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## CASH OPERATING INCOME AND LIQUIDITY MANAGEMENT FOR DAIRY FARMS

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### Summary

Net cash flow measures the amount of cash remaining after all cash expense obligations are satisfied. This cash is available for additional farm investment, off-farm investment, family living, and additional debt repayment. A 5-year average monthly cash flow statement was used to determine net cash flow for 19 Kansas dairy farms. Results indicated that excess cash and debt were used primarily to invest in machinery, vehicles, and nonfarm assets and increase the allocation for family living. Investments in land and buildings increased moderately during the study period.

(Key Words: Investment, Liquidity, Cash Flow.)

### Introduction

Liquidity and cash-flow management tools are essential components used in the implementation of financial control. Liquidity refers to the ability of the farm business to meet financial obligations as they come due and typically is measured using a cash-flow statement. Monthly cash-flow statements provide information necessary to assess seasonal credit requirements. Long-term cash-flow projections also can provide information pertaining to a firm's ability to repay intermediate and long-term loans.

The objective of this study was to determine how excess cash profits (if present)

were used on several Kansas dairy farms. Monthly sources and uses of funds are presented and discussed.

### Procedures

Cash transactions, inventories, and production information for 19 dairy farms were available from the Financial Plus program of the Kansas Farm Management Association. To be included in the analysis, a farm had to be enrolled for 1988, 1989, 1990, 1991, and 1992.

A monthly cash-flow statement was utilized to determine the amount of excess cash available for investment and debt repayment. This statement summarizes all cash transactions concerning the business or enterprise during a given period of time. The net cash-flow measure included on-farm sources and uses of cash as well as nonfarm cash flows. Cash operating income, defined as the amount of cash income from the farm business, was used to measure both profitability and liquidity. This cash is used for discretionary purposes, such as meeting scheduled principal payments, on and off farm investment, and family living. Net loans are calculated as loans received minus loans repaid and reflect the level of debt repayment or lack thereof. A negative value for net loans indicates that producers were paying down their debt. Financial and production variables were analyzed to ascertain where excess cash was invested.

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## Results and Discussion

Table 1 presents a 5-year average monthly cash flow statement for the 19 dairy farms. The dairy farms were relatively profitable during the period, averaging \$57,479 of net farm income (accrual basis) per year and \$53,985 of cash operating income (cash basis) per year. Using Table 1, we can analyze the seasonality of the various revenue and expense items as well as the summary variables in the lower portion of the table. Farm expenses increased proportionally more than farm sources during December, resulting in a negative cash operating income. The largest monthly net cash flow occurred in January. The largest monthly principal payments occurred in May and October. Dairy producers took out the most loans in April and December. April and December were the months when net loans were most positive, indicating the accumulation of debt. However, dairy farms paid down loans by average of \$1,894 per year, over the 5-year period.

The data indicate that excess cash was used primarily to finance intermediate assets (Table 2). Table 2 is not a complete balance sheet but lists end-of-year balances for

dairy farm assets. Dairy producers in this study increased their cash outlays for vehicles and equipment, whereas cash expenditures on buildings decreased. Breeding stock and nonfarm asset inventories increased appreciably during the period. Nonfarm asset inventory increased from \$8,369 in 1988 to \$17,204 in 1992 or 105.5%. The value of owned land increased by 14.4% during this period. The producers in this study also increased their allocation for family living by 62% during the period.

Fluctuations in the values of current livestock and crop inventories can be misleading and may not indicate a change of production. These fluctuations can be caused by changes in the individual commodity prices. Production numbers such as average cows per year indicate that milk production was steady during the period.

Cash-flow management is an essential component of effective financial control. Anticipating cash requirements alleviates last minute decisions that are potentially costly. In addition, understanding the seasonal need of cash generation will allow producers to make better investment decisions.

**Table 1. Monthly Cash-Flow Statement for Dairy Farms (1988-1992)<sup>1</sup>**

Item	Jan	Feb	Mar	Apr	May	June
Sources	----- \$ -----					
Livestock	22,249	20,061	19,994	19,917	19,362	19,227
Breeding stock	3,341	2,094	2,157	1,413	1,656	1,385
Crops	2,895	2,255	3,287	3,175	2,340	3,722
Miscellaneous	512	614	294	912	425	427
Asset sales	39	87	425	603	518	771
Total farm sources	29,036	25,111	26,157	26,020	24,301	25,532
Nonfarm	2,773	1,809	1,758	2,706	1,560	1,313
Total sources	31,809	26,920	27,915	28,727	25,861	26,845
Uses						
Livestock purchases	948	1,770	2,561	1,358	359	470
Feed	4,192	4,606	5,132	5,574	5,333	5,673
Veterinary	361	412	425	434	595	384
Fert., seed, and chem.	938	1,165	1,880	2,621	3,735	3,271
Machine hire/labor	2,656	2,191	2,555	2,604	2,572	3,432
Fuel and repairs	2,066	2,522	2,829	2,804	2,780	2,779
Asset purchases	1,381	2,639	3,158	5,713	1,745	2,271
Interest paid	1,220	1,264	1,026	819	898	657
Miscellaneous	4,817	3,677	4,422	4,354	2,899	4,970
Total farm uses	18,579	20,246	23,988	26,281	20,916	23,907
Total nonfarm uses	7,987	6,727	4,560	5,717	2,666	3,204
Total uses	26,566	26,972	28,548	31,998	23,583	27,111
Loans received	4,979	4,898	6,367	9,978	6,725	3,880
Loan payments	6,158	5,875	5,958	6,892	8,398	4,126
Net loans	(1,179)	(977)	409	3,086	(1,672)	(246)
Operating income	11,801	7,418	4,903	4,848	4,612	3,126
Net cash flow	4,064	(1,029)	(224)	(185)	606	(511)
Debt servicing ratio, %	23.2	26.5	25.0	26.8	35.9	17.8

