lesson, the other crop tables in the analysis have the same format and are developed in the same way.

The transparency for Table 10 is in two parts, the first shows items 1-15 which have to do with the return to the crop and supplemental (direct) costs.

The second transparency shows individual items included in allocated costs and supplementary management information.

Each student should have a Study Guide which includes questions he or she can answer as the teacher explains the various items in the table.

KEY QUESTION 1. Why do we have individual crop tables?

Individual crop tables were developed to give farmers specific information on each individual crop raised on the farm. Since all crop tables follow the same format we will discuss the items in only one of them.

The tables show yield per acre, value per unit, other crop income and total crop return.

- a) Yield per acre is determined by dividing total production by number of acres grown.
- b) Value per unit is the market value of the crop at harvest time. This value may vary from one locality to another within the state, but within a particular analysis area the value per unit for crop is quite constant among farms in that area.
- c) Other crop income may include such things as the value of straw harvested from small grain, stalks harvested from corn and insurance payments made on damaged crops.

KEY QUESTION 2. What are supplemental or direct costs?

Supplemental costs (direct costs) are those that the farmer can assign to a specific crop in his account book. For example, fertilizers, chemicals and seeds are assigned to specific crops after planting time. These may have been purchased, taken from inventory, or taken from home grown seed. Whatever the source, they are charged to the specific crop for which they were used. Special hired labor, custom work hired, and irrigation operating costs are also costs that are assigned in the account book to the specific crop for which they were used.

KEY QUESTION 3. What are allocated costs?

Allocated costs may be cash or non-cash, assigned or calculated costs.

- a) Farm power and machinery ownership and operation costs are calculated. The total power and machinery costs as shown on the expense and net decreases on Table 3 are divided between ownership and operation costs. The work unit is used as a factor in distributing the cost to the various crop and livestock enterprises.

The "Power Cost Allocation Factor" (PCAF) may be used to modify the work unit value in calculating the power and machinery costs for a particular crop.

For example, a farmer has corn, alfalfa and oats and hires his oats combined and wishes to have less machine expense on oats; he can assign a PCAF of .75 to oats, and 1 to both corn and alfalfa. This will put more of the total machine cost on corn and alfalfa and less on oats.

If he had used the same PCAF on all three crops, the computer would use the work unit as a normal factor in proportioning the machine costs for each of the three crops.

Students who would like to work through the various steps in calculating farm power and machinery ownership and operation cost should refer to the Documentation by Dr. Edgar Persons for the formulas and correct procedure.

b) Land costs are assigned by the farmer. Land costs are considered the average rental charge for similar land in the area, and should be sufficient to pay for taxes and interest on investment in the land.

c) Interest on machinery and equipment investment would be the interest charged on the investment in machinery and equipment. A proportionate share is charged to each crop according to the work unit and power cost allocation factor (PCAF) assigned to that crop.

KEY QUESTION 4. How is the "break-even yield" determined?

The break-even yield is determined by dividing the total listed costs per acre by the value per production unit. Example of the Sample Farm IV calculation for corn is:

$$\begin{array}{rcl} \text{Total listed costs per acre} & 129.98 & \\ \text{Value per production unit} & \underline{2.25} & = 57.77 \\ & & \text{bu/acre} \end{array}$$

KEY QUESTION 5. What are costs not listed?

Other possible costs not listed are items 33-35 and may be calculated by the farmer and added to the listed costs to arrive at total costs per acre.

For example, Sample Farm IV may decide that of the total electricity costs of \$1253 found on Table 3, item 27, about \$100 should be charged to corn drying. The 126 acres would be divided into the \$100 and \$0.79 per acre would be added to the per acre costs. He may decide to also do this with general farm expense, telephone, and some additional interest expense other than land and machinery and equipment.

PART IV. Summary

- A. A knowledge of the various kinds of crop income is necessary in understanding the term "Total Crop Returns" for a particular crop.
- B. Supplemental (direct) cost items may be purchased or they may come from inventory. A knowledge of how they are treated in the farmers account book for analysis is necessary in understanding the crop tables.
- C. Allocated costs constitute a major portion of total costs in the crop tables. Knowledge of how these costs are attributed to each crop is important for an understanding of the crop tables.

PART V. At-The-Farm Activity

If the student has an analysis of the home farm, a study of the corn table on this farm should be a very worthwhile experience. If a home farm analysis is not available, but a record book is available on the home farm, have the student try to put in as many of the figures as possible in the crop analysis table for corn.

PART VI. Resources

Overhead projector/chalkboard
Transparencies: Parts 1 & 2 of Corn Crop Table for Sample Farm IV
Study guide, table 10

PART VII. References

Farm/Ranch Management Education (A Course of Study for Adults)
4th edition.
Sample Farm Analysis Sample Farm IV
Farm Business Management Annual Report - Any area of Minnesota
Documentation of Farm Business Analysis, Dr. Edgar A. Persons

PART VIII. Appendices

Table 10-0222, Part 1 and 2
Study guide questions
Unit test

TABLE 10-0222

CROP DATA FOR CORN--GRAIN (1)

	TOTAL	PER ACRE
1 ACRES	65.0	
2 YIELD	4150	63.8
3 VALUE PER PRODUCTION UNIT		2.25
4 CROP PRODUCT RETURN	\$ 9338	143.66
5 OTHER CROP INCOME	630	9.69
6 TOTAL CROP RETURN	9968	153.35*
7 SUPPLEMENTAL COSTS		
8 FERTILIZER		30.69
9 CHEMICALS		9.43
10 SEED & OTHER		9.31
11 SPECIAL HIRED LABOR		
12 CUSTOM WORK HIRED		
13 IRRIGATION OPERATION		
14 TOTAL SUPPLEMENTAL COSTS	\$ 3213	49.43
15 RETURN OVER SUPPLEMENTAL COSTS	\$ 6755	103.92*
16 ALLOCATED COSTS		
17 FARM POWER & MACHINERY - OWNERSHIP		13.38
18 FARM POWER & MACHINERY - OPERATION		13.07
19 IRRIGATION EQUIPMENT - OWNERSHIP		
20 LAND COSTS		50.00
21 MISCELLANEOUS COSTS		
22 *INTEREST ON MACHINERY & EQUIPMENT INVESTMENT		4.10
23 TOTAL ALLOCATED COSTS	\$ 5236	80.55
24 RETURN OVER ALL LISTED COSTS	\$ 1519	23.37*

25 SUPPLEMENTARY MANAGEMENT INFORMATION

26 WORK UNITS ASSIGNED PER ACRE .55

27 POWER COSTS ALLOCATION FACTOR 1.00

28 TOTAL LISTED COST PER UNIT OF PRODUCTION 2.04

29 RETURN OVER LISTED COSTS PER UNIT .37

30 BREAK-EVEN YIELD 57.77

31 TOTAL LISTED COSTS PER ACRE \$ 129.98

32 OTHER POSSIBLE COSTS NOT LISTED

33 UTILITIES & OTHER GENERAL FARM EXPENSES

34 INTEREST ALLOCATION

35 OTHER COSTS NOT LISTED

36 TOTAL COSTS

* DOES NOT INCLUDE INTEREST ON INVESTMENT IN IRRIGATION
EQUIPMENT OR LAND

STUDY GUIDE - TABLE 10

CROP TABLES

1. How does the farmer arrive at the value per unit figure for the crop tables?
2. Give some examples of other crop income that would be added to the total crop returns for some crops.
3. If a farmer did not buy any fertilizer, but took all of it from inventory, would there be a fertilizer expense on the crop tables?
4. If a farmer used his home grown seed from the bin for oats or soybeans would there be a seed and other cost on the crop tables?
5. Give some examples of custom work hired costs.
6. Give some examples of machine expenses that would be included in ownership, item 17 and machine expenses included in operation, item 18.
7. How is the work unit used in distributing the total cost of machines to the various crops?
8. What is the Power Cost Allocation Factor (PCAF) and how is it used?
9. How would a farm operator decide on the correct land cost to use for each crop?
10. How is the break-even yield determined?

B. Questions - Crop Tables

- T F 1. Value per unit for a crop is determined by the market value of that crop at harvest time.
- T F 2. Other crop income such as straw from an oat crop is not figured in the total crop return.
- T F 3. Crop insurance would be added to the crop product return and the value per production unit increased accordingly.
- T F 4. Fertilizer purchased the previous year and carried on inventory would not be charged to this year's crop if spread at planting time.
- T F 5. Seed taken from the farmer's oat bin is also a seed cost in the crop table.
- T F 6. Farm power and machinery ownership costs are not calculated costs but those that the farmer assigns to each crop in the account book.
- T F 7. Land costs are considered to be the average rental value of similar land in the area.
- T F 8. Land costs charged should be high enough to cover real estate taxes and interest on investment in land.
- T F 9. The break-even yield would cover all listed costs at the crop product value used.
- T F 10. The reason there are blanks left at the bottom of the table for other possible costs not listed is that no one, so far, has been able to figure out a method of allocating these costs that will work for all farms.

Unit 11 - Table 11A

HOGS, FARROW - FINISH

PART I. Student Objectives

- A. Given information on beginning and ending inventories, purchase and sales of livestock, and livestock butchered, students should be able to calculate net increase in value of hogs for the year.
- B. Students will be able to explain why return above feed is used to classify farms into "high" and "low" groups for livestock.
- C. Students will be able to identify the costs that go into "supplemental or direct" costs and "allocated costs."
- D. Following a discussion of this table, students will be able to define and explain PCAF, ECAF, and BCAAF.
- E. Given the information on total value produced and total value of feed fed, students will be able to calculate "Return Per \$100 Feed Fed."

PART II. Transition of Units

The previous unit was concerned with the individual crops tables and the income and expense items associated with them.

