Marketing Christmas Trees in Michigan
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Marketing CHRISTMAS TREES IN MICHIGAN

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SUMMARY AND CONCLUSIONS

Michigan's Christmas tree crop retailed for some $2,700,000 in 1952. Potentially, a much larger crop could have been marketed. Annual consumption of Christmas trees is considerably larger than production in Michigan and in a number of heavily populated neighboring states.

PRODUCER TO WHOLESALER

Both Michigan's production and imports of Christmas trees fluctuate widely from year to year, but the trends are well established. Over an 11-year period the trend in production has decreased at the rate of 30,000 trees a year; the trend of imports shows a more than corresponding increase with Canada emerging as the main source of imports.

Many Michigan tree buyers look to Canada for their supplies rather than their home state for a number of reasons:

1) **Species.** About a third of the import from Canada is Scotch pine, a species in which the home resource has been inadequate to meet demand. 2) **Cost.** Canadian trees can frequently be delivered to Michigan markets at less cost than similar domestically produced trees. 3) **Market channels.** Many Michigan buyers are contacted by dealers in Canadian trees or find they can contact sources of supply more readily in Canada than at home. 4) **Quantity purchase.** Big buyers usually find it easier to purchase in larger quantities in Canada than at home. 5) **Bundling.** Canadian balsam fir and spruce are always bundled before shipment, in contrast to the loose piling of Michigan trees. 6) **Merchandising.** Some big dealers handling Canadian trees have been more effective than local dealers in their methods of selling their product.

The disadvantages faced by buyers in seeking Michigan sources of supply rather than outside sources suggest their own remedies:

1. Species. Although there may be some question about quality maintenance, wild balsam fir and spruce are grown in numbers sufficient to meet any prospective increase in demand for Michigan wild trees. Some plantation species are also being grown in adequate numbers. In fact, a few species, Scotch pine in particular, may now be overplanted for Christmas trees, but Michigan tree growers need to consider more seriously other species such as Douglas fir, white fir,

Austrian pine, Norway spruce, white spruce, and Colorado blue spruce which are now being planted in small numbers.

2. Cost. Although Michigan trees do not have any freight cost advantage at present, increasing the average size of truckloads could give Michigan trees a decided freight cost advantage over Canadian trees which must be hauled longer distances.

3. Market channels. The complexity of marketing channels, with attendant difficulties of producers and dealers making contact, point up the need for organizations which will facilitate the marketing process. Producers could consider voluntary pooling of trees or the forming of producer cooperatives to market their product. Less formally, producers could have a representative who would contact any buyers entering the area and acquaint them with the list of all trees offered for sale. Buyers, on the other hand, could consider setting up concentration yards which would serve to funnel together the product of numerous producers in an area.

4. Quantity purchase. The same groups or organizations which would serve to bring producers and dealers together could aid in concentrating sufficient quantities of trees to interest big dealers.

5. Bundling. Michigan producers need to consider more carefully the advantage gained by Canadian producers through the bundling of balsam fir and spruce before shipment. Bundled trees can be handled and rehandled by dealers more conveniently and with less damage; they can be packed into less space, and sorted quickly according to size.

6. Merchandising. Effective merchandising could be a major factor in stimulating home production. Early contact with potential buyers, sales representatives, published price lists, credit terms, attractive conditions of sale and unique product (such as painted or treated table trees, well mounted) are methods of sale used more widely by outside producers than by Michigan producers.

7. Quality of trees. If one factor can be singled out as being of paramount importance, it is that of quality. In retailing, better quality trees sell much more readily than low-quality trees and at higher prices. The importance of quality is reflected back in the efforts of dealers to acquire good-quality trees and in the higher prices dealers are willing to pay for such trees.

If quality is to be widely recognized at stumpage and wholesale

levels, adoption of a grading system that permits ready recognition of tree grades is necessary. Study of the Montana grading system for possible adaptation to Michigan's needs is recommended.

RETAILING

Gasoline stations, nursery sales stores, and groceries are frequent retail outlets for Christmas trees. They have several advantages in common: outdoor space for the display of trees, customers who come for other items, and personnel and facilities to take care of tree sales at little or no additional sales cost. The number of yards in Michigan is estimated at about 4,000.

Several general characteristics of retail yards are found to be associated with larger volume of sales: location on main roads near centers of population; good tree displays up front where they can be seen by the passing motorist; display of trees within yards so that they can be examined individually; price tags or some similar easily recognized price system; and a wide variety of colorful accessories such as wreaths and painted trees.

Pricing is extremely diverse, but retail prices generally reflect differences in species, size and quality. Price increase with size and quality increase holds for all species and geographic areas. Average price also varies by locality. For a given species of a particular quality, price tends to be highest in Detroit and the middle-sized cities, lower in the small cities of the Lower Peninsula, and lowest in the small cities of the Upper Peninsula. For given size and quality in a particular market, prices usually range downward by species as follows: Douglas fir, Scotch pine, white spruce, Norway spruce, balsam fir, red pine, black spruce, and jack pine.

Many factors other than price levels affect volume of retail sales, but price is an important factor. This is seen in the success of low-price, large-volume yards and in the policy of many dealers in lowering prices as the season advances toward Christmas Day.

Marketing Christmas Trees in Michigan

By LEE M. JAMES and LESTER E. BELL[1]

Each year the people of Michigan use about 350,000 more Christmas trees than they produce. Imports of more than one-half million trees must be brought into the state to make up for the production deficit and to compensate for the export of fewer than 200,000 trees.

Despite the production deficit, the 1952 crop of Michigan Christmas trees was worth about $400,000 at the stumpage level. Cutting and loading added another $200,000 in value. Truckers received some $200,000 for hauling the trees to market. Wholesalers and retailers obtained about $1,900,000 for their services in handling Michigan trees. By the time the 1952 Michigan Christmas tree crop reached final consumers, its money value was about $2,700,000. If one considers all the trees processed and sold in the state, regardless of origin, the gross money value to the people of Michigan was at least $3,800,000. This figure does not include the sale value of wreaths, boughs, and other accessories which are part of the Christmas tree industry.

The Christmas tree industry does not appear large alongside the major industries of Michigan, but it is not a negligible industry. Its full importance stems from its supplemental nature as an economic activity. The growing, cutting, and loading of trees provide supplemental income to several thousand persons, most of them farmers who are not otherwise heavily occupied in the season preceding Christmas. Truckers engaged primarily in transportation of other products gainfully occupy themselves in a slack season or on return hauls when their trucks would otherwise be empty. At least 4,000 retailers and wholesalers look for important additions to their income through Christmas tree sales.

Marketing, which begins with the cutting of trees and ends with their sale to final consumers, merits study independent of the growing of Christmas trees. Marketing Christmas trees in Michigan engages more people and produces considerably more income than does the growing of these trees. Moreover, the efficiency of the marketing process is a major determinant of the profitability of producing Christmas trees in the state.

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The authors wish to acknowledge their indebtedness to the many individuals who aided in this study, and in particular, to Mr. C. A. Boyer, Chief, and his staff in the Bureau of Plant Industry, State Department of Agriculture.

Despite large unavoidable gaps in the Bureau's records,[4] the Bureau accounted for the production of 754,000 Christmas trees in 1952. If the estimate of total production at 1,000,000 trees is in error, the error is likely to be in underestimating the actual volume.

