

ANNUAL FIXED COSTS OF OPERATING CONTAINER NURSERIES IN
OHIO DIFFERENTIATED BY SIZE OF FIRM AND SPECIES OF PLANT

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ABSTRACT

The objective of this study was to determine annual fixed costs of operating container nurseries in Ohio differentiated by size of firm and species of plant. Differences in fixed costs between plant species were totally determined by space requirements for production. In the smaller of the two sized nurseries analyzed, annual fixed costs per two gallon salable plant by species ranged from \$1.90 to \$3.72 and averaged \$2.53. In the larger nursery, comparable costs were \$1.50, \$3.00, and \$2.04. This approximate 25% gain in efficiency when going from the small to the large nursery is attributable to the more efficient use of buildings, machinery, and equipment of the large nursery over the small. Fixed costs as a percentage of total costs in the small nursery ranged from 42% to 51% averaging 46% across species. Comparable values for the large nursery were 37%, 46%, and 42%.

INTRODUCTION

Nurserymen throughout the United States have been gradually shifting from field to container production for many species of plants. Containers allow greater flexibility in production and marketing and in most cases are less expensive than field production (4). Consequently, this has encouraged large companies to enter production and marketing. The result has been escalating competition and narrowing profit margins. Many nurserymen also lack the necessary expertise to systematically determine production costs. Due to increasing competition and periodically a slack economy many nursery operators find themselves in a precarious financial position. Survival under these conditions requires excellent production and marketing procedures. The purpose of this research is to provide nursery operators with production and financial information for decision making. This information should prove especially useful to individuals anticipating beginning a container nursery and to present field operators anticipating expanding to containers. It should also prove useful to present nurserymen with container operations who anticipate updating and expansion. Another value would be in identifying present operations that might be bottlenecks causing inefficiencies.

Cost models have recently been developed for several species of plants in other areas (1,2,3,8,10,11,12,13,14). An initial cost model for Ohio was developed by Powers (9) which provided excellent information. However, it did not include overhead costs or information on physical coefficients. The lack of physical coefficients makes it very difficult to update the information without resurveying nurserymen. Kneen developed complete cost models for both container and field grown *Juniperus chinensis* 'Pfitzeriana' for U.S.D.A. climatic zones 6 and 7 using the economic engineering concept (4). Information from Kneen's study was updated in 1982 and a portion of the material published in 1983 (5,6). Kneen's study if expanded to include other species of plants would provide a standard against which Ohio nurserymen could compare their own operations. This type of information would allow present or potential Ohio nurserymen to make more informed decisions as to whether to enter, leave, or expand container production.

The specific objective of the study was to determine annual fixed costs of operating container nurseries in Ohio differentiated by size of firm and species of plant.

MATERIALS AND METHODS

In the study, Two model firms were synthesized using the conceptual framework of economic engineering wherein the 'best proven practice' was included in each model. They were synthesized based on the Columbus, Ohio area. The complete synthesis included developing an appropriate production cycle; schematic drawings of the physical layout, including buildings and irrigation system; lists of equipment and other items; a complete sequence by month and year of nursery operational steps beginning with the purchase of plant liners and ending with loading the finished product for wholesale distribution; and budgets for fixed and variable costs (4,5,6,7).

Data for this study were obtained from wholesale nurseries and nursery suppliers in Ohio during 1982. The basic goals in synthesizing the production facilities were to minimize labor expenses, flow and movement of plant material and equipment, water runoff, and initial investment, and to maximize the number of salable plants and keep future expansion possible.

The production system chosen for this analysis consists of utilizing husky two or three year old bareroot liners to produce a salable plant within two growing seasons. These 6-7" liners are transplanted directly into two gallon (8-1/2" x 8") copolymer containers during the month of May. Approximately 10% of the crop will be sold during the fall of the second growing season (approximately 18 months), 50% during March and April after the second growing season (approximately 22-23 months), and 10% during May after the second growing season (24 months). May is a period when clean-up sales are being made and new plants started. This production system saves transplanting as the plants are sold in the same containers in which they are started (two gallon).