This unit introduces the livestock tables, how the various items in the tables are calculated and how various items should be interpreted.

The following unit also deals with a livestock table, Dairy Table 12. The two tables are representative of the livestock tables in the report and an understanding of them will serve to give the student a general over-all knowledge of all livestock tables.

PART III. The Lesson

Attention Focuser

Write the following figures on the board:

Total Sales	72,745 lbs.	\$27,843
Total Butchered	1,530 lbs.	\$ 752

Ask the students to calculate from this information the total pounds of hogs produced during the year, and the total value produced during the year. The better students will recognize that beginning and ending inventories are also needed.

KEY QUESTION 1. How is the total return for the enterprise calculated?

Since all the hog tables follow somewhat the same format, we will discuss only the farrow-finish hog table and show how some of the items are calculated.

In calculating the total return for the enterprise, the change in inventory purchase and sale of livestock, value of animals butchered, products sold and products used in the home are considered in order to arrive at the total income or total return for the enterprise. There are two columns of figures in the livestock table, one is the total column and the other is the per unit column.

Pounds of hogs produced is the total number of pounds of hogs produced on the farm during the year. Net increase in value of hogs is the value of hogs produced during the year in total and per cwt.

The Sample Farm IV calculation is shown below:

Ending Inventory	26,375 lbs	\$11,100	Beginning Inventory	16,050 lbs	\$12790
Butchered	1,530 lbs	752	Trans. In	-----	-----
Transferred out	-----	-----	Purchases	-----	-----
Sales	72,745 lbs	27,843			
Total	100,650 lbs	\$39,695		16,050	\$12790

Pounds of hogs produced $100,650 - 16,050 = 84,600$ lbs
Net increase in value $\$39,695 - \$12,790 = \$26,905$
Net increase value per cwt. $\$26,905 \div 846.00 = \$31.80/\text{cwt.}$

KEY QUESTION 2. Why is the cost of feed and quantity of feed fed important?

Since feed is the largest single item of cost for all classes of livestock, Return Over Feed Costs has been used to classify farms into high and low groups.

Feed costs are determined from feed records kept by the farm operator. Purchase price is used for all feeds purchased off the farm. An average price for the year is charged for each kind of farm grown feed. Total quantity of each feed fed to the enterprise is divided by the number of units (in this enterprise it is 846 cwt.) to get the pounds of feed fed per unit. The same method is used to get cost of each feed and total feed cost per unit.

The example for Sample Farm IV is shown for total feed costs below:

$\$19,407 \div 846 = 22.94/\text{cwt.}$
Total value produced = 26,905 - Feed cost of \$19,407 - \$7,498
 $\$7,498 \div 846 \text{ cwts.} = \8.86 Return over feed per cwt.

KEY QUESTION 3. What are "supplemental or direct costs"?

Supplemental cost (direct cost) items are entered in the account book and identified for the livestock enterprise for which the item was used. The supplemental costs (direct costs) which can be assigned to the specific livestock enterprise are miscellaneous livestock expense, veterinary expense, custom work hired, and special hired labor.

The calculation of total supplementary cost (direct cost) for the hogs for Sample Farm IV is below:

Total supplemental cost $\$880 \div 846 \text{ cwts.} = \$1.04/\text{cwt.}$
 Return over feed costs = $7,498 - \text{supplemental costs of } 880 = \$6,618$
 Return over feed and Supplemental costs = $\$6,618 \div 846 \text{ cwts.} = \$7.82/\text{cwt.}$

KEY QUESTION 4. What are allocated costs?

Allocated costs are expenses for power and machinery, livestock equipment, buildings and fences.

They are allocated to each livestock enterprise by the use of the work unit. The farmer may modify these costs by assigning a different cost allocation factor for each livestock enterprise. Sample Farm IV decided to use 1.00 for each livestock enterprise and let the work unit be the factor that assigns the proper proportion of the cost to each enterprise. The total power and machinery costs allocated to all livestock from Table 8, item 42, is \$2,249.86.

The calculation of the power and machinery costs for each of the livestock enterprises is shown below:

Livestock Enterprise	Total Work Units	Proportion of Expense	Expenses for Each Enterprise
Complete hogs	$101.52 \div 561.70 = .1807$	$.1807 \times \$2,249.86 =$	\$ 406.55
Dairy cows	$384.30 \div 561.70 = .6842$	$.6842 \times 2,249.86 =$	1539.35
Other dairy	$69.84 \div 561.70 = .1243$	$.1243 \times 2,249.86 =$	279.66
Beef feeders	$6.04 \div 561.70 = .0108$	$.0108 \times 2,249.86 =$	24.30
Total work units	561.70	1.0000	\$2,249.86

The total power and machinery expense for hogs of $406.55 \div 846 \text{ cwts} = .48/\text{cwt.}$

Total livestock equipment costs from Table 3, item 28 is \$2163. This is calculated the same as power and machinery expense. Proportion of expense factor from calculating power and machinery above is $.1807 \times 2163 - 390.85 \div 846 = .46/\text{cwt.}$ for hogs.

Livestock Enterprise	Total Work Units	Proportion of Expense	Expenses for each enterprise
Complete hogs	$101.52 \div 561.70 = .1807$	$.1807 \times \$ 2163 =$	\$ 390.85
Dairy cows	$384.30 \div 561.70 = .6842$	$.6842 \times 2163 =$	1479.92
Other dairy	$69.84 \div 561.70 = .1243$	$.1243 \times 2163 =$	268.86
Beef Feeders	$6.04 \div 561.70 = .0108$	$.0108 \times 2163 =$	23.36
Total work units	561.70	1.0000	\$ 2162.99

Allocated costs for building and fences is also calculated similar to power and machinery costs.

The total cost for building, fences and tiling from Table 3, item 29, is \$3945. Some of this cost has already been allocated to crops. Table 8, line 43 shows \$903.40 has been allocated to crops.

$\$3945 - \$903 = \$3042$ left to be allocated to all livestock enterprises. Using the same proportion of expense factor used for power and machinery, we get $.1807 \times \$3042 = \$549.69 \div 846 = \$0.65/\text{cwt.}$

<u>Livestock Enterprises</u>	<u>Total Work Units</u>	<u>Proportion of Expense</u>	<u>Expenses for Each Enterprise</u>
Complete hogs	101.52 ÷ 561.70	= .1807 X \$ 3042	= \$ 549.69
Dairy cows	384.30 ÷ 561.70	= .6842 X 3042	= 2081.34
Other dairy	69.84 ÷ 561.70	= .1243 X 3042	= 378.12
Beef Feeders	6.04 ÷ 561.70	= .0108 X 3042	= 32.85
Total Work Units	561.70	1.0000	\$ 3042.00

KEY QUESTION 5. What are PCAF, ECAF, and BCAF used for?

The power cost allocation factor (PCAF), the equipment cost allocation factor (ECAF), and the building cost allocation factor (BCAF) may be used to modify the effect of the work unit in allocating expenses to the various livestock enterprises. A figure of 1 was used in all the livestock enterprises for Sample Farm IV for the BCAF. Below is an example of how the building costs would have changed for each enterprise if we would have used a 2 for dairy cows but a 1 for the other livestock enterprises. When a particular factor for one enterprise is increased it has the effect of not only increasing the proportion of the expense for the enterprise, but it also decreases the proportion to the remaining enterprises.

<u>Livestock Enterprises</u>	<u>Total Work Units</u>	<u>Building Cost Allocation Factor</u>	<u>Proportion Cost</u>	<u>Expense for Each Enterprise</u>
Complete hogs	101.52	$X 1 = 101.52 \div 946 = .1073$	$X \$3042 =$	\$ 326.41
Dairy cows	384.30	$X 2 = 768.70 \div 946 = .8125$	$X 3042 =$	2471.62
Other Dairy	69.84	$X 1 = 69.84 \div 946 = .0738$	$X 3042 =$	224.50
Beef Feeders	6.04	$X 1 = 6.04 \div 946 = .0064$	$X 3042 =$	19.47
	<u>561.70</u>	<u>946.00</u>	<u>1.0000</u>	<u>\$ 3042.00</u>

KEY QUESTION 6. What other kinds of information in this table is useful to the farmer?

"Supplementary Management Information" as listed in items 34-45 gives additional bits of information that a farmer may use in evaluating his livestock enterprise.

The "Return For \$100 Feed Fed" is calculated for Sample Farm IV as follows:

Total value produced ÷ hundreds of dollars in feed fed.
 (Item 4) 26905 ÷ (Item 18) 194.07 = \$ 138.64

Total listed costs per cwt. produced is calculated by adding the following:

Feed costs	\$ 19407			
Supplemental costs	880			
Allocated costs	1345			
Total listed costs	\$ 21632	÷ 846 cwt.	=	\$ 25.57

Some of the more difficult expenses to assign or distribute to various enterprises on the farm are electricity, telephone, real estate tax, general farm expense, and interest. Farmers who wish to attempt this type of distribution may do so in the spaces provided at the bottom of each of the individual livestock printouts.

PART IV. Summary

- A. A farmer needs accurate beginning and ending inventories and information on purchase and sales of livestock and livestock butchered to determine total pounds and value produced.
- B. Accurate feed quantities and values are also important in evaluating the return above feed costs.
- C. The PCAF, ECAF, and 8CAF are important factors that a farmer may use in modifying his power, machinery, equipment, and building expenses for each livestock enterprise.
- D. Return per \$100 feed fed is a good method to use in comparing profitability between livestock enterprises.

PART V. At-The-Farm Activity

- A. If the student or his parents has hogs on the farm, help them interpret the analysis of the hog enterprise.
- B. Have students complete the test for hog tables.

