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DAIRY FARM CASH FLOW, DEBT REPAYMENT ABILITY AND FINANCIAL ANALYSIS

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FARM CASH FLOW, DEBT REPAYMENT ABILITY AND FINANCIAL ANALYSIS

The procedure and worksheets in this publication will help you analyze your cash flow situation, future debt repayment ability, and current financial situation. The procedures are designed to make use of data either from your Federal income tax forms and balance sheets provided to lenders or from your farm record system.

The cash flow and debt repayment ability starts from last year's cash receipts and expenses. An opportunity is provided to adjust last year's receipts and expenses for changes in accounts receivable, accounts payable and inventories before using these data as a basis for this year's projected receipts and expenses (Worksheets 1 and 2). Worksheet 2A should be used if expenses are taken from the Cornell Farm Account Book, a Cornell Dairy Farm Business Summary, or a similar record system. Worksheet 2B may be used if last year's expenses are taken from Schedule F.

Debt payments for last year and projected for the coming year should be entered in Worksheet 3. Debt repayment ability may be calculated by including nonfarm income (Worksheet 4) or based on farm receipts and expenses only (Worksheet 6). Worksheet 5 is a checklist on ways to ease the cash flow crunch. A complete annual cash flow statement may be done in Worksheet 7.

RECEIPT AND EXPENSE WORKSHEETS

The receipt and expense worksheets each have three columns. The Last Year column is for cash receipts or expenses. At the bottom of this column is a place for adjustments for changes in accounts receivable (or payable) and changes in inventories. The purpose of these adjustments is to obtain a true picture of what the total receipts and expenses actually were for the year's operation of the business. For example, if you actually paid \$150,000 in cash expenses during the year but accounts payable increased \$20,000, actual expenses for the year were \$170,000. Similarly, if the purchased feed and supply inventory at the end of the year were \$10,000 smaller than at the beginning, this would add \$10,000 to the feed and supplies actually used during the year. Considering both adjustments, actual operating expenses were \$180,000.

You may also need to adjust for unusual circumstances which caused last year's expenses to be high or low. For example, the lime expense last year may have been unusually high due to seeding more alfalfa than normal.

The Last Year, Adjusted column provides a place to allocate the total changes in accounts receivable or payable and inventory changes to the individual receipt and expense categories. For example, if the \$20,000 increase in accounts payable discussed above were made up of \$15,000 for feed and \$5,000 for fuel, it should be allocated this way in filling out the Last Year, Adjusted column. The purpose of the Adjusted column is to have an accurate accounting of last year's expenses (and receipts) as a basis for projecting expenses and receipts for the coming year.

If you have completed a Cornell Dairy Farm Business Summary (DFBS), the accrual adjustments have already been made so you can start with the Last Year, Adjusted columns on the expense side. However, you should not necessarily start with the accrual DFBS numbers on the receipt side. For example, dairy cattle accrual receipts in DFBS include increase in inventory which was not a cash item last year and will not be in the coming year.

Worksheet 1. Receipts

Last Year

This worksheet is organized in categories to facilitate making projections for the coming year. Last year's receipts should include all the income from Part I of Schedule F plus sales of livestock and other capital items reported on Form 4797. You will need other records to be able to complete Worksheet 1 because there is little breakdown of receipt categories on Schedule F. In the case of 4797 items, the amount transferred to Worksheet 1 should be the sale price, not the gain.

If accounts receivable have increased or decreased during the year, the change should be entered on the adjustment line. The purpose of this adjustment is to help in projecting cash flows for the coming year. An increase in accounts receivable during the year indicates that you sold more products than you were paid for during the year. You may need to also consider changes in inventories if crop sales do not reflect the sales of one year's crops.

Last Year, Adjusted

The Last Year, Adjusted column provides an opportunity to adjust last year's cash receipts for changes in accounts receivable and inventories so that each number reflects the appropriate income from a year's operation of the business.

Changes in accounts receivable and inventories during the last year should be considered when projecting cash flows for the coming year. For example, if cash income from crop sales last year did not include all of the crops actually produced or sold, an adjustment should be made in last year's crop sales if they are to be used as the basis for projecting crop sales for the coming year.

Projected

Projections of income for the coming year should be made carefully, taking into account expected changes in items such as cow numbers, production per cow, milk prices, crop acreages, yields and crop prices.