The nursery operations were assumed to produce a diverse line of nursery stock each having a two year production cycle. Commonly grown nursery stock was divided into five cultural groups. While not all inclusive, the groups do permit a range of per unit costs to be developed as they relate to input costs and cultural factors. For analytical purposes, it was assumed that each cultural group would occupy 20% of the growing area (i.e. small nursery = 58,000 sq ft per group; large nursery = 176,000 sq ft per group). The small container operation would be comprised of 198,745 units in full production and the large operation of 399,160 units. Annual sales capacity for the small operation would be 95,650 units and for the large operation 192,095 units. For detailed analysis, one specific plant from each group was

chosen as representative of the group. While it is recognized that other plants from each category would have somewhat different requirements, it was felt that the requirements would not vary significantly in cost from the plant chosen as representative. The five groups, with some of their cultural characteristics are listed below:

Group	Plant	Cultural Characteristics
I	SPREADING EVERGREENS Juniperus chinensis (varieties) Juniperus horizontalis (varieties) Thuja occ. woodwardi	Hardwood bark medium, minimal overwinter structure, 12-15" salable plants.
II	SPREADING DECIDUOUS SHRUBS Berberis t. 'Crimson Pygmy' Cotoneaster apiculata Cotoneaster horizontalis Cotoneaster dammerii Euonymus fortunei	Hardwood bark medium, maximum overwinter structure, 12-15" salable plants.
III	SLOW GROWING EVERGREENS Taxus (species) Buxus (species)	Pinebark medium, minimal overwinter structure, 12-15" salable plants.
IV	UPRIGHT DECIDUOUS SHRUBS Euonymus alatus compacta Viburnum (species) Weigela Forsythia Ligustrum vicaryi	Hardwood bark medium, minimal overwinter structure, 18-24" salable plants.
V	BROADLEAF EVERGREEN Rhododendron Pieris Pyracantha	Pinebark medium, maximum overwinter structure, 15-18" salable plants.

Space requirements for different periods of the growing cycle, total plants in production, salable plants per year and capital requirements per salable plant capacity by plant grouping were determined (Tables 1 la). Space requirements directly determine the annual number of plants available for sale and thereby exert a significant impact on costs of production

Most nurseries use cash rather than accrual accounting procedures. For this reason, the analyses were completed on a "cash" basis. Analysis on a "cash" basis does not give a true economic picture of the cost of producing a plant as it does not take into account the time value of money from the time the plant is planted until it is sold. The analyses do, however, give a true estimate of the annual fixed cost per salable plant.

Costs were established for all factors of production contributing to fixed costs including management and invested capital. In economic terms, costs associated with factors of production inputted by owner/operators are often referred to as 'opportunity costs' or the income these factors could have received if they were employed elsewhere. For example, owners could usually be employed as managers at other nurseries, and money invested in land, buildings, irrigation systems, and equipment could have earned interest if it had been placed in financial institutions.

Based upon capital requirements for establishing Ohio container nurseries as previously reported (5), annual fixed costs were determined (Tables 2, 2a). Annual fixed costs per cultural group were then determined by dividing total fixed costs by five (Tables 3, 3a). Based on these figures fixed costs per salable plant were calculated (Tables 4, 4a). These analyses allowed cost comparisons based on cultural practices and size of nursery. See Taylor etc. al. (5) for details on specific fixed costs. Annual variable and total costs of producing specific species of plants are reported in companion articles in this publication.* An analysis of annual costs of producing *Juniperus chinensis* 'Pfitzeriana' was previously reported (6).

*Annual Costs of Producing Spreading Deciduous Shrubs
(Cotoneaster) Differentiated by Size of Firm in Ohio.

Annual Costs of Producing Slow Growing Evergreens
(Taxus) Differentiated by Size of Firm in Ohio.

Annual Costs of Producing Upright Deciduous Shrubs
(Viburnum) Differentiated by Size of Firm in Ohio.

