Dairy Proforma Calculator (DPC) Instructions
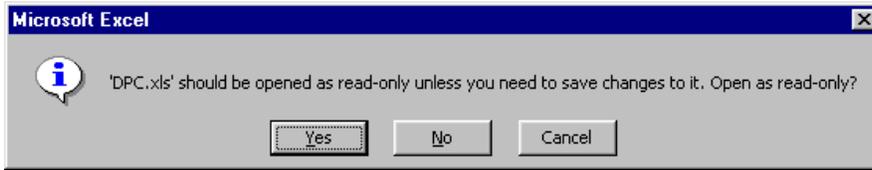
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August 1, 2010

Microsoft Excel

ⓘ 'DPC.xls' should be opened as read-only unless you need to save changes to it. Open as read-only?

[Yes]   [No]   [Cancel]

When loading DPC and this message appears, click the "No" button.

Worksheet Appearance (Inputs1 Tab)

Microsoft Excel - DPC99.xls

File Edit View Insert Format Tools Data Window Help

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	A	B	C	D	E	F	G	H	I	J
1	**Name:** E. X. Ample				**City:** Hometown, WI					
2	**Values that remain the same all 4 years:**									
3		Cow death loss %	3.00%		Replacement Heifer price		$1,200			
4		Calf death loss %	10.00%		Cull cow price		$450			
5		Heifer death loss %	2.00%		Calf price		$50			
6	**Values that can change each year:**									
7		Base Year		Year 1	Year 2	Year 3				
8	No. of Cows	75		75	75	75				
9	Milk Sales Pounds/Cow	20,000		20,000	21,000	21,500				
10	Milk Price per Hundredweight	$13.50		$13.50	$13.50	$13.50				
11	Cow culling rate %	30.00%		30.00%	30.00%	30.00%				
12	Percent of heifer calves raised	100.00%		100.00%	100.00%	100.00%				
13	Calving Interval for cows in herd (months)	13.5		13.5	13.5	13.5				
14	Age at first calving (months)	26		26	26	26				
15	No. heifers on Farm	64.8		64.8	64.8	64.8				
16	**Ration - Cows** Total Purchased Feed	$ 46,351		$ 46,351	$ 49,900	$ 51,675				
17	Tons of Hay Equivalent Required/Cow per Year	4.00		4.00	4.00	4.00				
18	Tons of Corn Silage Required/Cow per Year	6.00		6.00	6.00	6.00				
19	Pounds Corn (energy feed) Fed/cow per Day	18		18	18	18				
20	Pounds Protein Supplement Fed/cow per Day	6		6	6	6				
21	Mineral and other feed costs/cow per Year	$90.00		$90.00	$90.00	$90.00				
22	Above ration is balanced for ____ #'s of milk/cow/year.	20,000		20,000	20,000	20,000				
23	**Ration - Heifers**									
24	Tons of Hay Equivalent Required/heifer per Year	2.50		2.50	2.50	2.50				
25	Tons of Corn Silage Required/heifer per Year	0.00		0.00	0.00	0.00				
26	Pounds grain (energy feed) fed/heifer per Day	2		2	2	2				
27	Per calf cost for replacer and starter	$40.00		$40.00	$40.00	$40.00				
28	**Feed Prices**		Beginning Inventory of Feed and other Current Assets			$20,000				
29	Hay Equivalent (12% moisture) Price/Ton	$100.00		$100.00	$100.00	$100.00				
30	Corn Silage (65% moisture) Price/Ton	$25.00		$25.00	$25.00	$25.00				
31	Corn (energy feed) - Price/Bu (56 pounds)	$2.50		$2.50	$2.50	$2.50				
32	Protein Supplement - Price/Ton	$250		$250	$250	$250				
33	**Other Factors:**	$110,000	Initial Mach & Equip		Initial Buildings	$80,000				
34	Paid family labor and unpaid labor	$35,000		$37,500	$40,000	$42,500				
35	Hours of Labor provided by the above per year	4500		4500	4500	4500				
36	Hours of Labor Required per Cow/Year	60		60	60	60				
37	Hours of Labor Required per Heifer/Year	8		8	8	8				
38	Additional Hours of Labor Required /Year	1,329		1,329	1,329	1,329				
39	Labor Cost per Hour	$ 8.00		$ 8.25	$ 8.50	$ 8.75				
40	Miscellaneous Incomes	$10,000		$9,000	$8,000	$7,000				
41	Cost Inflation percentage			3.00%	3.00%	3.00%				
42	Expansion Livestock Purchased	$0		$0	$0	$0				
43	Crop Machinery or Livistock Equip Purchased	$20,000		$22,000	$24,000	$26,000				
44	Buildings, Manure or Feed Storage Purchased	$0		$0	$0	$0				
45	Land Purchased			$0	$0	$0				
46	Ending Assets per Cow excluding Land	$ 4,559		$ 4,616	$ 4,689	$ 4,776				
47	**Financing Information:**	Added Investment/Added Cow		N.A.	N.A.	N.A.				
48	Down Payments			$10,805	$23,172	$22,528				
49	New Borrowing Required			$11,195	$828	$3,472				
50	Total Debt	$175,000		$177,702	$168,616	$161,190				

