A DAIRY ENTERPRISE CASH FLOW SYSTEM

By

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A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE

Department of Animal Science

1987

ABSTRACT

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The objective of this project was to develop an easy means for projecting cash flows for a 12 month period for a dairy enterprise. Through the cooperation of the Michigan State University farm accounting and records system, Telfarm, and six Michigan dairy farms a forecasting model was developed.

Development consisted of deriving the equations and coefficients used to forecast the cash flow streams of receipts and expenditures for an annual period. These equations and coefficients were tested on six Michigan commercial dairy enterprises. Using the forecasting method and procedures a 12 month cash flow projection for each commercial dairy enterprise was developed. To test these projections they were compared to actual monthly cash flow streams to assess the accuracy of the forecast model.

The dairy enterprise cash flow forecast model was designed for use on an IBM compatible personal microcomputer using the software LOTUS 1-2-3 version 1A.

ACKNOWLEDGMENTS

The author wishes to thank Dr. Allan Rahn, Dr. John Speicher of the Department of Animal Science and Dr. Sherrill Nott of the Department of Agricultural Economics for their assistance and guidance throughout the course of her master's program. Additionally, the author would like to thank Mr. D. Walton through whose special friendship the completion of this thesis became a reality.

Most importantly, the author wishes to thank her father for his never ending love, moral support and guidance throughout the course of her life. To him I dedicate this thesis.

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CHAPTER 1

INTRODUCTION

Dairymen are presented with the challenge of not only being good managers of their cattle but they must be sound businessmen as well. Dairymen must be able to use financial reports about their dairy enterprises to make reasonable economic decisions and to efficiently maximize the earning power of a dairy enterprise. Earning power is defined as cash generating potential. Therefore, cash assumes the primary role in financial reports. With cash as the central concern in financial management it becomes important to measure the flow of cash within an operation. The reason being that management looks at profits as a process of flow of value, within the operation, from one point to another, with this value being cash. Therefore, the financial reports of the most consequence are those which present cash flows.

When involved in decison making the financial manager of a dairy enterprise is primarily concerned with future occurrences in cash flows. Therefore, it becomes important to develop a method of predicting cash flows or cash flow forecasting. Forecasting is done to allow for decisions concerning cash flows in regard to efficient cash utilization and maintenance of as small a cash balance as possible without impairing the operations financial stability.

The Dairy Enterprise Cash Flow model, presented here, is a method of providing the financial manager, of a dairy enterprise, with the necessary information about cash flows to make sound business decisions. The model will provide a detailed twelve month forecast to be used as a tool in financial decision making. The model will use

data from the financial manager of the dairy enterprise combined with formulated methods to arrive at the forecast results. Therefore, the model will be specific to each dairy enterprise yet, it will utilize prescribed forecasting techniques to add to its validity. Given that the model will only be as useful as the information it contains is valid.

CHAPTER 2

REVIEW OF LITERATURE

A dairy farm operates within a market economy. The basis of any economy is its key transactional unit or medium of exchange, which in a market economy, is cash. Cash can be defined as ready money which is "a commodity that is legally established as an exchangeable equivalent of all other commodoties and used as a measure of their comparative market value" according to the American Heritage Dictionary. In a market economy cash is the most liquid asset available to satisfy business requirements (Osburn, et. al., 1983). Since this is the case it is the job of the cash manager to excercise diligent control over business' primary asset (Orgler, 1970). In an effort to perform this function a manager must be aware of the cash balance or position at any given time. Over a period of time cash balances will change with changes in cash inflows and outflows (Hicks, 1980). The resulting changes in position over time is referred to as the cash flow of a business (Jacobs, et. al., 1983).

Cash position changes are a meaningful indicator of the financial performance of businesses in which the primary objective is profitability and growth (Jacobs, et. al., 1983) A cash flow forecast projects cash position changes of a business and allows for closer control over the need for additional borrowing or more efficient use of the business' liquidity (Knight, 1982). In theory it is the amount and timing of cash expected to flow in and out of a business in a given period (Sorter, 1982). Osburn, et. al., (1983) refer to cash flow as the link between the major goals of a business: to be liquid,

profitable and solvent. Cash Flow is influenced by 1) efficiency of production (as reflected by a ratio of operating income to operating expenses); 2) debt structure and repayment schedule; 3) purchasing and marketing strategies (timing of inventory and management control); 4) family living expenditures 5) tax strategies (Osburn, et. al., 1983).

NEED FOR CASH FLOW MANAGEMENT

Cash is one of the natural consequences of business activity. Cash inflow and outflow is the result of business activity and the effective control of cash is one of the most important aspects of financial management of any business (Orgler, 197Ø). The eventual success or failure of a business may depend largely on its ability to manage its cash (Jacobs, et. al. 1983). In a developed economy cash is the general business asset and it represents a general claim on all other assets (Kirkpatrick, 1983). Therefore, the ability of a business to generate, have access to and use cash indicates a level of performance (Kirkpatrick, 1983). The financial growth and success of any company is bound by the constraint of its existing cash supply and/or by managements ability in obtaining maximum use of every available dollar (Sautter, 1974). Obtaining maximum use of every dollar indicates the need to manage the amount of cash available to a business at any given time. Therefore, like any asset or resource of a firm, there is an optimum amount that should be held at a given time (Jacobs, et.al., 1983). The optimum amount held is dependent on a variety of factors and trade-offs and thus cash management becomes a balancing act.

There must be enough cash to satisfy immediate liabilities and needs yet an excessive balance of cash, or a cash surplus, will not be

utilized in its most efficient manner. Rather than having an excessive surplus of cash a business might benefit more from short term investment in which the earnings from the surplus cash come in the form of interest payments (Hermanson, 1984). This would indicate a more efficient use of cash. On the other hand there is the risk of tying up cash reserves in short term investment and running the possibility of not having enough to meet an immediate need for cash, therefore, causing the need for short term borrowing. Any decision that could result in either too much or too little cash on hand may create an imbalance that will exist for several future time periods (Hockenberger, 1984). Rectifing this problem is further complicated by the dynamic business environment. Corrective action is solely dependant on management's actions, yet inflows and outflows of cash are constantly changing and affected by factors which management has no control over. Thus it becomes evident that cash management is a careful balancing act and a never ending challenge.

The need to balance cash is a natural consequence of differences in the timing and magnitude of cash inflows and outflows (Jacobs, et.al., 1983). Cash requirements arise as a lack of synchronization of inflows and outflows, consequently there is a need for an optimum amount of cash balance to perform regular cash transactions and counter unexpected cash requirements (Orgler, 1970). This optimum amount may also be referred to as a minimum cash balance since there may be a cost associated with any surplus (Loscalzo, 1982). The cost of any unexpected cash requirements is dependant on both the magnitude and frequency with which they occur (Hockenberger, 1984). On a frequent basis unexpected cash outflows will require the need for borrowing

which will further complicate the cash management of a business. Yet on the other hand there is also a cost associated with a cash surplus, particularly for a business with a regular stable pattern of cash flows (Orgler, 1970). In these instances where there are regular patterns of cash surpluses there is the problem of idle assets or resources, the cash. These idle assets should be employed, as previously stated, into income generating assets or activities or used to reduced any current debt load (Hockenberger, 1984). The required cash reservoir is defined as the minimum balance selected, which is dependant on the chance of unexpected cash outflows, the cost of shortages and the opportunity cost of holding excess cash (Orgler, 1970). The decision on the amount that should be maintained in cash reserves is based on managements' judgement of need, in an effort to economize cash balances by evaluating the trade-offs between cash surpluses and shortages. Dependant primarily on the implicit return from cash. "Implicit Return" is an intangible measure which represents the advantage of holding cash (Orgler, 1970). Since the amount of cash held is what is used to avoid cash shortages up to a particular point this return will be very high and the benefits will offset the opportunity costs (Jacobs, et. al., 1984). Therefore, the implicit return from cash is higher than would be the return from any other investment (Orgler, 1970). Essentially the two situations that cash management is involved in are:

1) How to finance cash requirements when excess outflows over inflows reduce the cash balance below the minimal desirable level.

2) How to invest excess cash when net cash flows (inflows less outflows) are positive. (Orgler, 1970).

The description of the cash managers function is to:

1)Obtain maximum productive use of all available cash

2)To coordinate all enterprises cash requirements with the business financial planning.

3)To anticipate cash surpluses and deficits, due to seasonal or operating demands, to determine when short term loans are needed or when there is a surplus of cash available for investment.

4)Minimize interest payments, service charges and other cash costs. (Anderton, 1974).

The importance of cash flow management has increased significantly as businesses are faced with extensive financial leverage, increasing debt service requirements and declining profits (Knight, et.al., 1982). In some cases management decisions in these areas are crucial to survival. Poor cash flow management could cause a business to suffer drastic consequences of high interest rates (which during the last decade have been at a record high level) forcing a situation of strict managerial control (Giles, 1977).

DEFINITION OF CASH FLOW

There are several definitions of cash flow depending on whose point of view is considered. The two major differences in definitions of cash flow are when it is considered on a cash basis or an accrual basis. When defined on a cash basis only transactions involving actual cash receipts and disbursements occurring, in a given period, with no attempts to record unpaid bills (or amounts) owed to or by the business (Gross, 1972) This is fairly straight forward. If cash comes in or goes out in a given period, it counts; if not it doesn't count (Hicks, 1980). However, the accrual basis means keeping records so that in addition to recording transactions resulting from the receipts and disbursements of cash, the firm also records the amount it owes others and the amount others owe it (Gross, 1972). In accounting terms - on a

cash basis cash flows are recognized and reported as they occur (Hermanson, 1984). In accrual accounting cash flows are recognized when the accountant considers they have been earned (in the case of revenue) or expired (in the case of an expense) (Kirkpatrick, 1983). Traditionally cash flow measurements and cash flow accounting have been rooted in the traditional accounting methods of accrual accounting. In the last decade proponents of cash flow systems have argued that to arrive at an accurate and complete status of flows of cash all accruals should be placed on a cash basis (Casey, 1984), and cash flow should be considered on a cash basis rather than accrual.

Farming businesses lend themselves readily to a cash basis since they are allowed to operate on a cash basis from a tax accounting viewpoint (Harsh, et.al., 1981). From a cash basis a farmer has the ability to manipulate cash receipts and cash expenses, which are used in the calculation of income and therefore tax obligations (Harsh, et. al., 1981). By effectively shifting cash from one accounting year to another, the tax burden can be reduced. Under the accrual method the farmer has less flexibility to do tax management (Harsh, et. al., 1981). However, Sorter(1982) and Harsh et. al. (1981) state that from an over all business management perspective it can be argued that the accrual method is preferred since it more clearly reflects the total financial progress of a business.

Traditionally in the analysis of a business there are three basic financial statements that are used by management - the net worth statement, the income statement, and the cash flow summary. There are two basic objectives that should be met by financial statements 1) to provide information useful for making economic decisions 2) provide

information useful to investors and creditors for predicting, comparing and evaluating enterprise earning power (Sorter, 1982). Earning power is defined as cash generating potential, thus, cash assumes a primary role in terms of the objectives of financial statements (Sorter, 1982).

It is necessary to look at how the traditional financial statements meet the objectives stated above. The Net Worth statement is a summary of assets, liabilities, and owner's equity at a given point in time (Harsh, et.al., 1981). The structure of the Net Worth statement follows the basic accounting equation; assets - liabilities = net worth (Osburn, 1983). Liabilities are obligations owed to those who provide debt capital to the firm (lenders, lessors and other creditors) (Barry, 1983). Net Worth reflects the owner's equity in the business (Osburn, 1983). This financial "snapshot" of the business is used as a measure of the solvency of a business, if the assets exceed debt than the business is considered solvent (Harsh, 1981).

The income statement measures the financial progress and profitability of a business over a period of time (Harsh et. al., 1981). The period of time, or the accounting period, referred to is usually one year (Barry, 1983). The main purpose of the income statement is to measure the value of a firm's production during the accounting period (Barry, 1983). As a management tool it is used in analysis of a business' profitability, efficiency and financial stability (Harsh, et. al. 1981). Osburn (1983) suggests that income statements over several years are a useful analytical tool on a comparative basis. Comparing results from different years will reveal the return (or loss) to resources used in production, as well as, the relationship between receipts and expenses over time indicating

whether increased efforts to control resources are warranted (Osburn, 1983). It is also useful to reflect a business' capacity to undertake and service debt for expansion or investment purposes (Osburn, 1983).

The Net Worth statement indicates the financial solvency of a business at a given point in time, and the income statement gives an indication of the net farm profit during an accounting period (Harsh, et. al., 1981). Wells (1974) concurs with Harsh, et. al., (1981) on this point, even from a projected point of view, in that the income statement (projected) gives results, but does not tell how results are to be financed. A projected balance sheet displays financial position, but does not tell how financial transactions occurred (NAA, 1961). Therefore, the information that these two statements provide say nothing in regards to the inflows and outflows of cash in a business and whether or not a business can meet its cash obligations as they come due. It is highly unlikely that any one figure (bottom line) off of an income or net worth statement can adequately convey information about amount, timing and certainty of cash realization (Sorter, 1982). Therefore, management needs cash flow to bridge the gap laid open by the other statements (NAA, 1961).

The cash flow summary examines the amount of cash available to the operator and how that cash is utilized by the farm business. The cash flow summary provides a link between the income statement and net worth statements by showing the various flows of funds that are associated with changes in equity capital (Barry, 1983). It is designed to show the magnitude and specific sources of variation of various funds that flow into and out of a business (Osburn, 1983). A typical method of setting up a cash flow summary is to use a sources and uses approach,

the inflow of funds being sources and the outflow of funds being uses (Harsh, et. al.,1981). The Net-Change concept is intended to measure changes between beginning and end of period values for selected sources and uses of funds (Barry, 1983). Under this approach a typical categorization of sources of funds is;

1) Funds from farm operations
   a) farm profit
   b) depreciation
2) A net decrease in current assets
3) A gross decrease in non-current assets
4) A net increase in any liability
5) New equity from outside sources (stock sales, gifts and inheritances)
6) Total sources of funds (Barry, 1983)

In the same vein uses of funds are typically catagorized as:

1) Net increase in current assets
2) Gross increase in non-current assets
3) Net decrease in any liability
4) Fund withdrawls for family, dividends, income taxes, gifts, stock requirements, etc.
5) Total uses of funds (Barry, 1983)

Harsh et. al. (1981) suggest a more comprehensive approach to sources and uses involving a Gross-Flow concept vs. a Net-Change concept:

Sources of Funds
1) Beginning cash balance
2) Cash farm receipts
3) Capital sales
4) cash nonfarm income
5) New money borrowed
6) Depletion of nonfarm investments and saving
7) Total cash inflow

Corresponding Uses of Funds
1) Cash farm expenses
2) Capital expenditures
3) Cash nonfarm business expenses
4) Family living expenses and savings
5) Taxes paid
6) Repayment of borrowed money
7) Ending cash balance
8) Total cash outflow

Both of these techniques indicate patterns of cash inflow and outflow based on historical data and this may have serious shortcomings in its usefulness as a management tool. The financial manager is most interested in dealing with future not past time periods.

WHAT GENERATES CASH FLOW

As has been stated cash flow is a measure of the receipts and disbursements of the cash of a business. At this point it would be prudent to define receipts and disbursements, since they are what generate cash flow.

For the purposes of this project dairy farm receipts will be the result of milk sales, cull cows, replacements sold, bull calves, depreciable livestock, sales of crops, custom services provided, equity earnings (milk co-op), sale of depreciable property or any other activity which results in cash inflow to a business. Disbursements must first be defined as either a cost or an expense. A cost is the amount of a resource given up to perform the activities of a given unit for a specific period of time, whether that be from production of a given product or from sevices offered (Heitger, 1986). An expense is an "expired cost", a resource consumed during the production of a given product in this case the resource being cash (Heitger, 1986). A list of possible costs with the corresponding expenses for a dairy farm include Animal costs - feed, feed supplies, livestock supplies, breeding services, veterinary service and supply, milk sales expenses (marketing, hauling, promotion, Gramm-Rudman, Whole Herd Buyout): Crop costs - seeds and plants, fertilizer, herbicides and insecticides, crop supplies, irrigation power; Machinery costs - machine and truck repairs, building and improvements, small tools, machine shop supplies,

gasoline, diesel, motor oil, custom services; Farm costs - general supplies, utilities- heat, electricity, land rent, taxes, insurances; Payroll costs - labor, FICA deposited, management.

What is being described here are the sources and uses of funds. Sources which bring cash into a business and uses which remove cash (Wells, 1974). Sources of funds are operations (if positive inflow), Borrowing, Disposal of resources, and contributions of owners (Hermanson, 1984). Uses of funds are operations (if negative drain), borrowing repayment, purchases of resources, distributions to owners (Hermanson, 1984). Sources contributing to the pool of funds and Uses draining from the pool of funds, indicating how funds are generated and depleted by business activity (Wells, 1974). Traditional accounting has always maintained that tracking sources and uses of funds through a business has been the cash flow of a business and are compiled within a cash flow statement (Kirkpatrick 1983). Therefore, a cash flow statement of changes in financial position of a business can be used as an analytical tool. It demonstrates how funds were acquired and how they were used in a given period of time and what the net effect was on the cash position of the business (Wells, 1974).

THE CASH FLOW FORECAST

A cash flow forecast indicates the ability of a business to generate cash inflows to meet its cash demands during a specified period of time (Osburn, 1983). The contention here is that cash flow forecasting is at the heart of effective cash management (Knight, 1982). There are several arguments for using cash flow forecasting. A cash flow forecast will indicate total funds available to a business, as a result of a period of operations, for replacement, expansion,

reduction of debt, increase in working capital (Wells, 1974). Knight et. al. (1982) state the main reasons for forecasting and how forecasts are used. 1) to guide planning of capital requirements for debt and equity 2) to evaluate prospective return on investment on a discounted cash flow basis and to determine working capital requirements 3) to identify periods of cash surpluses and deficits for liquidity management and to guide planning of short term borrowing and investing. Also, to monitor the cash consequences of control over levels of liabilities and assets 4) to conduct a more detailed control of short term investments and borrowings 5) to control the amount of dollars to be invested, applied to reduce loans or to be drawn on credit lines.

The bottom line is that managers can no longer survive on hindsight. With larger and larger sums of money riding on "right" decisions and with profit margins that leave little room for error, the cash flow forecast can be used to plan ahead (Osburn, 1983).

The foundation of effective cash flow management are sound techniques for forecasting. Forecasting is not a once-a-year static process drawn off of balance sheets, rather it is a dynamic situation, with frequent alterations, and developed utilizing several sources of information (AICPA, 1980). Knight (1982) refers to forecasting as a multi - faceted requirement drawing on numerous data sources and probably involving several forecasting techniques. By definition a financial forecast for an ENTERPRISE is an estimate of the MOST PROBABLE financial position, results of operations, and changes in financial position, for one or more future periods (AICPA, 1980). Enterprise means an active business for which legimate financial statements could be prepared (Loscalzo, 1982). Most probable means that

the assumptions the forecast are based on are what management feels is the most likely outcome (Loscalzo, 1982). A financial forecast should be an objective, logical, supported statement of the most probable financial results (AICPA, 1980).

Generally a cash flow forecast is generated after the approaching year's business plans have been formulated (Loscalzo, 1982). It reflects a business' ability to generate cash inflows to meet cash demands during a specified period of time (Beehler, 1978). Business plans are assumptions of the outcome of activity based on the current status of the business and available information both internal and external (AICPA, 1980). Some of the assumptions may be explicit, specifically market assumptions and others will be implicit to the business. Therefore, prior to that forecasting decisions are made concerning productive enterprises, marketing strategies and investment programs that will best meet the manager's objectives (Milling, 1981). Management's objectives are generally based on physical production goals (ie. amount of milk produced, amount of each crop planted) from this the physical information is converted into a receipt/disbursement structure (Wilkins, 1974).

The American Institute of Certified Public Accountants (1980) states that a forecasting system consists of a set of policies, procedures, methods and practices that are used to prepare financial forecasts, monitor attained results relative to the forecast, and prepare revisions or otherwise update the forecast. A forecast should be objective, logical and a statement which supports the most probable financial results (Henke, 1978). Heitger (1986) explains a budget or

forecast as dealing with a specific entity which covers a specifc future time period, and is expressed in quantitative terms.

There are several reasons that justify the need for forecasting

1) it forces a situation of periodic planning

2) it promotes and encourages coordination of activites in a business

3)it forces management to quantify objectives and goals

4) it provides a framework for performance evaluation

5) it promotes awareness of business costs

6) it orients and directs a firm's activities towards organizational goals (Milling, 1981).

Summarized, a forecast forces management to forward plan and to make careful evaluations regarding the business' future operating practices (Knight, 1982). Aside from broad objectives and goals it forces management to convert these objectives and goals into quantitative terms, and by doing this management has some method with which they can predict Net Income and financial position as a result of a proposed forecast plan (Wilkins, 1974). Osburn, et. al. (1983) points out that forecasting encourages production, planning and development of marketing strategies. It also prompts management to give attention to long term goals and provides a sound basis for deciding upon short term goals (Henke, 1978). A forecast establishes certain standards that can be used for evaluating the results of operations, and although it is primarily a planning device it also can be used to foster coordination and control within the business (Ferrara, 1981). A business which doesn't perform any sort of forecasting or budgeting process is committing the resources of a business to a course of action without

consideration of the likely results, or the possible opportunity costs involved.

Traditional cash flow was a direct measure of Net Income (Wilkins, 1974). Part of Net Income are all aspects and effects on working capital (Hermanson, 1984). Working Capital is defined as all current assets minus current liabilities (Barry, 1983). However, in a traditional sense current assets includes not only cash but also includes inventories and accounts receivables. While current liabilities includes accounts payable, accruals and debt maturities. Barry, et. al. (1983) refers to current assets as cash or near cash items whose values will likely be realized in cash or used up during the normal operating cycle, one year. They represent a group of assets whose conversion to cash will have a relatively small disruptive impact on normal business activity, since all current assets are regarded as highly liquid assets (Barry, 1983). However, even within the grouping of current assets there can be a ranking of most liquid to least liquid (Nelson. 1973). There are several factors which will influence the measure of liquidity of other forms of current assets (accounts receivable, prepaid expenses, inventories of supplies, livestock, crops and feed) such as the timing and market conditions when such items are converted into cash (Barry, 1983). There is often a seasonal aspect which will influence the amount of cash an asset will yield at liquidation which could be a problem when trying to meet cash demands (Nelson, 1973). At any two times during the year the liquidation of an asset may yield a different amount of cash which at one point will be sufficient to meet cash demands and at another point will not be.

Barry et. al. (1983) then explains current liabilities as existing obligations that are due within the next year. This can include all acounts payables, accrual payments and charges, and debt maturities. Therefore, it can be said that there are several factors that influence working capital that do not influence cash position or cash flows.

There are several arguments for reporting on a cash basis instead of an accrual basis. First of which is the accurate depiction of current business standing which can not be guaranteed when expressed as working capital (Kirkpatrick, 1983). There are several factors, all of which are not based in cash, which contribute to the composition of working capital (Sautter, 1974). Thus it is difficult to consider working capital as an adequate performance measure and statement of financial position. A second argument in favor of cash basis is that of solvency (Bowers, 1974). A business may show an increase in working capital while at the same time not generate enough cash to pay its bills (Sautter, 1974). There are several techniques that can be used to "smooth" or pad working capital to make a business appear more profitable than actual solvency measures would indicate (Bowers, 1974). The recent situation of high interest rates, high rates of inflation and depressed economic conditions make it more likely for a business to realize severe cash flow problems, not problems in working capital (Kirpatrick, 1983). This same problem is likely to occur with an expanding business. Here working capital is expanding, with the increase in inventory and accounts receivable, yet generally there won't be enough cash to pay the bills (Osburn, 1983). Even the FASB (Financial Accounting Standards Board) agrees with this, as was stated in the FASB report, "Reporting Income, Cash Flows, and Financial

Position of Business Enterprises", Proposed Statement of Financial Accounting Concepts, "the reporting of meaningful components of cash flows is generally more useful than reporting changes in working capital". This has become a popular stance not only by small business but large corporations as well. After the FASB report in 1981 the Financial Executives Institute recommended that its members adopt the cash basis of reporting. (Approximately 95% of the companies with securities traded on the New York Stock Exchange and the American Stock Exchange are represented in the Financial Executives Institute). These current developments indicate that financial decisions are based more on cash outlays with expected cash returns, appropriately discounted for time and risk (Orgler, 1970).

Therefore, it is being suggested here that in order to accurately manage cash during an accounting period that cash should be the only current asset or liability reported. Additionally Giles (1977) suggests several reasons why reporting on a cash basis makes more sense; 1) cash flow provide a more meaningful record of financial performance. It gets around the problem of being able to demonstrate profits while not generating enough cash to remain solvent. 2) cash flow deals more satisfactorily with inflation since all entries are automatically at current values. 3) cash flow is more suitable for tax purposes, as was previously covered. 4) cash flow basis will result in production of more timely accounting data.

Several authors propose methods with which Net Income is converted from an accrual basis to a cash basis - Hermanson's (1984) Method

Accrual basis Net Income
+ Expenses & Losses not reducing working capital
- Revenues & Gains not producing working capital

= Working Capital from operations
+ Decreases in current assets(except cash) & Increases in current liabilities
- Increases in current assets(except cash) & Decreases in current liabilities
---
= Cash from Operations

Essentially Casey and Bartczak's (1984) method is the same as Hermanson's yet they deal directly with the question of depreciation

Net Income
+ Depreciation
+ traditional cash flow
+ other expenses not affecting working capital (ie. differed taxes)
- revenues not affecting working capital (ie. equity earnings)

= Working Capital provided by operations
- Increase in Accounts Receivable
- Increase in inventory
+ Increase in Accounts payable
+ Increase in Accrued Liabilities

= Operating Cash Flow

First by adding back depreciation, which is a noncash expense, Casey and Bartczak (1984) immediately reflect a more accurate cash basis or what has come to be known in the accounting community as traditional cash flow. Depreciation expense provides a perfect example of an item which has no effect on cash or even working capital, and therefore has no affect on funds provided by operation (Hermanson, 1984). Cash flow from operations are financial measurs of "real" cash flows that actually occurred (past) or could actually occur (future). Reported earnings, such as depreciation, do not measure "real" cash flows (Hicks, 1980). Depreciation is recorded as a debit to an expense account with a corresponding credit to an accumulated depreciation account (Heitger, 1986). Neither the account credited or debited is a

cash or working capital account, therefore, suggesting that the transaction is on paper alone and has no effect on funds (Heitger, 1986). However, an amount for depreciation is deducted when arriving at a figure for Net Income, thus understating funds provided by operations (Casey et. al., 1984). This is the reason it is one of the first items added back to Net Income when converting it to cash basis. Therefore, the two steps involved in converting net income to a cash basis are 1) convert net income to working capital from operations by either adding back or deducting from net income those items that did not use or provide working capital, 2) convert working capital from operations to cash from operations by including the changes that occurred in current accounts other than cash (Hermanson, 1984). In a sense nullify all nonfund transactions, when funds are described as cash.

Wilkins (1974) believes that Net Cash Flow from Operations should not originate from Net Income rather it should be a simple direct measure of receipts and disbursements. What is involved here is first a beginning cash balance which is the previous periods ending balance.

Beginning cash balance
+ Sales Receipts
  Investment maturities
  Increase in borrowing
  Miscellaneous deposits, stock options, etc.
- Disbursements for operation
  Payroll
  Income taxes
  Payroll taxes
  Debt service - Principle & Interest
  Insurance Premiums
  Misc.

= Net Cash Flow from Operations (Wilkins, 1974)

Ending Cash Balance determines whether there is a cash surplus or deficit. The Receipts/ Disbursement method involves itself only with cash in and cash out. It is a direct approach to cash flow , an actual exchange of cash generated by business activity (Wilkins, 1974). Several accounting textbooks are in agreement that cash flow from operations is the net amount of cash received or disbursed on items which normally appear on the income statement. It is this exchange of cash that generates cash flow (Henke, 1978). Therefore, it can be argued that the receipts/disbursement is a more logical approach to cash flow than converting net income to a cash basis (Wilkins, 1974).

Cash in and out of a business is caused by several different types of business activity, sales receipts of goods normally held for sale, equity share, income from government programs, interest earned on investment are forms of cash inflows and daily operating expenditures for supplies and goods, payroll, taxes, insurance, debt service are forms of cash outflows (Hermanson,1984). Given a certain level of production the above should be fairly accurate to predict and cash flow should be a fairly constant situation, yet cash flows, in reality, tend to show fluctuations as a result of; some months have five weekly payrolls while others have four, sales tend to be seasonal, therefore payments will fluctuate, debt repayment schedules may vary, in some years prepaid expenses provide desirable discounts while in others they don't (Loscalzo, 1982). Whatever the reasons may be a cash manager is interested in the net change in cash and the flows of cash, not working capital, because it is cash that pays the bills.

TYPES OF FORECASTS

Knight (1982) points out that there are several different types of forecasts:

INFORMAL FORCASTING	Ad Hoc, judgemental, or intuitive methods
FORMAL FORECASTING	
Causal or Explanatory	
Single & Multiple Regression	Variations in dependant variables explained by variations in independant one(s).
Econometric Models	Simultaneous system of multiple regression equations
TIME SERIES	
Naive	Simple rules such as: forecast equals most recent actual values, or equals last year's +5%
Smoothing	Forecasts are obtained by smoothing, averaging past actual values in a linear or exponential manner
Decomposition	A time series is broken down into trend, seasonality cyclicality and randomness
Filters	Forecasts are expressed as a linear combination of past actual values. Parameters or model can "adapt" to changes in data
Autoregressive/Moving Averages	Forecasts are expressed as a linear combination of past actual values and/or past errors
SUBJECTIVE ASSESSMENT	

Decision Trees	Subjective probabilities are assigned to each event the approach Bayesian Statistics uses
Staff Estimates	An approach which aggregates staff forecasts (ie. sales force)
Juries of Executive Opinion or consensus estimate	Marketing, production and financial executives jointly prepare forecasts
Anticipatory Surveys & Market Research	Learning about intentions of potential customers, users of business plans
TECHNOLOGICAL	
Exploration	Uses todays assured basis of knowledge to broadly assess conditions of the future
Normative	Starts with assessing future goals, needs, desires, objectives, etc., and works backwards to determine necessary developments to achieve goals, etc.