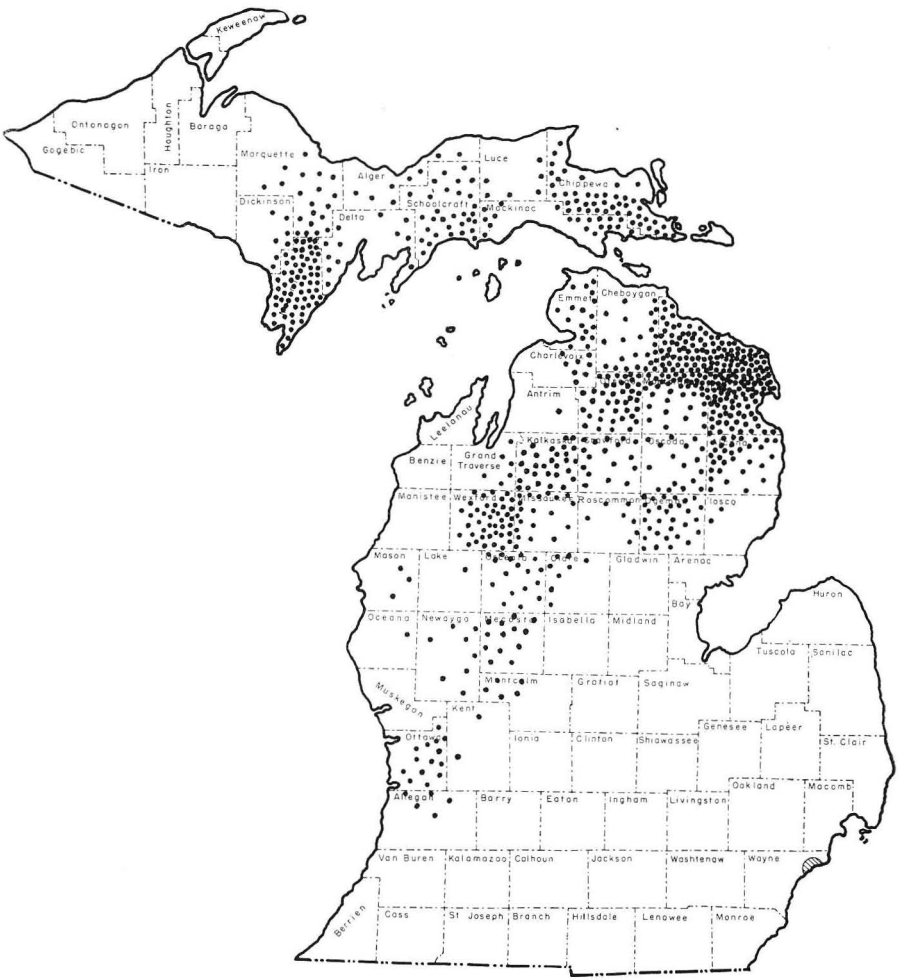

Fig. 1. Location of Christmas tree production in Michigan, 1952. (Each dot represents 1,000 trees. No dots are shown for counties in which recorded production was less than 1,000 trees.)

[4]Production in the western part of the Upper Peninsula, especially in trees exported into Wisconsin, is largely missed by the established checking stations. Production from the southern end of the state is largely missed, and there is no ready method for tallying localized production throughout the state for local use. In one Upper Peninsula town having a population of more than 3,000, only about 50 trees were sold last year in a retail yard. Most of the town's families found some way of obtaining their Christmas trees without going through the regular commercial channels.

Data on 1952 Christmas tree production—total production by species, kind of tree stock (wild or plantation), county of origin, source of tree imports, destination of exports, method of transportation, and seasonal movement of trees to markets—were obtained from records of the Michigan Bureau of Plant Industry. Each year the Bureau attempts to make a complete tally of all Christmas tree loads transported in the state by railroad car, truck, or passenger car. It does so by establishing blockades on the principal roads over which trees are transported and by checking records of railroads at principal points of entry into the state.

Other field data gathered for this report—species, quality, and size of trees marketed; methods of marketing; cost and price data; and characteristics of Christmas tree retailing—were obtained during the 1952 season from interviews with some 15 wholesale and other intermediate tree dealers and from interviews and inspections in 100 retail yards. The retail yards sampled were widely scattered geographically. Some 25 yards were sampled in Detroit and a smaller number of yards in other cities in proportion to the size of the city. Individual yards were selected at random.

This bulletin is intended to present a detailed description of the marketing of Christmas trees in Michigan from the woods to final consumers. The authors hope that it will enable both producers and dealers to plan their marketing activities more efficiently.

CURRENT PRODUCTION IN MICHIGAN

Michigan's current annual output of Christmas trees is about 1,000,000.[2] This is not a strikingly high level of output alongside the production of other northern states. Recent estimates of annual Christmas tree production show combined totals of 5.2 million trees for the Lake States, and 6.4 million trees for the Northeastern and Middle Atlantic states.[3] For the United States as a whole, production is estimated at 21.5 million trees.

The production estimate of 1,000,000 trees for Michigan tends to be supported by data of the Michigan Bureau of Plant Industry.

[2]Records of the Michigan Bureau of Plant Industry show 1952 imports of 533,000 and exports of 178,000 trees. The import figure, in particular, is highly reliable. Assuming that Michigan's population of 6.7 million persons in 1952 used at least 1,350,000 trees (1 tree per 5 persons), production in the state is calculated at 995,000 trees.

[3]Sowder, A. M. 1952. Christmas trees—the tradition and the trade, U. S. Dept. Agr. Agric. Info. Bul. 94, Washington, D. C.

LOCATION

Michigan's current centers of Christmas tree production are shown in Fig. 1. Since this map is based on the records of the Bureau of Plant Industry, it underestimates the production in many counties. Nevertheless, except for the failure to indicate any production in southeastern Michigan and in the west end of the Upper Peninsula, the map may be taken as a good indication of the general pattern of production.

A line drawn from Bay City southwest through Allegan County roughly divides the producing portion of the state from the non-producing portion. The heaviest recorded production comes from Presque Isle (104,000 trees), Alpena (82,000 trees), Menominee (64,000), Chippewa (45,000), Montmorency (43,000), Wexford (41,000), and Otsego (40,000). These seven counties are the source of well over half the recorded tree production in the state. Plantation stock at present comes mainly from the west side of the state, although a few of the northern counties also are among the leading producing areas.

KIND OF TREE STOCK[5]

Michigan's Christmas tree production is mainly wild stock (Table 1). Wild balsam fir makes up more than half the total of all trees,

TABLE 1—Distribution of Christmas trees produced in Michigan, by species and kind of stock, 1952

Species	Wild stock	Plantation stock
	%	%
Balsam fir	53	*
Black spruce	22	
White spruce	11	3
Norway spruce		
Douglas fir	..	1
Scotch pine	..	3
Red pine		5
Other†	2	*
Total	88	12

*Negligible.
†Jack pine, white pine, Austrian pine, white fir, Colorado blue spruce, hemlock, white cedar.

[5]These are the species used for Christmas trees in Michigan: Balsam fir (*Abies balsamea*), white fir (*Abies concolor*), Douglas fir (*Pseudotsuga taxifolia*), Scotch pine (*Pinus sylvestris*), red pine (*Pinus resinosa*), jack pine (*Pinus banksiana*), Austrian pine (*Pinus nigra*), white pine (*Pinus strobus*), white spruce (*Picea glauca*), black spruce (*Picea mariana*), Norway spruce (*Picea abies*), Colorado blue spruce (*Picea pungens*), red spruce (*Picea rubens*), hemlock (*Tsuga canadensis*), and white cedar (*Thuja occidentalis*).

wild spruce a third. Despite the increasing interest of consumers in red pine, Scotch pine and other plantation species, plantations provide only 12 percent of the present total.

Michigan plantations have yielded Christmas trees more heavily in some years. In 1949, of 800,000 trees estimated as total native production by the Bureau of Plant Industry, about 250,000 were plantation trees from Muskegon and Ottawa Counties alone.

IMPORTS

Current imports of Christmas trees into Michigan total 533,000, more than half as much as the native production in the state (Fig. 2). These large imports are almost entirely balsam fir, Scotch pine, and spruce, the same species (with the exception of Scotch pine) which are produced most abundantly at home.

	Imports, 1952 (thousand trees)
Balsam fir	309.0
Spruce	31.2
Scotch pine	192.8
Total	533.0

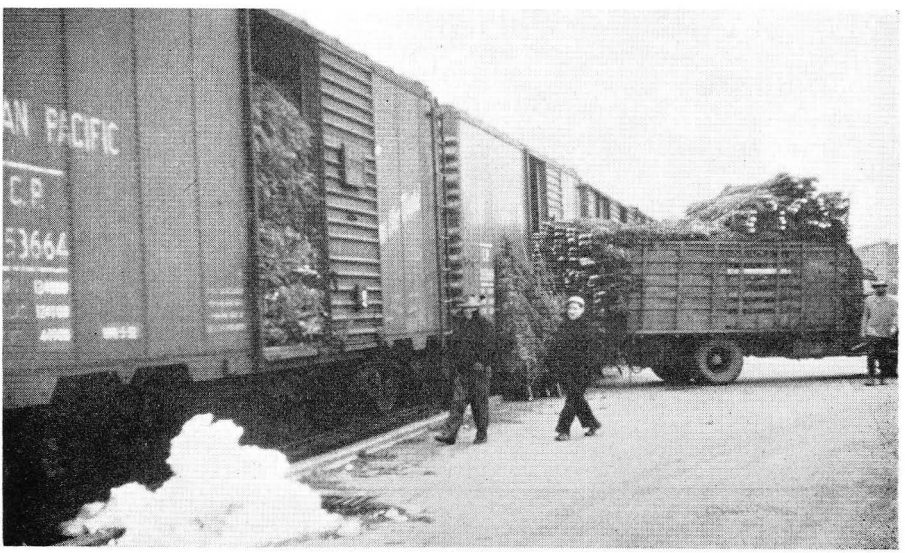

Fig. 2. Two hundred freight cars loaded with Christmas trees arrived at the Detroit Union Produce Terminal during the 1952 Christmas season. Ninety-five cars were unloaded for the local market; 105 cars were shipped on to out-of-state markets.