PART VI. Resources

Chalkboard/overhead projector
Transparency - Sample Farm Hog Table
Study Guide - Table 11A

PART VII. References

Farm/Ranch Management Education (A Course of Study for Adults)
4th edition
Sample Farm Analysis Report
Farm Business Analysis Summary-Local Area, Latest Edition
Documentation of Farm Business Analysis, Dr. Edgar A. Persons

PART VIII. Appendices

Table 11A 6470, Part 1 & 2
Study Guide Questions
Unit test

23-222502	SAMPLE FARM IV	Year End 1976	03/14/77
TABLE 11A	6470 HOGS, FARROW, FINISH, GENERAL	TOTAL	PER CWT.
1	POUNDS OF HOGS PRODUCED	84600	
2	NET INCREASE IN VALUE OF HOGS	\$ 26905	31.80
3	OTHER MISCELLANEOUS HOG INCOME		
4	TOTAL VALUE PRODUCED	\$ 26905	31.80*
5	POUNDS OF FEED FED		
6	CORN		291.3
7	SMALL GRAIN		39.7
8	COMPLETE RATION		
9	PROTEIN, SALT & MINERAL & MILK		77.3
10	TOTAL CONCENTRATES		408.3
11	FORAGES		
12	FEED COSTS		
13	GRAINS		14.22
14	COMPLETE RATION		
15	PROTEIN, SALT & MINERAL & MILK		8.72
16	FORAGES		
17	PASTURE		
18	TOTAL FEED COSTS	\$ 19407	22.94
19	RETURN OVER FEED COSTS	\$ 7498	8.86*
20	SUPPLEMENTAL COSTS		
21	MISCELLANEOUS LIVESTOCK EXPENSE		.13
22	VETERINARY EXPENSE		.09
23	CUSTOM WORK		.82
24	SPECIAL HIRED LABOR		
25	TOTAL SUPPLEMENTAL COSTS	\$ 880	1.04

26	RETURN OVER FEED & SUPPLEMENTAL COSTS	\$ 6618	7.82*
27	ALLOCATED COSTS		
28	POWER & MACHINERY COSTS (PCAF 1.00)		.48
29	LIVESTOCK EQUIPMENT COSTS (ECAF 1)		.46
30	BUILDING & FENCES (BCAF 1)		.65
31	TOTAL ALLOCATED COSTS	\$ 1345	1.59
32	RETURN OVER ALL LISTED COSTS	\$ 5273	6.23*
33	SUPPLEMENTARY MANAGEMENT INFORMATION		
34	RETURN OVER \$100 FEED FED	138.64	
35	PRICE RECEIVED PER CWT. ALL ANIMALS	38.27	
36	PRICE RECEIVED PER CWT. SOLD MKT. ONLY	38.33	
37	NUMBER OF LITTERS FARROWED	47	
38	NUMBER OF PIGS BORN PER LITTER	7.0	
39	NUMBER OF PIGS WEANED PER LITTER	5.9	
40	PERCENT DEATH LOSS	10.9	
41	AVERAGE WEIGHT OF ALL HOGS SOLD	250.8	
42	AVERAGE WEIGHT OF MKT. HOGS SOLD	234.7	
43	PRICE PER CWT. CONCENTRATE FED	5.62	
44	PRICE PER CWT. PROTEIN, SALT & MINERAL	11.28	
45	POUNDS OF PORK PURCHASED		
46	TOTAL LISTED COSTS PER CWT. PORK PRODUCED		\$ 25.57*
47	UTILITIES & OTHER GENERAL FARM EXPENSE		_____
48	INTEREST ALLOCATION		_____
49	OTHER COSTS NOT LISTED		_____
50	TOTAL COST		_____

STUDY GUIDE - TABLE 11A

Hogs-Farrow, Finish, General

1. List all the items that are used in the calculation of "Pounds of Hogs Produced."
2. A farmer has total value produced of \$25,000 and produced 75,000 lbs of hogs. What was his increase in value per cwt. Show work.
3. How is the value of home grown feed determined when calculating feed costs?
4. A farmer has a total veterinary bill for year for all livestock of \$4,000. How does this get divided between hogs, dairy cattle and beef.
5. How are power and machine costs allocated to the various livestock enterprises?
6. If a farmer uses a PCAF of 1.00 on all his livestock enterprises, what affect will this have if any on the power and machine costs to each enterprise?
7. A farmer has total value produced of \$30,000. His total feed cost was \$20,000. What is his return per \$100 feed fed. Show work.
8. Explain why such expenses as electricity, telephone, real estate tax, general farm expense and interest are not proportioned out to various enterprises.

B. Questions - Livestock Tables

- T F 1. In calculating total return to the livestock enterprise, produce used in the home is not a factor.
- T F 2. Net increase in value of hogs is calculated by averaging the price per pound received during the year.
- T F 3. Beginning and ending inventory of hogs are not used in calculating pounds of hogs produced for the year.
- T F 4. Return over feed is the one factor used in classifying farms into high and low income farms for the hog enterprise.
- T F 5. Supplemental costs (direct costs) are costs such as veterinary expense, miscellaneous livestock expense and custom work.
- T F 6. The work unit is used as a factor in proportioning the cost of power and machinery to each of the livestock enterprises.
- T F 7. The PCAF is used to modify or change the effect of the work unit in proportioning expense for power and machinery.
- T F 8. The ECAF is an additional factor that may be used to modify the livestock equipment expense proportioned to livestock.
- T F 9. If you increase the BCAF for one livestock enterprise it has the effect of lowering the expense allocated to the remaining enterprises.
- T F 10. Expenses such as electricity, telephone, general farm expense and interest are assigned to various enterprises by the farmer in the account book.

Unit 12 - Table 12

DAIRY COWS

PART I. Student objectives

- A. Following the discussion and inspection of Sample Farm IV Table 12, 13, and 14, students will be able to identify the three kinds of dairy tables and how they differ.
- B. Given the information on beginning and ending numbers each month of the year, students should be able to calculate the average number of cows for the year.
- C. Given information on number cows sold, number died, number transferred out, number butchered, and average number during the year, students should be able to calculate "dairy cow turnover percentage."

PART II. The Lesson

Attention Focuser

Ask students to look at Tables 12, 13, and 14 for a few minutes and then explain why it is necessary to have three different dairy tables when only one was used for Farrow-Finish Hogs.

Have the students use the study guide and answer questions as the presentation is made.

KEY QUESTION 1. Why do we have three dairy tables?

Table 12 "Dairy Cows" is the table for all mature dairy cows that have calved and are in the milking herd.

Table 13 "Other Dairy Replacements" includes all the young stock in the herd that may be used for replacement in the milk cow herd at some future date. On some farms the "Other Dairy" may also include some dairy steers that are being fed with the dairy heifers. These are fed with the other young stock and no separate records of feed consumption has been kept on them. In such cases the table is called "Other Dairy Cattle - Replacements & Feeders."

Table 14 "All Dairy Cattle" is the sum of Table 12 and 13. It shows the farmer the expenses and receipts on the basis of each milk cow and replacement. The replacement may happen to be more than 1 per milk cow. For instance, if a farmer has 40 milk cows in the herd and the number of head of "other dairy" is 60 he then has 1 1/2 replacements for each milk cow in the herd.

Since Table 13 and 14 follow the same format as Table 12 the discussion will be confined to items in Table 12.

KEY QUESTION 2. How do we arrive at average numbers and how are they used?

Average number of cows is the average number of cows on hand each month of the year. Below is an example of how the average number is arrived at for the year.

(The sum of cows on hand at the beginning of each month plus those on hand on Dec. 31 divided by 13 equals the average number of cows on hand for the year.)

$$\begin{array}{ccccccc} \text{Jan. 1} & + & \text{Feb. 1} & + & \text{Mar. 1} & + & \text{April 1} & + & \text{May 1} & + & \text{June 1} & + & \text{July 1} & + \\ 57 & & 56 & & 54 & & 54 & & 55 & & 53 & & 56 & \\ \text{Aug. 1} & + & \text{Sept. 1} & + & \text{Oct. 1} & + & \text{Nov. 1} & + & \text{Dec. 1} & + & \text{Dec. 31} & & & \\ 55 & & 54 & & 53 & & 55 & & 55 & & 57 & = & 714 & + & 13 & = & \underline{54.9} \end{array}$$

The value of produce in pounds of milk and butterfat per cow is calculated by dividing the total by the average number of cows in the herd.

The dairy products consumed in the home would be the total milk and cream used in the home divided by the average number of cows in the herd.

KEY QUESTION 3. What is "Net Increase in Value"?

Net increases in value of cows in most cases is a negative figure. In the simplest terms it can be thought of as a depreciation in value of the milk cow each year. Below is an example of this calculation for the Sample Farm IV dairy herd.

Ending Inventory	25200	Beginning Inventory	24750
Butchered	-----	Transferred in	
Transferred out	-----	(heifers fresh)	9000
Sales	5853	Purchases	-----
	<u>31053</u>		<u>33750</u>

$$31053 - 33750 = (-2697)$$

$$-2697 \div 54.9 \text{ cows} = (-49.13) \text{ net increase in value of cows}$$

When the negative figure of net increase in value of cows is added to the other dairy income we get total value produced.

KEY QUESTION 4. How is feed fed per cow determined?

As in the hog tables, pounds of feed fed is determined by the farmer's feed records. The total amount of each feed allocated to the dairy cows is divided by the average number of cows to get the feed fed per cow.

The cost of feed is determined in the same way.

KEY QUESTION 5. What are supplemental costs or direct costs for dairy?

Supplemental (direct costs) for dairy comprise miscellaneous expense, veterinary expense, custom work hired and special hired labor.

Miscellaneous expense may include such things as breeding fees, dairy herd improvement fees and fly spray.

