

## **ABSTRACT**

Costs of production are reported for eleven vegetable crops produced in Southwest production areas in Florida for the 1996-97 season. Combinations are presented along with net return analyses. Labor and machinery cost breakdowns by operation are detailed in the appendix.

## **ACKNOWLEDGMENTS**

This report is the outcome of work contributed by numerous individuals. In particular the assistance of Suzanne Cady, Ben Castro, Anthony Drew, Phyllis Gilreath, Tom Schueneman, Ken Shuler, Stewart Swanson, Austin Tilton and Richard Tyson is gratefully acknowledged. In addition, the authors would like to express their appreciation to the various state agencies, Florida growers, and agricultural associations who contributed their technical knowledge of vegetable crop production. Thanks also to Janice Baisden for her assistance in the processing of this document.

# PRODUCTION COSTS FOR SELECTED FLORIDA VEGETABLES,

1996-97

Scott A. Smith and Timothy G. Taylor'

This report presents estimated costs of production for 11 vegetable crops produced in one or more of 8 producing areas in Florida for the 1996-97 season. In all, 27 crop-area combinations are included. The cost budgets were constructed using a computerized budget generator program, AGSYS. Technical coefficients used in constructing the budgets were obtained by consultation with individual growers, county agents, and IFAS researchers. The input prices used in conjunction with the technical coefficients were obtained by survey and correspondence with farm suppliers and growers in each of the areas in which production costs are reported.

The budgets presented in this report are intended to reflect the cost of production incurred when production practices that are considered typical for any given crop in a given area are followed. What constitutes a typical production practice for each crop was defined by a consensus of opinion between IFAS personnel and various producers in each production area. It should be emphasized that cost estimates resulting from this process should not be considered as representing the average cost of production in a statistical sense nor should they be considered as necessarily relating to recommended production practices. The intent of these cost budgets is to establish a benchmark within the range of actual costs that could be expected to produce the crop.

Eight budgets reflecting double-crop production practices are included in this year's Cost of Production: Manatee/Ruskin spring tomatoes, Manatee/Ruskin fall watermelons, Southwest spring tomatoes and peppers, Southwest fall cucumbers and watermelons, Palm Beach area spring eggplant and pepper. Double-crop production refers to the practice of planting a "following" crop directly into the plastic mulch-covered beds used to produce an initial crop to utilize residual inputs from the preceeding crop. Most commonly, tomatoes or peppers are followed by cucumbers or watermelons but other combinations may occur. The combination of crops produced is generally determined by grower preference. This system of farming is practiced in an effort to recover costs incurred in the production of the initial crop and reduce cost of production of the second crop. Actual production practices for the initial crop, either tomatoes or peppers, are affected very little when double-cropping is used. However, production of the subsequent crop is affected significantly relative to growing the crop independently.

It should be noted that pre-cooling charges no longer appear in a number of budgets. Response from industry reviewers has indicated that these charges are incurred by the buyer, are not included in F.O.B. values, and therefore should not be presented in production budgets. Other changes to note are that supervisory or management labor expense is now reported in fixed costs rather than included with variable labor costs. Also, land rent has been adjusted to reflect net acreage as best possible.

For each crop contained in this report there are four tables that present various types of information. Two tables for each crop are included in the text. The first reports estimated cost of production per acre and per unit, and the second reports estimated net returns for various price and yield combinations. The appendix contains two additional tables for each crop that summarize preharvest labor costs by production activity, and a breakdown of fixed and variable machinery and implement costs.

' Economic Analyst and Professor respectively, Food and Resource Economics Department, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, Florida.

The net return range analyses provide information on how sensitive the estimated net return for any crop is to variations in either yield per acre or price per unit. For each crop, net returns are estimated for 25 price and yield combinations. The ranges for both price and yield are intended to be broad enough to include the actual season average prices and yields obtained by growers in any given area. The following algorithm is used to estimate net returns per acre for twenty-five price yield combinations.

$$\text{Net Return Per Acre} = \text{TR} - [\text{TPC} + (\text{HC} * \text{Yj})]$$

where;

TR total revenue (  $P_i * Y_j$  ) per acre.

TPC total preharvest cost per acre.

HC per unit harvest cost.

$P_i$  = range analysis price 1 to 5 per unit.

$Y_j$  = range analysis yield 1 to 5 per acre.

The appendix tables detail costs for both labor input and various types of machinery and implements. For labor, the estimated hours per acre required to perform an operation, or total man hours per acre where specific operations cannot be itemized, and the cost per acre are delineated. Machinery costs are reported for tractors, implements, and a miscellaneous category. The total hours used per acre and estimated fixed and variable costs per acre are reported for each machine or implement.

Fixed machinery costs include interest cost, taxes, insurance, and depreciation. Variable machinery costs include the cost of fuel, oil, and repair and maintenance. Both fixed and variable machinery costs are calculated on the basis of hours of use per acre for each machine or implement. It should be noted that tractor driver labor is not included in the variable cost of machinery, but reported as "tractor labor" in the labor cost table.

**Please make note that due to confidentiality concerns, budget reports for celery and sweet corn grown in the Central Florida and Everglades areas have been discontinued. Questions regarding this decision may be addressed to the authors.**

Finally, in some cases, the total cost figures for various subcategories will not exactly equal the sum of individual cost components due to rounding errors. In all cases, this difference is no more than a few cents.

