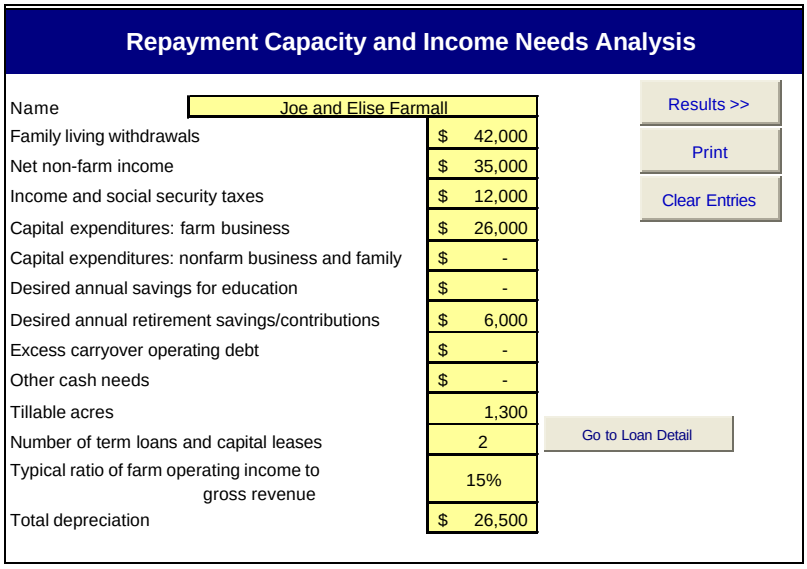
Repayment Capacity Analysis

With this program, the user can estimate the cash needs required to meet living, debt, and investment payments plus evaluate the risks and returns for seven different types of farm leases.

This program is designed to calculate the income needs of a farm operation not including operating costs. Furthermore, the program will help the user choose which farm lease arrangement is preferred for both the landlord and the tenant.

The first tool in the program analyzes the repayment capacity and income needs of a farm. Projections are based on the cash needed to support term debt payments, family living expenses, income and Social Security taxes, planned investments, and carryover debt.

The graphic below shows the input page for the Repayment Analysis tool along with accommodating buttons.



Results >> Takes the user to the results page of the tool where projected income requirements are calculated.

Print Allows the user to print the input page.

Clear Entries Allows the user to clear all data in the input page.

Go to Loan Detail Takes the user to the term debt page of the tool where descriptive information regarding term loans is entered.

Inputs

The Repayment Capacity Analysis tool allows the user to enter required information on a single input screen. The graphic below shows information for an example farm operation, Joe and Elise Farmall.

Repayment Capacity and Income Needs Analysis

Results >>

Print

Clear Entries

Name	Joe and Elise Farmall
Family living withdrawals	$ 42,000
Net non-farm income	$ 35,000
Income and social security taxes	$ 12,000
Capital expenditures: farm business	$ 26,000
Capital expenditures: nonfarm business and family	$ -
Desired annual savings for education	$ -
Desired annual retirement savings/contributions	$ 6,000
Excess carryover operating debt	$ -
Other cash needs	$ -
Tillable acres	1,300
Number of term loans and capital leases	2
Typical ratio of farm operating income to gross revenue	15%
Total depreciation	$ 26,500

Go to Loan Detail

Information Entered

The tool asks for the following information based on a single year:

- Name of the user
- Estimated family living expenses
- Net non-farm income
- Income and Social Security taxes
- Farm capital expenditures
- Non-farm business and family capital expenditures
- Savings contribution for education purposes
- Savings contribution for retirement
- Operating debt carryover from previous year
- Miscellaneous cash needs
- Total acres farmed
- Current number of term loans and capital leases
- Typical ratio of farm operating income to gross revenue
  - This represents income before taxes divided by gross revenue
- Total depreciation

Term Loan and Capital Lease Payment Detail

The screen below allows the user to enter specific information regarding each capital term loan or lease. This section is for term debt only.

Term Loan and Capital Lease Payment Detail

Return | Print

Description	Outstanding Balance	Interest Rate	Years Remaing	Estimated Annual Payment: Total Payment	Interest Portion	Principal Portion
1 Real estate	$ 225,000.00	7.00%	12	28,328	15,750	12,578
2 Equipment	100,000.00	6.00%	5	23,740	6,000	17,740
Total	**$ 325,000.00**			**$ 52,068**	**$ 21,750**	**$ 30,318**

Return — Returns the user to the input screen of the tool.