Fig. 3. Canadian balsam fir and spruce are always bundled prior to shipment in contrast to the loose piling of Michigan-produced trees. Here, a prospective buyer examines a load of Canadian balsam fir on display at Detroit's Eastern Market.

Canada has been the source of the bulk of the imports since World War II (Fig. 3). Earlier sources of Michigan imports—chiefly New England, Pennsylvania, Montana and Idaho—now ship few trees into Michigan. The Canadian gain in Michigan markets has been particularly striking since 1951. This is attributed in some quarters to the removal of the 5 percent ad valorem tariff on Canadian trees before the 1951 shipping season, but Canadian exports began their increase earlier, and price analysis makes it doubtful that removal of the tariff could be a dominant influence on this increase.

Railroad imports, destined mainly to Detroit, accounted for some 200,000 trees in 1952. These were mostly long-distance hauls, averaging 1,100 miles. New Brunswick and Nova Scotia were the chief sources of all trees imported by rail.

Origin	Carloads imported, 1952 (Percent)
New Brunswick	54
Nova Scotia	34
Ontario	5
Quebec	3
Vermont	2
Other states or provinces	2
Total	100

Truck imports, nearly all Canadian, accounted for 330,000 trees in 1952. Of 319 Canadian trucks whose point of origin could be determined, 285 came from widely scattered locations in Ontario, 34 came from New Brunswick, and 1 from Quebec.

Distance of haul (Miles)	Truckloads imported, 1952 (Percent)
0 – 99	40
100 – 199	18
200 – 299	7
300 – 399	8
400 – 499	11
500 – 999	5
1,000 and up	11
Total	100

The average truck haul for imported trees is calculated to be 300 miles. Actually, it may have been greater. A large number of loads came from Windsor, Ontario, according to the records, but it is doubtful that Windsor was their origin. Many truckloads coming from more distant points were purchased by Windsor dealers, then routed from Windsor into Michigan.

Canada's growing export role is vividly emphasized by the flood of trees shipped through Michigan enroute to other states in the last few years. In 1951, rail through-traffic carried 2.0 million trees; in 1952, 3.2 million trees. These trees are routed chiefly to Chicago, but may be rerouted from Chicago to many other cities as well. A sample of 140 carloads showed the following destinations:

Destination	Canadian carloads through Michigan, 1952 (Percent)
Chicago, Ill.	76
Cleveland, Ohio	9
Pittsburgh, Pa.	2
Dayton, Ohio	2
Des Moines, Ia.	2
Cincinnati, Ohio	1
St. Louis, Mo.	1
Other	7
Total	100

TREND OF PRODUCTION AND IMPORTS

The demand for Christmas trees from year to year follows a fairly stable pattern of growth. Little change occurs in the number of trees used except for an increase in proportion to the increase in new family units and a probable additional increase due to expanded consumption per unit of population.

Nevertheless, production and imports data collected by the Michigan Bureau of Plant Industry show marked fluctuations from year to year. In 1943, for example, production was nearly doubled over 1942; in 1944, production was cut in half from the 1943 peak. Such wild fluctuations have no relation to changes in demand. They reflect, instead, the vagaries of uncertain weather and, most importantly, the unpredictable actions of thousands of producers and dealers.

Entry and exit from the Christmas tree industry are easy, particularly since it is a supplemental occupation and requires little investment for most of the participants. Imports help confuse the situation, and the problem is heightened by the short time in which trees must be marketed. Thus, in one year production is insufficient, prices rise, and the business becomes very profitable; the next year, producers and dealers expand their operations, many new dealers and producers appear, production soars, prices fall, large inventories remain unsold and must be destroyed.

Despite the annual fluctuations, definite trends in production and imports have been established over the past 11 years. The trend in production shows a decline at the rate of some 30,000 trees a year. The trend in imports shows a more than corresponding increase.

TREES MARKETED

SPECIES

The major Christmas tree species found in the retail yards of Michigan are listed in Table 2. Except for Scotch pine, the species breakdown is not greatly different from that of Michigan production. The relatively large import of Scotch pine raises the percentage of Scotch pine in retail yards well above that shown for production and cuts down the percentages of other species.

Use of the various species depends to a great extent on availability, quality and size, and relative price. Another important determinant of volume of use is the uniqueness of a species. Tradition has much to do with the widespread preference for balsam fir and spruce. Many

TABLE 2—Distribution of Christmas trees in Michigan retail yards, by species and kind of stock, 1952

Species	Wild trees	Plantation trees
	%	%
Balsam fir	54	*
Black spruce	15	
White spruce	7	2
Norway spruce		
Douglas fir	..	1
Scotch pine	..	16
Red pine	2	3
Others†		*
Total	78	22

*Negligible.
†Jack pine, white pine, Austrian pine, white fir, red spruce, Colorado blue spruce, hemlock, white cedar.

of the champions of these species feel that no other species is appropriate for a Christmas tree. Similarly, the newer Scotch pine enthusiasts frequently feel that the inherent traits of Scotch pine make it preferable to all other species regardless of price. Other species like white spruce, Douglas fir and Norway spruce also have their ardent supporters.

Most consumers probably do not insist upon one species to the exclusion of all others. Their choices are affected strongly by the relative price and the sizes and qualities from which they can select. But uniqueness of species usually remains at least an important ingredient of their choices.

TABLE 3—Percentage of wild and plantation trees in various Michigan markets, 1952

Market	Wild trees	Plantation trees	All trees
	%	%	%
Detroit	75	25	100
Grand Rapids	30	70	100
Lansing, Flint and Saginaw	75	25	100
Small cities, Lower Peninsula	85	15	100
Small cities, Upper Peninsula	95	5	100
Total state	78	22	100

Species marketed vary widely by locality. The broad variations, at least, are reflected in Table 3 which presents the proportions of wild trees and plantation trees in different Michigan markets. Wild trees are mainly balsam fir, black spruce, and white spruce. Plantation trees include some white spruce, also, but in general, the group is composed mainly of species not available to Michigan consumers as wild trees—Scotch pine, Norway spruce, Douglas fir, and red pine.

The Upper Peninsula has long been accustomed to using balsam fir and wild spruce; very little use is made of other species. Small cities in the Lower Peninsula rely heavily on balsam fir and wild spruce, but about 15 percent of the trees marketed here are from plantations. These cities draw mostly on Michigan plantations; first preference is for Scotch pine but nearly equal amounts of spruce and red pine are also taken. Larger Michigan cities use a bigger proportion and variety of plantation species and in Grand Rapids, which is in the region of the state's most extensive plantations, wild trees are in minority. Here, plantation trees—chiefly Scotch pine, red pine, white spruce, and Norway spruce—outnumber and outsell the traditional balsam fir and wild spruce.

QUALITY

Quality is a factor of great importance in the marketing of Christmas trees. This shows up strongly in the retailing of trees, where the better quality trees sell much more readily than poorer quality and at higher prices. It reflects back in the efforts of dealers to acquire quality trees and in the higher prices dealers are willing to pay for such trees. The significance of quality in the marketing of trees will be emphasized in the later discussion of *Retail Prices.*

The describing of Christmas tree quality is difficult, since no established grading system is in use. However, one system of grading rules, at least, has been devised. These are the rules proposed for Douglas fir Christmas trees by the U. S. Forest Service's Northern Rocky Mountain Forest Experiment Station.[6] The system recognizes four grades—premium, standard, utility, cull—based on the appearance of trees from several angles. Tree characteristics considered in grading are density, balance, taper, deformity, and foliage.

Using the grading rules devised for Douglas fir Christmas trees, the authors graded many thousands of trees of all species in Michigan

[6]The grading system is described in detail and illustrated with photographs in Marketing Montana Christmas Trees by Ben M. Huey and S. Blair Hutchison, Montana State University School of Forestry, Bul. 2, Missoula, 1949.
A table summarizing the grading rules is appended to this report (Appendix Table 1).

retail yards as a part of this study. The evidence points to justification in the common complaint of dealers that good quality trees are difficult to get. Fourteen percent of the trees were classified as premium, 44 percent standard, 33 percent utility, and 9 percent cull. Some cull trees are sold in retail yards at low price; some are utilized by dealers for greens; more frequently, cull trees are unsold. They loom large in the total of unsold trees.

