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# Peach Orchard Establishment and Production Planning Budgets for Florida

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**Diversification of an agricultural enterprise provides growers with alternative approaches to management of financial risk across multiple crops and harvest dates. Citrus growers have been wrestling with disease challenges such as bacterial citrus canker [*Xanthomonas campestris* pv. *citri* (Hasse) Dye] and citrus greening (*Candidatus* Liberibacter asiaticus) that have reduced tree productivity, and thus there is interest in alternative crops. The Florida peach industry has had moderate success as it takes advantage of an early market by having the first domestically produced peach of the calendar year. However, growers considering orchard plantings need firm estimates for establishment and production budgets to secure funding and build sound business plans. Budgets for Georgia and other southeastern states do not necessarily reflect production practices in Florida due to differences in disease management and greater costs for initial infrastructure in Florida. In 2011–12, requests were sent to current growers and those in the establishment phase to gather data on costs, and these were used to establish budgets for Florida peach operations. At the current market price for Florida peaches, it is estimated that growers begin to see a positive return over variable costs in the third year, with 40–60 lb of marketable fruit per tree.**

Peach (*Prunus persica* L.) production in Florida has steadily increased since 2005, driven largely in part by the diversification of agricultural operations. Citrus (*Citrus* spp.) growers make up the majority of new orchardists because of diseases that have negatively affected fruit yield and quality in the citrus industry such as citrus greening (Huanglongbing), citrus black spot (*Guignardia citricarpa*) and bacterial canker [*Xanthomonas axonopodis* pv. *citri* (Xac)] (Dewdney and Peres, 2012; Morris and Muraro, 2008; Schubert and Sun, 2003). Results from a 2011 grower survey indicated that there were just over 670 acres of peaches reported in the state, with at least 3–400 more acres planted in 2012 (Morgan and Olmstead, 2013). These approximately 1000 acres are producing about 4.5 million lb annually and have an estimated value of $6 million.

Florida peach growers are able to take advantage of a unique marketing window that allows for an increased grower price. From late March to May, peach fruit imports are decreasing (Fig. 1; USDA, 2012). While growers in other southeastern states report receiving $0.80 per lb, farm gate prices for Florida growers range from $1.25–2.00 per lb as they are able to produce the first domestic fruit of the calendar year.

In Florida, peaches are typically planted to an open vase system, with varying densities (Table 1). Tree density is a major factor in orchard establishment cost, as tree prices of newer patented varieties often include royalty fees that help support breeding programs. In addition, higher tree densities can increase labor costs for pruning, thinning, and harvesting. However, yield is typically greater per acre or hectare and can help to offset higher establishment costs. In citrus groves being replanted to peaches,

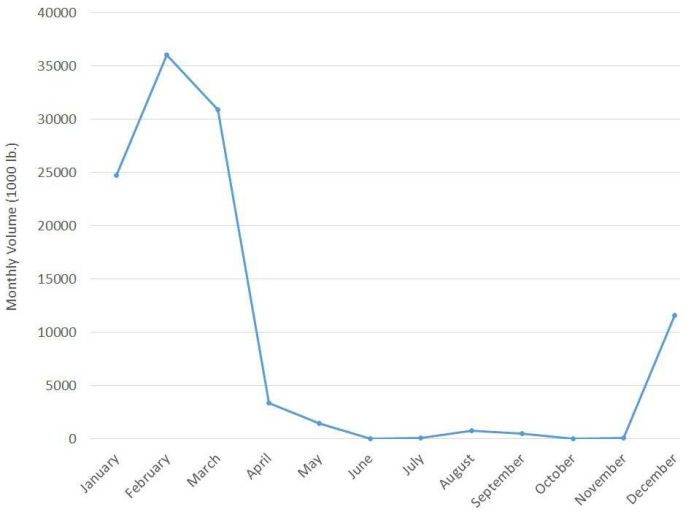


Fig. 1. Average monthly fresh market U.S. imported peach and nectarine volume (1000 lb per month), 2011. Countries supplying the majority of imported produce are Chile and Canada.

Table 1. Various tree densities per acre for Florida orchards.

| Spacing between trees (ft) | Spacing between rows (ft) | Total trees/acre |
|---|---|---|
| 15 | 25 | 117 |
| 15 | 20 | 145 |
| 10 | 20 | 218 |
| 10 | 15 | 290 |

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the former infrastructure may dictate planting density, irrigation, and fertilizer application type to reduce establishment costs. Fumigation of acreage planted previously is recommended to reduce the incidence of diseases such as *Armillaria* spp., *Botryosphaeria* spp., and nematodes such as the peach root-knot nematode (*Meloidogyne floridensis*). Several commercial cultivars are being planted including UFSun, UFBest, TropicBeauty, UFBeauty, and UFOne. Information on these cultivars and others recommended for backyard plantings is available (Olmstead and Chaparro, 2013).

Peach trees in Florida typically produce a small crop in the second year if planted in the spring of the previous year. Bare-rooted trees planted in the autumn will produce a full crop approximately 15–18 months after planting. The humid subtropical climate encourages vigorous growth of the trees and requires that growers prune trees during the winter and summer to thin fruiting wood and maintain the shape of the tree. Tree height is typically kept to a maximum of 8–9 ft to reduce the use of ladders in tree maintenance and harvesting activities.

The objective of this project was to use data collected from current Florida peach grower interviews and surveys to determine orchard establishment and production budgets for use in financial operations and mitigate risk.