Print — Allows the user to print the loan detail page.

The following loan details are entered: present outstanding balance, interest rate, and years remaining on the note. For each loan, the tool computes the total yearly payment and the interest and principal portions of the total payment. In the above example, the Farmall's have entered information for two loans: real estate and equipment.

Required Earnings Analysis

The Earnings Analysis page, seen below, reports the earnings needed to meet financial demands for a one-year time period. Note that this program does not include the current year's operating expenses when estimating income needs.

Required Earnings Analysis
Joe and Elise Farmall

<< Back | Risk Analysis >> | Print

			$	Per acre
Stage 1	Debt and capital lease obligations:			
	Term interest		$ 21,750	16.73
	Scheduled term principal payments		30,318	23.32
	Family living expenses		42,000	32.31
	Income and SS taxes		12,000	9.23
	Excess carryover operating debt		-	0.00
	Net non-farm income	-	35,000	26.92
	Required net earnings before interest, taxes and depreciation **(EBITDA)**	100%	$ 71,068	$ 54.67
	Sensitivity	110%	*$ 78,174*	*$ 60.13*
	Range	125%	*$ 88,834*	*$ 68.33*
Stage 2	**Desired Investment flows:**			
	Capital expenditures for the farm business		$ 26,000	$ 20.00
	Capital expenditures for non-farm and family		-	-
	Desired annual savings for education		-	-
	Desired annual retirement savings/contributions		6,000	4.62
	EBITDA required to meet all investment flows, interest, taxes and deprec.	100%	$ 103,068	$ 79.28
	Sensitivity	110%	*$ 113,374*	*$ 87.21*
		125%	*$ 128,834*	*$ 99.10*
Stage 3	**Other cash needs**		$ -	-
	EBITDA required to meet all cash needs	100%	$ 103,068	$ 79.28
	Sensitivity	110%	*$ 113,374*	*$ 87.21*
		125%	*$ 128,834*	*$ 99.10*

Estimated Gross Revenue Required to Generate Earnings to Cover Cash Needs

			$	Per acre
Stage 1: Term Debt, Living and Taxes	Baseline	100%	$ 152,117	$ 229
	Sensitivity	110%	167,329	251
		125%	190,147	286
Stage 2: Term Debt, Living, Taxes and Investments	Baseline	100%	$ 365,451	$ 393
	Sensitivity	110%	401,996	432
		125%	502,495	491
Stage 3: Term Debt, Living, Taxes, Investments, & Other	Baseline	100%	$ 365,451	$ 393
	Sensitivity	110%	401,996	432
		125%	502,495	491

<< Back Returns the user to the input screen of the tool.

Risk Analysis >> Takes the user to the Budget worksheet for the Risk Analysis tool.

Print Allows the user to print the Earnings Analysis page.

Results in the Earnings Analysis page are displayed on the right side of the screen in two columns. The first column ($) represents total dollar amounts and the second column (Per acre) shows dollars per acre. The analysis is divided into three stages:

Stage 1

Debt and capital lease obligations:					
Term interest			$ 21,750		16.73
Scheduled term principal payments			30,318		23.32
Family living expenses			42,000		32.31
Income and SS taxes			12,000		9.23
Excess carryover operating debt			-		0.00
Net non-farm income		-	35,000		26.92
Required net earnings before interest, taxes and depreciation **(EBITDA)**		100%	$ 71,068	$	54.67
	Sensitivity	110%	*$ 78,174*	*$*	*60.13*
	Range	125%	*$ 88,834*	*$*	*68.33*

Stage 1 shows earnings needed to meet the following fixed obligations: term debt, family living expenses, income and Social Security taxes, and carryover operating debt. In the example above, the Farmall's need $71,068 in earnings for the year, or $54.67 per acre, to satisfy their critical financial commitments. These values are shown in the box in the lower right corner of the above graphic. The values above the box represent information entered in the input sections of the tool.

The sensitivity range indicates the cushion of excess earnings to meet financial obligations. The user can calculate a financial cushion at two different levels. The Farmall's entered values of 110% and 125% to figure earnings needed to cover a 10% and 25% increase in income requirements. If expenses in Stage 1 increase by 10%, $78,174 in earnings is needed to meet financial obligations and a 25% increase in expenditures requires a yearly income of $88,834.

Stage 1 indicates the yearly earnings needed to meet critical financial commitments of the farm operation.