## PRINCIPAL VEGETABLE PRODUCING AREAS IN FLORIDA AND MAJOR VEGETABLES PRODUCED



1. West--tomatoes, watermelons
2. North
  - A. Alachua/Levy County--watermelons
  - B. Hastings area--potatoes, cabbage
  - C. Jefferson County--watermelons
  - D. Quincy area--tomatoes
3. North Central
  - E. Lake/Marion/Sumter County--watermelons
  - F. Zellwood area--celery, sweet corn
4. West Central
  - G. Plant City area--strawberries
  - H. Ruskin/Palmetto area--tomatoes, watermelons
5. East Central--tomatoes, watermelons
6. Southwest--cucumbers, peppers, squash  
tomatoes, watermelons
7. Everglades--celery, sweet corn, lettuce  
radishes, escarole
8. Southeast
  - I. Palm Beach County--cucumbers, sweet corn  
eggplant, squash
  - J. Dade County--beans, sweet corn, potatoes tomatoes,  
squash, cuban vegetables

### Key to Terms Used in Tables

|                        |  |
|------------------------|--|
| <b>Bactericide:</b>    | Includes only the cost of bactericides applied.  |
| <b>Bees:</b>           | Bee hive rental when used for pollination purposes.  |
| <b>Containers:</b>     | Includes cartons, crates, or baskets in which the product is transported to market.  |
| <b>Crop insurance:</b> | Represents crop hail and/or multiperil insurance.  |
| <b>Custom work:</b>    | Work performed on a contract or piece-rate basis.  |
| <b>Double-crop:</b>    | Crop production system in which an initial crop utilizing plastic mulch is planted and grown using normal production practices. A second (following) crop, usually different from the first, is subsequently planted directly into the existing mulched beds. This is done in an effort to spread some of the costs of the initial crop such as plastic mulch, land and bed preparation over both crops. This also acts to reduce the cost to produce the second crop by utilizing the remaining inputs from the first crop. |
| <b>Fertilizer:</b>     | Includes only the cost of fertilizer (and lime) applied.   |
| <b>Fungicide:</b>      | Includes only the cost of fungicides applied.  |
| <b>General labor:</b>  | Estimate of labor hours per acre necessary to perform various production tasks during the growing period. Harvest labor is included in harvesting cost.  |
| <b>Harvesting:</b>     | Represents the cost of harvesting the crop and preparing it for movement to the packinghouse on a per-packed-unit basis.   |
| <b>Hauling:</b>        | Moving the produce from the field to the packinghouse or storage area.   |
| <b>Herbicide:</b>      | Includes only the cost of herbicides applied.  |
| <b>Insecticide:</b>    | Includes only the cost of insecticides applied.  |
| <b>Interest cost:</b>  | Interest charged on production capital only. An interest rate of 8.0 percent was used in estimating this cost.   |
| <b>Labor:</b>          | Includes field and tractor labor. Supervisory labor is included as a fixed cost of management.<br>Harvest labor is included in harvesting cost.  |
| <b>Land rent:</b>      | An estimate of the prevailing rate charged for land utilized in each production area and for each specific crop.   |
| <b>Machinery cost:</b> | Represents the cost of using farm machinery and implements exclusive of labor. This cost is reported in two subcategories:<br><b>Fixed:</b> Includes depreciation, interest charged to capital expenditures, taxes, storage, and insurance.<br><b>Operating:</b> Includes expenditures on fuel, oil, repair, and maintenance.  |

|                          |  |
|--------------------------|--|
| <b>Management:</b>       | Cost of salaried farm management. This value is based on a percent of preharvest cost and does not include returns to management.  |
| <b>Overhead:</b>         | Includes indirect production costs, such as communications equipment, office supplies, legal and audit fees, cost of regulatory compliance, administrative costs, telephone, and incidental expenses. A range 10 to 25 percent of preharvest cost was used to estimate overhead costs depending on the production characteristics of major producers in an area. |
| <b>Packing:</b>          | Preparing the product for shipment either in the field or at the packinghouse.   |
| <b>Packing material:</b> | Materials used to protect the produce whether containerized or shipped in bulk.  |
| <b>Picking basket:</b>   | Baskets used by harvest laborers to move commodities from the field to trucks, hauling carts, or field packing units.  |
| <b>Plastic mulch:</b>    | Represents only the cost of materials.   |
| <b>Precooling:</b>       | The packinghouse charge for using one of a variety of methods to remove field heat from the crop. Typically this is a charge to the buyer and not included in F.O.B. values.   |
| <b>Seed:</b>             | Represents only seed costs.  |
| <b>Selling:</b>          | The packinghouse, market, sales organization, or dealer's charge for performing the service of selling the crop.   |
| <b>Soil fumigants:</b>   | Includes only the cost of fumigants applied.   |
| <b>Transplants:</b>      | Includes cost of seed and/or nursery charges.  |
| <b>Transportation:</b>   | Moving the crop to market.   |
| <b>Wrapping paper:</b>   | Thin paper used to prevent damage to product caused by contact within containers. See also Packing Materials.  |
| <b>Yield:</b>            | The number of marketable units produced per acre. It is not based on data surveyed during a given season. Rather it is an estimate for the current year based on historical data and anticipated production.   |

