

KEEPING FARM RECORDS FOR ANALYSIS

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INTRODUCTION

There are many reasons for writing. Sometimes it is easier to tell others what to do than to do it. Another reason is to insure ones own confidence. Sometimes people just write because they think they can.

I am probably guilty of often having been motivated by reasons similar to the above mentioned but in this instance I am writing out of sheer desperation. In working with farm records I find a critical need for communication. The first problem in communication is to convey the need for completeness and accuracy in record keeping. The success of account book analysis depends upon the information found in the records submitted. Basic analysis information can be completed from some account books with as little as six hours of clerical work. More than twenty hours have been required for other books.

It is physically impossible to supervise the analysis of two hundred or more farm accounts unless the records are complete, accurate, legible and accompanied with all the necessary supplementary information. Should farm records eventually be analysed electronically, the detail will necessarily be even more exacting.

This little manual is not just an attempt to get good farm records. It is an attempt to get farm records than can be analysed. Every year we have some that simply do not provide the basic information necessary. This often involves the complete reconstruction of the record that consumes many hours of additional time for the instructor, the coordinator, the clerical assistants, and the farmer.

My reaction to some of the problems we face yearly is both selfish and professional. It is selfish in that trying to interpret, correct, complete, estimate, and improvise faulty records is sheer agony. It is professional in that accurately analysed farm records are basic to the total program of vocational agriculture. The farmer cannot afford to summarize information that may be inaccurate or incomplete. It is important that the farmer get a true picture of his business. He will also wish to assess his situation as to how it compares with averages of different degrees of achievement.

Better records are necessary if analysis summaries are to be used as a basis for community study and evaluation. Vocational agriculture instructors and county agents should be able to use analysis information in estimating the rural assets and liabilities of their communities. They can also be used to determine the available rural income.

Information from analysis summaries when accurate is invaluable for building a rural educational program. It discloses strengths or weaknesses in the farming pattern of the community. It provides a basis for course planning at both the high school and adult level. It provides guidance information for young men attempting to get started in farming. Errors in individual accounting often balance each other when absorbed with many other records in averages. This should not encourage complacency on the part of the farmer or instructor. Individual performance is of first consideration in farm analysis activity. Averages are primarily guideposts.

In each annual report we acknowledge those who make up our team. Those who have worked on the yearly summary have made my task less tedious and more inspiring by assuming a personal interest in the project. Their loyalty and conscientious efforts have been deeply appreciated.

One of the crew has assisted me in preparing this manual. Madge Anderson, for seven years the right arm of the analysis effort, has carefully reviewed and enumerated problems that come up each year in account book analysis. Between us we have tried to cover all details in this brief. I am most grateful for Madge's assistance. Others of last year's team, while having worked fewer years on the project, have demonstrated the same concern to do a superior job.

We were pressed for time in getting out something that would help in the closing of 1964 farm account books. With an initial publication we will have a starting point. Revisions and additions can be made when the 1100 copies of this report are exhausted. Suggestions for improving the manual will be much appreciated.

CHAPTER I

ACCURATE AND COMPLETE RECORDS ARE IMPORTANT

Our introduction stated that the farmer of the mid 1960's cannot afford to operate blindly in the management of his very complex and technical business. Good farm records would seem to be a must. The pilot of a plane might reach his destination by flying in the general direction of his assignment, but no one with a minimum degree of intelligence and caution would want to be his passenger.

Compared to the complexity of farming as a business, most farm record keeping systems are amazingly simple -- perhaps too simple. A farmer and his wife usually keep all of the accounts. Many businesses with no greater volume and fewer complications hire professional bookkeepers to keep their records. Whatever the business, accurate and complete records are essential.

Many farmers who have had their businesses analysed suggest that more information is needed. Additional analysis information calls for additional records. To date, little effort has been made to determine other than feed costs for each individual livestock enterprise. Some experimentation with available records has been attempted in determining individual crop costs. Before either of these can be calculated reorganization of present accounting systems must take place.

The purpose of this manual is to help farmers and supervising vocational agriculture teachers or agricultural extension workers with the keeping of the relatively simple record books now in use. The exactness necessary for reliable calculations requires that errors be reduced to a bare minimum. Examples in the following paragraphs will demonstrate how incomplete or inaccurate records can provide very misleading answers.

Farmer "A" has a complete record except that he fails to account in any way for 40 acres of rented land on which he produced corn and soy beans. The landlord received 2/5 of the crop. The 20 acres of corn yielded 100 bushels per acre; the soy beans, 36 bushels per acre. The 40 acres of corn on his own farm yielded 65 bushels per acre and 10 acres of soy beans yielded 24 bushels per acre.

Usually such an omission becomes apparent when inventories and crop and feed check sheets are examined. The mere discovery does not help in making the correction. This must be done by getting additional information from the farmer. If the error is not detected, as is entirely possible when supplementary information is omitted, the final analysis would contain many errors:

- (1) Crop yields would not be accurate for the total farming operation. The actual corn yields would be 76.7 bushels per acre rather than 65 bushels per acre. Soy bean yields would actually be 32 bushels per acre instead of 24 bushels.
- (2) The feeding efficiency might appear to be excellent when, as a matter of fact, it was poor.
- (3) The size of business and work units per worker would be rated too low.
- (4) Both inventories, income, and expenses are inaccurate because no value is placed on the 40 acres rented, no landlord's expense is shown, and no landlord's sales are accounted for.
- (5) The landlord's share of the crops costs may have been disregarded. Such expenses as fertilizer and seed would likely be included, but only as they pertained to the operator.

Farmer "B" has a problem that is much less likely to be detected. He fails to record 800 bushels of corn received from a neighbor for a previous year's combining, baling and corn picking. He shows only 2400 bushels of corn fed instead of 3200 bushels. If his feed conversion showed 330 pounds of corn to produce 100 pounds of pork, it should have been 440 pounds provided all of the corn was fed to hogs. This would mean a difference of nearly \$2 feed cost per cwt. of pork produced. Labor earnings would also be calculated about \$800 too high.

In each of the above cases if the error cited represents the only mistake in probably more than one thousand entries, we could say that the account book was slightly better than 99.9% accurate. That .1% inaccuracy is enough to completely distort certain analysis results. In most high school or college classes 95% is an "A" grade. A farm record book 99% accurate may represent complete failure when measured in terms of reliability.

One need not be a genius to keep good farm records. Some highly intelligent people are poor accountants. In veterans agriculture classes many eighth grade graduates kept better records than some two year college men. This was not a general rule, of course, but there was strong evidence that educational level was not a factor in proficient record keeping. Good record keeping would seem to be largely the result of attitude and habit.

Few people find record keeping enjoyable. Many who even consider it disagreeable are willing to endure the tedium for the information a complete record discloses.

While hypothetical situations such as the above are used to demonstrate certain principles, some examples of actual errors discovered after an analysis was completed are shown below. Since results that appear to be highly improbable are not included in report averages the examples about to be cited were not included in report averages. This did not prevent the figures from showing up in the individual reports.

One farmer showed 13,365 pounds of pork produced on 400 bushels of corn and 6,944 pounds of commercial feed. This was 168 pounds of corn and 52 pounds of commercial feed per 100 pounds of pork produced. After the report came back with the obviously incorrect figure for corn, the farmer remembered that he had picked and fed some corn early in the fall without having accounted for it. He assumed the amount to be slightly in excess of 200 bushels. This was, of course, omitted from his corn yield. Probably more than 200 bushels were involved, but even this would greatly change the results.

Difference in Reported and Corrected Feed Report

	Reported (per cwt. pork prod.)	Corrected (per cwt. prod.)
Corn fed	168#	252#
Commercial feed	52#	52#
Total feed	220#	304#
Feed cost	\$ 7.36	\$ 8.94
Net increase in value	\$14.27	\$14.27
Return over feed cost	\$ 6.91	\$ 5.33

Yields were only slightly effected since his 40 acres would have been credited 4,350 bushels (or slightly more) instead of 4,150 bushels. The yield would have been 108.8 bushels instead of 103.8 bushels. With a small enterprise such as this the accuracy of feeding information is more difficult to obtain.

The man who had a herd of nearly 30 cows should not have missed his share of 45 acres of hay rented from a neighbor. When the report showed that his Holstein cows had consumed only 2900 pounds of dry forage per cow it was obvious that someone had failed to account for all of the hay grown or at least fed. A rough estimate of the missing hay would indicate that it amounted to at least an extra ton per cow. The \$165 feed cost originally reported per cow was in reality about \$183.50. Return over feed cost per cow would then be \$189.50 rather than the originally reported \$208.

When records are incomplete or inaccurate, errors are compounded and provide such misleading information as is disclosed above. A few pertinent rules will, if followed, eliminate most serious errors.

- (1) Know your account book - all of it! Get acquainted even with parts you may not be using. One may also carry over entries from a crowded page to an enterprise section not applicable to his farm.
- (2) Keep records as instructed. Most instructions can be found in the account book. The Minnesota Farm Account Book is conveniently indexed and has a table of contents. Both should be carefully reviewed. When in doubt ask someone who knows the book thoroughly.
- (3) Use each page and each column for its designated use. If you must improvise, experiment with portions of the account book that are not applicable to your business.
- (4) Inventories must be complete.
- (5) Purchase and sales records must be complete and accurate.
- (6) Crop production records must include correct acreages, correct yields, and show the division of the crops between the operator and any landlord.

CHAPTER II

KEEPING RECORDS FOR FARM ANALYSIS

There are several reasons for keeping farm records. They may be kept for an accounting of receipts and income. They may be kept largely for referral to prices, yields, etc. at some future date. The two most common reasons are for farm business analysis and for income tax. Records kept merely for income tax can be very simple, but must be accurate as to sales and purchases. Such records may be of little value and are often decidedly misleading when used for the purpose of analysing a farm business.

There are three general forms of organization for keeping farm business accounts. One provides convenient columns for major transactions. Another records purchases and sales by enterprises. The third is a complex system of combining the columnar and enterprise arrangements. The strictly columnar arrangement is more simple for making entries, but requires considerably more time when the record is closed. This type of record is rather restricted to income tax use. When used to analyse a farm business the results can be deceptive.