Stage 2

Desired Investment flows:			
Capital expenditures for the farm business		$ 26,000	$ 20.00
Capital expenditures for non-farm and family		-	-
Desired annual savings for education		-	-
Desired annual retirement savings/contributions		6,000	4.62
EBITDA required to meet all investment flows, interest, taxes and deprec.	100%	$ 103,068	$ 79.28
Sensitivity	110%	*$ 113,374*	*$ 87.21*
	125%	*$ 128,834*	*$ 99.10*

Stage 2 reports earnings required to satisfy farm and non-farm capital expenditures, savings for education and retirement, and cash obligations in Stage 1. Again, sensitivity analysis is conducted based on the range entered in Stage 1.

Stage 2 accounts for critical financial requirements (Stage 1) plus desired investments.

Stage 3

Other cash needs			$ -	-
EBITDA required to meet all cash needs		100%	$ 103,068	$ 79.28
	Sensitivity	110%	*$ 113,374*	*$ 87.21*
		125%	*$ 128,834*	*$ 99.10*

Stage 3 reveals the earnings needed to meet all income demands of the farm operation by including the “Other cash needs” input. The above graphic shows that the Farmall’s must earn $103,068 to satisfy all income needs of their business for a one-year time period.

Estimated Gross Revenue Required

Estimated Gross Revenue Required to Generate Earnings to Cover Cash Needs			$	Per acre
Stage 1: Term Debt, Living and Taxes	Baseline	100%	$ 152,117	$ 229
	Sensitivity	110%	167,329	251
		125%	190,147	286
Stage 2: Term Debt, Living, Taxes and Investments	Baseline	100%	$ 365,451	$ 393
	Sensitivity	110%	401,996	432
		125%	502,495	491
Stage 3: Term Debt, Living, Taxes, Investments, & Other	Baseline	100%	$ 365,451	$ 393
	Sensitivity	110%	401,996	432
		125%	502,495	491

The above graphic summarizes the estimated gross revenue required to generate earnings to cover the financial needs of each stage. According to Stage

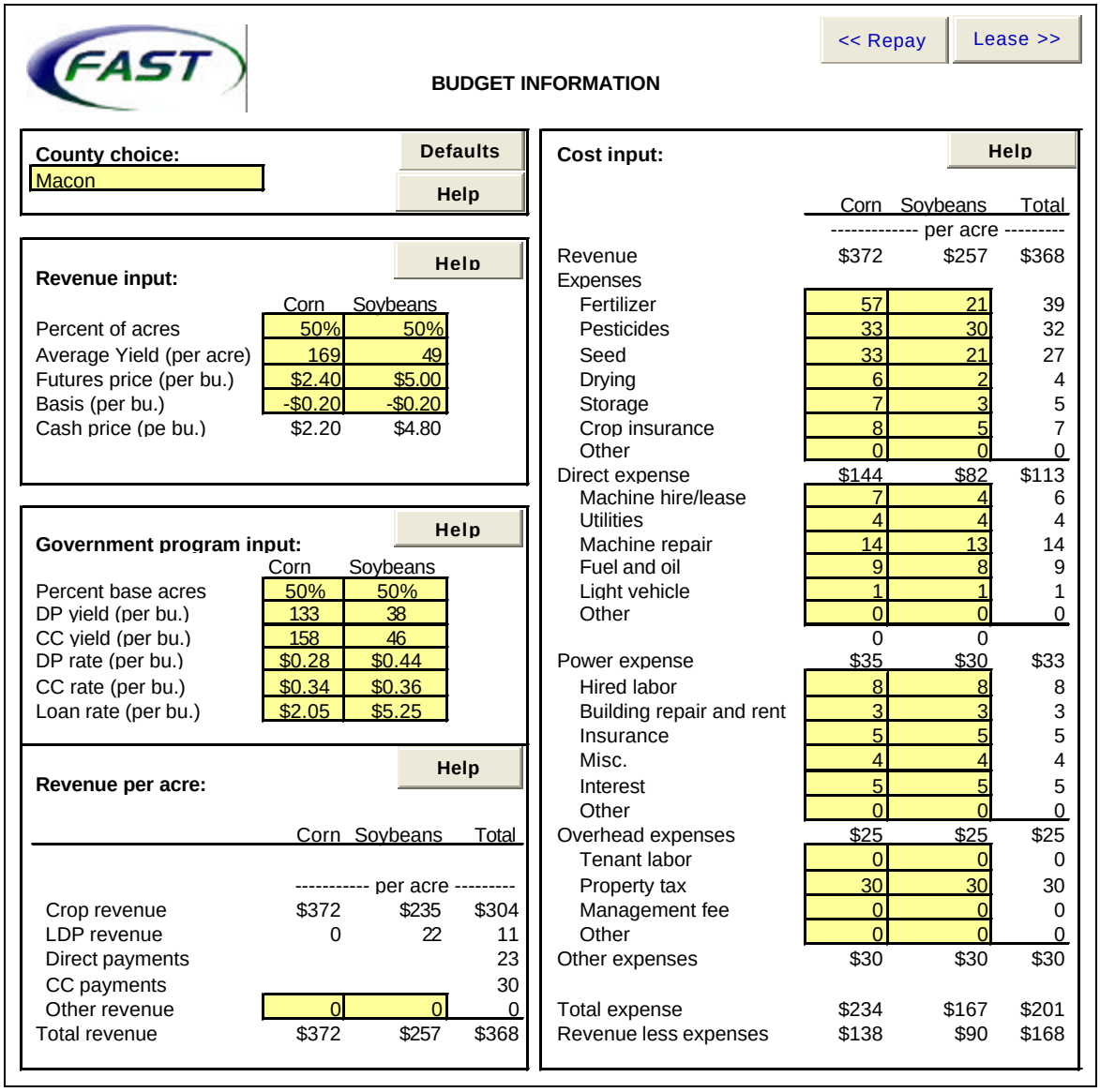
3 in the graphic on the previous page, the Farmalls must earn $365,451 in gross revenue for the year to meet all income requirements.