Print Values Page 1

Inputs1 / Inputs2 / Profitability / Cash Flow / Ratios / R&S 1 / R&S 2 / R&S 3 / R&S 4 / Form 1 / Form 2

Imbedded Print Button (Note: these buttons are not printed when you select print. They are just on the sections to make printing easier.)

Tabs allow the user to move around the worksheet more efficiently. They are especially useful when the user is trying to examine the affects of basic assumptions. The user can make a change to a cell on the *Inputs1 Tab* and then quickly click on the *Profitability Tab, Cash Flow Tab, etc.* and view the results without having to scroll around the worksheet.

Tabs

Inputs1 Tab

All input cells in the program are in blue (lighter) type. These cells are the only places on the worksheet where information can be entered. The facilitator or student should enter all these values. However if the facilitator or student does not know the information required, the default value can be used.

Definitions of the information required are fairly self-explanatory. However, in some cases, an explanation may be helpful.

Values that remain the same all 4 years: Prices ($/head):

Cow death loss %		Cow/Heifer price $	
Calf death loss %		Cull cow price $	
Heifer death loss %		Calf price $	

Note: Prices must be entered in dollars per head.

Note: The factors affecting "Replacement Sales" on the Profitability tab are: cow culling rate, cow death loss, calf death loss, heifer death loss, calving interval for cows in the herd, age of heifers at first calving, and percent of heifer calves raised. If the worksheet calculates "Replacement Sales" in the Base Year that is not in step with reality, those factors should be reexamined before using the results of this worksheet.

Values that can change each year:

	Base Year	Year 1	Year 2	Year 3
No. of Cows				
Milk Sales Pounds/Cow/Year				
Milk Price				
Cow culling rate %				
Percent of heifer calves raised				
Calving Interval for cows in herd (months)				
Age of heifers at first calving (months)				
No. heifers on farm	Calculated	Calculated	Calculated	Calculated

Number of Cows - enter the average number of cows you expect to have on hand each year, both milking and dry.

Milk Sales Pounds/Cow/Year - the pounds of milk you expect to sell per cow each year (not your RHA)

Milk Price - the gross price you expect to receive for milk each year – include any bonuses for quantity, quality, etc.

Cow culling rate - percent of your herd that is culled annually.

No. heifers on farm - this value is calculated based on the number of cows, the percent of heifers raised, calving interval for cows, and the heifers age at first calving.

Ration - Cows:

	Base Year	Year 1	Year 2	Year 3
Tons of Hay Equivalent Required/Cow/Y				
Tons of Corn Silage Required/Cow/Y				
Pounds Corn (energy feed) Fed/Cow /Day				
Pounds of Protein fed per cow per day				
Mineral and other feed costs/Cow/Year				
Above ration balanced for ____ #'s milk/cow/Y				

Hay equivalent forage –the values entered here will help determine if your farm has forage to sell or how much forage it must buy. The surplus or deficit is multiplied by the price entered to determine forage income or expense. The other information needed to complete this calculation will be entered later (yield per acre (in hay equivalents) and the number of acres).

Corn Silage –the values entered here will help determine if your farm has corn silage to sell or will need to buy corn silage. The surplus or deficit is multiplied by the corn silage price and added to the forage income or expense. The other information needed to complete this calculation will be entered later (yield per acre (in tons of corn silage at 65% moisture) and the number of acres).

Pounds of corn fed per cow per day – <u>average</u> pounds of corn or energy feeds fed per day for the number of days you will be entering below. The pounds feed fed must be on a pound of 15% moisture (the standard) corn equivalent.