Veterinary expense includes such items as payments for veterinary services, medicines, inoculants and vaccines.

Custom work hired is the cost of trucking milk and cull cows to market.

The allocated costs are proportioned in the same manner as was explained for hog tables.

KEY QUESTION 6. What is dairy cow turnover?

Dairy cow turnover percentage, item 51, is the percentage of cows in the herd that are replaced each year. The calculation for Sample Farm IV is as follows:

Number cows sold	16
Number cows died	3
Number cows transferred out	--
Number cows butchered	--
Total	<u>19</u>

$$19 \div (\text{average no. of cows}) \ 54.9 \times 100 = 34.6$$

PART IV. Summary

- A. Three dairy tables are necessary to give the farmer a picture of the dairy cow and the other dairy groups and the two combined.
- B. Average number of cows are used in calculating income and expense per unit during the year.
- C. Net increase in value per cow is usually a negative figure because replacements are coming into the herd at a higher value than those being culled for slaughter.
- D. Dairy cow turnover is the percentage of the herd being replaced each year.

PART V. At-The-Farm Activity

- A. Follow up activity
If students have a home farm analysis, assist in interpreting the dairy or other livestock tables.
- B. Evaluation Exercise:
Have students complete test at end of unit.

PART VI. Resources

Chalkboard/overhead projector
Transparencies: Sample Farm IV Dairy Tables
Study guide - table 12, 13, 14

PART VII. References

Farm/Ranch Management Education (A Course of Study for Adults)
4th edition
Sample Farm Analysis 1976
Farm Business Analysis - Local Area, Latest edition
Documentation of Farm Business Analysis, Dr. Edgar A. Persons

PART VIII. Appendicies

Table 12-6290, Part 1 & 2
Table 13-6310, Part 1 & 2
Table 14- Part 1 & 2
Study guide questions
Unit test

23-222502

SAMPLE FARM IV

Year End 1976

03/14/77

TABLE 12 6290 DAIRY COWS, COMMERCIAL, GENERAL	TOTAL	PER COW
1 AVERAGE NUMBER OF COWS	54.9	
2 POUNDS OF MILK		11169
3 POUNDS OF BUTTERFAT		413.9
4 PERCENT OF BUTTERFAT IN MILK	3.7	
5 VALUE OF PRODUCE		
6 DAIRY PRODUCTS SOLD		\$.24
7 DAIRY PRODUCTS USED IN HOME		6.36
8 MILK FED TO LIVESTOCK		
9 NET INCREASES IN VALUE OF COWS		(-49.13)
10 OTHER MISCELLANEOUS DAIRY INCOME		
11 TOTAL VALUE PRODUCED	\$ 54816	998.47*
12 POUNDS OF FEED FED		
13 CORN		5826.4
14 SMALL GRAIN		69.9
15 COMPLETE RATION		
16 PROTEIN, SALT & MINERAL		211.7
17 TOTAL CONCENTRATES		6108.0
18 LEGUME HAY		8032.8
19 OTHER HAY & DRY ROUGHAGE		
20 SILAGE		16393.4
21 FEED COSTS		
22 GRAINS		252.77
23 COMPLETE RATION		
24 PROTEIN, SALT & MINERAL		25.72
25 ALL HAY & DRY ROUGHAGE		240.98
26 SILAGE		139.34

27	PASTURE		5.36
28	TOTAL FEED COSTS	\$ 36463	664.17
29	RETURN OVER FEED COST	\$ 18353	334.30*
30	SUPPLEMENTAL COSTS		
31	MISCELLANEOUS LIVESTOCK EXPENSE		46.05
32	VETERINARY EXPENSE		25.63
33	CUSTOM WORK HIRED		27.50
34	SPECIAL HIRED LABOR		
35	TOTAL SUPPLEMENTAL COSTS	\$ 5445	99.18
36	RETURN OVER FEED & SUPPLEMENTAL COSTS	\$ 12908	235.12*
37	ALLOCATED COSTS		
38	POWER & MACHINERY COSTS (PCAF 1.00)		28.03
39	LIVESTOCK EQUIPMENT COSTS (ECAF 1)		26.95
40	BUILDING & FENCES (BCAF 1)		37.90
41	TOTAL ALLOCATED COSTS	\$ 5099	92.88
42	RETURN OVER ALL LISTED COSTS	\$ 7809	142.24*
43	SUPPLEMENTARY MANAGEMENT INFORMATION		
44	RETURN FOR \$100 FEED FED	150.33	
45	FEED COST PER CWT. MILK	5.95	
46	FEED COST PER POUND OF BUTTERFAT	1.60	
47	POUNDS OF MILK PER POUND OF CONCENTRATE	1.83	
48	AVERAGE PRICE PER CWT. MILK SOLD	9.38	
49	AVERAGE PRICE PER POUND OF BUTTERFAT	2.53	
50	TOTAL LISTED COSTS PER CWT. MILK PRODUCED	7.67	
51	DAIRY COW TURNOVER PERCENTAGE	34.6	
52	TOTAL LISTED COSTS PER COW		856.23*
53	UTILITIES & OTHER GENERAL FARM EXPENSE		_____
54	INTEREST ALLOCATION		_____
55	OTHER COSTS NOT LISTED		_____
56	TOTAL COSTS		_____

23-222502

SAMPLE FARM IV

Year End 1976

03/14/77

TABLE 13 6310 OTHER DAIRY, COMMERCIAL REPLACEMENTS

	TOTAL	PER HEAD
1 NUMBER OF HEAD	58.2	
2 NET INCREASE IN VALUE	\$ 9279	159.43
3 OTHER MISCELLANEOUS INCOME		
4 TOTAL INCOME	\$ 9279	159.43*
5 POUNDS OF FEED FED		
6 CORN		288.7
7 SMALL GRAIN		
8 COMPLETE RATION		
9 PROTEIN, SALT & MINERALS		252.4
10 HAY & DRY ROUGHAGE		4587.6
11 SILAGE		1786.9
12 MILK		
13 FEED COST		
14 GRAINS		12.37
15 COMPLETE RATION		
16 PROTEIN, SALT & ROUGHAGE		21.48
17 HAY & DRY ROUGHAGE		137.63
18 SILAGE		15.19
19 MILK		
20 PASTURE		18.78
21 TOTAL FEED COSTS	\$ 11957	205.45
22 RETURN OVER FEED COSTS	\$ (-2678)	(46.02)*
23 SUPPLEMENTAL COSTS		
24 MISCELLANEOUS EXPENSE		7.85
25 VETERINARY EXPENSE		4.19
26 CUSTOM WORK HIRED		.77

27	SPECIAL HIRED LABOR		
28	TOTAL SUPPLEMENTAL COSTS	\$ 746	12.81
29	RETURN OVER FEED & SUPPLEMENTAL COSTS	\$ (-3424)	(-58.83)*
30	ALLOCATED COSTS		
31	POWER & MACHINERY COSTS (PCAF 1.00)		4.79
32	LIVESTOCK EQUIPMENT COSTS (ECAF 1)		4.61
33	BUILDING & FENCES (BCAF 1)		6.48
34	TOTAL ALLOCATED COSTS	\$ 924	15.88
35	RETURN OVER ALL LISTED COSTS	\$ (-4348)	(-74.71)*
36	SUPPLEMENTARY MANAGEMENT INFORMATION		
37	RETURN FOR \$100 FEED FED	77.60	
38	PERCENT DEATH LOSS-TOTAL	10.8	
39	PERCENT CALF DEATH LOSS	17.1	
40	TOTAL LISTED COSTS PER HEAD		\$ 234.14*
41	UTILITIES & OTHER GENERAL FARM EXPENSE		_____
42	INTEREST ALLOCATION		_____
43	OTHER COSTS NOT LISTED		_____
44	TOTAL COSTS		_____

TABLE 14	ALL DAIRY & DUAL PURPOSE CATTLE	TOTAL	PER COW
1	AVERAGE NUMBER OF COWS	54.9	
2	VALUE OF DAIRY PRODUCTS	\$ 57513	1047.60
3	NET INCREASE IN VALUE	6582	119.89
4	MISCELLANEOUS DAIRY INCOME		
5	TOTAL VALUE PRODUCED	\$ 64095	1167.49*
6	POUNDS OF FEED FED		
7	GRAINS		6202.4
8	COMPLETE RATIONS		
9	PROTEIN, SALT & MINERALS, INCLUDING MILK EQUIVALENT		479.2
10	HAY & DRY ROUGHAGE		12896.2
11	SILAGE		18287.8
12	FEED COST		
13	GRAINS		265.88
14	COMPLETE RATIONS		
15	PROTEIN, SALT & MINERALS, INCLUDING MILK		48.49
16	HAY & DRY ROUGHAGE		386.89
17	SILAGE		155.45
18	PASTURE COSTS		25.26
19	TOTAL FEED COSTS	\$ 48420	881.97
20	RETURN OVER FEED COSTS	\$ 15675	285.52*
21	SUPPLEMENTAL COSTS		
22	MISCELLANEOUS LIVESTOCK EXPENSE		54.37
23	VETERINARY EXPENSE		30.07
24	CUSTOM WORK		28.32
25	SPECIAL HIRED LABOR		
26	TOTAL SUPPLEMENTAL COSTS	\$ 6191	112.76

27	RETURN OVER FEED & SUPPLEMENTAL COSTS	\$ 9484	\$ 172.76*
28	ALLOCATED COSTS		
29	POWER & MACHINERY COSTS		33.11
30	LIVESTOCK EQUIPMENT COSTS		31.83
31	BUILDING & FENCES		44.77
32	TOTAL ALLOCATED COSTS	\$ 6023	109.71
33	RETURN OVER ALL LISTED COSTS	\$ 3461	63.05*
34	SUPPLEMENTARY MANAGEMENT INFORMATION		
35	RETURN FOR \$100 FEED FED	132.37	
36	TOTAL LISTED COSTS PER COW		\$ 1104.44*
37	UTILITIES & OTHER GENERAL FARM EXPENSE		_____
38	INTEREST ALLOCATION		_____
39	OTHER COSTS NOT LISTED		_____
40	TOTAL COSTS		_____

STUDY GUIDE - TABLE 12

Dairy cows

1. What 4 items are included in total value produced?
2. Why is the net increase in value of cows usually a negative figure?
3. How does the farmer arrive at the number of pounds of feed fed per cow?
4. Name three items that may be included in miscellaneous livestock expense?
5. What would be included in custom work for dairy?
6. Explain the purpose of the PCAF in the calculation of allocated costs.
7. A farmer has total value produced from dairy of \$54,816 and his total feed cost for dairy \$36,463. What is the return per \$100 feed fed?
8. A farmer had to replace 20 cows in his herd of 60 cows this past year. What is his dairy cow turnover percentage?

