

MARKETING
Christmas *Trees*

IN
MISSOURI



BULLETIN 719
DECEMBER, 1958
UNIVERSITY OF MISSOURI
AGRICULTURAL
EXPERIMENT STATION

CONTENTS

The Christmas Tree Industry Today	3
The Consumer	4
The Wholesale Market	11
Christmas Trees at Retail	12
Experimental Marketing	15
Preparing Trees for Market	18
Missouri Begins Christmas Tree Production	20

Cover photograph—This U. S. Premium Scotch pine was produced in an experimental plantation. It was planted in 1950 and harvested in December, 1957. Sturdy branches easily bear the weight of decorations. (Photo by Wildon E. Roberts.)

Photo courtesy Missouri Ruralist.



MARKETING

Christmas Trees

IN MISSOURI

LEE K. PAULSELL
AND
J. MILFORD NICHOLS

The Christmas Tree Industry Today

MODERN LIVING has nearly eliminated the old custom portrayed on Christmas cards, showing father and the children bringing in their own tree from the forest. Today, a tree is an item of merchandise furnished the consumer by a tremendous industry. This industry lies dormant most of the year, then suddenly comes to life and provides some 40 million Christmas trees for Americans, at an annual price of about 53 million dollars.¹ This is definitely *big business*.

Missourians use an estimated 1,090,000 Christmas trees a year, primarily from the Northwest, the Lake States and Canada. As late as 1956, only 6000 of these were grown in Missouri plantations.

Research by the Missouri Agricultural Experiment Station proves that good saleable Christmas

trees can be grown in Missouri, and nursery stock orders and shipping records from the Missouri Conservation Commission indicate that there has been a great increase in planting for Christmas trees. Proper marketing can help Missouri growers secure a greater share of the Christmas tree business.

The potential Missouri producer must find the answers to many questions, such as: (1) Am I making the best use of my land? (2) What are the risks? (3) What will be my costs and returns? (4) What kind of trees will people buy? (5) What is my competition? (6) How and when do I cut and transport my trees? (7) How, when, and where can I sell them?

The research reported here should help the grower answer some of these questions for himself.



Fig. 1—The consumer preference display used in interviews in three Missouri cities. Six species were included. Following each interview tree positions were changed so that answers would not be influenced by

tree locations. Species are: (1) balsam fir (2) Douglas-fir (3) redcedar (4) jack pine (5) Scotch pine (6) red pine.

The Consumer

What Does He Want?

The fact that consumers buy certain items does not necessarily mean that they prefer those items. They pick the best they can find from the available selection. Practically all evergreens can be used for Christmas trees, but individual characteristics of some species make them preferable to others for Christmas use. Desirable characteristics a buyer looks for in a Christmas tree are:²

- (1) Retention of needles from the time of cutting through the Christmas holidays.
- (2) Full, symmetrical shape.
- (3) Limb strength adequate to support ornaments and electric lights.
- (4) Sufficient, non-prickly foliage with a healthy green color.

- (5) Fragrant odor.
- (6) Springy branches that can be tied compactly for shipment without breaking, and regain their shape when released.

Interviewers found that tree buyers usually have little knowledge of the species they're getting or whether their trees were grown locally or imported from out of state. Most Christmas tree lots offer for sale only a single species and rarely more than three or four.

Nationally, tree production figures for 1955 showed Douglas-fir ranking first with 28 percent. Balsam fir followed with 24 percent; eastern redcedar, 12 percent; black spruce, 11 percent; and Scotch pine, 6 percent. A great many other species accounted for the remaining 19 percent.¹ These fig-

TABLE 1--SPECIES PREFERRED FOR CHRISTMAS TREES IN THREE MISSOURI CITIES EXPRESSED AS PERCENTAGE OF CONSUMERS INTERVIEWED, DECEMBER 1957

City	Balsam Fir	Douglas-fir	Eastern Redcedar	Jack Pine	Scotch Pine	Red Pine	No. of Consumers
Columbia	22.22	8.33	5.56	--	52.78	11.11	36
St. Charles	21.87	6.25	---	--	62.50	9.37	32
Kirkwood	35.49	3.22	---	--	54.83	6.46	31
All cities	26.26	6.06	2.02	--	56.56	9.09	99

ures indicate what the industry supplies, not necessarily what the consumer prefers.

For years, the dominant species for sale in Missouri towns and cities have been balsam fir from the North and Northeast and Douglas-fir from the Northwest.

During the Christmas season of 1957, research workers set up tree displays to test consumer preferences of species and grades. The display (Fig. 1) was used as a basis for interviews of tree buyers on retail lots in Columbia, St. Charles and Kirkwood. Species preference ratings are given in Table 1.

Scotch pine, (Fig. 2), grown in experimental plantations near St. Louis, ranked first in consumer preference. It was followed by balsam fir, (Fig. 3) from Canada. Some people prefer a long-needled tree, which probably accounted for the red pine's rating. Little red pine has been grown in Missouri, although it is being produced in neighboring states. Eastern redcedar, (Fig. 4) native to Missouri, enters

into the picture in some rural areas. Missourians with a rural background often prefer this tree.