<sup>1</sup>Numbers in parentheses represent negative values.

**Table 1. Monthly Cash-Flow Statement for Dairy Farms - Continued (1988-1992)<sup>1</sup>**

Item	July	Aug	Sept	Oct	Nov	Dec	Total
Sources	----- \$ -----						
Livestock	18,338	21,084	18,989	21,000	19,515	21,825	241,562
Breeding stock	1,428	1,918	2,154	2,060	2,481	1,238	23,325
Crops	5,817	1,957	2,239	10,135	4,084	5,872	47,778
Miscellaneous	632	555	1,319	525	1,091	1,810	9,118
Asset sales	395	867	102	60	146	147	4,160
Total farm sources	26,610	26,381	24,803	33,780	27,317	30,892	325,941
Nonfarm	1,814	2,037	950	1,152	1,709	6,495	26,076
Total sources	28,424	28,419	25,754	34,932	29,026	37,387	352,017
Uses							
Livestock purchases	660	1,107	1,903	1,986	1,856	843	15,822
Feed	5,647	6,073	5,827	7,642	6,868	12,198	74,765
Veterinary	453	435	491	526	556	641	5,715
Fert., seed, and chem.	2,501	1,140	782	1,877	1,368	5,022	26,299
Machine hire/labor	3,497	3,038	2,962	3,214	2,814	3,894	35,427
Fuel and repairs	3,237	3,171	3,441	2,979	3,375	4,009	35,992
Asset purchases	814	4,049	594	1,766	929	1,234	26,293
Interest paid	1,294	1,620	1,267	1,241	1,131	9,431	21,868
Miscellaneous	3,376	3,227	3,469	4,146	5,400	7,153	51,910
Total farm uses	21,479	23,860	20,736	25,377	24,297	44,425	294,089
Total nonfarm uses	3,569	3,810	3,179	4,558	4,793	4,986	55,754
Total uses	25,048	27,669	23,915	29,935	29,089	49,412	349,845
Loans received	2,125	5,308	3,418	3,596	3,690	9,201	64,165
Loan payments	5,800	5,134	4,898	7,592	5,351	(123)	66,059
Net loans	(3,675)	173	(1,480)	(3,996)	(1,662)	9,324	(1,894)
Operating income	5,550	5,702	4,560	10,109	3,804	(12,447)	53,985
Net cash flow	(300)	923	359	1,001	(1,725)	(2,701)	278
Debt servicing ratio, %	25.0	23.8	23.9	25.3	22.3	24.9	25.0

<sup>1</sup>Numbers in parentheses represent negative values.

**Table 2. Dairy Farm Assets, Liabilities, and Family Living Expenses (1988-1992)**

Item	1988	1989	1990	1991	1992	% change 1988-1992
Current assets	----- \$ -----					
Cash and accounts receivable	44,728	50,831	52,979	55,017	59,642	33.3%
Feeder livestock	17,059	22,868	25,936	24,554	22,653	32.8%
Stored grains	48,429	51,476	57,481	45,324	61,221	26.4%
Supplies	1,365	2,408	3,467	1,772	4,134	202.9%
Intermediate assets						
Dairy breeding stock	132,317	131,419	146,436	139,845	150,162	13.5%
Other breeding stock	8,221	7,854	8,861	11,111	12,347	50.2%
Vehicles and equipment <sup>a</sup>	16,534	18,885	22,806	12,970	22,305	34.9%
Long-term assets						
Buildings <sup>a</sup>	1,430	3,615	1,704	475	691	-51.7%
Land	189,443	203,954	205,794	213,710	216,752	14.4%
Current loans	63,663	76,205	83,246	94,299	85,521	34.3%
Intermediate loans	59,848	53,347	55,890	54,438	62,071	3.7%
Long-term loans	102,037	101,981	90,910	97,406	112,343	10.1%
Family living expense <sup>b</sup>	16,341	28,683	23,988	26,786	26,478	62.0%
Nonfarm assets	8,369	10,243	10,320	12,333	17,204	105.6%
Nonfarm loans	100	696	24	500	93	-6.8%

<sup>a</sup>Cash expenditure.

<sup>b</sup>Data were not available for all farms.