B. Table 12 Questions and Problems

- T F 1. It is December 30 and a springing heifer was purchased. She is expected to freshen within a week. She should be included in the dairy cow herd numbers.
- I F 2. The net increase in value of cows is the difference between the value of the cows purchased or transferred in and the value of cows sold or transferred out.
- I F 3. Milk fed to livestock is considered part of the total value produced.
- I F 4. Dairy feeders may be included in "Other Dairy" if separate records of feed fed has not been kept on them.
- T F 5. Breeding fees are considered a veterinary expense.
- I F 6. A Power Cost Allocation Factor (PCAF) can be used to modify the work unit in proportioning power and machine costs to dairy cows.
- I F 7. The only cost that has been used in arriving at "Return for \$100 Feed Fed" is feed cost.
- I F 8. "Pounds of milk per pound of concentrate" of 2 means that it takes one pound of concentrate to produce 2 pounds of milk.
9. A farmers record shows "total listed cost per cwt. milk produced" of \$8.00. Name two other possible costs that he may add to this.
Utilities, general farm expense, interest on investment.
10. A farmer has to replace 26 cows in his 78 cow herd this year. What is his dairy cow turnover percentage?
 $26 \div 78 = 33\%$

GENERAL
APPENDIX

EXPLORING THE FARM BUSINESS MANAGEMENT ANALYSIS REPORT

STUDY GUIDE - KEY

TABLE 1

1. Tillable acres, work units, capital invested.
2. Jan.1 or Dec. 31. This is the end of the business year or the tax year for most farmers.
3. The analysis should include the entire farm business being operated by the farmer.
4. The farmer is interested in measuring his progress as a result of his management. Increases due to inflation would be a "paper" increase.
5. Table 5 - Net Worth Statement.
6. This may determine whether or not a profit or loss was made in the business.
7. Inventories of livestock, crop, seed and feed. Information on work units and capital investment per worker.

TABLE 2A & 2B

1. It is a "Whole Farm" table.
2. Item 38, "Increase in Farm Capital".
3. All he can get for it when he sells it is wholesale price.
4. Yes, item 16, Table 2B, "Fertilizer".
5. No, only on the individual crop tables and on Table 9, "Fertilizer Cost Per Acre".
6. The remaining value to be depreciated, after taking the current years depreciation, is included in item 38 "Increase in Farm Capital" on Table 2A; so, in effect, only this years cost has been deducted.
7. If this capital were not invested in the farm business it could be earning at least 6% if invested in stock, bonds or some other business.
8. It is a charge to the farm business for the amount of labor contributed by the family. If this labor had not been contributed it would have been hired help.
9. This is an expense to the farmer that would not have been there unless he had hired help.
10. It is the return to the operator for his labor and management after all expenses have been deducted.

TABLE 3

1. The returns and net increases are assigned to each enterprise on the farm rather than to categories of income. Likewise, the expenses and net decreases are assigned to parts of the business rather than identifying the item.
2. The increases or decreases in inventory are assigned to each enterprise or part of the farm business in Table 3. In Table 2 the change in inventory shows up as either a decrease in Table 2B, item 40 or an increase in item 38, Table 2A.
3. On most farms, the contribution to total income comes from crops and livestock. The relative contribution made by each can be seen in these two figures, item 17 and 18. Item 17 shows the return to livestock after feed costs and item 18 shows the return to crops after seed, fertilizer and chemical costs.

Table 3 - continued

4. Feed is the major expense in the production of livestock and seed, fertilizer and chemicals are one of the major expenses in the production of crops.
5. It is the total cost of operating the truck and auto for the year. It includes depreciation, repairs, gas, oil and grease.
6. Labor, item 32, Table 3 includes the sum of hired labor, unpaid family labor, labor share of custom work hired, hired labor boarded, minus income from work done off the farm.
7. Electricity, miscellaneous livestock expense, labor charge for other operators, property tax, general farm expense and telephone, and interest on farm capital.
8. The same figures of income and expense were used in both tables. The increase or decrease in inventories in each enterprise are included with the enterprise on Table 3. In Table 2A & 2B the increase or decrease appears as one figure.

TABLE 4

1. The expenses for living have to be paid first.
2. It provides a method of comparing families of different ages and sizes.
3. Furnishings and equipment, personal share of new truck and auto, new dwelling bought, savings and investments made during the year.
4. This could have been sold and would have added to income.
5. In most cases it would be very difficult to get this type of information from the landlord. If it could be obtained, a combined table would have little meaning to the individual families involved.

TABLE 5

1. A combined net worth statement would be of little value to the individual operators unless they had joint bank accounts, and all debts were incurred and paid off jointly.
2. By subtracting the amount on Table 5 from that shown on Table 1.
3. Total liabilities are subtracted from total farm capital at beginning and end of year.
4. The net worth statement indicates how much the operator is worth. He may have other assets and liabilities that are non-farm.
5. Item 19, "Return to Capital and Family Labor" and Item 23 "Total Non-Farm Income".
6. He spends 80¢ for every dollar of income generated.
7. He has \$4.25 in assets to cover each dollar of liabilities.
8. a) Livestock; crop, seed and feed; machinery and equipment.
b) Chattel mortgages, notes, and accounts payable.
9. a) Land; buildings, fences, and tiling; and dwelling.
b) Real estate mortgage.
10. It indicates to the farm operator the amount of gross income received for each dollars worth of capital used in the business. It is the rate of capital turnover.

TABLE 6A-6B

1. Table 2A and 2B
2. Item 30, Table 6B, Cash rent. The cash rent should be sufficient to cover real estate tax and interest on investment.
3. $5,000 + 4,000 = 9,000 \div .06 = \$150,000$
4. $\$12,000 + \$1,000 + 7,000 = \$20,000$
5. Tables 2 and 3 also include the landlord's capital.
It would be very difficult to get information on the landlord's equity in the capital to determine interest on farm capital equity. A combined figure would not have much meaning to either the operator or the landlord.

TABLE 7

1. To provide information to the reader on work unit values, animal units and prices used in the report.
2. It is a measure of the average accomplishment of a farm worker in a ten hour day.
3. Some farmers are better organized, have more machinery and equipment with which to get work done. The additional cost of the equipment and machinery would be reflected in item 9, Table 8 "Power Machinery, Equipment, Building Expense Per Work Unit."
4. Table 8:
 - 1) Item 7, Size of Business - Work Units
 - 2) Item 8, Work Units Per Worker
 - 3) Item 9, Power, Mach., Equipmt., Bldg., Exp. Per Work Unit
 - 4) Item 32, Work Units on Crops
 - 5) Item 33, Work Units, Productive Livestock
 - 6) Item 34, Other Productive Work Units
 - 7) Item 36, Tractor & Crop Mach. Ex. Per Work Unit
 - 8) Item 37, Farm Share, Auto & Truck Exp. Per Work Unit
 - 9) Item 38, Farm Share Electricity Exp. Per Work Unit
 - 10) Item 39, Livestock Equipment Exp. Per Work Unit
 - 11) Item 40, Bldg., Fence, Tiling Exp. Per Work Unit
 - 12) Item 42, Farm Power & Mach. Cost Allocated to Livestock
 - 13) Item 43, Bldg., Fence, Tiling Cost Allocated to Crops

The work unit is also used in allocating farm power and machinery ownership and operation costs to crops in each crop table. It is also used to allocate power and machine costs, livestock equipment costs and building and fencing costs to livestock on the livestock tables.

5. A work unit is a measure of work required to care for a particular animal or crop for a specified time.
The animal unit is a measure based on the amount of total digestible nutrients (TDN) required to maintain a particular animal for a specified time.

TABLE 8

1. Table 8 is developed from the data of all the cooperators used in the averages. Therefore, all records to be used in the averages have to be in the computer before this table can be run.
2. An index is a figure indicating the average of all cooperators in the group, the average being 100. An individual farmer may compare with 100 by being either above, below or the same in any of the measures where an index is used.

3. An index of 105 in crops would mean that the farmer was 5 percent better than the average. Or in other words, he could raise the same amount of crops on 5% less land.
4. Corn, corn silage, canning corn, and canning peas.
5. Yield, crop selection, and price per unit.
6. Because feed constitutes the major cost in livestock production.
7. No, the overall index is weighted by the dollars worth of feed consumed by each livestock enterprise. Thus, the hog enterprise would have a greater influence on the overall index than the dairy cows.
8. Many farms have a considerable amount of livestock. Tillable acres do not give indication of the number of livestock units on the farm, but work units do.
9. Was an accelerated depreciation taken?
Was a large repair bill (a major tractor overhaul) taken as an expense in one year rather than depreciating?
Are the work units adequate?
10. Operators labor, unpaid family labor, hired labor and labor share of custom work hired.
11. Table 3 - Enterprise statement.
12. If he had a large amount of livestock, the expense of machinery per acre may be more meaningful than expense per work unit.