Grade Preferences

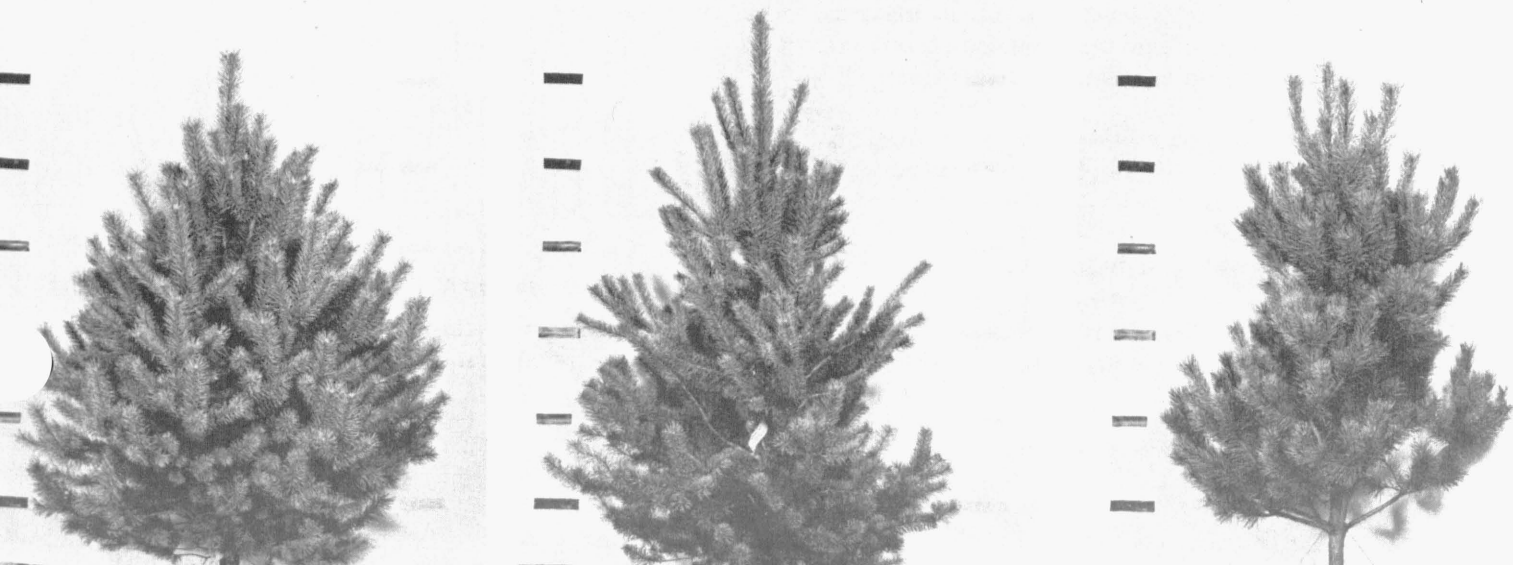
One of the requirements of a successful Christmas tree business is grading. U. S. grades have been prepared and henceforth will be the grading system used throughout most of the industry. (See page 22). Consumers usually "grade" trees before they buy, by making a choice based on certain desirable or undesirable characteristics. Often their reasons are completely inconsistent with established grade systems.

An attempt was made in the preference study, using display trees of various grades, to find out just how discerning consumers are. In the interview, the consumer indicated the species he preferred for a Christmas tree. He was then asked to examine the three trees of that species (three grades) and indicate his first and last choice. First preference grade data are presented in Table 2.

TABLE 2--FIRST GRADE PREFERENCE WITHIN EACH SPECIES EXPRESSED AS A PERCENTAGE OF CONSUMERS PREFERRING THAT SPECIES IN THREE MISSOURI CITIES, DECEMBER 1957

Grade	Balsam Fir	Douglas-fir	Eastern Redcedar	Jack Pine	Scotch Pine	All Species
U. S. Premium	73.1	66.7	100.00	--	78.1	76.8
U. S. No. 1	26.9	---	---	--	21.9	21.2
U. S. No. 2	---	33.3	---	--	---	2.0

Fig. 2—Scotch pine. From left to right: U. S. Premium, U. S. No. 1, and U. S. No. 2. These trees were produced in experimental plantings near St. Louis.



