2008 Sweet Potato Research Verification Program
Economic Analysis Report

2008 Program Summary

The Louisiana Sweet Potato Research Verification Program (LSPRVP) is a multi-disciplinary program aimed at implementing and analyzing research recommendations in real world situations. Participating producers work closely with the LSU AgCenter Sweet Potato specialists in making production decisions throughout the growing and harvesting period. To determine if these production decisions result in greater profitability for the producer, cost information was collected on every activity conducted in each of the participating fields. The type of information collected includes:

- Time required to complete activity
- Number of acres covered in activity
- Tractor size and implement width
- Input rates and costs, and
- Custom application charges.

Using the information collected, estimates of costs per acre for conducting each activity were developed. Costs for each activity were separated into four broad categories: direct equipment costs, fixed equipment costs, input costs, and labor costs. Direct and fixed costs of tractors, implements, and other machinery were estimated using assumptions on performance rates, fuel use, repair and maintenance, interest expense, and depreciation from LSU AgCenter Enterprise Budgets. Irrigation costs were based data provided by the LSU AgCenter Enterprise Budgets along with producer information regarding fuel use and pumping rates per hour. Where possible, input costs were estimated using the data provided by the producer on the amount of the input used and the cost per unit of the input. In other cases, input costs estimates were based on producer's use rates and input price information from the LSU AgCenter Enterprise Budgets. Labor costs associated with operating equipment were based on the time required to complete the activity which is either supplied by the producer or determined using performance rates from the LSU Enterprise Budgets. Other labor costs were estimated based on information provided by the producer on the hourly wage rate and the time required to complete the activity.

While costs were estimated from planting of seed potatoes to harvesting, the costs associated with packaging lines and storage were not conducted as part of the verification program. Estimates provided for packaging lines are set at those estimated in LSU AgCenter Enterprise Budgets.

Three fields were included in the 2008 Sweet Potato Research Verification Program, two in North Louisiana and one in South Louisiana. This report summarizes the costs and returns associated across all three fields in the program.

Across the three fields, production averaged 269.7 bushels per acre. Of the total bushels, 48.59 percent or 131 bushels were classified as Number 1's. The remainders of the output, 51.41 percent (138 bushels) were classified as canners. While there are generally a small percentage of the output that is classified as Jumbo's, the impact of the adverse weather conditions on potato quality resulted in no Jumbo production for 2008.

Total direct and fixed production costs for plant bed production averaged $2,777 per acre ranging from a low of $1,830 to a high of $4,399 per acre. Total direct and fixed production costs for production acres averaged $2,098 per acre ranging from a low of $1,911 to a high of $2,438 per acre. When packaging line costs were added to costs associated with production acres, average total costs increased to $2,666 per acre.

Given the higher production costs associated with record level fuel and fertilizer prices in 2008 and the lower production levels due to the hurricanes, estimated returns for the 2008 verification program were significantly lower than in past years. The average return above total direct and fixed production costs was estimated at $14 per acre at a 70 percent packout, -$104 per acre at a 65 percent packout, and -$223 per acre at a 60 percent packout. Given the quality issues faces due to the hurricanes, the 60 percent packout is likely the most relevant level for most sweet potato operations for the 2008 season.

2008 Sweet Potato Research Verification Program
General Program Information and Assumptions

		South	North	North
		Field	Field #1	Field #2
Number of Production Acres	:	23	8.4	7.3
Variety Planted	:	Beauregard	Evangeline	BX
Planting Date	:	June 18, 2008	July 6, 2008	July 7, 2008
Harvest Date	:	November 3-6, 2008	September 2008	September 2008
Yield (Bushels Per Acre)	:			
No. 1's	:	103	154	193
Jumbos		0	0	0
Canners	:	98	220	173
Total	:	201	374	366
Yield Percentages (% of Total Yield)	:			
No. 1's	:	51.24%	41.18%	51.60%
Jumbos	:	0.00%	0.00%	0.00%
Canners	:	48.76%	58.82%	46.26%
Economic Assumptions				
Diesel Cost Per Gallon[A]	:	$3.75	$3.75	$3.75
Electricity Cost Per Kwh[B]	:	$0.1154	$0.1154	$0.1154
Labor Wage Plus Fringe Benefits Per Hour[C]	:			
Regular Labor	:	$8.23	$8.94	$8.94
H2A Labor	:	N/A	$8.41	$8.41
Interest on Operating Loans [D]	:	8.00%	8.00%	8.00%
Interest on Intermediate Loans [D]	:	7.50%	7.50%	7.50%