TABLE 9

1. A crop with a rank of A is one that has a high net return per acre over a period of years. A crop with a rank of D has a history of low net return per acre.
2. Some crops may be suited for production in one area of the state but not in another.
3. Yes, the allocated fertilizer is the fertilizer cost per acre rather than what was purchased. It is the fertilizer actually used.
4. Difference in amount of tillage from one farm to another, size of tractors and equipment, type of crops raised and type of soil.
5. The expense on Table 9 is only for gas, oil and grease. The crop machinery expense on Table 8 is for all tractor and machine expense including repair and depreciation.

TABLE 10's

1. He uses the market price at the time of harvest.
2. Straw harvested from oats crop, corn stalks harvested from corn crop. Insurance payments made on a crop loss from hail, etc.
3. Yes, the cost of fertilizer actually used is charged to the crop.
4. Yes, the actual cost or value of seed used.
5. Combining, tractor work, trucking.
6. Ownership cost = depreciation
Operation cost = repairs, gas, oil and grease
7. The work unit value is used as a factor in proportioning the total machine costs to the various crops.
8. It is used to modify the work unit value of a particular crop in proportioning the machine expense.
9. He would use the land rental value in his area or an amount that would cover the interest on investment plus real estate tax on the land.
10. By dividing the total listed costs by the value per production unit.

TABLE 11A

1. Beginning and ending inventory
Hogs butchered
Hogs transferred in and out
Sales and purchases of hogs
2. $\$25,000 \div 750 \text{ cwt.} = \$33.33/\text{cwt.}$
3. Average price of feed during the year is used as a price for the homegrown feed.
4. He allocates veterinary expense to the various livestock enterprises in his account book.
5. Power and machine costs are allocated to the various enterprises by using the work unit as a factor in proportioning the total cost.
6. It will have no affect since the work unit proportions out the expense and a 1.00 would have the same affect on each enterprise.
7. $\$30,000 \div 200 = \$150 \text{ per } \$100 \text{ feed fed.}$
8. A system for properly allocating these expense to the various enterprises has not been developed yet.

TABLE 12

1. Beginning and ending inventories of cows
Transfers in and out
Butchered
Purchases and sales of cows
2. Because the heifers freshened are brought into the herd at a higher value than the amount received from each cull cow which they replace.
3. He keeps an account of the total amount fed to the herd of cows and this is divided by the average number of cows on hand during the year.
4. Breeding fees, milk filter pads, milker inflations, cleaning supplies, fuel for milking parlor, fly spray, etc.
5. Trucking cull cows and trucking milk.
6. The PCAF is used to modify the value of the work unit in proportioning machine costs to various enterprises.
7. $\$54,816 \div \$364.63 = \$150.33$
8. $20 \div 60 = 33\% \text{ turnover.}$

The number of measures of Farm Organization in which a farmer excels has a marked influence on Labor Earnings as shown in Figure 2. The seven measures used in developing this graph are items 2,3,5,6,7,8 and 9 found on Table 8.

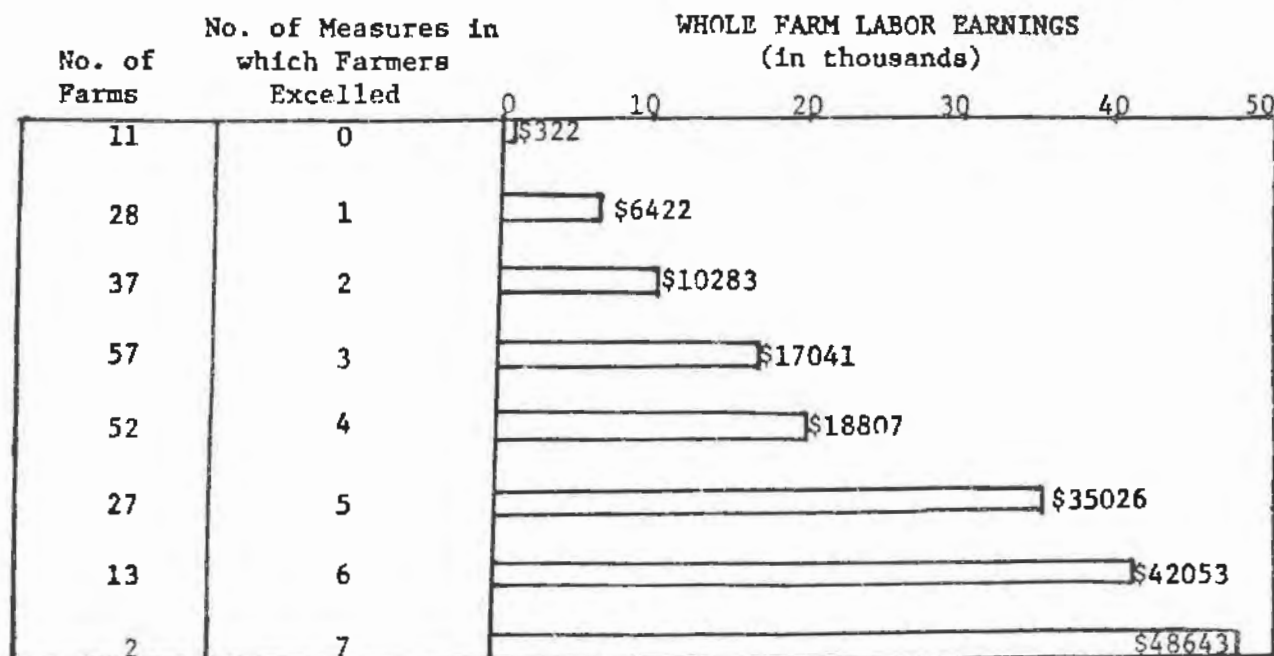


Figure 2 - How Measures of Farm Organization Influence Labor Earnings

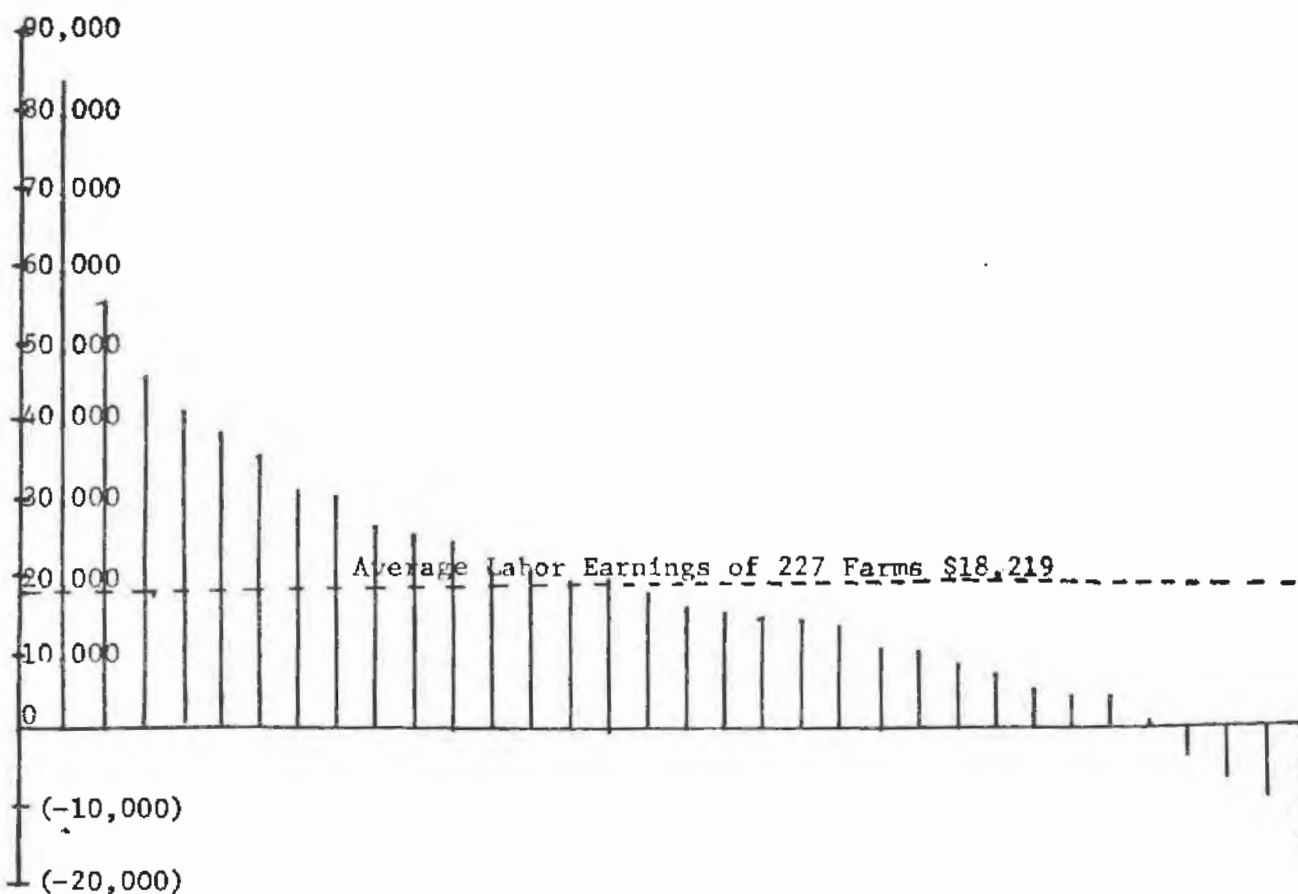


Figure 3 - Range in Earnings of 227 Farms. Each line on the graph represents the average Labor Earnings of 7 farms in the group.