An enterprise organization is necessary for a convenient and satisfactory business analysis. While somewhat more cumbersome than the columnar arrangement the enterprise oriented book is entirely satisfactory for reporting income tax. In fact, certain checking devices often assure it of greater accuracy.

A list of 22 important items for record book analysis are enumerated below. We will later follow these through to see why they are essential for a farm business analysis.

- (1) A complete record of all receipts and expenses including landlord's share, designating the share of each.
- (2) Complete farm inventories of all feed and livestock including any landlord's share.
- (3) A complete record of interest paid and/or accrued on debts (Minnesota Farm Account Book - p. 50). Include only the operator's share.
- (4) A complete depreciation schedule on buildings, equipment and machinery plus a bare land inventory (Depreciation Schedule - Minnesota Farm Account Book). Include any landlord's share.
- (5) A complete record of all crops grown including any landlord's share (Minnesota Farm Account Book - p. 29). Total acres and yields are necessary for each crop grown.
- (6) A complete accounting of animals born; animal deaths; animal changes from growing to breeding or breeding to feeder, etc.; animal sales; and animal purchases.
- (7) A complete inventory of operator's liabilities (Minnesota Farm Account Book - p. 50).
- (8) Farm products used in the house (p. 28) and on the farm including those used by any landlord. These are designated for household and for animals (under feed records).
- (9) Quantities of all products bought, sold, or used including any landlord's share (this must include weights of animals and animal products; weights, or bushels of crops determined by weight).

- (10) Estimates of various feeds fed to livestock (Minnesota Farm Account Book - pp. 22 to 25).
- (11) Identification of custom work hired (Minnesota Farm Account Book - p. 38).
- (12) Details of machinery and equipment bought (Minnesota Farm Account Book - p. 39 and Depreciation Schedule).
- (13) Distribution of power expense (Minnesota Farm Account Book - p. 39).
- (14) Record of time spent and wages received by each laborer (Minnesota Farm Account Book - p. 46).
- (15) Record of unpaid family labor (figured on an adult basis) that is not included otherwise as wages paid (Minnesota Farm Account Book - p. 47).
- (16) Distinguish the farm share from the household and personal share on such items as auto, telephone, electricity and farm dwelling.
- (17) Mileage reading of autos and trucks at the beginning and ending of the year (Minnesota Farm Account Book - p. 42).
- (18) Description of general farm expenses (Minnesota Farm Account Book - p. 48) as fire insurance, farm liability, farm analysis fees, etc.
- (19) Identify income from work off the farm, particularly custom work (Minnesota Farm Account Book - p. 48).
- (20) Identify Cooperative Patronage Refunds and Miscellaneous Farm Income (Minnesota Farm Account Book - p. 48). "Feed Grain" payments are recorded here for some analysis reports, although others record this under Crops Sold.
- (21) Complete inventories of non-farm assets (Minnesota Farm Account Book - p. 49). This includes only the operator's assets.
- (22) Household and personal records (Minnesota Farm Account Book - pp. 50 to 64 by months).

Why Are the 22 Items Above Important For Analysis?

The information that can be derived from farm records is practically unlimited. The more information desired the more detailed the record must be. Some farm operators omit items (7) (21) and (22). A basic business analysis can be made without them, but farm operators should be interested in such important items as net worth and living costs. Analysis reports usually show fewer than 50% of those submitting accounts having complete household and personal records.

A farm business to be solvent must meet certain income demands. These include operating expenses, and personal living needs. It is not always easy to identify all of either income or expense items. What a farm operator has available from his business for personal living, savings, business expansion, or debt retirement is described as "return to capital and family labor". It represents the return to labor and interest on the operator's investment. It is probably as important as any single item in an analysis report. A look at "Summary of Farm Earnings by Tenure (Operator's Share)" Table 6 on page 7 of the 1963 Austin Farm Analysis will disclose how it is arrived at. The Southeast Minnesota Farm Management Service Report for 1963 also shows this Table on page 7. It is found on page 6 of the Mankato and Winona Reports.

Table 6 Summary of Farm Earnings by Tenure 1963 (Operator's Share)

Items	Your Farm	57 Owners	59 Part Owners	23 Renters
FARM RECEIPTS				
Dairy and dual purpose cattle	\$	\$ 1229	\$ 1267	\$ 918
Dairy products		4656	4636	3938
Beef cattle (including feeders)		2452	5889	1217
Hogs		9585	6146	4527
Sheep and wool (including feeders)		122	401	48
Poultry (including turkeys)		30	28	1
Eggs		697	540	52
Corn		1329	2160	840
Small grain		504	745	482
Other crops		1792	2832	1230
Machinery and equipment sold		248	320	218
Income from work off the farm		284	312	440
Miscellaneous		1452	1605	677
(1) Total farm sales	\$	\$24380	\$26881	\$14588
(2) Increase in farm capital		1643	3836	1974
(3) Family living from the farm		317	325	290
(4) Total farm receipts (1)+(2)+(3)	\$	\$26340	\$31042	\$16852
FARM EXPENSES				
Dairy and dual purpose cattle bought	\$	\$ 143	\$ 203	\$ 249
Beef cattle bought (including feeders)		1159	5022	718
Hogs bought		793	331	547
Sheep bought (including feeders)		21	61	9
Airplane expenses		10	--	--
Poultry		94	37	5
Miscellaneous livestock expense		581	545	388
Feed		4540	4052	2622
Fertilizers		1297	1285	685
Other crop expense		905	1019	518
Custom work hired		591	782	518
Gas, oil, grease		989	1176	768
Rep. tractor, truck, auto (farm share)		549	635	527
Rep. & upkeep of real estate		289	343	50
Rep. & upkeep of crop & gen. mach.		448	425	395
Rep. & upkeep of livestock equipment		184	180	107
Wages of hired labor		466	641	382
Electricity expense (farm share)		303	295	237
Real estate & personal property taxes		1098	789	138
Cash rent		---	731	992
General farm expenses		351	340	185
Interest paid		1628	1121	343
Total cash operating expenses	\$	\$16439	\$20013	\$10383
Mechanical power bought (farm share)		557	733	947
Crop and general machinery bought		740	1097	831
Livestock equipment bought		373	513	336
New real estate improvements		944	1523	381
(5) Total farm purchases	\$	\$19053	\$23879	\$12878
(6) Decrease in farm capital		-----	-----	-----
(7) Interest on farm capital		1682	1735	735
(8) Unpaid family labor		551	743	470
(9) Board furnished hired labor		57	68	71
(10) Total farm expenses (5+6+7+8+9)	\$	\$21343	\$26425	\$14154
(11) Labor earnings (4-10)		4997	4617	2698
(12) Ret. to cap. & fam. labor (7+8+11)		7230	7095	3903

To get this information the operator must have (1) a complete record of his receipts and his expenditures (2) and (4) his complete farm inventory at the beginning and the end of the year (3) a complete record of interest paid and/or accrued. From (2) (4) and (7) a complete inventory of liabilities and (21) a complete inventory of non-farm assets can make possible the determination of his increase or decrease in net worth. This is found on page 6 of the Austin report. The Mankato report has a detailed and thorough statement on page 9.

A farm business may involve one owner, or it may involve several owners. It can be generally assumed that every farm operator owns some part of the total farm business. For purposes of classification it is generally assumed that anyone owning all of the land he operates is an owner. It is possible, but not probable, that he could own all of the land and still own only a part of the personal property. A part owner is considered to own some land while renting additional land. A renter leases all of his land. Usually, land rented exclusively for pasture or hay is not considered in the classification.

It is not possible to analyse a farm business without including the activities of the entire farm. The operator's share only of a rented or partly rented farm gives a very incomplete and inaccurate picture of the farm as a business unit. The entire operation is necessary to measure size.

Size of business can be measured by area, total value, or work units. For analysis purposes the work unit seems to be the most satisfactory means of measuring farm business size. The work unit is based on what is assumed to be the average work accomplishment for a ten hour day. Milk cows are rated 10 work units because it is assumed that the average operator will spend 100 hours caring for a dairy cow.

To determine size of total farm business by area, investment, and work units, complete beginning and ending inventories are necessary. Also included will be (5) all crops grown and (6) numbers of livestock bought, sold, born and died. These items also provide information for determining crop yields and livestock feeding efficiencies.

The operator will need to know how the total business fared financially and how his share compared to the total operation. The non-owner will need to know what the farm investment would derive in income if put out at interest. We use five per cent as the rate and charge this as an expense to the farm business. Family members other than the operator may contribute free (non-wage) labor which is referred to as (15) unpaid family labor. This is charged as an expense to the business just as would (14) hired labor. To measure labor efficiency both the amount of time spent, and wages paid are important. This time spent helps determine work accomplishment per worker. Work done by children in their early teens or younger should be adjusted to about one half adult equivalent time credit. For example, a thirteen year old boy who worked three months during the summer would probably be credited one and one half months.

Total income less total expenses gives labor earnings. This figure appears on four different pages of each of the various Minnesota analysis reports. Total income and total expense must be appropriately defined for "labor earnings" to be understood. Total income includes the total of (1) all receipts including gas tax refunds (19) income from work off the farm and (20) miscellaneous farm income.

Also included are (2,4) increase in farm capital and (8) family living from the farm. From this is subtracted as expense all (1) operating purchases, including livestock (12) machinery and equipment purchases (2,4) decreases in farm inventory, interest on farm capital (14) hired labor (15) unpaid family labor and value of board furnished hired labor. The result is labor earnings. This is what the operators labor and management returned to the total farm business. The operator's share of this is called "operator's labor earnings" and is different from the total labor earnings if the operator is a renter or part owner.

The labor earnings figure cannot be accurately determined without including the total investments, expenses, and sales of both the operator and the landlord (or landlords). Operator's labor earnings, plus interest on the operator's equity in the business, plus unpaid family labor, is return to capital and family labor as previously described. As stated then it is the income that can be used for family living, debt retirement, savings, investments, etc. without reducing net worth. For 1963 the Austin report showed 57 owners with an average return to capital and family labor of \$7,230. Total personal expenses for those who kept such records was \$4,053 per family. It would appear that these owners had about \$3,000 to pay off debts, invest, or expand their own businesses.