Table 9. Cucumbers: Estimated production costs for a following crop in a double-crop system for the southwest Florida area, 1996-97.

| Category                           | Average per Acre  | Average per Bushel |
|------------------------------------|-------------------|--------------------|
| Yield (55 lb. bushels)             | 600               |                    |
|                                    | .... Dollars ---- |                    |
| <b>OPERATING COSTS</b>             |                   |                    |
| Seed                               | 73.00             |                    |
| Fertilizer and lime                | 220.00            |                    |
| Fungicide                          | 128.61            |                    |
| Herbicide                          | 18.23             |                    |
| Insecticide                        | 177.45            |                    |
| Labor                              | 96.73             |                    |
| Machinery                          | 99.18             |                    |
| Interest                           | 35.98             |                    |
| Miscellaneous                      |                   |                    |
| Clean ditches                      | 17.00             |                    |
| Plastic disposal                   | 156.82a           |                    |
| Bees                               | 30.00             |                    |
| Farm vehicles                      | 12.89             |                    |
| Total operating cost               | 1,065.87          |                    |
| <b>FIXED COST</b>                  |                   |                    |
| Machinery                          | 36.90             |                    |
| Management                         | 160.02            |                    |
| Overhead                           | 213.36            |                    |
| Total fixed cost                   | 410.28            |                    |
| <b>TOTAL PREHARVEST COST</b>       | 1,476.16b         | 2.46b              |
| <b>HARVEST AND MARKETING COSTS</b> |                   |                    |
| Pick and haul                      | 1,080.00          | 1.80               |
| Pack                               | 1,110.00          | 1.85               |
| Containers                         | 456.00            | 0.76               |
| Selling                            | 150.00            | 0.25               |
| Total harvest and marketing cost   | 2,796.00          | 4.66               |
| <b>TOTAL COST</b>                  | 4,272.16          | 7.12               |

a Cost attributed to second crop as a result of double-crop production practices following Tomatoes.

b Costs exclude field and bed preparation, plastic mulch and fumigant.

Table 10. Cucumbers: Estimated net returns for various price and yield combinations for a following crop in a double-crop system for the southwest Florida area, 1996-97.

| Dollars per bushel |         |         |          |          |          |
|--------------------|---------|---------|----------|----------|----------|
| Yield (bushels)    | 6.00    | 7.75    | 9.50     | 11.25    | 13.00    |
| 400                | -940.00 | -240.00 | 460.00   | 1,160.00 | 1,860.00 |
| 500                | -806.00 | 69.00   | 944.00   | 1,819.00 | 2,694.00 |
| 600                | -672.00 | 378.00  | 1,428.00 | 2,478.00 | 3,528.00 |
| 700                | -538.00 | 687.00  | 1,912.00 | 3,137.00 | 4,362.00 |
| 800                | -404.00 | 996.00  | 2,396.00 | 3,796.00 | 5,196.00 |

Table 19. Green Peppers: Estimated production costs in the southwest Florida area, 1996-97.

| Category                           | Average per<br>Acre' | Bushel |
|------------------------------------|----------------------|--------|
| Yield (28 lb. bushels)             | 1,000                |        |
|                                    | ---- Dollars ----    |        |
| <b>OPERATING COSTS</b>             |                      |        |
| Transplants                        | 880.00               |        |
| Fertilizer and lime                | 355.50               |        |
| Fumigant                           | 446.00               |        |
| Fungicide                          | 196.07               |        |
| Herbicide                          | 22.97                |        |
| Insecticide                        | 439.95               |        |
| Labor                              | 316.89               |        |
| Machinery                          | 507.10               |        |
| Interest                           | 210.68               |        |
| Miscellaneous                      |                      |        |
| Level land                         | 145.00               |        |
| Plastic mulch                      | 234.00               |        |
| Remove and dispose of plastic      | 156.82               |        |
| Scouting                           | 35.00                |        |
| Farm vehicles                      | 22.56                |        |
| Total operating cost               | 3,968.53             |        |
| <b>FIXED COST</b>                  |                      |        |
| Land rent                          | 450.00               |        |
| Machinery                          | 231.01               |        |
| Management                         | 887.77               |        |
| Overhead                           | 1,109.72             |        |
| Total fixed cost                   | 2,678.50             |        |
| <b>TOTAL PREHARVEST COST</b>       | 6,647.03             | 6.65   |
| <b>HARVEST AND MARKETING COSTS</b> |                      |        |
| Harvest, pack and haul             | 2,980.00             | 2.98   |
| Containers                         | 9.50                 | 0.95   |
| Selling                            | 500.00               | 0.50   |
| Total harvest and marketing cost   | 4,430.00             | 4.43   |
| <b>TOTAL COST</b>                  | 11,077.03            | 11.08  |

a 7,260 linear bed feet

Table 20. Green Peppers: Estimated net returns for various price and yield combinations in the southwest Florida area, 1996-97.