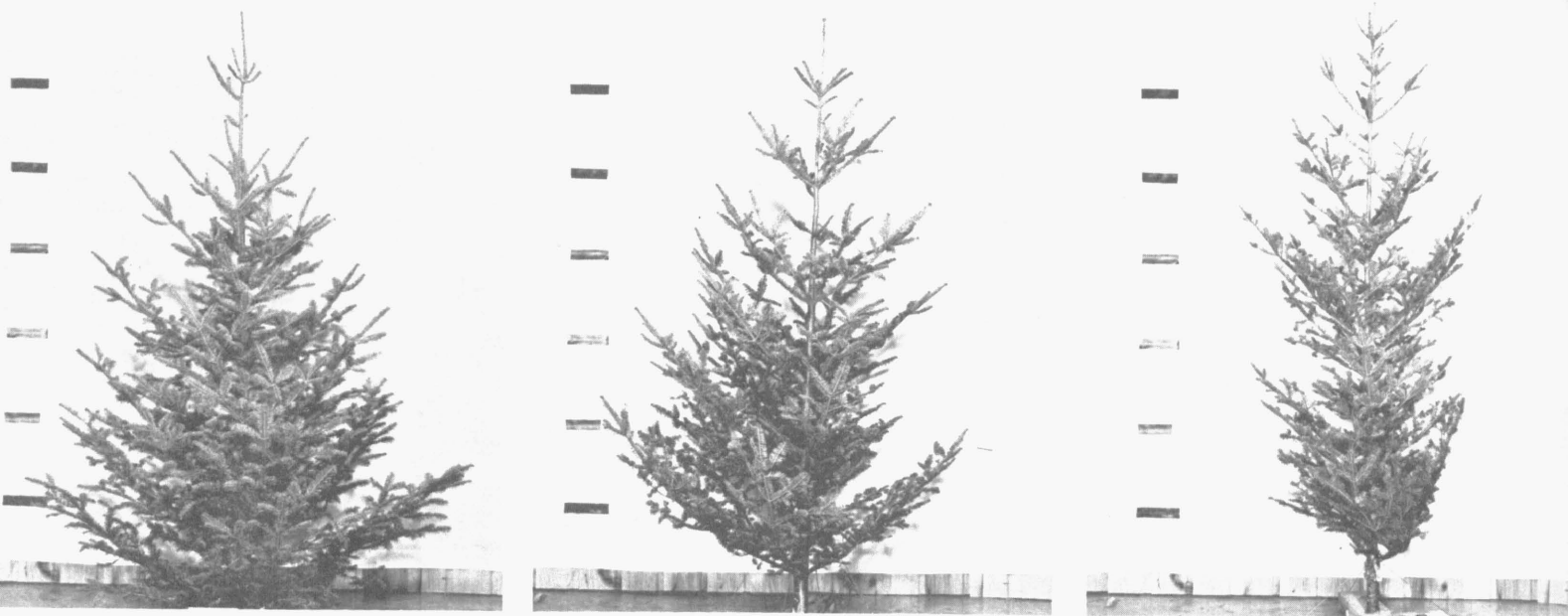


Fig. 3—Balsam fir. From left to right: U. S. Premium, U. S. No. 1, and U. S. No. 2. These trees were produced in Nova Scotia. Balsam fir is widely used in many of the larger towns and cities.

Most consumers recognize the qualities of a premium tree. On the other hand, in the case of balsam fir and Scotch pine, 26.9 percent and 21.9 percent respectively of the consumers chose the U. S. No. 1, rather than U. S. Premium as their first grade preference. Some people are not particular enough to recognize minor differences between the two top grades. Calculating consumers who have decided where they will place their tree realize that an incomplete face may not be objectionable if the tree will be against the wall or in the corner of the room.

Consumers were also asked about other char-

acteristics they like in a Christmas tree. Ninety-one percent preferred a thick tree to an open tree; 96 percent preferred a bushy, round tree to a slender one; 64 percent wanted short needles rather than long; 88 percent liked a dark green tree better than a light green; and 97 percent preferred a natural tree to a painted tree. Most indicated they usually bought a tree 5-7 feet high.

Consumers want high quality trees of the top two grades. Missouri growers must emphasize quality production to gain and hold a position in this highly competitive business.

Fig. 4—Eastern redcedar. From left to right: U. S. Premium, U. S. No. 1, and U. S. No. 2. Redcedar is still used extensively in Missouri, especially in the rural areas.



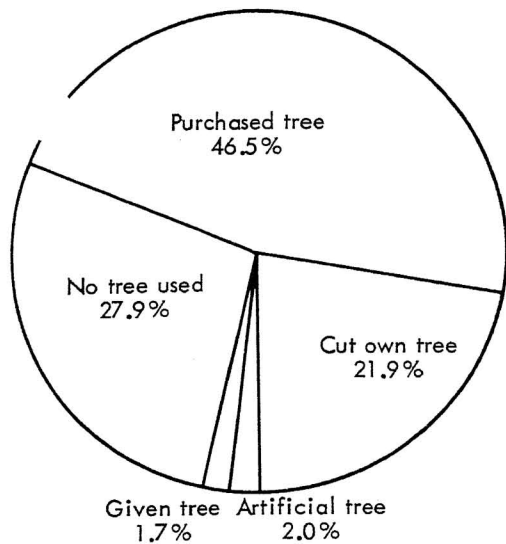


Fig. 5—Statewide use and acquisition of Christmas Trees by households, 1957.

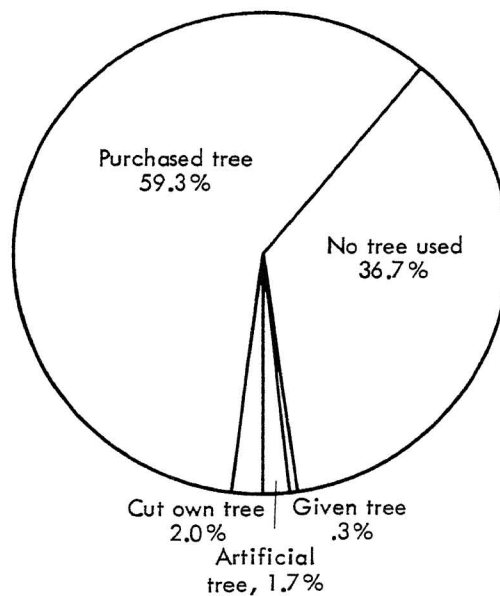


Fig. 6—Greater St. Louis use and acquisition of Christmas trees by households, 1957.