## Materials and Methods

To develop an understanding of U.S. peach marketing trends, historical farm gate fresh peach prices published by the USDA National Agricultural Statistics Services were collected for the peak production season, which occurs May through July (Fig. 2). The Florida peach marketing window typically ranges from mid-March to early April, when market supply channels are reliant on large import volumes and relatively higher retail prices. Based on these data, central and south Florida orchards with productive plantings of the new, low chill varieties appear to have a competitive market advantage in reaching consumers with tree-ripe, U.S. grown, high-quality peaches.

Orchard establishment and production planning budgets were constructed based on expert suggestions from researchers and industry leaders. Spray recommendations were taken from those suggested in the southeastern guide for peach disease management (Horton et al., 2013). Initial versions of the budgets were shared with Florida peach growers and information gathered was used to verify required inputs and related costs of production. The final planning budgets were based on compilation of these best management practices from establishment up to fully productive stages for Florida-recommended varieties of peach.

**Enterprise budget analysis.** Planning budgets for years 1 through 4 were developed (Tables 2–5) with input from UF/IFAS specialists, industry experts and select central and south Florida peach orchard managers. These planning budgets detail per-acre peach orchard variable, fixed, and total costs, and are intended to serve as benchmark figures that could be incurred by managers of the peach varieties described above. Production input prices are based on 2013 cost lists provided by manufacturers and current peach orchard managers. Estimated returns per acre are based on reported average farm gate values received by Florida peach growers during the market window of late April through early June. Marketing costs and marketable fruit percentages may vary

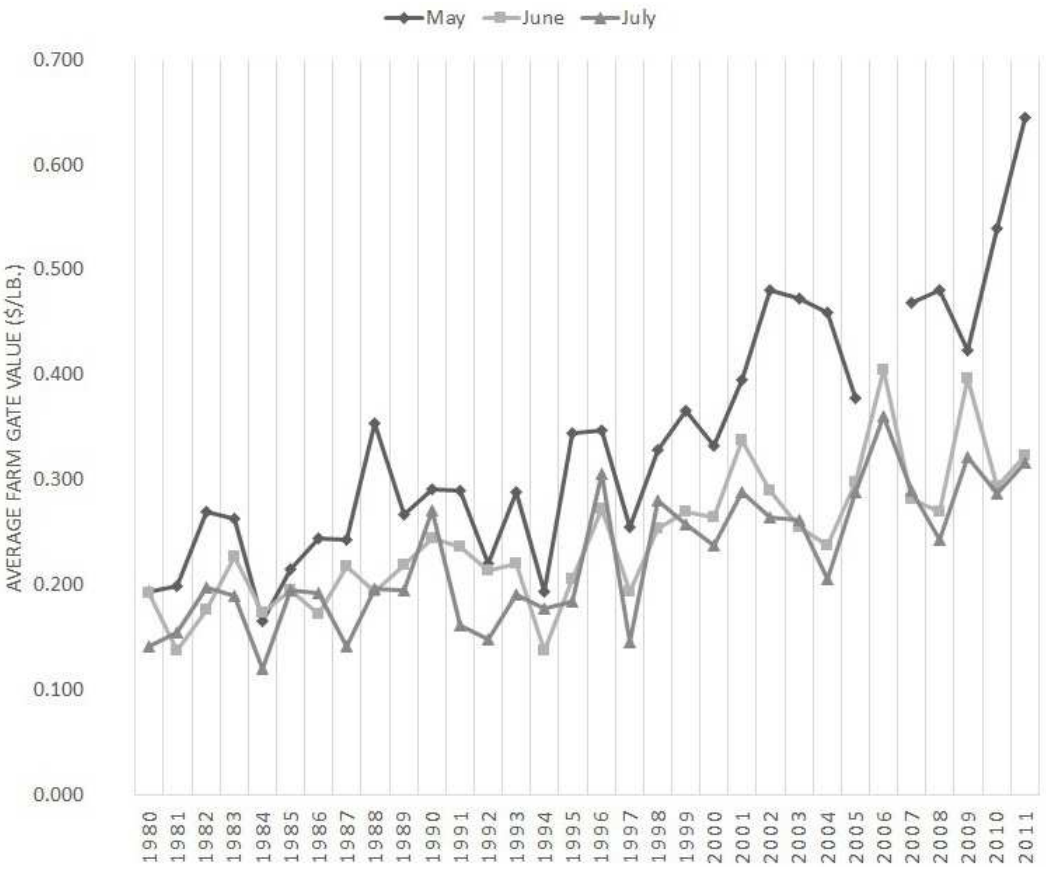


Fig. 2. Average farm-gate prices received by U.S. growers for fresh peaches marketed during U.S. peak production seasons, May–June (1980–2011).

Table 2. Florida peach planning budget, year one, establishment estimated costs and returns (145 trees/acre).