Farmland Lease Risk Analysis

The Risk Analysis tool allows the user to compare the risks and returns for 7 different types of farmland leases, using actual farm data or a default budget provided for farm operations that grow corn and soybeans in Illinois.

Inputs are entered in three worksheets: Budget, Lease, and Splits.

Budget Worksheet



FAST

<< Repay | Lease >>

BUDGET INFORMATION

County choice: Macon — Defaults — Help

Revenue input: Help

	Corn	Soybeans
Percent of acres	50%	50%
Average Yield (per acre)	169	49
Futures price (per bu.)	$2.40	$5.00
Basis (per bu.)	-$0.20	-$0.20
Cash price (pe bu.)	$2.20	$4.80

Government program input: Help

	Corn	Soybeans
Percent base acres	50%	50%
DP yield (per bu.)	133	38
CC yield (per bu.)	158	46
DP rate (per bu.)	$0.28	$0.44
CC rate (per bu.)	$0.34	$0.36
Loan rate (per bu.)	$2.05	$5.25

Revenue per acre: Help

	Corn	Soybeans	Total
	---------- per acre ---------		
Crop revenue	$372	$235	$304
LDP revenue	0	22	11
Direct payments			23
CC payments			30
Other revenue	0	0	0
Total revenue	$372	$257	$368

Cost input: Help

	Corn	Soybeans	Total
	---------- per acre ---------		
Revenue	$372	$257	$368
Expenses			
Fertilizer	57	21	39
Pesticides	33	30	32
Seed	33	21	27
Drying	6	2	4
Storage	7	3	5
Crop insurance	8	5	7
Other	0	0	0
Direct expense	$144	$82	$113
Machine hire/lease	7	4	6
Utilities	4	4	4
Machine repair	14	13	14
Fuel and oil	9	8	9
Light vehicle	1	1	1
Other	0	0	0
	0	0	
Power expense	$35	$30	$33
Hired labor	8	8	8
Building repair and rent	3	3	3
Insurance	5	5	5
Misc.	4	4	4
Interest	5	5	5
Other	0	0	0
Overhead expenses	$25	$25	$25
Tenant labor	0	0	0
Property tax	30	30	30
Management fee	0	0	0
Other	0	0	0
Other expenses	$30	$30	$30
Total expense	$234	$167	$201
Revenue less expenses	$138	$90	$168

<< Repay Returns the user to the input page of the Repayment Analysis tool.

Lease >> Takes the user to the Lease worksheet of the Risk Analysis tool.

Defaults Enters default information for the county selected in the "County Choice" input.