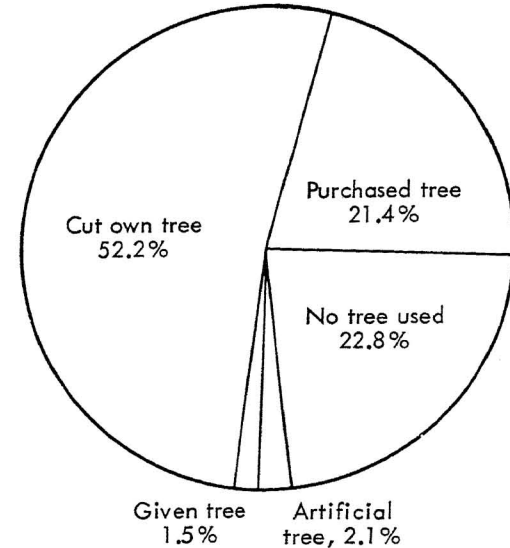


Fig. 7—Rural use and acquisition of Christmas trees by households, 1957. Applies to all "open country" residents.

Statewide Consumer Patterns

Missourians used 975,000 Christmas trees for their homes in 1957, while another 115,000 trees went to non-family consumers such as firms, offices and schools. About 70 percent of all Missouri households used trees. How consumers acquired them is shown in Figures 5, 6 and 7.

The dates when people buy trees vary somewhat from one year to the next, depending on when weekends occur prior to Christmas. Weather condi-

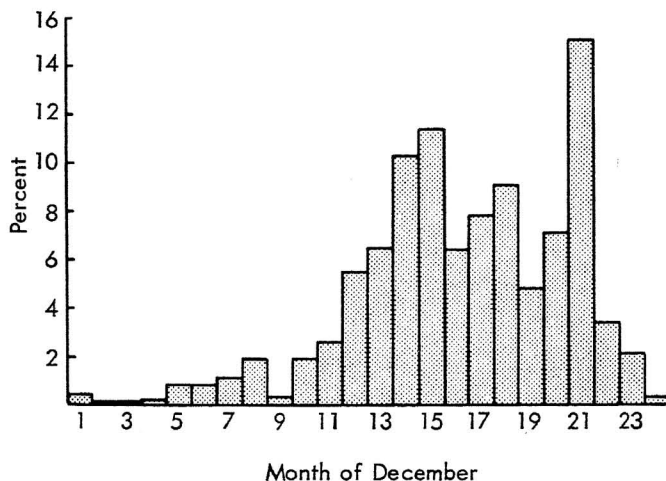


Fig. 8—Distribution of consumer purchases by dates in December, 1957. Statewide.

tions are also important. Figure 8 gives a breakdown of acquisition dates for December 1957. Both weekends before Christmas were heavy sales periods.

Statewide, about 82 percent of the consumers chose a tree from the first dealer they visited. Another 13 percent went to a second dealer, and the remaining buyers went on to a third or fourth dealer before they found a tree to suit them. About half of the consumers bought from a dealer on their regular marketing routes.

Figures 9, 10, and 11 show where Missourians bought trees in 1957.

Nearly 55 percent purchased their tree from a different dealer than the year before. This might indicate that tree quality is not consistent and that people try various sources to try to find a better tree.

Based on consumer interviews, it appeared that 51 percent of the trees used were imported (out-of-state) and 26 percent were locally grown. Consumers in 23 percent of the cases had no idea where their trees came from.

Figure 12 gives a species comparison for statewide consumption. It should be pointed out that 27 percent of the trees were not identified by species. The majority of these trees can probably be safely assigned to the spruce and fir groups. At least it is felt that they were mainly imported trees since the 30 percent for redcedar should be fairly reliable. These results, in addition to impressions received

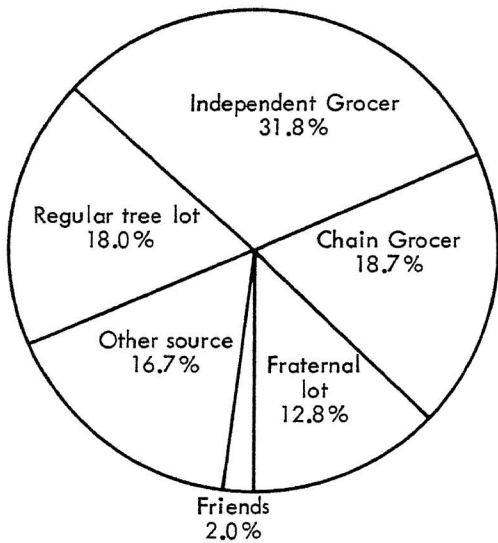


Fig. 9—Percentages of trees purchased by consumers from various types of retailers. *Statewide*, 1957.