Worksheet 2. Expenses

Last Year

If you use the Cornell accounting system, use Worksheet 2A. The list of expenses in Worksheet 2B is consistent with those in Part II of Schedule F with two exceptions. Depreciation is omitted because it is not a cash expense. There is a line for purchased livestock (such as dairy cows) which does not appear on Schedule F. If dairy cows are included in cash expenses on your farm, the amount should be included here. If cows are purchased with borrowed money, the principal and interest payments on cows should be included with debt payments on Worksheet 3 rather than including the purchase price here.

If accounts payable increased or decreased during the year, any increase should be added and any decrease subtracted to get from Cash Farm Expenses to Adjusted Cash Farm Expenses.

Last Year, Adjusted

Last Year, Adjusted is used to help project expenses for the coming year. For example, if there were a \$4,000 increase in accounts payable last year, the expense category causing this increase should be ascertained. If all the increase were in the feed bill, it suggests that feed consumed was \$4,000 more than that paid for during the year. If last year's feed bill is to be used as the basis for projecting next year's feed bill, the \$4,000 should be added to last year's feed expense before making any adjustments for expected changes in quantities or prices for the coming year.

Similar adjustments should be made if there were changes in inventory of feed and supplies from the beginning to the end of last year. The total of Cash Farm expenses in the Adjusted column should equal Adjusted Cash Farm Expenses in the Last Year column.

Projected

Projected expenses for the coming year should be made carefully by considering all changes in items such as cow numbers, crop acres, feeding practices, cropping practices, hired labor, and input prices.

Worksheet 3. Debt Payments

Space is provided for mortgages, cattle and equipment loans, and operating loans. Under each, there is space to enter principal and interest payments separately. If you don't know the breakdown between principal and interest, just enter the total payment. Lease payments should be included in expenses (Worksheet 2A or 2B) rather than under debt payments.

Last Year

There are two columns for last year, one for "planned" (that is, the amount you planned to pay) and a second for "paid" (that is, the debt payments actually made during the year). Both of these columns are history but may be useful in completing the Projected column.

Debt payments entered in the Projected column should be those you are committed to make (or plan to make) in the coming year. Be sure to include payments that you will need to make on machinery and livestock to be acquired during the coming year, regardless of whether such purchases are to add to your machinery complement or herd size or if they are to be used as replacements.

The Reduction in Accounts Payable is used only for the Projected column. (Reduction in accounts payable last year is included in cash expenses.) If you plan to pay down your accounts payable to a level below what existed at the end of last year, enter that amount on this line. However, if you plan to borrow the money to reduce the accounts payable, payments on that amount should be included in projected debt payments rather than entering the amount of paydown on this line.

Worksheet 4. Farm and Nonfarm Repayment Ability

Total repayment ability is calculated by including nonfarm as well as farm income. Farm expenses are subtracted from cash receipts to obtain Net Farm Cash Inflow. Then interest paid is added back because it is included later in debt payments. Income from nonfarm sources is added to obtain Cash Available for Family Living and Debt Payments. After subtracting Family Living Expenses, the result is Cash Available for Debt Payments. The remainder, after deducting debt payments, is cash available for New Investments and "Risk and Uncertainty". Finally, Cash Flow Coverage Ratio is calculated by dividing Cash Available for Debt Payments by Debt Payments. If the result is less than 1.0, there is not enough cash available to make the debt payments and adjustments are needed.

Worksheet 4 has columns for two sets of calculations. The first column is for the most recent year for which data are available ("Last Year"). The second column is for projections for the coming year. The projected calculations are the most important; the calculations for "Last Year" are history. However, the calculations for last year are useful as a basis for making projections for the coming year.

Worksheet 6. Farm Debt Repayment Ability

Worksheet 6 is designed for calculating farm debt repayment ability. It considers farm income and expenses and withdrawals from the farm for personal purposes. (If there is nonfarm income available, personal withdrawals from the farm usually will be less than total personal withdrawals and family living expenses shown in Worksheet 4, and an adjustment will need to be made.) The numbers in parentheses indicate the worksheet from which to obtain the required data.

The Last Year column should be completed first, followed by projections for the coming year. Cash farm expenses are subtracted from cash farm receipts to find net farm cash inflow. Then interest is added back in because it is included in debt payments later. Next, personal withdrawals from the farm are deducted, and the remainder is the amount left from the farm to make principal and interest payments on debt. This amount is divided by planned farm debt payments from Worksheet 3 to compute Farm Cash Flow Coverage Ratio. If this result is less than 1.0, planned farm debt payments exceed cash available from the farm and you need to make adjustments. Use Worksheet 5 to think about ways to ease the cash flow crunch.

