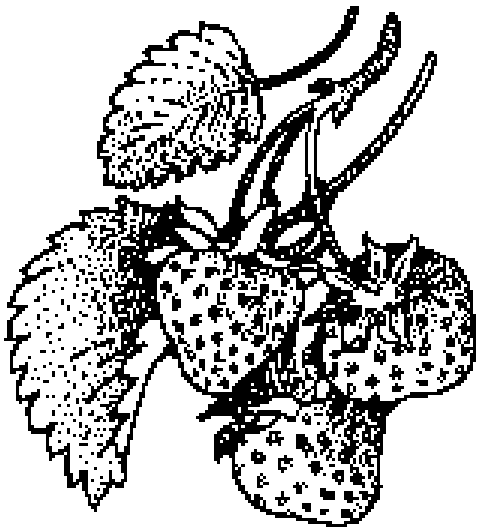
STRAWBERRY ENTERPRISE COST ANALYSIS



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August 2002

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Strawberry Production in Georgia

Strawberry production is rapidly increasing in terms of acreage and farm gate value. A total of 143 acres were planted in 1999, which generated a farm gate value of $761,097. In year 2000, acreage increased to 200, generating $3,797,133 farm gate income (1999 and 2002 Georgia Farm Gate Value Report). The reasons for the increase are two-fold: (1) high profit potential for small farmers who can get retail prices for the fruit and, (2) development of a firmer cultivar with improved shelf-life *('Camarosa')* for the pre-pick retail sales market. This lucrative return on investment has attracted several farmers and encouraged new entrants in strawberry cultivation.

Consequently, planted acreage for 2001 is expected to escalate. Increased acreage normally leads to excess production depressing prices and the return on investment concomitantly. However, vast areas of Georgia have no strawberry farms, or few farms in relation to population density (see www.smallfruits.org for a map showing locations of known PYO and pre-picked strawberry farms in Georgia). In addition to PYO planting for the direct sales market, the commercial strawberry acreage has increased. This year was not as good as previous years due to freeze damage, extremely hot weather and the outbreak of anthracnose on some farms which had an adverse effect on yield and profitability.

It is equally important to know your market as well as cost of production to determine profit margin and how much capital is needed before you go into production. This budget is intended to be representative of the current practices in Georgia strawberry production. It should be used simply as a guide for inputting your own costs.

Farm Input Prices

There are several factors that can influence prices of inputs, total cost of production and profit margin respectively. Many farmers in Georgia will not need to invest in irrigation equipment or dig a new well since they already have them available. If so, that would significantly increase profitability. Also motor size (HP) may differ depending on the number of acreage. Quantity discounts may affect prices of inputs. The cost estimate in

this budget reflects a combination of the current agricultural practices in Georgia and recommendations from UGA specialists. The prices are actual prices from vendors around the counties involved in strawberry production and they exclude quantity discounts. Strawberry production requires two irrigation systems. First, a clean water (well, city water or highly filtered surface water) source for drip irrigation under the plastic mulch is imperative. Secondly, water for overhead sprinkler irrigation for establishment and frost protection is needed.

Types of Costs

Total costs of cultivating strawberry include fixed and variable cost respectively. Variable costs are broken down into pre-harvest, harvesting and marketing costs. Fixed cost components include tractor, disc harrow, sprayer, drip and overhead irrigation (freeze protection) equipment and well. Pre-harvest variable cost is $5,918. Harvesting and marketing cost is $4,734. Total variable cost is $10,652. The budget is in pounds instead of flat because flats vary in weight based on the packaging pattern and packaging container.

Labor

The adoption of pick-your-own (PYO) marketing in strawberries has helped absorb the labor pressure on the farmers in some areas. Harvesting cost is based on 50% PYO.

Cultivar and Production Density

Two primary cultivars are grown in Georgia. *'Chandler'* is adapted statewide except for the high mountain areas. It produces a tasty, but soft fruit with limited distant shipping ability. *'Camarosa'* is a firm but mild-flavored cultivar which performs well from the Macon area and South. Flavor is only fair until it becomes very dark red. *'Camarosa'* is poorly adapted to North Georgia.

Planting density ranges from 14,500 to 16,000 plants. The average of 15,000 plants per acre was utilized in the budget. Georgia farmers commonly plants bare-root plants because of the lower cost than plug plants. However, plug plants can be planted at lower cost and require much less water for establishment. The recommended row spacing should be 4.5 – 5' x 12" with two rows per bed. This spacing is equivalent to 17,556 plants/acre. The current practice of 15,000 plants/acre used in this budget, really increases cost of production and limits yields.

