

Got Cost Estimates?  
 (What's It Costs to Grow Field Grown Trees and Shrubs?)  
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As the nursery industry grows, there is an increased demand for cost of production information for potential growers to make more informed decisions about entering the industry or for experienced growers to expand their current operation. The objective of this study was to develop enterprise budgets to estimate the costs associated with growing and harvesting five-acre plantings of Pin Oak, Bradford Pear, and Ilex Fosters. The data and cost models for this study were developed with the assistance of several North Carolina growers.

The total cost of growing and harvesting Pin Oaks was estimated to be \$127,212 over a five-year production period, Table 1. This was an average expense of \$37.97 per tree for the 3,350 marketable trees, however the actual cost per tree ranged from \$34.96 to \$38.21 depending on the size and year when the tree was harvested, Table 2. Overall, the loss rate for Pin Oaks was 16.25%, 650 of 4,000 trees. The total cost to grow and harvest 3,800 marketable Bradford Pears was estimated to be \$107,396 over a four-year production cycle, for an average cost of \$28.26 per tree, Table 3. The average cost per tree ranged from \$26.74 to \$29.99 per tree, Table 4, and the aggregate loss rate was 5%. Ilex Foster production cycle took seven years to grow 5,675 marketable plants and cost an estimated \$111,750, or an average of \$19.29 per tree with an overall loss rate of 3.47%, Table 5. However, the actual cost per plant ranged from \$15.11 to \$26.59 depending on the market size and when the tree was harvested, Table 6.

Table 1. Estimated Annual Cost for Pin Oak, Five Acre Planting

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Land Preparation	\$ 3,626	0	0	0	0
Planting Trees	\$64,929	0	0	0	0
Maintenance	\$10,426	\$4,031	\$3,904	\$ 3,614	\$ 43
Harvest					
2 ½ - 3" Trees	0	0	\$7,393	\$19,660	\$4,370
3 - 3 ½" Trees	0	0	0	0	\$5,216
Trees Planted & Sold	4,000	0	692	1840	818
Loss Rate	10%	5%	1%	1%	1%

Table 2. Estimated Cumulative Cost per Harvested Pin Oak

	NUMBER OF TREES	COST PER TREE
Year 3: 2 ½ - 3"	692	\$ 34.96
Year 4: 2 ½ - 3"	1,840	\$ 36.31
Year 5:		
2 ½ - 3"	409	\$ 36.36
3 - 3 ½"	409	\$ 38.43

Table 3. Estimated Annual Cost for Bradford Pear, Five Acre Planting

	YEAR 1	YEAR 2	YEAR 3	YEAR 4
Land Preparation	\$ 3,626	0	0	0
Planting Trees	\$42,249	0	0	0
Maintenance	\$10,427	\$4,556	\$ 4,534	\$ 214
Harvest:				
Spring: 2 ½ - 3" Trees	0	0	\$20,306	\$6,092
Fall: 2 ½ - 3" Trees	0	0	\$ 8,123	0
Spring: 3 - 3 ½" Trees	0	0	0	\$7,269
Trees Planted & Sold	4,000	0	2,660	1,140
Loss Rate	4%	1%	0%	0%

Table 4. Estimated Cumulative Cost per Harvested Bradford Pear Tree

	NUMBER OF TREES	COST PER TREE
Year 3		
Spring (2 ½ - 3")	1,900	\$26.74
Fall (2 ½ - 3")	760	\$27.74
Year 4		
Spring (2 ½ - 3")	570	\$27.93
Spring (3 - 2 ½ ")	570	\$29.99

Table 5. Estimated Annual Cost for Ilex Foster, Five Acres Planting

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7
Land Preparation	\$ 3,626	0	0	0	0	0	0
Planting	9,349	0	0	0	0	0	0
Maintenance	2,933	\$5,142	\$5,142	\$5,142	\$ 5,142	\$ 4,327	\$2,793
Harvest							
22" B&B	0	0	0	0	\$12,508	\$12,508	\$9,317
28" B&B	0	0	0	0	\$12,295	\$12,295	\$9,231
Trees Planted & Sold	6,200	0	0	0	2,066	2,066	1,543
Loss Rate	2%	1%	0.5%	0%	0%	0%	0%

Table 6. Estimated Cost per Harvested Ilex Foster

	NUMBER OF TREES	COST PER TREE
Year 5:		
22" Ball	1,380	\$15.11
28" Ball	686	\$23.97
Year 6:		
22" Ball	1,380	\$16.22
28" Ball	686	\$25.08
Year 7:		
22" Ball	1,236	\$17.73
28" Ball	617	\$26.59

While the primary focus of this study was to estimate the costs associated with growing and harvesting trees, growers incur additional overhead costs that should be included when pricing their plants. Unfortunately, many growers ignore or overlook these additional costs, which were estimated to range from 17.8% to 21.4% of a nursery's annual net sales, Table 7.

Table 7. Overhead Costs as a Percentage of Net Annual Sales

CATEGORY	LOW	HIGH
Advertising	2.84 %	3.58 %
Bad Checks	1.00 %	2.00 %
Maintenance and Utilities	2.17 %	2.25 %
Property Taxes	0.24 %	0.41 %
Rent	1.98 %	3.07 %
Other Operating Costs	9.54 %	10.05 %
Total	17.77 %	21.36 %

The information derived should provide a basis for decision making for those evaluating the profitability of establishing a new nursery or expanding production. A shortcoming of this analysis is that markets were assumed to be present and available as the plants were harvested. If this situation is not the case, the actual cost per plant will increase as the number of plants that the grower cannot sell increases. The actual cost per tree will also increase if the actual loss rates are greater than the estimated rates used in this study. Since every nursery situation is different, it is highly recommended that each grower estimate their individual costs-of-production based on their own production cycles and growing techniques.