| Yield (bushels) | <u>Dollars per bushel</u> |           |           |           |          |
|-----------------|---------------------------|-----------|-----------|-----------|----------|
|                 | 8.00                      | 9.50      | 11.00     | 12.50     | 14.00    |
| 600             | -4,505.00                 | -3,605.00 | -2,705.00 | -1,805.00 | -905.00  |
| 800             | -3,791.00                 | -2,591.00 | -1,391.00 | -191.00   | 1,009.00 |
| 1,000           | -3,077.00                 | -1,577.00 | -77.00    | 1,423.00  | 2,923.00 |
| 1,200           | -2,363.00                 | -563.00   | 1,237.00  | 3,037.00  | 4,837.00 |
| 1,400           | -1,649.00                 | 451.00    | 2,551.00  | 4,651.00  | 6,751.00 |

Table 21. Green Peppers:

Estimated production costs for the initial crop of a double-crop system in the southwest Florida area, 1996-97.

| Category                           | Average<br>Acre a | per<br>Bushel |
|------------------------------------|-------------------|---------------|
| Yield (28 lb. bushels)             | 1,000             |               |
|                                    | ----              | Dollars       |
| <b>OPERATING COSTS</b>             |                   |               |
| Transplants                        | 880.00            |               |
| Fertilizer and lime                | 355.50            |               |
| Fumigant                           | 446.00            |               |
| Fungicide                          | 196.07            |               |
| Herbicide                          | 22.97             |               |
| Insecticide                        | 439.95            |               |
| Labor                              | 316.89            |               |
| Machinery                          | 507.10            |               |
| Interest                           | 202.83            |               |
| Miscellaneous                      |                   |               |
| Levelland                          | 145.00            |               |
| Plastic mulch                      | 234.00            |               |
| Scouting                           | 35.00             |               |
| Farm vehicles                      | 22.56             |               |
| Total operating cost               | 3,803.87          |               |
| <b>FIXED COST</b>                  |                   |               |
| Land rent                          | 450.00            |               |
| Machinery                          | 231.01            |               |
| Management                         | 856.41            |               |
| Overhead                           | 1,070.51          |               |
| Total fixed cost                   | 2,607.93          |               |
| <b>TOTAL PREHARVEST COST</b>       | 6,411.80          | 6.41          |
| <b>HARVEST AND MARKETING COSTS</b> |                   |               |
| Harvest, pack and haul             | 2,980.00          | 2.98          |
| Containers                         | 9.50              | 0.95          |
| Selling                            | 500.00            | 0.50          |
| Total harvest and marketing cost   | 4,430.00          | 4.43          |
| <b>TOTAL COST</b>                  | 10,841.80         | 10.84         |

a 7,260 linear bed *feet*

Table 22. Green Peppers:

Estimated net returns for various price and yield combinations for the initial crop of a double-crop system in the southwest Florida area, 1996-97.

| Yield (bushels) | Dollars per bushel |           |           |           |          |
|-----------------|--------------------|-----------|-----------|-----------|----------|
|                 | 8.00               | 9.50      | 11.00     | 12.50     | 14.00    |
| 600 -           | 4,270.00           | -3,370.00 | -2,470.00 | -1,570.00 | -670.00  |
| 800             | -3,556.00          | -2,356.00 | -1,156.00 | 44.00     | 1,244.00 |
| 1,000           | -2,842.00          | -1,342.00 | 158.00    | 1,658.00  | 3,158.00 |
| 1,200           | -2,128.00          | -328.00   | 1,472.00  | 3,272.00  | 5,072.00 |
| 1,400           | -1,414.00          | 686.00    | 2,786.00  | 4,886.00  | 6,986.00 |

Table 43. Tomatoes: Estimated production costs in the southwest Florida area, 1996-97.

| Category                           | Acra  | Average per | Carton |
|------------------------------------|-------|-------------|--------|
| Yield (25 lb. cartons)             | 1,400 |             |        |
| ---- Dollars ----                  |       |             |        |
| <b>OPERATING COSTS</b>             |       |             |        |
| Transplants                        |       | 336.00      |        |
| Fertilizer and lime                |       | 283.75      |        |
| Fumigant                           |       |             |        |
| Fungicide                          |       | 301.21      |        |
| Herbicide                          |       | 64.99       |        |
| Insecticide                        |       | 436.99      |        |
| Labor                              |       | 244.16      |        |
| Machinery                          |       | 447.11      |        |
| Interest                           |       | 193.88      |        |
| Miscellaneous                      |       |             |        |
| Level land                         |       | 145.00      |        |
| Plastic mulch                      |       | 234.00      |        |
| Cross ditch                        |       | 27.20       |        |
| Trickle tube                       |       | 290.40      |        |
| Plastic string                     |       | 37.50       |        |
| Replacement stakes                 |       | 112.50      |        |
| Remove string and stakes           |       | 123.42      |        |
| Remove and dispose of plastic      |       | 156.82      |        |
| Tie plants                         |       | 145.20      |        |
| Prune plants                       |       | 78.41       |        |
| Set and drive stakes               |       | 81.31       |        |
| Scouting                           |       | 39.00       |        |
| Farm vehicles                      |       | 19.33       |        |
| Total operating cost               |       | 4,244.18    |        |
| <b>FIXED COST</b>                  |       |             |        |
| Land rent                          |       | 450.00      |        |
| Machinery                          |       | 176.19      |        |
| Management                         |       | 935.30      |        |
| Overhead                           |       | 1,169.12    |        |
| Total fixed cost                   |       | 2,730.60    |        |
| <b>TOTAL PREHARVEST COST</b>       |       | 6,974.78    | 4.98   |
| <b>HARVEST AND MARKETING COSTS</b> |       |             |        |
| Harvest and haul                   |       | 1,078.00    | 0.77   |
| Packing                            |       | 2,590.00    | 1.85   |
| Containers                         |       | 1,050.00    | 0.75   |
| Selling                            |       | - 210.00    | 0.15   |
| Assessments                        |       | 70.00       | 0.05   |
| Total harvest and marketing cost   |       | 4,998.00    | 3.57   |
| <b>TOTAL COST</b>                  |       | 11,972.78   | 8.55   |