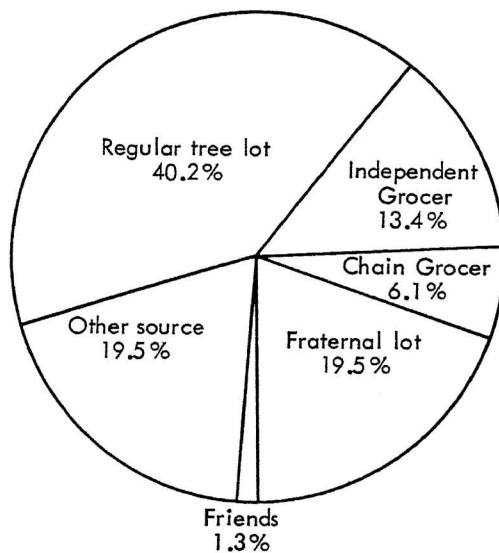


Fig. 10—Percentages of trees purchased by city consumers from various types of retailers. *Greater St. Louis*, 1957.

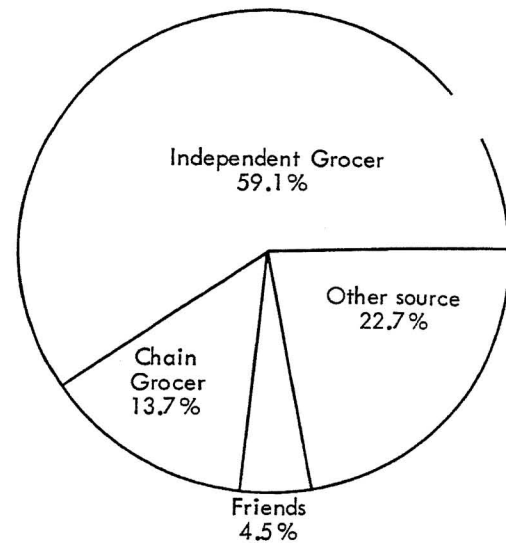


Fig. 11—Percentages of trees purchased by *rural* consumers from various types of retailers, 1957.

during the interviews, point out the fact that tree buyers usually have little knowledge of species. Some producers attach tags which give the species and sometimes the retailer tells the customer the species he is buying.

About 95 percent of consumers purchased one

tree; others bought two or more. The average price paid was \$2.64. Heights of trees averaged 5.3 feet. (Fig. 13)

Slightly more than 1 percent of buyers purchased a "balled" tree. These were mostly city dwellers intending to plant the tree as part of home land-

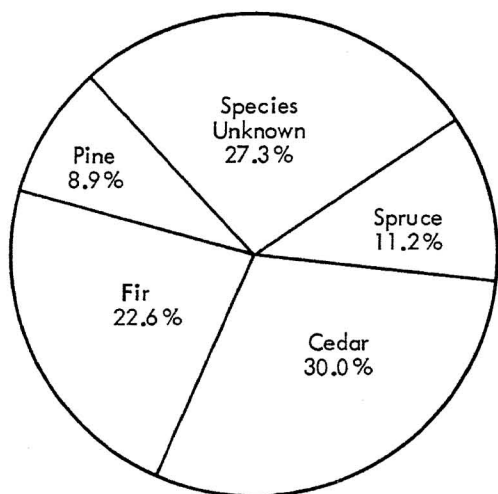


Fig. 12—Statewide, Missouri consumers said they bought these species for Christmas trees. Exact names were not available since consumers often have little knowledge of species names.

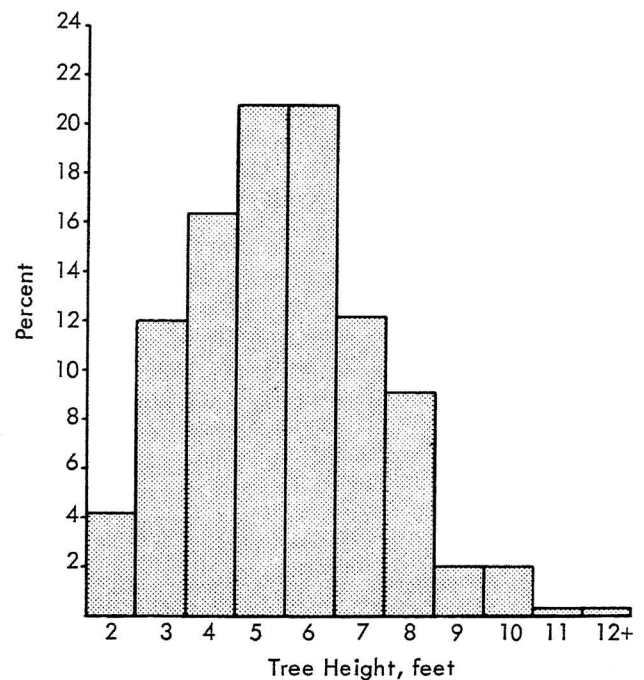


Fig. 13—Size of trees used by Missourians, 1957. The average height was 5.3 feet.