STRAWBERRY ON PLASTIC FRESH MARKET

(Total Cost Budget)

Number of acres 1

	BEST	OPT	MEDIAN	PESS	WORST
Yield (lb)	23000	19000	15000	11000	7000
Price per pound	1.50	1.25	1.00	0.75	0.50

Item	Unit	Quantity	Price	Amt/acre	Total
Variable Costs					
Lime	ton	1.00	22.00	22.00	0
Ryegrass	lb	15.00	0.34	5.10	0
Fumigant	lb	350.00	2.00	700.00	0
Plastic mulch	Roll	3.50	75.00	262.50	0
Drip tape	Ft	8700.00	0.02	174.00	0
Bareroots plants	Thousand	15.00	84.00	1260.00	0
Transplant	Thousand	15.00	38.00	570.00	0
Preplant Fertlizer	lb	600.00	0.13	78.00	0
Herbicide (pre-emerge)*	Gal	0.50	59.20	29.60	0
Pollination	Hives	2.00	30.00	60.00	0
Fungicides-pest control	lb	48.00	8.47	406.56	0
Miticides	lb	4.00	19.75	79.00	0
Insecticide	lb	1.00	20.60	20.60	0
Postplant fertilizer	Cwt	4.00	20.60	82.40	0
Sulphur	lb	12.00	0.30	3.60	0
Boron	lb	0.50	0.67	0.34	0
Labor	hrs	71.25	8.00	570.00	0
Irrigation	Acre	1.00	1093.46	1093.46	0
Fuel, lube, repairs	Acre	1.00	126.50	126.50	0
Interest on Oper. Capital	$	5543.65	0.09	374.20	0
PreHarvest Variable Costs				**5917.85**	0
Harvest and Marketing Costs					
Prepick (50%)	Acre	857	3.15	2699.991	0
Container	lbs	3168	0.5	1584	0
Advertisement	lbs	15000	0.03	450	0
Total Harvest and Marketing			**3.68**	**4733.99**	**0**
Total Variable Costs				**10651.84**	**0**
	Acre	1.00			0
Machinery 1/	Acre	1.00	6438.60	6438.60	0
Irrigation 2/	Acre	1.00	1861.72	1861.72	0
Land	Acre	1.00	0.00	0.00	0
Overhead and Management	$	5917.85	0.15	887.68	0
Total Fixed Costs				**9188.00**	**0**
Total budgeted cost per acre				**19839.84**	**0**

(continued on next page)

Costs Per Carton

Preharvest variable cost per pound	0.39
Harvest & marketing cost per pound	0.32
Fixed Costs per carton	0.61
Total budgeted cost per pound	1.32

1/ This figure will be significantly reduced with increased acreage. If 10 acres is produced, machinery cost/acre reduces to $643.9 It also assumes new machinery, but most farmers already have the machinery in question.

2/ This includes drip and solid set for establishment and frost protection respectively. If 10 acres is produced, irrigation cost/acre reduces to $186.2.

EXPECTED RETURNS FROM TOTAL ACREAGE

ACRES	EXPECTED YIELD/AC	VOLUME MARKETED	EXPECTED PRICE	TOTAL RETURNS
1	15000	15000	1.00	15,000

RISK RATED RETURNS OVER TOTAL COSTS

Net return levels (TOP ROW);
The chances of obtaining this level or more (MIDDLE ROW); and
The chances of obtaining this level or less (BOTTOM ROW).

		Optimistic		Expected		Pessimistic	
Returns($)	2,125	(197)	(2,518)	(4840)	(7,161)	(9,483)	(11,804)
Chances	7%	16%	31%	50%			
Chances				50%	31%	16%	7%

CHANCES FOR PROFIT **15%** **BASE BUDGETED NET REVENUE** **(4,840)**

STRAWBERRY PLASTICULTURE - OVERHEAD IRRIGATION

ACRES IN SYSTEM	1.00
INTEREST RATE	0.10
TAXES & INSURANCE	0.02
PRICE OF TUBING($/1000)	21.33
YEARS TUBING IS TO BE USED	1.00

	INVESTMENT	YEARS	DEPREC.	INTEREST	TAXES & INS.
PIPE & FITTINGS 1/	303.00	20	15	15	2
SPRINKLERS	100.00	0	0	5	1
WELL 2/	6000.00	25	240	300	45
PUMP & MOTOR 2/	1500.00	12	125	75	11
FILTER & AUTO	26.00	10	3	1	0
MISC.	15	20	1	1	0
INSTALLATION	300.00	20	15	15	2
TOTAL	8244		399	412	62