Pounds of protein fed per cow per day – enter the pounds per day of whatever protein supplement or combination of supplements you are feeding. Remember to enter in the "Protein Supplement ($/ton)" cell the price you are paying for the weighted average of the protein supplements you are feeding.

 Above ration is balanced for ____ #'s of milk per cow per year - the program will <u>automatically</u> increase the feed fed to your dairy cows when the milk sold per cow exceeds this level. The pounds of milk/cow/year entered here should be directly related to the feed ration entered. <u>This feature allows you to see the results of different production levels **without** having to rebalance the ration.</u>   This feature adds to your feed costs at the rate of one-half of a pound of corn and one-fifth of a pound of protein, for each additional pound of milk produced.

Ration - Heifers:

	Base Year	Year 1	Year 2	Year 3
Tons of Hay Equivalent Required per Heifer/Year				
Tons of Corn Silage Required per Heifer/Year				
Pounds Corn (energy feed) Fed/Heifer/Day				
Per calf cost for replacer and starter				

Prices:
Beginning Inventory of Feed and other Current Assets $_____

	Base Year	Year 1	Year 2	Year 3
Hay equivalent forage (12% moisture) Price/Ton				
Corn Silage (65% moisture) Price/Ton				
Corn (energy feed) – Price/Bu (56 pounds)				
Protein Supplement – Price/Ton				

Other Factors:
$_____ Initial equipment & machinery   Initial Buildings $_____

	Base Year	Year 1	Year 2	Year 3
Paid family labor and unpaid labor				
Hours of Labor provided by above /year				
Hours of Labor Required per Cow/Year				
Hours of Labor Required per Heifer/Year				
Labor Cost per Hour				
Miscellaneous incomes				
Cost inflation percentage	Not Req'd			
Expansion livestock purchased				
Machinery purchased				
Building purchased				
Land purchased				

Paid family labor and unpaid labor – the value (opportunity cost) of the unpaid labor and the paid family labor hours entered below.

Do not include the value of unpaid management here. It will be calculated based on a percent of total income.

Miscellaneous Incomes – Custom work, property tax refunds, cooperative dividends, government payments, etc.

Cost Inflation percentage – the cost of inflation adjusted expenses will increase by this percentage. Examples of inflation adjusted expenses are: vet costs, breeding fees, fuel, fertilizer, seeds, chemicals, utilities, hired labor, and others.

Expansion Livestock Purchased - Enter only the cost of purchasing expansion livestock in years 1-3. The program will determine the maintenance livestock purchases required.

Machinery Purchased – The initial value of machinery and equipment is entered above, only new purchases here.

Building Purchased -Initial value of buildings and the building site enter above.

Land Purchased – Base Year value of land is determined by "Value of Crop Land per acre". It is entered later.

Financial Information:

	Base Year	Year 1	Year 2	Year 3
Down payments	Not Req'd			
New borrowing required	Not Req'd	Calculated	Calculated	Calculated
Total debt at start of year		Calculated	Calculated	Calculated

Down Payments – Years 1-3 are the net cash flow of the previous year or an amount entered by the user. No entry is needed or required in Base Year.

New Borrowing Required – A calculated value based on purchased assets (expansion livestock, machinery, buildings and/or land) minus any down payments

Total Debt – **BaseYear** – Enter the total debt at the start of the base year. The program calculates debt in years 1-3. The formula is: previous years ending debt (based on repayment show in the cash flow) plus the new borrowing required.

Debt/Loans:

Interest Rate on Line of Credit _____% _____% _____%

		Base Year	Year 1	Year 2	Year 3
Loan #1:	Interest Rate				
	Years Remaining				
	Amount Due				
Loan #2:	Interest Rate				
	Years Remaining				
	Amount Due				
Loan #3:	Interest Rate				
	Years Remaining				
	Amount Due	Calculated	Calculated	Calculated	Calculated

Loan #1 and Loan #2 are subtracted from total debt to determine Loan #3's amount. Enter the interest rate and the years remaining for each loan or group of loans.

It is not necessary to split a farm manager's total debt into three loans. The user could have all the debt as "Loan #3" and adjust the "Interest Rate" and "Years Remaining" so that the amount of interest and principal paid (as calculated by DPC) matches the actual interest and principal paid by the farm manager in the Base Year. The purpose of entering the loans is to obtain an accurate Base Year cash flow and entering all the debt as one loan can accomplish is goal.