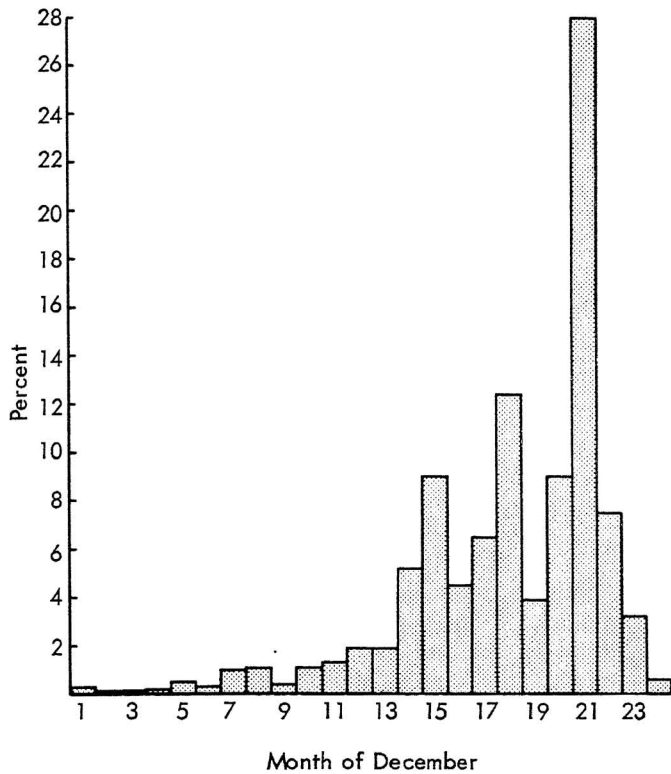


Fig. 14—Distribution of consumer purchases by dates in December in Greater St. Louis, 1957. Sales shown for December 1 include some trees bought before that date. December 21 was a clear Saturday which followed several days of rainy weather.

scaping after the holidays. These are more expensive.

Nearly 21 percent of Missouri consumers bought other kinds of decorative greenery, with bundles of boughs the leading sales item.

The City Consumer

A 1957 market study by University of Missouri researchers showed that Christmas tree buying habits of city consumers differed somewhat from general statewide trends.

Since more than half of Missouri's population is urban, the grower should understand city markets and buying habits. For the 1957 study, St. Louis was chosen as a study area. There were 270,000 trees used in St. Louis homes that year.

Figure 6 shows how St. Louisans acquired and used trees. Here a higher percentage of families bought trees than in out-state areas where they can cut native trees, usually at no cost.

Percentage-wise, more city families were without trees in the home. The reasons they gave for not dis-

playing trees were (1) no children, (2) away from home at Christmas, (3) elderly or single people, and (4) religion.

As in out-state areas, the two weeks before Christmas were heavy sales periods. (Fig. 14) Weather had its effect, with a fair weekend bringing an upsurge of sales.

Sources of trees bought by city residents are shown in Figure 10. Very noticeable is the high proportion (40 percent) of the trees which came from regular tree lots. In St. Louis, about 64 percent of consumers bought trees from dealers not on their normal marketing routes.

Who in the family actually decides which tree to buy? The survey found that the mother chose the tree in 30 percent of the cases; the father, in 31 percent, and the family made a joint decision in 36 percent of the cases. Evidently parents are reluctant to let the children choose the tree, since this occurred in less than 3 percent of the purchases.

Eighty percent of the St. Louis consumers selected their tree on the first lot visited. An additional 15 percent went to a second lot and the remaining

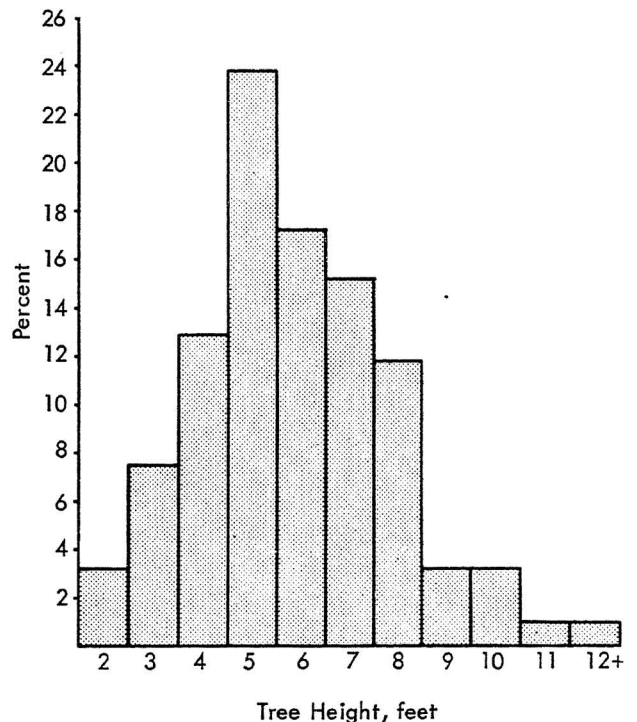


Fig. 15—Size of trees used by city consumers, Greater St. Louis, 1957. The average height was 5.9 feet.

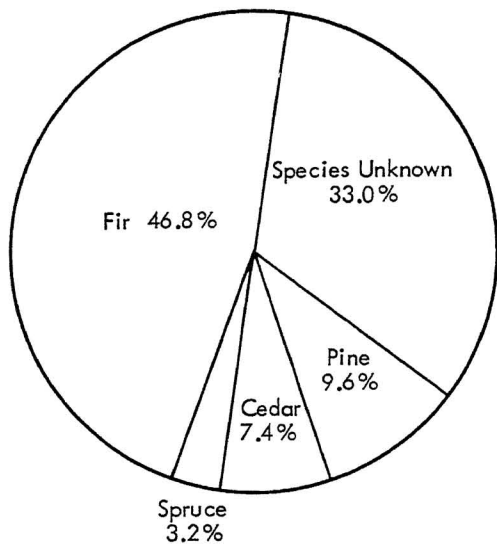


Fig. 16—St. Louis consumers said they bought these species of Christmas trees.

small percentage of discriminating individuals went to a third and fourth lot. Fifty-eight percent did not buy from the lot they had purchased from the year before.