The wide variation in quality by species is shown in Table 4. Some of the variation among species is inherent in their growth characteristics. Red pine Christmas trees, for example, grade low although

TABLE 4—Plantation and wild trees graded by quality in retail yards of Michigan, 1952

Species	Premium	Standard	Utility	Cull
	%	%	%	%
Plantation:				
White spruce	50	45	5	..
Douglas fir	50	30	20	..
Norway spruce	30	60	10	..
Scotch pine	15	55	25	5
Red pine	5	50	35	10
Wild				
White spruce	20	50	25	5
Black spruce	10	50	30	10
Balsam fir	10	40	40	10

they are a product of plantations. The rapid growth of this species produces long sections of main stem clear of branches. In sharp contrast are plantation-grown white spruce and Douglas fir, species whose quality for Christmas trees leans heavily to premium grade.

Much of the quality differences, however, stem not from the species as such but from the stands in which they grow. Plantation-grown trees are generally much better in quality than wild trees. White spruce illustrates this point clearly. Fifty percent of plantation-grown white spruce are premium trees; only 20 percent of wild-grown white spruce are premium trees.

Data do not indicate much geographic variation in quality except that associated with species or stand origin. One pronounced exception is the quality of Scotch pine in the Grand Rapids and Detroit areas. A fourth of the Grand Rapids Scotch pine is premium grade, as compared with a tenth of the Detroit Scotch pine. Since Grand

Rapids draws mainly on Michigan-grown trees and Detroit on Canada-grown trees, it is clear that—at least in 1952—better quality trees were obtained from Michigan plantations.

SIZE OF TREES

Size preferences vary tremendously. Business establishments, schools, and civic organizations frequently favor trees which are too large to be placed in a home. But the vast bulk of trees is intended for display within the home. For the most part, this means an 8-foot maximum height. In small city apartments, on the other hand, small 2- and 3-foot table trees are gaining favor. Most persons prefer a tree of an intermediate size—one that can be decorated without use of a ladder and one that doesn't usurp all the living space in a home. This suggests a tree between 5 and 7 feet. Dealers confirm that this is the preferred size range.

Tree stocks in retail yards run to slightly larger sizes than those apparently preferred by consumers (Table 5). However, it should be noted that consumers frequently accept larger trees, then cut them back to the desired size. Better quality trees are often obtained in this way.

Plantation-grown trees, because of their greater density and better general appearance, usually become marketable before reaching the sizes preferred in wild trees. Plantation owners are also anxious to market trees as quickly as possible to recover their investment costs. Data for white spruce are a good illustration of the smaller size of harvested plantation-grown trees (Table 5). Sixty percent of the wild

TABLE 5—Height of trees marketed in Michigan by species, 1952

Species	4 feet and less	5- and 6-feet	7 feet and up	All sizes
	%	%	%	%
Balsam fir	5	30	65	100
Black spruce	25	45	30	100
White spruce:				
Wild	5	35	60	100
Plantation	25	65	10	100
Scotch pine	15	50	35	100
Red pine	..	25	75	100
Jack pine	5	70	25	100
Douglas fir	5	70	25	100
Total	10	35	55	100

trees are 7 feet and larger as compared with only 10 percent of the plantation-grown trees. Red pine is the one plantation-grown species usually harvested in large sizes.

METHODS OF MARKETING

PRODUCER–WHOLESALER–RETAILER CHANNELS

Many different arrangements are made to channel trees from the stump to the consumer. There are individuals who are wholly producers, truckers, wholesalers, commission agents, or retailers, but it is also common for an individual to perform a number of market functions. The same individual, for example, may produce trees, wholesale some and retail some.

The most direct marketing channels are found in the Upper Peninsula and in many small towns in the rural areas of the Lower Peninsula. About two-thirds of the trees retailed in these areas are acquired by the retailer directly from the producer, who produces and delivers the trees. Most of the remaining trees are retailed by the same persons who produce the trees. The producer harvests the trees, moves them to a lot, and then serves as retailer.

In the cities of the Lower Peninsula, the marketing channels are more complex. About 25 percent of the trees retailed are obtained directly from wholesalers (who may offer self-produced trees or trees acquired from producers or other wholesalers. The wholesaler, in turn, may also be a producer, retailer, and commission agent.). About 10 percent of the trees are obtained from truckers (who may be offering self-produced trees or trees acquired from wholesalers, producers, or other truckers. The trucker, in turn, may serve as a producer, wholesaler or retailer.). Some 45 percent of the trees move directly from producers to retail yards. (These direct producer-retailer dealings are found most often in connection with plantation-grown trees.)

Five percent of the trees retailed are produced by the retailers themselves. About 15 percent of the trees retailed are obtained from commission agents. This is a feature limited mainly to Detroit, where a large fraction of all trees sold is moved by commission agents.

MARKETING ARRANGEMENTS

Marketing arrangements do not follow a regular pattern, primarily because marketing channels are so largely unorganized. There are few organizations or market institutions which bring many producers

and dealers together.[7] No attempt will be made here to describe all the marketing arrangements which are part of Michigan's Christmas tree industry, but some indication of the diversity of approaches will be given.

Many producers, particularly those growing trees in plantations, seek out retailers. Some of them may wait for the Christmas season to arrive, then load a truck and drive to an urban area, stopping at gasoline stations or other places of business where they attempt to peddle their tree loads. This is the most casual of arrangements and is highly speculative. Other small producers contact potential retailers far in advance of the Christmas season, contract to deliver specific numbers of trees on agreed-upon dates for agreed-upon prices. Larger producers send out price lists, indicating sizes and species of trees offered for sale, prices, and conditions of sale. However, the number of such formal contacts between producer and retailer is limited. Usually contracts are for outright sales, although use is made by some large producers of consignment sales. The latter arrangements usually call for the buyer to pay freight on all trees shipped, but otherwise to pay only for the trees sold.

Dealers frequently go to great lengths to seek out sources of trees. Several wholesalers personally go as far as Nova Scotia or New Brunswick to establish contacts with producers as a basis for importing large quantities of trees. A few of the largest wholesalers operate outside of Michigan, shipping trees into the state largely from Canada. These dealers, through correspondence or direct representative, contact large retailers, smaller wholesalers, or commission agents early in the year and make arrangements for direct or consignment sales sometime prior to Christmas.

There are at least two big markets in the state where producers and truckers deliver trees and dealers can shop for trees ready for delivery. These are Detroit's Eastern Market and the Detroit Union Produce Terminal.

At the Eastern Market trucks arrive from various parts of Michigan and Canada throughout the Christmas season (Fig. 4). For a small fee, trucks may be parked; for an additional fee, trees may be unloaded into a stall. Buyers browse around, examine various loads, make their offers, bargain with the owners. Detroit's Western Market, although

[7]Associations of tree growers might serve as clearing houses in bringing producers and dealers together to facilitate the marketing process. Such organizations could aid producers in finding ready markets for their trees and aid dealers to obtain in quantity the kinds of trees wanted.

organized similar to the Eastern Market, handles a much smaller volume of Christmas trees.

Entry to the Produce Terminal can be made only by railroad car. This leads to the peculiar (although apparently profitable to the individual dealer) arrangement of unloading trucks in Windsor, Ontario, or Detroit for reloading onto railroad cars simply to gain entrance to the Produce Terminal. Practically all trees handled here are Canadian trees. Trees are unloaded for sale to retailers or small wholesalers. Larger single purchases are possible here than in the Eastern Market. From the seller's viewpoint there is also the advantage of being able to reroute cars easily to other cities. In 1952, 95 carloads (containing 160,000 trees) were unloaded for sale at the Produce Terminal.

TRANSPORTATION

TIME OF MOVEMENT TO MARKET

Michigan trees began moving to market in 1952 about November 1, but the movement did not gain force until the latter part of the month.

Fig. 4. Detroit's Eastern Market is a long-established meeting ground where buyers and sellers can bargain over wholesale lots of Christmas trees. This scene was photographed December 19, a day on which at least 50,000 trees were offered for sale at the market.

The peak of movement was reached during the first half of December. By December 15, more than 80 percent of all the trees produced in the state had moved to market. This does not mean that those trees had reached retail yards, because many deliveries were to wholesalers and intermediate markets such as the Eastern Market in Detroit. Nevertheless, it is clear that most retailers obtained their stocks before the middle of December.