Inputs2 Tab

Livestock expenses:

Transition planning requires more information than just the total current expense. Many expense items need to be broken into their components. The first component of an item's cost is considered fixed cost (example: you must wash the milk lines after each milking regardless of the number of cows milked). Enter this (a fixed cost) in the "per farm" cell.

The second component of an item's cost is considered variable cost. Costs that vary as the numbers of cows vary should be entered in the "per cow" cell. Example: each additional cow requires additional towels, teat dip, etc.

Costs that vary as the numbers of heifers vary should be entered in the "per heifer" cell.

Costs that vary as the hundredweight of milk sold per cow varies and/or increases should be entered in the "Amount" cell. Example: the deduction for WMMB & NDRPB is $0.15 per cwt on all milk sold (starting at zero pounds of milk sold).   Another example: veterinary cost can be increased by $0.50 per cwt of milk sold in excess of 12,000 pounds per cow per year by entering $0.50 in the "Amount" cell and 12,000 in the "Extra cost per cwt of milk starting #s" cell.

Base Year

	per farm	per cow	per heifer	Extra cost per cwt of milk starting #'s	Amount
Vet costs					
Supplies					
Breeding fees					
Fuel/Oil/Gas					
Utilities					
Bedding					
Custom Hire					
Other Expenses					

Other Years

	per farm	per cow	per heifer	Extra cost per cwt of milk starting #'s	Amount
Vet costs					
Supplies					
Breeding fees					
Fuel/Oil/Gas					
Utilities					
Bedding					
Custom Hire					
Other Expenses					

These costs are adjusted by cost inflation rate each year.

Crop expenses:

Facilitator or student must enter individual crop names and the dollars of expense per acre for each of the specified items (Zero is an acceptable entry.). The first four crops **must be** grains and the last five **must be** forages.

Due to its increasing importance, corn silage is handled separately from other forages.

Base Year

Crop	Dollars of Expense per Acre					
	Fert & Lime	Seed	Chemicals	Fuel	Custom Hire	Labor
Corn Silage						

Other Years

Dollars of Expense per Acre

Crop	Fert & Lime	Seed	Chemicals	Fuel	Custom Hire	Labor
Corn Silage						

These costs are adjusted by cost inflation rate each year.

Note: The best place to enter fence repair costs is in the "Custom Hire" cell. The repair cost of machinery is entered later.

Value of Crop Land/Acre - $_____

Yields

Crop	Base Year	Year 1	Year 2	Year 3
Corn Silage				

Note: Crop names are automatically copied from the table above.

Note: Grain crop yields must be in bushel of corn grain equivalents. Corn silage must be in tons at 65% moisture and forage crop yields must be in hay equivalents.

| | Acres | | | |
Crop	Base Year	Year 1	Year 2	Year 3
Corn Silage				
Total Crop Acres	Calculated	Calculated	Calculated	Calculated
Acres Rented	Calculated	Calculated	Calculated	Calculated
Rental Rate/ Acre				
Acres Owned				

Base Year Actual Income and Expenses

On the "Chk" Tab, there is a place to enter this farm's actual Base Year income and expenses, from tax or other records. Also, this area of the program generates an income and expense statement, based on DPC entries. They are in a format that can be compared to the farm's actual Base Year income and expenses.

	Actual Income	Estimated Base Year income by DPC	
Shown on Schedule F	180,000	180,296	
Shown on Form 4797	12,000	11,754	
Increase in Inventory	0	-	
Total Income	192,000	192,050	These two values should be nearly equal because inventory increases are sold by DPC.

