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# HOW TO STUDY A FARM BUSINESS

A manual for use in connection with  
Labor Income Blank No. 40, and the  
"Business Chart for New York Farms"

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## HOW TO STUDY A FARM BUSINESS

This manual on the subject of "how to study a farm business" includes the following sections:

1. How to summarize the record of a year's business
2. Measures of profits
3. Analysis of the business
4. Comparison with standards

It is intended to be used in connection with Labor Income Blank No. 40, and the Business Chart for New York Farms. Both of these are available through the Department of Agricultural Economics, Cornell University.

### HOW TO SUMMARIZE THE RECORD OF A YEAR'S BUSINESS

In order to study a farm business it is first necessary to put the available records together in a brief form. Since farming is a year-round business it is best to summarize the records on an annual basis. This summary might be for the farm as a whole, or for each enterprise separately. In order to summarize each enterprise separately, many more records are needed than to summarize the business as one unit. This manual gives directions for summarizing the farm business as a whole.

#### Get the Available Records Together

The first job is to collect all the available records concerning the past year's business. These records include financial accounts, farm inventory for the beginning and end of the year, and production records for crops and livestock. If complete financial accounts are not available, check stubs, milk slips, receipted bills, and sales receipts will prove useful.

Fill in Labor Income Blank No. 40

Using these available records start to fill in the labor income blank. Don't be discouraged if you find some items for which you do not have all the information. Often these items will be of small importance. Make your best estimate on them. Not many farm records would be summarized if we waited for absolutely accurate information.

Notes on Filling in the Blank

Corn Silage Yields: To figure corn silage yields use the following table:

APPROXIMATE CAPACITY OF CYLINDRICAL SILOS

Depth of silage after settling 2 days (feet)	Diameter of silo in feet					
	10	12	14	16	18	20
	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)
5	4	6	9	11	14	17
10	10	15	20	26	33	41
15	18	25	34	45	57	70
20	26	38	51	67	85	105
25	36	52	70	92	116	143
30	47	67	91	119	151	187
35	58	84	114	149	188	232
40	70	101	138	180	229	280
45	82	118	160	213	271	334
50	94	137	186	248	319	389
55		155	212	283	365	444
60			240	319	415	500

Hay Yields: In estimating hay yields, the best way is to measure the mows, and use the following table:

Cubic feet per ton of hay and straw (approximate)

Hay - low mow or top of mow	550
average	500
bottom of mow	450
Straw	1200

Crop Sales: If you have on hand some crops which are going to be sold enter them in table 2 as sales. Value these crops at what you expect to get for them.

Milk Sales: Enter in table 3 the total value of the milk sold. This may be more than the milk check, if the milk hauling and plant purchases were deducted from the check. Enter all deductions for farm purposes, such as milk hauling and strainer pads, in the expense table 7. Do not enter deductions for dairy products purchased for home use. These are personal expenses.

Value of one Year's Use of the Dwelling: The annual cost of a house is usually about 10 per cent of its value. This covers depreciation, interest, repairs, taxes and insurance. These items are sometimes called the "DIRTY five".

Another basis for estimating the use of the dwelling is "What would it rent for?"

Livestock Values: Value the livestock at what you think they would sell for. If possible, avoid including increases in inventory values which are merely a reflection of a general rise in livestock values. That is, avoid showing "paper profits".

Number of Hens: If hens are an important enterprise on your farm, you need to know the average number for the year. The average of two inventories seldom gives a correct annual average. The best way to get the average for the year is the average of "13 inventories". This means to average the number of hens on hand at the first of each month, and the last of the last month.

If these monthly inventories are not available, fill in the lines at the bottom of table 6, giving the approximate number of hens kept each month, and then average these monthly figures to get the annual average.

Unpaid Labor: The work done by members of the family who do not receive regular wages should be valued on the basis of what it would have cost to hire that work done. A charge for unpaid labor should be made whenever a member of the family does work for which help would otherwise need to be hired.

Breakdown of Expenses: Table 7 provides for listing expenses in detail. While this is desirable, it is not necessary. For example, you may have your feed purchases all in one item, and it may be difficult to separate the expense for cattle feed from that for poultry feed. In such a case, simply bracket the lines for feed and enter the one item.

Board of hired labor: The charge for board of hired labor should be only for the cash cost. The cost of producing the farm products used by the hired help will be included elsewhere in the expenses. If you do not have a good basis for estimating the cash cost of board, a common figure is fifty cents per day or \$15.00 per month.

Building Repairs: Enter the amount actually paid during the current year. Enter at the left the average expense over a period of years. This should be the average expense necessary to maintain the buildings.

Farm Share of Auto Costs: In table 7 and table 9 the item "farm share of auto" appears. If the auto is not used for farm purposes, don't put anything in these spaces. Usually the auto is used partly for the business and partly for personal. It is necessary to estimate the share which should be charged to the business.

