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Growing Collard Greens for the Fresh and Processing Markets¹

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Introduction

Collard greens (henceforth referred to as collards) is a commonly grown vegetable crop in Central and North Florida. Most producers of collards produce on a small-scale basis, but there are some large commercial operations. Large-scale operations process their own crops or sell their crops to processing plants. As evidence of the widespread consumption of fresh collards, the vast majority of grocery and super markets (including the larger chains) purchase collards, and other greens, directly from producers. The purpose of this report is to review and evaluate the costs and returns for collards grown for the fresh produce and processing markets.

Inputs used in this analysis such as fertilizers, pesticides, equipment costs, and labor costs are dependent on soil types, climatic conditions, and local economic climates. Each grower should use the inputs that best reflect his own knowledge and personal experience.

Overview

With end-use markets as the primary determinant, collards growers most often to fall into two major categories: fresh-market and processing-market growers.

Fresh Market

The first category of growers produce and sell to the fresh market. To attract customers, the produce must be fresh and attractive in appearance. To assure freshness, fresh market greens are harvested by hand, which means that these greens must be carefully trimmed, washed, bunched, and packaged properly, and then cooled to 33-40 degrees Fahrenheit until they are sold. Within the fresh market, growers are categorized according to the size of their operations.

Large-Scale Growers

Large-scale growers (50 acres and larger) often broker their own produce to markets as far away as Baltimore, New York City, and Detroit. As with all fresh markets, the collards are harvested, washed, and packed by hand, and the harvest, transport, and marketing costs may total up to 65 percent of the

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fresh-market product cost, with growers often doing their own shipping and marketing to further control costs.

Market prices for collards grown for large fresh markets are quoted by the dozen-bunches, 20-lb boxes (approximately 20 plants per box), or 30-lb boxes. Market price is defined as "the price paid by the buyer at the destination point, including shipping and handling charges." For this analysis, price is based on 20-lb boxes (20 collards plants per box/crate). Prices for 20-lb boxes of collards range from \$10-\$16, depending on seasonal availability. Peak pricing is usually obtained early in the fall.

Small-Scale Growers

Small-scale growers generally market their produce within a 50-mile radius of their operations through local fresh markets such as cooperatives, supermarkets, and roadside stands, or through regional fresh markets (e.g., Thomasville, Georgia). Small-scale growers are understandably less capital intensive and usually grow one to three acres of greens in addition to other crops. Market prices for collards grown for local and regional fresh markets are quoted by the bunches or by the dozen-bunches. A bunch usually contains two to four plants. Price per bunch is typically \$1.00 per bunch, while prices per dozen-bunch are \$10-\$12.

Processing Market

The second category of grower produces and sells to the processing market. His focus is more on volume and less on appearance and tenderness. The price paid for collards sold to this market is substantially less than the fresh greens market. Because of lower pricing and the higher degree of mechanization involved, there are few, if any, small-scale greens growers selling to the processing market. Open-pollinated cultivars are often chosen by growers selling to the processing market.

A typical contract between processor and grower might assume a yield of nine tons per acre. Current pricing is approximately \$90/ton. The grower's contract with the processor often includes custom harvesting and hauling to the processing plant. Typical cost for harvesting is \$18-\$20/ton and \$5-\$15/ton for hauling.

Cost information is presented in Tables 1 and 2 for large-scale fresh market growers, Tables 4 and 5 for small-scale fresh market growers, and Tables 6 and 7 for processing-market growers. Insecticide, pesticide, and fungicide costs and application information are presented in Table 3.

Production Practices

In addition to harvest differences, production practices also vary by operation size and markets. The following discussion reviews the most noteworthy production features of operation size and market combinations.

Large-Scale Fresh Market Growers

The enterprise budget developed for large-scale growers is shown in Table 1. Table 2 contains the fixed costs of equipment used in large-scale farming operations. Insecticide, herbicide, and fungicide dosages, costs, and applications are illustrated in Table 3.

Tillage and Land Preparation

Land preparation usually involves treatments with herbicides and discing previous crop residue. Plowing is the most common method of tillage to provide desired soil displacement and enhance root growth. Also, subsoiling (breaking up the compacted layer below the plow line) is common in the southern coastal plains area. Raised beds of five to eight inches are often created with a rolling cultivator or disc bedder. The capital costs shown in Table 1 assume that discing, plowing, harrowing, and bedding are part of tilling and land preparation.