| Items | | Applications (no.) | Unit | Quantity or rate | Price | $/Unit | Amount |
|---|---|---|---|---|---|---|---|
| **REVENUE** | Peaches | | lb/acre | 0 | $1.75 | per lb | $0.00 |
| | | | % packout | 0.75 | | | |
| **VARIABLE COSTS** | | | | | | | |
| Lime (Dolomite) | | 1 | ton/acre | 1.5 | $28.00 | per ton | $42.00 |
| Fertilizer (Fert 12–4–8 or 10–0–10) | | 1 | lb/acre | 250 | $0.21 | per lb | $53.50 |
| Herbicides | | | | | | | |
| | Gramoxone Inteon | 1 | pt/acre | 2.2 | $2.69 | per pt | $5.91 |
| | Glyphosate (Roundup) | 4 | qt/acre | 1 | $14.50 | per qt | $58.00 |
| Insecticides | | | | | | | |
| | Dormant Oil | 2 | gal/acre | 3 | $6.50 | per gal | $39.00 |
| | Lorsban 4E | 1 | pt/acre | 4.5 | $4.38 | per pt | $19.69 |
| | Imidan 70 WSB | 1 | lb/acre | 3 | $10.60 | per lb | $31.80 |
| | Asana XL | 1 | oz/acre | 12 | $0.43 | per oz | $5.16 |
| | Baythroid XL | 1 | oz/acre | 2 | $1.17 | per oz | $2.34 |
| | Provado | 1 | oz/acre | 6 | $0.70 | per oz | $4.17 |
| | Sevin | 1 | lb/acre | 2.5 | $5.00 | per lb | $12.50 |
| | Success or Entrust | 1 | oz/acre | 1.5 | $550.00 | per lb | $825.00 |
| | SpinTor | 1 | oz/acre | 6 | $5.04 | per oz | $30.23 |
| Fungicides | | | | | | | |
| | Telone II (pre-plant) | 1 | gal/acre | 30 | $17.00 | per gal | $510.00 |
| | Captan 80WDG | 0 | lb/acre | 5 | $4.49 | per lb | $0.00 |
| | Bravo Weather Stik | 1 | pt/acre | 8 | $3.44 | per pt | $27.50 |
| | Pristine | 0 | oz/acre | 14.5 | $2.75 | per oz | $0.00 |
| | Elite 50WP | 0 | oz/acre | 4 | $3.27 | per oz | $0.00 |
| | Abound | 2 | oz/acre | 10 | $1.79 | per oz | $35.78 |
| | Kocide 3000 | 2 | lb/acre | 3 | $5.80 | per lb | $34.80 |
| | Cuprofix | 1 | lb/acre | 2.5 | $3.52 | per lb | $8.80 |
| | Sulfur | 5 | lb/acre | 8 | $1.05 | per lb | $42.00 |
| Trees | | 1 | trees/acre | 145 | $12.00 | per tree | $1,740.00 |
| Irrigation, microsprinklers | | | | 1 | $30.00 | per acre | $30.00 |
| Fuel, oil, grease | | | | 1 | $25.00 | per acre | $25.00 |
| Repairs | | | | 1 | $50.00 | per acre | $50.00 |
| Miscellaneous (soil test, hand tools, etc.) | | 1 | | | $50.00 | per acre | $50.00 |
| Hired Labor | | | | | | | |
| | Planting | 8 | hours/acre | 1 | $9.50 | per hour | $76.00 |
| | Harrowing | 4 | trip/acre | 1 | $12.00 | per trip | $48.00 |
| | Mowing | 5 | trip/acre | 1 | $12.00 | per trip | $60.00 |
| | Chemical applications | 10 | trip/acre | 1 | $12.00 | per trip | $120.00 |
| | Harvesting | 0 | lb/acre | 1 | $0.05 | $/lb | $0.00 |
| | Pruning | 2 | #/tree | 145 | $4.50 | per tree | $1,305.00 |
| Marketing Costs | | | | | | | |
| | Custom packing (sorting/cooling) | 0 | lb/acre | 0 | $0.40 | per lb | $0.00 |
| | Brokerage (5% of gross revenue) | 0 | lb/acre | 0 | 5% | | $0.00 |
| | Packing operation costs | 0 | lb/acre | 0 | $0.02 | per lb | $0.00 |
| | Interest on operating capital[z] | | 12 months | 5,292 | $0.08 | | $423.37 |
| **TOTAL VARIABLE COSTS** | | | | | | per acre | $5,715.56 |
| **FIXED COSTS** | | | | | | | |
| | Operator labor charge[y] | 1 | hours/acre | 10 | $7.50 | per hour | $75.00 |
| | Machine & equipment charge[x] | 20 | acres | 30000 | $0.02 | per acre | $30.00 |
| | Irrigation charge[w] | | | 1 | $308.00 | per acre | $308.00 |
| | Land charge | 1 | rent/acre | 1 | $85.00 | per acre | $85.00 |
| | Management charge | 5% gross receipts | | 0 | $0.05 | | $0.00 |
| | Facilities & equipment[v] | 20 | acres | 30000 | $0.15 | per acre | $225.00 |
| **TOTAL FIXED COSTS** | | | | | | per acre | $723.00 |
| **TOTAL COSTS (PER ACRE)** | | | | | | per acre | $6,438.56 |
| **TOTAL COSTS (PER POUND)** | | | | | | per lb | |
| **RETURN ABOVE VARIABLE COSTS** | | | | | | per acre | –$5,715.56 |
| **RETURN ABOVE TOTAL COSTS** | | | | | | per acre | –$6,438.56 |

[z]Interest on all variable costs for 12 months at 8% interest rate.
[y]Hired and seasonal labor is considered a variable cost, salaried and operator/unpaid family labor is considered a fixed cost.
[x]Machine and equipment charge set at 2% of total investment of $30,000 shared across total number of acres (20).
[w]Capital recovery charge of $308 included to represent annual ownership costs of these items over 7-year period, where microsprinkler system valued at $1,500 per acre expensed at 10% annually for 7 years.
[v]Facilities and equipment valued at $30,000 expensed at 15% annually for 20 acres. Includes depreciation, interest, insurance and repairs. Ex: ($30,000 × 0.15)/20 acres = $225.