Time of movement	Percent of Michigan trees moved to market, 1952
Prior to Nov. 24	6
Nov. 24 – 30	13
Dec. 1 – 7	32
Dec. 8 – 14	32
Dec. 15 – 24	17
	100

The pattern was essentially the same for all parts of the state, with the exception that the heaviest-producing counties tended to sustain shipments through the last week before Christmas. Truckers attempting to make late deliveries apparently looked for tree loads in counties known to be heavy Christmas tree producers.

Trees which are moved to market late in the season are shipped at considerable risk. If the supply in the yards is adequate or more than adequate to meet the apparent demand, wholesale prices will be forced down, ruinously low to some producers and truckers. On the other hand, however, if a late-season shortage of trees becomes evident, late deliveries may be able to command higher prices. Neither of these possibilities developed in 1952. Trees moving to market after December 15 were taken by buyers at a fairly regular pace. Wholesale price held steadily until the last few days, when the mild excess of trees in the retail yards of most cities forced some truckers to take what prices they could get.

FREIGHT COSTS

Nearly all of the one million Christmas trees produced in Michigan are transported to market by truck (Fig. 5). Very little use is made of railroad transportation; automobiles, usually carrying one to four trees, account for only 1 percent of the total Christmas tree traffic.

The variation in Michigan truckloads is tremendous, dependent partly on size of truck (with or without trailer), and partly on the

Fig. 5. Michigan-produced Christmas trees move to market almost entirely by truck. More than 80 percent of the trees are carried in trucks owned by independent truckers or in trucks owned or hired by Christmas tree wholesalers and retailers. About a sixth of the trees are transported in trucks owned by the producers themselves.

fullness of the load. The big 1,000-tree loads, with low unit costs, are offset in the averages by the small loads. (About 50 percent of the trees are carried in loads of fewer than 200 trees.) The average Michigan load is only 250 trees. Data indicate an average freight cost of at least 25 cents for Scotch and red pine, 18 cents for balsam fir and spruce.

Canadian truck loads run to larger size. The average truckload of balsam fir and spruce is 814 trees;[8] of Scotch pine, 568 trees. These are large loads, a fact which keeps unit transportation costs reasonably low. Data furnished by truckers show the average transportation cost to be about 25 cents per tree for Scotch pine and 12 cents for balsam fir and spruce.

[8]Canadian balsam fir and spruce, whether moved by truck or rail, are always bundled. One of the big advantages of bundling over loose piling is that more trees can be packed into a given space. Other advantages of bundling are that trees can be handled and rehandled by dealers more conveniently and with less damage. Bundling serves as a method of sorting trees by height. In "The Christmas Tree Industry in Canada" by Stanley Belsey, Canada Dept. Resources and Development, Forestry Branch, Ottawa, 1950, the average number of trees per bundle is listed as follows:

Height in feet	*Number of trees per bundle*
12 and up	1
10 – 12	2
7 – 10	3
5 – 7	4
4 – 5	5 or 6
4 and less	10 or 12

Railroad cars from Canada average 1,016 trees of Scotch pine as compared with 2,209 trees of balsam fir and spruce. This results in a much higher unit transportation cost for Scotch pine, but the handicap is offset to some extent by shorter hauls. (Canadian Scotch pine comes mainly from Ontario; balsam fir and spruce from Nova Scotia and New Brunswick.) The average transportation cost, according to data furnished by importers, is 25 cents per tree for Scotch pine, 20 cents for balsam fir and spruce.

It is clear that average freight costs from generally more distant Canadian forests compare favorably with the costs of shorter hauls, but smaller loads, from Michigan forests (Table 6). Michigan shippers,

TABLE 6—Average Christmas tree freight costs to Michigan markets, 1952, in cents per tree

Origin and mode of transportation	Scotch pine and red pine	Balsam fir and spruce
Canada:		
Truck	25	12
Rail	25	20
Michigan:		
Truck	25	18
All transportation	25	17

capable of enjoying a freight cost advantage over Canadian shippers, do not take that advantage at present.

COST RELATIONSHIPS FROM STUMP TO CONSUMER

The breakdown of average Christmas tree prices from stump to final consumer is summarized in Table 7.

Individual costs vary tremendously at all stages, but the greatest variation occurs at the stumpage level. Size and quality of trees, accessibility for harvest, remoteness from markets, relative knowledge and bargaining powers of buyer and seller, costs of holding forest land and costs of growing trees are among the factors which influence stumpage price. The price of wild trees varies more than that of plantation-grown trees. Plantation-tree prices tend at least to cover the costs of production, while prices of wild trees often do little more than cover the costs of holding the land. At the upper end of the

price range, however, wild trees and plantation-grown trees are often not far apart.

Scotch pine and Douglas fir averages higher in stumpage price than any other species. Their stumpage is also costliest in relation to retail price—close to a fourth of the total price paid by consumers. Stumpage of black spruce and jack pine, the lowest-priced species, sells for roughly a tenth of the final retail price.

Cutting, hauling (if to railroad) and loading data were collected only for Scotch pine and balsam fir. The average cost—20 cents—was

TABLE 7—Cost items in the average retail price of Christmas trees sold in Michigan, by species, 1952

Cost item	Scotch pine	Balsam fir	Black spruce	White spruce	Red pine	Norway spruce	Jack pine	Douglas fir*
Stumpage	$0.85	$0.43	$0.20	$0.35	$0.41	$0.48	$0.22	$0.87
Cutting, hauling (if to railroad) and loading†	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Freight‡	0.25	0.17	0.17	0.17	0.25	0.17	0.17	0.17
Concentrators' and wholesalers' services	0.32	0.20	0.14	0.18	0.22	0.21	0.15	0.31
Retailers' services	1.38	1.90	1.14	1.85	1.32	1.89	1.36	2.05
Total to consumer	$3.00	$2.90	$1.85	$2.75	$2.40	$2.95	$2.10	$3.60

*Plantation trees only.
†Average cost for Scotch pine and balsam fir is assumed to apply to all species.
‡Average cost for Scotch pine is assumed to apply to red pine. Average cost for balsam fir and black and white spruce is assumed to apply to Norway spruce, jack pine, and Douglas fir.

assumed to apply to all species. This amounts to a range in relative cost of from 6 to 10 percent of the total retail price paid by consumers.

Freight cost, an extremely variable item, averages a little less than 10 percent of the final retail price of most species. As was pointed out in the section *Freight Costs*, size of load may be as important as length of haul.

The markup in price by wholesalers and concentrators averages about 25 percent of the cost of trees to them. Thus, consumers pay for concentrators' and wholesalers' services amounts equal to 6 to 11 percent of the total retail price.

Wholesale prices, which may be determined by adding all costs through the concentrating and wholesale stages, are considered as delivered prices. They are usually flat prices, expressed as so much per tree or per bundle. Wholesale prices are not quoted by specified grade of tree, although it is obvious that quality frequently plays a part in the prices quoted. Tree height is recognized in quoted prices more commonly than quality, especially where trees are bundled.

Nevertheless, it remains a fact that wholesale price tends to be set as an average; it does not exhibit the great variation by height and quality found at the retail level.

The usual range and average wholesale price per tree by species are listed below:

	Usual range in price	Average price
Scotch pine	$1.25 – $1.75	$1.62
Douglas fir (plantation)		1.55
Norway spruce	1.00 – 1.75	1.06
Balsam fir	1.00 – 1.25	1.00
Red pine	0.80 – 1.25	1.08
White spruce	0.75 – 1.25	0.90
Jack pine		0.74
Black spruce	0.40 – 1.15	0.71

Because of generally lower stumpage and processing costs, Canadian trees enjoy a wholesale cost advantage in Michigan markets. Both Canadian balsam fir and Scotch pine are about 10 cents cheaper per tree, on the average, delivered to the big Michigan markets than domestically produced trees. This is an important factor prompting large wholesalers, retailers, and commission agents to seek out Canadian sources of Christmas trees.

Retail services loom as the largest item, by far, in the price paid by consumers for Christmas trees. The retail markup frequently is greater than delivered wholesale price.

RETAILING

RETAIL ESTABLISHMENTS

Any vacant lot in a city becomes a potential retail Christmas tree yard as the Christmas season approaches. Many of these lots are put into use by their owners or renters. More retail establishments are set up on vacant lots than on lots which belong to established businesses.

A few established businesses are commonly linked with Christmas tree retailing, of which the most prominent are gasoline stations, nursery sales stores, and groceries (Fig. 6). All of these establishments have a few advantages in common: space for the placing of trees on display, customers who come for other items (and who may pick up a tree incidentally), personnel and facilities to take care of

tree sales at little or no additional sales cost. In the case of nursery sales businesses, there is an additional link with Christmas trees. As several dealers explained, their regular customers expect to be able to buy trees where they obtain their plant materials and flowers.