a 7,260 linear bed feet

Table 44. Tomatoes: Estimated net returns for various price and yield combinations in the southwest Florida area, 1996-97.

| Yield (cartons) | Dollars per c |           |           |           |          |
|-----------------|---------------|-----------|-----------|-----------|----------|
|                 | 6.00          | 7.00      | 8.00      | 9.00      | 10.00    |
| 1,000           | -4,545.00     | -3,545.00 | -2,545.00 | -1,545.00 | -545.00  |
| 1,200           | -4,059.00     | -2,859.00 | -1,659.00 | -459.00   | 741.00   |
| 1,400           | -3,573.00     | -2,173.00 | -773.00   | 627.00    | 2,027.00 |
| 1,600           | -3,087.00     | -1,487.00 | 113.00    | 1,713.00  | 3,313.00 |
| 1,800           | -2,601.00     | -801.00   | 999.00    | 2,799.00  | 4,599.00 |

Table 45. Tomatoes: Estimated production costs for the initial crop of a double-crop system in the southwest Florida area, 1996-97.

| Category                           | Average<br>Acre' | per<br>Carton |
|------------------------------------|------------------|---------------|
| Yield (25 lb. cartons)             | 1,400            |               |
| ---- Dollars ----                  |                  |               |
| <b>OPERATING COSTS</b>             |                  |               |
| Transplants                        | 336.00           |               |
| Fertilizer and lime                | 283.75           |               |
| Fumigant                           | 446.00           |               |
| Fungicide                          | 301.21           |               |
| Herbicide                          | 64.99            |               |
| Insecticide                        | 436.99           |               |
| Labor                              | 244.16           |               |
| Machinery                          | 447.11           |               |
| Interest                           | 187.13           |               |
| Miscellaneous                      |                  |               |
| Level land                         | 145.00           |               |
| Plastic mulch                      | 234.00           |               |
| Cross ditch                        | 27.20            |               |
| Trickle tube                       | 290.40           |               |
| Plastic string                     | 37.50            |               |
| Replacement stakes                 | 112.50           |               |
| Remove string and stakes           | 123.42           |               |
| Tie plants                         | 145.20           |               |
| Prune plants                       | 78.41            |               |
| Set and drive stakes               | 81.31            |               |
| Scouting                           | 39.00            |               |
| Farm vehicles                      | 19.33            |               |
| Total operating cost               | 4,080.61         |               |
| <b>FIXED COST</b>                  |                  |               |
| Land rent                          | 450.00           |               |
| Machinery                          | 176.19           |               |
| Management                         | 903.93           |               |
| Overhead                           | 1,129.92         |               |
| Total fixed cost                   | 2,660.04         |               |
| <b>TOTAL PREHARVEST COST</b>       | 6,740.64         | 4.81          |
| <b>HARVEST AND MARKETING COSTS</b> |                  |               |
| Harvest and haul                   | 1,078.00         | 0.77          |
| Packing                            | 2,590.00         | 1.85          |
| Containers                         | 1,050.00         | 0.75          |
| Selling                            | 210.00           | 0.15          |
| Assessments                        | 70.00            | 0.05          |
| Total harvest and marketing cost   | 4,998.00         | 3.57          |
| <b>TOTAL COST</b>                  | 11,738.64        | 8.38          |

a 7,260 linear bed feet

Table 46. Tomatoes: Estimated net returns for various price and yield combinations for the initial crop of a double-crop system in the southwest Florida area, 1996-97.

| Yield (cartons) | Dollars per carton |           |           |           |          |
|-----------------|--------------------|-----------|-----------|-----------|----------|
|                 | 6.00               | 7.00      | 8.00      | 9.00      | 10.00    |
| 1,000           | -4,311.00          | -3,311.00 | -2,311.00 | -1,311.00 | -311.00  |
| 1,200           | -3,825.00          | -2,625.00 | -1,425.00 | -225.00   | 975.00   |
| 1,400           | -3,339.00          | -1,939.00 | -539.00   | 861.00    | 2,261.00 |
| 1,600           | -2,853.00          | -1,253.00 | 347.00    | 1,947.00  | 3,547.00 |
| 1,800           | -2,367.00          | -567.00   | 1,233.00  | 3,033.00  | 4,833.00 |

Table 53. Watermelons: Estimated production costs for a following crop in a double-crop system for the southwest Florida area, 1996-97.