Table 3. Florida peach planning budget, year two, estimated costs and returns (145 trees/acre).

| Items | | Applications (no.) | Unit | Quantity or rate | Price | $/Unit | Amount |
|---|---|---|---|---|---|---|---|
| **REVENUE** | Peaches | | lbs/acre | 1740 | $1.75 | per lb | $3,045.00 |
| | | | % packout | 0.75 | | | |
| **VARIABLE COSTS** | | | | | | | |
| Fertilizer | (Fert 12–4–8 or 10–10–10) | 1 | lbs/acre | 500 | $0.21 | per lb | $107.00 |
| Herbicides | | | | | | | |
| | Glyphosate (Roundup) | 4 | qt/acre | 1 | $14.50 | per gal | $58.00 |
| | Gramoxone Inteon | 1 | pt/acre | 2.2 | $2.69 | per pt | $5.91 |
| | Chateau WDG | 1 | oz/acre | 9 | $5.13 | per oz | $46.13 |
| Insecticides | | | | | | | |
| | Dormant Oil | 2 | gal/acre | 3 | $6.50 | per gal | $39.00 |
| | Lorsban 4E | 1 | pt/acre | 4.5 | $4.38 | per pt | $19.69 |
| | Imidan 70 WSB | 1 | lbs/acre | 2 | $10.60 | per lb | $21.20 |
| | Asana XL | 0 | oz/acre | 12 | $0.43 | per oz | $0.00 |
| | Baythroid XL | 0 | oz/acre | 2 | $1.17 | per oz | $0.00 |
| | Provado | 0 | oz/acre | 6 | $0.70 | per oz | $0.00 |
| | Sevin | 1 | lbs/acre | 2.5 | $5.00 | per lb | $12.50 |
| | Success or Entrust | 1.5 | oz/acre | 0.075 | $550.00 | per lb | $61.88 |
| | SpinTor | 0 | oz/acre | 6 | $5.04 | per oz | $0.00 |
| Fungicides | | | | | | | |
| | Captan 80WDG | 1 | lbs/acre | 5 | $4.49 | per lb | $22.44 |
| | Bravo Weather Stik | 1 | pt/acre | 8 | $3.44 | per pt | $27.50 |
| | Pristine | 1 | oz/acre | 14.5 | $2.75 | per oz | $39.88 |
| | Elite 50WP | 0 | oz/acre | 4 | $3.27 | per oz | $0.00 |
| | Abound | 2 | oz/acre | 10 | $1.79 | per oz | $35.78 |
| | Kocide 3000 | 0 | lbs/acre | 3 | $5.80 | per lb | $0.00 |
| | Cuprofix | 1 | lbs/acre | 2.5 | $3.52 | per lb | $8.80 |
| | Sulfur | 5 | lbs/acre | 8 | $1.05 | per lb | $42.00 |
| Trees | | 1 | trees/acre | 7.25 | $12.00 | per tree | $87.00 |
| Irrigation, microsprinklers | | | | 1 | $30.00 | per acre | $30.00 |
| Fuel, oil, grease | | | 1 | $25.00 | per acre | $25.00 | |
| Repairs | | | 1 | $50.00 | per acre | $50.00 | |
| Miscellaneous (soil test, hand tools, etc.) | | 1 | | | $50.00 | per acre | $50.00 |
| Hired Labor | | | | | | | |
| | Planting | 1 | hours/acre | 1 | $9.50 | per hour | $9.50 |
| | Harrowing | 4 | trip/acre | 1 | $12.00 | per trip | $48.00 |
| | Mowing | 5 | trip/acre | 1 | $12.00 | per trip | $60.00 |
| | Chemical applications | 10 | trip/acre | 1 | $12.00 | per trip | $120.00 |
| | Harvesting | 1740 | lbs/acre | 1 | $0.25 | $/lb | $435.00 |
| | Thinning | 1 | #/tree | 145 | $4.50 | per tree | $652.50 |
| | Pruning | 2 | #/tree | 145 | $4.50 | per tree | $1,305.00 |
| Marketing Costs | | | | | | | |
| | Custom packing (sorting/cooling) | 1740 | lbs/acre | 1305 | $0.40 | per lb | $522.00 |
| | Brokerage (5% of gross revenue) | 1740 | lbs/acre | 1305 | 5% | | $65.25 |
| | Packing operation costs | 1740 | lbs/acre | 1305 | $0.02 | per lb | $26.10 |
| | Interest on operating capital[z] | | 12 months | 4033 | $0.08 | | $322.64 |
| **TOTAL VARIABLE COSTS** | | | | | | per acre | $4,355.69 |
| **FIXED COSTS** | | | | | | | |
| | Operator labor charge[y] | 1 | hours/acre | 10 | $7.50 | per hour | $75.00 |
| | Machine & equipment charge[x] | 20 | acres | 30000 | $0.02 | per acre | $30.00 |
| | Irrigation charge[w] | | | 1 | $308.00 | per acre | $308.00 |
| | Land charge | 1 | rent/acre | 1 | $85.00 | per acre | $85.00 |
| | Management charge | 5% gross receipts | | 3045 | $0.05 | | $152.25 |
| | Facilities & equipment[v] | 20 | acres | 30000 | $0.15 | per acre | $225.00 |
| **TOTAL FIXED COSTS** | | | | | | per acre | $875.25 |
| **TOTAL COSTS (PER ACRE)** | | | | | | per acre | $5,230.94 |
| **TOTAL COSTS (PER POUND)** | | | | | | per lb | $3.01 |
| **RETURN ABOVE VARIABLE COSTS** | | | | | | per acre | –$1,310.69 |
| **RETURN ABOVE TOTAL COSTS** | | | | | | per acre | –$2,185.94 |

[z]Interest on all variable costs for 12 months at 8% interest rate.
[y]Hired and seasonal labor is considered a variable cost, salaried and operator/unpaid family labor is considered a fixed cost.
[x]Machine and equipment charge set at 2% of total investment of $30,000 shared across total number of acres (20).
[w]Capital recovery charge of $308 included to represent annual ownership costs of these items over 7-year period, where microsprinkler system valued at $1,500 per acre expensed at 10% annually for 7 years.
[v]Facilities and equipment valued at $30,000 expensed at 15% annually for 20 acres. Includes depreciation, interest, insurance and repairs. Ex: ($30,000 × 0.15)/20 acres = $225.