As might be expected, lots are smaller in the smaller communities. In the Upper Peninsula, for example, the most common size of retail yard handles fewer than 100 trees in a season. In the smaller cities of the Lower Peninsula, the most common sized yard is in the 101-to-500-tree category. Larger cities—such as Grand Rapids, Lansing, Flint, and Saginaw—have yards fairly evenly divided among the 101-to-500-, 501-to-1,000- and 1,001-to-10,000-tree categories. Relatively few yards can be found in these cities handling fewer than 100 trees. The biggest yards are in Detroit. Here, the most common-sized lot handles more than 1,000 trees; and several yards sell more than 10,000 trees each. The biggest yards are usually located on main city streets near major intersections.

Fig. 6. Christmas tree retailing is an outdoor institution. Dependant on the scale of enterprise, all that is required for a place of business is a vacant lot or simply some space alongside of or in front of a building.

Merchandising features other than price play a big part in Christmas tree sales. The availability of parking space can be an important factor. Yards which have good displays up front where they can be seen by the passing motorist have an advantage in making sales.

Front displays require good specimen trees, each of which is fully visible. Within the yards, it is a successful retailing feature to display trees so they can be examined easily by the buyer. One of the major handicaps faced by many operators of small lots is the piling of trees offered for sale on the ground, a feature which deprives the customer of an opportunity to examine them.

Evidence of a wide variety of colorful accessories such as wreaths and painted trees helps promote tree sales. These items not only attract buyers of traditional trees, but are profitable to handle in themselves. Some of the leading tree merchants state, in fact, that their chief profits come from the handling of accessory items. Painted trees, in particular, have been gaining in volume of sales. This has proved profitable to dealers who have streamlined their methods of spraying or dipping trees, since paint frequently multiplies the price of otherwise low-value trees (Fig. 7). Bright colors of all kinds are used—yellow, blue, green, silver, white. With species like jack pine, whose natural color frequently deflates value, painting is a real advantage. One retailer sold 2,500 painted trees last year, nearly all jack pine.

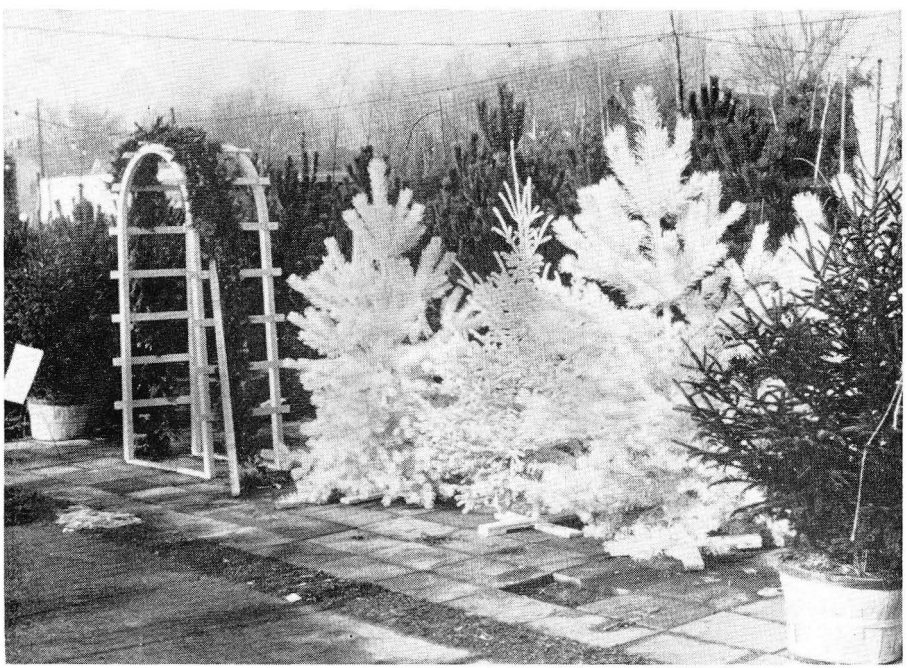

Fig. 7. In markets where painted trees have gained favor, paint adds about 50 cents to the price per foot of height or $3 to the average retail price of a tree.

RETAIL PRICES

The most characteristic feature of retail prices is their variability, a fact which makes it difficult to refer to a standard pattern. A rule-of-thumb used by many retailers is that retail price should average 100 percent more than wholesale. A large markup is justified by the short season of sale and large element of risk. Prices may have to be reduced excessively toward the end of the season, poor quality trees may be difficult to sell at any time, and stocks unsold on Christmas Day have a negative value.

The rule-of-thumb, however, is violated more often than observed. All sorts of variations occur. Trees on one lot may be priced twice as high as similar trees on a neighboring lot. On the same lot, in fact, two trees of the same species, size and quality may have widely differing prices. Many dealers have no set pricing plan, basing their price more on an appraisal of the customer than an appraisal of the tree. Other dealers have set prices, varying them carefully by species, size and quality. Still others set prices, but use blanket prices for assortments which may cover several species, sizes, and grades of trees.

Despite the confusing diversity of Christmas tree prices, some typical patterns emerge. Most striking is the extent of recognition of

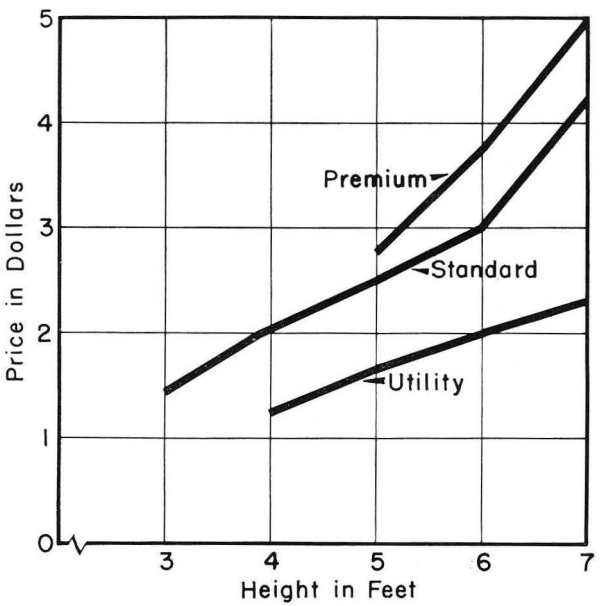

Fig. 8. Average retail prices of balsam fir in the Detroit market by size and quality of tree, 1952.

size and quality as determinants of price for a particular species in a given area. This is illustrated in Figs. 8 and 9, showing average Scotch pine and balsam fir prices in the Detroit market. Each foot of height adds to the average price—from as little as 25 cents to as much as

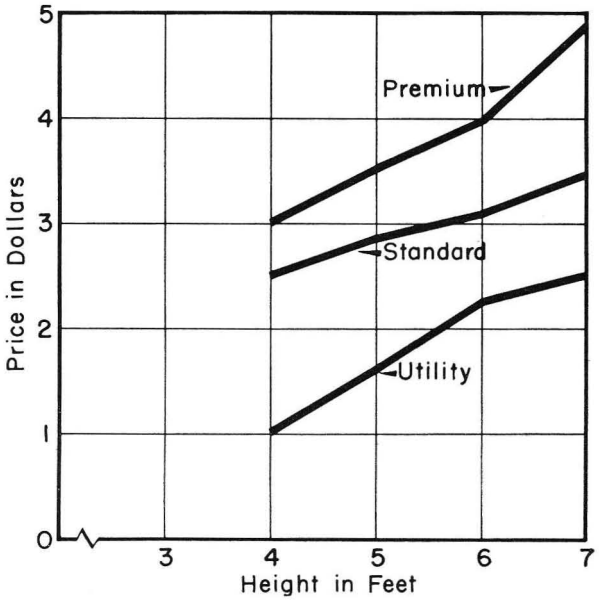

Fig. 9. Average retail prices of Scotch pine in the Detroit market by size and quality of tree, 1952.

$1.25. Similarly, for a given height class, each increment of quality adds substantially to the average price. Although different in details, this pattern of price increase with size and quality increase holds for all species and all geographic areas.

Location of market also has a great deal to do with retail prices (Figs. 10 and 11). In the survey made by the authors, standard-grade balsam fir and black spruce, for which price data were most plentiful, retailed at highest prices in Detroit. Prices in middle-sized cities—Grand Rapids, Lansing, Flint, and Saginaw—were generally lower for comparable trees. Prices in the smaller cities of the Lower Peninsula were still lower. The lowest prices occurred in the Upper Peninsula. This price pattern held in essentials for other species, although Scotch pine and white spruce prices averaged somewhat lower in Detroit than in Grand Rapids, Lansing, Flint, and Saginaw.