Of the city consumers, 91 percent purchased one tree; 8 percent, two trees; and 1 percent, three trees. There seems to be an increasing tendency in many areas for people to use a tree in the home and one in the yard in the absence of live trees as part of the landscaping.

Trees used in St. Louis averaged 5.9 feet in height. The average price paid in 1957 was \$3.35. Figure 15 shows a high percentage of trees in the 5-7 foot range.

Twelve percent of the people interviewed said their trees were locally grown; 71 percent believed their trees were imported (out-of-state) and 17 percent had no idea where their trees came from.

Figure 16 shows the species of trees that St. Louis consumers said they had bought.

About 92 percent of these city consumers bought natural trees; the others chose painted or flocked trees. On many lots, painting and flocking is done on a custom basis after the customer has chosen the tree.

In St. Louis, about 32 percent of the consumers bought other greenery including mistletoe, boughs, wreaths, cones, holly and rope. The most popular item was boughs prepared in bundles. About 44 per-

cent of the people buying greenery included boughs in their purchases.

Do Rural People Buy Christmas Trees?

Rural people in Missouri use about 283,000 Christmas trees annually. Many of them cut trees from their land or from a neighbor's place. This is a custom long associated with country living. Many prefer a native-grown redcedar, and saving a few dollars is often important. The practice of cutting native trees varies over the state with the availability of redcedar. Only about 21 percent of rural people bought trees. (Fig. 7).

These figures are statewide and do not hold true for all rural regions. In extreme southeast Missouri, only 16 percent cut trees since native trees are not abundant there. In contrast to this, among rural people living along the Missouri River, and in southwestern and south central Missouri, only about 9 percent bought trees and 60-75 percent cut native trees.

Local situations in rural areas may affect the Christmas tree marketing picture. More purchasing is done in rural areas occupied by "city farmers." Another factor, which probably plays only a minor role in rural tree consumption, is the increased farm plantings for windbreaks, wildlife, or woodlots. These trees are often harvested by the family for Christmas trees.

The survey of rural consumers did not provide a definite trend with regard to acquisition dates. The weekend of December 14-15 showed the greatest activity in obtaining trees either by cutting or purchasing. Here, weather can also be important.

Most rural people who do buy trees do not have access to regular tree lots or lots operated by fraternal or service organizations. The independent grocer sold about 59 percent of these trees, and about 14 percent were sold by chain grocers. (Fig. 11).

In about 48 percent of the rural purchases, the mother of the family made the decision on which tree to buy. The father made 33 percent of the choices. The average height of the trees purchased was 4.1 feet and the average price paid was \$2.02. About 70 percent of the trees used by rural people were local trees, and eastern redcedar was by far the leader among species used. Only about 7 percent of rural people bought other greenery.

Nonfamily Consumers

An important Christmas tree market in Missouri is nonfamily consumers such as businesses, schools, agencies, offices, institutions and municipalities. About a fifth of these use one or more trees each year.

Department stores and schools may use several trees. Business firms normally display their trees earlier since they are often used as a part of sales

promotion displays. Firms and agencies using several trees often buy wholesale from a local firm while small offices and businesses usually buy at a retail lot.

An estimated 115,000 trees were used in 1957 by nonfamily consumers. This can be logically added to the home consumption to obtain the over-all state estimate of 1,090,000 trees sold each year.

The Wholesale Market

City Wholesale Markets

In St. Louis and Kansas City, trees reach retailers by the local wholesale route, although some large out-of-state commission firms ship directly to both large retailers and city wholesalers. This arrangement does not always make for good relations, since prices quoted by the commission firms are not always consistent among local firms.

Practically all trees entering the St. Louis market are grown in eastern Canada or the Lake States, with Nova Scotia the chief supply area. At least 90 percent of the trees coming to St. Louis are balsam fir. Small amounts of Douglas-fir, red pine, Scotch pine and jack pine make up the remainder. The Kansas City supply is quite different. The majority of these trees are Douglas-fir from Montana.

Wholesalers in the two cities vary greatly in size, some handling as little as one carload and others handling up to 20 carloads a year. They place orders with the producers during the first half of the year. Usually, the larger wholesalers have had some direct contact with their suppliers and have made at least one trip to their source of supply. This provides them with some idea of the quality of trees they are buying. Most wholesalers have purchased trees from the same suppliers for several years.

Wholesalers price Christmas trees by the bundle. The number of trees in a bundle varies with height. (See Table 3). Wholesalers may pay from \$2.00 to almost \$3.00 depending upon their volume and the quality of trees they expect to get. This price is f.o.b. at railroad points near the source of supply. Shipping charges by rail from Nova Scotia to St. Louis average about \$1.50 per bundle. This brings the average cost

TABLE 3--NUMBERS OF IMPORTED TREES (DOUGLAS-FIR AND BALSAM FIR) USUALLY INCLUDED IN BUNDLES OF SPECIFIED HEIGHT CLASSES

Height of Trees, Feet	Number of Trees per Bundle
2 and less	10 - 12
2 - 4	7 - 8
4 - 6	5 - 6
6 - 7	4
6 - 8	3 - 4
7 - 8	3
8 - 10	2
10 and over	1

to the wholesaler to about \$3.50 to \$4.50 per bundle. This can be altered to a "per tree" estimate by dividing by the number of trees included in the bundles.