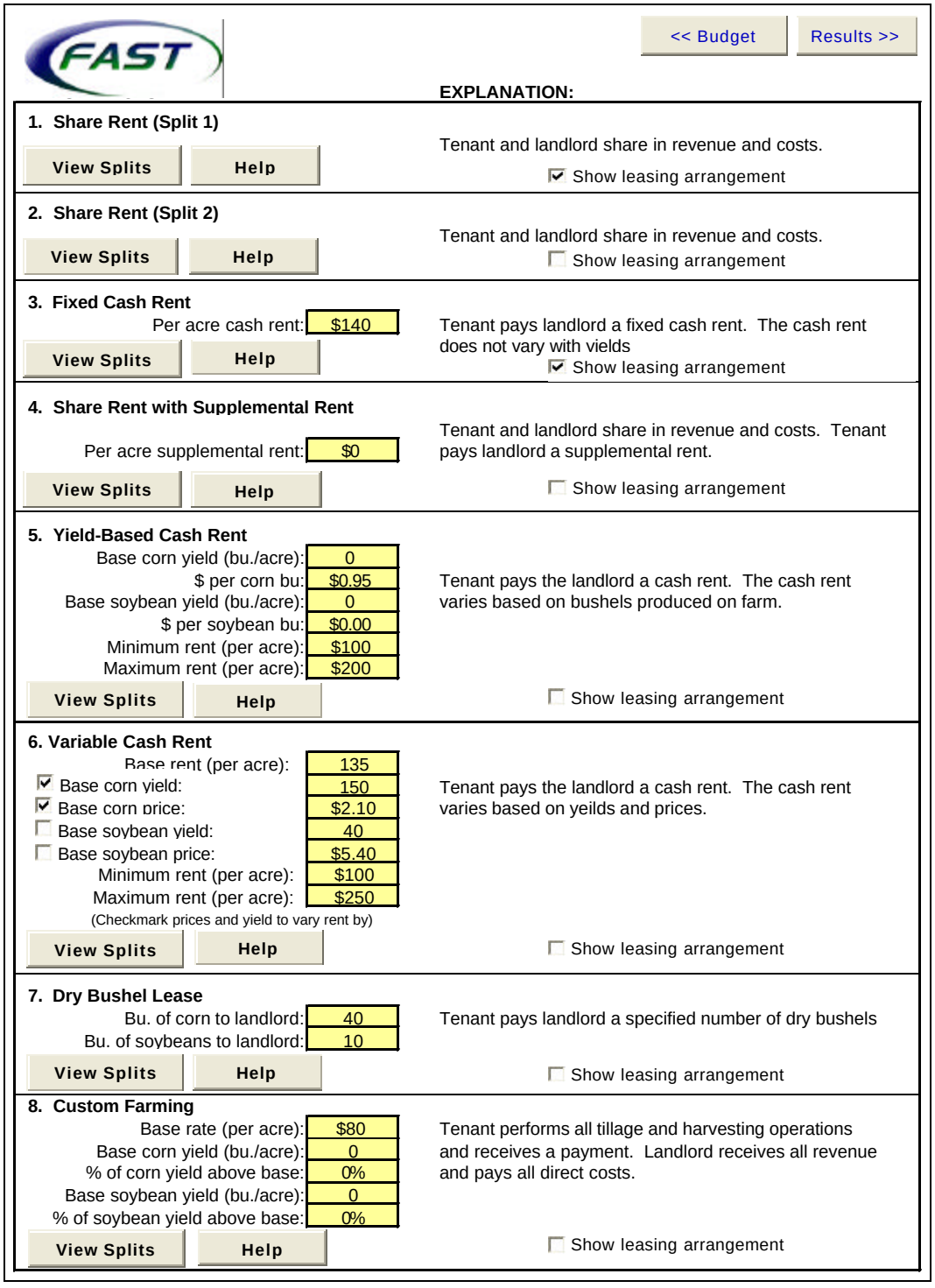
Help Provides a detailed description of each input section on the Budget page.

In the Budget worksheet, graphic on the previous page, the user enters revenue and expenses on a per acre basis for both corn and soybeans. The left side of the budget displays inputs for calculating per acre crop revenue. The right side of the budget provides inputs for entering per acre costs of production for both corn and soybeans. At the bottom of this section, revenue less expenses is calculated on a per acre basis. The landlord and tenant will split this amount between themselves under different lease arrangements.

The user may use default revenue and cost information by clicking the "Defaults" button. This data is based on Illinois farms enrolled in the Farm Business Farm Management Association.