Do any species differences stand out? Yes, but again the generali-

zation must be qualified. The sharpest price distinctions were found in the Lansing-Flint-Saginaw areas (Fig. 12). A comparison of prices of standard-quality trees here shows Douglas fir getting the highest prices; then in descending order, Scotch pine, white spruce, balsam fir, red pine, and black spruce.

Douglas fir was among the highest-priced species in other areas where sold. Scotch pine, in high demand in most cities, commanded a better price than nearly all species, but in Detroit, balsam fir and

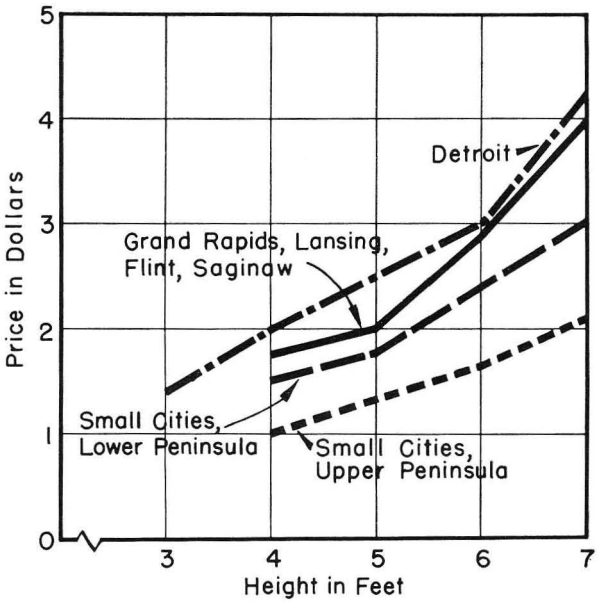

Fig. 10. Average retail price of standard quality balsam fir in various Michigan markets, 1952.

white spruce averaged as high in 6-foot trees and higher in 7-foot trees. White spruce, Norway spruce, and balsam fir prices were in the middle-price bracket in most cities, and black spruce and jack pine were generally at the bottom. Red pine, relatively low in price in the big city markets, commanded higher prices than spruce or fir in some of the smaller cities.

PRICING AND VOLUME OF SALES

To relate retail prices to volume of sales is very difficult because of the overriding effects of other factors. Species, sizes, quality of stock, size of yard, display methods of attracting customers, numbers

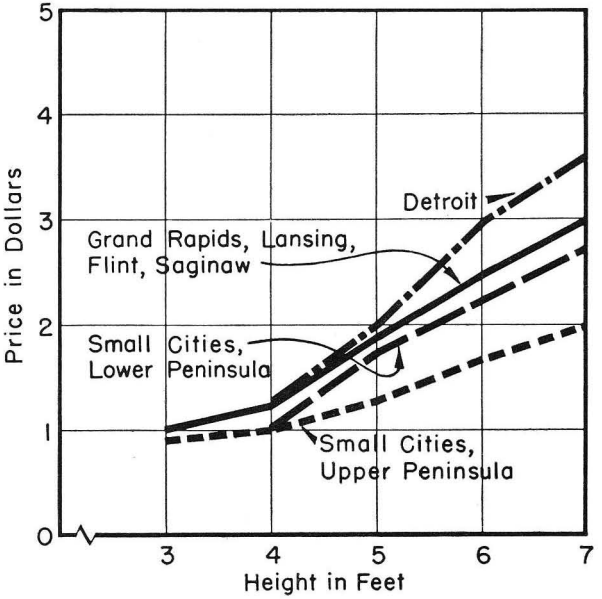

Fig. 11 Average retail prices of standard quality black spruce in various Michigan markets, 1952.

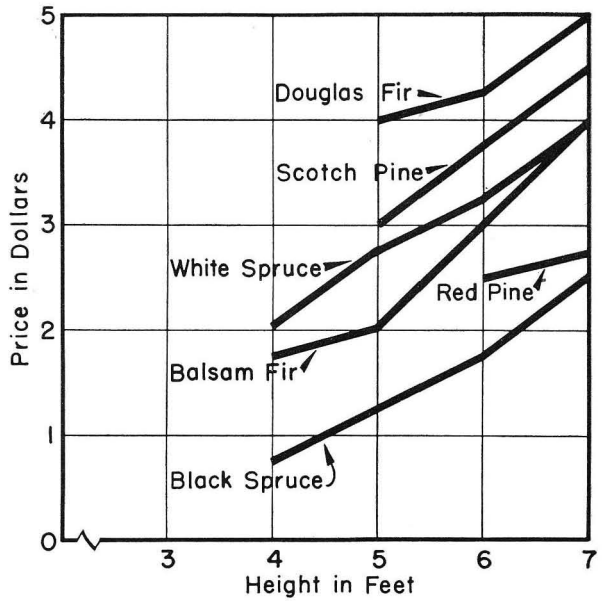

Fig. 12. Average retail prices of standard-quality Christmas trees of various species in Lansing, Flint, and Saginaw, 1952.

and kinds of prospective buyers, uniqueness of location, and degree of competition are among the host of factors which may influence sales. Nevertheless, it is still correct to observe that pricing policies have a strong effect on volume of sales.

As a pricing characteristic, the tagging of trees with fixed prices which can be seen readily by the shopper apparently promotes more sales than the system of quick appraisal of tree and customer. This conclusion is suggested by observation in numerous yards in various cities. Most of the larger yards had prices readily indicated and fixed-price lots moved trees more readily than did variable-price lots. Obviously, other factors may have been more influential in sales, but the concurrence of price tags and large volume of sales suggests some relationship.

A variant of the price-tag system is the use of a few flat prices for large groups of trees. Thus, the trees may be tagged individually or simply grouped in a section of the yard under a price banner. (In the latter system, some method of marking trees such as painting the butt ends different colors is necessary to indicate price to the dealer.) Here, few sales people are necessary. The shopper selects his tree, then pays the cashier as he leaves the yard. This system is used by the largest Detroit dealers and other large dealers in the state. Whole dollar prices are commonly used, which simplifies making change when volume of sales is large. Thus, one of the biggest yards used four prices only: $1, $2, $3, and $5. Another big dealer, who felt that a price reduced slightly from the last whole dollar would increase the volume of sales, sold all trees at a flat price of $1.89. In conjunction with prominent newspaper advertising, this price policy was very successful, clearing a large volume of red pine in a city where few red pine were considered worth handling by other dealers.

The success of simplified pricing depends on the level of pricing as much as the simplification. Where $1.89 easily cleared thousands of red pine from one yard, use of a higher price might have had a quite different result.

Recognition of the influence of price on volume of sales is shown in the policy of many dealers of lowering price as the season advances. Some dealers insist on no price change over the season, preferring to burn unsold stocks rather than have buyers put off buying in the hope of bargains. However, many dealers dislike the prospect of large unsold stocks. They prefer to whittle down prices as necessary to clear their yards before Christmas Day. The psychological breaking

point varies. One dealer, with woods-run black spruce priced at $1 to $1.75 lost his courage on December 15, dropping all tree prices to a flat 75 cents per tree. Most dealers, however, waited until the last week before weakening prices. Many, in fact, did not begin weakening until December 22 or December 23.

Obviously, the policy of price weakening varies by years. The 1952 season, when unsold stocks were generally not excessive, did not induce a heavy rash of price cutting. In other years, when there is a large oversupply of trees in the yards, dealers will cut prices heavily in an effort to salvage some return for trees whose value is zero or negative on December 26.

UNSOLD TREES

The demand for Christmas trees grows at a predictable rate, but producers and dealers cannot easily gauge total production in any year. Some of the records of the Bureau of Plant Industry on trees left unsold on Christmas Day show how difficult it is for producers and dealers to measure supply against demand. Recorded production plus imports, totaling some 800,000 trees, was insufficient to meet demand in 1942. Prices went up at the end; few trees were left. In 1943 the total recorded production of some 1,500,000 trees was too much; at least 250,000 trees were left unsold in Detroit alone. Next year production was back to the 1942 level; the last carload in Detroit sold for double the price which applied earlier in the season. In 1945 the surplus in Detroit was at least 100,000 trees; for the state as a whole, the surplus was at least 250,000. During the next two years, production and consumption were in fairly close balance. A large surplus developed again in 1948; a slight shortage in 1949; a definite shortage in 1950. The last two years have seen production at substantial levels again, with modest surpluses of about 50,000 trees in Detroit.