Transplanting

Large-scale growers tend to favor transplanted hybrids for the fresh market. On the one hand, transplants have several advantages. First, they shorten the field growth cycle from 75-90 days to 50-70 days. Second, transplants from hybrid seed are more pest resistant and produce higher yields, more improved quality, and better weed control. Third, they give growers the best opportunities to market their produce within a targeted time frame. On the other hand, the principal disadvantage to using transplants is cost. Because transplant cost is between \$16-\$18

per 1,000 commercially purchased plants, many large-scale growers grow their own transplants to minimize transplant costs. Table 1 illustrates the cost of commercially purchased transplants using a two-row transplanter. Thus, labor requirements are less than if transplanting were done by hand. The information in Table 1 shows 16,000 transplants per acre, with the distance between rows at 30 inches and the distance between plants at approximately 12 inches.

Fertilizers

Fertilizer may be broadcast across the entire field or across the bed, banded on either side of the plant row, or added as a starter solution with the transplant. Information for the enterprise budget in Table 1 assumes a medium fertilizer requirement of 150N-120P-120K pounds per acre, with 60 pounds of N, 120 pounds of P_2O_5 , and 120 pounds of K_2O added at the time of transplanting, and two subsequent applications of nitrogen when the plants are at the six to eight leaf stage. Actual amounts of fertilizer required depends on soil analyses to determine soil pH and nutrient levels. The fertilizer-application equipment found in the fixed cost equipment budget in Table 2 is used to apply 5-10-10 fertilizer on each bed and to apply the remaining nitrogen side dressings at the six to eight leaf stage during cultivation.

Irrigation

Large-scale growers usually select some type of overhead irrigation system. The irrigation costs in Table 1 reflect the use of a traveling-gun irrigation system. The water requirements, calculated at seven acre-inches, were based on data taken from the University of Florida's *Vegetable Production Guide*. An additional inch of water was added to the requirements to cover field preparation.

Weed, Insect, and Pest Management

The information in Table 3 shows frequency and cost-per-application for the selected insecticides, herbicides, and fungicides. A more comprehensive list of fungicides, herbicides, and insecticides suitable for collards use can be found in the *Vegetable Production Guide* (Maynard and Hochmuth, 1999).

Insecticide application varies, depending on planting date and climatic conditions.

Equipment

A capital-equipment list showing depreciation for large-scale fresh market growers is presented in Table 2. A subsoiler may be used by growers to break up compacted soil below the plow line. A two-ton truck is used to haul collards to the field-packing station during harvesting.

Harvesting, Yield, and Hauling

Collards are often cut by hand, field-packed, cooled, and shipped to market. It is desirable to cut early in the morning to avoid wilted plants. Trimming, washing, bunching, and cooling the plants are done before packaging them. Ice is added to each box during packaging to ensure that temperatures of 40 degrees Fahrenheit or less are maintained. Approximately 2.2 pounds of ice are required for every four pounds of collards.

Harvest costs can add up to 65 percent of the total cost of collards. For the budget presented in Table 1, it is assumed that 500 boxes of collards at 20 plants to the box are produced per acre. Yields ranging from 400 to 600 boxes per acre of collards are used to calculate the breakeven prices at the end of Table 1. Harvest labor, boxes/crates, cooling, hauling, and marketing costs are based on interviews with local growers. Harvest costs include the hauling (transportation) costs from Thomasville (GA) to Baltimore (MD). Some growers act as their own marketing and shipping agents, which enables them to control shipping and handling costs and put the marketing costs in their own pockets (Hopkins 10/99).

Small-Scale Fresh Market Growers

The enterprise budget developed for small-scale growers is shown in Table 4. Table 5 contains the fixed costs of equipment used in small-scale farming operations. Small-scale growers often purchase used equipment or trade equipment with other growers to minimize equipment fixed costs, which makes it difficult to determine representative capitol costs with any degree of certainty.

Land Preparation

Small-scale fresh market growers do not prepare land to the same degree as large-scale producers. The small-scale grower often does not treat soil with herbicides or fungicides. He disks, if there are plant residues from previous crops, and plows to get maximum tillage. Final soil preparation may be accomplished by creating raised beds with a disc bedder or rolling cultivator, although collards are often grown on flat beds if the soil has good drainage characteristics. Tractor and implement(s) fixed costs are shown in Table 5.