Annual Costs of Producing Broadleaf Evergreens
(Rhododendron) Differentiated by Size of Firm in Ohio.

RESULTS AND DISCUSSION

Annual fixed costs associated with capital investment including depreciation, interest, insurance and taxes were \$139,680 per year for the small nursery. In addition there was \$95,025 allocated for general overhead and \$7,885 for interest on general overhead, insurance and taxes making a total of \$242,590 total fixed costs for the small nursery (Table 2). These costs were divided equally among the five plant groups with each group receiving an assessment of \$48,517 (Table 3). It was felt that the most reasonable way of assigning fixed cost is by area rather than plant. Once the physical facility is provided, fixed costs are incurred at essentially the same amount regardless of how the nursery facility is used. On a per-salable-plant basis, there was a considerable difference in annual fixed costs when they were differentiated by plant group (Table 4). In the small nursery, they were: \$1.90 for group I (Juniperus), \$2.34 for group II (Cotoneaster), \$2.42 for group III (Taxus), \$3.00 for group IV (Viburnum), and \$3.72 for group V (Rhododendron). The average over all groups was \$2.53. Annual fixed costs for group V were more than double those for group I. These costs were proportionate to the number of salable plants per annum produced in allocated space. Fixed costs as a percentage of total costs ranged from 42% to 51% in the small nursery averaging 46% across the five groups (Table 4).

For the large nursery, annual fixed costs associated with capital investment; depreciation, interest, insurance and taxes were \$228,526. An additional \$150,000 was allocated for general overhead and \$12,521 for interest on general overhead, insurance, and taxes making a total of \$391,047 annual fixed costs for the large nursery (Table 2a). Assessment per plant group was \$78,209 (Table 3a). Annual fixed costs per-salable-plant were: \$1.50 for group I, \$1.89 for group II, \$1.95 for group III, \$2.42 for group IV, and \$3.00 for group V averaging \$2.04 over all groups (Table 4a). Fixed costs as a percent of total costs were lower than for the small nursery ranging from 37% to 46% averaging 42% across groups (Table 4a). This lower percentage was associated with the lower capital requirement per salable plant capacity.

Annual fixed costs per-salable-plant were substantially lower for the larger nursery compared to the smaller. For group I the difference was \$0.40, for group II \$0.45, for group III \$0.47, for group IV \$0.58 and for group V \$0.72 averaging \$0.49 across groups. This approximate 25% gain in efficiency when going from the small to the large nursery is attributable to the more efficient use of buildings, machinery, and equipment of the large nursery over the small.

Nurserymen having established facilities might well consider annual fixed costs to be lower than those reported here. This is especially true if they compute depreciation and repairs on the original value of land improvements, buildings, machinery and equipment and if they place a low value on their own management input. Good management, for planning purposes, however, dictates computing depreciation and repairs on replacement value rather than cost. It also dictates placing a value on managerial time that would be comparable to salaries paid in competitive firms.

When annual fixed costs were compared to total annual costs on a per salable plant basis, it was determined that they ranged from 37% to 51% of total costs depending upon size of firm and species of plant (Tables 4,4a). While this might seem high to many nurserymen and/or others concerned with the industry, these percentages would be in line with those for similiar industries when considering new facilities. Brumfield et. al. (2) in a synthesized analyses of overhead costs of greenhouse firms found fixed (overhead) costs as a percent of sales to range from about 45% to over 67% depending on size of firm and market channel. The values of this study are not directly comparable with Brumfield et. al., (percent of total costs versus percent of sales), however if marketing costs and potential profit were taken into account so that a direct comparison could be made, the fixed costs from the Brumfield study would be considerably higher as a percent of total costs than were reported in these analyses.