Each analysis report has a table entitled "Measures of Farm Organization and Management Efficiency". It is Table 8 in the Austin, Winona and Mankato reports and Table 9 in the Southeastern Minnesota Farm Management Service report.

The record of crop yields comes from (5) crops grown and yield per acre as found on page 29 of the account book. Crop choice showing rating in high return crops is also taken from page 29. The crop yield figure is an index using 100% for the average.

Return per \$100 feed fed to livestock is another index figure comparing all farms with 100% used for an average. In order to arrive at a return per \$100 feed to livestock, total feed cost per head, or cost per quantity of product (pounds, dozens, cwt.) it is necessary that item (2) all crops and livestock quantities be accounted for in the inventories and that (5) crops grown be strictly accounted for, that (6) all animals be accounted for, as well as (9) all products sold, (8) all products used and (10) an estimate of the proportion of feed that went to each of the different classes of livestock. When (10) feeds have been assigned to different classes of livestock it is possible to determine the return to each class of livestock for \$100 worth of feed fed, return over feed cost, and feed conversion. In a later chapter it will be shown how crop and feed check sheets are used in these calculations. Livestock production figures are also necessary to determine productive livestock per 100 acres.

The size of business is measured in work units for analysis purposes. To determine this figure we must have complete (2) livestock inventories (1) livestock sale and livestock purchase records (6) a complete accounting of animals on hand each month and (5) a record of crops grown.

Work units per worker is a measure of labor efficiency and can be arrived at only by determining the number of adult workers as indicated from (14) a record of time spent by each worker and (15) unpaid family labor. The operators time must also be determined. In a later chapter the family information sheet will be introduced.

Power, machinery, equipment and building expense per work unit indicates efficiency in operating expense. Here we must have correct information on (4) depreciation of building and equipment (11) a breakdown of custom work (12) detailed information on machinery and equipment bought (13) distribution of power expense and (16) separating the farm share of expenses from household and personal expenses.

Reports from cooperators for 1963 in southern Minnesota reports showed the following range of averages.

	Lowest Average Figures of Studies	Highest Average Figures of Studies
Labor Earnings	\$3619	\$7092
Crop Yields - Example Corn	70 bu.	90.2 bu.
Per cent of land in high return crops	55.3	72.2
Return to \$100 feed to livestock - Example Dairy	\$ 177	\$ 215
Productive Animal Units per 100 Acres	29.5	41.0
Size of Business - Work Units	467	571
Work Units per worker	323	356
Power, Machinery, Equipment and Building Expense per Work Unit	\$ 13.60	\$ 10.26

CHAPTER III

THE MINNESOTA FARM ACCOUNT BOOK - Livestock Enterprises

The Minnesota Farm Account Book is organized around enterprises. Enterprise information must be complete. Every enterprise record will include (1) inventory information (2) production information (3) sales information and (4) purchase information. In addition, some enterprises have (5) other disposal information such as fed and consumed in the home and (6) disappearance such as animal deaths or crop spoilage.

The Dairy Enterprise (pp. 2-7) This enterprise probably requires the most elaborate information of any in the Minnesota Farm Account Book. The section of the book included are pages 2, 3, 4, 5, 6, and 7. Inventories are recorded in columns 7 and 14 on page 2; columns 24 to 37 on page 3; columns 1, 16, and 24 on page 6. As with all inventories, enter those animals on hand as of January 1 for the beginning inventory. Do not add animals bought or transferred during the year to the beginning inventory. Closing inventories include the exact number of animals on hand at the end of the year.

Sales of whole milk shown on page 5 should include date, price, pounds of milk, test, pounds of butterfat, total value, and the division of income if a landlord is involved. The total value rather than net value of milk sold is included. In most instances butter, hauling, and A.D.A. payments are deducted from the milk check, but the total is shown on the slip. Occasionally, feed and other items are deducted from the total receipt. These are all expense items just as the total value is income. Milk hauling is recorded on page 38. A.D.A. is often entered on page 38 along with hauling which is usually considered permissible, but technically incorrect since it is a general farm expense item that should be entered on page 48. Butter is a household expense. Feed should be shown under feeds purchased (be sure to record the amount of feed as well as value). Can rent, and detergents are small items that should be entered on either page 38 or page 48. "Dairy products consumed" on page 4 should be complete. Most farms consume only whole milk from which they take whatever cream is consumed. One of the most overlooked items is whole milk fed "to other dairy cattle" on page 22. Colostrum milk should be included here.

Where the operator is the sole owner only "total value" columns need be used. When a landlord is involved "total value", "operator's share" and "landlord's share" are all filled in for inventories, purchases and sales.

Monthly livestock checks page 2, columns 7-13 and page 8, columns 23-28 cover the month to month changes in animals on hand brought about by sales, purchases, births, deaths, transfers, and animals butchered for home consumption. Butchered cows are recorded on columns 1-5 page 2 and for other dairy cattle columns 17-21 on page 6. Dates should be recorded. Purchase of dairy cows (p. 3) should show the date as well as describe the animal bought by name or other identification. Sales of cows on the same page should offer the same complete information. Columns 9 and 11 (p. 2) should equal column 24 (p. 6) except in cases of twin births.

Dairy production, product sales, and other product disposal are recorded on pages 4, 5 and 22. Inventories are recorded in columns 7 and 14 to 23 on page 2; columns 24 to 37 on page 3; columns 1 to 16 and 24 on page 6. As with all inventories, enter those animals on hand as of January 1 for the beginning inventory. Do not add animals bought or transferred during the year to the beginning inventory. Closing inventories include the exact number of animals on hand at the end of the year.

Dairy cows should be inventoried at either purchase price or (for animals raised) a conservative breeder cow value. This would probably be about 90% of auction sale prices for animals of similar quality. This would be from \$225 to \$250 for animals similar to those being auctioned at from \$250 to \$275. Quality will be a factor and animals representing production higher than 325# yearly butterfat per cow should be given a relatively higher value. Some slight addition might be added for purebred animals. When a heifer has her first calf she becomes a cow. The record of this is shown in column 9 and 10, page 2 and columns 27 and 28 on page 6. Columns 10 and 27 give her value which with rare exception is her inventory value for the rest of her life on the farm. At the beginning of the year the heifer that freshened during the year was shown in the "other dairy cattle inventory" on page 6. At the end of the year she is shown in the cow inventory on page 2 or 3 and given the same value as shown in column 10, page 2 and column 28, page 6.

Inventories of other dairy cattle (p. 6) may group animals by age, sex, and breed (or color). Values assigned to other dairy animals are suggested as follows: heifer calf at one week, 10% of cow value; heifer twelve months old, 50% of cow value; heifer six months old, 30% of cow value; heifer 18 months old, 75% of cow value. Veal calves and steers should be inventoried at market value.

Beef Enterprise

The Beef Breeding Herd (pp. 8-9) Inventories of beef breeding cattle should show "beef cows" separate. Beef cows are animals that have reproduced. Columns 1, 2, 3, and 4 on page 8 are for income tax only. No value should be entered opposite the income tax reference. Purchased animals will then be recorded twice but counted and evaluated only once. Heifers should be divided into those of breeding age and those of from 6 months to 14 months. Calves under 6 months will be mostly heifers kept for breeding purposes or animals not weaned. The beginning inventory is the list and value of animals the first instant of the new year. The ending inventory is the list and value of animals the last instant of the year. Full information should be recorded in columns 8-11 when the beginning inventory is taken. At the end of the year columns 12-16 will be completed. The ending inventory in the old account book and the beginning inventory in the new book should be identical. This is, of course, true of all inventories. Beef feeding cattle are not included in this inventory. Butchered animals (from the herd) are recorded in columns 17 to 21. Weights and values are important - also the landlord's share, if any. Feeder cattle butchered are not entered here but on page 10. Columns 23 to 32 provide the other "non-purchase" and "non-sale" changes in the herd. When animals intended for marketing are weaned, they should be transferred to feeder cattle and shown in columns 30, 31 and 32. If the operator should decide that he wanted to take a heifer from the feed lot for his breeding herd this would be recorded in columns 27, 28 and 29. In other words, she would have been transferred back to the herd. Values of transferred animals will represent market prices. Minnesota grown feeder calves should be given a value about 90% of similar quality western calves delivered to the farm. Thus, if choice western calves were bought for \$27.50 per cwt. and transportation costs were \$1.50 per cwt., choice local calves would be valued at about \$26 per cwt.

Sales and purchases on page 9 do not include feeder animals. These are entered on page 10 and 11. Feeder cattle inventories on page 10 are probably the most difficult to appraise of any in the farm record. Both the weight and value are important if gains or losses are to be determined. If one hundred steers bought in late November are inventoried at the purchase weight and price, a paper loss of from \$1200 to \$1600 would show a distorted situation. Calendar year records on feeder cattle are generally inferior to feed lot records, although the feed lot record has no advantage for the feeder who adds replacements as animals are sold. Pages 10 and 11 may be used for feeder cattle and feeder lambs. Feeder pigs records belong on pages 12 & 13.

Hog Enterprise (pp. 12-13)

The hog enterprise has no "transfers in" or "transfers out", but it does require real interest to achieve accurate farrowing information. To be consistent, fully developed pigs are counted as "born" whether born alive or dead. Unless the operator was present at each farrowing he would not know for certain which pigs were born dead or which died shortly after being born. Column 24 should then include all fully developed pigs born; column 25 will include all normal pigs that die or were born dead. Only animals beyond the market age are classed as "hogs". Show the total of both hogs and pigs in column 22 (always a beginning of the month count).