Planting

Some small-scale growers transplant while others direct seed. This study assumes that transplanting by hand is the method used. Most small-scale growers use 9,000 to 16,000 transplants per acre. This particular case uses 12,000 transplants per acre, with row widths of 30 inches and within-row spacings of approximately 18 inches between plants.

Fertilizers

Granular fertilizer amounts and rates are the same as for large-scale fresh market growers. A broadcast spreader is used to apply fertilizer just before the transplanting operation. Sidedressing to supply additional nitrogen is usually done when cultivating. Small-scale growers may not sidedress to the extent that large-scale growers do.

Irrigation

Drip irrigation is the means of irrigation. It is estimated that half of the small-scale growers who irrigate use drip irrigation (Holmes 10/99). Many growers do not bury the drip tube as is done when using plastic mulch (Brasher 8/00). This makes it easier to recover and reuse the drip tube. It is assumed that irrigation is performed daily over a two-hour period for 60 days. Row width is assumed to be 30 inches for purposes of calculating tubing costs.

Weed, Insect, and Pest Management

Unlike the large-scale growers, small-scale growers often do not use fungicides or herbicides and less frequently use insecticides when growing collards in the winter. The budget reflects no use of fungicides or herbicides and less insecticide applications.

Equipment

An equipment list with depreciations for small-scale operations is shown in Table 6. The straight-line method is used to calculate depreciation. It is further assumed that the equipment is prorated as shown in the hours-per-year column in Table 6.

Harvesting, Yield, and Hauling

Harvesting is often performed by clear-cutting the collards and loading them onto a pickup truck. The collards are then transported to the local cooperative or market. The budget assumes the grower will transport and sell the greens in the local markets.

Processing Market

Visual attractiveness of the collards is not nearly as important to the processing market. Instead, cost control and yield maximization are the major issues for processing-market growers. Growers often contract with processors for their output before planting crops, thereby minimizing marketing costs and reducing market risk.

Land Preparation

Tillage and land preparation are similar to the methodology used for fresh market collards. The equipment list in Table 7 contains the same plow, disc, harrow, and disc-bedder combination used for fresh market collards.

Planting

Growers selling to processors favor open-pollinated cultivars due to the lower cost. Seeding rate/acre is approximately four pounds of seed per acre. Plant rows are typically 18 inches apart and plants are approximately four inches apart within the row.

Fertilizers

Fertilizer application is usually less than for fresh market collards. The fertilizer inputs in Table 6 show application rates of 150 lbs. N, 100 lbs. P₂O₅, and 100 lbs. K₂O per acre. The base fertilizer application is 1,000 pounds per acre of 5-10-10 fertilizer. Additional nitrogen is added as a side dressing at the six to eight leaf stage, usually after a leaching rain.

Irrigation

Overhead irrigation is the type of irrigation system most frequently used by growers for the processing market. Cable tow traveling gun was used by most of the growers interviewed. The *Florida Vegetable Production Guide* indicates that six separate one-inch applications of water are required during the growing season. A one-inch application was made during field preparation before planting for a total of seven inches overall. Irrigation frequency and amount will vary depending on soil type, rainfall, and climatic conditions. Each grower should supply his own inputs based on personal experience.

Insecticides, Herbicides, and Pesticides

There are also fewer insecticide applications for greens grown for the processing market. These differences, reflected in the lower insecticide costs shown in Table 6, represent two fewer applications of insecticide. Herbicide and fungicide costs are the same as fresh market collards.

Equipment

An equipment list with capital costs for collards grown for processing can be found in Table 6. Harvesting is usually done on a custom basis, eliminating the need for costly harvesting equipment.

Harvesting

A custom harvester under contract to the processor may perform harvesting (Harvey, 10/99). Hauling is handled in the same manner (Harvey, 10/99). The processor pays the harvesters and haulers directly and then deducts the costs from the grower. The budget reflects the custom harvest and hauling costs charged back to the grower. There are no cooling costs. The collards are cut early in the

morning and hauled to the processing plant before they acquire significant field heat. Recent pricing for collards grown for the processing market has been in the \$90/ton range. For budget purposes yields are assumed to be nine tons/acre.