Aside from the problem of gauging total demand and supply properly, producers and dealers have some trouble in apportioning trees to markets so as to avoid surpluses in some localities. For example, in the 1952 season, very few trees were left unsold in Lansing, but 1,400 trees were unsold in Grand Rapids, 2,000 in Muskegon, and 50,000 in Detroit. At present, there is no system of outlook or market situation reports to aid producers and dealers in solving this problem.

STANDING TREE INVENTORIES

WILD STOCK

The number of wild spruce and balsam fir trees in Michigan of sizes appropriate for Christmas trees was estimated at 295 million in 1934-36.[9] These trees were mostly in the Upper Peninsula (Table 8).

TABLE 8—Wild spruce and balsam fir of Christmas tree sizes in Michigan 1934-36

Region	Balsam fir	Black spruce	White spruce
		(Million trees)	
Eastern Upper Peninsula	53.6	80.8	5.7
Western Upper Peninsula	47.8	37.4	9.3
Lower Peninsula	41.6	16.2	3.1
Total	143.0	134.4	18.1

To what extent the number has changed in the intervening years is unknown since the second forest survey of the state is still in progress, but the evidence points to some increase of the wild spruce and balsam fir population in Christmas tree sizes.[10]

Observers consider that no more than 5 percent of the 1- and 2-inch spruce and balsam fir trees are suitable for use as Christmas trees. Thus, if the population of wild spruce and fir 1- and 2-inches in diameter is close to 300 million, the number of suitable trees is estimated to approach 15 million. Ignoring the fact that many trees are taken from the tops of trees harvested for pulpwood, a present annual cut of 850,000 wild spruce and fir means that one out of 18 trees suitable for Christmas trees is cut. Even in the Lower Peninsula, where 70 percent of all wild trees cut are obtained, the ratio of cut to suitable inventory is one to 10. Actually, the wealth of resource available is not as great as these figures suggest. Lack of accessibility and poor quality in most of the trees limit the ease with which Christmas trees may be obtained from natural stands. Nevertheless, the fact remains that the degree of cutting which has been maintained for a number

[9]Estimate of trees 1.0-2.9 inches in diameter breast high from unpublished records of the Michigan Forest Survey conducted by the U. S. Forest Service in 1934-36.

[10]The area in balsam fir-spruce and black spruce types was calculated to be 13 percent greater in 1950 than in 1934-36. (Comparative data derived from U. S. D. A. Forest Resource Report 1, Forest Resources of the Lake States Region, Washington, D. C., 1950; and Lake States Forest Experiment Station Econ. Notes 5, Forest Areas and Timber Volumes in Michigan, St. Paul, Minn., 1936). A decline of 134,000 acres in saw-timber and cordwood stands was more than offset by a 335,000-acre increase in seedling and sapling stands. The latter stands contain more trees of Christmas tree sizes than do saw-timber and cordwood stands.

of years in wild spruce and fir has been accompanied by an increase in the inventory of Christmas tree stock. So far as Christmas trees alone are concerned, Michigan's forests can easily support the current cut, or an expanded cut, of trees.

PLANTATION STOCK

A large variety of planted species is used for Christmas trees, but nearly all of Michigan's current output of 120,000 plantation Christmas trees is limited to Scotch pine, red pine, white spruce, Norway spruce, Douglas fir and jack pine. The output of other species aggregates no more than 2,000 to 3,000 trees.

The past and prospective inventory from which plantation Christmas trees are taken is shown in Table 9. The bulk of the 1952 harvest was taken from trees planted in these periods: Scotch pine, 1944-47; red pine, 1943-47; white and Norway spruce, 1941-45; Douglas fir, 1939-43; and jack pine, 1943-46. Comparing the average annual number of trees planted during these periods with the 1952 harvest of Christmas trees permits the following estimate of the proportion of trees harvested:

	Percentage of all trees planted harvested for Christmas trees
Scotch pine	10
Red pine	1
White and Norway spruce	3
Douglas fir	5
Jack pine	½

Far more trees are intended for Christmas use than are actually harvested; for example, applications to the Michigan State College for nursery stock over a number of years indicate that purchasers intend to grow Christmas trees with 70 percent of the Scotch pine, 10 percent of the red pine, 75 percent of the spruce, 50 percent of the Douglas fir, and 10 percent of the jack pine. Obviously, the harvest proves to be only a small fraction of the intended harvest at the time of planting.

If it can be assumed that the ratio of the trees planted to the number eventually harvested for Christmas trees does not change markedly, the availability of plantation trees in the years ahead can be forecasted. On this assumption, one can forecast during the next 6 to 10 years little change in the output of Douglas fir, white spruce and Norway

TABLE 9—Trees planted in Michigan of major Christmas tree species, 1940-53

Year	Red pine	Scotch pine	Jack pine	White and Norway spruce	Douglas fir
			(Million trees)		
1940.....	3.8	1.0	1.5	0.8	0.5
1941.....	4.2	0.6	1.0	1.1	0.3
1942.....	3.3	0.5	0.9	1.4	*
1943.....	2.2	0.6	0.6	0.8	*
1944.....	2.3	0.4	0.5	0.9	*
1945.....	3.8	0.2	0.8	1.0	*
1946.....	4.7	0.1	0.8	0.2	0.1
1947.....	8.3	0.5	1.1	0.5	*
1948.....	2.8	1.5	2.5	1.3	0.4
1949.....	6.0	1.6	2.3	0.9	0.1
1950.....	6.9	2.4	2.8	0.5	0.1
1951.....	7.9	2.7	2.2	0.6	0.2
1952.....	12.0	5.3	2.2	0.7	*
1953.....	11.1	8.6	1.9	1.2	0.3

*Negligible.
Note: Not included in table are trees from U. S. Forest Service nurseries planted on public lands and trees shipped into Michigan from out-of-state private nurseries.

spruce; substantial increases in the output of red pine and jack pine; and a spectacular increase in Scotch pine.

It is not safe to assume that the proportion of plantations taken for Christmas trees will remain unchanged. Ten percent of a small Scotch pine crop which is insufficient to meet demand is harvested now, but what will be the percentage when the 8.6 million Scotch pine planted in 1953 mature? The same question might well be raised about 11.1 million red pine and 1.9 million jack pine planted in 1953. Changes in consumer preferences or the occurrence of destructive phenomena could easily change the prospect for any or all species. But if one accepts the prospect based on present evidence, this is the annual yield of Christmas trees in major species that can be expected from plantations established at the 1953 rate of planting:

	Expected annual yield from plantations at the 1953 rate of planting (Thousand trees)
Scotch pine	860
Red pine	110
White and Norway spruce	40
Douglas fir	15
Jack pine	95
Total	1200

The prospect of an annual crop of some 1,200,000 Christmas trees from plantation stock is greater than the current Michigan production of wild and planted trees. It may indicate the need for careful examination of species selected for planting. The consumption of Scotch pine which totaled 223,000 trees (including imports) in 1952, can easily be increased when larger supplies of this species become available, but it is doubtful that it can be increased sufficiently to take the total supply which will become available when the newly planted trees mature. To a lesser degree, the question of Christmas tree oversupply can also be raised in regard to red pine and jack pine. More emphasis may need to be shifted to Douglas fir, Norway spruce, white spruce, Colorado blue spruce, Austrian pine, white fir and other desirable Christmas tree species now being planted in relatively small numbers. The possibly greater future marketability of the latter species needs to be weighed against the greater length of time and effort that may be required to bring them to Christmas tree maturity.

*APPENDIX TABLE 1—Minimum standards for Christmas tree guides used in this report**

Tree characteristic	Tree grade †		
	Premium	Standard	Utility
Density.....	Medium	Medium	Light
Taper.....	Normal	Normal. Candlestick taper allowed if tree is otherwise premium grade	Normal. Candlestick taper allowed if tree is otherwise standard grade
Balance.....	Balanced appearance on 4 faces	Balanced appearance on 3 faces	Balanced appearance on 2 faces
Foliage.....	Healthy, clean and fresh	Healthy, clean and fresh	Clean and fresh; not necessarily healthy
Deformity.....	Minor deformity allowed	Minor deformity allowed. Noticeable deformity allowed if tree is otherwise premium grade	Minor deformity allowed. Noticeable deformity allowed if tree is otherwise standard grade

*Adapted from Huey, Ben M., and S. Blair Hutchison, Marketing Montana Christmas Trees, Montana State University School of Forestry Bul. 2, Missoula, 1949.

†A cull is any tree that fails to meet the minimum requirements for utility grade.