SUMMARY AND IMPLICATIONS

Annual fixed costs per salable plant in the small nursery ranged from \$1.90 to \$3.72 averaging \$2.53. In the large nursery comparable costs were \$1.50, \$3.00, and \$2.04. This approximate 25% gain in efficiency when going from the small to the large nursery is attributable to the more efficient use of buildings, machinery, and equipment of the large nursery over the small. Fixed costs as a percentage of total costs in the small nursery ranged from 42% to 51% averaging 46% across species. Comparable values for the large nursery were 37%, 46%, and 42%. Differences in fixed costs between plant species were totally determined by space requirements for production.

When total annual costs per salable plant are considered, with fixed costs making up from 37% to 51% of the total, a comparison with prices in Ohio producers' wholesale catalogs would undoubtedly show, in a great many cases, selling prices lower than total annual costs. In fact, if one were to add costs of selling, very few producers would presently be charging enough to cover all costs let alone yield profits. How then can producers continue to operate? The answer lies in how producers both experience and figure costs. We have used the economic or accounting method which includes both explicit and implicit costs. Annual fixed costs, to a large degree, are implicit and often difficult to determine such as the cost of equity capital and managerial capacities. The way these costs are determined vary significantly from firm to firm. Well established nurseries are usually very accurate in determining explicit costs (usually variable such as containers, liners, fertilizer, labor, etc), but often do not consider all implicit costs. They base their costs on "cash flow" and profit and loss on "tax accounting". These established nurseries, having purchased land at low cost, working with depreciated equipment and often assigning low if any value to their management would determine their annual fixed costs at a much lower level than presented in this article. However, if one were to start a new container nursery, in a "normal" Ohio site, costs would probably be very close to those presented here.

For the industry, selling nursery products for below "accounting costs" implies that well established nurseries, operating essentially debt free, would have strong staying power whereas those who have just started or are heavily in debt may not be able to survive, especially if they are relying on their container operation to meet all overhead expenses. Second, starting a container nursery in Ohio would probably not prove profitable unless items such as

buildings, equipment, machinery, and management could be shared with other enterprises or unless selling prices of nursery products in Ohio increased substantially. At current prices for nursery products, this study shows that the return on investment for establishing new, independently operating, container nurseries in Ohio would be marginal if not negative.

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TABLE 1.--Capacity in Number of Plants and Capital Required per Salable Plant Capacity by Spacing for a Small* Container Nursery in Ohio, 1982.

Group	Growing Cycle Spacing				Production factors		
	Growing Season On-center (inch)	First Year Over-Wintering (inch)	Second Growing Season On-center (inch)	Second Year Over-Wintering (inch)	Total Plants in Production (units)	Salable Plants per Year (units)	Capital Requirements per Salable Plant Capacity (dollars)
I - Juniperus	9	9	15	12	53,120	25,600	4.63
II - Cotoneaster	12	9	15	15	43,095	20,730	5.72
III - Taxus	9	9	18	15	41,750	20,085	5.90
IV - Viburnum	12	12	21	15	33,655	16,185	7.33
V - Rhododendron	12	12	18	18	27,125	13,050	9.09
Totals					198,745	95,650	6.20

*Total Nursery - 17.04 acres, 340,000 sq ft of growing space, 204,000 sq ft of polyhouse space. Each group of plants would occupy 20 percent of the growing (60,000 sq ft) and polyhouse (40,800 sq ft) space.

TABLE 1a.--Capacity in Number of Plants and Capital Required per Salable Plant Capacity by Spacing for a Largest Container Nursery in Ohio, 1982.

Group	Growing Cycle Spacing				Production factors		
	Growing Season On-center (inch)	First Year Over-Wintering (inch)	Second Growing Season On-center (inch)	Second Year Over-Wintering (inch)	Total Plants in Production (units)	Salable Plants per Year (units)	Capital Requirements per Salable Plant Capacity (dollars)
I - Juniperus	9	9	15	12	107,900	52,000	3.71
II - Cotoneaster	12	9	15	15	86,180	41,455	4.65
III - Taxus	9	9	18	15	83,505	40,165	4.80
IV - Viburnum	12	12	21	15	67,320	32,380	5.96
V - Rhododendron	12	12	18	18	54,255	26,095	7.39
Totals					399,160	192,095	5.02

*Total Nursery - 33.04 acres, 680,000 sq ft of growing space, 408,000 sq ft of polyhouse space. Each group of plants would occupy 20 percent of the growing (136,000 sq ft) and polyhouse (81,600 sq ft) space.