Net Returns and Breakeven Prices

Large-Acreage Fresh Market

In 1999, typical prices f.o.b. in Thomasville (GA) were \$4.50-\$5.50 for 20-lb boxes of collards, and typical prices in the Northeast and Midwest markets were \$10-\$12 for the same 20-lb boxes of collards. Net returns to growers increase substantially when growers act as their own marketing and/or delivery agents and sell directly to markets in the Northeast or Midwest. The data in Table 1 indicate that growing collards for the fresh markets under these assumptions would have a net return of \$2,118 per acre, representing returns of 72.4 percent on variable costs and 62.9 percent on total costs.

Small-Acreage Fresh Market

Net returns for small-acreage growers are illustrated in Table 4, along with the break-even prices. Small-acreage growers selling to local markets can command a good price for their products, providing they have local marketing contacts. Small-acreage growers' pre-harvest, harvest, and transport costs are considerably lower than are large-acreage growers, giving them opportunities to make substantial returns on their efforts. The budget in Table 4 shows a return of \$1,220 per acre, representing returns of 110 percent on variable costs and 95 percent on total costs.

The key to achieving higher returns for small-acreage growers seems to be growing quality products and developing good marketing plans. Collard prices at most local outlets (farmers markets, schools, and local supermarkets) currently command a sufficient price to be profitable. Other keys to supplying local markets directly are the ability to supply numerous types of greens such as turnips, mustard, and collards (Townsend, 8/00) and selling to multiple retail-sales outlets to establish more stable order patterns and pricings.

Large-Acreage Processing Market

Net return and breakeven prices for different yields are shown at the end of Table 6. Net returns of approximately \$81 per acre can be expected. This represents returns of 12.3 percent on total costs and 16.0 percent on variable costs.

Conclusion

Growing collards for both the fresh and processing markets can be a profitable venture, provided growers possess good management practices and sufficient financial resources and marketing skills to properly market their products. Although the returns are greater when selling to the fresh market, the financial and market risks are also greater as well.

References

Brasher, Charles (Extension Agent III). Interview on 10/17/99. University of Florida, Institute of Food and Agricultural Sciences, District 1 County Extension Service, Marianna, FL.

Edwards, Marcus (Farmer). Interview on 10/15/99. Florida A&M University, Research and Extension Center, Quincy, FL.

Harvey, C. T (Greens Grower Manager). Interview on 10/15/99. Southern Frozen Foods, Montezuma, GA.

Holmes, Glenn (Outreach Coordinator). Interview on 10/19/99. Natural Resource and Conservation Service, United States Department of Agriculture, Marianna, FL.

Hopkins, C (Farmer). Interview on 10/15/99. Reno, GA.

Maynard, Donald M. and George J. Hochmuth. *Vegetable Production Guide for Florida* (SP-170). University of Florida, Institute of Food and Agricultural Sciences, Gainesville, FL. 1999 (revised August 1999).

McLaurin, Wayne J., Darbie M. Granberry, and W.O Chance (Extension Horticulturists). "Leafy Greens and Cabbage Production." College of

Agricultural and Environmental Sciences, University of Georgia, Georgia Cooperative Extension Service, Athens, GA.

<http://www.ces.uga.edu/pubcd/b1067-w.html#Transplanting>

Olson, Steve M. (Professor of Horticultural Science). Interview on 10/21/99. University of Florida, Institute of Food and Agricultural Sciences, North Florida Research and Education Center, Quincy, FL.

South Carolina Enterprise Budgets.
<http://cherokee.agecon.clemson.edu/budgets.htm>

Townsend, C. (Farmer). Interview on 8/15/00. Live Oak, FL.

Westberry, George O. and Kerry A. Harrison. "/98 Irrigation Templates." College of Agricultural and Environmental Sciences, University of Georgia, Georgia Cooperative Extension Service, Athens GA. <http://www.ces.uga.edu/Agricultural/Agecon/templates/IRRIG.html>

Table 1. Enterprise budget for large-scale fresh market collard greens operation.