Equipment Repairs: Under repairs to other equipment be sure to include such items as plow points, mower guards, binder canvas, milking machine parts, etc.

Value of the Farm: In placing a value on the farm try to put down what a willing buyer would pay to a willing seller. Put this down as the value at the end of the year. For the beginning of the year take this value and add to it the average annual expense required to keep the buildings from depreciating, and subtract from it the repairs and improvements made during the year.

#### MEASURES OF PROFITS

There are many ways to measure farm profits. This is very confusing because people frequently talk about "profits" without explaining how they made their calculations. Following are definitions and directions for calculating four measures.

Family Net Cash Income is the amount available for family living and for saving. Subtract the cash expenses (line 8 in table 10) from the cash receipts (line 5 in table 10), and from this subtract the interest actually paid on indebtedness. Add any cash income from non-farm sources. This "net cash income" is what buys the groceries and the new hats. As a basis for studying the farm business it is not a good measure. A man may have a high cash income because of decreasing his inventory, or because members of the family worked without receiving regular wages, or because he had a large investment and no debts, or because he had non-farm income.

Farm Income: is what is left to pay for the farmer's time, and for the use of invested capital. Unpaid labor and inventory changes are considered in calculating farm income. Since some farmers have much more capital invested than others do, this measure of profits gives an advantage to farmers with large capital investment.

Labor Income: is what a farmer receives for his year's work after paying all farm business expenses and interest on the capital invested. In addition the farmer has a house and farm products used in the household.

The labor income of a farm operator is comparable to the cash wages of a married man who is furnished with a house and farm products.

In order to put all farms on an equal basis, interest at 5% is figured on the total capital invested. This is the average of the capital at the beginning and end of the year. Interest is figured on the entire capital whether there are debts or not. It is not necessary to know about the debts in order to figure labor income.

Labor Earnings: are labor income plus the value of the farm products used in the operator's household and the value of one year's use of operator's house.

Labor earnings is a better measure of profits than labor income. It is not used as much, because of the difficulty of obtaining accurate information on the amount and value of farm products used in the household.



## ANALYSIS OF THE BUSINESS

After having summarized the farm records for the year, it is desirable to compare the farm with some standards to locate the strong and weak points. This will indicate the most likely places for improvement.

Of the many factors affecting profits, the most important of those under the farmers' control are size of business, production rates of crops and animals, combination of enterprises, and labor efficiency. The most successful farmers usually have:

1. A business as large as, or larger than the average of the region.
2. Production of crops and animals as good as, or better than local averages.
3. Labor efficiency above the average of the region.
4. The different enterprises so combined that labor, land, by-product feeds, and manure are used in the most profitable manner, considering the farm as a whole.

Many other factors are important, but usually are not so important as those mentioned above.

### Size of Business

There are many ways of measuring the size of business. The best measure to use depends to a considerable extent on the type of farm. The important measures are given below, together with a brief statement of the uses and limitations of each.

1. Total acres is commonly used as a measure of size of business. Since farms vary greatly in the intensity of the use of the land this measure is one of the poorest.

Total acres means all the land operated as one unit, including both owned and rented land.

2. Acres in crops is a good measure when comparing farms which grow crops of similar intensity, and on which livestock is not important.

3. Acres of the most important crop or group of crops is a good way to measure the size of business on farms which specialize in one crop or group of crops, and on which livestock are not important.

4. The number of cows, hens, or other important stock is a good measure of size on farms which specialize in one kind of livestock and on which cash crops are not important.

In computing the average number of cows or other important stock, take the average of the two inventories, unless it is known that some other number more correctly represents the number actually handled.

5. Capital invested is a useful measure, particularly when comparing different types of farms in the same region. Since the major item of capital is usually the farm itself, inaccuracies in valuing the farm will cause variations in this measure of size.

The total capital includes the investment of both landlord and tenant on rented farms. The average investment at the beginning and end of the year should be used.

6. Number of men is a particularly useful measure of size when comparing farms in different regions, or different types of farms in the same region. There is one difficulty with this measure. Since men work more efficiently on some farms than on others, the same number of men on two different farms may represent quite different amounts of business.

To calculate number of men (man equivalent) add together the months of work done on the farm. Count the operator's time as 12 months. Count 26 days of day labor a month. Change the time for woman and child labor to an equivalent for men if the rate of work was different. Divide by 12.

7. Productive man work units is the best single measure of size. A productive man work unit is the average amount of directly productive work accomplished by a man in ten hours. The total number of productive man work units on a farm for a year measures the amount of productive work accomplished on that farm during the year.