TOTAL ANNUAL FIXED COSTS	873
TOTAL ANNUAL FIXED COSTS PER ACRE	872.53
TOTAL ANNUAL DEBT PAYMENT PER ACRE	874.75

OPERATING COSTS

MOTOR SIZE (HP)	10.00	
REPAIRS	123.70	123.70
ANNUAL PUMPING HOURS 3/	180.00	
ELECTRICITY		
(standby charge) per year	120.00	
Rate $ per KWH	0.08	
ANNUAL ENERGY COST	227.42	
ANNUAL ENERGY COST PER ACRE		227.42

OPERATING COST PER ACRE PER YEAR	351.12
TOTAL ANNUAL COSTS PER ACRE	1223.65

1/ Quantity discounts may affect prices.
2/ Motor size (HP)/initial cost depends on the farm size and/or acreage or the existence of a well and pump.
3/ Includes establishment and frost protection.

STRAWBERRY PLASTICULTURE - DRIP IRRIGATION

ACRES IN SYSTEM	1.00
INTEREST RATE	0.10
ROW WIDTH IN FEET	6.00
PRICE OF TUBING($/1000)	21.33
YEARS TUBING IS TO BE USED	1.00

	INVESTMENT	YEARS	DEPREC.	INTEREST	TAXES & INS.
PIPE & FITTINGS 1/	250.00	20	13	13	2
TUBING	160.00	0	0	8	1
WELL (4") 2/	4000.00	25	160	200	30
PUMP & MOTOR 3/	3500.00	12	292	175	26
FILTER & AUTO	200.00	10	20	10	2
MISC.	60	20	3	3	0
INSTALLATION	300.00	20	15	15	2
TOTAL	8470		502	424	64

TOTAL ANNUAL FIXED COSTS	989
TOTAL ANNUAL FIXED COSTS PER ACRE	989.19
TOTAL ANNUAL DEBT PAYMENT PER ACRE	898.73

OPERATING COSTS

MOTOR SIZE (HP) 2/	10.00	
REPAIRS	109.08	109.08
ANNUAL PUMPING HOURS	500.00	
ELECTRICITY		
(standby charge) per year	180.00	
Rate $ per KWH	0.08	
ANNUAL ENERGY COST 3/	478.40	
ANNUAL ENERGY COST PER ACRE		478.40
TUBING		154.86
OPERATING COST PER ACRE PER YEAR		742.34

1/ Quantity discounts may affect prices.

2/ Motor size (hp)/initial cost depends on the farm size and/or acreage or the existence of a well & pump already in use for other purposes. Well may or may not be required for certain installation

3/ Frost protection would be in overhead irrigation budget

INVESTMENT AND ANNUAL FIXED COSTS

Number of acres of this crop 1
Interest rate 0.08

Equipment Costs for this crop

Item	% of time for This crop	Cost	Salvage Value	Yrs. of Life	Depr.	Int.	Tax&Ins	FC/Ac.
Tractors	15%	70000	14000	15	560	504	88	1152
Plow	20%	6600	1320	10	106	63	11	180
Disk	20%	12000	2400	10	192	115	20	327
Appl. Herb	10%	1700	340	10	14	8	1	23
Bedder	20%	3000	600	10	48	29	5	82
Sprayer	30%	3200	640	10	77	46	8	131
_____	40%	0	0	10	0	0	0	0
_____	40%	0	0	0	0	0	0	0
_____	40%	0	0	0	0	0	0	0
Total		96500	19300		996	766	134	1896

Interest on Investment (Ave. Inv. X Int. Rate)	4632.00
Taxes and Insurance (Ave. Inv. X .014)	810.60
Total Annual Fixed Costs	6438.60
Total Annual Fixed Costs Per Acre	6438.60

DEBT PAYMENT CALCULATION ON NEW INVESTMENT:

(For Use In Calculating Debt Payments on New Investment)

ITEM	% of time for This crop	Cost	Financing			Calc. Yr. Payment
			Amount	Years	Int.Rate	
Tractors	15%	70000	50%	7	11%	1,114
Plow	20%	6600	50%	7	11%	140
Disk	20%	12000	50%	7	11%	255
Appl. Herb	10%	1700	50%	7	11%	18
Bedder	20%	3000	50%	7	11%	64
		93300				

Calculated Total Annual Debt Payment 1,591

CURRENT ANNUAL DEBT PAYMENTS:

(For Use In Totaling Debt Payments on Existing Investment)

LOAN # 1		0
LOAN # 2		0
LOAN # 3		0
LOAN # 4		0
LOAN # 5		0
	Total Annual Debt Payment	1,591
	Taxes and Insurance	811
	Total Annual Fixed Outlay	2,401
	Total Annual Fixed Outlay Per Acre	2,401

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Dr. Gale A. Buchanan, Dean & Director
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