Table 4. Florida peach planning budget, year three, estimated costs and returns (145 trees/acre).

| Items | | Applications (no.) | Unit | Quantity or rate | Price | $/Unit | Amount |
|---|---|---|---|---|---|---|---|
| **REVENUE** | Peaches | | lbs/acre | 5800 | $1.75 | per lb | $10,150.00 |
| | | | % packout | 0.75 | | | |
| **VARIABLE COSTS** | | | | | | | |
| Lime (Dolomite) | | 1 | ton/acre | 1.5 | $28.00 | per ton | $42.00 |
| Fertilizer (Fert 12–4–8 or 10–10–10) | | 1 | lbs/acre | 833 | $0.21 | per lb | $178.26 |
| Herbicides | | | | | | | |
| | Gramoxone Inteon | 1 | pt/acre | 2.2 | $2.69 | per pt | $5.91 |
| | Glyphosate (Roundup) | 4 | qt/acre | 1 | $14.50 | per gal | $58.00 |
| | Chateau WDG | 1 | oz/acre | 9 | $5.13 | per oz | $46.13 |
| Insecticides | | | | | | | |
| | Dormant Oil | 2 | gal/acre | 3 | $6.50 | per gal | $39.00 |
| | Lorsban 4E | 1 | pt/acre | 4.5 | $4.38 | per pt | $19.69 |
| | Imidan 70 WSB | 1 | lbs/acre | 3 | $10.60 | per lb | $31.80 |
| | Asana XL | 0 | oz/acre | 12 | $0.43 | per oz | $0.00 |
| | Baythroid XL | 0 | oz/acre | 2 | $1.17 | per oz | $0.00 |
| | Provado | 0 | oz/acre | 6 | $0.70 | per oz | $0.00 |
| | Sevin | 1 | lbs/acre | 2.5 | $5.00 | per lb | $12.50 |
| | Success or Entrust | 1.5 | oz/acre | 0.075 | $550.00 | per lb | $61.88 |
| | SpinTor | 0 | oz/acre | 6 | $5.04 | per oz | $0.00 |
| Fungicides | | | | | | | |
| | Captan 80WDG | 1 | lbs/acre | 5 | $4.49 | per lb | $22.44 |
| | Bravo Weather Stick | 2 | pt/acre | 4 | $3.44 | per pt | $27.50 |
| | Pristine | 1 | oz/acre | 14.5 | $2.75 | per oz | $39.88 |
| | Elite 50WP | 0 | oz/acre | 8 | $3.27 | per oz | $0.00 |
| | Abound | 1 | oz/acre | 10 | $1.79 | per oz | $17.89 |
| | Kocide 3000 | 0 | lbs/acre | 3 | $5.80 | per lb | $0.00 |
| | Cuprofix | 1 | lbs/acre | 2.5 | $3.52 | per lb | $8.80 |
| | Sulfur | 5 | lbs/acre | 8 | $1.05 | per lb | $42.00 |
| Trees | | 1 | trees/acre | 7.25 | $12.00 | per tree | $87.00 |
| Irrigation, microsprinklers | | | | 1 | $30.00 | per acre | $30.00 |
| Fuel, oil, grease | | | | 1 | $25.00 | per acre | $25.00 |
| Repairs | | | | 1 | $50.00 | per acre | $50.00 |
| Miscellaneous (soil test, hand tools, etc.) | | 1 | | | $50.00 | per acre | $50.00 |
| Hired Labor | | | | | | | |
| | Planting | 1 | hours/acre | 1 | $9.50 | per hour | $9.50 |
| | Harrowing | 4 | trip/acre | 1 | $12.00 | per trip | $48.00 |
| | Mowing | 5 | trip/acre | 1 | $12.00 | per trip | $60.00 |
| | Chemical applications | 10 | trip/acre | 1 | $12.00 | per trip | $120.00 |
| | Harvesting | 5800 | lbs/acre | 1 | $0.25 | $/lb | $1,450.00 |
| | Thinning | 1 | trees/acre | 145 | $4.50 | per tree | $652.50 |
| | Pruning | 2 | #/tree | 145 | $4.50 | per tree | $1,305.00 |
| Marketing Costs | | | | | | | |
| | Custom packing (sorting/cooling) | 5800 | lbs/acre | 4350 | $0.40 | per lb | $1,740.00 |
| | Brokerage (5% of gross revenue) | 5800 | lbs/acre | 4350 | 5% | | $217.50 |
| | Packing operation costs | 5800 | lbs/acre | 4350 | $0.02 | per lb | $87.00 |
| | Interest on operating capital[z] | | 12 months | 6,585 | $0.08 | | $526.81 |
| **TOTAL VARIABLE COSTS** | | | | | | per acre | $7,111.98 |
| **FIXED COSTS** | | | | | | | |
| | Operator labor charge[y] | 1 | hours/acre | 10 | $7.50 | per hour | $75.00 |
| | Machine & equipment charge[x] | 20 | acres | 30000 | $0.02 | per acre | $30.00 |
| | Irrigation charge[w] | | | 1 | $308.00 | per acre | $308.00 |
| | Land charge | 1 | rent/acre | 1 | $85.00 | per acre | $85.00 |
| | Management charge | 5% gross receipts | | 10150 | $0.05 | | $507.50 |
| | Facilities & equipment[v] | 20 | acres | 30000 | $0.15 | per acre | $225.00 |
| **TOTAL FIXED COSTS** | | | | | | per acre | $1,230.50 |
| **TOTAL COSTS (PER ACRE)** | | | | | | per acre | $8,342.48 |
| **TOTAL COSTS (PER POUND)** | | | | | | per lb | $1.44 |
| **RETURN ABOVE VARIABLE COSTS** | | | | | | per acre | $3,038.02 |
| **RETURN ABOVE TOTAL COSTS** | | | | | | per acre | $1,807.52 |