In addition to the multitude of types of forecasts there is also a time factor which dictates conditions concerning the type of forecast- Short Term - period of less than one year - assists in the day to day operations of the business, highlights peaks and valleys resulting from seasonal activities, inventory purchases, etc. The short term forecast

is the best measure of disparities between cash receipts and disbursements.

Intermediate Term - one to three years, used to evaluate a companies ability to meet a specific cash requirement.

Long Term - greater than three years used for long range planning of acquistions or expansions (Milling, 1981).

Since forecasting is an analytical tool used by management within each of the planning periods often two scenarios are prepared, worst case and best case. Worst case uses conservative estimates (ie. high interest rates, low sales, low production, bad weather) - the worst case scenario is often used to determine the maximum amount of debt load a business can carry (Loscalzo, 1982). The best case scenario uses very aggressive estimates and is used to determine the amount of growth a business can expect before expansion and new financing must be obtained (Loscalzo, 1982). And of course there is always the "As Is" case used when forecasting for daily activity (Loscalzo, 1982).

With this project there is a combination of several of the techniques. The development of a cash flow system for the case study dairy farms involved a combination of the time series smoothing and technological normative performed on a short term planning period and on an "As Is" basis.

DEVELOPMENT OF A FORECAST

In procedures and guidelines which should be followed in the development of a forecast the initial step is to establish the goals and/or the objectives of the business which are decided upon by

management (Knight, 1982). What is evaluated in determining these goals is the single most probable result of the business activity (AICPA,1980). The goals and objectives of a business are based on certain assumptions about the business. The American Institute of Certified Public Accountants concludes that assumptions provide a reasonable basis for a forecast if 1) management has explicitly identified the factors that will affect a business during a forecasting period and has developed a reasonable set of assumptions in regards to these factors and 2) that the assumptions can be suitably supported. Sources of information concerning assumptions are both external and internal in nature (Knight, 1982). External sources include government and industry publications, economic forecasts, existing or proposed legislation and reports of changes in technology (AICPA, 1980). Internal sources are past budgets, historical financial statements and data, any debt agreements (AICPA, 1980). To insure that assumptions are suitably supported they should be consistent with the sources from which they are derived and with each other, taking care that data used to develop the assumptions is reliable (AICPA, 1980). The American Institute of Certified Public Accounts further states that support for assumptions may include market surveys, general economic indicators, industry statistics, and patterns developed from a business' operating history, and internal data and analysis, accompanied by their supporting argument and theory.

In keeping with the current business status, management will consider all the factors which will implicate both the goals and the results of the business, production levels, marketing strategies, and economic conditions (Loscalzo, 1982). In the case of the dairy farm,

decisions must be made concerning both the level of milk production, what crops will be cultivated, what crops will be sold/purchased or held for feed, livestock numbers, replacements for sale, raising dairy steers, etc. From these decisions a forecast of sales can be projected, based on certain market conditions. This sales forecast will serve as the heart of the entire forecast, as the remainder of the forecast is intrinsically connected to the sales forecast (Heitger, 1986). The next step is to apply a dollar value and quantify the sales forecast into projected cash receipts (Heitger, 1986). Following this will be a method of projecting disbursements. The amount of disbursements is directly related to the level of forecasted sales. There are two catagories of disbursements: 1) pay operating expenses 2) retire debt. Retiring debt includes paying off both principal and interest of a loan (Wells, 1974). Pay for purchases involves the payment for goods and supplies necessary for the production of operating goals and pay operating expenses will include the remaining factors involved in production, such as labor (Milling, 1981). Once sales and disbursements have been determined the two projections must be interrelated to measure the net effect they will have on cash reserves each month, identifing months where there is either a cash surplus or deficit (Milling, 1981).

Suggested guidelines for the preparation of a forecast are 1) that the forecast reflects the identified assumptions and business plans 2) the assumptions are suitably supported 3) the computations involved in quantifing the assumptions are mathematically correct 4) the assumptions are internally consistent 5) accounting practices used in the forecast are generally accepted accounting principles 6) forecasts

should be based on the best available information 7) adequate documentation of the forecast and the forecasting process should accompany the forecast (AICPA, 1980).

USES OF A COMPLETED FORCAST

The entire process of forecasting would be futile if the forecast itself is never used to monitor actual cash flows (Wells, 1974). When a forecast and actual cash flow activity come together, on a regular basis in management reports, it allows for performance monitoring and indicates where decisions need to be made (Henke, 1974). It also shows in quantitative terms the effects of past decisions and how they altered cash flow for the business (Wells, 1974). It is during this monitoring process that management makes decisions concerning how to correct cash shortages or what should be done with cash surpluses (Knight, 1982).

A forecast and monitoring process is useful not only to management but also by creditors or lending institutions. Information gleaned off of cash flow reports provides insight as to: 1) the extent to which internally generated funds cover projected capital needs, 2) management's preferences toward financing and investing activities, 3) the business' ability to make principal and interest payments on its debt, and 4) whether, within the constraint of given resources, an expansion is feasible (Hermanson, 1984). Lenders also want to see business plans and financial projections or forecasts, before making commitments, because by forecasting management demonstrates sound planning techniques (Bowers, 1974). Initially a forecast can be used by a lender to study the business and make judgements regarding the levels of capital investment and debt the business can carry (Nelson,

1973). It also indicates the level of the productivity of fixed assets (Sorter, 1982).

The financial analyst uses cash flow forecasts as an indicator of total funds available to the company from the period's operations for replacement, expansion, reduction of debt and increases in working capital (Wells, 1974). Lenders and financial planners are becoming increasingly interested in cash flow forecasts vs. traditional financial statements (Ferrara, 1981). Wells (1974) and the National Association of Accountants (1961) state that the utility of financial statements is improved with the cash flow information incorporated with the "traditional" financial statements.

A second important use of a forecast is that it can reduce interest charges by advoiding the need for short term borrowing (Nelson, 1973). When the forecast is initially prepared it gives management time to react to what has been assumed by the forecast for the coming months, within the forecast period (Wilkins, 1974). For example if in four months time management sees that the forecast indicates a cash deficit, this gives management the chance to restructure the receipt/disbursement structure and possibly advoid a cash deficit.

Both Henke (1978) and Hermanson (1984) refer to comparisons of actual and forecasted data as a control device. The actions they prescribe involve comparing actual occurences with the forecasted values, from this evaluation deviations will become apparent. At this point the control process of management attempts to determine the cause of any deviations and initiates plans for any remedial action (Henke, 1978). The objective involved in evaluating negative deviations is to

determine those which were caused by inefficient management practices. Wells (1974) points out that forecasts are used in the management of cash and its flow because first it provides cash necessary for growth and second a strong cash flow program is helpful in securing added working capital. The National Association of Accountants states that an effective cash program allows any idle cash to be invested in operating assets or in profit yielding securities which will improve a business' rate of return on cash. A forecast also helps in selecting investment maturity dates, since it demonstrates, for 12 months in advance, where the major cash disbursements, such as operating costs, taxes and debt service, will occur allowing management to plan accordingly (Wells, 1974).

An effective cash forecasting program is predicated upon the ability of management involved in forecasting to identify the business' cash flow problems, patterns and needs (Wilkins, 1974). A good forecast will be based on realistic assumptions and sound data and will provide management with a useful financial planning tool.

CHAPTER 3

METHOD OF DEVELOPMENT

The Dairy Enterprise Cash Flow model is designed to be an analytical and decision making tool to be used by the financial manager of the dairy enterprise. The model, through a series of related policies, procedures, methods and practices, will be used to develop a cash flow forecast for a dairy enterprise. Based on the information entered by the user, into the model, the model will calculate a series of receipts and expenditures which will be used to calculate a Net Cash Flow figure. Net Cash Flow results will be measured monthly with an annual total figure at the end of a twelve month period.

The model was built using the software Lotus 1-2-3, version 1A from the Lotus Development Corporation and a Zenith - 158 PC micro-computer. The reason for choosing Lotus 1-2-3, version 1A is because it is a widely used spreadsheet program designed for the micro-computer for use in business analysis. For a financial analyst the combination of graphics, database management and large spreadsheet capabilities are what makes Lotus 1-2-3, version 1A attractive. Lotus 1-2-3, version 1A has spreadsheet capacity of 256 columns by 2Ø48 rows, and it performs calculations quickly, which allows for ease in seeing how changing one cell entry will alter the Net Cash Flow outcome. This model requires a minimum of 256K in order to perform, although 512K is preferred.

The Zenith - 158 PC micro-computer was used because it was what was available to the author. This micro-computer is compatible with the IBM PC micro-computers and operates using MS-DOS 2.Ø.

This model is designed in three sections 1)Data Input 2)Item Calculations and Analysis 3)Final Worksheet Report. Each of the

sections are dependant on the previous section. The model's sequence follows a pattern of; first the userr interface which occurs in the Data Input section, second is the model Item Calculation and Analysis of the data that was input in the first section, Third is the final receipts and expenditure Cash Flow report, which is derived from the information generated in the second section.

Within each of the three major categories there are four categories which are common to all three Livestock, Crop, Machinery, Farm. These are the four categories that the model uses to determine Net Cash Flow. These categories are a breakdown of the dairy enterprise into income and expenditure classifications. This allows for a more detailed review of the dairy enterprise and will aid the financial manager of the dairy enterprise in making decisions. A sketch of the model and where all the sections are located is schematically shown in the map of the dairy enterprise cash flow sections.

MAP OF THE DAIRY ENTERPRISE CASH FLOW SECTIONS
(all the lotus cell ranges, by column letter and row number, for each section are listed below each section.)

1) DATA INPUT SECTIONS

a) Receipts Information
Livestock
Federal Programs and Tax Refunds
Patronage Dividend Cash Received
Miscellaneous Income

A1 to F79

b) Market Assumptions Table
Livestock
Crops
Feed Additives
Milk Check Deductions

I53 to N82

c) Use of Feed in Ration
milking cows
dry cows
heifers 1-2 years
heifers < 1 year
steers

R194 to Z272

d) Sum of Feed needs determined from Amount Fed - for each feed type.

S277 to AC300

e) Expenditure Information
Labor Payroll
Livestock
Feed Determination
Inventory Determination
Feed Purchase Determination
Machinery Expenditures
Farm Expenditures

A81 to 0257

2) ITEM CALCULATIONS AND ANALYSIS

f) Receipts
Milk Sales
Cattle Sales
Federal Programs and Tax Refunds
Patronage Dividend Cash Received

A261 to M313

g) Expenditures
Labor Payroll
Livestock
Crop
Machinery
Farm

A317 to O582

3) FINAL WORKSHEET REPORT

h) Annual Net Cash Flow Summary
final results of all data input
and calculations.
Net Cash Flow figures
Adjustments
Adjusted Net Cash Flow figure

A586 to O684

DESIGN OF THE MODEL

The model starts with the Data Input section. Within this section there are five subsections receipts information, expenditure information, market assumptions table, use of feed in ration, sum of feed needs for the herd.

Starting with the receiprs information section the user will enter all the information that the model requires for calculations of receipts for the dairy enterprise. For the model this means the specifics on livestock numbers, any planned sales of livestock (steers or heifers), federal programs and tax refunds, patronage dividends from the user's milk cooperative, plus a figure for any miscellaneous income, which will be applied directly to the dairy enterprise. From this information the model will calculate milk sales and cattle sales and then add to those figures the additional receipts information specified by the user. These calculations will all be made in the second section, item calcualtion and analysis. From the second section all the receipts will be transferred to the corresponding headings and the appropriate months in the final worksheet report.

The next section in data input relates to he expenditure information. This starts with the payroll information. The user will enter the information, as it pertains to each person on the labor payroll, concerning worker ID, wages, hours per month worked, and what percent of each employees gross wages are fringe benefits. Then the user will enter the total figure for management payroll, which is any employee of the dairy enterprise that is paid a salary instead of hourly wages. Once this payroll information has been entered it will be transferred to the items calculations and analysis section where it

will be entered according to the payroll table. Based on the information entered by the user, the model will calculate a gross payroll figure and then make the appropriate additions and reductions for fringe benefits and the employers share of FICA to arrive at the net payroll figure.

The livestock expenditure section is the largest and requires the most data input by the user. The reason for this is the calculation of one of the most costly expenditures to the dairy enterprise, feed. In determining the feed costs both feed grown on the dairy enterprise and purchased feeds must be considered. The model must also determine the amount and types of feed needed by the dairy enterprise.

The model will first determine, through several calculations, the amount of feed grown by the dairy enterprise, then this is compared to the total amount of feed needed for the herd. These calculations are performed on individual crop basis. Therefore, the user enters information on what crops are grown, and total acreage planted of each crop, the average yield of the crop, what the inventory level of each crop is at the outset, and when crop production and its additon to inventory amount will occur. The model will use this information to determine the inventory levels of each crop. Then the model will perform two different feed needs determinations. First, the model will use a procedure to estimate feed needs for the entire herd. Using the estimated feed needs table the user will select values for forage and grain to be fed based on milk production per cow and forage quality for the dairy enterprise. The values on the estimated feed needs table are given for dry matter needed/animal/365 days. This is inclusive of a 60 day dry period for milking cows, fed about 28 pounds dry matter

hay/day. This includes feeding and storage losses (Thomas, 1985). The user will then input the selected values, from the estimated feed need table, in the total needs table under the appropriate headings for tons dry matter/head forage needs and pounds dry matter/head grain needs. Based on the number of head, in each group, the total ton dry matter per year for grain needs. This calculation, for sum of needs for the herd, is performed on a dry matter basis. The model will calculate the amount of each feedstuffs needed on an as-fed basis in the next table, feed type as percent of the total ration. The user now specifies what percent of the total forage fed is either hay, haylage, corn silage or some other type of forage and what percent of total grain fed is corn, protein supplement or some other type of grain. Based on these percentages and the total amount of forage and grain needed the model will first calculate the total dry matter of each feedstuff needed and then the model will convert this to an as-fed basis. The procedure to convert forage values to an as-fed basis is to divide ton hay dry matter by .87, divide ton of 55% dry matter haylage by .55, and divide to 35% dry matter silage by .35 (Thomas, 1985). Convert grain values to as-fed by dividing lb corn dry matter by .70 and dividing lb protein supplement or other grain dry matter by .89 (Thomas, 1985). The model uses these values when converting from a dry matter to an as-fed basis. For the breakdown of percentages for a grain mix a 12% grain mix requires 90% corn and 10% soybean meal (44% protein soybean meal) or the equivalent; a 14% grain mix requires 85% corn and 15% soybean meal, a 16% grain mix requires 80% corn and 20% soybean meal, and an 18% grain mix requires 74% corn and 26% soybean meal or the equivalent (Thomas, 1985).

The second method to determine feed needs starts with the use of feed ration table. In this table the user will enter the amounts actually fed/head/day of each feedstuff for the milking cows, dry cows, heifers 1-2 years, heifers less than one year and steers. The model will use these amounts multiplied by the number of head per group to arrive at a daily feed needs figure. The daily needs figure will be multiplied first by the number of days for a monthly and then by 365 days for annual needs. The montly needs are all totaled, for each feedstuff, into the sum of monthly feed needs from amounts fed table.

At the conclusion of the two procedures the model will display the results of both procedures for commparative purposes. It will disp[lay total forage and grain needs as determined by procedure one and those determined by procedure two. These values will be shown side by side to be used by the user for comparative purposes on how much procedure one calculates for feed needs and how much the user is actually feeding. This may indicate the need to either evaluate the cuurent ration being fed or the crop program to accomadate feed needs more closely. This is not a ration balancer nor is it a ration evaluator, this is simply a method of determining the feed supply needed for the dairy enterprise. The last item which needs to be determined, for feed expenditures, are the amount of feed additives needed based solely on what the user specifies as its needs.

From the feed determination section the model moves on to the inventory determination section. An inventory value will be determined for all of the feedstuffs for each month. The equation for determining inventory values uses a beginning inventory value adds to that any additions to that inventory through crop production to determine an

overall amount on hand of each feed then subtracts from that the animal needs to arrive at an ending inventory value. The beginning inventory value will come from one of two places either the start-up inventory value specified by the user, for the first month, or it will be the previous months ending inventory value. The values for porduction will be determined by two previous tables crop production occurrence, which indicates when harvest of a crop will occur and how many acres will be involved, and feed produced, which will multiply the number of acres harvested by the average yield of that crop. This calculation will be added to the beginning inventory value, for the months in which production occurs, to arrive at the total amount on hand figure. The figures used for animal needs will be those totals from the sum of monthly feed needs from amounts fed (procedure two) for each feedstuff. This will be subtracted form the amount on hand to arrive at the ending inventory values. Once the ending inventory values have been determined the model will test to see where and when purchases are needed. If an ending inventory value is negative, indicating that the inventory levels won't support the dairy enterprise that month, the model will automatically purchase the deficient amount ofthat feedstuff. The purchase price, for the feed, will be taken from the market assumptions table. When a purchase of any particular feed is necessary then the beginning inventory for the subsequent month will be zero.

The values for crop production are figured on a bushel/acre basis for corn, soybeans, wheat, barley and oats and the prices in the market assumptions table are on a dollars/bushel basis for the same feedstuffs. Yet, in the feed needs determinations these same

feedstuffs are calculated on a per pound basis. Thus, there is a problem with units of measure which must be resolved before any calculations of inventory ar emade for corn, soybeans, wheat, barley, and oats. In the evaluation of inventory levels and in determining feed purchases it becomes necessary to convert from bushels to pounds. The conversion factors used are; corn 35 lb/bushel single bushel, 70 lb/bushel double bushel, soybeans 55 lb/bushel, wheat 60 lb/bushel, barley 48 lb/bushel, oats 32 lb/bushel. During the inventory evaluation the other feedstuufs, alfalfa hay, alfalfa haylage and corn silage, are reported on a per ton basis (as they are throughout the entire model). Therefore, conversion form bushels to pounds takes place only in the case of corn, soybeans, wheat, barley and oats. During the first month the values for beginning inventory and total production are converted from bushels to pounds and in each subsequent month all the production amounts as they enter into the inventory calculations will be converted to pounds. Then the feed purchase table will convert back to bushhels any deficits in either corn, soybeans, wheat, barley or oats, in a given month, before it applies the market assumptions price to determine what hte amount of a purchase will be.

Feed purchases will be calculated for each of the feedstuffs and then will be added together for a total feed purchase. The value for the total feed purchase will be transferred down to the final report section.

The remainder of the livestock, machinery and farm expenditures are all explicitly entered by the user and will be accordingly transferred to the final report section.

The model now moves into the second section, Item Calculation and Analysis. The first part of this section is the calcualtion of all dairy enterprise receipts, milk sales, cattle sales, federal programs and tax refunds, cash received from patronage dividends from the milk cooperatives plus any miscellaneous income. Miscellaneous income is any income not addressed by the model specifically which applies to the dairy enterprise. The actual method of calculation of receipts is discussed in the description of the use of the model.

In the calculation of dairy enterprise expenditures the model will follow the same procedure as it does for receipts. Using the information from the first section, data input, and a series of equations the model will arrive at monthly expenditure figures for labor payroll, livestock, crops, machinery and farm. Once this has been completed both the calculations for receipts and expenditures will be transferred to the third and final section.

The third section is the final worksheet report. The design of the final worksheet is such that along the left column are all of the receipts and expenditures listed. Across the top are the names of the months and an annual total column. The information will enter the worksheet, at the appropriate headings, as it is calculated above. Once all of the values have been entered into the worksheet all of the receipts will be totaled and all of the expenditures will be totaled. The difference between the total receipts and total expenditures will be reported in the net cash flow row, for each month and an annual total. The following row allows the user to adjust the net cash flow according to any changes they might feel are likely to occur. The

adjusted net cash flow figures will be reported in the final row of the report.

DESCRIPTION OF USE OF THE MODEL.

DAIRY ENTERPRISE CASH FLOW

FARM NAME:

DATE:
(must be entered as month abbreviation-day-year)

RECEIPTS INFORMATION

MARKET ASSUMPTIONS
Based on Telfarm guidelines for
Inventory Assets for 12/31/86

Livestock:	Milk Price	$11.60 per cwt.
	Dairy Calves	$50.00 per calf
	Cull Cows	$0.35 per lb
	Dairy Steers	$0.55 per lb
	Dairy Heifers	$600.00 per head
Crops:		
	Alfalfa Hay	$70.00 per Ton
	Alfalfa Haylage	$37.00 per Ton
	Corn Silage	$16.00 per Ton
	Corn Grain	$1.40 per bu.
	Soybeans	$4.70 per bu.
	Wheat	$2.60 per bu.
	Barley	$1.20 per bu.
	Oats	$1.00 per bu.
Feed Additives:		
	Protein Suppl	$135.00 per Ton
	Minerals	$500.00 per Ton
	Salt	$200.00 per Ton
	Buffers	$500.00 per Ton
Milk Check Deductions:		
	Equity Retain	0.75 %
	Dues	0.75 %
	Milk Hauling	$0.45 per cwt
	ADA & Milk Prom.	$0.15 per cwt
	Whole Herd Buyout	$0.40 per cwt
	Gramm-Rudman	$0.12 per cwt

The Market Assumptions Table is designed to provide information concerning the market value of the dairy enterprise items. It is

broken down into four sections - Livestock, Crops, Feed Additives (all feedstuffs not grown on the farm), and Milk Check Deductions. The individual items and units of measure are held constant while the dollar value for each item varies based on current market conditions. The existing values are taken from the values that Telfarm is reporting for 12/31/1986 to be used in inventory valuation. These values will be used in the calculation of receipts, from milk sales and cattle sales, for the calculation of expenses pertaining to feed purchases, and reductions in receipts due to milk cooperative's deductions from gross milk sales.

LIVESTOCK INFORMATION

Number of cows	Ø	milking	Ø	dry	Ø
heifers 1-2 yr	Ø				
heifers <1 yr	Ø				
steers	Ø				
Avg. Daily Milk Prodn.	Ø				
Dairy Steers sold? number-	Ø				
Dairy Heifers sold? number-	Ø				

Livestock Information includes information pertaining to the milking herd numbers. First the total number of milk cows are input and then broken down into the number that are milking and dry. The number of heifers 1-2 years of age and the number of heifers less than one year old. Last the total number of steers being held for sale. These numbers will be used in calculating milk sales, cattle sales and in determining the amount of feedstuffs necessary for one year (the reason for breaking out the numbers into specific categories).

FEDERAL PROGRAMS & TAX REFUNDS

Fed. & State Gas Refund	Ø

State RL-Tax refund Ø

PATRONAGE DIVIDEND CASH RECEIVED Ø

Miscellaneous Income Ø

The above items are all income items that are expilicitly entered by the user. Based on what the user expects in the way of receipts from each of these items.

EXPENDITURE INFORMATION

The expenditure section includes all the information pertaining to Livestock, Crops, Machinery and Farm expenditures. This information is used to calculate all the expenditures that will be used for calculating the Net Cash Flow figure.

PAYROLL INFORMATION

Worker ID	Ø	Ø	Ø	Wages
$Ø.ØØ $Ø.ØØ $Ø.ØØ				
Hours/Month	Ø	Ø	Ø	
Fringe Benefits %	Ø%	Ø%	Ø%	

Management Payroll $Ø

In the payroll section each employee is given an identification number and then the information about that employee's wages, hours worked per month, and what percent of their gross pay will be fringe benefits are entered. The management payroll includes all employees which are paid on a salary basis rather than hourly wages. This includes family draw on the business.

LIVESTOCK EXPENDITURE

Crop Information

The Crop Information section contains the information about which crops will be grown for the dairy enterprise in the next year, the average yield of those crops and what the inventory amount currently being held in in storage is.

Crop Types - indicate total acreage	
Alfalfa Hay	Ø
Alfalfa Haylage	Ø
Corn Silage	Ø
Corn - Grain	Ø
Soybeans	Ø
Wheat	Ø
Barley	Ø
Oats	Ø

Average Yield	
Alfalfa Hay	Ø T/acre
Alfalfa Haylage	Ø T/acre
Corn Silage	Ø T/acre
Corn - Grain	Ø bu/acre
Soybeans	Ø bu/acre
Wheat	Ø bu/acre
Barley	Ø bu/acre
Oats	Ø bu/acre

Inventory at start up	
Alfalfa Hay	Ø T
Alfalfa Haylage	Ø T
Corn Silage	Ø T
Corn - Grain	Ø bu
Soybeans	Ø bu
Wheat	Ø bu
Barley	Ø bu
Oats	Ø bu

The Crop Production Occurrence table is designed to schematically demonstrate at what times during the year the different crops grown, for the dairy enterprise, are harvested and added to inventory. When there is no harvest the user enters a Ø under the month and by the appropriate crop. When there is harvest then the user enters the number of acres that will be harvested under the appropriate month by the crop harvested.

CROP PRODUCTION OCCURRENCE

enter Ø if there is none or indicate the number of acres

if there is harvest added to inventory

	JAN	FEB	MARCH	APRIL	MAY	JUNE	(etc.)
Alfalfa Hay							
Alf. Haylage							
Corn Silage							
Corn - Grain							
Soybeans							
Wheat							
Barley							
Oats							

The Feed Produced Table will determine the amount of each crop that will be added to inventory. This is based on the number of acres that the user designated for harvest in the Crop Production Occurence table.

FEED PRODUCED

Crop Type	No. acres	x	Average yield/acre	=	total production
Alfalfa Hay	Ø		Ø		Ø
Alfalfa Haylage					
Corn Silage					
Corn - Grain					
Soybeans					
Wheat					
Barley					
Oats					

ESTIMATED FEED NEEDS - PROCEDURE ONE

In this next section the total amount of feed needs, for one year, for all milking cows, heifers and steers will be estimated. Values are chosen from the table, Estimated Feed Needs, based on milk production per cow and forage quality for the dairy enterprise. Based on this decision, the user transfers the appropriate values for Tons of Dry Matter per head for forage and lbs. of Dry Matter per head for grain to the next table Total Needs. The table, Total Needs, will calculate on

a annual basis the total forage needs and total grain needs for all the milking cows, and heifer groups, and any steers, which are automatically accounted for in the calculation.

ESTIMATED FEED NEEDS - 365 days

Milk Prodn per cow	DM consumed	Forage Quality: Low Forage	Low Grain	Med Forage	Med Grain	High Forage	High Grain
lb/yr (lb/day)	lb/cow/day	T DM	lb DM	T DM	lb DM	T DM	lb DM
20000 66	47	4.7	7300	5.1	6600	5.3	6200
18000 60	45	4.7	6800	4.9	6500	5.1	6000
16000 52	43	4.7	6200	4.9	5700	5.1	5400
14000 46	41	4.6	5700	4.9	5200	5.2	4600
Heifers (1-2 yr.)	20	3.9	200	3.8	100	3.6	100
Heifers (<1 yr.)		1.4	1300	1.5	1050	1.6	900

includes feeding and storage losses TOTAL NEEDS

- the model automatically enters values for steers

	No. of head	Forage Needs: T DM/head	Forage Needs: T/yr.	Grain Needs: lb. DM/head	Grain Needs: Lb/yr.
Cows (milking & dry)	0	0	0	0	0
Heifers (1-2 yr.)	0	0	0	0	0
Heifers	0	0	0	0	0
Sum of needs for the herd. (accounts for steers)			0 T		0lb

In the Feed Type as a % of Total Ration table the user will enter as a percent the amount of forage which is hay, haylage, corn silage or any other forage type that is fed. The same procedure is followed for grain, with the user entering as a percent the amount of grain which is corn, protein supplement, or any other type of grain that is fed. The model will then calculate what percent of the total forage or grain rations are for each of the feedstuffs on a Dry Matter and As Fed basis.

FEED TYPE AS % OF TOTAL RATION

	percent x	total amount	DM	As Fed
Hay % of total forage	Ø	Ø	Ø	Ø
Haylage % of total forage	Ø	Ø	Ø	Ø
Corn Silage % of total forage	Ø	Ø	Ø	Ø
Other % of total forage	Ø	Ø	Ø	Ø
Corn % of total grain	Ø	Ø	Ø	Ø
Protein Suppl. % of total grain	Ø	Ø	Ø	Ø
Other % of total grain	Ø	Ø	Ø	Ø
Other % of total grain	Ø	Ø	Ø	Ø

The next step for the user is to input the amount of feed additives fed each cow daily on a per pound basis.

FEED ADDITIVES

enter the amount fed/cow/day

Minerals	lb.
Salt	lb.
Buffers	lb.

USE OF FEED IN RATION - PROCEDURE TWO

The second procedure will determine the total herd needs for each of the feeds grown on the dairy enterprise. First the user enters what the current ration being fed is, in terms of pounds per day of each of the feeds. Then the table determines the needs for milking cows, the dry cows, and then for each of the heifer groups (again any steers will be accounted

for). These calculations are then all added together to arrive at the total sum of feed needs for the herd.

USE OF FEED RATION

	lb/cow/ day	No. of milking	Daily feed cows	Total monthly needs	Total annual needs
Feeds fed milking cows, avg.					
Alfalfa Hay	Ø	Ø	Ø	Ø	Ø T
Alfalfa Haylage	Ø	Ø	Ø	Ø	Ø T
Corn Silage	Ø	Ø	Ø	Ø	Ø T
Corn-Grain	Ø	Ø	Ø	Ø	Ø lb
Soybean Oil Meal	Ø	Ø	Ø	Ø	Ø lb
Wheat	Ø	Ø	Ø	Ø	Ø lb
Barley	Ø	Ø	Ø	Ø	Ø lb
Oats	Ø	Ø	Ø	Ø	Ø lb
Soybeans	Ø	Ø	Ø	Ø	Ø lb
Feed needs for dry cows, avg.	dry period - 6Ø days				
Alfalfa Hay	Ø	Ø	Ø	Ø	Ø T
Alfalfa Haylage	Ø	Ø	Ø	Ø	Ø T
Corn Silage	Ø	Ø	Ø	Ø	Ø lb
Corn-Grain	Ø	Ø	Ø	Ø	Ø lb
Soybean Oil Meal	Ø	Ø	Ø	Ø	Ø lb
Wheat	Ø	Ø	Ø	Ø	Ø lb
Barley	Ø	Ø	Ø	Ø	Ø lb
Oats	Ø	Ø	Ø	Ø	Ø lb
Soybeans	Ø	Ø	Ø	Ø	Ø lb

	avg. lb/ day/ heifer	No. heifers	Daily feed needs lb	Total monthly needs	Total annual needs
Feeds for heifers 1-2 yr.					
Alfalfa Hay	Ø	Ø	Ø	Ø	Ø T
Alfalfa Haylage	Ø	Ø	Ø	Ø	Ø T
Corn Silage	Ø	Ø	Ø	Ø	Ø T
Corn-Grain	Ø	Ø	Ø	Ø	Ø lb
Soybean Oil Meal	Ø	Ø	Ø	Ø	Ø lb
Wheat	Ø	Ø	Ø	Ø	Ø lb
Barley	Ø	Ø	Ø	Ø	Ø lb
Oats	Ø	Ø	Ø	Ø	Ø lb

Feeds for
heifers < 1 yr.