Hog inventories should be consistent. Breeding animals purchased should with few exceptions be inventoried at the original purchase price. Breeding animals raised should be worth slightly more than butcher hog price. A four hundred pound bred gilt should be inventoried at about \$75 if butcher hogs are worth \$17 per cwt. Stags and sows going to market should be inventoried at actual market value. Growing pigs should not be valued at feeder pig market price unless they were purchased at feeder prices. Week old pigs should not be valued higher than \$6 each. Weaned pigs weighing forty pounds should not be valued much higher than 50% over market price - with hogs at \$16 this would be \$9.60 for a 40 pound pig. An inventory value basis can be slightly above the January 1 market price level since the price is usually below the yearly average at this time of year. Hogs within six weeks of market weight should be inventoried at January prices.

Columns 1, 2, 3, and 4 are for income tax reference only. Normally, there is no advantage in depreciating hogs for tax purposes. Exceptions to this would be when sows are kept for four or more litters or boars are kept for two full years or more.

For all animals inventoried, butchered, bought or sold, both the value and weight must be recorded. Occasionally, it will be necessary to estimate weights as animals butchered, breeding stock bought or sold, and feeder pigs bought or sold.

Sheep Enterprise (pp. 14-15)

Sheep inventories include wool as well as sheep. When sold, this inventory wool should be identified by the year it was produced. Lambs will include animals born the previous year. It is important that the number of breeding age ewes be identified. Columns 1, 2, 3, and 4 are for income tax reference only. Column 18 is important since it is the only record of number of ewes having lambs. Another important item found on page 14 is "number of sheep sheared." For complete shearing information the current year's wool crop must be identified, columns 11-15 on page 14. Care must be taken to distinguish sale of sheep, sale of wool identified by the year sold, and incentive payments identified for the year earned. Pounds and value are recorded for both sheep and wool. Only value is recorded for incentive payment.

Horse Enterprise (p. 15)

Few farmers in southern Minnesota have work horses. Riding horses are more common, but seldom of economic importance except as they consume feed that might be charged to other animals. The section should be kept if there are horses on the farm.

Poultry Enterprise (pp. 16-19)

Read the brief set of directions on page 16. We recognize that some of these directions are obsolete. Inventories have separate divisions for year old hens and pullets. They should be distinguished. Columns 13, 14, 15, and 16 indicate when pullets were either six months old or if less than six months when they came into full production. Accounting for all chickens involves records of numbers that die, that are butchered, that are sold.

Very often the accounting for all eggs is faulty. A count of "eggs used" for one week at two different times during the year will provide a basis for estimating yearly consumption. Eggs given to friends or relatives may be accounted for in a section of the "eggs sold" record designated by the operator. These may be shown as gifts in the personal and household section. The income is not taxable.

Under "eggs sold" on pages 17, 18, and 19 one entry should be made for each lot. "Price per dozen" columns 4, 11, 18, 25, and 32 may include the different prices received for different grades of eggs as "16-21-27." It is not necessary to show separate entries for individual grades. The important points under "eggs sold" are to show the number of dozens of eggs for each entry and the total received for each entry.

Livestock Enterprises - Miscellaneous

Livestock Expense (pp. 20-21) Columns 1-7 are designated for the entry of breeding fees, but may also be used for other livestock expenses. The directions are clear. For those who wish more detailed information it is suggested that the expenses be classified by enterprises. For example, veterinary expenses might be broken down into hogs, dairy, poultry, etc. Breeding feeds, D.H.I.A. and dairy supplies would in nearly all instances be charged to dairy, fuel for brooder houses to poultry and heat lamps to hogs. The problem of providing breakdowns for each livestock enterprise is complicated further when we consider the non-feed expenses not shown on pages 20 and 21 including the cost shares of buildings and equipment, power and electrical costs, interest, insurance and taxes.

CHAPTER IV

THE MINNESOTA FARM ACCOUNT BOOK - Crop Production and Crop and Feed Disposal

This section of the account book covers pages 22-37. Monthly feed records are actually estimates. The purpose of these estimates is to properly apportion feed to the various classes of livestock. Careful estimates should be made of grains and forages fed. It will also be helpful to include commercial feeds. Record crops fed by units indicated as "bushels", "tons", "gallons", etc. Commercial feeds will be recorded by pounds. Pasture days should be recorded for animals on pasture. This is reported by number of animals and the number full pasture equivalent days. If the pasture provides half of the forage needs of the herd a 30-day month will be credited only 15 days. A pasture that provides only an exercise lot will get no credit. Whole milk fed to calves should be recorded on page 22. It should include colostrum milk.

The crop and feed check pages on 26 and 27 are for the operator's reference only. Crop and feed check sheets (F.A.11) must accompany books submitted for analysis.

Crops used in house (p. 28) should not be ignored. Gardens are important sources of food on some farms. A plot of the farm can be a helpful reference. This is primarily for the operator's use.

The "crop date" (p. 29) is one of the most important records in the book. The total number of acres must be accounted for. This includes all land rented except additional pasture or hay put up on shares. Calculations of yields and inventories are very important.

By using multiplication factors, calculations can be much simplified. Instead of dividing the cubic feet of dry ear corn by $2\frac{1}{2}$, multiply by .4. In fact, further simplification can be effected by combining factors. In an example ("1" next page) we have included the moisture factor and used .364 instead of .4.

Shelled corn should not be discounted for water unless higher than 17%. For practical purposes discount from either 15% or 16% water instead of 15.5%. At 18% moisture, discount 3 percentage points by multiplying by .97 and at 20% moisture multiply by .95. When the water content is higher than 20% moisture, discount at a higher rate than .01 for each point. Discount 25% moisture shelled corn with multiplying by .89 and 30% moisture by .82. Use the table on the cover page of the Minnesota Farm Account Book for ear corn measurements. Here again the calculation can be shortened by multiplying. For example, at 35% water, multiply by .238 rather than divide by 4.2.

Correcting for test weight per bushel may be done by deducting 1.8% for each pound under the standard 56 pounds per bushel and increasing 1.8% for each pound test weight above 56# per bushel. The factor for 54# test weight would be .964 and for 58# test weight it would be 1.036.

Shelling percentage is another important factor in estimating quantities of ear corn. Normally, we assume that the cob will make up half the volume of ear corn. We also assume that by weight dry (15% water) ear corn will shell out 56# of grain and 14# cob. This is 80% corn and 20% cob. When the proportion is 55# corn and 15% cob,

the percentage is 78.6%. This is 98.2% of standard. For each pound shortage of grain deduct 1.8% and for each pound overage add 1.8%. Normally, the shelling percentage will be calculated from cribs that have been shelled. A determination through shelling and weighing makes a good project for Ag. I class members. In many cases shelling percentage is not considered. This is an unfortunate omission. Some years the corn does not pick clean. In such instances additional discount should be made for husk.

Ear corn silage will pack to a weight of about 50 pounds per cubic ft. at 30% water. This will be slightly less than 1.7 cubic ft. per bushel (80#). The factor for multiplying is approximately .6. For ground shelled corn silage at 25% water a cubic foot will weigh about 60 pounds and represent .95 bushels.

The factors for other crops will be based on the weight and moisture test. Generally, grains stored in Minnesota are dry and in most cases moisture can be ignored in figuring inventories. Test weight per bushel for oats including some allowance for pack will give approximately the following factors: 28 pounds .86; 30#-.93; 32#-1; 34#-1.08; 36#-1.17; 38#-1.27; 40#-1.34; 42#-1.41; 44#-1.48.

For barley use 1 for 48#; 1.02 for 49# and .98 for 47#.

For wheat use 1 for 60#; 1.016 for 61#; and .984 for 59#.

Silage

Some allowance should be made for the quality of the corn and the degree of packing. The proportion of corn grain to stalk and leaf will make a little difference in the weight. The practice of refilling also makes a difference. Whether the maximum influence of these factors would increase the amount by as much as 10% over that shown in the Minnesota Farm Account Book is hard to determine but would seem reasonable. The grass silage tables apply to low fiber crops. A rank crop of alfalfa-brome would be high in fiber and lower in water than an early cut forage. The corn silage table is probably more applicable to oat silage.

Trench and bunker silos are more difficult to estimate. The table in the account book gives 34.1# average per cubic foot for well packed grass silage when the depth is 14 feet. Corn silage will be considerably lighter, perhaps 30 pounds.

Haylage is one of the most difficult crops to inventory. If the water content is known, reduce to a 10% basis and determine the "hay equivalent". At 50% water, multiply by .55 for hay equivalent; at 40% water, multiply by .66 for hay equivalent. The original weight of haylage is difficult to determine as it is considerably lighter than silage.

Examples used in work sheets (see calculations below)

- (1) Round crib 14 ft. diameter and 12 ft. high, filled with ear corn containing 20% water, test weight 54#, shells out 78.5% (or 55% corn and 15# cob per bushel).
- (2) Shelled corn dry 57# test weight. Bin size 12 x 14 x 10.
- (3) Ear corn silage 16 x 45 at 30% water.
- (4) Shelled corn silage 16 x 45 at 25% water.

Calculations of examples on page 17:

<u>Before Correction</u>			<u>With Correction</u>	
Corn Bin or Silo	Cubic Ft.	Bu.	Times moisture factor times test wgt. factor and shelling factor =	Bushels Bu.
(1) Ear Corn 7x7x3.1417x12* =	1748x.4 =	699	1748 ÷ 2.75 or x.364 = 673x.982 =	637
(2) Dry Shelled Corn 12x14x10 =	1680x.8 =	1344	x1.018 (for wgt.) =	1368
(3) Ear Corn Silage 8x8x3.1417x45 =	9043x.6	(no correction involved)	=	5425
(4) Shelled CS 8x8x3.1417x45 =	9043x.95	(no correction involved)	=	8591

* Note: For practical purposes 3 1/7 can be used rather than 3.1417

Multiplication factors (or reciprocals) are determined simply by dividing 1 by the figure used for dividing. As 1.25 cubic feet = 1 bu. $1 \div 1.25 = .8$ so now we can get bushels by multiplying cubic feet by .8.

Suggestion for Inventory Worksheet - Corn and Grains

Kind of Crop	Dimensions of Crib, Bin, Silo	Cubic Feet	Bu. before Corrections	Corrections	Corrected Bu.
Corn					
Corn					
Corn					
Oats					
Oats					
Etc.					