| Category                           | Acre. | Average per       | Cwt   |
|------------------------------------|-------|-------------------|-------|
| Yield (cwts.)                      | 340   |                   |       |
|                                    |       | ---- Dollars ---- |       |
| <b>OPERATING COSTS</b>             |       |                   |       |
| Transplants                        |       | 120.00            |       |
| Fertilizer and lime                |       | 126.00            |       |
| Fungicide                          |       | 200.49            |       |
| Herbicide                          |       | 18.23             |       |
| Insecticide                        |       | 143.15            |       |
| Labor                              |       | 343.38            |       |
| Machinery                          |       | 206.14            |       |
| Interest                           |       | 38.49             |       |
| Miscellaneous                      |       |                   |       |
| Ditch maintenance                  |       | 17.00             |       |
| Plastic removal and disposal       |       | 156.82a           |       |
| Bees                               |       | 30.00             |       |
| Farm vehicles                      |       | 16.12             |       |
| Total operating cost               |       | 1,415.81          |       |
| <b>FIXED COST</b>                  |       |                   |       |
| Machinery                          |       | 98.65             |       |
| Management                         |       | 221.40            |       |
| Overhead                           |       | 295.19            |       |
| Total fixed cost                   |       | 615.24            |       |
| <b>TOTAL PREHARVEST COST</b>       |       | 2,031.05b         | 5.97b |
| <b>HARVEST AND MARKETING COSTS</b> |       |                   |       |
| Harvest and pack                   |       | 656.20            | 1.93  |
| Marketing and Promotion Assessment |       | 6.80              | 0.02  |
| Selling                            |       | 340.00            | 1.00  |
| Total harvest and marketing cost   |       | 1,003.00          | 2.95  |
| <b>TOTAL COST</b>                  |       | 3,034.05          | 8.92  |

a Cost attributed to second crop as a result of double-crop production practices following Tomatoes.

b Costs exclude field and bed preparation, plastic mulch and fumigant.

Table 54. Watermelons: Estimated net returns for various price and yield combinations for a following crop in a double-crop system for the southwest Florida area, 1996-97.

| Yield (cwts.) | Dollars per cwt. |         |        |          |          |
|---------------|------------------|---------|--------|----------|----------|
|               | 8.00             | 9.00    | 10.00  | 11.00    | 12.00    |
| 300           | -516.00          | -216.00 | 84.00  | 384.00   | 684.00   |
| 320           | -415.00          | -95.00  | 225.00 | 545.00   | 865.00   |
| 340           | -314.00          | 26.00   | 366.00 | 706.00   | 1,046.00 |
| 360           | -213.00          | 147.00  | 507.00 | 867.00   | 1,227.00 |
| 380           | -112.00          | 268.00  | 648.00 | 1,028.00 | 1,408.00 |

Table A-9. Cucumbers: Summary of preharvest labor costs for a following crop in a double-crop system for the southwest Florida area, 1996-97.

| Operation               | Hours per acre | Dollars per acre |
|-------------------------|----------------|------------------|
| <b>CULTURAL LABOR</b>   |                |                  |
| Plant                   | 3.33           | 19.98            |
| Water control           | 2.33           | 13.98            |
| Fertilize               | 2.00           | 12.00            |
| Water in plants         | 2.73           | 16.38            |
| Total cultural labor    | 10.39          | 62.34            |
| Total tractor labor     | 3.28           | 34.39            |
| <b>TOTAL LABOR COST</b> |                | <b>96.73</b>     |

Table A-10. Cucumbers: Summary of machine use and costs for a following crop in a double-crop system for the southwest Florida area, 1996-97.

| Description                 | Hours per acre | Dollars 12er acre |              | Total         |
|-----------------------------|----------------|-------------------|--------------|---------------|
|                             |                | Fixed             | Variable     |               |
| <b>TRACTORS</b>             |                |                   |              |               |
| 40 hp                       | 0.33           | 0.78              | 1.30         | 2.09          |
| 70 hp                       | 2.29           | 8.20              | 14.90        | 23.10         |
| <b>IMPLEMENTS</b>           |                |                   |              |               |
| 1 row mower                 | 0.33           | 0.59              | 0.42         | 1.01          |
| 3 row herbicide sprayer     | 0.67           | 2.76              | 1.92         | 4.69          |
| Boom sprayer                | 1.63           | 12.51             | 8.71         | 21.22         |
| <b>MISCELLANEOUS</b>        |                |                   |              |               |
| 21 hp diesel pump           | 30.00          | 6.89              | 41.09        | 47.98         |
| 60 hp diesel pump           | 7.50           | 5.17              | 30.82        | 35.99         |
| <b>TOTAL MACHINERY COST</b> |                | <b>36.90</b>      | <b>99.18</b> | <b>136.08</b> |

Table A-19. Green Peppers: Summary of preharvest labor costs in the southwest Florida area, 1996-97.

| Operation                    | Hours per acre | Dollars per acre |
|------------------------------|----------------|------------------|
| <b>CULTURAL LABOR</b>        |                |                  |
| Prepare beds and cross ditch | 0.92           | 5.52             |
| Lay plastic                  | 1.18           | 7.08             |
| Transplant                   | 9.50           | 57.00            |
| Replant                      | 2.00           | 12.00            |
| Water control                | 4.50           | 27.00            |
| Total cultural labor         | 18.10          | 108.60           |
| Total tractor labor          | 19.84          | 208.29           |
| <b>TOTAL LABOR COST</b>      |                | <b>316.89</b>    |