[A] The estimate for diesel fuel was determined using the Department of Energy estimates for retail prices of on-highway diesel prices from March 2008 to November 2008 for the Gulf Coast. These prices were adjusted for federal and state taxes to approximate farm diesel costs.

[B] The estimate for electricity was determined using the Department of Energy estimates for prices for residential and commercial users from March 2008 to November 2008. .

[C] Labor costs for the South Field was set at the producer's estimate which was assumed to include all payroll expenses. Labor costs for regular labor for the North Field at the producer's estimate of $7.00 per hour and then adjusted upward by 27.65% to account for other payroll expenses. H2A labor costs were set at the producer's estimate.

[D] Estimates for interest rates for both operating capital and intermediate debt (for example, equipment loans) was set at the levels assumed in the LSU AgCenter Enterprise Budgets.

2008 Sweet Potato Research Verification Program
Estimated Production Levels

Output	Low Estimate	High Estimate	Weighted Average	Low Estimate	High Estimate	Weighted Average
	---------------- Bushels ----------------			--------- 40 Lb Box (60% Packout) ---------		
Number 1's	103.0	193.0	131.0	77.3	144.8	98.3
Jumbos	0.0	0.0	0.0	0.0	0.0	0.0
Canners	98.0	220.0	138.6	73.5	165.0	104.0
Total	201.0	374.0	269.7	150.8	280.5	202.3

2008 Sweet Potato Research Verification Program
Summary of Estimated Costs
Plant Bed Production

Expense Item	Low Estimate	High Estimate	Weighed Average
	---------------------- Costs Per Acre ----------------------		
Seed	$824.67	$3,390.12	$1,766.42
Fertilizer	$50.63	$175.00	$129.34
Insecticide	$7.79	$89.55	$59.54
Herbicide	$0.00	$0.00	$0.00
Fungicide	$79.14	$81.43	$80.59
Fuel and Repair & Maintenance	$162.16	$184.60	$170.40
Labor	$281.86	$334.03	$301.01
Other Inputs	$13.86	$23.39	$17.36
Custom Application	$0.00	$0.00	$0.00
Interest Expense on Operating Loan[A]	$84.31	$183.28	$120.64
Total Direct Cost	$1,712.84	$4,252.98	$2,645.30
Total Fixed Cost[B]	$117.46	$145.84	$127.88
Total Specified Costs	$1,830.31	$4,398.82	$2,773.18

[A] Interest expense on an operating loan is calculated using an 8 percent interest rate. Interest was calculated in the same manner as is calculated in the 2007 LSU Enterprise Budgets.

[B] Fixed costs are interest expense and depreciation on tractors and implements. An annual interest rate of 7.5 percent was assumed. Fixed costs were calculated in the same manner as is calculated in the 2007 LSU Enterprise Budgets.

2008 Sweet Potato Research Verification Program
Summary of Estimated Costs
Production Acres[A]

Expense Item	Low Estimate	High Estimate	Weighed Average
	---------------------- Costs Per Acre ----------------------		
Seed	$175.95	$199.50	$189.95
Fertilizer	$220.81	$269.47	$240.55
Insecticide	$105.53	$199.01	$161.09
Herbicide	$51.67	$68.78	$58.61
Fungicide	$0.00	$0.00	$0.00
Fuel and Repair & Maintenance	$217.31	$342.47	$263.30
Labor	$591.87	$677.33	$644.43
Other Inputs	$154.15	$400.90	$253.59
Custom Application	$0.00	$94.00	$38.13
Interest Expense on Operating Loan[B]	$31.77	$44.23	$39.43
Total Direct Cost	$1,739.87	$2,164.00	$1,889.08
Total Fixed Cost[C]	$171.65	$274.30	$209.63
Total Specified Costs	$1,911.52	$2,438.29	$2,098.71
Estimated Packing Line Costs[D]	$568.06	$568.06	$568.06
Total Production and Packing Line Costs	$2,479.58	$3,006.35	$2,666.77

[A] Total direct and fixed costs associated with plant bed production are incorporated into the production field cost estimates as the estimated seed expense for both fields. Total costs associated with plant bed production are converted to production field estimates based on the assumed number of production acres that were planted with the plant beds.