Lease Worksheet

In the Lease page, below graphic, the user may choose to analyze up to 7 different lease options: Share Rent (2 options: Split 1 and Split 2), Fixed Cash Rent, Share Rent with Supplemental Rent, Yield-Based Cash Rent, Variable Cash Rent, Dry Bushel Lease, and Custom Farming.



<< Budget Returns the user to the Budget worksheet of the Risk Analysis tool.

Results >> Takes the user to the Results page of the tool where the income needs for each lease arrangement is assessed.

Each lease option asks for different information according to the specific arrangement. The Share Rent section, discussed further below, allows for two different types of rental arrangements, while the Variable Cash Rent section allows the user to select, using a check mark, which prices and yields to use in the analysis.

A more detailed description of each lease type can be obtained by clicking the **Help** button next to each lease arrangement. Each lease type also has a check mark option titled “Show leasing arrangement”. Checking this box will show the lease type in the Results page.

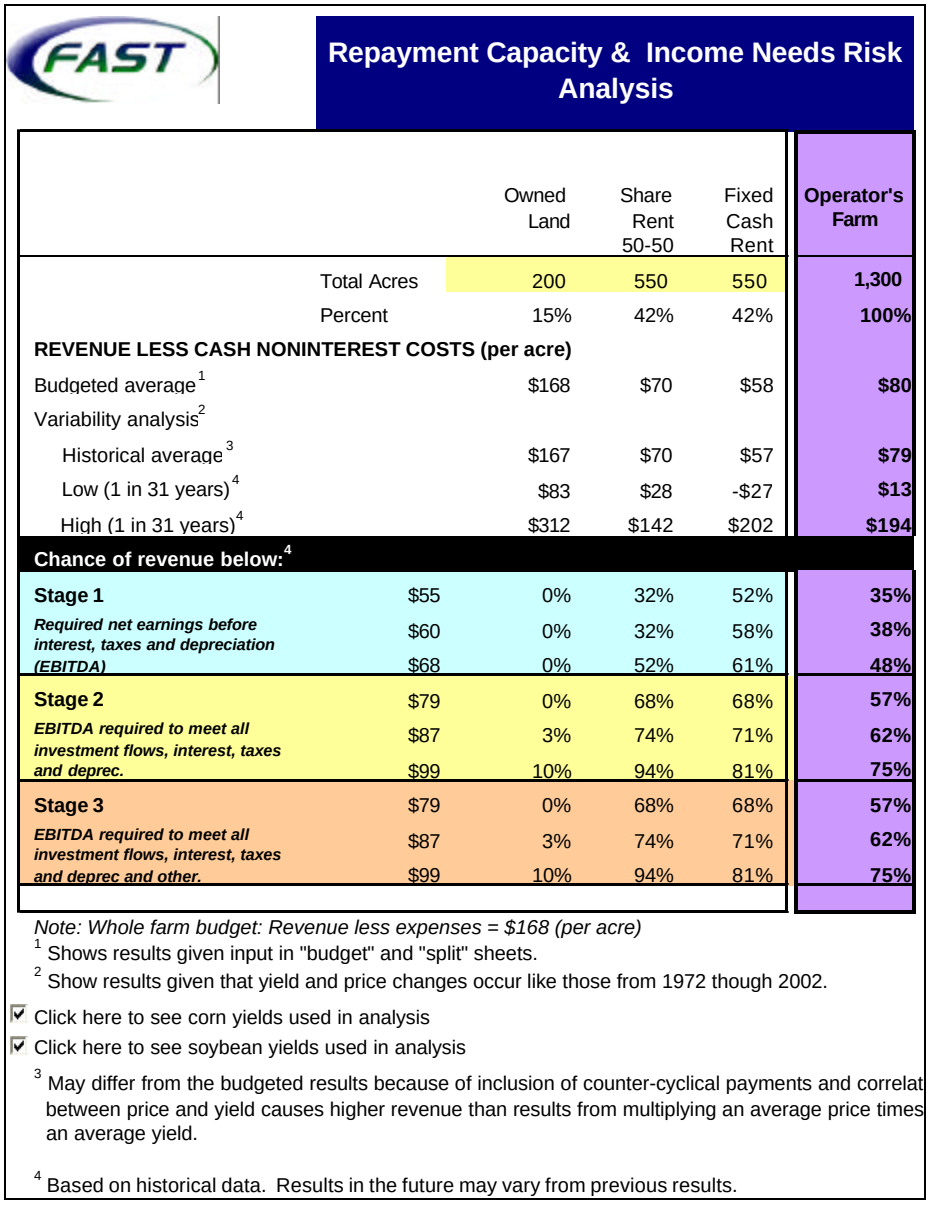
Splits Worksheet

View Splits Takes the user to the Splits worksheet, graphic on the following page, which allows the user to define the percentage of the tenant’s revenues and costs for each type of lease. Since the costs and revenues were entered in the Budget page, the user needs only to define the tenant’s percentage of each revenue and/or cost associated with a particular lease.