[z]Interest on all variable costs for 12 months at 8% interest rate.
[y]Hired and seasonal labor is considered a variable cost, salaried and operator/unpaid family labor is considered a fixed cost.
[x]Machine and equipment charge set at 2% of total investment of $30,000 shared across total number of acres (20).
[w]Capital recovery charge of $308 included to represent annual ownership costs of these items over 7-year period, where microsprinkler system valued at $1,500 per acre expensed at 10% annually for 7 years.
[v]Facilities and equipment valued at $30,000 expensed at 15% annually for 20 acres. Includes depreciation, interest, insurance and repairs. Ex: ($30,000 × 0.15)/20 acres = $225.

Table 5. Florida peach planning budget, year four, estimated costs and returns (145 trees/acre).

| Items | | Applications (no.) | Unit | Quantity or rate | Price | $/Unit | Amount |
|---|---|---|---|---|---|---|---|
| **REVENUE** | Peaches | | lbs/acre | 8700 | $1.75 | per lb | $15,225.00 |
| | | | % packout | 0.75 | | | |
| **VARIABLE COSTS** | | | | | | | |
| Fertilizer (Fert 12–4–8 or 10–10–10) | | 1 | lbs/acre | 833 | $0.21 | per lb | $178.26 |
| Herbicides | | | | | | | |
| | Gramoxone Inteon | 1 | pt/acre | 2.2 | $2.69 | per pt | $5.91 |
| | Glyphosate (Roundup) | 4 | qt/acre | 1 | $14.50 | per gal | $58.00 |
| | Chateau WDG | 1 | oz/acre | 9 | $5.13 | per oz | $46.13 |
| Insecticides | | | | | | | |
| | Dormant Oil | 2 | gal/acre | 3 | $6.50 | per gal | $39.00 |
| | Lorsban 4E | 1 | pt/acre | 4.5 | $4.38 | per pt | $19.69 |
| | Imidan 70 WSB | 1 | lbs/acre | 3 | $10.60 | per lb | $31.80 |
| | Asana XL | 0 | oz/acre | 12 | $0.43 | per oz | $0.00 |
| | Baythroid XL | 0 | oz/acre | 2 | $1.17 | per oz | $0.00 |
| | Provado | 0 | oz/acre | 6 | $0.70 | per oz | $0.00 |
| | Sevin | 1 | lbs/acre | 2.5 | $5.00 | per lb | $12.50 |
| | Success or Entrust | 1.5 | oz/acre | 0.075 | $550.00 | per lb | $61.88 |
| | SpinTor | 0 | oz/acre | 6 | $5.04 | per oz | $0.00 |
| Fungicides | | | | | | | |
| | Captan 80WDG | 1 | lbs/acre | 5 | $4.49 | per lb | $22.44 |
| | Bravo Weather Stick | 2 | pt/acre | 4 | $3.44 | per pt | $27.50 |
| | Pristine | 1 | oz/acre | 14.5 | $2.75 | per oz | $39.88 |
| | Elite 50WP | 0 | oz/acre | 8 | $3.27 | per oz | $0.00 |
| | Abound | 1 | oz/acre | 10 | $1.79 | per oz | $17.89 |
| | Kocide 3000 | 0 | lbs/acre | 3 | $5.80 | per lb | $0.00 |
| | Cuprofix | 1 | lbs/acre | 2.5 | $3.52 | per lb | $8.80 |
| | Sulfur | 5 | lbs/acre | 8 | $1.05 | per lb | $42.00 |
| Trees | | 1 | trees/acre | 7.25 | $12.00 | per tree | $87.00 |
| Irrigation, microsprinklers | | | | 1 | $30.00 | per acre | $30.00 |
| Fuel, oil, grease | | | | 1 | $25.00 | per acre | $25.00 |
| Repairs | | | | 1 | $50.00 | per acre | $50.00 |
| Miscellaneous (soil test, hand tools, etc.) | | 1 | | | $50.00 | per acre | $50.00 |
| Hired Labor | | | | | | | |
| | Planting | 1 | hours/acre | 1 | $9.50 | per hour | $9.50 |
| | Harrowing | 4 | trip/acre | 1 | $12.00 | per trip | $48.00 |
| | Mowing | 5 | trip/acre | 1 | $12.00 | per trip | $60.00 |
| | Chemical applications | 10 | trip/acre | 1 | $12.00 | per trip | $120.00 |
| | Harvesting | 8700 | lbs/acre | 1 | $0.25 | $/lb | $2,175.00 |
| | Thinning | 1 | trees/acre | 145 | $4.50 | per tree | $652.50 |
| | Pruning | 2 | #/tree | 145 | $4.50 | per tree | $1,305.00 |
| Marketing Costs | | | | | | | |
| | Custom packing (sorting/cooling) | 8700 | lbs/acre | 6525 | $0.40 | per lb | $2,610.00 |
| | Brokerage (5% of gross revenue) | 8700 | lbs/acre | 6525 | 5% | | $326.25 |
| | Packing operation costs | 8700 | lbs/acre | 6525 | $0.02 | per lb | $130.50 |
| | Interest on operating capital[z] | | 12 months | 8,290 | $0.08 | | $663.23 |
| **TOTAL VARIABLE COSTS** | | | | | | per acre | $8,953.65 |
| **FIXED COSTS** | | | | | | | |
| | Operator labor charge[y] | 1 | hours/acre | 10 | $7.50 | per hour | $75.00 |
| | Machine & equipment charge[x] | 20 | acres | 30000 | $0.02 | per acre | $30.00 |
| | Irrigation charge[w] | | | 1 | $308.00 | per acre | $308.00 |
| | Land charge | 1 | rent/acre | 1 | $85.00 | per acre | $85.00 |
| | Management charge | 5% gross receipts | | 15225 | $0.05 | | $761.25 |
| | Facilities & equipment[v] | 20 | acres | 30000 | $0.15 | per acre | $225.00 |
| **TOTAL FIXED COSTS** | | | | | | per acre | $1,484.25 |
| **TOTAL COSTS (PER ACRE)** | | | | | | per acre | $10,437.90 |
| **TOTAL COSTS (PER POUND)** | | | | | | per lb | $1.20 |
| **RETURN ABOVE VARIABLE COSTS** | | | | | | per acre | $6,271.35 |
| **RETURN ABOVE TOTAL COSTS** | | | | | | per acre | $4,787.10 |