Suggestion for Inventory Worksheet - Forage Crops

Kind of Crop	Stack, Mow or Silo (dimension or number)	Tons	Quality Adjustment	Adjusted Tons
Alfalfa Hay				
Silage				
Etc.				

Crop, feed and seed inventories should be taken just before the beginning of the year with an adjustment for what will be consumed during the remaining days of the old year. If periodic inventories are taken (cols. 1 and 2 p. 30) in the spring, in early summer, in early fall and late fall much greater accuracy will be possible. These "midyear" inventories help in correcting feed estimates, yields and closing inventories.

The accounting for all crops is very important regardless of whether the farm business is analysed. Unless rented under a livestock share arrangement (usually known as a 50-50 lease) a landlord's share of any crop should not appear in either beginning or closing inventories. If any landlord's crops (except in a livestock share lease) remain on the farm when the yearly inventory is taken, it should be credited to the landlord as sold on page 36. Simply show, for example, "estimated value of landlord's corn" (col. 2 p. 36) 2400 bushel (col. 3) at \$1 (col. 4) total value \$2400 (col. 5) landlord's share \$2400 (col. 7).

The importance of accounting for all of the crop where land is rented has been covered elsewhere. The record should clearly show on page 29 what land is owned (cols. 1-6) and what is rented (cols. 7-16) as well as the division of the crop.

Directions for taking crop, seed and feed inventories is found on page 31. To this should be added that where the quality of a feed may be considerably below normal, one should reduce the quantity accordingly. The normal loss of silage in an upright silo is probably from 2 ton to 5 ton. This is charged to the livestock enterprise (usually dairy). Should the structure of the silo be faulty with a 30% spoilage loss this amount would be deducted from the total quantity.

Inferior quality of hay may be less than 50% edible. The total quantity of such hay should be neither credited to crop yield or charged to the livestock to which it was fed. Sometimes poor hay is classified as part hay and part bedding. When the value of hay is considered to be less than 80% of that of high quality hay, it is suggested that the quantity rather than the price be reduced. Without sample feed testing such appraisals are difficult, if not impossible.

Because grains vary less in quality than forages we would seldom reduce the quantity of a concentrate because it is inferior. Much of this has already been corrected with adjustments for weight and moisture. As livestock producers come to depend more on feed analysis information, these adjustments can be made with much greater accuracy.

The feed bought record (pp. 32-35) should be sectioned for the different livestock enterprises. For example, page 32 might be used for dairy cows (cols. 15-21 p. 33) for other dairy and the remaining space for hogs. Dates are important. The entry for feed purchased should be made when it is purchased, not when paid if that date is different. The "description" columns will be used to identify the feed, and may include information for a complete formula. The "quantity" column must show only the amount of feed purchased. Under no circumstances is feed from the home farm (inventory feed) to be included in this column. The "price" information is helpful. "Total value" is absolutely essential. Individual feeds should be identified as corn, oats, alfalfa hay, mineral, salt, protein supplement, etc. The operator may wish to enter brand names under "description".

Under "crops sold" page 36, all columns should be used if a landlord is involved for a share of the crop. If a landlord has any crop on inventory at the close of the year, it should be credited on page 36 and removed from the inventory. The exception to this is the livestock share arrangement.

Crop Expenses

Included here are several large expenditures depending somewhat on the crop management program. Fertilizer, weed spray, seed, and insecticide are probably the most common items. Under "description" the items should be identified as analysis of fertilizer, variety of grain, or chemical used for weed control.

For a more detailed study of crop production costs the operator may wish to charge each item to the crop involved. This may be done by dividing page 37 into such sections as corn, oats, alfalfa, soy beans, etc. The same may also be done on page 38 for custom work hired.

Custom work must be identified under "description" as to baling hay, baling straw, combining oats, combining soy beans, picking corn, etc. Dates are also important if a carryover of accounts is to be avoided. If a landlord pays a share of any custom charge this should be included under "total value" and also shown under "landlord's share". The directions on page 38 should be observed to avoid entries that should be made elsewhere in the book.

A careful classification of costs is necessary if analysis reports are eventually to include more than feed costs and returns over feed costs for livestock. It is suggested elsewhere that we might be able to separate such costs as veterinary, housing, power and equipment, etc. for each livestock enterprise. We may also be able to identify such crop production costs as fertilizer, seed, spray, machinery and power, etc. for crop enterprises. Such calculations are possible only if items are grouped according to the enterprise to which they represent a cost. Experimentation with such groupings is encouraged. When sufficient experience with large numbers of books has been realized, additional calculations will be attempted.

CHAPTER V

CAPITAL PURCHASES AND OTHER RECORDS

The "machinery, equipment, real estate bought" section, page 39, has rather complete directions. For analysis purposes real estate purchases are not included in the yearly accounting. Real estate is carried forward or backward to the beginning inventory. It is essential, however, that any real estate transaction be recorded for both income tax and inventory reference. Quite often missed in the record are structures built by the landlord. Since such expenses relate to the farm business they should be recorded.

Items traded for other items are never shown as "sold". The item for which the trade was made is shown as "bought" (cols. 1-7) with only the difference paid appearing under total value. The depreciated value of any item traded is then determined from the depreciation schedule. This added to the difference paid will be the basis for evaluating the new item.

Only outright sales are recorded in columns 8-14.

Items purchased should be transferred to the depreciation schedule found in the envelope attached to the Minnesota Farm Account Book. Pages 2 and 4 of the depreciation schedule gives some detailed examples of how trades and purchases are to be shown and how to arrive at values and yearly depreciation. With the continuous changes in income tax regulations it is difficult to make general statements regarding capital purchases as to investment credit, salvage value, and capital gains. Any instructions made at this time might be partially obsolete within six months.

Personal share of items used for both personal and business activity should be deducted in all such situations. These will usually include autos, pickup trucks and dwelling (where used for housing labor, otherwise all will be personal).

Landlord's buildings and other real estate improvements must be included for rented land. If no depreciation schedule is available these buildings may be appraised and the remaining life estimated. This can usually be done by the operator with some suggestions from a vocational agriculture instructor or county agent.

On page 16 of the depreciation schedule items 1-6 are for recording "investment in bare land". This is the amount invested in bare land after the value of the buildings occupying the farm at time of purchase was deducted. If a farm cost \$50,000 and the buildings were set up on a depreciation schedule for \$20,000 the value of bare land would be \$30,000. There have been many arguments for the re-appraisal of bare land, but because the purchase price of the farm is so closely tied in with income tax, many farmers are reluctant to use other than information they can refer to for an accurate accounting of original and present investment in the farm. Where a landlord does not furnish this information to a tenant, appraisals are justified and probably desirable. It is very important that items bought during the year be omitted from the beginning inventory, and also that items traded or sold during the year be omitted from the closing inventory. An inventory is a picture of a business at a certain time. One cannot add or subtract from a picture. Inventories can be corrected, however.

Subtotals should be determined on lines 12, 13, and 14 (pp. 2-3); line 26 (pp. 4-5); lines 25, 26, 27 and 28 (pp. 10-11); lines 26, 27 and 28 (pp. 14-15); line 6 (pp. 16-17); lines 26, 27 and 28 (pp. 18-19). These references are directed to the depreciation schedule.

Gas, Oil and Grease Expenses (pp. 40-41)

Directions on page 40 should be adequate for the proper distribution of the expense items. Gas tax refunds should include those from both state and federal. Household and personal shares should be subtracted from the totals and subtotals on page 41. Percentages should be determined from information in the upper right-hand corner of page 42. Many farmers do not keep a record of gas station purchases. While such records should be kept, speedometer readings are acceptable for estimating for income tax.

Repair and Operation (pp. 42-43)

Licenses and insurance costs are called to the attention of the operator on page 42. This record should be kept the same as for pages 40 and 41 except that expense items are different. The totals of all columns should equal the "total value" column.

The repair and upkeep of real estate on page 43 may include some landlord's expenses. These should be recorded.

Repair and upkeep of Crop and General Machinery (pp. 44-45) may be recorded as to the kind of equipment or crop use. This would make for the same convenience in determining individual crop costs.

Repair and Upkeep of Livestock Equipment (p. 45) may include some small purchased items not usually depreciated. Read the directions.

Wages of Hired Labor (p. 46)

This record includes actual wages plus social security paid on the labor. All appropriate columns should be filled in including the time worked (cols. 2, 7 and 13). Unpaid family labor (p. 47) should be based on "adult equivalent" time. A boy who does half as much as would be expected of an adult would be credited one day for each two days worked. When a family member is paid a wage his work is not included under unpaid family labor. Such a person could conceivably be unpaid for part of the year and paid for another part of the year.

Telephone and Electricity Expense (p. 47)

The farm operator should decide what per cent of these expenses are for the farm business. The household shares are then subtracted from the total.

Taxes

Both the operator's tax and that of any involved landlord should be included here. Taxes paid on the operator's residence and other personal items should be subtracted from the total. Most record keepers fail to do this.

Rent Expense (p. 4)

Includes all cash rent paid on the unit rented, cash rent paid for additional cropland including hayland where all crops are harvested. When additional land is rented for pasture only this should be entered as feed purchased (pp. 32-35). The same is true for hay put up and purchased at so much per bale. Acres for these two items are not included on page 29.

General Farm Expense (p. 48)

Should include such landlord items as windstorm and fire insurance. The directions pretty well cover the various items included here.

Income from Work Off the Farm (p. 48)

It is very important that all custom work done by the operator be identified as baling, combining, corn picking, etc.

Co-op Patronage Refunds and Miscellaneous Farm Income (p. 48)

The directions found here are not always followed in practice. Some accountants show government payments for diverted acres under crops sold. The author prefers it recorded as implied in the directions which would keep it on page 48 (cols. 11-13).

The Inventory of Non-Farm Assets (p. 49)

This is not required for a general analysis. For a net worth statement this information is necessary. A special table shows the cash surrender value of life insurance. This is on the policy. The value of any dividends should be added. Bank accounts should be checked against the balance shown in the checkbook as of January 1. A very conservative value should be placed upon household goods - probably somewhere between 30% and 50% of the original cost.