The number of productive man work units on a farm is calculated by multiplying the acres of each crop and the number of each kind of animals by units which have been established on the basis of the average amount of time required to handle one acre or one animal. Units for the most common livestock and crops in New York are given on the printed business analysis sheet. Units for some other crops and animals are listed below. All units are based on New York conditions and methods. For enterprises not listed, units should be estimated by comparing with similar enterprises which are listed.

NEW YORK WORK UNITS FOR VARIOUS ENTERPRISES

<u>Vegetables (per acre)</u>		<u>Fruit (per acre)</u>	
Beans, snap-canning factory (not including picking)	4	Berries	20
Beans, snap-market	30	Cherries	25
Beans, lima	25	Grapes	12
Beets, table-bunched	45	Peaches	8
Beets, table-topped	25	Pears	7
Carrots, bunched	45	<u>Livestock</u>	
Carrots, topped	25	Retail milk, per 200 qts.	1
Cauliflower	35	Beef cattle, per head	2
Celery, early	45	Cattle fattened or wintered, per head handled	2
Celery, late	30	Colts, per head	4
Corn, sweet-canning	4	Stallions, not worked	10
Corn, sweet-market	8	Stallion fees, each	0.5
Cucumbers, wholesaled	10	Lambs fattened, per head	0.15
Lettuce	30	Baby chicks, hatched, per 1000	3
Melons	10	Bees, per hive	0.5
Onions	40	<u>Forest Products</u>	
Peas, canning factory	2	Maple syrup, per 100 gallons	19
Peas, market	22	Lumber, per 1000 ft.	2
Spinach	15	Firewood, per 12" cord	1
Squash	10		
Tomatoes, canning factory	14		

### Production Rates

Milk per cow. On most dairy farms the total pounds of milk sold is readily available. The total number of pounds divided by the average number of cows for the year gives the amount sold per cow. This figure is lower than the total production per cow which is reported in D.H.I.A. records, because some of the milk is not sold.

Fat sold per cow. Multiply the pounds of milk sold per cow by the average fat test.

Eggs per hen. Divide the total number of eggs produced by the average number of hens for the year (see page 3).

Hay yields. In calculating hay yields divide the total tons from all cuttings by the acres in hay.

Crop index. Sometimes crop yields are combined into one figure known as the "crop index". This is the crop yields on the farm being studied expressed as a per cent of some average.

### Labor Efficiency

Work units per man is the best single measure of labor efficiency. To calculate this divide the total work units on the farm by the man equivalent. This measure of labor efficiency takes into account all the productive work on the farm, but does not consider yields per acre and production per animal.

### Manure Per Acre of Crops

In order to calculate the amount of manure available per acre of crops it is first necessary to calculate the total amount of livestock on the farm. This is done by use of "animal units". An "animal unit" is one horse, or one cow or the equivalent in other livestock.

The units for the various classes of livestock are given on the printed business analysis sheet. Units for cattle or sheep which are fattened should be

estimated on the basis of the number of months they are kept.

Approximately 12 tons of manure including bedding is made per year by an animal unit. The proportion of this recovered for use on cropped land varies with pasturing practices and methods of handling the manure. In New York about 8 tons, on the average, are recovered per animal unit for actual use on the cropped land.

#### COMPARISON WITH STANDARDS

After having calculated the important business factors these should be compared with standards to locate the strong and weak points. The printed "Business Chart for New York Farms" has been prepared for this purpose. For some of the crops which are not included on the business chart, state average yields are given on page 12.

If, in any column on the business chart, the farm being studied ranks above the highest number on the chart, draw a line at the top of the column and write in the figure for the farm being studied.

Draw lines only in the columns which are of some significance for the farm being studied. This is important, as a line drawn for an item which is of no significance will serve to emphasize items which should not be emphasized.

TEN-YEAR AVERAGE CROP YIELDS FOR NEW YORK STATE, 1930-1939\*

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Beans, snap for market	118 bu.
Beans, snap for canning	1.6 tons
Beets, for canning	5.9 tons
Buckwheat	17 bu.
Carrots for market	475 bu.
Cauliflower, Long Island	249 crates (1.5 bu.)
Upstate	181 crates (1.5 bu.)
Celery	327 crates (90#)
Corn, sweet for canning	2.1 tons
Cucumbers, for market	121 bu.
Cucumbers, for pickles	96 bu.
Grapes	1.5 tons
Lettuce	222 crates (70#)
Onions	237 sacks (100#)
Peas for market	83 bu.
Rye	16 bu.
Strawberries	79 crates (24 qts.)
Tomatoes for market	217 bu.

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\* Data from reports of the U. S. Dept. of Agriculture.

For grapes average 1928-37 crop as reported in "Agricultural Statistics" divided by estimated acres as follows: Average bearing vines as reported by the Census for 1930 and 1935, using 650 per acre.