[z]Interest on all variable costs for 12 months at 8% interest rate.
[y]Hired and seasonal labor is considered a variable cost, salaried and operator/unpaid family labor is considered a fixed cost.
[x]Machine and equipment charge set at 2% of total investment of $30,000 shared across total number of acres (20).
[w]Capital recovery charge of $308 included to represent annual ownership costs of these items over 7-year period, where microsprinkler system valued at $1,500 per acre expensed at 10% annually for 7 years.
[v]Facilities and equipment valued at $30,000 expensed at 15% annually for 20 acres. Includes depreciation, interest, insurance and repairs. Ex: ($30,000 × 0.15)/20 acres = $225.

Table 6. Florida peach planning budget summary: Estimated costs and returns, years 1–4.

| Year | Variable costs (VC) per acre | Fixed costs (FC) per acre | Total costs (TC) per acre | Total costs (TC)2 per lb | Returns above VC per acre | Returns above TC per acre |
|---|---|---|---|---|---|---|
| | ----------$/acre---------- | | | -- $/lb -- | ------$/acre ----- | |
| Year 1 | $5,716 | $723 | $6,439 | --- | ($5,716) | ($6,439) |
| Year 2 | $4,356 | $875 | $5,231 | $3.01 | ($1,311) | ($2,186) |
| Year 3 | $7,112 | $1,231 | $8,342 | $1.44 | $3,038 | $1,808 |
| Year 4 | $8,954 | $1,484 | $10,438 | $1.20 | $6,271 | $4,787 |

widely across operations, depending upon variety, harvest conditions, marketing channel, and packing shed options. A summary table (Table 6, Fig. 3) is provided to highlight variable, fixed and total costs per acre, total costs per pound, and expected returns above variable and total costs on a per acre basis for each of years 1 through 4.

## Results and Discussion

The planning budget for year 1 (Table 2) includes orchard establishment purchase of 145 trees/acre, (planted 15 ft between trees × 20 ft between rows) at an estimated $12 per tree for the Florida varieties, and planting costs of $76/acre. Year 1 variable and fixed costs are $5,716 and $723 per acre, respectively. While the trees will produce fruit, marketable yield is assumed to be zero pounds, resulting in estimated year 1 returns above total costs equal to loss of –$6,439 per acre.

Year 2 variable costs are estimated at $4,356 per acre, and include tree replacement and replanting costs of 5% per acre (Table 3). Estimated fixed costs for year 2 are $875 per acre, and include a management charge equivalent to 5% of gross receipts. Estimated year 2 average yield is 1,740 lb per acre with a 75% estimated market yield, and farm gate value is assumed to be $1.75 per pound of marketable fruit. For year 2, total costs per acre are $5,231 netting an estimated cost of $3.01 per market pound of peach. Year 2 returns above variable and total costs are loss estimates of –$1,311 and –$2,186 per acre, respectively. When using these planning budgets for individual operations, growers should note that custom packing charges will vary depending upon the quality of the packing material and marketing strategy. Prices per pound can vary from $0.65 to $0.10 for custom packing and cooling depending upon the quality of the fruit.

Year 3 estimated yields are expected to reach 5,800 lb and return revenues of $10,150 per acre of market quality fruit (Table 4). As in year 2, estimated variable costs associated with a 5% tree replacement and replanting, a 75% marketable yield and farm gate value of $1.75 per acre are included in both years 3 and 4. For year 3, estimated variable and fixed costs per acre total costs per acre are $7,112 and $1,231, respectively. Total year 3 costs are $8,342 per acre, with an estimated cost of $1.44 per market pound of peach. Year 3 estimated returns above variable and total costs are gains of $3,038 and $1,808 per acre, respectively.