FARM BUSINESS MANAGEMENT
EDUCATION PROGRAM

CODE 23222502 NAME SAMPLE FARM IV
AREA CENTER Winona SCHOOL WINONA VO-TECH
DATE 7/28/77 CITY WINONA STATE MINN.

MINNESOTA VO-AG
COMPUTER DATA SHEET
FORM 1A
OCTOBER: 1976

INVENTORY DATA

Form of

LINE NO.	DESCRIPTION	BEGINNING INVENTORY			ENDING INVENTORY			STATE CODES		
		WHOLE FARM	OPER. SHARE	L.L. SHARE	WHOLE FARM	OPER. SHARE	L.L. SHARE			
1	CROP, SEED, & FEED	45308			38281			01 AL	26 MT	
2	AUTO & TRUCK FARM SHARE	3419			5264			02 AK	27 NB	
3	POWER CROP & GEN MACH	24031			20848			03 AZ	28 NV	
4	IRRIGATION EQUIPMENT							04 AR	29 NH	
5	CUSTOM WORK EQUIPMENT							05 CA	30 NJ	
6	LIVESTOCK EQUIPMENT	4057			5453			06 CO	31 NM	
7	BARE LAND	100417		42000	100417		42000	07 CT	32 NY	
8	BLDGs, FENCES & TILING	45275			50642			08 DE	33 NC	
9	TOTAL NON-FARM ASSETS	19606			22781			09 FL	34 ND	
10	DWELLING	12500			14000			10 GA	35 OH	
11	REAL ESTATE MTGE	56700			51700			11 HI	36 OK	
12	CHattel & CROP LOANS							12 ID	37 OR	
13	NOTES	15008			14874			13 IL	38 PA	
14	ACCOUNTS PAYABLE	360			110			14 IN	39 RI	
								15 IA	40 SC	
								16 KS	41 SD	
								17 KY	42 TN	
								18 LA	43 TX	
								19 ME	44 VT	
								20 MD	45 VT	
								21 MA	46 VA	
								22 MI	47 WA	
								23 MN	48 WY	
								24 NS	49 WI	
								25 MO	50 WY	

LIVESTOCK ENTERPRISES

LINE NO.	DESCRIPTION	CODE NO 6280 DESCRIPTION Dairy Cows			CODE NO 6310 DESCRIPTION Other Dairy			CODE NO 6140 DESCRIPTION Steers		
		QUANTITY	WHOLE FARM	L.L. SHARE	QUANTITY	WHOLE FARM	L.L. SHARE	QUANTITY	WHOLE FARM	L.L. SHARE
20	BEGINNING INVENTORY		24750			11525		7000	2100	
21	ENDING INVENTORY		25200			11400		17100	5100	
22	TRANSFERS IN		9000					300	90	
23	TRANSFERS OUT					9090				
24	BUTCHERED				2000	650				
25	SALES		5853			814		11840	3451	
26	PURCHASES					2150		15605	4982	
PRODUCT INFORMATION										
30	WHOLE MILK USED/HOUSE	1745	349					QTS		
31	SKIM MILK USED/HOUSE							QTS		
32	CREAM USED/HOUSE							QTS		
33	CREAM SOLD							LBS		
34	WHOLE MILK SOLD	609404	57164					LBS		
35	BUTTERFAT IN MILK SOLD	22587						LBS		
36	NO SHEEP/COATS SHEARED							LBS		
37	WOOL/HAIR SOLD (QIVIUT)							LBS		
38	INCL. INCENTIVE PYT.							NO.		
39	PELTS/HORNS SOLD							DOZ		
40	EGGS SOLD							DOZ		
41	EGGS USED IN HOUSE							DOZ		
42	CROPS USED IN HOUSE							LBS		
43	HONEY USED IN HOUSE							LBS		
44	WAX SOLD							LBS		
45	QUEENS & PKGS SOLD							NO.		
46	MISC. LVSTK INCOME							NO.		

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

Form of _____



CODE 23 222502 NAME SAMPLE FARM II
AREA CENTER WILKINSON SCHOOL WILKINSON VLTech.
DATE 7/28/77 CITY WILKINSON STATE MINN.

LINE NO.	DESCRIPTION	CODE NO. 6290 DESCRIPTION <u>Dairy Cows</u>			CODE NO. 6310 DESCRIPTION <u>Other Dairy</u>			CODE NO. 6140 DESCRIPTION <u>Steers</u>		
		QUANTITY	WHOLE	L.C.	QUANTITY	WHOLE	L.C.	QUANTITY	WHOLE	L.C.
50	LIVESTOCK NUMBERS									
50	BEGINNING INVENTORY	55			58			14		
51	PURCHASED				2			41		
52	TRANSFERRED IN	20						2		
53	BORN				70					
54	SOLD	16			35			14		
55	YOUNG DIED				12					
56	OLD DIED	3			2					
57	TRANSFERRED OUT				20					
58	BUTCHERED ^(Acres Pollinated)				2					
59	ENDING INVENTORY	56			59			43		
60	FEMALES BEARING YOUNG									
61	FEM SUPPOSED TO BEAR YG									
62	AVERAGE NO ADULTS .x	54.9								
63	AVERAGE NO OTHERS .x				58.2			10.1		
64	WORK UNITS/UNITS OTHER PROD LVSTK ONLY .xx									
70	MISC. LIVESTOCK EXP.		2528			457			75	
71	VETERINARY EXPENSE		1407			244			18	
72	CUSTOM WORK HIRED		1510			31			169	
73	NO. SOLD OR TRANSFERRED									
74	SOLD OR TRANSFERRED									
75	SPECIAL HIRED LABOR									
76	PCAF .xx	1.00			1.00			1.00		
77	ECAF	1			1			1		
78	BCAF	1			1			1		
80	CORN 56#BuWt	5712	BU.	13709	300	BU.	720	320	BU.	762
81	OATS 32#BuWt	120	BU.	168		BU.			BU.	
82	BARLEY, MILLET, BUCKWHEAT		BU.			BU.			BU.	
83	RYE, FLAX 56#BuWt		BU.			BU.			BU.	
84	WHEAT, SOYBEANS, PEAS 60# BuWt		BU.			BU.			BU.	
85	PROT, SALT, MIN & VIT (FISH FERT.)	116.2	CWT	1412	146.9	CWT	1250		CWT	
86	COMPLETE RATIONS (WORK BED)		TON			TON		4.0	TON	532
87	LEGUME HAY (PEAT MOSS)	220.5	TON	13230	133.5	TON	8010	3.0	TON	180
88	OTHER DRY HAY (COW MANURE)		TON			TON			TON	
89	CORN SILAGE (OTHER MANURE)	450.0	TON	7650	52.0	TON	884	16.0	TON	272
90	GRASS SILAGE		TON			TON			TON	
91	FODDER & STOVER		TON			TON			TON	
92	PASTURE		DAY	294		DAY	1093		DAY	
93	WHOLE MILK FED		LBS			LBS			LBS	
94	FARM SKIM MILK FED		LBS			LBS			LBS	
95	HONEY		LBS			LBS			LBS	
96	SUGAR		LBS			LBS			LBS	
97	CHEMICALS & OTHER		LBS			LBS			LBS	
98	NECTAR & POLLENS		LBS			LBS			LBS	
99	RED MEATS & BY-PRODUCTS		LBS			LBS			LBS	
100	POULTRY MEATS & BY-PROD.		LBS			LBS			LBS	
101	FISH PRODUCTS		LBS			LBS			LBS	

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



FARM BUSINESS MANAGEMENT
EDUCATION PROGRAM

CODE 23222502 NAME SAMPLE FARM IV
AREA CENTER WINONA SCHOOL WINONA Ho-fsch.
DATE 7/28/77 CITY WINONA STATE MINN

MINNESOTA VO-AG
COMPUTER DATA SHEET
FORM 1B
OCTOBER, 1976

INVENTORY DATA

Form of

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

LIVESTOCK ENTERPRISES

LINE NO.	DESCRIPTION	CODE NO 6420 DESCRIPTION			CODE NO -- DESCRIPTION			CODE NO -- DESCRIPTION		
		QUANTITY	WHOLE FARM	L.L. SHARE	QUANTITY	WHOLE FARM	L.L. SHARE	QUANTITY	WHOLE FARM	L.L. SHARE
19	BEGINNING INVENTORY	16050	2790							
20	ENDING INVENTORY	26375	1100							
21	TRANSFERS IN									
22	TRANSFERS OUT									
23	BUTCHERED	1530	752							
24	SALES	72745	27843							
25	PURCHASES									
26	PRODUCT INFORMATION									
30	WHOLE MILK USED/HOUSE	QTS			QTS			QTS		
31	SKIM MILK USED/HOUSE	QTS			QTS			QTS		
32	CREAM USED/HOUSE	LBS			LBS			LBS		
33	CREAM SOLD	BP.			BP.			BP.		
34	WHOLE MILK SOLD	LBS			LBS			LBS		
35	BUTTERFAT IN MILK SOLD	NO.			NO.			NO.		
36	NO SHEEP/GOATS SHEARED									
37	WOOL/HAIR SOLD (QIVUT) INCL. INCENTIVE FYI.	LBS			LBS			LBS		
38	PELTS/HORNS SOLD	NO.			NO.			NO.		
39	EGGS SOLD	DOZ			DOZ			DOZ		
40	EGGS USED IN HOUSE	DOZ			DOZ			DOZ		
41	CROPS USED IN HOUSE	LBS			LBS			LBS		
42	HONEY USED IN HOUSE	LBS			LBS			LBS		
43	WAX SOLD	NO.			NO.			NO.		
44	QUEENS & PKGS SOLD									
45	MISC. LVSTK INCOME									

Use Whole Number Only Unless A Decimal Is Specified.
Round All Cents To the Closest Dollar.
Decimal Number Must Be Complete if Called For.