TABLE 2. Annual Fixed Costs (Dollars) for a Small* Container Nursery in Ohio, 1982.

Item	Description	Depreciation**	Interest***	Insurance and Taxes	Total
Land	Unimproved land		4,739	631	5,370
+ Improvements	Grading, tiling, graveling, pond	8,571	25,713	3,428	37,712
Subtotal		8,571	30,452	4,059	43,082
Buildings					
Office and restrooms	20' x 40'	1,120	3,360	568	5,048
Potting and packing shed	40' x 50'	1,800	5,400	913	8,113
Machinery storage and shop	40' x 50'	1,800	5,400	913	8,113
Polyhouse structures	200' x 20'	10,066	16,777	2,835	29,678
Subtotal		14,786	30,937	5,229	50,952
Machinery and Equipment					
Tractor, 60 HP	60 HP, gas fuel w/front-end loader	1,440	2,400	73	3,913
Tractor, 28 HP	28 HP, gas fuel	1,085	1,808	55	2,948
Manure spreader	130 bu capacity	192	320	10	522
Wagon	4-wheel	414	690	21	1,125
Irrigation pump/well	75 HP, electric pump	1,804	6,013	182	7,999
Inground irrigation system	PVC pipe/sprinklers	1,940	5,820	176	7,936
Above ground irrigation system	PVC pipe/sprinklers	3,489	2,908	88	6,485
Fertilizer injector	200 gal injector	1,170	975	30	2,175
Airblast sprayer	300 gal, on trailer	894	1,043	36	1,973
Forklift	3,000 lb lift, exterior-use wheels	2,160	3,600	109	5,869
Truck	1/2 ton pickup	1,440	1,200	36	2,676
Pallets	Wooden	1,047	628		1,675
Handtools	Miscellaneous	200	150		350
Subtotal		17,275	27,555	816	45,646
General Overhead					
Utilities	Telephone, electric, gas heat				5,325
Licenses and bonds					375
General repairs and maintenance	Buildings, grounds				6,140
Advertising and printing					1,050
Insurance, personnel	Workmen's comp., FICA, health, unemp.				19,060
Travel and other					1,500
Professional fees					75
Administrative and Management	Clerical, operator, supervisory, labor and office supplies				60,500
Miscellaneous					1,000
Subtotal					95,025
Interest on General Overhead, Insurance, and Taxes	Compounded at 15% per annum for 6 months				7,885
Total Annual Fixed Costs					242,590

*17.04 acres, 340,000 sq ft growing space, 204,000 sq ft of polyhouse space.

**Depreciation was estimated by dividing initial cost adjusted for salvage value, by the years of useful life.

***Interest costs were estimated by multiplying the initial value of land, building, equipment and machinery by the interest rate, 15% per annum.

TABLE 2a. Annual Fixed Costs (Dollars) for a Large* Container Nursery in Ohio, 1982