Alfalfa Hay	Ø	Ø	Ø	Ø	Ø T
Alfalfa Haylage	Ø	Ø	Ø	Ø	Ø T
Corn Silage	Ø	Ø	Ø	Ø	Ø T
Soybean Oil Meal	Ø	Ø	Ø	Ø	Ø lb
Wheat	Ø	Ø	Ø	Ø	Ø lb
Barley	Ø	Ø	Ø	Ø	Ø lb
Oats	Ø	Ø	Ø	Ø	Ø lb

Feeds for Steers

Alfalfa Hay	Ø	Ø	Ø	Ø	Ø T
Corn Grain	Ø	Ø	Ø	Ø	Ø T

SUM OF MONTHLY FEED NEEDS FROM AMOUNTS FED

Alfalfa Hay	Ø T
Alfalfa Haylage	Ø T
Corn Silage	Ø T
Corn-Grain	Ø lb
Soybean Oil Meal	Ø lb
Wheat	Ø lb
Barley	Ø lb
Oats	Ø lb
Grain	Ø lb
Calf Starter	Ø lb
Milk (Colostrum)	Ø lb
Soybeans	Ø lb

This same table appears with the annual totals as well.

Once both procedures to determine feed needs have been calculated then a comparison of both sets of results is made.

COMPARISON OF FEED NEED ESTIMATES

Procedure	1	2
Forage	T	T
Grain	lb	lb

This table will allow the user to compare the results of procedure one, the method described in Plan Your Feed Supply (Thomas, 1985) and the feed ration table of procedure two.

FEEDSTUFFS INVENTORY DETERMINATION

Based on all of the above calculations the next step is to determine what the inventory levels will be on a monthly basis. This is calculated by starting with the Beginning Inventory, which is either the start up value input by the user or the previous months ending inventory. Adding to that, Total Production, any production that occurred during that month to arrive at an Amount on Hand. From the Amount on Hand figure the Animal Needs for that month are subtracted. The resulting figure will be the Ending Inventory value for that month. The Ending Inventory value will appear each month for each crop.

INVENTORY DETERMINATION

```
 Beginning Inventory
+Total Production
 ____________________
 Amount on Hand
-Animal Needs
 ____________________
 Ending Inventory
```

INVENTORY TIMING TABLE

	JAN	FEB	MARCH	APRIL	MAY	JUNE	(etc.)
Alfalfa Hay							
Alfalfa Haylage							
Corn Silage							
Corn- Grain							
Soybeans							
Wheat							
Barley							
Oats							

FEED PURCHASES

The Feed Purchase table will determine when feed purchases are necessary based on what the ending inventory values, from the Inventory Timing Table, are. If there is a deficit in any of the feeds the model will automatically purchase the amount of feed needed at the price entered in the Market Assumptions Table. At this point the ending inventory value

for that feed will be zero, therefore, the Beginning Inventory value in the succeeding month will also be zero.

FEED PURCHASES

	JAN	FEB	MARCH	APRIL	MAY	JUNE	(etc.)
Alfalfa Hay							
Alfalfa Haylage							
Corn Silage							
Corn- Grain							
Soybeans							
Wheat							
Barley							
Oats							
							TOTAL

The remainder of the livestock expenditures are entered by the user and will be used later in calculating the total dairy enterprise expenditures.

Bedding Price $Ø.ØØ per Ton

Semen - $/conception = $Ø.ØØ

Veterinarian Clinic
if yes, fee? $Ø.ØØ
does this include Medicine & Drugs? no=Ø yes=1

All Machinery Expenditures and Farm Expenditures are entered by the user. These values will also be used in calculating the total expenditure figure.

MACHINERY EXPENDITURES

Machine Shop Supplies	$Ø.ØØ
Machinery Leased	$Ø.ØØ

FARM EXPENDITURES

Land Rent	$Ø.ØØ
Insurance	$Ø.ØØ
Miscellaneous Expenditures	$Ø.ØØ

RECEIPTS

The Receipts section will calculate what the receipts should be for the next year based on the information that the user input above and the values from the Market Assumptions table.

MILK SALES

Milk Sales will use the average daily production level, the market price per hundred weight for milk, and the number of cows to calculate what daily milk sales will be. This figure, in turn is multipled by the number of days in a month to arrive at the monthly milk sales figure.

```
        Average daily production -        Ø
        price/cwt. -                  $11.6Ø

Ø no. cows x Ø avg. daily prodn. = Ø Lbs. shipped/day
Ø daily prodn  x $11.6Ø price/cwt  = $Ø daily income
no. of days/month x daily income  =  dollars/month
    31    x        $Ø                    $Ø
    3Ø    x        $Ø                    $Ø
    28    x        $Ø                    $Ø
```

CATTLE SALES

Dairy Calves-

The model will calculate a sales figure for the number of dairy calves sold on the basis that approximately one half of all calves born will be bull calves. The model assumes that all bull calves will be sold as calves, unless the user has previously entered that the dairy enterprise will be raising steers. If the user specified that the dairy enterprise would be raising steers for sale then that number is automatically subtracted from the total number of possible bull calves and the resulting

number will be used in figuring dairy calves sales, along with the value from the Market Assumptions Table for dollars per calf.

Dairy Calves
calf/cow(cow no.) = x 1/2 = Ø no. bull calves
Ø = no. bull calves for sale (- dairy steers for sale)
Ø no. bull calves/12 = Ø no. bull calves/month
Ø no. bull calves x $5Ø per calf = $Ø monthly

Cull Cows-

An average cull rate of 33%, or about one third of the milking herd, is used in figuring sales from cull cows. The total number of cows multiplied by 33% and then divided by twelve months will be the number of cull cows per month. Assuming an average weight of 14ØØ lbs per cow, this is multiplied by the value per pound for cows, from the Market Assumptions Table, for a monthly sales figure.

Cull Cows
Cull Rate = 33% of no. cows unless otherwise specified
Ø.33 x Ø no. cows = Ø no. cows culled/12 = Ø cows culled
14ØØ lbs(assumed avg. wt.) x $Ø.35 per lb. = $49Ø.ØØ gross
$49Ø.ØØ gross/cow x Ø no. cows culled/month = $Ø monthly

Dairy Steers-

A figure for sales from steers is determined only if the user previous stated that the dairy enterprise would be raising steers. Once this has been established, the model assumes a weight of 1ØØØ pounds per steer, at sale time, multiplied by the value per pound for steers, from the Market Assumptions Table, will result in a sales figure per steer. This figure is then multiplied by the number of steers being sold, then divided by twelve which results in the monthly sales figure for steers.

Dairy Steers
no. steers
1ØØØ lb. steers x $Ø.55 per lb = $55Ø.ØØ per steer
Ø no. steers x $55Ø.ØØ = $Ø total
Ø total/12 = $Ø monthly

Dairy Heifers-

The model will assume that all heifers will be raised as replacement heifers, unless specified by the user that a certain number will be sold. Based on this number and the value for heifers from the Market Assumptions Table a yearly sales figure is calculated divided by twelve for a monthly sales figure.

Dairy Heifers
no. heifers sold = Ø
Ø no. heifers x $6ØØ = $Ø total
$Ø total/12 = $Ø monthly

The figures for the next three items are transfered in according to what had been previously entered as values for these items by the user.

FEDERAL PROGRAMS AND TAX REFUNDS

Fed. & State Gas Refund $Ø

State RL-tax refund $Ø

PATRONAGE DIVIDEND CASH RECEIVED $Ø

EXPENDITURES

Labor Payroll-

The payroll for the dairy enterprise is calculated using the figures that the user previously entered. The first three items, worker ID, wages, and hours/month, are transferred in from where they were previously entered. The model then calculates the gross payroll figure by multiplying wages by the hours/month worked figures. The gross payroll figure is then multiplied by the percent for fringe benefits and the employers share of FICA to arrive at the net payroll figure. The management payroll figure is calculated by using the total management payroll figure entered previously and dividing that by twelve to arrive at a monthly sum.

Labor Payroll

					Total
Worker ID	Ø	Ø	Ø	Ø	Ø
Wages	$Ø.ØØ	$Ø.ØØ	$Ø.ØØ	$Ø.ØØ	$Ø.ØØ
Hours/Month	Ø	Ø	Ø	Ø	Ø
Gross Payroll	$Ø	$Ø	$Ø	$Ø	$Ø
Fringe Benefits	$Ø	$Ø	$Ø	$Ø	$Ø
FICA	$Ø	$Ø	$Ø	$Ø	$Ø
Net Payroll	$Ø	$Ø	$Ø	$Ø	$Ø

Management Payroll $Ø.ØØ monthly

LIVESTOCK EXPENDITURES

Feed - The need to purchase any feed is determined by the previous calculations for total feed needs and feed purchases based on ending inventory.

Feed Type - amount needed x price = total expenditure
dollars

Feed Supplements-

The model assumes that the dairy enterprise purchases all of its protein supplement. The value that was previous calculated for protein supplement needs, on an As Fed basis, from the Feed Type % of Total Ration Table, is transferred into this table and multiplied by the value for protein supplement from the Market Assumptions Table for a total expenditure figure. This figure is then divided by twelve to arrive at a monthly figure.

Feed Suppl. - Protein Suppl. (assume soybean oil meal)
needs x $Ø.ØØ per T = $Ø.ØØ Total expenditure/12 = $Ø.ØØ
monthly

Feed Additives-

Feed Additives are calculated by multiplying the value for each additive, from the Market Assumptions Table, by the amount needed, which was previoulsy input by the user. The user will input the needs on a daily per cow basis. At this point in the model it will multiply the individual

cow needs by the number of cows in the milking herd, and converts that figure from pounds to tons. Once a figure for each additive is calculated it will then add those together to arrive at a monthly total figure for feed additives.

Feed Additives - minerals, salts, buffers

	per ton				
mineral	$500.00	x Ø needs	= $Ø total expenditure/12	= $Ø monthly	
salt	$200.00	x Ø needs	= $Ø total expenditure/12	= $Ø monthly	
buffer	$500.00	x Ø needs	= $Ø total expenditure/12	= $Ø monthly	
					$Ø total

Livestock Bedding-

The model assumes a bedding need of 60 lbs of bedding for every 1000 lbs of dairy cow per month (Mix, et. al., 1978). Using the previous assumption of 1400 lb dairy cows the bedding need then becomes 84 lbs of bedding per cow per month. This figure is then multiplied by twelve months to arrive at an annual bedding need figure, of approximately a 1000 lbs of bedding per cow per year. To arrive at the total herd needs the model will multiply a 1000 lbs by the number of cows in the herd. This figure is then multiplied by the figure input by the user for bedding price per ton to arrive at a total expenditure figure.

Bedding

needs	60 lbs of bedding/	1000 lbs of cow/month		
	84 lbs of bedding/	1400 lbs of cow/month		
	84 x 12 months	= 1000 lbs bedding/year/cow		
1000 lbs.	x Ø no. cows	= Ø total lbs needed	Ø Tons needed	
Ø Tons	x $Ø	= $Ø total expenditure/12	= $Ø.00 monthly	

Livestock Supplies-

The model assumes a livestock expenditure of $50 per cow (AEC Report # 475, 1986). To arrive at a total expenditure figure the $50 is multiplied by the number of cows and then divided by twelve to arrive at the monthly expenditure figure.

Livestock Supplies
annual expenditure per cow $5Ø
$5Ø x Ø cows = $Ø total expenditure/12 = $Ø.ØØ monthly

Breeding Service-

The figure that is input by the user, for dollars per conception, is multiplied by the number of cows to arrive at a total expenditure figure. This figure is then divided by twelve to arrrive at the monthly expenditure figure.

Breeding Service
based on $/conception - semen use
Ø cows x $Ø.ØØ = $Ø total expenditure/12 = $Ø.ØØ monthly

Milk Check Deductions-

The next 6 expenditures, Equity Retain, Dues, Milk Hauling, ADA & Milk Promotion, Whole Herd Buyout, and Gramm Rudman are in reality reductions to gross milk sales made by the milk cooperatives. Each of the deductions is figured by multiplying the value of the deduction, from the Market Assumptions Table, by the figure for gross monthly milk sales to arrive at the monthly deduction figure.

Equity Retain - Ø.75 % of sales

31 days	x	Ø.ØØ75	x	$Ø	=	$Ø
3Ø days	x	Ø.ØØ75	x	$Ø	=	$Ø
28 days	x	Ø.ØØ75	x	$Ø	=	$Ø

Dues - Ø.75 % of sales

31 days	x	Ø.ØØ75	x	$Ø	=	$Ø
3Ø days	x	Ø.ØØ75	x	$Ø	=	$Ø
28 days	x	Ø.ØØ75	x	$Ø	=	$Ø

Milk Hauling - $Ø.45 per cwt
lbs shipped/day/1ØØ = cwt.
Ø.45 x cwt.

31 days	x	Ø.45	x	Ø	=	$Ø
3Ø days	x	Ø.45	x	Ø	=	$Ø
28 days	x	Ø.45	x	Ø	=	$Ø

ADA & Milk Promotion - $Ø.15 per cwt
lbs shipped/day/1ØØ = cwt.
Ø.15 x cwt.

31 days	x	Ø.15	x	Ø	=	$Ø
3Ø days	x	Ø.15	x	Ø	=	$Ø
28 days	x	Ø.15	x	Ø	=	$Ø

Whole Herd Buyout - $Ø.4Ø per cwt
lbs shipped/day/1ØØ = cwt.
Ø.4 x cwt.

31 days	x	Ø.4	x	Ø	=	$Ø
3Ø days	x	Ø.4	x	Ø	=	$Ø
28 days	x	Ø.4	x	Ø	=	$Ø

Gramm-Rudman - $Ø.12 per cwt
lbs shipped/day/1ØØ = cwt
Ø.12 x cwt.

31 days	x	Ø.12	x	Ø	=	$Ø
3Ø days	x	Ø.12	x	Ø	=	$Ø
28 days	x	Ø.12	x	Ø	=	$Ø

Livestock Marketing-

The figure for Livestock Marketing is calculated by multiplying the percent for marketing, input by the user, by the total sales figure calculated previously.

Livestock Marketing - figure as a % of sales Ø %

Veterinarian Service-

The expenditure for Veterinarian Service is calculated one of two ways. Either the expenditure is what was specififed as the monthly clinic fee, or it is based on a $6Ø annual expenditure per cow (AEC Report #475, 1986). If there is no monthly clinic then the model automatically assumes the $6Ø rate multiplied by the number of cows for a total annual expenditure. The total annual expenditure is then divided by 12 to arrive at the monthly expenditure figure.

Veterinarian Service
Monthly Clinic - if yes fee/clinic
if no - $6Ø annual expenditure / cow
$6Ø.ØØ x no.cows= total expenditure/12 = monthly expenditure
$6Ø.ØØ x Ø = $Ø total expenditure/12 = $Ø.ØØ monthly

Medicine and Drugs-

As with Veterinarian Service, the expenditure figure for Medicine and Drugs is determined one of two ways. Either it is part of a monthly clinic fee or the model assumes an expenditure of $15/cow annually (AEC Report # 475, 1986). When it is not part of a monthly clinic fee then the model assumes the $15 rate and multiplies that by the number of cows for a total annual expenditure. The total annual expenditure is then divided by twelve to arrive at the monthly expenditure figure.

Medicine and Drugs
if included in monthly clinic $Ø
if not an included expenditure average $15/cow annual
$15.ØØ x no.cows= total expenditure/12 = monthly expenditure
$Ø.ØØ x Ø = $Ø total expenditure/12 = $Ø.ØØ monthly

CROP EXPENDITURES

The expenditure figures for Crop Expenditures are figured by the same method for each of the crops grown. The categories that are considered towards crop expenditures are Seeds and Plants, Fertilizer, Herbicides and Insecticides, Crop Supplies, Irrigation Power, Lime, and Drying Fuel. A budgeted value for each of these was derived, as it pertains to each of the crops, from the AEC Report #475 (1986). Each of the individual crop tables will then multiply this budgeted value by the number of acres of each crop that are to be grown. Once each of the individual crops has been calculated, then each of the different categories are totaled to arrive at an overall crop expenditure figure.

Alfalfa Hay			no. acres		
Seeds & Plants	$Ø.ØØ	x	Ø	=	$Ø
Fertilizer	$33.ØØ	x	Ø	=	$Ø
Herbs. & Insects	$7.25	x	Ø	=	$Ø
Crop Suppl	$14.ØØ	x	Ø	=	$Ø
Irrigation Power	$Ø.ØØ	x	Ø	=	$Ø
Lime	$Ø.ØØ	x	Ø	=	$Ø

Alfalfa Haylage			no. acres		
Seeds & Plants	$Ø.ØØ	x	Ø	=	$Ø
Fertilizer	$44.45	x	Ø	=	$Ø
Herbs. & Insects	$7.25	x	Ø	=	$Ø
Crop Suppl	$Ø.ØØ	x	Ø	=	$Ø
Irrigation Power	$Ø.ØØ	x	Ø	=	$Ø
Lime	$Ø.ØØ	x	Ø	=	$Ø
Corn Silage			no. acres		
Seeds & Plants	$26.6Ø	x	Ø	=	$Ø
Fertilizer	$54.ØØ	x	Ø	=	$Ø
Herbs. & Insects	$23.ØØ	x	Ø	=	$Ø
Crop Suppl	$Ø.ØØ	x	Ø	=	$Ø
Irrigation Power	$Ø.ØØ	x	Ø	=	$Ø
Lime	$7.2Ø	x	Ø	=	$Ø
Corn Grain			no. acres		
Seeds & Plants	$19.6Ø	x	Ø	=	$Ø
Fertilizer	$22.6Ø	x	Ø	=	$Ø
Herbs. & Insects	$15.2Ø	x	Ø	=	$Ø
Crop Suppl	$Ø.ØØ	x	Ø	=	$Ø
Irrigation Power	$Ø.ØØ	x	Ø	=	$Ø
Lime	$4.5Ø	x	Ø	=	$Ø
Drying Fuel	$17.5Ø	x	Ø	=	$Ø
Soybeans			no. acres		
Seeds & Plants	$8.4Ø	x	Ø	=	$Ø
Fertilizer	$6.8Ø	x	Ø	=	$Ø
Herbs. & Insects	$18.15	x	Ø	=	$Ø
Crop Suppl	$Ø.ØØ	x	Ø	=	$Ø
Irrigation Power	$Ø.ØØ	x	Ø	=	$Ø
Lime	$4.5Ø	x	Ø	=	$Ø
Wheat			no. acres		
Seeds & Plants	$1Ø.8Ø	x	Ø	=	$Ø Fertilizer
$32.8Ø x	Ø	=	$Ø		
Herbs. & Insects	$Ø.85	x	Ø	=	$Ø
Crop Suppl	$Ø.ØØ	x	Ø	=	$Ø
Irrigation Power	$Ø.ØØ	x	Ø	=	$Ø
Lime	$4.5Ø	x	Ø	=	$Ø
Oats			no. acres		
Seeds & Plants	$8.ØØ	x	Ø	=	$Ø
Fertilizer	$8.6Ø	x	Ø	=	$Ø
Herbs. & Insects	$Ø.65	x	Ø	=	$Ø
Crop Suppl	$Ø.ØØ	x	Ø	=	$Ø
Irrigation Power	$Ø.ØØ	x	Ø	=	$Ø
Lime	$4.5Ø	x	Ø	=	$Ø
Barley			no. acres		
Seeds & Plants	$13.ØØ	x	Ø	=	$Ø
Fertilizer	$18.1Ø	x	Ø	=	$Ø
Herbs. & Insects	$Ø.65	x	Ø	=	$Ø
Crop Suppl	$Ø.ØØ	x	Ø	=	$Ø

Irrigation Power	$Ø.ØØ	x	Ø	=	$Ø
Lime	$4.5Ø	x	Ø	=	$Ø

TOTAL CROP EXPENDITURES

Seeds & Plants	$Ø
Fertilizer	$Ø
Herbs & Insects	$Ø
Crop Suppl	$Ø
Irrigation Power	$Ø
Lime	$Ø
Drying Fuel	$Ø

MACHINERY & FARM EXPENDITURES

Equipment Repair-

The expenditure figures for equipment repair are calculated by using budgeted figures from the AEC Report #475 (1986) for Dairy cows and replacements plus each of the different crops grown. These budgeted figures are then multiplied by either the number of cows or the number of acres of each crop grown, to arrive at a total expenditure figure. All of the individual expenditure figures are then added together to arrive at the total annual expenditure for Equipment Repair. This figure is then divided by twelve to arrive at a monthly expenditure figure.

Equipment Repair							
Dairy cow & replacement	58	x no. cows	$58.ØØ	x	Ø	=	$Ø
Alfalfa Hay	3Ø.9	x no. acres	$3Ø.9Ø	x	Ø	=	$Ø
Alfalfa Haylage	32.9	x no. acres	$32.9Ø	x	Ø	=	$Ø
Corn Silage	22	x no. acres	$22.ØØ	x	Ø	=	$Ø
Corn Grain	18	x no. acres	$18.ØØ	x	Ø	=	$Ø
Soybeans	16	x no. acres	$16.ØØ	x	Ø	=	$Ø
Wheat	16	x no. acres	$16.ØØ	x	Ø	=	$Ø
Barley	16	x no. acres	$16.ØØ	x	Ø	=	$Ø
Oats	16	x no. acres	$16.ØØ	x	Ø	=	$Ø

---

total expenditure/12
= monthly expenditure

Machine Shop Supplies and Machinery Lease-

The expenditures for Machine Shop Supplies and for Machinery Leased is based on the values input by the user previously in the model.

Machine Shop Supplies = $Ø

Machinery Leased
is there machinery leased? if yes - cost = $Ø.ØØ

Gasoline and Fuel, Building and Improvement Repair, and Utilities-

The expenditure figures for Gasoline and Fuel, for Building and Improvement Repair and for Utilities are calculated by using budgeted figures from the AEC Report #475 (1986) for Dairy cows and replacements plus each of the different crops grown. These budgeted figures are then multiplied by either the number of cows or the number of acres of each crop grown, to arrive at a total expenditure figure. All of the individual expenditure figures are then added together to arrive at the total annual expenditure for Gasoline and Fuel, for Building and Improvement Repair and for Utilities. This figure is then divided by twelve to arrive at a monthly expenditure figure.

Gasoline & Fuel						
Dairy cow & replacement	1Ø.6	x no. cows	$1Ø.6Ø	x	Ø	= $Ø
Alfalfa Hay	1Ø.7	x no. acres	$1Ø.7Ø	x	Ø	= $Ø
Alfalfa Haylage	18.35	x no. acres	$18.35	x	Ø	= $Ø
Corn Silage	11	x no. acres	$11.ØØ	x	Ø	= $Ø
Corn Grain	9.9	x no. acres	$9.9Ø	x	Ø	= $Ø
Soybeans	9	x no. acres	$9.ØØ	x	Ø	= $Ø
Wheat	7	x no. acres	$7.ØØ	x	Ø	= $Ø
Barley	6.5	x no. acres	$6.5Ø	x	Ø	= $Ø
Oats	6.9	x no. acres	$6.9Ø	x	Ø	= $Ø

total expenditure/12
= monthly expenditure

Building & Improvement Repair					
Dairy cow & replacement	11 x no. cows	$11.ØØ	x	Ø =	$Ø
Alfalfa Hay	2 x no. acres	$2.ØØ	x	Ø =	$Ø
Alfalfa Haylage	3.5 x no. acres	$3.5Ø	x	Ø =	$Ø
Corn Silage	3.5 x no. acres	$3.5Ø	x	Ø =	$Ø
Corn Grain	2.5 x no. acres	$2.5Ø	x	Ø =	$Ø
Soybeans	1.5 x no. acres	$1.5Ø	x	Ø =	$Ø
Wheat	1.5 x no. acres	$1.5Ø	x	Ø =	$Ø
Barley	1.5 x no. acres	$1.5Ø	x	Ø =	$Ø
Oats	1.5 x no. acres	$1.5Ø	x	Ø =	$Ø

total expense/12
= monthly expense

Utilities					
Dairy cow & replacement	6Ø.5 x no. cows	$6Ø.5Ø	x	Ø =	$Ø
Alfalfa Hay	1.5 x no. acres	$1.5Ø	x	Ø =	$Ø
Alfalfa Haylage	1.5 x no. acres	$1.5Ø	x	Ø =	$Ø
Corn Silage	5.5 x no. acres	$5.5Ø	x	Ø =	$Ø
Corn Grain	2.5 x no. acres	$2.5Ø	x	Ø =	$Ø
Soybeans	1.5 x no. acres	$1.5Ø	x	Ø =	$Ø
Wheat	1.5 x no. acres	$1.5Ø	x	Ø =	$Ø
Barley	1.5 x no. acres	$1.5Ø	x	Ø =	$Ø
Oats	1.5 x no. acres	$1.5Ø	x	Ø =	$Ø

total expense/12
= monthly expense

LOAN REPAYMENT SCHEDULE-

The Loan Repayment Schedule is designed to provide a detailed account of each loan currently held by the dairy enterprise. The user will input a list of the Persons or Firms that loans are owed to, the term of the loan, the balance owed on that loan and the loan rate. Then the model calculates the Payment, Interest, Principal, Monthly Payments, and the Total Payments on all of the loans.

LOAN REPAYMENT SCHEDULE
Interest and Principal Calculations:

Person, Firm	Term	Bal. Owed	Rate	Payment	Interest	Principal	Monthly Pmt	Total Pmt owed
				$Ø	$Ø	$Ø	$Ø	$Ø

Insurance and Miscellaneous Expenditures

The expenditure figures for Insurance and Miscellaneous are determined based on what the user previously input.

Insurance $Ø

Miscellaneous Expenditure $Ø

CHAPTER 4

DISCUSSION

As an analytical tool the dairy enterprise cash flow model can be used in several different ways . First the model can be used by the financial manager of the dairy enterprise. This model allows a user to closely monitior and evaluate each of the receipts and expenditure categories. Instead of just overall figures on receipts and expenditures this model gives detailed information on each. The breakdown into the receipts and expenditure categories of livestock, crops, machinery and farm allows for evaluation within each of the categories to see where the largest changes in cash flow will occur. Not only can the user benefit from the final report and dollar changes in net cash flow, but there are also several other areas in the model which provide valuable planning information, namely the feed need determinations and feedstuffs inventory level sections.

USE OF PROCEDURE TO ESTIMATE FEED NEEDS

The first area of interest, from a management perspective, is the calculation for feed need determination. Although both procedures, for determining feed needs, involve information specifically entered by the user procedure one arrives at its final calculation through suggested feeding values from the estimated feed needs table (Thomas, 1985), while procedure two is calculated solely on what the user states is being fed. Therefore, procedure one, based on the average milk production/cow, forage quality on the dairy enterprise, and the number of livestock calculates values for total forage needs and grain needs. Procedure two will calculate total forage and total grain needs based on the values input by the user multiplied by the number of animals and

either the number of days of the month, for monthly needs, or by 12 months for annual needs. When considered on a comparative basis the values from procedure one are calculated more explicitly than those from procedure two which are based solely on what the user states is being fed. Bringing together the results of the two procedures in one table allows the user to compare the actually occurring values, procedure two against values which are calculated by formulated methods, procedure one. This can act as a check and balance of the dairy enterprise feeding program and cropping program. First, if there are notable differences between the results of both procedures, for feed determination, the user may want to go back and look at the calculations for feed need determinations more closely. Since procedure one is calculated based on a formulated method there is very little that the user can infer in the way of miscalculations here. Procedure two, however, is calculated based on current feeding status and differences between the two procedure's results may indicate that the current ration may be inadequate. It should be noted that this model makes no attempt to either evaluate or balance a ration. Simply, it may give some indications that there is a problem with the ration based on the total need figures. If a situation of notable differences between procedure one and two occurs the user should reexamine each of the rations being fed, milking cows, dry cows, heifers 1-2 years old, heifers less than one year, and steers. This should be done by means of a ration balancing program, which will use the existing inventory of feedstuffs available to the dairy enterprise. From the results of a reexamination of the current ration the user can now conclude that the current ration is satisfactory, or can change the

current ration according to needs. Again, it should be noted that this model makes no attempt to evaluate or balance feed rations. Its purpose is to assist the user in planning a feed supply for a 365 day period. In accordance with this objective the user may also utilize the results of the inventory calculations to adjust the cropping program, for the dairy enterprise, to meet the needed feed supply.

USE OF INVENTORY CALCULATIONS

The inventory calculations are based on a beginning inventory level plus any feed production minus animal needs. Thus, the inventory levels are a reflection of the feed cropping program. The inventory table will provide the user with an overall scheme of inventory levels for a 12 month period. Based on the inventory calculations the user will have the information to recognize when there are going to be deficits in feed supply or surpluses in feed supply, for a specific feedstuff. In certain instances one of the feedstuffs may have a deficit value for several months, even with any production being added to the inventory levels, while one of the other feedstuffs may have a significant surplus over a 12 month period. The model will automatically purchase the necessary, or deficient amount, of the feedstuff in inadequate supply, yet the model will make no provision to disperse of any surplus feedstuffs. There are several factors for the user to consider here. Namely first, adjustment of the cropping plans for the dairy enterprise to closely match feed needs. Any deficits or surpluses should be advoided since there are costs associated with each. Adjustments in the cropping program can be accomplished through altering the acreage to arrive at more desirable results.

Second, given that a satisfactory match of inventory levels and animal needs cannot be reached through the adjustment of acreage, then acreage should be adjusted such that expenditures can be minimized. This can be accomplished by consideration of several factors - the amounts of any surpluses or deficits and the costs involved in holding any surpluses or purchasing needed deficits. Based on the market value of the feedstuffs it may be less costly to incur a deficit in one type of feed versus another. However, the cost of crop production is also a factor to be considered in decisions concerning the dairy enterprise cropping program. The model affords the user a quick and simple method of adjusting crop production factors and reviewing the outcome to arrive at a satisfactory solution for the user.