Form of _____

CODE 23222502 NAME SAMPLE FARM IV
AREA CENTER WINONA SCHOOL WINONA VO-TCH.
DATE 7/28/77 CITY WINONA STATE MINN

LINE NO.	DESCRIPTION	CODE NO. 6470			CODE NO.			CODE NO.		
		QUANTITY	WHOLE	L.I.	QUANTITY	WHOLE	L.I.	QUANTITY	WHOLE	L.I.
LIVESTOCK NUMBERS										
50	BEGINNING INVENTORY	166	NO.							
51	PURCHASED		NO.							
52	TRANSFERRED IN		NO.							
53	BORN	330	NO.							
54	SOLD	270	NO.							
55	YOUNG DIED	54	NO.							
56	OLD DIED		NO.							
57	TRANSFERRED OUT		NO.							
58	BUTCHERED (Acres Pollinated)	6	NO.							
59	ENDING INVENTORY	146	NO.							
60	FEMALES BEARING YOUNG	47	NO.							
61	FEM SUPPOSED TO BEAR YG		NO.							
62	AVERAGE NO ADULTS .x	28.2	NO.							
63	AVERAGE NO OTHERS .x	166.8	NO.							
64	WORK UNITS/UNITS OTHER PROD LIVSTK ONLY .xx									
MISC. LIVESTOCK INFO										
70	MISC. LIVESTOCK EXP.	106	\$							
71	VETERINARY EXPENSE	75								
72	CUSTOM WORK HIRED	693								
73	NO. SOLD OR TRANSFERRED	256	NO.							
74	SOLD OR TRANSFERRED	1,000	LBS	23032						
75	SPECIAL HIRED LABOR									
76	FCAP .xx	1.00								
77	ECAP	1								
78	BCAP	1								
FEED FED										
60	CORN 56#BuWt	4400	BU.	10560						
81	OATS 32#BuWt	1050	BU.	1470						
82	BARLEY, MILLET, BUCKWHEAT		BU.							
83	RYE, FLAX 56#BuWt		BU.							
84	WHEAT, SOYBEANS, PEAS 60# BuWt		BU.							
85	PROT, SALT, MIN & VIT (FISH FERT.)	654.1	CWT	7375						
86	COMPLETE RATIONS (MORM BED)		TON							
87	LEGUME HAY (PEAT MOSS)		TON							
88	OTHER DRY HAY (COW MANURE)		TON							
89	CORN SILAGE (OTHER MANURE)		TON							
90	GRASS SILAGE		TON							
91	FODDER & STOVER		DAY							
92	PASTURE		DAY							
93	WHOLE MILK FED		LBS							
94	FARM SKIM MILK FED		LBS							
95	HONEY		LBS							
96	SUGAR		LBS							
97	CHEMICALS & OTHER		LBS							
98	NECTAR & POLLENS		LBS							
99	RED MEATS & BY-PRODUCTS		LBS							
100	POULTRY MEATS & BY-PROD.		LBS							
101	FISH PRODUCTS		LBS							

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Decimal Number must be complete if called for.
For example, 10 tons of complete ration must be reported as 10.0 tons.

INCOME AND EXPENSE DATA

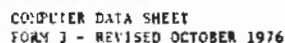
CODE 2322501 NAME SAMPLE FARM IV
AREA CENTER WINONA SCHOOL WINONA VO-TECH
DATE 7/28/77 CITY WINONA STATE MINN

LINE		PAGE	WHOLE FARM	OPERATOR'S SHARE	LANDLORD'S SHARE	HOUSEHOLD & PERS. EXP.
1	ADMINISTRATIVE EXPENSE	24-25	1745			
2	MISCELLANEOUS LIVESTOCK EXPENSE	24-25	1891			
3	FEED PURCHASE	24-31	11317			
4	FERTILIZERS	36	5412			
5	CROP PROTECTANT	38	1524			
6	OTHER CROP EXPENSES (EXCL. IRRIG. OPERATING COST)	39	2220			
7	CUSTOM WORK PERIOD:					
8	FOR TRUCK SHARE	40	1405			
9	FOR POWER AND CROP MACHINERY	50				
10	FOR LIVESTOCK EQUIPMENT SHARE	50				
11	LABOR SHARE	50	937			
12	REPAIR OF FARM BUILDING	41	348			36
13	REPAIR AND MAINT. ON	41	5000			1250
14	POWER AND CROP MACHINERY BOUGHT	42	1700			
15	LIVESTOCK EQUIPMENT BOUGHT	42	3350			
16	REPAIRS AND MAINT. BOUGHT	42	9000			
17	LAND RENT	42				
18	DEPRECIATION	42	1500			1500
19	WATER AND SEWER RENT	43				
20	POWER AND CROP MACHINERY RENT	43				
21	LAND RENT	43				
22	WATER AND SEWER RENT	43				
23	LAND RENT	43				
24	WATER RENT	43				
25	PROPERTY TAXES - REAL AND PERSONAL	44	2249		639	82
26	CASH RENT	44	4745			
27	CASH TAX RENT	44	637			
28	GAS, OIL, GREASE/GRASS TOTAL	44-45	4980			215
29	FOR TRACTOR & CROP MACHINERY	44-45	4014			
30	FOR TRUCK	44-45	310			
31	FOR AUTO	44-45	654			215
32	REPAIR & OPERATION OF POWER MACHINERY TOTAL	46-51	2675			173
33	FOR TRACTOR & CROP MACHINERY	46-51	2673			
34	FOR TRUCK	46-51	126			
35	FOR AUTO	46-51	476			173
36	REPAIR OF LIVE STOCK EQUIPMENT	46-51	209			
37	REPAIR OF LIVE STOCK EQUIPMENT	46-51	1062			
38	DEPRECIATION	51	1566			313
39	TELEPHONE EXPENSE	51	291			58
40	GENERAL FARM EXPENSE	54	532			27
41	INCOME FROM WORK ON THE FARM:					
42	FOR TRUCK	54				
43	FOR POWER & CROP MACHINERY	54	3050			
44	FOR LIVESTOCK EQUIPMENT	54				
45	LABOR SHARE	55	1061			
46	NO-OP PATRONAGE REFUNDS	55	463			
47	MISCELLANEOUS FARM INCOME	55				

LINE		PAGE	WHOLE FARM	LANDLORD'S SHARE	H.H. & PERS. EXP.
48	MONEY BORROWED	55			4300
49	PAID ON DEBTS-PRINCIPAL	56			9684
50	- INTEREST	56			6910
51	INVESTMENTS MADE	58			
52	INCOME FROM INVESTMENTS	57			205
53	DEBT REPAYMENT	58			2940
54	INCOME AND SELF-EMPLOYMENT TAXES	58			1502
55	INCOME TAX REFUNDS	58			
56	CONTRIBUTIONS TO CHURCH AND WELFARE	59			566
57	MEDICAL EXPENSES	59			1438
58	FOOD AND MEAL PURCH.	60-61			2129
59	OPERATING EXPENSES AND SUPPLIES	61			849
60	DEPRECIATION AND EQUIPMENT	62			2252
61	CLOTHING	62			981
62	PERSONAL CARE AND SPENDING	63			366
63	EDUCATION	63			49
64	RECREATION	64			509
65	GIFTS AND SPECIAL EVENTS	65			287
66	NUMBER OF PERSONS IN FAMILY				4
67	ADULT EQUIVALENT IN FAMILY (TO NEAREST 1/10)				3.0
68	DAYS OF DAY LAB. ON FARM				
69	MONTHS OF MONTHLY LAB. ON FARM (TO NEAREST 1/10)				13.0
70	DIRT LABOR BOARDED - OPERATOR				\$ 1460
71	- PARTNERS				\$
72	DAYS OF UNPAID FAMILY LABOR				100
73	VALUE OF UNPAID FAMILY LABOR				\$ 2000
74	NUMBER OF OPERATORS ON THE FARM				1
75	MONTHS WORKED BY OPERATOR (TO NEAREST 1/10)				12.0
76	MONTHS WORKED BY PARTNERS (TO NEAREST 1/10)				
77	VALUE OF PARTNER'S LABOR				\$
78	OWNER IS RENTED 2+ PARTNERS 1 (CHECK)				1251
79	NET WORTH STATEMENT (CHECK YES OR NO)				YES - NO

LINE	DESCRIPTION	PAGE	WHOLE FARM	LANDLORD'S SHARE	H.H. & PERS. EXP.
80	OPERATING COSTS - IRRIGATION	39			
81	REPAIR OF IRRIGATION EQUIP.	40-51			
82	IRRIGATION EQUIPMENT BOUGHT	42			
83	IRRIGATION EQUIPMENT SOLD	43			
84	CUSTOM WORK ENTERPRISE ONLY				
85	GAS, OIL & GREASE/CUST. WK.				
86	REPAIRS/CUST. WK.				
87	CUSTOM WORK LABOR HIRED				
88	SUPPLIES FOR CUSTOM WORK				
89	CUSTOM WORK EQUIPMENT BOUGHT				
90	CUSTOM WORK EQUIPMENT SOLD				

Use whole number only unless a decimal is specified. Round all cents to the nearest dollar. Decimal numbers must be complete if called for.



MINNESOTA VO-AG BUSINESS
MANAGEMENT EDUCATION PROGRAM

CROP DATA

CODE 23222-502 NAME SAMPLE FARM IV
AREA CENTER WINDOM SCHOOL WINDOM VO-Tech
DATE 7/28/77 CITY WINDOM STATE MINN

[illegible]

***Caution:** Do not use duplicate crop codes!