Item	Description	Depreciation**	Interest***	Insurance and Taxes	Total
Land	Unimproved land		9,169	1,223	10,392
+ Improvements	Grading, tiling, graveling, pond	16,315	48,946	6,526	71,787
Subtotal		16,315	58,115	7,749	82,179
Buildings					
Office and restrooms	20' x 40'	1,120	3,360	568	5,048
Potting and packing shed	40' x 50'	1,800	5,400	913	8,113
Machinery storage and shop	40' x 50'	1,800	5,400	913	8,113
Polyhouse structures	200 x 20	20,134	33,556	5,671	59,361
Subtotal		24,854	47,716	8,065	80,635
Machinery and Equipment					
Tractor, 60 HP	60 HP, gas fuel w/front-end loader	1,440	2,400	73	3,913
Tractor, 28 HP	28 HP, gas fuel	1,085	1,808	55	2,948
Manure spreader	130 bu capacity	192	320	10	522
Wagon	4-wheel	828	1,380	42	2,250
Irrigation pump/well	75 HP, electric pump	1,804	6,013	182	7,999
Inground irrigation system	PVC pipe/sprinklers	3,858	11,574	350	15,782
Above ground irrigation system	PVC pipe/sprinklers	6,978	5,815	176	12,969
Fertilizer injector	200 gal injector	1,170	975	30	2,175
Airblast sprayer	300 gal, on trailer	894	1,043	36	1,973
Forklift	3,000 lb lift, exterior-use wheels	2,160	3,600	109	5,869
Truck	1/2 ton pickup	2,880	2,400	73	5,353
Pallets	Wooden	2,037	1,222		3,259
Handtools	Miscellaneous	400	300		700
Subtotal		25,726	38,850	1,136	65,712
General Overhead					
Utilities	Telephone, electric, gas heat				7,990
Licenses and bonds					565
General repairs and maintenance	Buildings, grounds				10,585
Advertising and printing					1,575
Insurance, personnel	Workmen's comp., FICA, health, unemp.				31,420
Travel and other					2,250
Professional fees					115
Administrative and management	Clerical, operator, supervisory, labor and office supplies				93,500
Miscellaneous					2,000
Subtotal					150,000
Interest on General Overhead, Insurance, and Taxes	Compounded at 15% per annum for 6 months				12,521
Total Annual Fixed Costs					391,047

*17.04 acres, 340,000 sq ft growing space, 204,000 sq ft of polyhouse space.

**Depreciation was estimated by dividing initial cost adjusted for salvage value, by the years of useful life.

***Interest costs were estimated by multiplying the initial value of land, building, equipment and machinery by the interest rate, 15% per annum.

TABLE 3.--Summary of Annual Fixed Costs (Dollars) of Operating a Small* Container Nursery in Ohio, 1982

Item	Group I (Juniper)	Group II (Cotoneaster)	Group III (Taxus)	Group IV (Viburnum)	Group V (Rhododendron)	Total
Fixed Cost						
Land and improvements	8,616	8,616	8,616	8,616	8,616	43,080
Buildings	10,190	10,190	10,190	10,190	10,190	50,950
Machinery and equipment	9,129	9,129	9,129	9,129	9,129	45,645
General overhead	19,005	19,005	19,005	19,005	19,005	95,025
Interest on general overhead, insurance, and taxes	1,577	1,577	1,577	1,577	1,577	7,885
TOTAL	48,517	48,517	48,517	48,517	48,517	242,585
Salable Plants per Year	25,600	20,730	20,085	16,185	13,050	95,650
Annual Fixed Cost per Salable Plant	1.90	2.34	2.42	3.00	3.72	2.53

*17.04 Acres, 340,000 sq ft of growing space, 204,000 sq ft of polyhouse space

TABLE 3a.--Summary of Annual Fixed Costs (Dollars) of Operating a Large* Container Nursery in Ohio, 1982

Item	Group I (Juniper)	Group II (Cotoneaster)	Group III (Taxus)	Group IV (Viburnum)	Group V (Rhododendron)	Total
Fixed Cost						
Land and improvements	16,436	16,436	16,436	16,436	16,436	82,180
Buildings	16,127	16,127	16,127	16,127	16,127	80,635
Machinery and equipment	13,142	13,142	13,142	13,142	13,142	65,710
General overhead	30,000	30,000	30,000	30,000	30,000	150,000
Interest on general overhead, insurance, and taxes	2,504	2,504	2,504	2,405	2,504	12,520
TOTAL	78,209	78,209	78,209	78,209	78,209	391,045
Salable Plants per Year	52,000	41,455	40,165	32,380	26,095	192,095
Annual Fixed Cost per Salable Plant	1.50	1.89	1.95	2.42	3.00	2.04

*33.04 acres, 680,000 sq ft of growing space, 408,000 sq ft of polyhouse space

TABLE 4.--Summary of Annual Fixed, Variable, and Total Costs (Dollars) per Saleable Plant of Operating a Small Container Nursery in Ohio, 1982.