GENERAL USES OF THE MODEL

The remainder of the model can be used in a similar fashion. Based on the outcome of a first run, some factors within the model can be adjusted to arrive at a more satisfactory solution for the user. Within both the receipts and expenditures there are values that are implicit to the model and can not be altered. These values can be both the expenditures involved, as well as, numbers involved (i.e. number of possible bull calves, assumed weights of cattle sold, amount of bedding needed, etc.). Other applied values for which the user has no direct control over are the values from the market assumptions table. Although, the user may enter any chosen values into the table, the individual user will not dictate what those values are since they are derived from the current market situation.

However, the receipts that the user has direct control over are the number of dairy steers sold and any miscellaneous income which is

applied to the dairy enterprise. Miscellaneous income can come in several forms, examples are receipts earned through alternate endeavors, income through off farm employment or loans. The expenditures which the user has direct control over are payroll wages, fringe benefits, management payroll, bedding price, semen costs, machinery lease payments, land rent, insurance, loan repayments and miscellaneous expenditures. It is recognized that all of the items are related to the market situation, of which the user has no direct control. What is implied by direct control of these items is that the user may have the ability to find alternative sources, than those currently involved, which will either yield more in the way of receipts or be a lower expenditure. Working within the confines of market conditions, the user may make efforts to negotiate more desirable options for the dairy enterprise.

The values which are implicit to the model have been arrived at through several sources. As previously mentioned the tables for procedure one of feed need determination are from "Plan Your Feed Supply" (Thomas, 1985). Bedding need estimates were calculated based on the value of 60 lbs. bedding/1000 lbs of animal/month (Mix, et. al., 1978). The budgeted figures for livestock supplies/cow, veterinary services, medicine and drugs, crop expenditures, gasoline and fuel, building improvements and repair, and utilities are based on reported budget values in the Michigan State University Agricultural Economics Report No. 475, "Michigan Crops and Livestock 1986 Estimated Budgets". The source of data for the grain and livestock prices budget figures are estimations by agricultural economists at Michigan State University. The seed, fertilizer and chemical costs are based on

ingrediant costs from commercial sources. The dairy budget figures were taken from Telfarm (Michigan State University farm accounting and records system) yearly summaries and increased to 1986 price levels (AEC Report # 475). All of these budget production costs are estimations and may not accurately apply to a certain dairy enterprise. The user can adjust for individual situations through either the miscellaneous expenditure figures in the expenditure section or through the adjusted miscellaneous row at the bottom of the final worksheet report. Although the budgeted values are estimates, they provide a reasonable expectation of what expenditures will be.

The final section of this model, the final worksheet report, can be useful not only to the user of the model but also to the financial officer of lending institutions that the dairy enterprise is associated with. This report indicates the bottom line as to where and what the flows of cash will be in a 12 month period. From a users point of view it allows for any adjustments to be made to improve cash flow position, through the adjusted miscellaneous row. This report also provides the user with valuable information necessary to perform effective tax management.

The objective of tax management is to maximize after tax income. Given the information provided by the model the user is better equipped to utilize available tax options, such as income and expense shifting (as a means of reducing taxable income), depreciation methods and retirement programs. All of which have an impact on after tax income. This also give the user the opportunity to decide if adding to either feed or crop inventories, through prepaid purchases, is advantageous based on the outcome of net cash flow.

A second area of decision making which can be greatly influenced by the outcome of this model is capital asset acquisition or depletion. The results of this model, the net cash flow, will demonstrate whether or not the dairy enterprise can support the acquisiton of a new capital asset, or if the dairy enterprise is possibly over extended and should think about a reduction in current capital assets. Decisions concerning capital assets are generally closely connected to the loan schedule and the ability of the dairy enterprise to support loan payments (ie. repayment capacity).

Given the information in the final report the user is given the opportunity to review the existing loan payment schedule and determine whether this schedule is acceptable as is or if the restructuring of debt payments may be necessary. With the knowledge of what cash flows are expected to be it becomes apparent if the current loan schedule is feasible and can be supported by the dairy enterprise or if a change is necessary. The result of net cash flow can also be an indicator of a dairy enterprises ability to handle additional debt.

CHAPTER 5

RESULTS

REVIEW OF APPENDIX A CASE EXAMPLE

In reviewing the outcome of the example (Appendix A) many of the items which were just discussed, in terms of using the model become apparent here. Starting with the table which compares feed need estimates for the year. There are considerable differences between both the forage and grain estimates in procedure one and two. In both estimates procedure one is greater than procedure two. After reviewing the methods used in calculating procedure one and deciding that they are based on realistic assumptions then procedure two must be reviewed. At this point the user would closely evaluate the ration that is currently being fed. This may be done by means of a ration balancer or evaluator. What ever the method of choice is, the ration being fed should be scrutinized by the user to decide if it is acceptable or not. If changes are necessary the user will go back into either of the procedures and manually change whatever data is necessary and recalculate the procedure until satisfactory results are reached.

Moving to the inventory table it can be seen that there is a surplus in all of the feedstuffs grown for the dairy enterprise. These surpluses represent idle assets and therefore foregone earning power. It is suggested that acreage in all of the feeds grown be reduced. This would reduce crop expenditures for the unnecessary amounts of feed grown, it would also reduce the cost of storing any surplus feeds. An alternative would be to divert some of the acreage away from the dairy enterprise towards a cash crop enterprise. This would generate alternate income for the general farm operation. The financial manager

of the dairy enterprise may choose to disperse of some of the land to reduce both feed surpluses and crop expenditure to the dairy enterprise.

The financial manager may also consider using the land towards growing feed that could be used as protein source. This decision is spurred by looking at the feed purchase table and seeing that a total purchase of protein supplement, Soybean Meal, will be very costly. There is the possiblity of diverting some of the land away form its current status and put it to use in a manner as to reduce feed purchase expenditures.

Either reducing the amount of acreage used, therefore reducing crop expenditures, or using the acreage to more closely match the feed needs will improve the final results in net cash flow.

After reviewing the remainder of the outcome of the example it is decided that the forecasts in all of the other areas are realistic estimates of what is to be expected. The major areas of change and need for improvement are to reduce feed purchases and cropping expenditures. By adjusting both of the areas the resulting net cash flow will improve. As it stands currently net cash flow is negative in every month but January. This figure can be improved upon but it may be difficult to totally rectify this problem. From the current situation it appears that this dairy enterprise will not be able to stand alone financially and that it will be necessary for another source of income to be injected for this dairy enterprise to remain solvent.

CHAPTER 6

SUMMARY AND CONCLUSIONS

DECISION MAKING BASED ON MODEL RESULTS

There are several possible applications for the Dairy Enterprise model. The model is designed as a planning device to be used as an analytical tool in both tactical and strategic decision making. When decision making is defined as choosing between alterate courses of action. In the short run or from a tactical point of view the model can be considered for the year that it is forcasted for. It can be used to plan for periods of severe cash deficits or surpluses. If it appears that there are to be periods of severe cash shortages the user has the flexibility to shift inflows and outflows of cash to alleviate a problem of several consecutive months with cash shortages. However, if this is not possible then the user may find it necessary to obtain a short term operating loan to assist the dairy enterprise during the intervening periods of positive cash flow. This method of shifting inflows and outflows would also work to avoid long periods of cash surpluses.

Cash surpluses are as equally important to control as are cash shortages. An excessive surplus of cash in any given period, left idle by the dairy enterprise, will be a wasted resource. Cash alone has earning power if it is handled properly. A second option available to the user is to find some form of short term investment opportunities for any cash surpluses. This allows cash surpluses to be utilized as any other resource would as an item which through its use generates income for an enterprise.

There are numerous other tactical decisions which can be made as the result of the cash flow forecast. From the Net Cash Flow results the user has the ability to decide where and the magnitude of income which may be required from other sources. Other income sources can be off farm income, alternate agricultural enterprises taking place (ie. cash crop enterprises, different livestock enterprises), or short term operating loans. A second decision is that the model makes no provisions for prepurchase of resources, such as crop inputs. This type of decision can be beneficial from an income tax standpoint, since it will act as an income reducing agent. Another tactical decision, which can be made as a result of Net Cash Flow, is the appropriate actions which should be taken in managing the debt load of the dairy enterprise. Not only will the forecast indicate where it may be necessary to obtain a short term operating loan but it also will indicate when an enterprise has the ability to pay off a loan and remove it from the loan schedule. Changing the timing of cash flows is certainly one of the most useful tactical decisions which can be made as a result of using the model.

For strategic, long term, decision making this model provides a limited yet sound base from which to make decsions. Based on Net Cash Flow, the user can discern the enterprise's ability to handle additional debt which could be the result of new capital asset acquisition. Acquisition of capital assets can be considered in the case of one single piece of capital or several, as in the case of expansion. When considering expansion the user would be asking questions such as - what difference would ten more cows or ten less cows make, how much land is necessary to accomadate the dairy herd

without having to purchase feed, etc. In an effort for the user to be able to strategically make decisions concerning future cash flows a series of different data inputs should be entered to perform sensitivity analysis of the dairy enterprise. Strategically the model affords the user the ease with which to perform sensitivity analysis on the dairy enterprise, since all that is required of the user is to change the data input and let the model perform the calculations. By comparing the outcome of different models, based on different data inputs, the user will be able to see under what circumstances the cash flow will be the most favorable.

STRENGTHS AND WEAKNESSES OF THE MODEL

What has been mentioned above are the real strengths of this model. The results of this model provide the user with the necessary information to be able to make sound decisions on both a tactical and strategic basis. In addition, the ease with which sensitivity analysis can be performed provides the user with a very functional planning device.

However, in using this model the user must be aware of certain areas of weaknesses in the model. First, the model ignores future cash flows. This model only considers cash that comes in or goes out in a given period. This method gives no consideration to future cash flows, such as accounts receivable and accounts payable. In ignoring future cash flows, that have a fairly high degree of certainty, the model may present a slightly false statement of cash position at any point. This does cause a weak link in the decision making process, since in decision making what the user is looking at are future cash flows of which the accruals, accounts receivable and accounts payable, are a

portion. A second area of weakness is that the model fails to place a value on inventory. The model considers actual amounts of inventory but never places a dollar value on it. Therefore, the model never addresses how inventory can play a role in altering cash flow. One possibility that the user may consider when altering cash flow is the liquidation of some inventory. Yet, by not placing a dollar value on inventory it is not readily apparent to the user how inventory liquidation would be beneficial or what portions of inventory would be the most beneficial to liquidate. Thus, if inventory liquidation is considered the areas which need to be addressed are 1) liquidation of which inventory item would have the most impact on cash flow and 2) how would liquidation of certain inventory items affect the needs of those items. A third area of weakness in this model is that it uses one set of market assumptions in its calculations. By doing this the model fails to consider the seasonality factors of the market. A market economy is a dynamic constantly fluctuating entity. What is listed in the market assumptions table and may be used in January to calculate the model may no longer apply come June. Therefore, what the model reports for receipts or expenditures can only be considered as estimates since there has been no provision made for seasonal changes in the market.

FUTURE USES OF THE MODEL

As for future use of this model the possiblities are numerous. An ideal situation would be for this model to become a portion of an integrated system for an entire farming operation and not just the dairy enterprise alone. Ideally, combining this model with a ration balancer and evaluator, a cropping model, and provisions for other

livestock enterprises would provide an outstanding management and decision making system. This model, however, provides a sound and realistic method for making decisions as it stands alone. In conclusion, use of this model in the several different methods that have been suggested can aid the financial manager of a dairy enterprise in making sound financial decisions concerning that enterprise. This model provides the necessary information and is a valuable tool to meet the challenge facing dairy enterprises today, of having to employ sound financial practices in an effort to remain solvent and in business.

APPENDICES

APPENDIX A

DAIRY ENTERPRISE CASH FLOW

Menu of Macros to perform the functions of this model
To start ALT-S to print these directions

DATA ENTRY

ALT-D Start at row 46 and enter data where asked for until row 151. To move down rows, use the down arrow key.

ALT-M Enter, starting in cell M57, the chosen market values for this model

ALT-A Choose the selected values for feed from the ESTIMATED FEED NEEDS table. Use the arrow keys to move around the table. Enter chosen values for FORAGE starting in cell F175 until cell F178.
Enter chosen values for GRAIN starting in cell I175 until cell I178.
Enter values for feed additives in cells K188-K190.
Enter the proper percent of ration being fed values in cells E187 - E195.
These values are based on what the user is currently feeding.

ALT-B Starting in cell U184 until cell U273 enter the amounts being fed daily to each of the groups of the appropriate feedstuffs.

ALT-C Enter, under the appropriate months and by the appropriate crop, the number of acres to be harvested that month.

ALT-L Enter Loan data for up to six loans
Enter data in columns:

Firm owed	E
Term of loan	F
Balance of loan owed	G
Rate of loan	H

Now use the F9 key to have the model perform the cash flow calculations

ALT-P Print results after calculations have been performed

DAIRY ENTERPRISE CASH FLOW

FARM NAME: EXAMPLE

DATE: DEC. 31,1995

RECEIPTS INFORMATION

LIVESTOCK INFORMATION

Number of cows	220	milking	170	dry	50
heifers 1-2 yr	64				
heifers <1 yr	74				
steers	10				
Avg. Daily Milk Prodn.	55				
Dairy Steers sold? number-	10				
Dairy Heifers sold? number-	0				

FEDERAL PROGRAMS & TAX REFUNDS

Fed. & State Gas Refund	$310
State RL-Tax refund	$6,900
PATRONAGE DIVIDEND CASH RECEIVED	$50
Miscellaneous Income	$10,000

EXPENDITURE INFORMATION

PAYROLL INFORMATION

Worker ID	119	105	104	0	0
Wages	$5.90	$3.75	$4.25	$0.00	$0.00
Hours/Month	60	30	45	0	0
Fringe Benefits %	3%	0%	3%	0%	0%
Management Payroll	$60,000				

MARKET ASSUMPTIONS
Based on Telfarm guidelines for
Inventory Assets for 12/31/86

Livestock:	Milk Price	$11.60 per cwt.
	Dairy Calves	$50.00 per calf
	Cull Cows	$0.35 per lb
	Dairy Steers	$0.55 per lb
	Dairy Heifers	$600.00 per head
Crops:	Alfalfa Hay	$70.00 per Ton
	Alfalfa Haylage	$37.00 per Ton
	Corn Silage	$16.00 per Ton
	Corn Grain	$1.40 per bu.
	Soybeans	$4.70 per bu.
	Wheat	$2.60 per bu.
	Barley	$1.20 per bu.
	Oats	$1.00 per bu.
Feed Additives	Calf Starter	$170.00 per Ton
& Supplements:	Soybean Oil Meal	$135.00 per Ton
	Minerals	$500.00 per Ton
	Salt	$200.00 per Ton
	Buffers	$500.00 per Ton
	Calf Grain	$150.00 per Ton
Milk Check Deductions:		
	Equity Retain	0.75 %
	Dues	0.75 %
---------	Milk Hauling	$0.45 per cwt
	ADA & Milk Prom.	$0.15 per cwt
	Whole Herd Buyout	$0.49 per cwt
	Gramm-Rudman	$0.12 per cwt

LIVESTOCK EXPENDITURE

Crop Information

Crop Types - indicate total acreage

Alfalfa Hay	236
Alfalfa Haylage	0
Corn Silage	120
Corn - Grain	185
Soybeans	0
Wheat	0
Barley	0
Oats	0

Average Yield

Alfalfa Hay	6 T/acre
Alfalfa Haylage	0 T/acre
Corn Silage	23 T/acre
Corn - Grain	185 bu/acre
Soybeans	0 bu/acre
Wheat	0 bu/acre
Barley	0 bu/acre
Oats	0 bu/acre

Inventory at start up

Alfalfa Hay	250 T		
Alfalfa Haylage	0 T	APPROXIMATE WEIGHTS OF FEEDS & GRAIN	
Corn Silage	2500 T		
Corn - Grain	18500 bu	Corn	56 lb/bu
Soybeans	20 bu	Soybeans	55 lb/bu
Wheat	0 bu	Wheat	60 lb/bu
Barley	0 bu	Barley	48 lb/bu
Oats	0 bu	Oats	32 lb/bu
Soybean Oil Meal	6 T		
Calf Starter	2 T		
Calf Grain	5 T		

Livestock Marketing 12 % of sales

Bedding Price $50.00 per Ton

Semen - $/conception = $20.00

Veterinarian Clinic

if yes, fee? $850.00

does this include Medicine & Drugs? no=2 yes=1 2

MACHINERY EXPENDITURES

Machinery Leased	$0

FARM EXPENDITURES

Land Rent	$45
Insurance	$5,380
Miscellaneous Expenditures	$5,000

DERIVED FEED NEEDS

ESTIMATED FEED NEEDS

Milk Production per cow		DM consumed	Forage Quality: Low Forage	Low Grain	Med Forage	Med Grain	High Forage	High Grain
lb/yr	lb/day	lb/cow/day	T DM	lb DM	T DM	lb DM	T DM	lb DM
20000	66	47	4.70	7300	5.10	6600	5.30	6200
18000	60	45	4.70	6800	4.90	6500	5.10	6000
16000	52	43	4.70	6200	4.90	5700	5.10	5400
14000	46	41	4.60	5700	4.90	5200	5.20	4600
Heifers 1-2 yr		20	3.90	200	3.80	100	3.60	100
Heifers <1 yr			1.40	1300	1.50	1050	1.60	900

includes feeding and storage losses

TOTAL NEEDS

Model will automatically enter values for steers.

	No. of head	Forage Needs: T DM/head	T/yr.	Grain Needs: lb. DM/head	T/yr
Cows (milking & dry)	220	4.90	1078	6500	715
Heifers 1-2 yr.	64	3.80	243	100	3
Heifers <1 yr.	74	1.50	111	1050	39
Steers	10	3.80	38	100	1
Sum of needs for the herd.			1470 T		758 T

FEED TYPE AS % OF TOTAL RATION	percent x	total amount	DM	As Fed	
Hay % of total forage	0.6424	1470	944	1086	T
Haylage % of total forage	0.0000	1470	0	0	T
Corn Silage % of total forage	0.3576	1470	526	1502	T
Other % of total forage	0.0000	1470	0	0	T
Corn % of total grain	0.4960	758	376	537	T
Protein Suppl. % of total grain	0.0002	758	0.17	0.19	T
Other % of total grain	0.0000	758	0	0	T
Other % of total grain	0.0000	758	0	0	T

FEED ADDITIVES
enter the amount of each additive fed/day

minerals	1.00 lb.
salt	1.00 lb.
buffer	1.00 lb.

Actual use of feed in ration

	lb/cow/ day	No. of milking cows	Daily feed needs lb	Total monthly needs	Total annual needs
Feeds fed milking cows, avg.					
Alfalfa Hay	25	170	4250	65	771 T
Alfalfa Haylage	0	170	0	0	0 T
Corn Silage	20	170	3400	53	632 T
Corn-Grain	10	170	1700	52700	632400 lb
Soybean Oil Meal	9	170	1530	24	285 T
Wheat	0	170	0	0	0 lb
Barley	0	170	0	0	0 lb
Oats	0	170	0	0	0 lb
Soybeans	0	170	0	0	0 lb
Feed needs for dry cows, avg.	dry period - 60 days				
Alfalfa Hay	20	50	1000	30	30 T
Alfalfa Haylage	0	50	0	0	0 T
Corn Silage	15	50	750	23	23 T
Corn-Grain	10	50	500	7000	7000 lb
Soybean Oil Meal	0	50	0	0	0 T
Wheat	0	50	0	0	0 lb
Barley	0	50	0	0	0 lb
Oats	0	50	0	0	0 lb
Soybeans	0	50	0	0	0 lb

	avg. lb/ day/ heifer	No. heifers	Daily feed needs lb	Total monthly needs	Total annual needs
Feeds for heifers 1-2 yr.					
Alfalfa Hay	20	64	1280	20	238 T
Alfalfa Haylage	0	64	0	0	0 T
Corn Silage	0	64	0	0	0 T
Corn-Grain	0	64	0	0	0 lb
Soybean Oil Meal	0	64	0	0	0 T
Wheat	0	64	0	0	0 lb
Barley	0	64	0	0	0 lb
Oats	0	64	0	0	0 lb
Soybeans	0	64	0	0	0 lb

Feed needs for heifers <1 yr	avg. lb/ day/ heifer	No. heifers	Daily feed needs lb	Total monthly needs	Total annual needs
Alfalfa Hay	12.00	74	888	14	155 T
Milk	5.00	74	62	1912	22940 lb
Calf Starter	2.70	74	50	1	9 T
Calf Grain	3.00	74	167	3	31 T

Feeds for steers	avg. lb/ day/ steers	No. steers	Daily feed needs lb	Total monthly needs	Total annual needs
Alfalfa Hay	20	10	200	3	29 T
Alfalfa Haylage	0	10	0	0	0 T
Corn Silage	30	10	300	5	42 T
Corn-Grain	0	10	0	0	0 lb
Soybean Oil Meal	0	10	0	0	0 T
Wheat	0	10	0	0	0 lb
Barley	0	10	0	0	0 lb
Oats	0	10	0	0	0 lb
Soybeans	0	10	0	0	0 lb

SUM OF MONTHLY FEED NEEDS FROM AMOUNTS FED	
Alfalfa Hay	133 T
Alfalfa Haylage	0 T
Corn Silage	80 T
Corn-Grain	59700 lb
Soybean Oil Meal	24 T
Wheat	0 lb
Barley	0 lb
Oats	0 lb
Soybeans	0 lb
Calf Starter	1 T
Calf Grain	3 T
Milk (Colostrum)	1912 lb

SUM OF ANNUAL FEED NEEDS FROM AMOUNTS FED	
Alfalfa Hay	1252 T
Alfalfa Haylage	0 T
Corn Silage	697 T
Corn-Grain	639400 lb
Soybean Oil Meal	285 T
Wheat	0 lb
Barley	0 lb
Oats	0 lb
Soybeans	0 lb
Calf Starter	9 T
Calf Grain	31 T
Milk (Colostrum)	22940 lb

COMPARISON OF FEED NEED ESTIMATES

Procedure -	DERIVED	ACTUAL
Forage	2588 T	1948 T
Grain	1073960 lb	1289079 lb

CROP PRODUCTION OCCURRENCE none = 0 if yes indicate number of acres

	JAN	FEB	MARCH	APRIL	MAY	JUNE
Alfalfa Hay	0	0	0	0	236	236
Alf. Haylage	0	0	0	0	0	0
Corn Silage	0	0	0	0	0	0
Corn - Grain	0	0	0	0	0	0
Soybeans	0	0	0	0	0	0
Wheat	0	0	0	0	0	0
Barley	0	0	0	0	0	0
Oats	0	0	0	0	0	0

	JULY	AUGUST	SEPT	OCT	NOV	DEC
Alfalfa Hay	236	236	0	0	0	0
Alf. Haylage	0	0	0	0	0	0
Corn Silage	0	0	30	45	45	0
Corn - Grain	0	0	40	72	73	0
Soybeans	0	0	6	0	0	0
Wheat	0	0	0	0	0	0
Barley	0	0	0	0	0	0
Oats	0	0	0	0	0	0

FEED PRODUCED

Crop Type	No. acres	x	average yield/acre	=	total production	total weight
Alfalfa Hay	236		6		1416 T	1416 T
Alfalfa Haylage	0		0		0 T	0 T
Corn Silage	120		23		2760 T	2760 T
Corn - Grain	185		185		34225 bu	1882375 lb
Soybeans	0		0		0 bu	0 lb
Wheat	0		0		0 bu	0 lb
Barley	0		0		0 bu	0 lb
Oats	0		0		0 bu	0 lb

INVENTORY DETERMINATION

Beginning Inventory
+Total Production

Amount on Hand
-Animal Needs

Ending Inventory

ENDING INVENTORY	JAN	FEB	MARCH	APRIL	MAY	JUNE
Calf Starter	1	0	0	-1	-1	-1
Calf Grain	2	0	-3	-3	-3	-3
Alfalfa Hay	117	-15	-133	-133	1283	2567
Alfalfa Haylage	0	0	0	0	0	0
Corn Silage	2420	2340	2260	2181	2101	2021
Corn- Grain	976300	916600	856900	797200	737500	677800
Soybeans	1100	1100	1100	1100	1100	1100
Wheat	0	0	0	0	0	0
Barley	0	0	0	0	0	0
Oats	0	0	0	0	0	0
Soybean Oil Meal	-18	-24	-24	-24	-24	-24

ENDING INVENTORY	JULY	AUGUST	SEPT	OCT	NOV	DEC
Calf Starter	-1	-1	-1	-1	-1	-1
Calf Grain	-3	-3	-3	-3	-3	-3
Alfalfa Hay	3850	5134	5001	4869	4736	4603
Alfalfa Haylage	0	0	0	0	0	0
Corn Silage	1941	1861	2471	3427	4382	4302
Corn- Grain	618100	558400	905700	1578600	2261675	2201975
Soybeans	1100	1100	1100	1100	1100	1100
Wheat	0	0	0	0	0	0
Barley	0	0	0	0	0	0
Oats	0	0	0	0	0	0
Soybean Oil Meal	-24	-24	-24	-24	-24	-24

FEED PURCHASES	JAN	FEB	MARCH	APRIL	MAY	JUNE
Calf Starter	$0	$0	$55	$132	$132	$132
Calf Grain	$0	$24	$387	$387	$387	$387
Alfalfa Hay	$0	$1,061	$9,281	$9,281	$0	$0
Alfalfa Haylage	$0	$0	$0	$0	$0	$0
Corn Silage	$0	$0	$0	$0	$0	$0
Corn- Grain	$0	$0	$0	$0	$0	$0
Soybeans	$0	$0	$0	$0	$0	$0
Wheat	$0	$0	$0	$0	$0	$0
Barley	$0	$0	$0	$0	$0	$0
Oats	$0	$0	$0	$0	$0	$0
Soybean Oil Meal	$2,392	$3,202	$3,202	$3,202	$3,202	$3,202
TOTAL	$2,392	$4,287	$12,924	$13,001	$3,720	$3,720

FEED PURCHASES	JULY	AUGUST	SEPT	OCT	NOV	DEC	TOTAL
Calf Starter	$132	$132	$132	$132	$132	$132	$1,239
Calf Grain	$387	$387	$387	$387	$387	$387	$3,895
Alfalfa Hay	$0	$0	$0	$0	$0	$0	$19,622
Alfalfa Haylage	$0	$0	$0	$0	$0	$0	$0
Corn Silage	$0	$0	$0	$0	$0	$0	$0
Corn- Grain	$0	$0	$0	$0	$0	$0	$0
Soybeans	$0	$0	$0	$0	$0	$0	$0
Wheat	$0	$0	$0	$0	$0	$0	$0
Barley	$0	$0	$0	$0	$0	$0	$0
Oats	$0	$0	$0	$0	$0	$0	$0
Soybean Oil Meal	$3,202	$3,202	$3,202	$3,202	$3,202	$3,202	$37,608
TOTAL	$3,720	$3,720	$3,720	$3,720	$3,720	$3,720	$62,365

RECEIPTS

MILK SALES

Average daily production - 55
price/cwt. - $11.60

170 no. cows 55 avg. daily prodn. = 9350 Lbs. shipped/day
55 daily prodn x $11.60 price/cwt = $638 daily income

no. of days/month x	daily income =	dollars/month
31	$638	$19,778
30	$638	$19,140
28	$638	$17,864

CATTLE SALES

Dairy Calves
calf/cow(cow no.) = 220 x 1/2 = 110 no. bull calves
100 = no. bull calves for sale (subtracting dairy steers for sale)
100 no. bull calves/12 = 8 no. bull calves/month
8 no. bull calves x $50 per calf = $417 monthly

Cull Cows
Cull Rate 33%of no. cows unless otherwise specified
0.33 x 220 no. cows = 73 no. cows culled/12 6 cows culled/month
1400 lbs(assumed avg. wt.) x $0.35 per lb. = $490.00 gross/cow
$490.00 gross/cow x 6 no. cows culled/month = $2,965 monthly

Dairy Steers
no. steers
1000 lb. steers x $0.55 per lb = $550.00 per steer
10 no. steers x $550.00 = total $5,500
$5,500 total/12 = $458 monthly

Dairy Heifers
no. heifers sold =
0 no. heifers x $600.00 = $0 total
$0 total/12 = $0 monthly

FEDERAL PROGRAMS AND TAX REFUNDS

Fed. & State Gas Refund $310

State RL-tax refund $6,900

PATRONAGE DIVIDEND CASH RECEIVED $50

Miscellaneous Income $10,000

EXPENDITURES

Labor Payroll						Total
Worker ID	119	105	104	0	0	0
Wages	$5.90	$3.75	$4.25	$0.00	$0.00	$0.00
Hours/Month	60	30	45	0	0	135
Gross Payroll	$354	$113	$191	$0	$0	$658
Fringe Benefits	$11	$0	$6	$0	$0	$16
FICA	$25	$8	$14	$0	$0	$47
Net Payroll	$339	$104	$172	$0	$0	$615

Manageeent Payroll $5,000 monthly

LIVESTOCK EXPENDITURES

Feed - based on need to purchase as determined
by total feed needs as calculated above

feed type - amount needed x price = total expenditure $

Feed Additives - minerals, salts, buffers

	dollars/ton	x need x no. cows x 365 days			
					$3,103 Total monthly
mineral	$500.00 x	62050 Total lb. needs =	$15,513 total expenditure/12 =		$1,293 monthly
salt	$200.00 x	62050 Total lb. needs =	$6,205 total expenditure/12 =		$517 monthly
buffer	$500.00 x	62050 Total lb. needs =	$15,513 total expenditure/12 =		$1,293 monthly

Bedding

needs	60 lbs of bedding/	1000	lbs of cow/month		
	84 lbs of bedding/		1400 lbs of cow/month		
84 x	12 months	=	1000 lbs bedding/year/cow		
1000 lbs. x	220 no. cows =		220000 total lbs needed	110 Tons needed	
110 Tons x	$50 =	$5,500 total expenditure/12 =		$458.33 monthly	

Livestock Supplies

annual cost per cow $50

$50	x	220 cows =	$11,000 total expenditure/12 =	$916.67 monthly

Breeding Service

based on $/conception - semen use

220 cows	x	$20.00	=	$1,000 total expenditure/12 =	$83.33 monthly

Equity Retain - 0.75 % of sales

31 days	x	0.0075	x	$19,778	=	$148
30 days	x	0.0075	x	$19,140	=	$144
28 days	x	0.0075	x	$17,864	=	$134

Dues - 0.75 % of sales

31 days	x	0.0075	x	$19,778	=	$148
30 days	x	0.0075	x	$19,140	=	$144
28 days	x	0.0075	x	$17,864	=	$134

Milk Hauling - $0.45 per cwt
lbs shipped/day/100 = cwt.
0 x cwt.