Investments and Non-Farm Income are explained on page 49.

The Financial Record (p. 50)

Inventory of Liabilities - Real Estate Mortgages (contracts for deed) should show both the remaining principle due plus any accrued interest. Chattel mortgages will include both those against the general farm property and conditional sales contracts. Notes will include those given for unsecured loans.

Accounts should be thoroughly reviewed at inventory time. Such accounts as those for groceries, seed, feed, fertilizer, gas, machinery repair, etc. should be listed individually for each person owed and for each account. The accounts are inventoried for the beginning and end of the year. Inventories of liabilities are necessary if net worth statements are desired.

Money borrowed (cols. 5, 6 and 7) is for the convenience of the operator. Payment on debt must show interest paid if any farm analysis is made. A record of principal payments should be of much value to the person keeping the record.

Household and Personal Records (pp. 51-62)

Household and personal records are not required for analysis purposes, but do provide basic information for determining income needs. The account is a columnar type record and simple to keep. Considerable time is necessary to total columns and check these against a grand total. The main problem in keeping this record is to account for every item.

Income tax payments and refunds are recorded on page 63. State and federal taxes and refunds should each be identified.

One cannot ignore the importance of records for filing income tax returns. As stated in the early paragraphs of this manual, income tax figures can be very misleading. Very often high income tax is paid following a bumper crop year when such crop is sold or fed, and not in the year that it was produced. Because it would seem impractical to keep two sets of farm accounts some of the record book procedure represents a compromise.

Depreciation schedules are a constant source of frustration. This is particularly true of "fast write-off items." Such depreciated values are often unrealistic. It is suggested that most schedules be set up to reflect as nearly as possible the actual deterioration of machinery equipment and building values. Investment credit has also tended to give a warped concept of production costs. Changes in the 1964 regulations will correct this particular difficulty.

CHAPTER VI

SUPPLEMENTARY INFORMATION FOR ACCOUNT BOOK ANALYSIS

For analysis purposes every farm account book submitted must be accompanied by five (5) items.

Supplementary Information (F.A. 51)

This form gives detailed information on members of the family and accounts for their labor, time spent at home and other helpful information. It also gives detailed information on the tenure status of the operator, disclosing details relative to receipt and expense assumption where a landlord or partner may be involved.

Crop and Feed Check Sheet (F.A. 11)

The form found on page 26 is strictly for the farmers reference. The F.A. 11 should be used for checking both the midyear feed situation and the total year's feed consumption. The total supply for any crop or feed is beginning inventory + purchases + raised. Crops and feeds are accounted for through closing inventories + crop used for seed + crop sold + crop fed. Other possible disappearance might come through damage and theft. The difference between total supply and closing inventory + crop sold + crop used for seed will be "crop fed". The adjustment of feeds should be made by the farmer and the instructor. Normally, damage is ignored but it is considered when the situation is abnormal.

Livestock Check Sheet (F.A. 12)

Both the farmer and the instructor should check out the livestock. Quite often the totals tally but a review of the forms show these totals to be inconsistent with the figures included on the sheet. Much time is saved when the initial report is accurate. Because of the limited time only common example classes of livestock are illustrated on the form.

Check Out Sheet

This is simply a reminder tally to be sure that all items have been accounted for. Very often a serious omission is not discovered until the analysis is attempted. The failure to account for the total crop acres, or a discrepancy in machinery inventories can be easily overlooked when submitting an account book, but such information is essential for making the analysis.

Payment for the Analysis

The charge for the analysis covers only clerical and equipment costs. It is a small part of the total cost. The analysis center, in addition to providing office space and equipment, furnishes part time secretarial help throughout the year. Office space, light, heat, postage, stationery, telephone and secretarial help are not reimbursed from either fees or state and federal funds. The fee should be paid either in advance of or at the time the account book is submitted.

How to Submit Check Sheets

The Crop and Feed Check shown in the example should be used for a trial run in the middle of the year to determine if the estimates from pages 22 to 25 are realistic. A favorable time to take a midyear inventory is June 1 because it is usually the time when the feed supply is low. Most or all of the forage crops and oats will have been fed. At the end of the year either two half year reports can be submitted or one check for the entire year. The analysis center prefers one report covering the entire year.

The example problem shows a landlord's share of crop. It shows, under feed purchased, the cost of the grain bought. This is a guide to the analysis center. Individual purchases of commercial feed are not shown because the feed purchase section should be divided into livestock enterprise areas, as for example, page 32 (cols. 1-14) for dairy cows; for other dairy (cols. 15-21); for hogs (cols. 22-42); etc. This division of feeds in the account book adds much to the convenience of feed separation. Shown on the example Crop and Feed Check is "pasture days". This information comes from pages 22-25 of the account book. Give full number of days to excellent pasture; no days to bare pasture; and partial credit for poor to good pasture.

The example Livestock Check Sheet (F.A. 12) describes how the livestock numbers should be checked. Show all of the beginning of the month inventories. For checking, however, it is necessary to check out the "beginning of the year" and "end of the year" inventories rather than totals.

Source of Report Forms

F.A. 11 and F.A. 12 can be purchased from University Book Store on the St. Paul campus. Some analysis centers provide abbreviated F.A. 11 forms to cooperating schools at printing cost. The F.A. 12 can be duplicated by mimeograph or ditto.

Analysis centers provide F.A. 51 and some form of check out form as part of the service.

CROP AND FEED CHECK

Name: Example Farm County: _____ Date: From Jan. 1 to Dec. 31 1963

Crop-Feed	Corn		Oats		Com.Feed-Hogs		Com.Feed-Dairy		Alf. Hay		Corn Silage	
Unit used	T. Bu. Lbs.	Value	T. Bu. Lbs.	Value	T. Bu. Lbs.	Value	T. Bu. Lbs.	Value	T. Bu. Lbs.	Value	T. Bu. Lbs.	Value
Purchases	240	222										
	400	400										
	625	650										
	1000	950										
							Cows					
							10000	428				
			Seed									
			120	\$180								
							Other					
							950	65				
Total Bot.	2265	2222	120	\$180	31000	\$1425	10950	\$493				
Beg. Inv.	3000		1000		1000	40	2000	90	80		110	
Raised	5000		2350						115		130	
Total Supply	10265		3470		32000	1465	12950	583	195		240	
SALES												
Inc. crops sold by landlord Mark "L"	L2000		L 940									
Tot. Sales	2000		940									
Seeded	----		120									
End Inv.	3500		500		6000	275	----	----	85		90	
Total	5500		1560		6000	275	----	----	85		90	
Available for feed	4765		1910		26000	1195	12950	583	110		150	
Fed	Rept.	Adjust	Rept.	Adjust	Rept.	Adjust	Rept.	Adjust	Rept.	Adjust	Rept.	Adjust
Dairy	1150	1115	780	740			11600		90	85	140	125
Other Dairy	65	50	210	200			1350		30	25	30	25
Beef Herd												
Feeder Cattle												
Hogs	3800	3600	1050	970	26000							
Sheep Farm Flk												
Turkeys												
Chickens												
Horses												
Total Fed	5015	4765	2040	1910	26000#		12950#		120	110	170	150

Corn estimate is too high.
Note adjustment.

Note also adjustments in oats,
hay and silage.

CROP AND FEED CHECK

Name: Example Farm County: Date: From Jan. 1 to Dec. 31 19 63

Crop-Feed:	Soy Beans	Whole Milk	Pasture Days
Purchases			
Seed	20 \$80		
Total Bot.	20 \$80		
Beg. Inv.	-- --		
Raised	510		
Total Supply SALES	530		
Inc.crops sold by landlord.	276 602 204 411		
Mark "L"			
Total Sales Seeded End Inv.	480 20 30 90		
Total Available for Feed	530 ----		
Fed Dairy	Rept. Adjust Rept. Adjust	Rept. Adjust Rept. Adjust Rept. Adjust Rept. Adjust	
		3950 da.	
Other Dairy	375 gal.	780 da.	

LIVESTOCK REPORT

Name Example Farm County _____ Year 1963

DAIRY MILK COWS

		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<u>28</u>	First of Month	28	29	29	29	29	26	26	28	30	33	34	35
<u>2</u>	Purchased									2			
<u>11</u> <u>41</u>	Heifers fresh	2					1	2	2	2	1	1	
<u>5</u>	Sold	1				3	1						
<u>1</u>	Died									1			
	Transferred out												
	Butchered												
<u>35</u> <u>41</u>	End of month	29	29	29	29	26	26	28	30	33	34	35	35

DAIRY HERD BULL

<u>1</u>	First of month	1	1	1	1	1	1	1	1	1	1	1	1
<u>1</u>	Purchased				1								
<u>2</u>	Transferred in												
<u>1</u>	Sold				1								
	Died												
	Butchered												
<u>1</u> <u>2</u>	End of month	1	1	1	1	1	1	1	1	1	1	1	1

OTHER DAIRY CATTLE

<u>18</u>	First of month	18	17	16	16	16	16	17	20	23	28	28	27
<u>1</u>	Purchased									1			
<u>37</u> <u>56</u>	Calves born	2					2	5	8	12	2	3	3*
<u>11</u>	Sold								3	4	1	3	
<u>4</u>	Died	1								2			1
<u>1</u>	Butchered		1										
<u>11</u>	Heifers fresh	2					1	2	2	2	1	1	
	Transferred to feeders												
<u>29</u> <u>56</u>	End of month	17	16	16	16	16	17	20	23	28	28	27	29

* One pair of twins

BEEF COWS AND BULL

		Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec.
	First of month	42	42	41	40	45	44	43	42	42	42	42	42
	Purchased												
	Transferred in												
7	49 Heifers fresh				5	2							
6	Sold			1		3	1	1					
	Transferred out												
1	Died		1										
	Butchered												
42	49 End of month	42	41	40	45	44	43	42	42	42	42	42	42