Worksheet 7. Annual Cash Flow Statement

Last Year

The annual cash flow statement is prepared by using Worksheet 7 on page 14. All cash inflows and outflows for last year should be entered in the first blank column.

If your records are accurate, cash inflows should equal cash outflows so that the imbalance or error should be zero. If you find that the imbalance is substantial (more than a few hundred dollars), you should review your records and calculations to find the source of the error. One likely place to look is personal withdrawals and family expenditures.

Projected

The Projected column should be completed by starting with ending cash from last year and then using data from the previous worksheets and other sources. Money borrowed in the coming year will usually be a balancing item and will indicate the amount of borrowed money needed in the coming year.

Note that we are dealing with cash flows on an annual, not a monthly, basis. You may also need to make monthly projections of receipts, expenses and debt payments, particularly if your cash flow position on an annual basis is projected to be tight.

FINANCIAL ANALYSIS

This section explains how to make the calculations for your farm so that you can compare your financial factors with those of other farms using the Financial Analysis Chart on page 15 of the worksheets. The financial analysis chart is based on data from 409 New York dairy farms who participated in Cornell's farm record summary and analysis project in 1989. Similar charts for more recent years may be available from your Cooperative Extension agent or specialist. Farms are sorted into ten groups (deciles) on each factor, and the average for each decile is printed in the appropriate column. For example, the 10 percent of farms with the lowest annual debt payments (principal plus interest) per cow had average payments of \$53 per cow while the 10 percent with the highest payments had debt payments of \$889 per cow. Each column is constructed

independently of the others. It is usually considered better to be near the top rather than near the bottom of a column. A definition of each factor appears on page 16 of the worksheets.

Worksheet 8 which follows the Financial Analysis Chart will help you calculate the factors for your farm. In addition to the data from the previous Worksheets, you will need to know your number of cows at the end of last year and some information from your balance sheet to be able to make the calculations for the Financial Analysis Chart.

After you have made the calculations, draw a line through each column to represent approximately where your farm business falls for that factor. If you are above the middle of each column, you are probably in reasonably good financial shape, at least in comparison to your competitors. If you fall below the middle of several columns, you should be concerned about the financial health of your business. Even if you are not having difficulty making your debt payments now, you could be headed for trouble in the future.

WORKSHEET 1. FARM RECEIPTS

<u>Item</u>	<u>Tax Form</u> ¹	<u>Last Year</u> *	<u>Last Year Adjusted</u>	<u>Coming Year</u>
Milk sales	F	_____	_____	_____
Dairy cattle	F, 4797 ²	_____	_____	_____
Dairy calves	F	_____	_____	_____
Other livestock sold	F, 4797 ²	_____	_____	_____
Crop sales	F	_____	_____	_____
Government payments	F	_____	_____	_____
Custom machine work	F	_____	_____	_____
Gas tax refund	F	_____	_____	_____
Miscellaneous	F	_____	_____	_____
Other capital items	4797 ²	_____	_____	_____
Cash Farm Receipts		_____	_____	_____
<hr style="border-top: 1px dashed black;"/>				
Adjustment for change in accounts receivable*		_____	<u>XXXXXXXX</u>	<u>XXXXXXXX</u>
Adjustment for inventory changes		_____	_____	_____
Adjusted Cash Farm Receipts		_____	<u>XXXXXXXX</u>	<u>XXXXXXXX</u>

¹ The breakdown of receipts on Schedule F does not provide enough detail to be very useful in cash flow planning. You will need to consult your records to find the breakdown of receipts.

² Sales of dairy and breeding livestock, machinery, real estate, etc. are reported on Form 4797. Amount included here should be the sale price, not the gain or loss.

* Assumes receipts are recorded on a cash basis (as the money is actually received). Cash Farm Receipts is equal to cash inflow but may not reflect the income from a year's operation of the business. To obtain Adjusted Cash Farm Receipts, add any increase in accounts receivable or subtract any decrease in accounts receivable compared to a year earlier. You may also need to adjust for changes in inventories if last year's cash receipts do not accurately reflect the receipts from the year's operation of the business. The total of Cash Farm Receipts in the Last Year Adjusted column should equal Adjusted Cash Farm Receipts in the Last Year column. Last Year, Adjusted should be used as the basis for projections.