31 days	x	0.45	x	94	=	$1,394
30 days	x	0.45	x	94	=	$1,262
28 days	x	0.45	x	94	=	$1,178

ADA & Milk Promotion - $0.15 per cwt
lbs shipped/day/100 = cwt.
0 x cwt.

31 days	x	0.15	x	94	=	$435
30 days	x	0.15	x	94	=	$421
28 days	x	0.15	x	94	=	$393

Whole Herd Buyout - $0.40 per cwt
lbs shipped/day/100 = cwt.
0 x cwt.

31 days	x	0.40	x	94	=	$1,159
30 days	x	0.40	x	94	=	$1,122
28 days	x	0.40	x	94	=	$1,047

Graam-Rudman - $0.12 per cwt
lbs shipped/day/100 = cwt
0 x cwt.

31 days	x	0.12	x	94	=	$348
30 days	x	0.12	x	94	=	$337
28 days	x	0.12	x	94	=	$314

Veterinarian Service
Monthly Clinic - if yes cost/clinic
if no - $60 annual expenditure / cow
$60.00 x no. cows = total expenditure/12 = monthly expenditure
$0.00 220 = $0 total expenditure/12 = $0 monthly

Medicine and Drugs
if included in monthly clinic $0
if not an included expenditure average $15/cow annual
$15.00 x no. cows = total expenditure/12 = monthly expenditure
$15.00 220 = $3,300 total expenditure/12 = $275.00 monthly

CROP EXPENDITURES

Alfalfa Hay			no. acres		
Seeds & Plants	$0.00	x	236	=	$0
Fertilizer	$33.00	x	236	=	$7,788
Herbs. & Insects	$7.25	x	236	=	$1,711
Crop Suppl	$14.10	x	236	=	$3,328
Irrigation Power	$0.00	x	236	=	$0
Lime	$0.00	x	236	=	$0
Alfalfa Haylage			no. acres		
Seeds & Plants	$0.00	x	0	=	$0
Fertilizer	$44.45	x	0	=	$0
Herbs. & Insects	$7.25	x	0	=	$0
Crop Suppl	$0.00	x	0	=	$0
Irrigation Power	$0.00	x	0	=	$0
Lime	$0.00	x	0	=	$0
Corn Silage			no. acres		
Seeds & Plants	$26.60	x	120	=	$3,192
Fertilizer	$54.00	x	120	=	$6,480
Herbs. & Insects	$23.00	x	120	=	$2,760
Crop Suppl	$0.00	x	120	=	$0
Irrigation Power	$0.00	x	120	=	$0
Lime	$7.20	x	120	=	$864
Corn Grain			no. acres		
Seeds & Plants	$19.60	x	185	=	$3,626
Fertilizer	$22.60	x	185	=	$4,181
Herbs. & Insects	$15.20	x	185	=	$2,812
Crop Suppl	$0.00	x	185	=	$0
Irrigation Power	$0.00	x	185	=	$0
Lime	$4.50	x	185	=	$833
Drying Fuel	$17.50	x	185	=	$3,238
Soybeans			no. acres		
Seeds & Plants	$8.40	x	0	=	$0
Fertilizer	$6.80	x	0	=	$0
Herbs. & Insects	$18.15	x	0	=	$0
Crop Suppl	$0.00	x	0	=	$0
Irrigation Power	$0.00	x	0	=	$0
Lime	$4.50	x	0	=	$0

Wheat			no. acres		
Seeds & Plants	$10.80	x	0	=	$0
Fertilizer	$32.80	x	0	=	$0
Herbs. & Insects	$0.85	x	0	=	$0
Crop Suppl	$0.00	x	0	=	$0
Irrigation Power	$0.00	x	0	=	$0
Lime	$4.50	x	0	=	$0

Oats			no. acres		
Seeds & Plants	$8.00	x	0	=	$0
Fertilizer	$8.60	x	0	=	$0
Herbs. & Insects	$0.65	x	0	=	$0
Crop Suppl	$0.00	x	0	=	$0
Irrigation Power	$0.00	x	0	=	$0
Lime	$4.50	x	0	=	$0

Barley			no. acres		
Seeds & Plants	$13.00	x	0	=	$0
Fertilizer	$18.10	x	0	=	$0
Herbs. & Insects	$0.65	x	0	=	$0
Crop Suppl	$0.00	x	0	=	$0
Irrigation Power	$0.00	x	0	=	$0
Lime	$4.50	x	0	=	$0

TOTAL CROP EXPENDITURES	
Seeds & Plants	$6,818
Fertilizer	$18,449
Herbs & Insects	$7,283
Crop Suppl	$3,328
Irrigation Power	$0
Lime	$1,697
Drying Fuel	$3,238

MACHINERY & FARM EXPENDITURES

Equipment Repair						
Dairy cow & replacement	59 x no. cows	$58.00	x	220	=	$12,760
Alfalfa Hay	31 x no. acres	$30.90	x	236	=	$7,292
Alfalfa Haylage	32 x no. acres	$32.90	x	0	=	$0
Corn Silage	22 x no. acres	$22.00	x	120	=	$2,640
Corn Grain	18 x no. acres	$18.00	x	185	=	$3,330
Soybeans	16 x no. acres	$16.00	x	0	=	$0
Wheat	16 x no. acres	$16.00	x	0	=	$0
Barley	16 x no. acres	$16.00	x	0	=	$0
Oats	16 x no. acres	$16.00	x	0	=	$0
	total expenditure/12 = monthly expenditure					$26,022
					monthly =	$2,169

Machinery Leased						
is there machinery	if yes -	cost =	$0.00			
Gasoline & Fuel						
Dairy cow & replacement	11 x no. cows	$10.60	x	220	=	$2,332
Alfalfa Hay	11 x no. acres	$10.70	x	236	=	$2,585
Alfalfa Haylage	18 x no. acres	$18.35	x	0	=	$0
Corn Silage	11 x no. acres	$11.00	x	120	=	$1,320
Corn Grain	10 x no. acres	$9.90	x	185	=	$1,832
Soybeans	9 x no. acres	$9.00	x	0	=	$0
Wheat	7 x no. acres	$7.00	x	0	=	$0
Barley	7 x no. acres	$6.50	x	0	=	$0
Oats	7 x no. acres	$6.90	x	0	=	$0
	total expenditure/12 = monthly expenditure					$8,009
					monthly =	$667
Building & Improvement Repair						
Dairy cow & replacement	11 x no. cows	$11.00	x	220	=	$2,420
Alfalfa Hay	2 x no. acres	$2.00	x	236	=	$472
Alfalfa Haylage	4 x no. acres	$3.50	x	0	=	$0
Corn Silage	4 x no. acres	$3.50	x	120	=	$420
Corn Grain	3 x no. acres	$2.50	x	185	=	$463
Soybeans	2 x no. acres	$1.50	x	0	=	$0
Wheat	2 x no. acres	$1.50	x	0	=	$0
Barley	2 x no. acres	$1.50	x	0	=	$0
Oats	2 x no. acres	$1.50	x	0	=	$0
	total expenditure/12 = monthly expenditure					$3,775
					monthly =	$315

Utilities						
Dairy cow & replacement	61 x no. cows	$60.50	x	220	=	$13,310
Alfalfa Hay	2 x no. acres	$1.50	x	236	=	$354
Alfalfa Haylage	2 x no. acres	$1.50	x	0	=	$0
Corn Silage	6 x no. acres	$5.50	x	120	=	$660
Corn Grain	3 x no. acres	$2.50	x	185	=	$463
Soybeans	2 x no. acres	$1.50	x	0	=	$0
Wheat	2 x no. acres	$1.50	x	0	=	$0
Barley	2 x no. acres	$1.50	x	0	=	$0
Oats	2 x no. acres	$1.50	x	0	=	$0
	total expenditure/12 = monthly expenditure					$14,787
						monthly = $1,232

Interest
based on loan schedules

LOAN REPAYMENT SCHEDULE

Interest and Principal Calculations:

Person or Firm owed	Term	Bal. Owed	Rate	Payment	Interest	Principal	Monthly Pmt	Total Pmt
PCA	5	$35,000	0.12	$9,709	$4,200	$5,509	$809	$9,709
BANK	2	$5,000	0.10	$2,881	$500	$2,381	$240	$2,381
	0	$0	0.00	$0	$0	$0	$0	$0
	0	$0	0.00	$0	$0	$0	$0	$0
	0	$0	0.00	$0	$0	$0	$0	$0
	0	$0	0.00	$0	$0	$0	$0	$0
				$12,590	$4,700	$7,890	$1,049	$12,590

Insurance $5,380

Miscellaneous Expenditures $5,000

ANNUAL NET CASH FLOW SUMMARY

	JAN	FEB	MARCH	APRIL	MAY	JUNE
RECEIPTS						
MILK SALES	$19,778	$17,864	$19,778	$19,140	$19,778	$19,140
CATTLE SALES						
Dairy Calves	$417	$417	$417	$417	$417	$417
Cull Cows	$0	$0	$0	$0	$0	$0
Dairy Steers	$458	$458	$458	$458	$458	$458
Dairy Heifers	$0	$0	$0	$0	$0	$0
	$875	$875	$875	$875	$875	$875
FEDERAL PROGRAMS & TAX REFUNDS						
Fed. & State Gas Refund				$310		
State RL tax						$6,900
	$0	$0	$0	$310	$0	$6,900
PATRONAGE DIVIDEND CASH RECEIVED						
MISCELLANEOUS	$833	$833	$833	$833	$833	$833
TOTAL RECEIPTS	$21,486	$19,572	$21,486	$21,158	$21,486	$27,748

	JULY	AUGUST	SEPT	OCT	NOV	DEC	TOTAL
RECEIPTS							
MILK SALES	$19,778	$19,778	$19,140	$19,778	$19,140	$19,778	$232,870
CATTLE SALES							
Dairy Calves	$417	$417	$417	$417	$417	$417	$5,000
Cull Cows	$0	$0	$0	$0	$0	$0	$0
Dairy Steers	$458	$458	$458	$458	$458	$458	$5,500
Dairy Heifers	$0	$0	$0	$0	$0	$0	$0
	$875	$875	$875	$875	$875	$875	$10,500
FEDERAL PROGRAMS & TAX REFUNDS							
Fed. & State Gas Refund							$310
State RL tax							$6,900
	$0	$0	$0	$0	$0	$0	$7,210
PATRONAGE DIVIDEND CASH RECEIVED						$50	$50
MISCELLANEOUS	$833	$833	$833	$833	$833	$833	$10,000
TOTAL RECEIPTS	$21,486	$21,486	$20,848	$21,486	$20,848	$21,536	$260,630

EXPENDITURES	JAN	FEB	MARCH	APRIL	MAY	JUNE
Net payroll	$616	$616	$616	$616	$616	$616
FICA	$47	$47	$47	$47	$47	$47
Fringe Benefits	$16	$16	$16	$16	$16	$16
Mgt. Payroll	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
	$5,679	$5,679	$5,679	$5,679	$5,679	$5,679

LIVESTOCK EXPENDITURES

Feed	$2,392	$4,287	$12,924	$13,001	$3,720	$3,720
Feed Additives	$3,103	$3,103	$3,103	$3,103	$3,103	$3,103
Bedding	$458	$458	$458	$458	$458	$458
Livestock Suppl.	$917	$917	$917	$917	$917	$917
Breeding Service	$83	$83	$83	$83	$83	$83
Equity Retain	$148	$134	$148	$144	$148	$144
Dues	$148	$134	$148	$144	$148	$144
Milk Hauling	$1,304	$1,178	$1,304	$1,262	$1,304	$1,262
ADA & Milk Prom.	$435	$393	$435	$421	$435	$421
Whole Herd Buyout					$1,159	$1,122
Gramm-Rudman					$348	$337
Livestock Mrkting	$105	$105	$105	$105	$105	$105
Vet. Services	$850	$850	$850	$850	$850	$950
Medicine & Drugs	$275	$275	$275	$275	$275	$275
	$10,218	$11,916	$20,751	$20,762	$13,054	$12,940

CROP EXPENDITURES	JAN	FEB	MARCH	APRIL	MAY	JUNE
Seeds & Plants		$1,364	$1,364	$1,364	$1,364	$1,364
Fertilizer		$3,690	$3,690	$3,690	$3,690	$3,690
Herbs & Insects		$1,457	$1,457	$1,457	$1,457	$1,457
Crop Suppl		$666	$666	$666	$666	$666
Irrigation Power		$0	$0	$0	$0	$0
Lime		$339	$339	$339	$339	$339
Drying Fuel		$648	$648	$648	$648	$648
	$0	$8,162	$8,162	$8,162	$8,162	$8,162

EXPENDITURES	JULY	AUGUST	SEPT	OCT	NOV	DEC	TOTAL
Net payroll	$616	$616	$616	$616	$616	$616	$7,387
FICA	$47	$47	$47	$47	$47	$47	$564
Fringe Benefits	$16	$16	$16	$16	$16	$16	$196
Mgt. Payroll	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$60,000
	$5,679	$5,679	$5,679	$5,679	$5,679	$5,679	$68,148

LIVESTOCK EXPENDITURES

Feed	$3,720	$3,720	$3,720	$3,720	$3,720	$3,720	$62,365
Feed Additives	$3,103	$3,103	$3,103	$3,103	$3,103	$3,103	$37,230
Bedding	$458	$458	$458	$458	$458	$458	$5,500
Livestock Suppl.	$917	$917	$917	$917	$917	$917	$11,000
Breeding Service	$83	$83	$83	$83	$83	$83	$1,000
Equity Retain	$148	$148	$144	$148	$144	$148	$1,747
Dues	$148	$148	$144	$148	$144	$148	$1,747
Milk Hauling	$1,304	$1,304	$1,262	$1,304	$1,262	$1,304	$15,357
ADA & Milk Prom.	$435	$435	$421	$435	$421	$435	$5,119
Whole Herd Buyout	$1,159	$1,159	$1,122	$1,159			$6,382
Gramm-Rudman	$348	$348	$337	$348			$2,064
Livestock Mrkting	$105	$105	$105	$105	$105	$105	$1,260
Vet. Services	$850	$850	$850	$850	$850	$850	$10,200
Medicine & Drugs	$275	$275	$275	$275	$275	$275	$3,300
	$13,054	$13,054	$12,940	$13,054	$11,481	$11,547	$164,771

CROP EXPENDITURES	JULY	AUGUST	SEPT	OCT	NOV	DEC	TOTAL
Seeds & Plants							$6,819
Fertilizer							$18,449
Herbs & Insects							$7,283
Crop Suppl							$3,328
Irrigation Power							$0
Lime							$1,697
Drying Fuel							$3,238
	$0	$0	$0	$0	$0	$0	$40,812

MACHINERY & FARM EXPENDITURES						
Equipment Repair	$2,169	$2,169	$2,169	$2,169	$2,169	$2,169
Mach. Leased	$0	$0	$0	$0	$0	$0
Land Rent	$0	$0	$0	$0	$0	$0
Gasoline & Fuel	$667	$667	$667	$667	$667	$667
Bldg. & Imp. Rpr.	$315	$315	$315	$315	$315	$315
Utilities	$1,232	$1,232	$1,232	$1,232	$1,232	$1,232
Principal	$658	$658	$658	$658	$658	$658
Interest	$392	$392	$392	$392	$392	$392
Insurance	$448	$448	$448	$448	$448	$448
Miscellaneous	$417	$417	$417	$417	$417	$417
	$6,297	$6,297	$6,297	$6,297	$6,297	$6,297
TOTAL EXPENDITURES	$22,194	$32,055	$40,889	$40,900	$33,192	$33,078
NET CASH FLOW	($708)	($12,482)	($19,402)	($19,742)	$11,706	($5,330)
OTHER ADJUSTMENTS						
ADJUSTED NET CASH FLOW	($708)	($12,482)	($19,402)	($19,742)	$11,706	($5,330)

MACHINERY & FARM EXPENDITURES							
Equipment Repair	$2,169	$2,169	$2,169	$2,169	$2,169	$2,169	$26,022
Mach. Leased	$0	$0	$0	$0	$0	$0	$0
Land Rent	$0	$0	$0	$0	$0	$45	$45
Gasoline & Fuel	$667	$667	$667	$667	$667	$667	$8,009
Bldg. & Imp. Rpr.	$315	$315	$315	$315	$315	$315	$3,775
Utilities	$1,232	$1,232	$1,232	$1,232	$1,232	$1,232	$14,787
Principal	$658	$658	$658	$658	$658	$658	$7,890
Interest	$392	$392	$392	$392	$392	$392	$4,700
Insurance	$448	$448	$448	$448	$448	$448	$5,380
Miscellaneous	$417	$417	$417	$417	$417	$417	$5,000
	$6,297	$6,297	$6,297	$6,297	$6,297	$6,342	$75,607
TOTAL EXPENDITURES	$25,030	$25,030	$24,916	$25,030	$23,457	$23,568	$349,338
NET CASH FLOW	($3,544)	($3,544)	($4,067)	($3,544)	($2,609)	($2,031)	($88,708)
OTHER ADJUSTMENTS							
ADJUSTED NET CASH FLOW	($3,544)	($3,544)	($4,067)	($3,544)	($2,609)	($2,031)	($88,708)

APPENDIX B

```
ROW 1
C1: Dairy Enterprise Cash Flow
L1: /ppra1..h43~agpq

ROW 3
A3: Menu of Macros to perform functions of this model
L3: {goto}a46~

ROW 4
A4: To start ALT-S to print directions

ROW 5
L5: {goto}i53~

ROW 6
A6: Data Entry

ROW 7
L7: {goto}a153~

ROW 8
A8: ALT-D
B8: start at row 46 and enter data where asked for until row 151

ROW 9
B9: To move down the rows use the down arrow key
L9: {goto}r194~

ROW 11
A11: ALT-M
B11: Enter, starting in cell M57, the chosen market values for
L11: {goto}a197~

ROW 12
B12: this model

ROW 14
A14: ALT-A
B14: Choose the selected values from the ESTIMATED FEED

ROW 15
B15: NEEDS table. Use the arrow key to move around the table
L15: {goto}e562~

ROW 16
B16: enter chosen values for FORAGE starting in cell

ROW 17
B17: cell i178

ROW 18
B18: Enter chosen values for GRAIN starting in cell i175
     until
J18: \p
```

```
K18:/ppra46..o94~agp

ROW 19
B19: cell 1178
K19: ra95..o151~agp

ROW 2Ø
B2Ø: Enter values for feed additives in cell k188-k19Ø
K2Ø: ra153..o196~agp

ROW 21
B21: Enter the proper percent of ration being fed values in
K21: rr194..ad3Ø1~agp

ROW 22
B22: cells e187-e195
K22: ra 197..o257~agp

ROW 23
B23: These values are based on what the user is currently
     feeding
K23: ra26Ø..o313~agp

ROW 24
K23: ra317..o365~agp

ROW 25
A25: ALT-B
B25: Starting in cell u184 until cell u273 enter the amounts
K25: ra366..o418~agp

ROW 26
B26: being fed daily to each of the groups of the
     appropriate
K26: ra419..o477~agp

ROW 27
B27: feeds
K27: ra478..o53Ø~agp

ROW 29
A29: ALT-C
B29: Enter, under the appropriate months and by the
     appropriate
K29: ra586..o646~agp

ROW 3Ø
B3Ø: crop, the number of acres to be harvested that month
K3Ø: ra647..686~agpq

ROW 33
A33: ALT-L
B33: Enter loan data for up to six loans

ROW 34
```

B34: enter data in columns:

ROW 35
B35: Firm owed
E35: E

ROW 36
B36: Term of loan
E36: F

ROW 37
B37: Balance of loan owed
E37: G

ROW 38
B38: Rate of laon
E38: H

ROW 40
A40: Now use the F9 key to have the model perform the cash flow calculations

ROW 42
A42: ALT-P
B42: Print results after calculations have been performed

ROW 46
A46: DAIRY ENTERPRISE CASH FLOW

ROW 48
A48: FARM NAME:

ROW 50
A50: DATE:

ROW 53
A53: RECEIPTS INFORMATION
J53: MARKET ASSUMPTIONS

ROW 54
J54: Based on Telfarm guidelines for

ROW 55
A55: LIVESTOCK INFORMATION
J55: Inventory Assets for 12/31/86

ROW 57
A57: Number of cows
D57: 0
E57: Milking
F57: 0
G57: dry
H57: 0
I57: Livestock
K57: Milk Pirce

M57: $11.60
N57: per cwt.

ROW 58
B58: heifers 1-2 yr.
D58: 0
K58: Dairy Calves
M58: $58.00
N58: per calf

ROW 59
B59: heifers <1 yr
D59: 0
K59: Cull Cows
M59: $0.35
N59: per lb

ROW 60
B60: steers
D60: 0
K60: Dairy Steers
M60: $0.55
N60: per lb

ROW 61
K61: Dairy Heifers
M61: $600.00
M61: per head

ROW 62
A62: Avg. Daily Milk Prodn
D62: 0
I62: Crops
K62: Alfalfa Hay
M62: $70.00
N62: per ton

ROW 63
K63: Alfalfa Haylage
M63: $37.00
N63: per ton

ROW 64
A64: Dairy Steers sold? number-
D64: 0
K64: Corn Silage
M64: $16.00
N64: per ton

ROW 65
K65: Corn Silage
M65: $1.40
N65: per bu

ROW 66

A66: Dairy Heifers sold? number-
D66: Ø
K66: Soybeans
M66: $4.7Ø
N66: per bu

ROW 67
K67: Wheat
M67: $2.6Ø
N67: per bu

ROW 68
K68: Barley
M68: $1.2Ø
N68: per bu

ROW 69
K69: Oats
M69: $1.ØØ
N69: per bu

ROW 7Ø
I7Ø: Feed Additives:
K7Ø: Calf Starter
M7Ø: $17Ø.ØØ
N69: per ton

ROW 71:
A71: FEDERAL PROGRAMS & TAX REFUNDS
K71: Soybean Meal
M71: $135.ØØ
N71: per ton

ROW 72
K72: Minerals
M72: $5ØØ.ØØ
N72: per ton

ROW 73
A73: Fed & State Gas Refund
E73: $Ø
K73: Salt
M73: $2ØØ.ØØ
N73: per ton

ROW 74
A74: State RL-tax refund
E74: $Ø
K74: Buffers
M74: $5ØØ.ØØ
N74: per ton

ROW 75
K75: Calf Grain
M75: $15Ø.ØØ

N75: per ton

ROW 76
A76: PATRONAGE DIVIDEND CASH RECEIVED
E76: $Ø
I76: Milk Check Deductions:

ROW 77
K77: Equity Retain
M77: Ø.75
N77: %

ROW 78
A78: Miscellaneous Income
E78: $Ø
K78: Dues
M78: Ø.75
N78: %

ROW 79
K79: Milk Hauling
M79: $Ø.45
N79: per cwt

ROW 8Ø
K8Ø: ADA & Milk Prom.
M8Ø: $Ø.15
N8Ø: per cwt

ROW 81
A81: EXPENDITURE INFORMATION
K81: Whole Herd Buyout
M81: $Ø.4Ø
N81: per cwt

ROW 82
K82: GRAMM-RUDMAN
M82: $Ø.12
N82: per cwt

ROW 83
A83: PAYROLL INFORMATION

ROW 85
A85: Worker ID
D85-M85: Ø

ROW 87
A87: Wages
D87-M87: $Ø.ØØ

ROW 89
A89: Hour/month
D89-M89: Ø

Row 91
A91: Fringe Benefits %
D91-M91: Ø%

ROW 93
A93: Management Payroll
D93: $Ø

ROW 95
A95: LIVESTOCK EXPENDITURE

ROW 97:
A97: Crop Information

ROW 99
A99: Crop Types - indicate total acreage

ROW 1ØØ
B1ØØ: Alfalfa Hay
D1ØØ: Ø

ROW 1Ø1
B1Ø1: Alfalfa Haylage
D1Ø1: Ø

ROW 1Ø2
B1Ø2: Corn Silage
D1Ø2: Ø

ROW 1Ø3
B1Ø3: Corn - Grain
D1Ø3 : Ø

ROW 1Ø4
B1Ø4: Soybeans
D1Ø4: Ø

ROW 1Ø5
B1Ø5: Wheat
D1Ø5: Ø

ROW 1Ø6
B1Ø6: Barley
D1Ø6: Ø

ROW 1Ø7
B1Ø7: Oats
D1Ø7: Ø

ROW 1Ø9
A1Ø9: Average Yield

ROW 11Ø:
B11Ø: Alfalfa Hay
D11Ø: Ø

E11Ø: T/acre

ROW 111
B111: Alfalfa Haylage
D111: Ø
E111: T/acre

ROW 112
B112: Corn Silage
D112: Ø
E112: bu/acre

ROW 113
B113: Corn Grain
D113: Ø
E113: bu/acre

ROW 114
B114: Soybeans
D114: Ø
E114: bu/acre

ROW 115
B115: Wheat
D115: Ø
E115: bu/acre

ROW 116
B116: Barley
D116: Ø
E116: bu/acre

ROW 117
B117: Oats
D117: Ø
E117: bu/acre

ROW 118:
F118: APPROXIMATE WEIGHTS OF FEEDS & GRAINS

ROW 119
A119: Inventory at start up

ROW 12Ø
B12Ø: Alfalfa Hay
D12Ø: Ø
E12Ø: T

ROW 121:
B121: Alfalfa Haylage
D121: Ø
E121: T

ROW 122
B122: Corn Silage

D122: Ø
E122: T

ROW 123
B123: Corn Grain
D123: Ø
E123: bu
F123: Corn
G123: 56
H123: lb/bu
I123: +d123*56
J123: lb

ROW 124
B124: Soybeans
D124: Ø
e124: bu
F124: Soybeans
G124: 55
H124: lb/bu
I124: +d124*55
J124: lb

ROW 125
B125: Wheat
D125: Ø
E125: bu
F125: Wheat
G125: 6Ø
H125: lb/bu
I125: +d125*6Ø
J125: lb

ROW 126
D126: Barley
D126: Ø
E126: bu
F126: Barley
G126: 48
H126: lb/bu
I126: +d126*48
J126: lb

ROW 127
B127: Oats
D127: Ø
E127: bu
F127: Oats
G127: 32
H127: lb/bu
I127: +d127*32
J127: lb

ROW128
B128: Soybean Meal

D128: Ø
E128: T

ROW 129
B129: Calf Starter
D129: Ø
E129: T

ROW 13Ø
B13Ø: Calf Grain
D13Ø: Ø
E13Ø: T

ROW 132
A13Ø: Livestock Marketing
D132: Ø
E132: % of sales

ROW 134
A134: Bedding Price
D134: $Ø.ØØ per ton
E134: per ton

ROW 136
A136: Semen - $/conception
D136: $Ø.ØØ

ROW 138
A138: Veterinarian Clinic

ROW 139
B139: if yes. fee?
D139: $Ø.ØØ

ROW 14Ø
B14Ø: does this include medicine and drugs
F14Ø: no=2
G14Ø: yes=1
H14Ø: Ø

ROW 143:
A143: MACHINERY EXPENDITURES

ROW 146
A146: Machinery Leased
D146: $Ø

ROW 148
A148: FARM EXPENDITURES

ROW 149
A149: Land Rent
D149: $Ø

ROW 15Ø

A15Ø: Insurance
D15Ø: $Ø

ROW 151
A151: Miscelaneous Expenses
D151: $Ø

ROW 153
A153: DERIVED FEED NEEDS

ROW 154
A154: ESTIMATED FEED NEEDS
G154: Forage Quality

ROW 156
A156: Milk Production
D156: DM
F156: LOW
H156: MED
J156: HIGH

ROW 157
A157: per cow
D157: consumed
F157: Forage
G157: Grain
H157: Forage
I157: Grain
J157: Forage
K157: Grain

ROW 159
A159: lb/yr
B159: lb/day
D159: lb/cow/day
F159: T DM
G159: lb DM
H159: T DM
I159: lb DM
J159: T DM
K159: lb DM

ROW 161
A161: 2Ø,ØØØ
B161: 66
D162: 47
F161: 4.7Ø
G161: 73ØØ
H161: 5.1Ø
I161: 66ØØ
J161: 5.3Ø
K161: 62ØØ

ROW 162
A162: 18,ØØØ

B162: 6Ø
D162: 45
F162: 4.7Ø
G162: 65ØØ
H162: 4.9Ø
I162: 65ØØ
J162: 5.1Ø
K162: 6ØØØ

ROW 163
A163: 16,ØØØ
B163: 52
D163: 43
F163: 4.7Ø
G163: 62ØØ
H163: 4.9Ø
I163: 57ØØ
J163: 5.1Ø
K163: 54ØØ

ROW 164
A164: 14,ØØØ
B164: 46
D164: 2Ø
F164: 4.6Ø
G164: 57ØØ
H164: 4.9Ø
I164: 52ØØ
J164: 5.2Ø
K164: 46ØØ

ROW 165
A165: Heifers 1-2 yr.
D165: 2Ø
F165: 3.9Ø
G165: 2ØØ
H165: 3.8Ø
I165: 1ØØ
J165: 3.6Ø
K165: 1ØØ

ROW 166
A166: Heifers <1 yr.
F166: 1.4Ø
G166: 13ØØ
H166: 1.5Ø
I166: 1Ø5Ø
J166: 1.6Ø
K166: 9ØØ

ROW 168
B168: includes feeding and storage losses

ROW 17Ø
A17Ø: Total Needs

```
F17Ø: Forage Needs
J17Ø: Grain Needs

ROW 171
A171: Model will automatically enter values

ROW 172
A172: for steers

ROW 173
D173: No. of head
F173: T DM/head
G173: T/yr
I173: lb. DM/head
K173: T/yr

ROW 175
A175: Cows (milking and dry)
D175: +d57
F175: Ø
G175: +d175 * f175
I175: Ø
K175: ((+d175* i175)/2ØØØ)

ROW 176
A176: Heifers 1-2 yr.
D176: +d58
F176: Ø
G176: +d176*f176
I176: Ø
K176: ((+d176*i176)/2ØØØ)

ROW 177
A177: Heifers <1 yr.
D177: +d59
F177: Ø
G177: +d177*f177
I177: Ø
K177: ((+d177*i177)/2ØØØ)

ROW 178
A178: Steers
D178: +d6Ø
F178: +f176
G178: +d178*f178
I178: +i176
K178: ((+d178*i178)/2ØØØ)

ROW 18Ø
A18Ø: Sum of needs for

ROW 181
A181: the herd

ROW 182
```

```
G182: @sum (g175..g178)
H182: T
K182: @sum (k175..k178)
L182: T

ROW 185:
A185: FEED TYPE AS % OF TOTAL RATION
F185: total
J185: FEED ADDITIVES

ROW 186
E186: percent
F186: amount
G186: DM
H186: As Fed
J186: enter the amount of each additive fed/day

ROW 187
A187: Hay % of total forage
E187: Ø
F187: +g182
G187: (+e187/1ØØ)*f187
H187: +g187/.87
I187: T

ROW 188
A188: Haylage % of total forage
E188: Ø
F188: +g182
G188: (+e188/1ØØ)*f188
H188: +g188/.55
I188: T
J188Ø: minerals
K188: Ø
L188: lb.

ROW 189
A189: Corn Silage % of total forage
E189: Ø
F189: +g182
G189: (+e189/1ØØ)*f189
H189: +g189/.35
I189: T
J189: salt
K189: Ø
L189: lb.

ROW 19Ø
A19Ø: Corn Silage % of total forage
E19Ø: Ø
F19Ø: +g182
G19Ø: (+e19Ø/1ØØ)*f19Ø
H19Ø: +g19Ø/.35
I19Ø: T
J19Ø: buffer
```

```
K190: Ø
L190: lb.

ROW 192
A192: Corn % of total grain
E192: Ø
F192: +k182
G192: (+e192/1ØØ)*f192
H192: +g192/.7
I192: T

ROW 193
A193: Protein Suppl. % of total grain
E193: Ø
F193: +k182
G193: (+e193/1ØØ)*f193
H193: +g193/.89
I193: T

ROW 194
A194: Other % of total grain
E194: Ø
F194: +k182
G194: (+e194/1ØØ)*f194
H194: +g194/.89
I194: T
R194: Actual use of feed in ration

ROW 195
A195: Other % of total grain
E195: Ø
F195: +k182
G195: (+e194/1ØØ)*f194
H195: +g194/.89
I195: T
R195: Use of feed ration

ROW 196
U196: lb/cow/
V196: No. of
W196: Daily
X196: Total
Y196: Total

ROW 197
A1976: CROP PRODUCTION OCCURRENCE
D197: none = Ø
E197: if yes indicate number of acres
U197: day
V197: milking
W197: feed
X197: monthly
Y197: annual
```

ROW 198
C198: JAN
D198: FEB
E198: MARCH
F198: APRIL
G198: MAY
H198: JUNE
I198: JULY
J198: AUGUST
K198: SEPT
L198: OCT
M198: NOV
N198: DEC
V198: cows
W198: needs lb
X198: needs
Y198: needs

ROW 199
A199: Alfalfa Hay
C199-N199: 0

ROW 200:
A200: Alfalfa Haylage
C200-N200: 0

ROW 201
A201: Corn Silage
C021-N201: 0
S201: Feeds fed milking

ROW 202
A202: Corn-Grain
C202-N202: 0
S202: cows, avg.