Item	Group I (Juniper)		Group II (Cotoneaster)		Group III (Taxus)		Group IV (Viburnum)		Group V (Rhododendron)		Average	
	Cost per Saleable Plant	Percent of Total Cost	Cost per Saleable Plant	Percent of Total Cost	Cost per Saleable Plant	Percent of Total Cost	Cost per Saleable Plant	Percent of Total Cost	Cost per Saleable Plant	Percent of Total Cost	Cost per Saleable Plant	Percent of Total Cost
Fixed Cost Items												
Land and Improve- ments	.34	(8)	.41	(8)	.43	(8)	.53	(9)	.66	(9)	.45	(8)
Buildings	.40	(9)	.49	(10)	.51	(9)	.63	(11)	.78	(11)	.53	(10)
Machinery and Equipment	.36	(8)	.44	(8)	.45	(8)	.56	(9)	.70	(9)	.48	(9)
General Overhead	.74	(16)	.92	(18)	.95	(17)	1.18	(20)	1.46	(20)	.99	(18)
Interest on General Overhead, Insur- ance, and Taxes	.06	(1)	.08	(2)	.08	(1)	.10	(2)	.12	(2)	.08	(1)
Total Annual Fixed Costs	1.90	(42)	2.34	(46)	2.42	(43)	3.00	(51)	3.72	(51)	2.53	(46)
Total Annual Variable Costs	2.60	(58)	2.70	(54)	3.16	(57)	2.84	(49)	3.64	(49)	2.93	(54)
Total Annual costs	4.50	(100)	5.04	(100)	5.58	(100)	5.84	(100)	7.36	(100)	5.46	(100)

*17.04 acres, 340,000 sq ft of growing space , 204,000 sq ft of polyhouse space

TABLE 4a.--Summary of Annual Fixed, Variable, and Total Costs (Dollars) per Saleable Plant of Operating a Large Container Nursery in Ohio, 1982

Item	Group I (Juniper)		Group II (Cotoneaster)		Group III (Taxus)		Group IV (Viburnum)		Group V (Rhododendron)		Average	
	Cost per Saleable Plant	Percent of Total Cost	Cost per Saleable Plant	Percent of Total Cost	Cost per Saleable Plant	Percent of Total Cost	Cost per Saleable Plant	Percent of Total Cost	Cost per Saleable Plant	Percent of Total Cost	Cost per Saleable Plant	Percent of Total Cost
Fixed Cost Items												
Land and Improve- ments	.31	(8)	.40	(9)	.41	(8)	.51	(10)	.63	(10)	.43	(9)
Buildings	.31	(8)	.39	(9)	.40	(8)	.50	(9)	.62	(9)	.42	(9)
Machinery and Equipment	.25	(6)	.32	(7)	.33	(6)	.41	(8)	.50	(8)	.34	(7)
General Overhead	.58	(14)	.72	(16)	.75	(15)	.92	(18)	1.15	(17)	.78	(16)
Interest on General Overhead, Insur- ance, and Taxes	.05	(1)	.06	(1)	.06	(1)	.08	(1)	.10	(2)	.07	(1)
Total Annual Fixed Costs	1.50	(37)	1.89	(42)	1.95	(38)	2.42	(46)	3.00	(46)	2.04	(42)
Total Annual Variable Costs	2.57	(63)	2.67	(58)	3.13	(62)	2.80	(54)	3.60	(54)	2.88	(58)
Total Annual costs	4.07	(100)	4.56	(100)	5.08	(100)	5.22	(100)	6.59	(100)	4.92	(100)

*33.04 acres, 680,000 sq ft of growing space, 408,000 sq ft of polyhouse space.