GROSS RECEIPTS	(boxes)	(\$10)	(550)	(\$5,500)	
Collards Fall Harvest	Unit	Price/Unit	Quantity	Gross Receipts	Your Cost
<i>Cash Expenses, Pre-Harvest</i>					
Transplants	1,000	16.00	16.00	256	_____
Lime, applied	ton	0.50	24.00	12	_____
Fertilizer (5-10-10), mixed	hundredweight	12.00	8.50	102	_____
Nitrogen	pound	90.00	0.32	29	_____
Herbicide	acre	1.00	7.13	7	_____
Insecticide	acre	1.00	24.03	24	_____
Fungicide	acre	1.00	13.06	13	_____
Tractor + Machinery	acre	1.00	52.13	52	_____
Truck (pickup)	miles	40.00	0.15	54	_____
Labor (including transplanting)	hour	9.00	6.00	54	_____
Irrigation	application	7.00	6.20	43	_____
Interest on Cash Expenses	dollar	598.55	0.055	631	_____
Total Pre-Harvest Cash Expenses				631	
<i>Harvest + Marketing Costs</i>					
Tractor + Machinery	acre	1.00	7.05	7	
Machinery Labor	acre	1.00	11.00	11	
Harvest Labor	box	1.00	550.00	550	
Boxes (20 plants per box)	each	1.00	550.00	550	
Marketing	box	0.40	550.00	220	
Cooling	box	0.50	550.00	275	
Hauling	box	1.25	550.00	688	
Total Harvest + Marketing Costs				2,301	
Total Variable Costs				2,932	
<i>Fixed Costs</i>					
Tractor + Machinery	acre	1.00	64.92	65	_____
Truck (pickup)	miles	40.00	0.17	7	_____
Irrigation	acre	1.00	45.50	46	_____
Total Fixed Costs				117	
<i>Other Costs</i>					
Land Use	acre	1	35	35	
Overhead + Management	dollar	2,932	0.10	293	
Total Other Costs				328	_____
Total Costs				3,377	_____
Net Return to Risk & Mangement				2,123	_____
Breakeven Collard Greens Prices at Various Yields					
	Yield			Price	
	(boxes/acre)			(\$/box)	
	450			6.59	
	500			6.35	
	550			6.15	
	600			5.99	
	650			5.85	

Table 2. Equipment cost of a large-scale greens operation.

Equipment	Hours Used (year)	Cost Estimate (\$)	Salvage Value (\$)	Equipmt Life (years)	Deprec'n (\$/year)	Interest (\$/year)	Insurance (\$/year)	Storage Space (feet)	Storage Cost (\$)	TRC (\$/year)	TFC (hour)	Hours (acre)	TFC (acre)
Tractor (115-hp)	600	56,000	10,080	12	3,827	2,974	420	150	50	7,270	12.12	1.57	19.02
Tractor (75-hp)	600	33,800	6,084	12	2,310	1,795	254	120	40	4,398	7.33	2.29	16.78
Disc/herbicide	150	8,000	1,440	12	547	425	60	200	66	1,097	7.32	0.13	0.95
5-Bottom Plow	80	10,000	1,800	12	683	531	75	200	66	1,355	16.94	0.2	3.39
Harrow	100	1,000	180	12	68	53	8	150	50	178	1.78	0.15	0.27
Disc Bedder	160	1,240	223.2	12	85	66	9	150	50	209	1.31	0.28	0.37
Fertilizer Applicator	100	7,500	1,350	12	513	398	56	120	40	1,007	10.07	0.2	2.01
Transplanter (2R)	100	3,000	540	12	205	159	23	120	40	426	4.26	2.29	9.76
Cultivator/fertilizer	200	6,000	1,080	12	410	319	45	200	66	840	4.20	1.08	4.53
Sprayer	200	3,500	630	12	239	186	26	200	66	517	2.59	1.00	2.59
1,000-Gallon Nurse Tank	200	3,000	540	12	205	159	23	100	33	420	2.10	1.00	2.10
2-Ton Truck	500	38,000	6,840	8	3,895	2,018	285	250	83	6,280	12.56	0.25	3.14
Total		171,040			12,986	9,082	1,283		564	17,718		6.58	64.92
ASSUMPTIONS													
1 200 acres/year													
2 Equipment is used for 2 crops/year													
3 Interest rate = 9%													
4 Insurance rate = 0.75%													
5 Storage cost = \$0.33/square feet/year													
6 Assumes excess equipment hours not used for collards will be used elsewhere													

Growing Collard Greens for the Fresh and Processing Markets

9

Table 3. Insecticide, herbicide, and fungicide dosage, cost, and applications.

Chemical	Cost (\$)	Units	Dosage (units/application)	Units (application)	Cost (\$/application)	Applications (number)	Total Cost (\$)
<i>Insecticides</i>							
Diazinon	31.25	gallon	1	pint	3.91	5	19.53
M-Pede	18.00	gallon	1	pint	2.25	2	4.50
Total Insecticides							24.03
<i>Herbicides</i>							
Trilin	4.75	pint	1.5	pint	7.13	1	7.13
Total Herbicides							7.13
<i>Fungicide</i>							
Manex	4.08	quart	1.6	quart	6.53	2	13.06
Total Fungicide							13.06
Total Chemicals							44.22
Assumes 2 less Diazinon applications for processed collards							

Table 4. Enterprise budget for small-scale collard greens operation.