WORKSHEET 2A. FARM EXPENSES

	<u>Last Year</u>	<u>Last Year, Adjusted</u>	<u>Coming Year</u>
Hired labor	_____	_____	_____
Dairy grain and concentrate	_____	_____	_____
Dairy roughage	_____	_____	_____
Nondairy livestock feed	_____	_____	_____
Machine hire, rent and lease	_____	_____	_____
Machinery repairs and parts	_____	_____	_____
Auto expense (farm share)	_____	_____	_____
Fuel, oil and grease	_____	_____	_____
Replacement livestock	_____	_____	_____
Breeding fees	_____	_____	_____
Veterinary, medicine	_____	_____	_____
Milk mrktg. (including assessments)	_____	_____	_____
Cattle lease/rent	_____	_____	_____
Other livestock expense	_____	_____	_____
Fertilizer and lime	_____	_____	_____
Seeds, plants	_____	_____	_____
Spray and other crop expense	_____	_____	_____
Land, building, and fence repair	_____	_____	_____
Taxes (R.E.)	_____	_____	_____
Rent/lease	_____	_____	_____
Insurance	_____	_____	_____
Telephone (farm share)	_____	_____	_____
Electricity (farm share)	_____	_____	_____
Interest paid	_____	_____	_____
Miscellaneous	_____	_____	_____
Expansion livestock	_____	_____	_____
Cash Farm Expenses	_____	_____	_____

Adjustment for change in accounts payable*	_____	<u>XXXXXXXX</u>	<u>XXXXXXXX</u>
Adjustment for inventory changes	_____	_____	_____
Adjusted Cash Farm Expenses	_____	<u>XXXXXXXX</u>	<u>XXXXXXXX</u>

* Assumes expenses are recorded on a cash (as paid) basis. Cash Farm expenses are equal to actual cash outflow for the year but may not represent a year's expenses. To obtain Adjusted Cash Farm Expenses, add the increase in accounts payable or subtract the decrease in accounts payable compared to a year earlier. The total Cash Farm Expenses in the Last Year, Adjusted column should equal the Adjusted Cash Farm Expenses in the Last Year column.

NOTE: Changes in inventories of feed, fertilizer, fuel, etc. must also be considered when projecting expenses for the coming year.

WORKSHEET 2B. FARM EXPENSES FROM SCHEDULE F

	<u>Last Year</u>	<u>Last Year, Adjusted</u>	<u>Coming Year</u>
12. Breeding fees	_____	_____	_____
13. Chemicals	_____	_____	_____
14. Conservation expenses	_____	_____	_____
15. Custom hire	_____	_____	_____
16. Depreciation	<u>XXXXXX</u>	<u>XXXXXX</u>	<u>XXXXXX</u>
17. Employee benefit programs other than line 28	_____	_____	_____
18. Feed purchased	_____	_____	_____
19. Fertilizers and Lime	_____	_____	_____
20. Freight, trucking	_____	_____	_____
21. Gasoline, fuel, oil	_____	_____	_____
22. Insurance	_____	_____	_____
23a. Mortgage interest	_____	_____	_____
23b. Other interest	_____	_____	_____
24. Labor hired	_____	_____	_____
25. Pension and profit-sharing plans	_____	_____	_____
26a. Rent or lease, equipment	_____	_____	_____
26b. Repairs, maintenance or lease land, animals	_____	_____	_____
27. Seeds, plants purchased	_____	_____	_____
28. Storage, warehousing	_____	_____	_____
29. Supplies purchased	_____	_____	_____
30. Taxes	_____	_____	_____
31. Utilities	_____	_____	_____
32. Veterinary fees, medicine	_____	_____	_____
33. Other (specify) _____	_____	_____	_____
Purchased livestock ¹	_____	_____	_____
Cash Farm Expenses*	_____	_____	_____
<hr/>			
Adjustment for change in accounts payable	_____	_____	<u>XXXXXX</u>
Adjusted Cash Farm Expenses	_____	_____	<u>XXXXXX</u>

¹ Does not appear on Schedule F; obtain from depreciation record.

* Assumes expenses are recorded on a cash (as paid) basis. Cash Farm Expenses are equal to actual cash outflow for the year but may not represent a year's expenses. To obtain Adjusted Cash Farm Expenses, add the increase in accounts payable or subtract the decrease in accounts payable compared to a year earlier.