	Actual Expenses	Estimated Base Year expenses by DPC	DPC - Actual	
Shown on Schedule F				
Car and Truck	1,500		(1,500)	
Chemicals	2,000	2,250	250	
Conservation Expense	0		0	
Custom Hire	1,200	1,250	50	
Tax Depreciation	13,000	*14,500*	1,500	*Economic Depreciation*
Employee Benefits	2,000		(2,000)	
Feed Purchased	30,000	29,765	(235)	
Fertilizer and Lime	7,000	7,050	50	
Freight and Trucking	750		(750)	
Gas, Fuel, and Oil	3,500	3,481	(19)	
Insurance	3,000	3,173	173	
Interest - Mortgage	5,000	4,932	(68)	
Interest - Other	9,000	9,048	48	
Labor Hired	5,000	6,966	1,966	
Pension and Profit Share	0		0	
Rent Mach equip	0		0	
Rent Land Livestock	0	-	0	
Repairs	10,000	10,725	725	
Seeds	3,500	3,525	25	
Storage	0		0	
Supplies	6,500	6,467	(33)	
Taxes	4,500	4,710	210	
Utilities	5,000	4,731	(269)	
Veterinary Breeding, Med	8,500	8,343	(157)	
Other	9,500	11,637	2,137	
Total Schedule F Expenses	130,450	132,553		
Schedule F minus Depreciation	117,450	118,053	603	This value should be near zero.

Profitability Tab

Several numbers on the Profitability Results sheet are used to calculate Capital Recovery Charge, repair costs, management charge, etc. They are in blue (lighter color) print in the Fixed Cost section of the sheet. The values entered are recommended values. They can be changed. However, if you change an item's value be sure you are basing the change on solid information.

On average, the value of land increases 4 percent each year, because this increase is not included as income in these calculations the interest charge on land should be approximately 4 percent less than the interest charge used on other assets.

Depreciation is only taken on expansion livestock purchases. Replacement livestock purchases are expensed immediately.

Profitability Results

Return Over…

Return Over Variable Costs = Total Income - Variable Costs

Return Over Cash Costs = Total Income – Variable Costs - Property Tax - Basic Liability Insurance - Repairs, Insurance (Building, Machinery, Livestock)

Return Over Total Costs = Total Income - Total Costs = Economic Profit

The "Return Over Total Costs" is the economic profit in each year. The level of economic profit is extremely important information. However the calculation of Total Costs does include a charge for the "Opportunity Costs" of equity capital, operator labor, and management. These inclusions make it difficult for a plan to show an economic profit. In addition, some farm manager's goals may not include a return to their equity capital or management, so this value should be examined with their goals in mind.

However, the plan must cash flow, even if the planner has goals other than profit. So check the "Cash Flow Summaries", because the cash flow of the transition plan may be positive when the economic profit is negative.

Next, check the Ratio sheet to see if your situation is improving. To see the risk and sensitivity of your transition plan, look at the "R & S" tabs.

Transition Cash Flow and Cash Flow Tabs

The transition cash flow (TransDF) Tab allows you to set the month in which the income and expenses of the project will start. This makes this a 4-year planner, if all you want in the transition year is a cash flow. The cash flow Tab a summary of the cash flow, by month, for each of the 4 years and calculates the line of credit needed each year. No inputs are needed on this tab.

Ratios Tab

The Ratios Tab shows financial ratios plus other factors. There are six sections on this report. They are profitability, financial efficiency, repayment capacity, liquidity, solvency, and labor. Each item in each section has the base year's value adjacent to the three out years' values.

Profitability Section
There are five items in this section. Four are from the Farm Financial Standards Task Force (FFSTF); Net Farm Income From Operations (NFIFO), Rate of Return on Assets, Rate of Return on Equity, and Profit Margin. The fifth item is Return to Unpaid Labor and Management. This is calculated using the interest rate on land as equity's opportunity interest rate.

Financial Efficiency
There are seven items in this section. Four are from the FFSTF; Asset Turnover Ratio, Interest Paid Ratio, Depreciation Ratio, and NFIFO Ratio. A fifth FFSTF financial efficiency ratio (Operating Cost Ratio) is split into two values in this work because of the increasing need to track the wages and benefits paid separately from other operating costs. These two new measures are Basic Cost Ratio and Wages Paid Ratio.

Note: Basic costs are total accrual adjusted costs minus all wages and benefits paid, interest paid and depreciation taken. Operating costs are total accrual adjusted costs minus interest paid and depreciation claimed.

The other financial efficiency ratio calculated here useful only to dairy farmers. It is the Basic Cost per Hundredweight Equivalent. This is a measure of cost control in milk production. The goal is $7.50 or less.

Repayment Capacity
There are three items in this section. They are Capital Replacement and Term Debt Repayment Capacity, Coverage Margin, and Coverage Ratio. They are all from the FFSTF standards.