ROW 203
A203: Soybeans
C203-N203: 0

ROW 204
A204: Wheat
C204-N204: 0
S204: Alfalfa Hay
U204: 0
V204: +f57
W204: +u204*v204
X204: (+w204/2000)*31
Y204: +x204*12
Z204: T

ROW 205
A205: Barley
C205-N205: 0
S205: Alfalfa Haylage

```
U205: 0
V205: +f57
W205: +u205*v205
X205: (+w205/2000)*31
Y205: +x205*12
Z205: T

ROW 206
A206: Oats
C206-N206: 0
S206: Corn Silage
U206: 0
V206: +f57
W206: +u206*v206
X206: (+w206/2000)*31
Y206: +x206*12
Z206: T

ROW 207
S207: Corn Grain
U207: 0
V207: +f57
W207: +u207*v207
X207: +w207*31
Y207: +x207*12
Z207: lb.

ROW 208
S208: Soybean Oil Meal
U208: 0
V208: +f57
W208: +u208*v208
X208: +w208*31
Y208: +x208*12
Z208: T

ROW 209
S209: Wheat
U209: 0
V209: +f57
W209: +u209*v209
X209: +w209*31
Y209: +x209*12
Z209: lb.

ROW 210
A210 : FEED PRODUCED
S210: Barley
U210: 0
V210: +f57
W210: +u210*v210
X210: +w210*31
Y210: +x210*12
Z210: lb.
```

```
ROW 211
A211: Crop Type
C211: No. acres
E211: x
F211: average yield/acre
H211: =
I211: total production
K211: total weight
S211: Oats
U211: Ø
V211: +f57
W211: +u211*v211
X211: +w211*31
Y211: +x211*12
Z211: lb.

ROW 212
A212: Alfalfa Hay
C212: +d1ØØ
F212: +d11Ø
I212: +c212*f212
J212: T
K212: +i212
L212: T
S212: Soybeans
U212: Ø
V212: +f57
W212: +u212*v212
X212: +w212*31
Y212: +x212*12
Z212: lb.

ROW 213
A213: Alfalfa Haylage
C213: +dØ1
F213: +d111
I213: +c213*f213
J213: T
K213: +i213
L213: T

ROW 214
A214: Corn Silage
C214: +d1Ø2
F214: +d112
I214: +c214*f214
J214: T
K214: +i214
L214: T
S214: Feeds needs for

ROW 215
A215: Corn Grain
C215: +d1Ø3
F215: +d113
```

```
I215: +c215*f215
J215: bu
K215: +i215*6Ø
L215: lb
S215: dry cows, avg.
U215: dry period - 6Ø days

ROW 216
A216: Soybeans
C216: +d1Ø4
F216: +d114
I216: +c216*f216
J216: bu
K216: +i216*55
L216: lb

ROW 217
A217: Wheat
C217: +d1Ø5
F217: +d115
I217: +c217*f217
J217: bu
K217: +i217*6Ø
L217: lb
S217: Alfalfa Hay
U217: Ø
V217: +h57
W217: u217*v217
X217: (+w217/2ØØØ)* 6Ø
Y217: +x217
Z217: T

ROW 218
A218: Barley
C218: +d1Ø6
F218: +d116
I218: +c218*f218
J218: bu
K218: +i218*48
L218: lb
S218: Alfalfa Haylage
U218: Ø
V218: +h57
W218: u218*v218
X218: (+w218/2ØØØ)* 6Ø
Y218: +x218
Z218: T

ROW 219
A219: Oats
C219: +d1Ø7
F219: +d117
I219: +c219*f219
J219: bu
K219: +i219*32
```

```
L219: lb
S219: Corn Silage
U219: Ø
V219: +h57
W219: u219*v219
X219: (+w219/2ØØØ)* 6Ø
Y219: +x219
Z219: T

ROW 22Ø
S22Ø: Corn-Grain
U22Ø: Ø
V22Ø: +h57
W22Ø: +u22Ø*v22Ø
X22Ø: +w22Ø*14
Y22Ø: +x22Ø
Z22Ø: lb

ROW 221
A221: INVENTORY DETERMINATION
S221: Soybean Oil Meal
U221: Ø
V221: +h57
W221: +u221*v221
X221: (+w221/2ØØØ)*6Ø
Y221: +x221
Z221: T

ROW 222
S222: Wheat
U222: Ø
V222: +h57
W222: +u222*v222
X222: +w222*6Ø
Y222: +x222
Z222: lb

ROW 223
B223: Beginning Inventory
S223: Barley
U223: Ø
V223: +h57
W223: +u223*v223
X223: +w223*6Ø
Y223: +x223
Z223: lb

ROW 224
A224: +
B224: Total Production
S224: Oats
U224: Ø
V224: +h57
W224: +u224*v224
X224: +w224*6Ø
```

```
Y224: +x224
Z224: lb

ROW 225
S225: Soybeans
U225: Ø
V225: +h57
W225: +u225*v225
X225: +w225*6Ø
Y225: +x225
Z225: lb

ROW 226
B226: Amount on Hand

ROW 227
B227: Animal Needs

ROW 228
U228: avg. lb/
V228: No.
W228: Daily
X228: Total
Y228: Total

ROW 229
B229: Ending Inventory
U229: day/
V229: heifers
W229: feed
X229: monthly
Y229: annual

ROW 23Ø
A23Ø: INVENTORY TIMING TABLE
U23Ø: heifer
W23Ø: needs lb
X23Ø: needs
Y23Ø: needs

ROW 231
C231: JAN
D231: FEB
E231: MARCH
F231: APRIL
G231: MAY
H231: JUNE
I231: JULY
J231: AUGUST
K231: SEPT
L231: OCT
M231: NOV
N231: DEC

ROW 232
```

```
A232: Calf Starter
C232: +d129-v290
D232: @IF(c232<Ø,Ø,c232)-v290
E232: @IF(d232<Ø,Ø,d232)-v290
F232: @IF(e232<Ø,Ø,e232)-v290
G232: @IF(f232<Ø,Ø,f232)-v290
H232: @IF(g232<Ø,Ø,g232)-v290
I232: @IF(h232<Ø,Ø,h232)-v290
J232: @IF(i232<Ø,Ø,i232)-v290
K232: @IF(j232<Ø,Ø,j232)-v290
L232: @IF(k232<Ø,Ø,k232)-v290
M232: @IF(l232<Ø,Ø,l232)-v290
N232: @IF(m232<Ø,Ø,m232)-v290

ROW 233
A233: Calf Grain
C233: +d13Ø-v291
D233: @IF(c233<Ø,Ø,c233)-v291
E233: @IF(d233<Ø,Ø,d233)-v291
F233: @IF(e233<Ø,Ø,e233)-v291
G233: @IF(f233<Ø,Ø,f233)-v291
H233: @IF(g233<Ø,Ø,g233)-v291
I233: @IF(h233<Ø,Ø,h233)-v291
J233: @IF(i233<Ø,Ø,i233)-v291
K233: @IF(j233<Ø,Ø,j233)-v291
L233: @IF(k233<Ø,Ø,k233)-v291
M233: @IF(l233<Ø,Ø,l233)-v291
N233: @IF(m233<Ø,Ø,m233)-v291
S233: Feeds for

ROW 234
A234: Alfalfa Hay
C234: (+d12Ø+@IF(c199=Ø,Ø,c199*d11Ø)-v281)
D234: (@IF(c234<Ø,Ø,c234)+@IF(d199=Ø,Ø,d199*d11Ø)-v281
E234: (@IF(d234<Ø,Ø,d234)+@IF(e199=Ø,Ø,e199*d11Ø)-v281
F234: (@IF(e234<Ø,Ø,e234)+@IF(f199=Ø,Ø,f199*d11Ø)-v281
G234: (@IF(f234<Ø,Ø,f234)+@IF(g199=Ø,Ø,g199*d11Ø)-v281
H234: (@IF(g234<Ø,Ø,g234)+@IF(h199=Ø,Ø,h199*d11Ø)-v281
I234: (@IF(h234<Ø,Ø,h234)+@IF(i199=Ø,Ø,i199*d11Ø)-v281
J234: (@IF(i234<Ø,Ø,i234)+@IF(j199=Ø,Ø,j199*d11Ø)-v281
K234: (@IF(j234<Ø,Ø,j234)+@IF(k199=Ø,Ø,k199*d11Ø)-v281
L234: (@IF(k234<Ø,Ø,k234)+@IF(l199=Ø,Ø,l199*d11Ø)-v281
M234: (@IF(l234<Ø,Ø,l234)+@IF(m199=Ø,Ø,m199*d11Ø)-v281
N234: (@IF(m234<Ø,Ø,m234)+@IF(n199=Ø,Ø,n199*d11Ø)-v281
S234: heifers 1-2 yr.

ROW 235
A235: Alfalfa Haylage
C235: (+d121+@IF(c2ØØ=Ø,Ø,c2ØØ*d111)-v282)
D235: (@IF(c235<Ø,Ø,c235)+@IF(d2ØØ=Ø,Ø,d2ØØ*d111)-v282
E235: (@IF(d235<Ø,Ø,d235)+@IF(e2ØØ=Ø,Ø,e2ØØ*d111)-v282
F235: (@IF(e235<Ø,Ø,e235)+@IF(f2ØØ=Ø,Ø,f2ØØ*d111)-v282
G235: (@IF(f235<Ø,Ø,f235)+@IF(g2ØØ=Ø,Ø,g2ØØ*d111)-v282
H235: (@IF(g235<Ø,Ø,g235)+@IF(h2ØØ=Ø,Ø,h2ØØ*d111)-v282
I235: (@IF(h235<Ø,Ø,h235)+@IF(i2ØØ=Ø,Ø,i2ØØ*d111)-v282
```

```
J235: (@IF(i235<Ø,Ø,i235)+@IF(j2ØØ=Ø,Ø,j2ØØ*d111)-v282
K235: (@IF(j235<Ø,Ø,j235)+@IF(k2ØØ=Ø,Ø,k2ØØ*d111)-v282
L235: (@IF(k235<Ø,Ø,k235)+@IF(l2ØØ=Ø,Ø,l2ØØ*d111)-v282
M235: (@IF(l235<Ø,Ø,l235)+@IF(m2ØØ=Ø,Ø,m2ØØ*d111)-v282
N235: (@IF(m235<Ø,Ø,m235)+@IF(n2ØØ=Ø,Ø,n2ØØ*d111)-v282

ROW 236
A236: Corn Silage
C236: (+d122+@IF(c2Ø1=Ø,Ø,c2Ø1*d112)-v283)
D236: (@IF(c236<Ø,Ø,c236)+@IF(d2Ø1=Ø,Ø,d2Ø1*d112)-v283
E236: (@IF(d236<Ø,Ø,d236)+@IF(e2Ø1=Ø,Ø,e2Ø1*d112)-v283
F236: (@IF(e236<Ø,Ø,e236)+@IF(f2Ø1=Ø,Ø,f2Ø1*d112)-v283
G236: (@IF(f236<Ø,Ø,f236)+@IF(g2Ø1=Ø,Ø,g2Ø1*d112)-v283
H236: (@IF(g236<Ø,Ø,g236)+@IF(h2Ø1=Ø,Ø,h2Ø1*d112)-v283
I236: (@IF(h236<Ø,Ø,h236)+@IF(i2Ø1=Ø,Ø,i2Ø1*d112)-v283
J236: (@IF(i236<Ø,Ø,i236)+@IF(j2Ø1=Ø,Ø,j2Ø1*d112)-v283
K236: (@IF(j236<Ø,Ø,j236)+@IF(k2Ø1=Ø,Ø,k2Ø1*d112)-v283
L236: (@IF(k236<Ø,Ø,k236)+@IF(l2Ø1=Ø,Ø,l2Ø1*d112)-v283
M236: (@IF(l236<Ø,Ø,l236)+@IF(m2Ø1=Ø,Ø,m2Ø1*d112)-v283
N236: (@IF(m236<Ø,Ø,m236)+@IF(n2Ø1=Ø,Ø,n2Ø1*d112)-v283
S236: Alfalfa Hay
U236: Ø
V236: +d58
W236: +u236*v236
X236: (+w236/2ØØØ)*31
Y236: +x236*12
Z236: T

ROW 237
A237: Corn Grain
C237: (+i123+@IF(c2Ø2=Ø,Ø,c2Ø2*d113*6Ø)-v284)
D237: (@IF(c237<Ø,Ø,c237)+@IF(d2Ø2=Ø,Ø,d2Ø2*d113*6Ø)-v284)
E237: (@IF(d237<Ø,Ø,d237)+@IF(e2Ø2=Ø,Ø,e2Ø2*d113*6Ø)-v284)
F237: (@IF(e237<Ø,Ø,e237)+@IF(f2Ø2=Ø,Ø,f2Ø2*d113*6Ø)-v284)
G237: (@IF(f237<Ø,Ø,f237)+@IF(g2Ø2=Ø,Ø,g2Ø2*d113*6Ø)-v284)
H237: (@IF(g237<Ø,Ø,g237)+@IF(h2Ø2=Ø,Ø,h2Ø2*d113*6Ø)-v284)
I237: (@IF(h237<Ø,Ø,h237)+@IF(i2Ø2=Ø,Ø,i2Ø2*d113*6Ø)-v284)
J237: (@IF(i237<Ø,Ø,i237)+@IF(j2Ø2=Ø,Ø,j2Ø2*d113*6Ø)-v284)
K237: (@IF(j237<Ø,Ø,j237)+@IF(k2Ø2=Ø,Ø,k2Ø2*d113*6Ø)-v284)
L237: (@IF(k237<Ø,Ø,k237)+@IF(l2Ø2=Ø,Ø,l2Ø2*d113*6Ø)-v284)
M237: (@IF(l237<Ø,Ø,l237)+@IF(m2Ø2=Ø,Ø,m2Ø2*d113*6Ø)-v284)
N237: (@IF(m237<Ø,Ø,m237)+@IF(n2Ø2=Ø,Ø,n2Ø2*d113*6Ø)-v284)
S237: Alfalfa Hay
U237: Ø
V237: +d58
W237: +u237*v237
X237: (+w237/2ØØØ)*31
Y237: +x237*12
Z237: T

ROW 238
A238: Soybeans
C238: (+i124+@IF(c2Ø3=Ø,Ø,c2Ø3*d114*55)-v289)
D238: (@IF(c238<Ø,Ø,c238)+@IF(d2Ø3=Ø,Ø,d2Ø3*d114*55)-v289)
E238: (@IF(d238<Ø,Ø,d238)+@IF(e2Ø3=Ø,Ø,e2Ø3*d114*55)-v289)
```

```
F238: (@IF(e238<Ø,Ø,e238)+@IF(f2Ø3=Ø,Ø,f2Ø3*d114*55)-v289)
G238: (@IF(f238<Ø,Ø,f238)+@IF(g2Ø3=Ø,Ø,g2Ø3*d114*55)-v289)
H238: (@IF(g238<Ø,Ø,g238)+@IF(h2Ø3=Ø,Ø,h2Ø3*d114*55)-v289)
I238: (@IF(h238<Ø,Ø,h238)+@IF(i2Ø3=Ø,Ø,i2Ø3*d114*55)-v289)
J238: (@IF(i238<Ø,Ø,i238)+@IF(j2Ø3=Ø,Ø,j2Ø3*d114*55)-v289)
K238: (@IF(j238<Ø,Ø,j238)+@IF(k2Ø3=Ø,Ø,k2Ø3*d114*55)-v289)
L238: (@IF(k238<Ø,Ø,k238)+@IF(l2Ø3=Ø,Ø,l2Ø3*d114*55)-v289)
M238: (@IF(l238<Ø,Ø,l238)+@IF(m2Ø3=Ø,Ø,m2Ø3*d114*55)-v289)
N238: (@IF(m238<Ø,Ø,m238)+@IF(n2Ø3=Ø,Ø,n2Ø3*d114*55)-v289)
S238: Corn Silage
U238: Ø
V238: +d58
W238: +u238*v238
X238: (+w238/2ØØØ)*31
Y238: +x237*12
Z238: T

ROW 239
A239: Wheat
C239: (+i125+@IF(c2Ø4=Ø,Ø,c2Ø4*d115*6Ø)-v286)
D239: (@IF(c239<Ø,Ø,c239)+@IF(d2Ø4=Ø,Ø,d2Ø4*d115*6Ø)-v286)
E239: (@IF(d239<Ø,Ø,d239)+@IF(e2Ø4=Ø,Ø,e2Ø4*d115*6Ø)-v286)
F239: (@IF(e239<Ø,Ø,e239)+@IF(f2Ø4=Ø,Ø,f2Ø4*d115*6Ø)-v286)
G239: (@IF(f239<Ø,Ø,f239)+@IF(g2Ø4=Ø,Ø,g2Ø4*d115*6Ø)-v286)
H239: (@IF(g239<Ø,Ø,g239)+@IF(h2Ø4=Ø,Ø,h2Ø4*d115*6Ø)-v286)
I239: (@IF(h239<Ø,Ø,h239)+@IF(i2Ø4=Ø,Ø,i2Ø4*d115*6Ø)-v286)
J239: (@IF(i239<Ø,Ø,i239)+@IF(j2Ø4=Ø,Ø,j2Ø4*d115*6Ø)-v286)
K239: (@IF(j239<Ø,Ø,j239)+@IF(k2Ø4=Ø,Ø,k2Ø4*d115*6Ø)-v286)
L239: (@IF(k239<Ø,Ø,k239)+@IF(l2Ø4=Ø,Ø,l2Ø4*d115*6Ø)-v286)
M239: (@IF(l239<Ø,Ø,l239)+@IF(m2Ø4=Ø,Ø,m2Ø4*d115*6Ø)-v286)
N239: (@IF(m239<Ø,Ø,m239)+@IF(n2Ø4=Ø,Ø,n2Ø4*d115*6Ø)-v286)
S239: Corn Grain
U239: Ø
V239: +d58
W239: +u239*v239
X239: +w239*31
Y239: +x237*12
Z239: lb

ROW 24Ø
A24Ø: Barley
C24Ø: (+i126+@IF(c2Ø5=Ø,Ø,c2Ø5*d116*48)-v287)
D24Ø: (@IF(c24Ø<Ø,Ø,c24Ø)+@IF(d2Ø5=Ø,Ø,d2Ø5*d116*48)-v287)
E24Ø: (@IF(d24Ø<Ø,Ø,d24Ø)+@IF(e2Ø5=Ø,Ø,e2Ø5*d116*48)-v287)
F24Ø: (@IF(e24Ø<Ø,Ø,e24Ø)+@IF(f2Ø5=Ø,Ø,f2Ø5*d116*48)-v287)
G24Ø: (@IF(f24Ø<Ø,Ø,f24Ø)+@IF(g2Ø5=Ø,Ø,g2Ø5*d116*48)-v287)
H24Ø: (@IF(g24Ø<Ø,Ø,g24Ø)+@IF(h2Ø5=Ø,Ø,h2Ø5*d116*48)-v287)
I24Ø: (@IF(h24Ø<Ø,Ø,h24Ø)+@IF(i2Ø5=Ø,Ø,i2Ø5*d116*48)-v287)
J24Ø: (@IF(i24Ø<Ø,Ø,i24Ø)+@IF(j2Ø5=Ø,Ø,j2Ø5*d116*48)-v287)
K24Ø: (@IF(j24Ø<Ø,Ø,j24Ø)+@IF(k2Ø5=Ø,Ø,k2Ø5*d116*48)-v287)
L24Ø: (@IF(k24Ø<Ø,Ø,k24Ø)+@IF(l2Ø5=Ø,Ø,l2Ø5*d116*48)-v287)
M24Ø: (@IF(l24Ø<Ø,Ø,l24Ø)+@IF(m2Ø5=Ø,Ø,m2Ø5*d116*48)-v287)
N24Ø: (@IF(m24Ø<Ø,Ø,m24Ø)+@IF(n2Ø5=Ø,Ø,n2Ø5*d116*48)-v287)
S24Ø: Soybean Oil Meal
U24Ø: Ø
```

```
V240: +d58
W240: +u240*v240
X240: (+w240/2000)*31
Y240: +x240*12
Z240: T

ROW 241
A241: Oats
C241: (+1127+@IF(c206=0,0,c206*d117*32)-v288)
D241: (@IF(c241<0,0,c241)+@IF(d206=0,0,d206*d117*32)-v288)
E241: (@IF(d241<0,0,d241)+@IF(e206=0,0,e206*d117*32)-v288)
F241: (@IF(e241<0,0,e241)+@IF(f206=0,0,f206*d117*32)-v288)
G241: (@IF(f241<0,0,f241)+@IF(g206=0,0,g206*d117*32)-v288)
H241: (@IF(g241<0,0,g241)+@IF(h206=0,0,h206*d117*32)-v288)
I241: (@IF(h241<0,0,h241)+@IF(i206=0,0,i206*d117*32)-v288)
J241: (@IF(i241<0,0,i241)+@IF(j206=0,0,j206*d117*32)-v288)
K241: (@IF(j241<0,0,j241)+@IF(k206=0,0,k206*d117*32)-v288)
L241: (@IF(k241<0,0,k241)+@IF(l206=0,0,l206*d117*32)-v288)
M241: (@IF(l241<0,0,l241)+@IF(m206=0,0,m206*d117*32)-v288)
N241: (@IF(m241<0,0,m241)+@IF(n206=0,0,n206*d117*32)-v288)
S241: Wheat
U241: 0
V241: +d58
W241: +u241*v241
X241: +w241*31
Y241: +x241*12
Z241: lb

ROW 242
A242: Soybean Oil Meal
C242: +d128-v285
D242: @IF(c242<0,0,c242)-v285
E242: @IF(c242<0,0,c242)-v285
F242: @IF(e241<0,0,e241)-v285
G242: @IF(f241<0,0,f241)-v285
H242: @IF(g242<0,0,g242)-v285
I242: @IF(h242<0,0,h242)-v285
J242: @IF(i242<0,0,i242)-v285
K242: @IF(j242<0,0,j242)-v285
L242: @IF(k242<0,0,k242)-v285
M242: @IF(l242<0,0,l242)-v285
N242: @IF(m242<0,0,m242)-v285
S242: Barley
U242: 0
V242: +d58
W242: +u242*v242
X242: +w242*31
Y242: +x242*12
Z242: lb

ROW 243
S243: Oats
U243: 0
V243: +d58
W243: +u243*v243
```

```
M246: @ABS(@IF(m233<Ø,m233*m75,Ø))
N246: @ABS(@IF(n233<Ø,n233*m75,Ø))
O246: @sum(c246..n246)

ROW 247
A247: Alfalfa Hay
C247: @ABS(@IF(c234<Ø,c234*m62,Ø))
D247: @ABS(@IF(d234<Ø,d234*m62,Ø))
E247: @ABS(@IF(e234<Ø,e234*m62,Ø))
F247: @ABS(@IF(f234<Ø,f234*m62,Ø))
G247: @ABS(@IF(g234<Ø,g234*m62,Ø))
H247: @ABS(@IF(h234<Ø,h234*m62,Ø))
I247: @ABS(@IF(i234<Ø,i234*m62,Ø))
J247: @ABS(@IF(j234<Ø,j234*m62,Ø))
K247: @ABS(@IF(k234<Ø,k234*m62,Ø))
L247: @ABS(@IF(l234<Ø,l234*m62,Ø))
M247: @ABS(@IF(m234<Ø,m234*m62,Ø))
N247: @ABS(@IF(n234<Ø,n234*m62,Ø))
O247: @sum(c247..n247)
U247: avg. lb/
V247: No.
W247: Daily
X247: Total
Y247: Total

ROW 248
A248: Alfalfa Haylage
C248: @ABS(@IF(c235<Ø,c235*m63,Ø))
D248: @ABS(@IF(d235<Ø,d235*m63,Ø))
E248: @ABS(@IF(e235<Ø,e235*m63,Ø))
F248: @ABS(@IF(f235<Ø,f235*m63,Ø))
G248: @ABS(@IF(g235<Ø,g235*m63,Ø))
H248: @ABS(@IF(h235<Ø,h235*m63,Ø))
I248: @ABS(@IF(i235<Ø,i235*m63,Ø))
J248: @ABS(@IF(j235<Ø,j235*m63,Ø))
K248: @ABS(@IF(k235<Ø,k235*m63,Ø))
L248: @ABS(@IF(l235<Ø,l235*m63,Ø))
M248: @ABS(@IF(m235<Ø,m235*m63,Ø))
N248: @ABS(@IF(n235<Ø,n235*m63,Ø))
O248: @sum(c248..n248)
U248: day/
V248: heifers
W248: feed
X248: monthly
Y248: annual

ROW 249
A249: Corn Silage
C249: @ABS(@IF(c236<Ø,c236*m64,Ø))
D249: @ABS(@IF(d236<Ø,d236*m64,Ø))
E249: @ABS(@IF(e236<Ø,e236*m64,Ø))
F249: @ABS(@IF(f236<Ø,f236*m64,Ø))
G249: @ABS(@IF(g236<Ø,g236*m64,Ø))
H249: @ABS(@IF(h236<Ø,h236*m64,Ø))
I249: @ABS(@IF(i236<Ø,i236*m64,Ø))
```

```
X243: +w243*31
Y243: +x243*12
Z243: lb

ROW 244
A244: FEED PURCHASES
C244: JAN
D244: FEB
E244: MARCH
F244: APRIL
G244: MAY
H244: JUNE
I244: JULY
J244: AUGUST
K244: SEPT
L244: OCT
M244: NOV
N244: DEC
O244: TOTAL
S244: Soybeans
U244: @
V244: +d58
W244: +u244*v244
X244: +w244*31
Y244: +x244*12
Z244: lb

ROW 245
A245: Calf Starter
C245: @ABS(@IF(c232<@,c232*m70,@))
D245: @ABS(@IF(d232<@,d232*m70,@))
E245: @ABS(@IF(e232<@,e232*m70,@))
F245: @ABS(@IF(f232<@,f232*m70,@))
G245: @ABS(@IF(g232<@,g232*m70,@))
H245: @ABS(@IF(h232<@,h232*m70,@))
I245: @ABS(@IF(i232<@,i232*m70,@))
J245: @ABS(@IF(j232<@,j232*m70,@))
K245: @ABS(@IF(k232<@,k232*m70,@))
L245: @ABS(@IF(l232<@,l232*m70,@))
M245: @ABS(@IF(m232<@,m232*m70,@))
N245: @ABS(@IF(n232<@,n232*m70,@))
O245: @sum(c245..n245)

ROW 246
A246: Calf Grain
C246: @ABS(@IF(c233<@,c233*m75,@))
D246: @ABS(@IF(d233<@,d233*m75,@))
E246: @ABS(@IF(e233<@,e233*m75,@))
F246: @ABS(@IF(f233<@,f233*m75,@))
G246: @ABS(@IF(g233<@,g233*m75,@))
H246: @ABS(@IF(h233<@,h233*m75,@))
I246: @ABS(@IF(i233<@,i233*m75,@))
J246: @ABS(@IF(j233<@,j233*m75,@))
K246: @ABS(@IF(k233<@,k233*m75,@))
L246: @ABS(@IF(l233<@,l233*m75,@))
```

```
J249: @ABS(@IF(j236<0,j236*m64,0))
K249: @ABS(@IF(k236<0,k236*m64,0))
L249: @ABS(@IF(l236<0,l236*m64,0))
M249: @ABS(@IF(m236<0,m236*m64,0))
N249: @ABS(@IF(n236<0,n236*m64,0))
O249: @sum(c249..n249)
U249: heifer
W249: needs lb
X249: needs
Y249: needs

ROW 250
A250: Corn Grain
C250: @ABS(@IF(c237<0,(+c237/60)*m65,0))
D250: @ABS(@IF(d237<0,(+d237/60)*m65,0))
E250: @ABS(@IF(e237<0,(+e237/60)*m65,0))
F250: @ABS(@IF(f237<0,(+f237/60)*m65,0))
G250: @ABS(@IF(g237<0,(+g237/60)*m65,0))
H250: @ABS(@IF(h237<0,(+h237/60)*m65,0))
I250: @ABS(@IF(i237<0,(+i237/60)*m65,0))
J250: @ABS(@IF(j237<0,(+j237/60)*m65,0))
K250: @ABS(@IF(k237<0,(+k237/60)*m65,0))
L250: @ABS(@IF(l237<0,(+l237/60)*m65,0))
M250: @ABS(@IF(m237<0,(+m237/60)*m65,0))
N250: @ABS(@IF(n237<0,(+n237/60)*m65,0))
O250: @sum(c250..n250)

ROW 251
A251: Soybeans
C251: @ABS(@IF(c238<0,(+c238/55)*m66,0))
D251: @ABS(@IF(d238<0,(+d238/55)*m66,0))
E251: @ABS(@IF(e238<0,(+e238/55)*m66,0))
F251: @ABS(@IF(f238<0,(+f238/55)*m66,0))
G251: @ABS(@IF(g238<0,(+g238/55)*m66,0))
H251: @ABS(@IF(h238<0,(+h238/55)*m66,0))
I251: @ABS(@IF(i238<0,(+i238/55)*m66,0))
J251: @ABS(@IF(j238<0,(+j238/55)*m66,0))
K251: @ABS(@IF(k238<0,(+k238/55)*m66,0))
L251: @ABS(@IF(l238<0,(+l238/55)*m66,0))
M251: @ABS(@IF(m238<0,(+m238/55)*m66,0))
N251: @ABS(@IF(n238<0,(+n238/55)*m66,0))
O251: @sum(c251..n251)
S251: Alfalfa Hay
U251: +d59
V251: 0
W251: +u251*v251
X251: (+w251/2000)*31
Y251: +x251*12
Z251: T

ROW 252
A252: Wheat
C252: @ABS(@IF(c239<0,(+c239/60)*m67,0))
D252: @ABS(@IF(d239<0,(+d239/60)*m67,0))
E252: @ABS(@IF(e239<0,(+e239/60)*m67,0))
```

```
F252: @ABS(@IF(f239<Ø,(+f239/6Ø)*m67,Ø))
G252: @ABS(@IF(g239<Ø,(+g239/6Ø)*m67,Ø))
H252: @ABS(@IF(h239<Ø,(+h239/6Ø)*m67,Ø))
I252: @ABS(@IF(i239<Ø,(+i239/6Ø)*m67,Ø))
J252: @ABS(@IF(j239<Ø,(+j239/6Ø)*m67,Ø))
K252: @ABS(@IF(k239<Ø,(+k239/6Ø)*m67,Ø))
L252: @ABS(@IF(l239<Ø,(+l239/6Ø)*m67,Ø))
M252: @ABS(@IF(m239<Ø,(+m239/6Ø)*m67,Ø))
N252: @ABS(@IF(n239<Ø,(+n239/6Ø)*m67,Ø))
O252: @sum(c252..n252)
S252: Milk
U252: Ø
V252: +d59
W252: +u252*(v252/12*2)
X252: +w252*31
Y252: +x252*12
Z252: lb

ROW 253
A253: Barley
C253: @ABS(@IF(c24Ø<Ø,(+c24Ø/48)*m68,Ø))
D253: @ABS(@IF(d24Ø<Ø,(+d24Ø/48)*m68,Ø))
E253: @ABS(@IF(e24Ø<Ø,(+e24Ø/48)*m68,Ø))
F253: @ABS(@IF(f24Ø<Ø,(+f24Ø/48)*m68,Ø))
G253: @ABS(@IF(g24Ø<Ø,(+g24Ø/48)*m68,Ø))
H253: @ABS(@IF(h24Ø<Ø,(+h24Ø/48)*m68,Ø))
I253: @ABS(@IF(i24Ø<Ø,(+i24Ø/48)*m68,Ø))
J253: @ABS(@IF(j24Ø<Ø,(+j24Ø/48)*m68,Ø))
K253: @ABS(@IF(k24Ø<Ø,(+k24Ø/48)*m68,Ø))
L253: @ABS(@IF(l24Ø<Ø,(+l24Ø/48)*m68,Ø))
M253: @ABS(@IF(m24Ø<Ø,(+m24Ø/48)*m68,Ø))
N253: @ABS(@IF(n24Ø<Ø,(+n24Ø/48)*m68,Ø))
O253: @sum(c253..n253)
S253: Calf Grain
U253: Ø
V253: +d59
W253: +u253*(v253*9/12)
X253: (+w253/2ØØØ)*31
Y253: +x253*12
Z253: T

ROW 254
A254: Oats
C254: @ABS(@IF(c241<Ø,(+c241/32)*m69,Ø))
D254: @ABS(@IF(d241<Ø,(+d241/32)*m69,Ø))
E254: @ABS(@IF(e241<Ø,(+e241/32)*m69,Ø))
F254: @ABS(@IF(f241<Ø,(+f241/32)*m69,Ø))
G254: @ABS(@IF(g241<Ø,(+g241/32)*m69,Ø))
H254: @ABS(@IF(h241<Ø,(+h241/32)*m69,Ø))
I254: @ABS(@IF(i241<Ø,(+i241/32)*m69,Ø))
J254: @ABS(@IF(j241<Ø,(+j241/32)*m69,Ø))
K254: @ABS(@IF(k241<Ø,(+k241/32)*m69,Ø))
L254: @ABS(@IF(l241<Ø,(+l241/32)*m69,Ø))
M254: @ABS(@IF(m241<Ø,(+m241/32)*m69,Ø))
N254: @ABS(@IF(n241<Ø,(+n241/32)*m69,Ø))
```

```
O254: @sum(c254..n254)

ROW 255
A255: Soybean Oil Meal
C255: @ABS(@IF(c242<Ø,c242*m71,Ø))
D255: @ABS(@IF(d242<Ø,d242*m71,Ø))
E255: @ABS(@IF(e242<Ø,e242*m71,Ø))
F255: @ABS(@IF(f242<Ø,f242*m71,Ø))
G255: @ABS(@IF(g242<Ø,g242*m71,Ø))
H255: @ABS(@IF(h242<Ø,h242*m71,Ø))
I255: @ABS(@IF(i242<Ø,i242*m71,Ø))
J255: @ABS(@IF(j242<Ø,j242*m71,Ø))
K255: @ABS(@IF(k242<Ø,k242*m71,Ø))
L255: @ABS(@IF(l242<Ø,l242*m71,Ø))
M255: @ABS(@IF(m242<Ø,m242*m71,Ø))
N255: @ABS(@IF(n242<Ø,n242*m71,Ø))
O255: @sum(c255..n255)

ROW 257
A257: TOTAL
C257: @sum (c245..c255)
D257: @sum (d245..d255)
E257: @sum (e245..e255)
F257: @sum (f245..f255)
G257: @sum (g245..g255)
H257: @sum (h245..h255)
I257: @sum (i245..i255)
J257: @sum (j245..j255)
K257: @sum (k245..k255)
L257: @sum (l245..l255)
M257: @sum (m245..m255)
N257: @sum (n245..n255)
O257: @sum (o245..o255)

ROW 258
U258: avg. lb/
V258: No.
W258: Daily
X258: Total
Y258: Total

ROW 259
U259: day/
V259: steers
W259: feed
X259: monthly
Y259: annual

ROW 26Ø
S26Ø: Feeds for steers
U26Ø: steers
W26Ø: needs lb
X26Ø: needs
Y26Ø: needs
```

```
ROW 261
A261: RECEIPTS

ROW 263
A263: MILK SALES

ROW 264
B264: Average daily production-
E264: +d62
S264: Alfalfa Hay
U264: Ø
V264: +d64
W264: +u264*v264
X264: (+w264/2ØØØ)*31
Y264: +x264*9
Z264: T

ROW 265
B265: price/cwt
E265: +m57
S265: Alfalfa Haylage
U265: Ø
V265: +d64
W265: +u265*v265
X265: (+w265/2ØØØ)*31
Y265: +x265*9
Z265: T

ROW 266
S266: Corn Silage
U266: Ø
V266: +d64
W266: u266*v266
X266: (+w266/2ØØØ)*31
Y266: +x266*9
Z266: T

ROW 267
A267: +f57
B267: no. cows x
D267: +d62
E267: avg. daily prodn
G267: =
H267: +a267*d267
I267: lbs. shipped/day
S267: Corn Grain
U267: Ø
V267: +d64
W267: +u267*v267
X267: (+w267/2ØØØ)*31
Y267: +x267*9
Z267: lb

ROW 268
A268: +d62
```

```
D268: daily prodn x
D268: +m57
E268: price/cwt =
G268: +a268*d268
H268: daily income
S268: Soybean Oil Meal
U268: Ø
V268: +d64
W264: u268*v268
X268: (+w268/2ØØØ)*31
Y268: +x268*9
Z268: T

ROW 269
S269: Wheat
U269: Ø
V269: +d64
W269: +u269*v269
W269: +u269*v269
X269: (+w269/2ØØØ)*31
Y269: +x269*9
Z269: lb

ROW 27Ø
A27Ø: no. of days/month
C27Ø: x
D27Ø: daily income
F27Ø: =
G27Ø: dollars/month
S27Ø: Barley
U27Ø: Ø
V27Ø: +d64
W27Ø: +u27Ø*v27Ø
X27Ø: (+w27Ø/2ØØØ)*31
Y27Ø: +x27Ø*9
Z27Ø: lb

ROW 271
A271: 31
D271: +g268
G271: +a271*d271
S271: Oats
U271: Ø
V271: +d64
W271: +u271*v271
X271: (+w271/2ØØØ)*31
Y271: +x271*9
Z271: lb

ROW 272
A272: 3Ø
D272: +g268
G272: +a272*d272
S272: Soybeans
U272: Ø
```

```
V272: +d64
W272: +u272*v272
X272: (+w272/2000)*31
Y272: +x272*9
Z272: lb

ROW 273
A273: 28
D273: +g268
G273: +a273*d273

ROW 276
A276: CATTLE SALES

ROW 277
S277: Sum of monthly feed needs from amounts fed
Y277: Sum of annual feed needs from amounts fed

ROW 278
A278: Dairy Calves

ROW 279
A279: calf/cow(cow no.)
C279: =
D279: +d57
F279: x 1/2 =
G279: +d279/2
H279: no. bull calves

ROW 280
A280: +g279-d64
B280: = no. bull calves for sale
D280: (subtracting dairy steers for sale)
S280: Alfalfa Hay
V280: +x203+x216+x235+x250+x264
W280: T
Y280: Alfalfa Hay
AA280: +y203+y216+y235+y250+y264
AB280: T

ROW 281
A281: +a280
B281: no. bull calves/12 =
E281: +a281/12
F281: no. bull calves/month
S281: Alfalfa Haylage
V281: +x204+x217+x236+x265
W281: T
Y281: Alfalfa Haylage
AA281: +y204+y217+y236+y265
AB281: T

ROW 282
A828: +e281
B282: no. bull calves
```

```
D282: x
E282: +m58
F282: per calf =
H282: +a282*e282
I282: monthly
S282: Corn Silage
V282: +x205+x218+x237+x266
W282: T
Y282: Corn Silage
AA282: +y205+y218+y237+y266
AB282: T

ROW 283
S283: Corn Grain
V283: +x206+x219+x238+x267
W283: lb
Y283: Corn Grain
AA283: +y206+y219+y238+y267
AB283: lb

ROW 284
S284: Soybean Oil Meal
V284: +x207+x220+x239+x268
W284: T
Y284: Soybean Oil Meal
AA284: +y207+y220+y239+y268
AB284: T

ROW 285
A285: Cull Cows
S285: Wheat
V285: +x208+x221+x240+x269
W285: lb
Y285: Wheat
AA285: +y208+y221+y240+y269
AB285: lb

ROW 286
A286: Cull Rate =
B286: .33
C286: of no. cows
E286: unless otherwise specified
S286: Barley
V286: +x209+x222+x241+x270
W286: lb
Y286: Barley
AA286: +y209+y222+y241+y270
AB286: lb

ROW 287
A287: +b286
B287: x
C287: +d57
D287: no. cows =
F287: +a287*c287
```

```
G287: no. cows culled/12 =
J287: +f287/12
K287: cows culled/month
S287: Oats
V287: +x210+x223+x242+x271
W287: lb
Y287: Oats
AA287:+y210+y223+y242+y271
AB287: lb

ROW 288
A288: 1400
B288: lbs (assumed avg. wt.)
E288: x
F288: +m59
G288: per lb. =
H288: +a288*f288
I288: gross/cow
S288: Soybeans
V288: +x211+x224+x243+x272
W288: lb
Y288: Soybeans
AA288: +y211+y224+y243+y272
AB288: lb

ROW 289
A289: +h288
B289: gross/cow
C289: x
D289: +j287
E289: no. cows culled/month =
H289: +h288*d289
I289: monthly
S289: Calf Starter
V289: +x252
W289: T
Y289: Calf Starter
V289: +x252
W289: T
Y289: Calf Starter
AA289: +y252
AB289: T

ROW 290
S290: Calf Grain
V290: +x253
W290: T
Y290: Calf Grain
AA290: +y253
AB290: T

ROW 291
S290: Milk (Colostrum)
V291: +x291
W291: lb
```

```
Y291: Milk (Colostrum)
AA291: +y291
AB291: lb

ROW 292
A292: Dairy Store

ROW 293
A293: no. steers

ROW 294
A294: 1000
B294: lb. steers x
D294: +m60
E294: per lb =
F294: +a294*d294
G294: per steer

ROW 295
A295: +d64
B295: no. steers x
D295: +F294
E295: =
F295: total
G295: +a295*d295
S295: Comparison of Feed Need Estimates

ROW 296
A296: +g295
B296: total/12 =
D296: +g295/12
E296: monthly

ROW 297
S297: procedure
U297: Derived
W297: Actual

Row 299
A299: Dairy Heifers
S299: Forage
U299: @sum(h187..h190)
V299: T
W299: @sum(aa280..aa190)
X299: T

Row 300
A300: no. heifers sold =
S300: +d67
U300: @sum(h192..h195)*2000
V300: lb
W300: +aa283+aa284*2000+aa286+aa288+aa289*2000+aa290*2000
X300: lb

ROW 301
```

```
A301: +d300
B301: No. heifers *
D301: +m61
E301: =
F301: +a301*d301
G301: total

ROW 302
B302: +f301
C302: total/12
D302: =
F302: +f301/12
G302: monthly

ROW 305
A305: Federal Programs and Tax Refunds

ROW 307
A307: Fed. & State Gas Refund
D307: +e73

ROW 309
A309: State RL-tax refund
D309: +e74

ROW 311
A311: Patronage Dividend Cash Received
E311: +e76

Row 313
A313: Miscellaneous Income
E313: +e78

ROW 317
A317: Expenditures

ROW 318
A318: Labor Payroll
N318: Total

ROW 320
A320: Worker ID
D320: +d85
E320: +e85
F320: +f85
G320: +g85
H320: +h85
I320: +i85
J320: +j85
K320: +k85
L320: +l85
M320: +m85
N320: @sum(d320..m320)

ROW 322
```

```
A322: Wages
D322: +d87
E322: +e87
F322: +f87
G322: +g87
H322: +h87
I322: +i87
J322: +j87
K322: +k87
L322: +l87
M322: +m87
N322: @sum(d322..m322)

ROW 324
A324: Hours/Month
D324: +d89
E324: +e89
F324: +f89
G324: +g89
H324: +h89
I324: +i89
J324: +j89
K324: +k89
L324: +l89
M324: +m89
N324: @sum(d324..m324)

ROW 326
A326: Gross Payroll
D326: +d322*d324
E326: +e322*e324
F326: +f322*f324
G326: +g322*g324
H326: +h322*h324
I326: +i322*i324
J326: +j3228j324
K326: +k322*k324
L326: +l322*l324
M326: +m322*l324
N326: @sum(d326..m326)

ROW 328
A328: Fringe Benefits
D328: +d326*d91
E328: +e326*e91
F328: +f326*f91
G328: +g326*g91
H328: +h326*h91
I328: +i326*i91
J328: +j326*j91
K328: +k326*k91
L328: +l326*l91
M328: +m326*m91
N328: @sum(d328..m328)
```

```
ROW 330
A330: FICA
D330: +d326*Ø.Ø715
E330: +e26*Ø.Ø715
F330: +f326*Ø.Ø715
G330: +g326*Ø.Ø715
H330: +h326*Ø.Ø715
I330: +i326*Ø.Ø715
J330: +j326*Ø.Ø715
K330: +k326*Ø.Ø715
L330: +l326*Ø.Ø715
M330: +m326*Ø.Ø715
N32Ø: @sum(d33Ø..m33Ø)

ROW 322
A322: Net Payroll
D332: +d326-(+d328+d33Ø)
E332: +e326-(+e328+e33Ø)
F332: +f326-(+f328+f33Ø)
G332: +g326-(+g328+g33Ø)
H332: +h326-(+h328+h33Ø)
I332: +i326-(+i328+i33Ø)
J332: +j326-(+j328+j33Ø)
K332: +k326-(+k328+k33Ø)
L332: +l326-(+l328+l33Ø)
M332: +m326-(+m328+m33Ø)
N332: @sum(d332..m332)

ROW 334
A334:  Management Payroll
C334: +d93/12
D334: monthly

ROW 336
A336: Livestock Expenditures

ROW 338
A338: Feed- based on need to purchase as determined

ROW 339
B339: by total feed needs as calculated above

ROW 341:
A341: feed type- amount needed x price = total expenditure $

ROW 344
A344: Feed Additives-minerals,salts,buffers

ROW 345
B345: dollars/ton x
D345: need x no. cows x 365 days
K345: @sum(k346..k348)
L345: Total monthly

ROW 346
```

```
A346: mineral
B346: +m72
C346: x
D346: (+k188*f57)*365
E346: Total lb. needs =
G346: +b346*(d346/2000)
H346: total expenditure/12 =
K346: +g346/12
L346: monthly

ROW 348
A348: buffer
B348: +m74
C348: x
D348: Total lb needs =
E348: (+k190*f57)*365
E348: Total lb needs =
G348: +b348*(d348/2000)
H348: total expenditure/12
K348: +g348/12
L348: monthly

ROW 350
A350: Bedding

ROW 351
A351: needs
B351: 60
C351: lbs of bedding/
E351: 1000
F351: lbs of cow/month

ROW 352
A352: 84
C352: lbs of bedding/
E352: 1400
F352: lbs of cow/month

ROW 353
A353: 84
B353: X
C353: 12 MONTHS
D353: x
E353: 1000
F353: lbs bedding/year/cow

ROW 354
A354: 1000
B354: lbs x
C354: +d57
D354: no. cows
E354: =
F354: +a354*c354
G354: total lbs needed
I354: +f354/2000
```

```
J354: Tons needed

ROW 355
A355: +i354
B355: Tons x
C355: +d134
D355: =
E355: +a355*c355
F355: total expenditure/12 =
I355: +e355/12
J355: monthly

ROW 357
A357: Livestock Supplies

ROW 358
A358: annual cost per cow $50

ROW 359
A359: 50
B359: x
C359: +d57
D359: cows =
E359: +a359*c359
F359: total expenditure/12 =
I359: +e359/12
J359: monthly

ROW 361
A361: Breeding Service

ROW 362
A362: based on $/conception-semen use

ROW 363
A363: +d57
B363: cows x
C363: +d136
D363: =
E363: +a363*c363
F363: total expenditure/12
I363: +e363/12
J363: monthly

ROW 366
A366: Equity Retain -
C366: +m77
D366: % of sales

ROW 368
A368: 31
B368: days x
C368: x
E368: +g271
F368: =
```

```
G368: +c368*e368

ROW 369
A369: 3Ø
B369: days x
C369: +m77/1ØØ
D369: x
E369: +g372
F369: =
G369: +c369*e369

ROW 37Ø
A37Ø: 28
B37Ø: days x
C37Ø: +m77/1ØØ
D37Ø: x
E37Ø: +g273
F37Ø: =
G37Ø: +c37Ø*e37Ø

ROW 372
A372: Dues
B372: +m78
C372: % of sales

ROW 374
A374: 31
B374: days x
C374: +m78/1ØØ
D374: x
E374: +g271
F374: =
G374: +c374*e374

ROW 375
A375: 3Ø
B375: days x
C375: +m78/1ØØ
D375: x
E375: +g272
F375: =
G375: +c375*e375

ROW 376
A376: 28
B376: days x
C376: +m78/1ØØ
D376: x
E376: +g273
F376: =
G376: +c376*e376

ROW 378
A378: Milk Hauling
C378: +m79
```