OTHER BEEF CATTLE

		13	14	14	15	31	41	42	42	42	42	42	11
13	First of month	13	14	14	15	31	41	42	42	42	42	42	11
1	Purchased	1											
	Transferred in												
39	53 Calves born			1	24	13	1						
1	Sold				1								
38	Transferred out				5	2						31	
3	Died				2	1							
	Butchered												
11	53 End of month	14	14	15	31	41	42	42	42	42	42	11	11

FEEDERS-BEEF OR SHEEP

		52	52	52	51	51	51	51	51	51	23	23	54
52	First of month	52	52	52	51	51	51	51	51	51	23	23	54
24	Purchased										24		
31	107 Transferred in											31	
51	Sold									28	23		
1	Died										1		
1	Butchered			1									
	Transferred out												
54	107 End of month	52	52	51	51	51	51	51	51	23	23	54	54

FARM FLOCK OF SHEEP

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
First of month-Sheep												
Lambs												
Purchased												
Transferred in												
Lambs born												
Sold												
Sheep died												
Lambs died												
Butchered												
Transferred out												
End of month-Sheep												
Lambs												

HOGS

35	First of month-Hogs	35	23	33	33	42	40	40	37	37	41	33	39
89	Pigs	89	89	149	190	143	134	166	207	143	134	132	126
2	Purchased									2			
410 536	Pigs born		82	102			32	61	69	64			
295	Sold	12		40	36	11		7	121	60	6		2
1	Hogs died										1		
74	Pigs died		11	21	2			16	12	11	1		
3	Butchered		1								2		
37	End of month-Hogs	23	33	33	42	40	40	37	37	41	33	39	37
126 536	Pigs	89	149	190	143	134	166	207	143	134	132	126	126

LAYING HENS

	First of month												
	Purchased												
	Pullets began to lay												
	Sold												
	Died												
	Use in house												
	End of month												

F.A. 51

SUPPLEMENTARY INFORMATION

(Voc. Ag.) Year 1963

Name: James Example School: Farming ValleyAddress: Route 2 Hometown Phone: _____MEMBERS OF YOUR FAMILY LIVING AT HOME DURING 1963

(If not at home all year indicate number of months they were at home)

Operator	<u>James Example</u>	Age	<u>43</u>	Wife	<u>Erma Example</u>	Age	<u>42</u>
Boys	<u>James Jr.</u>		<u>16</u>	Girls	<u>Alice</u>		<u>13</u>
					<u>Gertrude</u>		<u>9</u>

NUMBER OF MONTHS OTHERS WERE BOARDED (Not including hired help)

Men	<u>Father (owner)</u>	Months	<u>3</u>	Women		Months	

FARM LABOR INFORMATIONNumber of operators or partners working together on this farm 1Number of months each operator or partner worked on this farm in 19 63

1.	<u>James</u>	Months	<u>12</u>
2.			
3.			

The following can be secured from pages 46 and 47 of the account book.

1. Amount of unpaid family labor on this farm in 19 63 (other than that of the operator or partners) Father 2 mo. James Jr. 4 mo. 6 Months \$ 1200
2. Days of day labor hired _____ Days
3. Months of hired labor hired on monthly basis 2 Months
4. Hired labor boarded by operator 2 Months \$ 100
5. Hired labor boarded by partners _____ Months \$ _____

MISCELLANEOUS

In what year did you start farming as a renter? _____ As an owner? _____

Check whichever applies to you _____ Owner X Renter _____ Partnership _____

Describe your lease or partnership arrangement. (Tell how crops are divided, income from livestock shared and expenses shared) The farm is rented for crop share and cash from the father, a widower, who retains a room and lives part of the year on the farm to establish homestead exemption. Rental terms are 2/5 share of corn, oats and soy beans and \$15 per acre for hay, pasture and corn for silage. Crop expenses are shared 2/5 and 3/5 except harvesting expenses which are assumed by the operator. Labor by the owner and James Jr. is figured on a hired hand equivalent.

This check form was
originally developed
by Ray Kulbeck
Forest Lake, Minnesota
Revised: September, 1963

VOCATIONAL AGRICULTURE DEPARTMENT

High School Farming Valley
Instructor Henry Checker
Operator's Name James Example

Be sure to have a record of landlord's share of income and expense items. Omit if not applicable. Division of livestock and feed inventory should be shown also before these items are checked off. Of particular concern are landlord's share of crop expenses and disposal of his crop. * L.L. Indicates Landlord

Checked by:				Checked by:			
Page	Item	Oper.	Instr.	Page	Item	Oper.	Instr.
2-3	Dairy Inventories	x	x	16	Eggs used at home		
3	Dairy cows bought	x	x	16	Eggs pull. to lay. flk.	NONE	
3	Dairy cows sold	x	x	20	Livestock breeding fees	x	x
2	Dairy cows butchered	x	x	22-25	Pasture days	x	x
2	Dairy cows numbers check	x	x	22-25	Feed record	x	x
5	Whole milk sold-BF sold	x	x	22-23	Milk fed to livestock	x	Inc
5	Whole milk consumed-home	x	test?	21	Misc. livestock exp.	x	x
6-7	Other dairy inventories	x	x	28	Crops used-home-sale val		garden?
6-7	Other dairy born & died	x	x	29	Crop data	x	x
7	Other dairy bought	x	x	29	Crop data owned land	x	x
7	Other dairy sold	x	x	29	Crop data rented land	x	x
7	Other dairy-fresh/fdr.	x	x	30-31	Crop, seed, feed, inv.	x	x
6	Other dairy butchered	x	x	32-35	Feed bought	x	x
6	Other dairy numbers chk.	x	x	36	Crops sold	x	x
6-9	Beef breeding inventory			37	Crop expenses	x	x
9	Beef breeding born-died	N	38	38	Custom work hired	x	x
9	Beef breeding bought	O		38	Custom labor, pow mach	x	x
8	Beef breeding sold	N		39	Mach Equip R.E. Bot.	x	x
8	Beef breeding butchered	E		39	Mach Equip Sold	x	x
8	Beef breeding transferred			39	Mach entry to dep.sched.	x	x
8	Beef breeding numbers chk			40	Gas tax refunds	x	x
10-11	Feeder inventories	x	x	40-41	Gas, oil, grease, bot.	x	x
11	Feeders bought	x	x	40-41	Gas, oil, tractor	x	x
11	Feeders sold	x	x	40-41	Gas, oil, crop mach.	x	x
10	Feeders butchered	x	x	40-41	Gas, oil, truck	x	x
10	Feeders number check	x	x	40-41	Gas, oil, auto	x	x
12-13	Hogs inventories	x	x	42	Rep.&op: farm power	x	x
12	Hogs-Pigs born & died	x	wgt.	42	Rep.&op. tractor	x	x
13	Hogs bought	x	boar	42	Rep.&op. truck	x	x
13	Hogs sold	x		42	Rep.&op. auto	x	x
12	Hogs butchered	x	wgt.	43	Repair&Upkeep R.E.	x	x
12	Hogs numbers check	x	x	43	L.L. Upkeep R.E.	x	x
14	Sheep inventories			44	Repair-Crop Mach	x	x
14	Sheep-Lambs born&died	N		45	Repair-Lvstk.Equip.	x	x
14	Sheep bought	O		46	Wages-hired labor	x	x
14	Sheep-number sheared	N		47	Unpaid family labor	x	x
15	Sheep sold-meat	E		47	Hired labor boarded	x	x
15	Sheep wool-fleeces			47	Telephone expense	x	x
14	Sheep butchered			47	Electricity expense	x	x
14	Sheep numbers check			47	Pers.Prop.R.E.exp.1-2	x	x
16	Chickens-inventories			47	Taxes-rented land-L.L.	x	x
16	Chickens bought	N		47	Rent expense	x	x
17	Chickens sold-old	O		48	General farm exp.	x	LL Missing
17	Chickens sold-new	N		47	LL non-R.E. farm tax	x	Missing
17	Chickens eggs sold	E		48	LL gen farm exp-ins	x	Missing
16	Chickens butchered			48	Other LL expenses	x	Missing
16	Chickens numbers check						

Farm Account Book Check Sheet (2)

Page	Item	Checked by:		Page	Item	Checked by:	
		Oper.	Instr.			Oper.	Instr.
48	Work off farm			5-9	Dep. sched. mach.	x	x
48	Work: lab. pow. mach.			10-13	Dep. sched. lvst. equip.	x	x
48	Coop refunds, misc. inc.			12-13	Dep. sched. LL bare land	x	Value
49	Non-farm assets	x	x	14-15	Dep. sch. LL bldgs. fence		
49	Investments	x	x		F.A. 11 Crop Feed Check	x	x
49	Non-farm income				Livestock Report	x	x
50	Inc. of liabilities				F.A. 51 supp. infor.	x	x
50	Money borrowed			49	Inventory: non-farm assets	x	x
50	Payments of debts			63	Inc. tax payments & RE		
51-62	Household records						
2-3	Dep. sched. auto truck						
4-5	Dep. sched. mach. pow.						
	Int. paid on debts	x	Inc.				

GENERAL QUESTIONS:

1. Have all depreciable items been entered in the depreciation schedule?
2. Has depreciation been figured for the current year?
3. Have all new items been correctly entered on page 39?
4. Has an appropriate salvage value figure been used?
5. Has investment credit been correctly determined?
6. Do total acres check out?
7. Are rented acres and landlord's share included?
8. Are feeds charged to animals only once?
9. Is custom work hired properly identified? Custom work done?
10. Have you checked to see that subtotals have been eliminated or at least designated?

Comments:

Page Item
39 Drill was omitted from depreciation schedule at beginning of the year?
and Was it bought in 1963?
DS
6-col
11

13 No weights for hogs bought or for boar sold.
12 Weight of pigs butchered?
23 Did calves get any milk? Colostrum?
28 What did you get from your garden?
38 What did George Workam do? Baling perhaps?
47 Can you find out what landlord's taxes are?
50 Interest paid should be shown.
50 This is an important part of record keeping for you. If you want to compare net worth this information is necessary.
60-61 Household records are complete through October. Do you want to complete them?