The screen on the following page shows Split 1 and Split 2 for the share rent arrangement. In the example, Split 1 is a 50-50 share agreement for revenue and direct expenses. However, the power expenses and overhead expenses are paid solely by the tenant. In contrast, Split 2 is a different type of share agreement, with the tenant receiving 67% of the revenue while paying 100% of all costs, except direct costs. In this agreement, the tenant pays 67% of all direct costs, except for the seed expense, which is paid solely by the tenant.

Go to lease sheet	SPLIT 1 Percent Tenant's Share	SPLIT 1 Tenant's Share	SPLIT 1 Landlord's Share	SPLIT 2 Percent Tenant's Share	SPLIT 2 Tenant's Share	SPLIT 2 Landlord's Share
	Defaults			Defaults		
Crop revenue	50%	$152	$152	67%	$203	$101
Government revenue	50%	32	32	67%	43	21
Other revenue	50%	0	0	67%	0	0
Cash rent			0			0
Total revenue		$184	$184		$245	$123
Expenses						
Fertilizer	50%	$20	$20	67%	$26	$13
Pesticides	50%	16	16	67%	21	10
Seed	50%	14	14	100%	27	0
Drying	50%	2	2	67%	3	1
Storages	50%	3	3	67%	3	2
Crop insurance	50%	3	3	67%	4	2
Other	50%	0	0	67%	0	0
Direct expense		$57	$57		$84	$29
Machine hire/lease	100%	$6	$0	100%	$6	$0
Utilities	100%	4	0	100%	4	0
Machine repair	100%	14	0	100%	14	0
Fuel and oil	100%	9	0	100%	9	0
Light vehicle	100%	1	0	100%	1	0
Other	100%	0	0	100%	0	0
Power expense		$33	$0		$33	$0
Hired labor	100%	$8	$0	100%	$8	$0
Building repair and rent	100%	3	0	100%	3	0
Insurance	100%	5	0	100%	5	0
Misc.	100%	4	0	100%	4	0
Interest	100%	5	0	100%	5	0
Other	100%	0	0	100%	0	0
Overhead expenses		$25	$0		$25	$0
Tenant labor	100%	$0	$0	100%	$0	$0
Property tax	0%	0	30	0%	0	30
Management fee	0%	0	0	0%	0	0
Other	100%	0	0	100%	0	0
Other expenses		$0	$30		$0	$30
Cash rent/Custom farming		$0			$0	
Total expenses		$114	$87		$142	$59
Revenue less expenses		$70	$98		$104	$64

Results Worksheet



Repayment Capacity & Income Needs Risk Analysis

		Owned Land	Share Rent 50-50	Fixed Cash Rent	Operator's Farm
Total Acres		200	550	550	**1,300**
Percent		15%	42%	42%	**100%**
REVENUE LESS CASH NONINTEREST COSTS (per acre)					
Budgeted average[1]		$168	$70	$58	**$80**
Variability analysis[2]					
Historical average[3]		$167	$70	$57	**$79**
Low (1 in 31 years)[4]		$83	$28	-$27	**$13**
High (1 in 31 years)[4]		$312	$142	$202	**$194**
Chance of revenue below:[4]					
Stage 1	$55	0%	32%	52%	**35%**
Required net earnings before interest, taxes and depreciation (EBITDA)	$60	0%	32%	58%	**38%**
	$68	0%	52%	61%	**48%**
Stage 2	$79	0%	68%	68%	**57%**
EBITDA required to meet all investment flows, interest, taxes and deprec.	$87	3%	74%	71%	**62%**
	$99	10%	94%	81%	**75%**
Stage 3	$79	0%	68%	68%	**57%**
EBITDA required to meet all investment flows, interest, taxes and deprec and other.	$87	3%	74%	71%	**62%**
	$99	10%	94%	81%	**75%**

Note: Whole farm budget: Revenue less expenses = $168 (per acre)

[1] Shows results given input in "budget" and "split" sheets.

[2] Show results given that yield and price changes occur like those from 1972 though 2002.