D378: per cwt

ROW 379:
A379: lbs shipped/day/100 = cwt.

ROW 380
A380: +m79
B380: x cwt

ROW 381
A381: 31
B381: days x
C381: +m79
D381: x
E381: =
G381: +a381*c381*e381

ROW 382
A382: 30
B382: days x
C382: +m79
D382: x
E382: =
G382: +a382*c382*e382

ROW 383
A383: 28
B383: days x
C383: +m79
D383: x
E383: =
G383: +a383*c383*e383

ROW 385
A385: ADA & Milk Promotion-
D385: +m80
E385: per cwt.

ROW 386
A386: lbs shipped/day/100 = cwt.

ROW 387
A387: +m80
B387: x cwt.

ROW 388
A388: 31
B388: days x
C388: x
D388: +h267/100
F388: =
G388: +a388*c388*e388

ROW 389
A389: 30

```
B389: days x
C389: x
D389: +h267/1ØØ
F389: =
G389: +a389*c389*e389

ROW 39Ø
A39Ø: 28
B39Ø: days x
C39Ø: x
D39Ø: +h267/1ØØ
F39Ø: =
G39Ø: +a39Ø*c39Ø*e39Ø

ROW 392
A392: Whole Herd Buyout
D392: +m81
E392: per cwt.

ROW 393
A393: lbs shipped/day/1ØØ = cwt.

ROW 394:
A394: +m81
B394: x cwt.

ROW 395
A395: 31
B395: days x
C395: +m81
D395: x
E395: +h267/1ØØ
F395: =
G395: +a395*c395*e395

ROW 396
A396: 3Ø
B396: days x
C396: +m81
D396: x
E396: +h267/1ØØ
F396: =
G396: +a396*c396*e396

ROW 397
A397: 28
B397: days x
C397: +m81
D397: x
E397: +h267/1ØØ
F397: =
G397: +a397*c397*e397

ROW 399
A399: Gramm-Rudman
```

```
C399: +m82
D399: per cwt.

Row 400
A400: lbs shipped/day/100 = cwt.

ROW 401
A401: +m82
B401: x cwt

ROW 402
A402: 31
B402: days x
C402: +m82
D402: x
E402: +h267/100
F402: =
G402: +a402*c402*e402

ROW 403
A403: 30
B403: days x
C403: +m82
D403: x
E403: +h267/100
F403: =
G403: +a403*c403*e403

ROW 404
A404: 28
B404: days x
C404: +m82
D404: x
E404: +h267/100
F404: =
G404: +a404*c404*e404

ROW 407
A407: Veterinarian Service

ROW 408
A409: Monthly Clinic - if yes cost/clinic

ROW 409
A409: if no- $60 annual expenditure/cow

ROW 410
A410: $60
B410: x no. cows = total expenditures/12=monthly expenditure

ROW 411
A411: @IF(d139=0,60,0)
B411: +d57
C411: =
D411: +a411*b411
```

```
E411: total expenditure/12
H411: +d411/12
I411: monthly

ROW 413
A413: Medicine & Drugs

ROW 414
A414: if included in monthly clinic $Ø

ROW 415
A415: if not an included expenditure average $15/cow annual

ROW 416
A416: 15
B416: x no. cows = total expenditure/12 = monthly expenditure

ROW 417
A417: @IF(h14Ø=1,Ø,15)
B417: +d57
C417: =
D417: +a417*b417
E417: total expenditure/12
H417: +d417/12
I417: monthly

ROW 419
A419: Crop Expenditure

ROW 421
A421: Alfalfa hay
F421: no. acres

ROW 422
A422: Seeds & Plants
D422: Ø
E422: x
F422: +d1ØØ
G422: =
F422: +d422*f422

ROW 423
A423: Fertilizer
D423: 33
E423: x
F423: +d1ØØ
G423: =
H423: +d423*f423

ROW 424
A424: Herbs. & Insects.
D424: 7.25
E424: x
F424: +d1ØØ
G424: =
```

H424: +d424*f424

ROW 425
A425: Crop Suppl
D425: 14.10
E425: x
F425: +d100
G425: =
H425: +d425*f425

ROW 426
A426: Irrigation Power.
D426: 0
E426: x
F426: +d100
G426: =
H426: +d426*f426

ROW 427
A427: Lime
D427: 0
E427: x
F427: +d100
G427: =
H427: +d427*f427

ROW 429
A429: Alfalfa Haylage
F429: no. acres

ROW 430
A430: Seeds & Plants
D430: 0
E430: x
F430: +d101
G430: =
H430: +d430*f430

ROW 431
A431: Fertilizer
D431: 44.45
E431: x
F431: +d101
G431: =
H431: +d431*f431

ROW 432
A432: Herbs. & Insects.
D432: 7.25
E432: x
F432: +d101
G432: =
H432: +d432*f432

ROW 433

A433: Crop Suppl
D433: Ø
E433: x
F433: +d1Ø1
G433: =
H433: +d433*f433

ROW 434
A434: Irrigation Power
D434: Ø
E434: x
F434: +d1Ø1
G434: =
H434: +d434*f434

ROW 435
A435: Lime
D435: Ø
E435: x
F435: +d1Ø1
G435: =
H435: +d435*f435

ROW 437
A437: Corn Silage
F437: no. acres

ROW 438
A438: Seeds & Plants
D438: 26.6
E438: x
F438: +d1Ø2
G438: =
H438: +d438*f438

ROW 439
A439: Fertilizer
D439: 54
E439: x
F439: +d1Ø2
G439: =
H439: +d439*f439

ROW 44Ø
A44Ø: Herbs. & Insects.
D44Ø: 23
E44Ø: x
F44Ø: +d1Ø2
G44Ø: =
H44Ø: +d44Ø*f44Ø

ROW 441
A441: Crop Suppl
D441: Ø
E441: x

```
F441: +d1Ø2
G441: =
H441: +d441*f441

ROW 442
A442: Irrigation Power
D442: Ø
E442: x
F442: +d1Ø2
G442: =
H442: +d442*f442

ROW 443
A443: Lime
D443: 7.2
E443: x
F443: +d1Ø2
G443: =
H443: +d443*f443

ROW 445
A445: Corn Grain
G445: no. acres

ROW 446
A446: Seeds & Plants
D446: 19.6
E446: x
F446: +d1Ø3
G446: =
H446: +d446*f446

ROW 447
A447: Fertilizer
D447: 22.6
E447: x
F447: +d1Ø3
G447: =
H447: +d447*f447

ROW 448
A448: Herbs. & Insects.
D448: 23
E448: x
F448: +d1Ø3
G448: =
H448: +d448*f448

ROW 449
A449: Crop Suppl
D449: Ø
E449: x
F449: +d1Ø3
G449: =
H449: +d44Ø*f44Ø
```

```
ROW 445
A450: Irrigation Power.
D450: Ø
E450: x
F450: +d1Ø3
G450: =
H450: +d450*f450

ROW 451
A451: Lime
D451: 4.5
E451: x
F451: +d1Ø3
G451: =
H451: +d451*f451

ROW 452
A452: Drying Fuel
D452: 17.5
E452: x
F452: +d1Ø3
G452: =
H452: +d452*f452

ROW 454
A454: Soybeans
F454: no. acres

ROW 455
A455: Seeds & Plants
D455: 8.4
E455: x
F455: +d1Ø4
G455: =
H455: +d455*f455

ROW 456
A456: Fertilizer
D456: 6.8
E456: x
F456: +d1Ø4
G456: =
H456: +d456*f456

ROW 457
A457: Herbs. & Insects.
D457: 18.15
E457: x
F457: +d1Ø4
G457: =
H457: +d457*f457

ROW 458
A458: Crop Suppl
```

D458: Ø
E458: x
F458: +d1Ø4
G458: =
H458: +d458*f458

ROW 459
A459: Irrigation Power
D459: Ø
E459: x
F459: +d1Ø4
G459: =
H459: +d459*f459

ROW 46Ø
A46Ø: Lime
D46Ø: 4.5
E46Ø: x
F46Ø: +d1Ø4
G46Ø: =
H46Ø: +d46Ø*f46Ø

ROW 462
A462: Wheat
F462: no. acres

ROW 463
A463: Seeds & Plants
D463: 1Ø.8
E463: x
F463: +d1Ø5
G463: =
H463: +d463*f463

ROW 464
A464: Fertilizer
D464: 32.8
E464: x
F464: +d1Ø5
G464: =
H464: +d464*f464

ROW 465
A465: Herbs. & Insects.
D465: .85
E465: x
F465: +d1Ø5
G465: =
H465: +d465*f465