Will you make the necessary corrections and additions and return your book by January 12 so that we may send it to the analysis center.

Henry Checker
Agriculture Instructor

CHAPTER VII

CAN WE GET MORE FROM FARM ANALYSIS?

Looking Ahead

Specific breakdowns of expenses other than feed to livestock for various enterprises has not been attempted in Minnesota except for research or trial problems. Because feed was considered to be the main item of livestock production cost, less attention was given to such items as labor, housing, veterinary, taxes, etc. Feed is still the number one item in livestock production costs. In recent years these other costs have increased in importance. Whereas feed once represented about 80% of hog production costs it seems doubtful if it would represent more than 65% of such costs today. Not only have such costs as housing, veterinary and taxes become much higher over the past fifteen years, but feed prices are even somewhat lower. Better feeding methods have likewise reduced the quantities of feed necessary.

Labor has become much higher, but this problem has been attacked with mechanization and to some degree by superior planning. Nothing, of course, is gained from mechanization unless the cost of such automation is less than the labor that is saved. No farm operator today can afford to concentrate on feeding efficiency and ignore other skills.

Most livestock farmers today would like to be able to identify all of their costs. If a farming operation is to support a family by today's standards for even a modest living it must return the operator \$1.50 per hour. To get this return at today's prices all production costs must be kept within certain maximums. Such costs as housing, equipment, interest on investment, and feed can be identified from records now being kept. Veterinary, taxes, insurance, and housing would need special designation, while power and labor costs could at best only be estimated.

To get a complete picture of the livestock production costs the following would need to be identified (1) feed (2) labor (3) housing (4) equipment (5) power (6) veterinary (7) taxes (8) insurance (9) interest on investment (10) death loss and (11) miscellaneous. The problems of complete analysis become even more complex when we consider that housing costs alone involve (1) depreciation (2) interest on investment (3) repair and upkeep (4) taxes and (5) insurance.

To determine return for total labor or for operators labor is not difficult when records are complete and accurate. Time information is exceedingly difficult to obtain. It is even difficult to estimate the total time worked. To then distribute this time among the various activities without some time tallying system would be practically impossible.

Crop cost information shown in the various analysis reports has to date included only power and machinery costs per acre. Attempts have been made to make a more complete report showing costs for different crops. The figures shown in any such study should be carefully identified and clearly defined. Crop production expenses include (1) depreciation on equipment and storage buildings (2) interest on investment for these items (3) labor (4) such general expenses as seed and spray (5) fertilizer (6) operation and repair (7) property tax (8) insurance (9) real estate tax (10) interest on investment in real estate or rent less taxes.

Some of the items of expense can be easily identified. Could they all be identified, the following information might be made available:

1. Non-labor costs and return to labor from each crop.
2. Return to land from each crop.
3. Return to labor and land from each crop.
4. Return per hour of labor for each crop.

Research has been done in several states, including Minnesota, on crop production costs. It would be well to have some guides to determine the nature of information disclosed in some of our attempts to do crop analysis with our existing records. Such attempts disclose useful information, but only as such information is properly identified.

	Costs Per Acre - Based on Studies			Returns Per Acre	
	All Non-Labor	Labor	Land*	To Labor	To Land
Corn					
80 Bu. per A	\$50-\$60	\$7.50-\$10.50	\$16	\$20-\$30	\$24.50-\$35.50
Corn Silage					
14 T. per A	\$60-\$70	\$9.00-\$12.00	\$16	\$14-\$24	\$18.00-\$31.00
Alfalfa					
4 T per A	\$40-\$46	\$9.00-\$12.00	\$16	\$26-\$32	\$22.00-\$39.00
Oats					
70 Bu. per A	\$30-\$35	\$6.00-\$ 7.50	\$16	0-\$ 6	\$16.00-\$22.00

To arrive at return per hour one would divide the return to labor by the number of hours as $\$20 \div 5 \text{ hours} = \4 per hour . Since few farmers will know the number of hours spent this figure would be estimated on the basis of power and equipment available.

As suggested in an earlier chapter some additional information from what is included in the present analysis can be obtained by breaking down certain expense items according to enterprise. If much additional information is to be included from future analysis efforts, a more elaborate farm account book must be devised. Whether this is the time for a drastic revision in the Minnesota Farm Account Book or other accounts, books used for analysis can be determined largely from the responses of those keeping farm records.

For the present at least, every effort should be made to keep accurate and complete records in the account books now in use. In concluding our discussion, I want briefly to review some of the points to observe if records are to be meaningful. Before much more can be done to increase either the number of participants in farm management analysis or the amount of information derived from it, electronic calculations will be necessary. For electronic calculations complete accuracy is necessary, so at this stage, it would seem that our greatest efforts should be in this direction.

* Land rental here is based on \$20 per acre less \$4 taxes.

Omitting Common Errors

Some of the greatest errors in accounting are probably those relating to crop production. Of these, corn presents the most problems. Farmers often base yield estimates on the first loads harvested. A ninety bushel load of ear corn by measure, at 31% water is actually only sixty bushels at 15% water. Normally, the cob is much higher in water than the kernel. The test weight can vary from 45# per bushel as happened two years since 1959 on certain farms in southern Minnesota to as high as 60# in two other years in the same area. Normally, 20% of ear corn is cob, but this can easily vary from 16% to 25%. Errors ranging from as low as 80% to as high as 150% have been determined from estimated corn yields. Inventories are somewhat more accurate, but the shrinkage between yield and inventory will likely be charged as fed to livestock.

Accounting for crops fed is important. Some common omissions are (1) hogged off corn (2) green chop taken from the meadow but not credited to yield (3) hay put up on shares (4) green chop corn or oats - grass can be credited to pasture (5) hay put up on shares and (6) feed returned for services or loans. Failure to account for the landlord's share is another source of error. The omission of bins, stacks, and cribs has upon rare occasions taken place with experienced record keepers. Miscalculations are more common. Occasionally, a purchase or sale is omitted.

No more than half of the records in the past have accounted for the exact number of total acres in the farm on page 29. Often there is a shortage of from 1 to 4 acres, but occasionally as much as 10 acres. Rarely is the acreage long. Rented land must be fully accounted for. Livestock inventories particularly those dealing with animal weights create occasional difficulties. More common are omissions of one of the following: (1) animals purchased or animals sold (2) weight of animals purchased or animals sold (3) animals butchered (4) animals transferred "in" or "out" including heifers freshened (5) animals born and (6) animals died.

Of products used, two that are commonly overlooked are "milk fed" in the monthly feed record (p. 22) and "crops used in the house" (p. 28). A record commonly missed by sheep growers is number of sheep sheared. Less frequent omissions are (1) quantity of whole milk used (2) pounds of butterfat sold (3) dozens of eggs used (4) hens butchered and (5) other chickens butchered.

Inventories of beef herds should be complete as to numbers and classification of animals. An acceptable procedure for transferring calves to feeder cattle has not been worked out to the complete convenience of all situations. Calves should be transferred upon weaning to give the herd accurate credit for the beef produced. The most satisfactory rule would be to call all steer calves feeders upon weaning. Heifers would be considered feeders upon being put on feed or definitely eliminated as to being retained for breeding purposes. A beef breeding herd may appear to be unjustifiably profitable if (1) calves are credited to the herd several months beyond weaning age or (2) the value per cwt. is high. Native calves usually bring about 90% of Western calves of similar appearance.

Elsewhere in the manual we have commented upon the importance of realistic inventory values. Guides suggested should be followed carefully.

We call attention to pages 20 and 21. Too often such items as straw are entered under feeds purchased. Antibiotics are included as feed when incorporated as part of the feed mixture. They may sometimes be strictly medicinal and treated as a miscellaneous livestock expense.

Purchases of capital goods are sometimes omitted. Seldom is the evaluation wrong since only the difference paid is recorded. When set up in the depreciation schedule, the depreciated value of a traded item is added to arrive at the complete price.

Some account books come in without an itemization under "tractor", "crop machinery", "truck" and "auto" (pp. 40-43). More often the totals of these items do not correspond to the totals shown in columns 9, 19, 29, 3, 11, and 16. Many co-operators do not record their speedometer readings on page 42. Some also fail to indicate the per cent of expense reported as "personal" for income tax. Because some farmers have an incomplete record of station purchased gas, mileage figures are often quite important.

The repair and upkeep of the landlord's real estate on page 43 is a common omission, as is the landlord's taxes (p. 47) and his general farm expenses (p. 48). He is very likely to have insurance costs.

Only hired labor should be recorded on page 46. Family labor is either hired or unpaid. The same labor cannot be both. The amount of time either hired or unpaid labor works should be recorded.

The percentage of telephone and electricity used for farm business is sometimes omitted. Crop insurance is not included under general farm expense (p. 48), but under crop expenses. Wind and fire insurance are included. Payments received from crop insurance are receipts under crops sold.

The identification of "work off the farm" (p. 48) is important. Generally, it is custom work and should be identified as to the kind of activity.

One must examine his insurance policy to know the cash surrender value. A careful assessment of non-farm assets is well worth the time and effort. Few books show a complete inventory of non-farm assets.

"Do" and "Do Not" List

1. Do account for all bins, cribs, stacks, silos, etc.
2. Do add the acres of all fields, pastures, farmsteads, roads and waste to arrive at the total acres in the farm.
3. Do list all property in the inventory even though certain buildings or machines may be fully depreciated.
4. Do account for all property involved in the farm operation including that of both the operator and the landlord.
5. Do account for all production, receipts and expenditures of the farm operation including that of the operator and the landlord.
6. Do indicate how much of the hay land was pastured.
7. Do account for all feeds fed to livestock - corn stubble, hogged off corn.
8. Do not add items to any beginning inventory unless a correction is necessary.
9. Do not delete items from the beginning inventory.
10. Do not retain items in the closing inventory that were sold during the year.
11. Do not duplicate purchases or sales; charged items sometimes appear more than once.
12. Do not charge items in the previous year's business to the current year, or show sales from the previous year in the current year's business.
13. Do not change inventory values of permanent breeding stock within the year except where unusual depreciation takes place.