The total of Cash Farm Receipts in the Last Year Adjusted column should equal Adjusted Cash Farm Receipts in the Last Year column.

NOTE: Changes in inventories of feed, fertilizer, fuel, etc. must also be considered when projecting expenses for the coming year.

WORKSHEET 3. DEBT PAYMENTS

	<u>Last Year</u>		<u>Projected for</u>
	<u>Planned</u>	<u>Paid</u>	<u>Coming Year**</u>
Mortgages (10 years or more)	_____	_____	_____
Principal	_____	_____	_____
Interest	_____	_____	_____
Total (1)	_____	_____	_____
Cattle and Equipment Loans (1-10 yrs.)			
Principal	_____	_____	_____
Interest	_____	_____	_____
Total (2)	_____	_____	_____
Operating Loans (less than 1 yr.)			
Principal*	_____	_____	_____
Interest	_____	_____	_____
Total (3)	_____	_____	_____
Reduction in Accounts Payable (4)	_____	_____	_____
Grand Total (1 + 2 + 3 + 4)	_____	_____	_____

* Do not include here amounts that have been included in Worksheet 2A or 2B for the same year.

** Include payments on any new debt-financed investments or replacements.

WORKSHEET 4. FARM AND NONFARM REPAYMENT ABILITY

	<u>Last Year</u>	<u>Projected</u> ¹
1. Cash Farm Receipts (1*)	_____	_____
2. Minus: Cash Farm Expenses (2)	- _____	- _____
3. Equals: Net Farm Cash Inflow	_____	_____
4. Plus: Farm Interest Paid (2)	+ _____	+ _____
5. Plus: Nonfarm Income	+ _____	+ _____
6. Cash Available for Family Living, and Debt Payments	_____	_____
7. Less: Family Living Expenses and Taxes ²	- _____	- _____
8. Cash Available for Debt Payments	_____	_____
9. Less: Debt Payment (Interest and principal) (3)	- _____	- _____
10. Cash Available for New Investments, Risk and Uncertainty	_____	_____
11. Cash Flow Coverage Ratio (Item 8 divided by Item 9)	_____	_____

* Numbers in parentheses indicate the Worksheet from which to obtain this item.

¹ Projections for the coming year should be made carefully by considering changes in items such as cow numbers, feeding programs, cropping programs, product prices and input prices.

² Income and social security taxes as well as personal debt payments should be included in family living expenses.

WORKSHEET 5. EASING THE CASH FLOW CRUNCH

If your projected Cash Flow Coverage Ratio is less than 1.0, it appears that you will not be able to make your debt payments. Therefore, adjustments are needed.

Some possible ways to ease the cash flow crunch are listed below:

	<u>Applicable to my farm</u>
1. Borrow more money (this makes sense only if you expect the profitability of your business to increase in the future)	_____
2. Restructure debt: Put more on long term and less on short term to lower total payments	_____
3. Increase cash receipts (more than cash expenses)	_____
4. Decrease cash expenses (more than cash receipts)	_____
5. Cut capital purchases	_____
6. Cut family living expenses	_____
7. Sell nonessential capital assets	_____
8. Keep inventory low (sell unneeded crops, buy feed only as needed, etc.)	_____
9. Off-farm work by operator or family members	_____
10. Sell assets and lease them back	_____
11. Sell the assets to an investor and work as the manager	_____
12. Bring in a limited partner to provide capital	_____
13. _____	_____
14. _____	_____

WORKSHEET 6. FARM DEBT REPAYMENT ABILITY

	<u>Last Year</u>	<u>Projected</u>
1. Cash Farm Receipts (1*)	\$ _____	\$ _____
2. Minus: Cash Farm Expenses (2A or 2B)	_____	_____
3. Equals: Net Farm Cash Inflow	\$ _____	\$ _____
4. Plus: Interest Paid (2A or 2B)	_____	_____
5. Subtotal	_____	_____
6. Less: Personal Withdrawals from the Farm	_____	_____
7. Equals: Amount Available for Farm Debt Service	_____	_____
8. Planned Farm Debt Payments (3)	_____	_____
9. Farm Cash Flow Coverage Ratio = line 7 ÷ line 8	_____	_____

* Numbers in parentheses indicate the Worksheet from which to obtain the required data.