ROW 466
A466: Crop Suppl
D466: Ø
E466: x
F466: +d1Ø5

```
G466: =
H466: +d466*f466

ROW 467
A467: Lime
D467: 4.5
E467: x
F467: +d1Ø5
G467: =
H467: +d467*f467

ROW 468
A468: Lime
D468: 4.5
E468: x
F468: +d1Ø5
G468: =
H468: +d468*f468

ROW 47Ø
A47Ø: Oats
F47Ø: no. acres

ROW 471
A471: Seeds & Plants
D471: 8.Ø
E471: x
F471: +d1Ø6
G471: =
H471: +d471*f471

ROW 472
A472: Fertilizer
D472: 8.6
E472: x
F472: +d1Ø6
G472: =
H472: +d472*f472

ROW 473
A473: Herbs. & Insects.
D473: .65
E473: x
F473: +d1Ø6
G473: =
H473: +d473*f473

ROW 474
A474: Crop Suppl
D474: Ø
E474: x
F474: +d1Ø6
G474: =
H474: +d474*f474
```

```
ROW 475
A475: Irrigation Power
D475: Ø
E475: x
F475: +d1Ø6
G475: =
H475: +d475*f475

ROW 476
A476: Lime
D476: 4.5
E476: x
F476: +d1Ø6
G476: =
H476: +d476*f476

ROW 478
A478: Barley
F478: no. acres

ROW 479
A479: Seeds & Plants
D479: 13
E479: x
F479: +d1Ø7
G479: =
H479: +d479*f479

ROW 48Ø
A48Ø: Fertilizer
D48Ø: 18.1
E48Ø: x
F48Ø: +d1Ø7
G48Ø: =
H48Ø: +d48Ø*f48Ø

ROW 481
A481: Herbs. & Insects.
D481: .65
E481: x
F481: +d1Ø7
G481: =
H481: +d481*f481

ROW 482
A482: Crop Suppl.
D482: Ø
E482: x
F482: +d1Ø7
G482: =
H482: +d482*f482

ROW 483
A483: Irrigation Power
D483: Ø
```

E483: x
F483: +d1Ø7
G483: =
H483: +d483*f483

ROW 484
A484: Lime
D484: 4.5
E484: x
F484: +d1Ø7
G484: =
H484: +d484*f484

ROW 486
A486: Total Crop Expenditures

ROW 487
A487: Seeds & Plants
D487: +h422+h43Ø+h438+h446+h455+h463+h471+h479

ROW 488
A488: Fertilizer
D488: +h423+h431+h439+h447+h456+h464+h472+h48Ø

ROW 489
A489: Herbs. & Insects.
D489: +h424+h432+h44Ø+h448+h457+h465+h473+h481

ROW 49Ø
A49Ø: Crop Suppl
D49Ø: +h425+h433+h441+h449+h458+h466+h474+h482

ROW 491
A491: Irrigation Power
D491: +h426+h434+h442+h45Ø+h459+h467+h474+h483

Row 492
A492: Lime
D492: +h427+h435+h443+h451+h46Ø+h468+h475+h484

ROW 493
A493: Drying Fuel
D493: +h452

ROW 496
A496: Machinery & Farm Expenditures

ROW 498
A498: Equipment Repair

ROW 499:
A499: Dairy Cow &
C499: 58
D499: x no. acres
F499: 58

```
G499: x
H499: +d57
I499: =
J499: +f499*h499

ROW 5ØØ
A5ØØ: replacement

ROW 5Ø1
A5Ø1: Alfalfa Hay
C5Ø1: 3Ø.9
D5Ø1: x no. acres
F5Ø1: 3Ø.9
G5Ø1: x
H5Ø1: +d1ØØ
I5Ø1: =
J5Ø1: +f5Ø1*h5Ø1

ROW 5Ø2
A5Ø2: Alfalfa Haylage
C5Ø2: 32.9
D5Ø2: x no. acres
F5Ø2: 32.9
G5Ø2: x
H5Ø2: +d1Ø1
I5Ø2: =
J5Ø2: +f5Ø2*h5Ø2

ROW 5Ø3
A5Ø3: Corn Silage
C5Ø3: 22
D5Ø3: x no. acres
F5Ø3: 22
G5Ø3: x
H5Ø3: +d1Ø2
I5Ø3: =
J5Ø3: +f5Ø3*h5Ø3

ROW 5Ø4
A5Ø4: Corn Grain
C5Ø4: 18
D5Ø4: x no. acres
F5Ø4: 18
G5Ø4: x
H5Ø4: +d1Ø3
I5Ø4: =
J5Ø4: +f5Ø4*h5Ø4

ROW 5Ø5
A5Ø5: Soybeans
C5Ø5: 16
D5Ø5: x no. acres
F5Ø5: 16
G5Ø5: x
H5Ø5: +d1Ø4
```

```
I505: =
J505: +f505*h505

ROW 506
A506: Wheat
C506: 16
D506: x no. acres
F506: 16
G506: x
H506: +d105
I506: =
J506: +f506*h506

ROW 507
A507: Barley
C507: 16
D507: x no. acres
F507: 16
G507: x
H507: +d106
I507: =
J507: +f507*h507

ROW 508
A508: Oats
C508: 16
D508: x no. acres
F508: 16
G508: x
H508: +d107
I508: =
J508: +f508*h508

ROW 510
C510: total expenditure/12=monthly expenditure
J510: @sum(j499..j508)
L510: j510/12
M510: monthly

ROW 514
A514: Machinery Leased

ROW 515
A515: is there machinery leased?
D515: if yes -
F515: cost =
G515: +d146

ROW 517
A517: Gasoline & Fuel

ROW 518
A518: Dairy cow &
C518: 10.6
D518: x no. cows
```

F518: 10.6
G518: x
H518: +d57
I518: =
J518: +f518*h518

ROW 519:
A519: replacement

ROW 520
A520: Alfalfa Hay
C520: 10.7
D520: x no. acres
F520: 10.7
G520: x
H520: +d100
I520: =
J520: +f520*h520

ROW 521
A521: Alfalfa Haylage
C521: 18.35
D521: x no. acres
F521: 18.35
G521: x
H521: +d101
I521: =
J521: +f521*h521

ROW 522
A522: Corn Silage
C522: 11
D522: x no. acres
F522: 11
G522: x
H522: +d102
I522: =
J522: +f522*h522

ROW 523
A523: Corn Grain
C523: 9.9
D523: x no. acres
F523: 9.9
G523: x
H523: +d103
I523: =
J523: +f523*h523

ROW 524
A524: Soybeans
C524: 9
D524: x no. acres
F524: 9
G524: x

```
H524: +d1Ø4
I524: =
J524: +f524*h524

ROW 525
A525: Wheat
C525: 7
D525: x no. acres
F525: 7
G525: x
H525: +d1Ø5
I525: =
J525: +f525*h525

ROW 526
A526: Barley
C526: 6.5
D526: x no. acres
F526: 6.5
G526: x
H526: +d1Ø6
I526: =
J526: +f526*h526

ROW 527
A527: Oats
C527: 6.9
D527: x no. acres
F527: 6.9
G527: x
H527: +d1Ø7
I527: =
J527: +f527*h527

ROW 529
C529: total expenditure/12=monthly expenditure
J529: @sum(j518..j527)
L519: +j529/12
M529: = monthly

ROW 531:
A531: Building & Improvement Repair

ROW 532
A532: Dairy cow &
C532: 11
D532: x no. cows
F532: 11
G532: x
H532: +d57
I532: =
J532: +f532*h532

ROW 533
A533: replacement
```

ROW 534
A534: Alfalfa Hay
C534: 2
D534: x no. acres
F534: 2
G534: x
H534: +d1ØØ
I534: =
J534: +f534*h534

ROW 535
A535: Alfalfa Haylage
C535: 3.5
D535: x no. acres
F535: 3.5
G535: x
H535: +d1Ø1
I535: =
J535: +f535*h535

ROW 536
A536: Corn Silage
C536: 3.5
D536: x no. acres
F536: 3.5
G536: x
H536: +d1Ø2
I536: =
J536: +f536*h536

ROW 537
A537: Corn Grain
C537: 2.5
D537: x no. acres
F537: 2.5
G537: x
H537: +d1Ø3
I537: =
J537: +f537*h537

ROW 538
A538: Soybeans
C538: 1.5
D538: x no. acres
F538: 1.5
G538: x
H538: +d1Ø4
I538: =
J538: +f538*h538

ROW 539
A539: Wheat
C539: 1.5

```
D539: x no. acres
F539: 1.5
G539: x
H539: +d1Ø5
I539: =
J539: +f539*h539

ROW 54Ø
A54Ø: Barley
C54Ø: 1.5
D54Ø: x no. acres
F54Ø: 1.5
G54Ø: x
H54Ø: +d1Ø6
I54Ø: =
J54Ø: +f54Ø*h54Ø

ROW 541
A541: Oats
C541: 1.5
D541: x no. acres
F541: 1.5
G541: x
H541: +d1Ø7
I541: =
J541: +f541*h541

ROW 543
C543: total expenditure/12=monthly expenditure
J543: @sum(j532..j541)
L543: +j543/12
M543: = monthly

ROW 547
A547: Utilities

ROW 548
A548: Dairy cow &
C548: 6Ø.5
D548: x no. cows
F548: 6Ø.5
G548: x
H548: 6Ø.5
G548: x
H548: +d47
I548: =
J548: +f548*h548

ROW 549
A549: replacement

ROW 55Ø
A55Ø: Alfalfa Hay
C55Ø: 1.5
D55Ø: x no. acres
```

F55Ø: 1.5
G55Ø: x
H55Ø: +d1ØØ
I55Ø: =
J55Ø: +f55Ø*h55Ø

ROW 551
A551: Alfalfa Haylage
C551: 1.5
D551: x no. acres
F551: 1.5
G551: x
H551: +d1Ø1
I551: =
J551: +f551*h551

ROW 552
A552: Corn Silage
C552: 5.5
D552: x no. acres
F552: 5.5
G552: x
H552: +d1Ø2
I552: =
J552: +f552*h552

ROW 553
A553: Corn Grain
C553: 2.5
D553: x no. acres
F553: 2.5
G553: x
H553: +d1Ø3
I553: =
J553: +f553*h553

ROW 554
A554: Soybeans
C554: 1.5
D554: x no. acres
F554: 1.5
G554: x
H554: +d1Ø4
I554: =
J554: +f554*h554

ROW 555
A55Ø: Wheat
C555: 1.5
D555: x no. acres
F555: 1.5
G555: x
H555: +d1Ø5
I555: =

```
J555: +f555*h555

ROW 556
A556: Barley
C556: 1.5
D556: x no. acres
F556: 1.5
G556: x
H556: +d1Ø6
I556: =
J556: +f556*h556

ROW 557
A557: Oats
C557: 1.5
D557: x no. acres
F557: 1.5
G557: x
H557: +d1Ø7
I557: =
J557: +f557*h557

ROW 559
C559: total expenditure/12=monthly expenditure
J559: @sum(j548..j557)
L559: +j559/12
M559: = monthly

ROW 562
A562: Interest
E562: Loan Repayment Schedule

ROW 563
A563: based on loan schedules

ROW 565
E565: Interest & Principal Calculations:

ROW 566
E566: Person or
L566: Monthly
M566: Total

ROW 567
E567: Firm owed
F567: Term
G567: Bal. Owed
H567: Rate
I567: Payment
J567: Interest
K567: Principal
L567: Pmt
M567: Pmt

ROW 569
```

```
E569: Ø
F569: Ø
H569: Ø
I569: @IF(g569=Ø,Ø,@pmt(g569,h569,f569))
J569: +h569*g569
K569: +i569-j569
L569: +i569/12
M569: +i569*12

ROW 57Ø
E57Ø: Ø
F57Ø: Ø
H57Ø: Ø
I57Ø: @IF(g57Ø=Ø,Ø,@pmt(g57Ø,h57Ø,f57Ø))
J57Ø: +h57Ø*g57Ø
K57Ø: +i57Ø-j57Ø
L57Ø: +i57Ø/12
M57Ø: +i57Ø*12

ROW 571
E571: Ø
F571: Ø
H571: Ø
I571: @IF(g571=Ø,Ø,@pmt(g571,h571,f571))
J571: +h571*g571
K571: +i571-j571
L571: +i571/12
M571: +i571*12

ROW 572
E572: Ø
F572: Ø
H572: Ø
I572: @IF(g572=Ø,Ø,@pmt(g572,h572,f572))
J572: +h572*g572
K572: +i572-j572
L572: +i572/12
M572: +i572*12

ROW 573
E573: Ø
F573: Ø
H573: Ø
I573: @IF(g573=Ø,Ø,@pmt(g573,h573,f573))
J573: +h573*g573
K573: +i573-j573
L573: +i573/12
M573: +i573*12

ROW 574
E574: Ø
F574: Ø
H574: Ø
I574: @IF(g574=Ø,Ø,@pmt(g574,h574,f574))
J574: +h574*g574
```

```
K574: +i574-j574
L574: +i574/12
M574: +l574*12

ROW 576
I576: @sum(i569..i574)
J576: @sum(j569..j574)
K576: @sum(k569..k574)
L576: @sum(l569..l574)
M576: @sum(m569..m574)

ROW 577
A577: Insurance
C577: +d15Ø

ROW 581
A581: Miscellaneous
C581: +d151

ROW 582
A582: Expenditures

ROW 586
A586: Annual Net Cash Flow Summary

ROW 588
C588: JAN
D588; FEB
E588: MARCH
F588: APRIL
G588: MAY
H588: JUNE
I588: JULY
J588: AUGUST
K588: SEPT
L588: OCT
M588: NOV
N588: DEC
O588: TOTAL

ROW 589
A589: Receipts

ROW 591
A591: Milk Sales
C591: +g271
D591: +g273
E591: +g271
F591: +g272
G271: +g271
H591: +g272
I291: +g271
J591: +g271
K591: +g272
L591: +g271
```

```
M591: +g272
N591: +g271
O591: +@sum(c591..n591)

ROW 593
A593: Cattle Sales

ROW 595
A595: Dairy Calves
C595-N595: +h282
O595: @sum(c595..n595)

ROW 596
A596: Cull Cows
C596-N596: +h290
O596: @sum(c596..n596)

ROW 597
A597: Dairy Steers
C597-N597: +d296
O597: @sum(c597..n597)

ROW 598
A598: Dairy Heifers
C598-N598: +e302
O598: @sum(c598..n598)

ROW 600
C600: @sum(c595..c598)
D600: @sum(d595..d598)
E600: @sum(e595..e598)
F600: @sum(f595..f598)
G600: @sum(g595..g598)
H600: @sum(h595..h598)
I600: @sum(i595..i598)
J600: @sum(j595..j598)
K600: @sum(k595..k598)
L600: @sum(l595..l598)
M600: @sum(m595..m598)
N600: @sum(n595..n598)
O600: @sum(c600..n600)

ROW 602
A602: Federal Programs

ROW 603
A603: & Tax Refunds

ROW 605
A605: Fed. & State

ROW 606
A606: Gas Refund
F606: +d307
O606: @sum(c606..n606)
```

```
ROW 607
A607: State RL tax
H607: +d309
O607: @sum(c607..n607)

ROW 609
C609: @SUM(c605..c607)
D609: @SUM(d605..d607)
E609: @SUM(e605..e607)
F609: @SUM(f605..f607)
G609: @SUM(g605..g607)
H609: @SUM(h605..h607)
I609: @SUM(i605..i607)
J609: @SUM(j605..j607)
K609: @SUM(k605..k607)
L609: @SUM(l605..l607)
M609: @SUM(m605..m607)
N609: @SUM(n605..n607)
O609: @SUM(c609..n609)

ROW 611
A611: Patronage  Dividend

ROW 612
A612: Cash Received

ROW 615
A615: Miscellaneous
C615-N615: +e78/12
O615: @sum(c615..n615)

ROW 617
A617: Total Receipts
C617: +c591+c600+c609+c612+c615
D617: +d591+d600+d609+d612+d615
E617: +e591+e600+e609+e612+e615
F617: +f591+f600+f609+f612+f615
G617: +g591+g600+c609+g612+g615
H617: +h591+h600+h609+h612+h615
I617: +i591+i600+i609+i612+i615
J617: +j591+j600+j609+j612+j615
K617: +k591+k600+k609+k612+k615
L617: +l591+l600+l609+l612+l615
M617: +m591+m600+m609+m612+m615
N617: +n591+n600+n609+n612+n615
O617: +o591+o600+o609+o612+o615

ROW 620
A620: EXPENDITURES
C620: JAN
D620: FEB
E620: MARCH
F620: APRIL
G620: MAY
```

```
H620: JUNE
I620: JULY
J620: AUGUST
K620: SEPT
L620: OCT
M620: NOV
N620: DEC
O620: TOTAL

ROW 622
A622: Net Payroll
C622-N622: +n332
O622: @sum(c622..n622)

ROW 623
A623: FICA
C623-N623: +n330
O623: @sum(c623..n623)

ROW 624
A624: Fringe Benefits
C624-N624: +n328
O624: @sum(c624..n624)

ROW 625
A625: Mgt Payroll
C625-N625: +c334
O625: @sum((c625..n625)

ROW 627
C627: @SUM(c622..c625)
D627: @SUM(d622..d625)
E627: @SUM(e622..e625)
F627: @SUM(f622..f625)
G627: @SUM(g622..g625)
H627: @SUM(h622..h625)
I627: @SUM(i622..i625)
J627: @SUM(j622..j625)
K627: @SUM(k622..k625)
L627: @SUM(l622..l625)
M627: @SUM(m622..m625)
N627: @SUM(n622..n625)
O627: @SUM(o622..o625)

ROW 629
A629: Livestock Expenditures

ROW 631
A631: Feed
C631: +c257
D631: +d257
E631: +e257
F631: +f257
G631: +g257
H631: +h257
```

```
I631: +i257
J631: +j257
K631: +k257
L631: +l257
M631: +m257
N631: +n257
O631: @sum(c632..n632)

ROW 633
A633: Bedding
C633-N633: +i355
O633: @sum(c633..n633)

ROW 634
A634: Livestock Suppl
C634-N634: +i359
O634: @sum(c6344..n634)

ROW 635
A635: Breeding Service
C635-N635: +i363
O635: @sum(c635..N635)

ROW 636
A636: Equity Retain
C636: +g368
D636: +g37Ø
E636: +g368
F636: +g369
G636: +g368
H636: +g369
I636: +g368
J636: +g368
K636: +g369
L636: +g368
M636: +g369
N636: +g368
O636: @sum(c636..n636)

ROW 637
A637: Dues
C637: +g374
D637: +g376
E637: +g374
F637: +g375
G637: +g374
H637: +g375
I637: +g374
J637: +g374
K637: +g375
L637: +g374
M637: +g375
N637: +g374
O637: @sum(c637..n637)
```

```
ROW 638
A638: Milk Hauling
C638: +g381
D638: +g383
E638: +g381
F638: +g382
G638: +g381
H638: +g382
I638: +g381
J638: +g381
K638: +g382
L638: +g381
M638: +g382
N638: +g381
O638: @sum(c638..n638)

ROW 639
A639: ADA & Milk Prom.
C639: +g388
D639: +g39Ø
E639: +g388
F639: +g389
G639: +g388
H639: +g389
I639: +g388
J639: +g388
K639: +g389
L639: +g388
M639: +g389
N639: +g388
O639: @sum(c639..n639)

ROW 64Ø
A64Ø: Whole Herd Buyout
G64Ø: +g395
H64Ø: +g396
I64Ø: +g395
J64Ø: +g395
K64Ø: +g396
L64Ø: +g395
O64Ø: @sum(c64Ø..n64Ø)

ROW 641
A641: Gramm-Rudman
G641: +g4Ø2
H641: +g4Ø3
I641: +g4Ø2
J641: +g4Ø2
K641: +g4Ø3
L641: +g4Ø2
O641: @sum(c641..n641)

ROW 642
A642: Livestock Mrkting
C642: (+d132/1ØØ)*c6ØØ
```

```
D642: (+d132/100)*d600
E642: (+d132/100)*e600
F642: (+d132/100)*f600
G642: (+d132/100)*g600
H642: (+d132/100)*h600
I642: (+d132/100)*i600
J642: (+d132/100)*j600
K642: (+d132/100)*k600
L642: (+d132/100)*l600
M642: (+d132/100)*m600
N642: (+d132/100)*n600
O642: (+d132/100)*o600

ROW 643
A643: Vet. Services
C643-N643: @IF(d139=0,h411,d139)
O643: @sum(c643..n643)

ROW 644
A644: Medicine & Drugs
C644-N644: @IF(h417=,0,0,h417)
O644: @sum(c644..n644)

ROW 646
C646: @sum(c631..c644)
D646: @sum(d631..d644)
E646: @sum(e631..e644)
F646: @sum(f631..f644)
G646: @sum(g631..g644)
H646: @sum(h631..h644)
I646: @sum(i631..i644)
J646: @sum(j631..j644)
K646: @sum(k631..k644)
L646: @sum(l631..l644)
M646: @sum(m631..m644)
N646: @sum(n631..n644)
O646: @sum(o646..o646)

ROW 648
A648: Crop Expenditures
C648: JAN
D648: FEB
E648: MARCH
F648: APRIL
G648: MAY
H648: JUNE
I648: JULY
J648: AUGUST
K648: SEPT
L648: OCT
M648: NOV
N648: DEC
O648: TOTAL

ROW 650
```

```
A65Ø: Seeds & Plants
D65Ø-H65Ø: +d487/5
O65Ø: @sum(c65Ø..n65Ø)

ROW 651
A651: Fertilizer
D651-H651: +d488/5
O651: @sum(c651..n651)

ROW 652
A652: Herbs. & Insects
D652-H652: +d489/5
O652: @sum(c652..n652)

ROW 653
A653: Crop Suppl
D653-H653: +d49Ø/5
O653: @sum(c653..n653)

ROW 654
A654: Irrigation Power
D654-H654: +d491/5
O654: @sum(c654..n654)

ROW 655
A655: Lime
D655-H655: +d492/5
O655: @sum(c655..n655)

ROW 656
A656: Drying Fuel
D656-H656: +d493/5
O656: @sum(c656..n656)

ROW 658
C658: @sum (c65Ø..c656)
D658: @sum (d65Ø..d656)
E658: @sum (e65Ø..e656)
F658: @sum (f65Ø..f656)
G658: @sum (g65Ø..g656)
H658: @sum (h65Ø..h656)
I658: @sum (i65Ø..i656)
J658: @sum (j65Ø..j656)
K658: @sum (k65Ø..k656)
L658: @sum (l65Ø..l656)
M658: @sum (m65Ø..m656)
N658: @sum (n65Ø..n656)
O658: @sum (c658..n658)

ROW 66Ø
A66Ø: Machinery

ROW 661
A661: Farm Expenditures
```

```
ROW 663
A663: Equipment Repair
C663-N663: +l51Ø
O663: @sum(c663..n663)

ROW 664
A664: Mach. Leased
N664: +d146
O664: @sum(c664..n664)

ROW 665
A665: Land Rent
N665: +d149
O665: @sum(c665..n665)

ROW 666
A666: Gasoline & Fuel
C666-N666: +l529
O666: @sum(c666..n666)

ROW 667
A667: Bldg. & Imp Rpr.
C667-N667: +l543
O667: @sum(c667..n667)

ROW 668
A668: Utilities
C668-N668: +l559
O668: @sum(c668..n668)

ROW 669
A669: Principal
C669-N669: +l576/12
O669: @sum(c669..n669)

ROW 67Ø
A67Ø: Interest
C67Ø-N67Ø: +l576/12
O67Ø: @sum(c67Ø..n67Ø)

ROW 671
A671: Insurance
C671-N671: +l15Ø/12
O671: @sum(c671..n671)

ROW 672
A672: Miscellaneous
C672-N672: +l151/12
O672: @sum(c672..n672)

ROW 674
C674: @sum(c663..c672)
D674: @sum(d663..d672)
E674: @sum(e663..e672)
F674: @sum(f663..f672)
```

```
G674: @sum(g663..g672)
H674: @sum(h663..h672)
I674: @sum(i663..i672)
J674: @sum(j663..j672)
K674: @sum(k663..k672)
L674: @sum(l663..l672)
M674: @sum(m663..m672)
N674: @sum(n663..n672)
O674: @sum(o674..o674)

ROW 677
A677: Total Expenditures
C677: +c627+c646+c658+c674
D677: +d627+d646+d658+d674
E677: +e627+e646+e658+e674
F677: +f627+f646+f658+f674
G677: +g627+g646+g658+g674
H677: +h627+h646+h658+h674
I677: +i627+i646+i658+i674
J677: +j627+j646+j658+j674
K677: +k627+k646+k658+k674
L677: +l627+l646+l658+l674
M677: +m627+m646+m658+m674
N677: +n627+n646+n658+n674
O677: +o627+o646+o658+o674

ROW 679
A679: Net Cash Flow
C679: +c617-c677
D679: +d617-d677
E679: +e617-e677
F679: +f617-f677
G679: +g617-g677
H679: +h617-h677
I679: +i617-i677
J679: +j617-j677
K679: +k617-k677
L679: +l617-l677
M679: +m617-m677
N679: +n617-n677
O679: +o617-o677

ROW 681
A681: OTHER ADJUSTMENTS

ROW 683
A683: ADJUSTED NET

ROW 684
A684: CASH FLOW
C684: +c679+c681
D684: +d679+d681
E684: +e679+e681
F684: +f679+f681
G684: +g679+g681
```

```
H684: +h679+h681
I684: +i679+i681
J684: +j679+j681
K684: +k679+k681
L684: +l679+l681
C684: +m679+m681
M684: +n679+n681
O684: +o679+o681
```

BIBLIOGRAPHY

BIBLIOGRAPHY

American Institute of Certified Public. 1980. A Guide For Review of a Financial Forecast- Prepared by the Financial Forecasts and Projections Task Force.

Anderton, F.N. 1974. Centralized Cash Management for a Decentralized Company. Managing the Cash Flow- Selected Readings in Management Accounting. National Association of Accountants. p. 12.

Barry, P.J., J.A. Hopkin, C.B. Baker. 1983. Financial Management in Agriculture. The Interstate Printers and Publishers, Inc. Danville, Illinois. p.88.

Beehler, P.J. 1978. Cash Forecasting Models. Contemporary Cash Management Principles, Practices, Perspectives. John Wiley & Sons. New York. p. 190.

Bowers, R.L. 1974. Managing the Company's Cash. Managing the Cash Flow- Selected Readings in Management Accounting. National Association of Accountants. p.71.

Casey, C. J., N.J. Bartczak. 1984. Cash Flow- Its Not the Bottom Line. Harvard Business Review. 62:60

Drtina, R.E., J.A. Largay III. 1985. Pitfalls in Calculating Cash Flow From Operations. Accounting Review. 60:314.

Egginton, D.A. 1985. In Defense of Profit Measurement: Some Limitations of Cash Flow and Value Added as Performance Measures for External Reporting. Accounting and Business Research. 14:99

Ferrara, W.L. 1981. A Cash Flow Model for the Future Management Accounting. 62:12

Giles, R. N. 1977. Cash Flow Accounting for Capital Intensive Industries Industries. Australian Accountant. p.22.

Gross. Jr., J.M. 1972. Financial Accounting Guide for Nonprofit Organizations. The Ronald Press Company, New York.

Harsh, S.B., L.J. Connor, G.D. Schwab. 1981. Managing the Farm Business. Prentice Hall, Inc. p.70.

Heitger, L.E., S. Matulich. 1986. Managerial Accounting. 2ed. McGraw Hill. New York. p. 259.

Henke, E.O., R.L. Holmes, L.G. Conway, Jr. 1978. Managerial Use of Accounting Data. Gulf Publishing Company. Houston. p.117.

Hermanson, R.H., J.D. Edwards, C.A. Raiborn. 1984. Financial Accounting. 2ed. Business Publications Inc. Texas. p.679.

Hicks, B.E. 1980. The Cash Flow Basis of Accounting. Laurentian University. Sudbury, Ontario. p. 26.

Hockenberger, W.A. 1984. How to Improve a Company's Cash Management and Increase its Profits. Practical Accountant. 17:65

Jacobs, F.A., L.H. Beard, A.L. Hartgraves. 1983. Controlling Cash Flows in the Small Business. Business. 33:31.

Kirkpatrick, T.L. 1983. Just What Do You Mean...Cash Flow Accounting. Akron Business and Economic Review. 14:13.

Knight, H.C., Currie, Coopers, Lybrand. 1982. Cash Flow Forecasting and Control: Getting It Together. Cost and Management. 56:47.

Loscalzo, W. 1982. Cash Flow Forecasting. McGraw Hill Book Company. New York. p.1., p.137.

Lotus 1-2-3 User's Manual. 1983› Lotus Corporation. Cambridge, Massachusetts.

Milling, B.E. 1981. The Cash Flow Budget. Cash Flow Problem Solver. Chilton Book Company. Radnor, Pennsylvania. p. 271.

Mix, L.S., C.R. Hoglund, M.F. Finner, R.O. Martin, W. G. Merrill, M. E. Singley. 1978. Chore Reduction for Free Stall Dairy Systems: a Guide to Improve Returns for Dairymen. Fort Atkinson, Wisconsin. p. 8.

National Association of Accountants. 1961. Cash Flow Analysis for Managerial Control. Research Bulletion No. 38. p.7.

Nelson, A.G., W.F. Lee, W.G. Murray. 1973. Agricultural Finance. 6ed. The Iowa State University Press. Ames, Iowa. p.138.

Orgler, Y. E. 1970. Cash Management Methods an Models. Wadsworth Publishing Company, Inc. Belmont, California. p.1.

Osburn, D.D., K.C. Scheeberger. 1983. Modern Agricultural Management. A Systems Approach to Farming. 2 ed. Reston Publishing Company. Reston, Virginia. p.114.

Sautter, W.L. 1974. Projected Cash Needs. Managing the Cash Flow- Selected Readings. National Association of Accountants. p.60.

Sorter, G.H. 1982. The Emphasis on Cash and Its Impact on the Funds Statement. Journal of Auditing and Finance. p.188.

Straker, T. 1983. Forecasting Next Month's Cash Flow. Management Accounting. 61:32.

Wells, M.L. 1974. Cash Flow Analysis as Used by Management and the Financial Analyst. Managing the Cash Flow- Selected Readings in Management Accounting. National Association of Accountants. p.123.

Wilkins, E.A. 1974. Forecasting Cash Flow: Some Problems and Some Applications. Managing the Cash Flow- Selected Readings. National Association of Accountants. p.31.