Table A-20. Green Peppers: Summary of machine use and costs in the southwest Florida area, 1996-97.

| Description                 | Hours per acre | Dollars per acre |               | Total         |
|-----------------------------|----------------|------------------|---------------|---------------|
|                             |                | Fixed            | Variable      |               |
| <b>TRACTORS</b>             |                |                  |               |               |
| 40 hp                       | 0.35           | 0.83             | 1.38          | 2.21          |
| 85 hp                       | 11.21          | 46.35            | 86.95         | 133.30        |
| 125 hp                      | 2.13           | 12.91            | 24.26         | 37.17         |
| 150 hp                      | 0.81           | 5.66             | 11.00         | 16.66         |
| 210 hp                      | 1.36           | 14.70            | 26.25         | 40.42         |
| <b>IMPLEMENTS</b>           |                |                  |               |               |
| 18 ft disc                  | 0.81           | 3.03             | 0.85          | 3.88          |
| Row marker                  | 0.10           | 0.15             | 0.03          | 0.18          |
| Field cultivator            | 0.31           | 0.70             | 0.31          | 1.01          |
| V-ditcher                   | 0.60           | 2.15             | 1.51          | 3.66          |
| Ditch plow                  | 0.36           | 0.35             | 0.25          | 0.60          |
| 3 row superbedder           | 0.40           | 6.08             | 1.70          | 7.78          |
| 3 row fumigator             | 0.31           | 1.46             | 1.39          | 2.851         |
| 3 row plastic machine       | 0.31           | 2.63             | 1.83          | 4.46          |
| 3 row transplanter          | 1.52           | 1.63             | 2.72          | 4.35          |
| 3 row herbicide sprayer     | 0.25           | 1.05             | 0.73          | 1.78          |
| Boom sprayer                | 10.90          | 83.65            | 58.28         | 141.92        |
| <b>MISCELLANEOUS</b>        |                |                  |               |               |
| 20 hp diesel pump           | 120.00         | 27.55            | 164.37        | 191.40        |
| 60 hp diesel pump           | 30.00          | 20.66            | 123.28        | 143.94        |
| <b>TOTAL MACHINERY COST</b> |                | <b>231.01</b>    | <b>507.10</b> | <b>738.11</b> |

Table A-43. Tomatoes: Summary of preharvest labor costs in the southwest Florida area, 1996-97.

| Operation               | Hours per acre | Dollars per acre |
|-------------------------|----------------|------------------|
| <b>CULTURAL LABOR</b>   |                |                  |
| Lay plastic             | 2.40           | 14.40            |
| Transplant and reset    | 9.60           | 57.60            |
| Water control           | 4.50           | 27.00            |
| Total cultural labor    | 16.50          | 99.00            |
| Total tractor labor     | 13.83          | 145.16           |
| <b>TOTAL LABOR COST</b> | -              | <b>244.16</b>    |

Table A-44. Tomatoes: Summary of machine use and costs in the southwest Florida area, 1996-97.

| Description                 | Hours per acre | Dollars per acre |               | Total         |
|-----------------------------|----------------|------------------|---------------|---------------|
|                             |                | Fixed            | Variable      |               |
| <b>TRACTORS</b>             |                |                  |               |               |
| 70 hp                       | 4.58           | 16.40            | 29.80         | 46.21         |
| 100 hp                      | 0.41           | 2.19             | 3.87          | 6.06          |
| 125 hp                      | 3.11           | 18.78            | 35.31         | 54.10         |
| 180 hp                      | 1.28           | 10.94            | 20.84         | 31.78         |
| 210 hp                      | 1.69           | 17.61            | 32.62         | 50.23         |
| <b>IMPLEMENTS</b>           |                |                  |               |               |
| 18 ft. disc                 | 1.28           | 4.29             | 1.20          | 5.49          |
| Row marker                  | 0.10           | 0.15             | 0.03          | 0.18          |
| V-ditcher                   | 0.92           | 3.33             | 2.34          | 5.67          |
| Ditch plow                  | 0.36           | 0.35             | 0.25          | 0.60          |
| 3 row bedder                | 0.40           | 6.08             | 1.70          | 7.78          |
| 3 row fumigator             | 0.31           | 1.46             | 1.39          | 2.85          |
| 3 row plastic machine       | 0.44           | 3.73             | 2.59          | 6.33          |
| 3 row transplanter          | 1.33           | 1.43             | 2.38          | 3.81          |
| 6 row herbicide sprayer     | 0.67           | 2.76             | 1.92          | 4.69          |
| Boom sprayer                | 3.25           | 24.94            | 17.38         | 42.32         |
| 6 row stake driver          | 1.33           | 12.73            | 5.64          | 18.36         |
| Stake wagon                 | 0.67           | 0.78             | 0.18          | 0.96          |
| <b>MISCELLANEOUS</b>        |                |                  |               |               |
| 20 hp diesel pump           | 120.00         | 27.55            | 164.37        | 191.92        |
| 60 hp diesel pump           | 30.00          | 20.66            | 123.28        | 143.94        |
| <b>TOTAL MACHINERY COST</b> | -              | <b>176.19</b>    | <b>447.11</b> | <b>623.30</b> |