By year 4, Florida peach varieties are expected to reach full production capacity, estimated at 8,700 lb per acre, or 60 lb per tree (Table 5). Currently, peach breeders expect Florida varieties to maintain full production yields throughout years 4–10 if properly maintained and under normal environmental conditions. Year 4 revenues are expected to reach $15,225 per acre marketable peaches, with a total per acre cost of $1.20 per pound. As in years 2 and 3, management charges of 5% of gross receipts are included in year 4, generating additional fixed costs of $761 per acre. For year 4, estimated variable and fixed costs per acre are $8,954 and $1,484, respectively, summing to an estimated total cost of $10,438 per acre. Year 4 estimated returns above variable and total costs are gains of $6,271 and $4,787 per acre, respectively.

As reported farm gate values vary greatly depending primarily on harvest date as well as market channel, a sensitivity analysis is provided (Table 7). In Table 7, returns above total costs per acre are provided across a matrix of seven feasible farm gate value and five commercial marketable yield scenarios. Using the year 4 costs and returns estimates as an example, at farm gate values equal to $1.75 per pound of peaches, estimated marketable commercial yield for year 4 are 6,525 lb per acre, which generates returns to total costs of $981 per acre.

Net returns per acre are positive by year 3 of peach production under the above assumptions. Peach trees that are planted in the

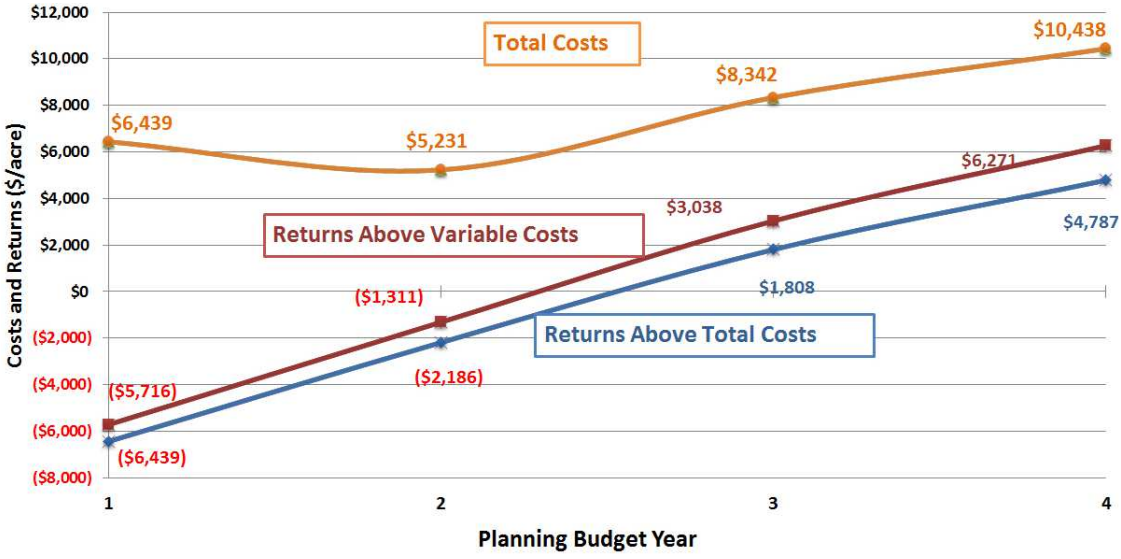


Fig. 3. Florida peach planning budget summary: Estimated total costs and returns above variable and total costs, years 1–4.

Table 7. Florida peach sensitivity analysis under varying farm gate values and marketable yield scenarios.

| Terminal | Total marketable commercial yield (lb) | | | | |
|---|---|---|---|---|---|
| price | 5,220 | 5,873 | 6,525 | 7,178 | 7,830 |
| $0.75 | ($6,523) | ($6,034) | ($5,544) | ($5,055) | ($4,565) |
| $1.00 | ($5,218) | ($4,565) | ($3,913) | ($3,260) | ($2,608) |
| $1.25 | ($3,913) | ($3,097) | ($2,282) | ($1,466) | ($650) |
| $1.50 | ($2,608) | ($1,629) | ($650) | $328 | $1,307 |
| $1.75 | ($1,303) | ($161) | $981 | $2,123 | $3,265 |
| $2.00 | $2 | $1,307 | $2,612 | $3,917 | $5,222 |
| $2.25 | $1,307 | $2,775 | $4,243 | $5,711 | $7,180 |

spring with potted trees are more likely to produce 30% to 50% of a full crop in year 2, thereby increasing the likelihood of an orchard returning net profits earlier than anticipated. Some of the external factors that may limit profits over time include adverse weather events (frosts and freezes during the bloom period), lengthening production window from international competition with new varieties, and increasing pest and disease pressure. In sum, growers seeking to diversify their agricultural operations may consider Florida peach production as an orchard alternative with the potential to generate sustainable net returns under existing market conditions.

## Additional Resources

An interactive Excel spreadsheet for each of the four production years is available online at http://hos.ufl.edu/extension/stonefruit and can be downloaded at no cost. This interactive budget allows individual orchard managers to calculate final revenue estimates by adjusting the values of production and market yields, average farm-gate price, input application rate and cost, fixed investment costs such as irrigation, facilities, equipment and returns to match their real-time operational conditions. All changes made in year 4 of the planning budget will generate updated "What-If" and summary tables in the associated tabs, which provide the orchard manager with real-time comparisons resulting from any changes to estimated yields, revenues, or input costs.

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