WORKSHEET 7. ANNUAL CASH FLOW STATEMENT

<u>Item</u>	<u>Last Year</u>	<u>Projected</u>
<u>Cash Inflows</u>		
1. Beginning farm cash, checking & savings	\$ _____	\$ _____
2. Cash farm receipts	_____	_____
3. Sale of assets: Machinery	_____	_____
4. Real estate	_____	_____
5. Other stocks & certificates	_____	_____
6. Money borrowed (intermediate & long term)	_____	_____
7. Money borrowed (short term)	_____	_____
8. Increase in operating debt	_____	_____
9. Nonfarm income	_____	_____
10. Cash from nonfarm capital used in the business	_____	_____
11. Money borrowed -- nonfarm	_____	_____
12. Total (A)	\$ _____	\$ _____
<u>Cash Outflows</u>		
13. Cash farm expenses	\$ _____	\$ _____
14. Capital purchases: Expansion Livestock	_____	_____
15. Machinery	_____	_____
16. Real estate	_____	_____
17. Other stock & certificates	_____	_____
18. Principal payments (Intermediate & long term)	_____	_____
19. Principal payments (short term)	_____	_____
20. Decrease in operating debt	_____	_____
21. Personal withdrawals & family expenditures including nonfarm debt payments	_____	_____
22. Ending farm cash, checking & savings	_____	_____
23. Total (B)	_____	_____
<u>Imbalance</u> (error) = (A) - (B)	\$ _____	\$ _____

FINANCIAL ANALYSIS CHART

The farm financial analysis chart may be used to measure the financial health of the farm business. The financial measures used are defined on page 16.

FINANCIAL ANALYSIS CHART 409 New York Dairy Farms, 1989

Liquidity (repayment)				
Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow
\$ 53	\$942	7.00	2%	\$ 129
180	762	2.25	7	682
254	663	1.75	10	1,156
333	580	1.49	13	1,542
389	514	1.21	16	1,863
440	460	1.07	18	2,212
487	399	0.93	20	2,643
549	327	0.77	23	3,051
631	244	0.55	28	3,541
889	-50	-0.27	39	4,655

Solvency				Profitability	
Leverage Ratio*	Percent Equity	Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
		Current & Intermediate	Long Term	Equity	Investment**
0.02	98	0.01	0.00	30	19
0.12	89	0.05	0.00	17	14
0.22	83	0.10	0.08	13	12
0.32	77	0.17	0.20	11	10
0.43	71	0.22	0.29	9	9
0.54	66	0.27	0.39	7	7
0.67	61	0.33	0.51	5	6
0.86	54	0.39	0.60	3	5
1.25	46	0.49	0.73	0	3
2.79	32	0.74	1.05	-14	-2

Efficiency (Capital)				
Capital Turnover (years)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation
1.40	\$1,420	\$ 563	\$ 4,248	\$184,415
1.69	1,973	759	5,080	77,982
1.83	2,297	906	5,571	55,765
1.96	2,570	1,029	5,916	44,425
2.10	2,837	1,138	6,287	36,412
2.26	3,081	1,255	6,653	28,486
2.41	3,445	1,391	7,224	21,656
2.59	3,940	1,567	7,810	15,973
2.90	4,646	1,786	8,820	9,520
4.19	7,175	2,505	11,461	-14,836

*Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.