Table A-21. Green Peppers: Summary of preharvest labor costs for the initial crop of a double-crop system in the southwest Florida area, 1996-97.

| Operation                    | Hours per acre | Dollars per acre |
|------------------------------|----------------|------------------|
| <b>CULTURAL LABOR</b>        |                |                  |
| Prepare beds and cross ditch | 0.92           | 5.52             |
| Lay plastic                  | 1.18           | 7.08             |
| Transplant                   | 9.50           | 57.00            |
| Replant                      | 2.00           | 12.00            |
| Water control                | 4.50           | 27.00            |
| Total cultural labor         | 18.10          | 108.60           |
| Total tractor labor          | 19.84          | 208.29           |
| <b>TOTAL LABOR COST</b>      |                | <b>316.89</b>    |

Table A-22. Green Peppers: Summary of machine use and costs for the initial crop of a double-crop system in the southwest Florida area, 1996-97.

| Description                  | Hours per acre | Dollars per acre |               | Total         |
|------------------------------|----------------|------------------|---------------|---------------|
|                              |                | Fixed            | Variable      |               |
| <b>TRACTORS</b>              |                |                  |               |               |
| 40 hp 0.35                   |                | 0.83             | 1.38          | 2.21          |
| 85 hp 11.21                  |                | 46.35            | 86.95         | 133.30        |
| 125 hp 2.13                  |                | 12.91            | 24.26         | 37.17         |
| 150 hp 0.81                  |                | 5.66             | 11.00         | 16.66         |
| 210 hp 1.36                  |                | 14.17            | 26.25         | 40.42         |
| <b>IMPLEMENTS</b>            |                |                  |               |               |
| 18 ft disc 0.81              |                | 3.03             | 0.85          | 3.88          |
| Row marker 0.10              |                | 0.15             | 0.03          | 0.18          |
| Field cultivator 0.31        |                | 0.70             | 0.31          | 1.01          |
| V-ditcher 0.60               |                | 2.15             | 1.51          | 3.66          |
| Ditch plow 0.36              |                | 0.35             | 0.25          | 0.60          |
| 3 row superbedder 0.40       |                | 6.08             | 1.70          | 7.78          |
| 3 row fumigator 0.31         |                | 1.46             | 1.39          | 2.85          |
| 3 row plastic machine 0.31   |                | 2.63             | 1.83          | 4.46          |
| 3 row transplanter 1.52      |                | 1.63             | 2.72          | 4.35          |
| 3 row herbicide sprayer 0.25 |                | 1.05             | 0.73          | 1.78          |
| Boom sprayer 10.90           |                | 83.65            | 58.28         | 141.92        |
| <b>MISCELLANEOUS</b>         |                |                  |               |               |
| 20 hp diesel pump 120.00     |                | 27.55            | 164.37        | 191.92        |
| 60 hp diesel pump 30.00      |                | 20.66            | 123.28        | 143.94        |
| <b>TOTAL MACHINERY COST</b>  |                | <b>231.01</b>    | <b>507.10</b> | <b>738.11</b> |

Table A-53. Watermelons: Summary of preharvest labor costs for a following crop in a double-crop system for the southwest Florida area, 1996-97.

| Operation               | Hours per acre | Dollars per acre |
|-------------------------|----------------|------------------|
| <b>CULTURAL LABOR</b>   |                |                  |
| Plant                   | 3.33           | 19.98            |
| Water-in plants         | 2.73           | 16.38            |
| Fertilize               | 2.74           | 16.44            |
| Turn vines              | 30.00          | 180.00           |
| Water control           | 2.33           | 13.98            |
| Total cultural labor    | 41.13          | 246.78           |
| Total tractor labor     | 9.20           | 96.60            |
| <b>TOTAL LABOR COST</b> | -              | 343.38           |

Table A-54. Watermelons: Summary of machine use and costs for a following crop in a double-crop system for the southwest Florida area, 1996-97.

| Description                  | Hours per acre | Dollars per acre |          | Total  |
|------------------------------|----------------|------------------|----------|--------|
|                              |                | Fixed            | Variable |        |
| <b>TRACTORS</b>              |                |                  |          |        |
| 40 hp 2.70                   |                | 6.42             | 10.65    | 17.07  |
| 70 hp 4.66                   |                | 16.69            | 30.32    | 47.02  |
| <b>IMPLEMENTS</b>            |                |                  |          |        |
| Boom sprayer 6.70            |                | 51.42            | 35.82    | 87.24  |
| 3 row herbicide sprayer 0.66 |                | 2.76             | 1.92     | 4.69   |
| <b>MISCELLANEOUS</b>         |                |                  |          |        |
| 20 hp diesel pump 46.52      |                | 10.68            | 63.72    | 74.40  |
| 100 hp diesel pump 15.50     |                | 10.68            | 63.69    | 74.37  |
| <b>TOTAL MACHINERY COST</b>  |                | 98.65            | 206.14   | 304.78 |