GROSS RECEIPTS	(12)	(\$10)	(250)	(\$2,500)	
Collards Fall Harvest	Unit	Price/Unit	Quantity	Gross Receipts	Your Cost
<i>Cash Expenses, Pre-Harvest</i>					
Seed (transplant)	1,000	12	16.00	192	_____
Lime, applied	ton	0.5	24.00	12	_____
Fertilizer (5-10-10)	hundredweight	12	8.50	102	_____
Nitrogen	pound	90	0.32	29	_____
Herbicide ¹	acre	0	9.50	0	_____
Insecticide	acre	1	27.94	28	_____
Fungicide ³	acre	0	26.50	0	_____
Tractor + Machinery	acre	1	18.04	18	_____
Truck (pickup)	mile	20	0.14	3	_____
Labor (including transplanting)	hour	12	5.50	66	_____
Irrigation ^{2,3}	acre	1	187.82	188	_____
Interest on Cash Expenses	dollar	637	0.05	32	_____
Total Pre-Harvest Cash Expenses				669	_____
<i>Harvest + Marketing Costs⁴</i>					
Tractor + Machinery	hour	1	16.43	16	_____
Machinery Labor	hour	2	5.50	11	_____
Harvest Labor	hour	6	5.50	33	_____
Ties	each	250	0.20	50	_____
Hauling Costs	acre	1	234.00	234	_____
Marketing Fees	acre	1	100.00	100	_____
Total Harvest + Marketing Costs				444	_____
Total Cash Cost				1,114	_____
<i>Fixed Costs, Pre-Harvest</i>					
Tractor	acre	1	15.40	15	_____
Machinery	acre	1	11.97	12	_____
Irrigation ²	acre	1	33.95	34	_____
Truck (pickup)	mile	20	0.17	3	_____

Table 4. Enterprise budget for small-scale collard greens operation.

GROSS RECEIPTS	(12)	(\$10)	(250)	(\$2,500)	
Collards Fall Harvest	Unit	Price/Unit	Quantity	Gross Receipts	Your Cost
Total Pre-Harvest Fixed Costs				64	_____
<i>Other Costs</i>					
Land Use	acre	1	35.00	35	_____
Overhead + Management	dollar	669.27	0.10	67	_____
Total Other Costs				102	_____
Total Costs				1,280	_____
Net Returns to Risk & Management				1,220	_____
Breakeven Collard Greens Prices at Various Yields					
	Yield			Price	
	<i>(dozen/acre)⁵</i>			<i>(\$/dozen)</i>	
	175			5.95	
	200			5.35	
	250			4.52	
	300			3.96	
	325			3.74	
ASSUMPTIONS					
1 Grower does not use herbicides or fungicides					
2 Grower uses drip irrigation					
3 Grower grows 2 crops/year. Capital cost and rip tube cost is prorated over 2 crops					
4 Grower cuts and bundles collards and sells at farmer's market					
5 One dozen bunches, approximately 3 plants/bunch					

Table 5. Equipment cost for small-scale greens budget operation.

Equipment	Hours Used (year)	Cost Estimate (\$)	Salvage Value (\$)	Equipmt Life (years)	Deprec'n (\$/year)	Interest (\$/year)	Insurance (\$/year)	Storage Space (feet) ²	Storage Cost (\$)	TFC (\$/year)	Hours (acre)	TFC (hour)	TFC (acre)
Tractor (55-hp)	600	20,700	3,726	12	1,415	1,099	155	150	50	2,718	3.40	4.53	15.40
Plow	100	2,000	360	12	137	106	15	100	33	291	0.60	2.91	1.75
Fertilizer Spreader	50	700	126	12	48	37	5	100	33	123	0.20	2.47	0.49
Harrow	50	900	162	12	62	48	7	150	50	166	0.30	3.31	0.99
Cultivator (2R)	100	2,000	360	12	137	106	15	125	41	299	1.30	2.99	3.89
Tractor/Sprayer	100	3,500	630	12	239	186	26	100	33	484	1.00	4.84	4.84
Total		29,800	5,364		2,036	1,582	224		239	4,081	3.40	27.37	
ASSUMPTIONS													
1 2 acres of collards/year													
2 2 crops/year													
3 Excess equipment hours are used for other crops													
4 Interest rate = 9%													
5 Insurance = 0.75% of equipment sales price													

Table 6. Estimated costs of producing one acre of collard greens for processing.