**Return on all farm capital (no deduction for interest paid) divided by total farm assets.

DEFINITIONS

- 1/ **Scheduled Debt Payments Per Cow** -- Debt payments scheduled to be made during the coming year (as known at the end of the current year) divided by the end-of-year number of cows.
- 2/ **Available for Debt Service Per Cow** -- Net cash farm income (cash receipts minus cash expenses excluding interest paid) plus off-farm income minus family living expenses (estimated at \$10,900 per operator plus 4 percent of cash receipts), divided by the average number of cows.
- 3/ **Cash Flow Coverage Ratio** -- Amount available for debt service per dollar of annual scheduled debt payment, computed by dividing the available dollars by the annual payments planned. A high, positive ratio indicates a strong capacity to repay debt.
- 4/ **Debt Payments as Percent of Milk Sales** -- Amount of milk income committed to debt repayment, calculated by dividing scheduled debt payments by total milk sales (\$).
- 5/ **Debt Per Cow** -- Total end-of-year debt divided by end-of-year number of cows.
- 6/ **Leverage Ratio** -- Dollars of debt per dollar of equity, computed by dividing total farm liability by total farm equity (nonfarm assets and liabilities are excluded).
- 7/ **Percent Equity** -- End-of-year farm net worth divided by end-of-year total farm assets (nonfarm assets and liabilities are excluded).
- 8/ **Current and Intermediate Debt/Asset Ratio** -- All farm liabilities on less than 10-year repayment divided by all farm assets excluding real estate and other long-term assets.
- 9/ **Long-Term Debt/Asset Ratio** -- Farm liabilities on 10 years or more repayment, including all real estate mortgages, divided by the value of farm real estate and other long-term assets.
- 10/ **Percent Rate of Return on Equity** -- Return on equity capital divided by farm net worth. Includes the change in market value of all assets.
- 11/ **Percent Rate of Return on Investment** -- Return on all farm capital (no deduction for interest paid), divided by total farm assets. Includes the change in market value of all assets.
- 12/ **Capital Turnover** -- Average total farm assets per dollar of total farm income. This indicates the number of years required for total farm income to equal total farm assets.
- 13/ **Real Estate Investment Per Cow** -- End-of-year investment in real estate divided by end-of-year number of cows.
- 14/ **Machinery Investment Per Cow** -- End-of-year machinery investment divided by end-of-year number of cows.
- 15/ **Total Farm Assets Per Cow** -- Total end-of-year farm investment divided by end-of-year number of cows.
- 16/ **Change in Net Worth** -- Net worth at the end of year minus net worth at beginning of year.

7. Percent equity = $\frac{\text{Net worth} \times 100}{\text{Total assets}}$ = _____ %

8. Current and intermediate debt/asset ratio = $\frac{\text{Liabilities with less than 10-year term}}{\text{Farm assets except real estate}} \times 100 =$ _____ %
9. Long-term debt/asset ratio = $\frac{\text{Liabilities with 10-year or greater term}}{\text{Value of real estate}} \times 100 =$ _____ %
10. Rate of return on equity = $\frac{\text{Return on equity}}{\text{Equity}} \times 100 =$ _____ %
11. Rate of return on investment = $\frac{\text{Return on all capital}}{\text{Total farm assets}} \times 100 =$ _____ %
12. Capital turnover = $\frac{\text{Total assets}}{\text{Total farm receipts}} =$ _____ yrs.
13. Real estate investment per cow = $\frac{\text{Real estate investment}}{\text{No. of cows}} \times 100 =$ _____ %
14. Machinery investment per cow = $\frac{\text{Machinery investment}}{\text{No. of cows (end)}} =$ \$ _____
15. Total farm assets per cow = $\frac{\text{Total assets}}{\text{No. of cows (end)}} =$ \$ _____
16. Change in net worth = Net worth end of year \$ _____
 Minus = Net worth beginning of year \$ _____
 Equals = Change in net worth \$ _____

Other Agricultural Economics Extension Publications

No. 90-25	Employee Recruitment and Selection Teaching Manual	Thomas Maloney Joann Gruttadaurio Walter Nelson Kristen Park Joan Petzen Alan White
No. 90-26	Employee Recruitment and Selection Participant Manual	Thomas Maloney Joann Gruttadaurio Walter Nelson Kristen Park Joan Petzen Alan White
No. 90-27	Farm Income Tax Management and Reporting	George L. Casler Stuart F. Smith
No. 90-28	Pro-Dairy Financial Data Collection Workbook	Jonas B. Kauffman Stuart F. Smith
No. 90-29	Changes in the New York State Farm Minimum Wage Law	Thomas R. Maloney Kay Embrey
No. 90-30	New York Economic Handbook 1991 Agricultural Situation and Outlook	Extension Staff
No. 91-1	Estimating Principal Due in Next 12 Months with Monthly Payments	Eddy L. LaDue
No. 91-2	Micro DFBS A Guide to Processing Dairy Farm Business Summaries in County and Regional Extension Offices for Micro DFBS v 2.5	Linda D. Putnam Wayne A. Knoblauch Stuart F. Smith
No. 91-3	The National Dry Onion Market: A Monthly Analysis of New York State's Competitive Position in Eastern Markets	Enrique Figueroa
No. 91-4	Property Tax Relief from New York's Farmland Assessments and Agricultural Buildings Exemptions in the 1980's	Richard N. Boisvert Nelson L. Bills