[B] Interest expense on an operating loan is calculated using an 8 percent interest rate. Interest was calculated in the same manner as is calculated in the 2007 LSU Enterprise Budgets.

[C] Fixed costs are interest expense and depreciation on tractors and implements. An annual interest rate of 7.5 percent was assumed. Fixed costs were calculated in the same manner as is calculated in the 2007 LSU Enterprise Budgets.

[D] Packing line costs were set at levels assumed in LSU AgCenter Enterprise Budgets. Since 2008 Sweet Potato Enterprise Budgets were not developed by the LSU AgCenter, the packing line cost used the average of packing line costs from the 2007 and 2009 LSU AgCenter Sweet Potato Enterprise Budgets.

2008 Sweet Potato Research Verification Program
Breakdown of Direct Production Costs
Plant Beds

Category	------ Non-Harvest Activities ------ Low	High	Weighted Avg.	--- Irrigation Activities --- Low	High	Weighted Avg.	-------- Harvest Activities -------- Low	High	Weighted Avg.
Fuel & R/M[A]	$156.26	$162.16	$159.99	$0.00	$28.34	$10.40	$0.00	$0.00	$0.00
Labor[B]	$281.86	$328.95	$299.15	$0.00	$5.08	$1.87	$0.00	$0.00	$0.00
Inputs[C]	$1,184.51	$3,551.07	$2,053.25	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Custom App[D]	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Interest Exp[E]	$84.31	$181.72	$120.07	$0.00	$1.56	$0.57	$0.00	$0.00	$0.00
Total	$1,712.84	$4,218.00	$2,632.46	$0.00	$34.98	$12.84	$0.00	$0.00	$0.00

[A] Fuel and repair and maintenance expenses associated with machinery utilized.
[B] Labor expenses include both labor associated with operating machinery as well as other field labor.
[C] Inputs include all inputs used in field operations including seed, fertilizer, herbicide, insecticide, fungicide, irrigation inputs (polypipe), and boxes/bins used in both transplanting and harvesting. Expenses associated with land rent and checkoff programs are also included in the “Input” category.
[D] Custom application costs include only costs associated with custom application of inputs. It does not include any custom labor that may have been utilized (that costs would be included in the “Labor” category.
[E] Interest expense is based on an interest rate of 8 percent. This is interest expense associated with operating loans. It does not include interest expense associated with intermediate loans for machinery and other farm equipment.

2008 Sweet Potato Research Verification Program
Breakdown of Direct Production Costs
Production Acres

Category	------ Non-Harvest Activities ------ Low	High	Weighted Avg.	--- Irrigation Activities --- Low	High	Weighted Avg.	-------- Harvest Activities -------- Low	High	Weighted Avg.
Fuel & R/M[A]	$127.67	$135.97	$133.38	$0.00	$66.24	$26.87	$82.67	$140.26	$103.05
Labor[B]	$224.23	$341.21	$262.69	$0.00	$0.97	$0.37	$291.25	$428.96	$381.37
Inputs[C]	$718.49	$802.23	$752.46	$0.00	$21.97	$8.91	$106.65	$196.43	$142.40
Custom App[D]	$0.00	$94.00	$38.13	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Interest Exp[E]	$26.11	$40.10	$34.61	$0.00	$1.57	$0.63	$4.09	$4.46	$4.18
Total	$1,117.47	$1,400.51	$1,221.28	$0.00	$90.75	$36.79	$618.30	$672.73	$631.00

[A] Fuel and repair and maintenance expenses associated with machinery utilized.
[B] Labor expenses include both labor associated with operating machinery as well as other field labor.
[C] Inputs include all inputs used in field operations including seed, fertilizer, herbicide, insecticide, fungicide, irrigation inputs (polypipe), and boxes/bins used in both transplanting and harvesting. Expenses associated with land rent and checkoff programs are also included in the “Input” category.
[D] Custom application costs include only costs associated with custom application of inputs. It does not include any custom labor that may have been utilized (that costs would be included in the “Labor” category.
[E] Interest expense is based on an interest rate of 8 percent. This is interest expense associated with operating loans. It does not include interest expense associated with intermediate loans for machinery and other farm equipment.