☑ Click here to see corn yields used in analysis

☑ Click here to see soybean yields used in analysis

[3] May differ from the budgeted results because of inclusion of counter-cyclical payments and correlat between price and yield causes higher revenue than results from multiplying an average price times an average yield.

[4] Based on historical data. Results in the future may vary from previous results.

The Results page, above graphic, provides an income needs assessment for the farm operation. Results are displayed in two sections: the top section evaluates revenue less costs on a per acre basis and the bottom section states the chance of revenue falling below a specific dollar amount.

The below section of the Results worksheet shows analysis for owned acres, two different lease arrangements, and total acres farmed by the tenant. The two lease types, 50-50 share rent and fixed cash rent, are displayed because their "Show leasing arrangement" boxes are checked in the Lease worksheet.

	Owned Land	Share Rent 50-50	Fixed Cash Rent	**Operator's Farm**
Total Acres	200	550	550	**1,300**
Percent	15%	42%	42%	**100%**
REVENUE LESS CASH NONINTEREST COSTS (per acre)				
Budgeted average[1]	$168	$70	$58	**$80**
Variability analysis[2]				
Historical average [3]	$167	$70	$57	**$79**
Low (1 in 31 years)[4]	$83	$28	-$27	**$13**
High (1 in 31 years)[4]	$312	$142	$202	**$194**

The "Total Acres" line states the number of acres under each land arrangement and the "Percent" line states the percentage of total acres farmed under each arrangement.

The "Budgeted average" line reveals revenue minus total costs on a per acre basis for each land arrangement. These results are based on information entered in the Budget and Split worksheets. The remaining lines summarize results from the variability analysis. The variability analysis uses 31 years of previous years data, scaled to represent the current situation, to estimate revenue minus total costs for all 31 years. Data used for this analysis can be seen by clicking on links at the bottom of the Results page.

Historical average states the average revenue minus total costs for the 31-year period for each lease type shown. In the above example, the 50-50 share rent has a $70 average revenue less total costs. Under the "Operator's Farm" column, $80 represents the weighted average of revenue less total costs for all acres farmed by the tenant.

Low (1 in 31 years) gives the lowest return in the 31-year period for each lease arrangement shown. This provides a sense for how low incomes can get in adverse situations.

High (1 in 31 years) gives the highest return in the last 31 years for each lease type displayed.

The second section of the Results page, below graphic, indicates the percentage chance per-acre revenue will fall below the dollar amounts calculated in the Earnings Analysis worksheet.

		Owned Land	Share Rent 50-50	Fixed Cash Rent	**Operator's Farm**
Chance of revenue below:[4]					
Stage 1	$55	0%	32%	52%	**35%**
Required net earnings before interest, taxes and depreciation (EBITDA)	$60	0%	32%	58%	**38%**
	$68	0%	52%	61%	**48%**
Stage 2	$79	0%	68%	68%	**57%**
EBITDA required to meet all investment flows, interest, taxes and deprec.	$87	3%	74%	71%	**62%**
	$99	10%	94%	81%	**75%**
Stage 3	$79	0%	68%	68%	**57%**
EBITDA required to meet all investment flows, interest, taxes and deprec and other.	$87	3%	74%	71%	**62%**
	$99	10%	94%	81%	**75%**

For example, in Stage 1 of the analysis the first column states earnings needed to meet fixed obligations. Fifty-five dollars per acre must be earned to satisfy these financial commitments. If expenses in this stage increase by 10%, $60 per acre in earnings is needed to meet financial obligations and a 25% increase in expenditures requires $68 per acre in earnings. This information is taken from Stage 1 in the Earning Analysis worksheet.

The above analysis also shows the percentage chance of not achieving levels in the three stages needed to meet income demands. In evaluating the chance that revenue minus total costs falls below the $55 threshold, there is a 0% chance of this occurring for all acres owned in Stage 1. For a 50-50 share rent arrangement, there is a 32% chance that revenue minus total costs will fall below $55. Under a fixed cash rent lease agreement, there is a 52% chance of being below the $55 per acre needed to meet cash demands. Similar evaluations are conducted for both Stage 2 and Stage 3.

The far right column titled “Operator’s Farm” computes a blended average of all land arrangements shown for each stage. For the $55 per-acre threshold in Stage 1, approximately 35% of the time, on average, financial obligations will not be met when evaluating revenue minus total costs for all acres farmed by the tenant.