GROSS RECEIPTS	(tons)	(\$91)	(9)	(\$819)	
Collards for Processing	Unit	Price/Unit	Quantity	Gross Receipts	Your Cost
<i>Cash Expenses, Pre-Harvest</i>					
Seed (for plant beds)	pound	4.00	5.25	21	_____
Lime, applied	ton	0.50	24.00	12	_____
Fertilizer (5-10-10), mixed	hundredweight	10.00	8.50	85	_____
Nitrogen	pound	100.00	0.32	32	_____
Herbicide	acre	1.00	7.13	7	_____
Insecticide	acre	1.00	20.12	20	_____
Fungicide	acre	1.00	13.06	13	_____
Tractor + Machinery	acre	1.00	35.21	35	_____
Truck (pickup)	mile	40.00	0.15	6	_____
Labor	hour	6.00	6.00	36	_____
Irrigation	application	7.00	6.20	43	_____
Interest on Cash Expenses	dollar	310.92	0.06	18	_____
Total Pre-Harvest Cash Expenses				329	_____
<i>Harvest Costs</i>					
Tractor + Machinery	ton	9.00	18.50	167	_____
Hauling	ton	9.00	7.50	68	_____
Total Harvest Costs				234	_____
Total Variable Costs				563	_____
<i>Fixed Costs, Pre-Harvest</i>					
Tractor + Machinery	acre	1.00	44.72	45	_____
Truck (pickup)	mile	40.00	0.17	7	_____
Irrigation	acre	1.00	45.50	46	_____
Total Fixed Costs				97	_____
<i>Other</i>					
Land Use	acre	1.00	35.00	35	_____
Overhead + Management	acre	338	0.10	34	_____
Total Other Costs				69	_____
Total Costs				729	_____
Net Return to Risk & Management				90	_____
Breakeven Collard Greens Prices at Various Yields					
	Yield			Price	
	<i>(tons/acre)</i>			<i>(\$/ton)</i>	
	6			108	
	7			97	
	9			81	
	11			71	
	13			64	

Table 7. Fixed costs of large-scale greens processing operation.

Equipment	Hours Used (year)	Cost Estimate (\$)	Salvage Value (\$)	Equipmt Life (years)	Deprec'n (\$/year)	Interest (\$/year)	Insurance (\$/year)	Storage Space (feet) ²	Storage Cost (\$)	TFC (\$/year)	TFC (hours)	Hours (acres)	TFC (acres)
Tractor (115-hp)	600	56,000	10,080	12	3,827	2,974	420	150	50	7,270	12.12	1.57	19.02
Tractor (75-hp)	600	33,800	6,084	12	2,310	1,795	254	120	40	4,398	7.33	1.21	8.87
Disc/herbicide	150	8,000	1,440	12	547	425	60	200	66	1,097	7.32	0.13	0.95
5-Bottom Plow	80	10,000	1,800	12	683	531	75	200	66	1,355	16.94	0.2	3.39
Harrow	100	10,000	1,800	12	68	53	8	150	50	178	1.78	0.15	0.27
Disc Bedder	160	1,240	223	8	127	66	9	150	50	252	1.57	0.28	0.44
Planter/fertilizer	100	13,000	2,340	12	888	690	98	120	40	1,715	17.16	0.21	3.60
Cultivator/fertilizer	200	4,500	810	12	308	239	34	200	66	646	3.23	1.08	3.49
Sprayer	200	3,500	630	12	239	186	26	200	66	517	2.59	1.00	2.59
1,000-Gallon Nurse Tank	200	3,000	540	12	205	159	23	100	33	420	2.10	1.00	2.10
Total		134,040			9,202	7,118	1,005		525	17,849		4.05	44.72
ASSUMPTIONS													
1 200 acres/year													
2 Equipment is used for 2 crops/year													
3 Interest rate = 9%													
4 Insurance rate = 0.75%													
5 Storage cost = \$0.33/square feet/year													
6 Assumes excess equipment hours not used for collards will be used elsewhere													