2008 Sweet Potato Research Verification Program
Chemical Application Costs
Plant Beds

	------ Number of Trips ------			----------- Total Costs[A] -----------			---------- Cost Per Trip ----------		
			Weighted			Weighted			Weighted
Category	**Low**	**High**	**Avg.**	**Low**	**High**	**Avg.**	**Low**	**High**	**Avg.**
Insecticide	2	10	7	$10.89	$125.99	$83.74	$5.44	$12.60	$9.97
Herbicide	0	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Fungicide	1	3	2	$95.90	$102.81	$100.27	$34.27	$95.90	$56.89

[A] Total costs include both chemical costs as well as application costs.

2008 Sweet Potato Research Verification Program
Chemical Application Costs
Production Acres

	------ Number of Trips ------			----------- Total Costs[A] -----------			---------- Cost Per Trip ----------		
			Weighted			Weighted			Weighted
Category	**Low**	**High**	**Avg.**	**Low**	**High**	**Avg.**	**Low**	**High**	**Avg.**
Insecticide	12	13	12	$159.09	$250.89	$213.64	$12.24	$20.91	$17.39
Herbicide	2	3	2	$64.69	$83.28	$72.23	$27.76	$32.35	$30.49
Fungicide	0	0	0	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

[A] Total costs include both chemical costs as well as application costs.

2008 Sweet Potato Research Verification Program
Estimated Costs and Returns

	Low Estimate	High Estimate	Weighted Average
	------------------ Dollars Per Acre	---------------------	
Costs			
Direct Costs	$1,739.87	$2,164.00	$1,889.08
Direct + Fixed Costs	$1,911.52	$2,438.29	$2,098.71
Direct+Fixed+Packing Line Costs	$2,479.58	$3,006.35	$2,666.77
Revenue - @ 70% Packout			
No 1's @ $14.50/box	$1,306.81	$2,448.69	$1,662.65
Jumbos @ $9.00/box	$0.00	$0.00	$0.00
Canners @ $6.50/hundredweight	$318.50	$715.00	$450.54
Total	$1,625.31	$3,010.94	$2,113.19
Revenue - @ 65% Packout			
No 1's @ $14.50/box	$1,213.47	$2,273.78	$1,543.89
Jumbos @ $9.00/box	$0.00	$0.00	$0.00
Canners @ $6.50/hundredweight	$318.50	$715.00	$450.54
Total	$1,531.97	$2,836.03	$1,994.43
Revenue - @ 60% Packout			
No 1's @ $14.50/box	$1,120.13	$2,098.88	$1,425.13
Jumbos @ $9.00/box	$0.00	$0.00	$0.00
Canners @ $6.50/hundredweight	$318.50	$715.00	$450.54
Total	$1,438.63	$2,661.13	$1,875.67
Returns Above Costs - @ 70% Packout			
Direct Costs	-$114.56	$846.94	$224.12
Direct + Fixed Costs	-$286.21	$572.64	$14.49
Direct+Fixed+Packing Line Costs	-$854.27	$4.58	-$553.57
Returns Above Costs - @ 65% Packout			
Direct Costs	-$207.90	$672.04	$105.36
Direct + Fixed Costs	-$379.55	$397.74	-$104.27
Direct+Fixed+Packing Line Costs	-$947.61	-$170.32	-$672.33
Returns Above Costs - @ 60% Packout			
Direct Costs	-$301.25	$497.13	-$13.40
Direct + Fixed Costs	-$472.90	$222.83	-$223.04
Direct+Fixed+Packing Line Costs	-$1,040.96	-$345.23	-$791.10