Liquidity
There are five items in this section. Net Cash Farm Income is the only FFSTF item here. The other four are Basic Cost Coverage Margin, Basic Cost Coverage Margin per Cow, Line of Credit Required, and a Risk Index. The risk index is calculated as follows:

$$\frac{\text{Milk Price Required to Cover All Cash Needs (including family living) Except New Investment}}{\text{Most Likely Milk Price}}$$

The lower this index's value the better and it should be less than one. The goal is 90 percent or less.

Solvency
There are eight items in this section and only one is from the FFSTF (Debt to Asset Ratio). The other seven are Average Assets, Assets per Cow at Year's End, Ending

Assets per Cow excluding Land, Average Liabilities, Debt per Cow at Year's End, Change in Farm Net Worth, and Ending Farm Net Worth.

Labor
There are three items in this section and none are from the FFSTF. The items are Labor Cost per Full Time Employee Equivalent, Labor Cost per Hundredweight Equivalent, and Milk Sold per FTE Equivalent. Include both paid family and unpaid labor (as well as other paid labor) when entering the number of Full Time Employee Equivalents on this farm.

Risk and Sensitivity (R&S) Tabs

There are 4 risk and sensitivity tabs. Each one has a set of required entries in order to make the output more plan specific. The "R&S 1" tab requires you best judgment about the minimum and maximum expected milk price during the first year of the plan. Also it asks for your best judgement about minimum and maximum pounds of milk sold per cow and herd size. These numbers are used to create a sensitivity table and a risk analysis on the probability of "X" of dollars of cash margin being available. This is calculated assuming no additional borrowing. This is a two dimensional table and three values are being analyzed, therefore two values must be on the same axis. Milk sales per cow and the herd size are on the same axis.

The "R&S 2" tab looks at how changes in the corn and/or protein price and corn yield affects your cash margin. You must enter your best judgement on minimum and maximum values for those items. This is a two dimensional table and three values are being analyzed, therefore two values must be on the same axis. Protein price and corn yields are on the same axis. Both move from worst to best, in other words, when the protein price is high the corn yield is low.

The "R&S 3" tab looks at how changes in the corn and/or hay price and corn and/or hay yield affects your cash margin. Plans that rely heavily on purchased feeds will show more variation. This is a two dimensional table and four values are being analyzed, therefore three values are on the same axis. Hay price, hay yields and corn yields are on the same axis. All three items move from worst to best, in other words, when the hay price is high the hay yield and the corn yield are low.

The "R&S 4" tab looks at how changes in the average interest rate and the amount of farm debt affects your cash margin. Basically, how will cost overruns and changing interest rates (due to accounts payable interest or other causes) affect the plan's ability to cash flow. The user can enter the desired increments to the interest rate and/or debt level in each year.

Input Forms (Form) Tabs

Select these tabs to print an input form.

Income and Expense Tabs

The income and expense tabs use a <u>sum and percentage calculation</u> to allocate the total annual income or expense in a category into monthly income or expense for that category. The dollars of income and expense allocated into each month provides the starting point for the cash flow summaries.

A <u>sum and percentage calculation</u> functions as follows: A number is entered in each of 12 cells (representing the 12 months). These are summed. This sum is divided into each cell's entry to determine the percentage of that category's total annual income or expense taking place during that month.

Example: Suppose you think the income or expense in a category will be the same every month, you would enter the same number into each month's cell. This will cause the program to place one-twelfth of that category's total income or expense into each month.

This system works for any set of numbers. Suppose you must pay one half your property taxes in January and the other half in July.   You could then enter a "one" in the January cell, a "one" in the July cell, and zeros in the other ten cells in the property tax's row. The sum of the row (12 months) is "2". Divide "2" into the entry in each cell. This yields a zero in all months except January and July, which are 0.5.

Loans Tab

This tab provides the input into the cash flow tab for up to three loans for each of the four years. No input is required here.

Probability (P) Tabs

These tabs calculate the values required by the risk and sensitivity tabs. No input is required here.

Summary

This program was designed for use both in the classroom and at the kitchen table. The program was designed to make the user aware of the various types of information necessary to construct a good business plan and how uncertainty (risk) affects the outcome.

The method for analyzing a plan's risk is a triangular distribution based on the most likely, the minimum and the maximum expected outcomes. This method is simple and provides the user with a basic approach for looking at risk in conjunction with business planning.

The program has been used for planning and risk assessment on actual farms. The farm managers and loan officers in question have been pleased with the insight and information the program has provided them.