There is little turnover in city wholesalers from year to year. Some have been in business for as long as 40 years. Seven local wholesalers handle 45 percent of the trees coming into St. Louis.

There is considerable variation in the number of trees offered at the wholesale level from year to year. A normal shipment to St. Louis is about 105 carloads. The market can handle this volume. In 1955, more than 120 carloads arrived, partly because of over-ordering by wholesalers and large retailers who had a good market the year before. At least 10 carloads were consigned to St. Louis late when the market became saturated in Chicago. These surplus trees were a total loss to the suppliers who consigned them and depressed the St. Louis market on trees which were moving satisfactorily through the normal supply channels.

Out-state Wholesalers

There are numerous small wholesalers in cities such as Springfield, Columbia, St. Joseph, Sikeston and Cape Girardeau. Many are fruit and produce or grocery wholesalers and move a great many trees through local retailers, usually by outright sale arrangements. They normally buy from large out-of-state commission firms and the trees usually arrive by rail. Trees are normally distributed to retailers in the regular deliveries of other goods. A survey in 1956 showed great variation in the quality of trees from various wholesalers.

The appearance of Missouri grown Christmas trees on the market in large numbers will probably have a great effect upon the wholesale structure, although from all indications it will be a gradual transition. Wholesalers would like to handle a better

product than they are now selling. The uniform complaint leveled at imported trees is that the quality appears to be dropping year by year. The deciding factor could be the price differential. Since wholesalers now obtain trees for as little as 75 cents each, they will be reluctant to pay a much higher price even for an obviously better tree unless they can be sure the price difference will remain high.

There is a tendency for local trees to move directly from grower to retailer, particularly in the case of small producers. For example, a wholesaler of Christmas trees would not be interested in buying a truck load of trees from a small grower. Here is a possibility for successful cooperative marketing through informal groups of small growers or through a Christmas Tree Producers' Association.

Christmas Trees at Retail

The Out-State Retailer

Retailers outside the four largest cities—St. Louis, Kansas City, Springfield and St. Joseph—do business with more than 50 percent of the population. (Fig. 17.) Most of these out-state retailers sell Christmas trees as secondary items in connection with their regular businesses.

Local food stores comprise over 60 percent of the total Christmas tree retailers. Chain stores comprise nearly 20 percent. Other retailers include variety, drug and hardware stores, florists, gas stations and individuals who sell trees at their homes.

Mark-ups

Although retailers want a profit, some small neighborhood stores stock a few trees mainly for the convenience of steady customers. They do not attempt a high mark-up. The retailer mark-up varies greatly and no set percentage is used. It ranges from 20 to over 100 percent. An average mark-up by these out-state retailers was probably around 50 percent in 1956. Some retailers treat trees as other produce with a mark-up of about one-third.

Grading

The grading of trees is receiving more attention as consumers, especially during periods of prosperity, insist on better quality. Wholesalers normally sell bundles rather than individual trees. Bundles have a set price with no reference to the quality of trees included, however, the bundle price will vary somewhat with the size of the trees. Most smaller out-state retailers divide the bundle price by the number in it, add the mark-up, and price the trees. This is actually grading by height. Using this system, culls and premiums are all priced the same.

Interest in Christmas tree grades has increased. Based on 1100 trees examined over the state, the distribution by grades is given in Figure 18. The most noticeable figure is the low (16 percent) proportion of premium trees. The quality of shipped-in trees varies from year to year and retailers are often concerned about the low quality of trees they receive. The dominant species offered for sale by out-state retailers in 1956 were Douglas-fir and balsam fir.

Northern trees are cut early. By the time the trees reach Missouri stores the foliage may be dry



Fig. 17—View of typical lot operated by a service club in Columbia. Both balsam fir and Douglas-fir were handled as well as other decorative items. Trees

upright in stands permitted customers to walk among them.

and dropping. Rough handling in transit damages trees, and insect and disease outbreaks in Canada and other producing areas are seriously lowering quality.

Some retailers decide their mark-up on the bundle price and then informally grade the trees included to total the retail price they want for the bun-

dle. Some trees may sell at cost while others are marked up over 100 percent. This system requires more of the retailer's time but it also gives the best trees to those persons willing to pay for quality.

How Retailers Buy

Nearly 40 percent of these out-state retailers got trees from "large or regional wholesalers". These wholesalers deal only in trees. Some sell on a nationwide scale, and they may be producers as well. They employ salesmen who take orders far in advance. About 35 percent of the retailers obtained trees from a "local wholesaler," a firm that is doing business mainly in Missouri. (Fig. 19.)

Looking now at the numbers of trees handled by out-state retailers, Figure 20 shows that 34 percent of these trees came from the "large or regional" wholesalers and 42 percent from the "local wholesalers."

A retailer dealing with a large wholesaler may order his trees as early as January or February. A salesman may call, settle the account for the Christmas season just past, and take the order for the next

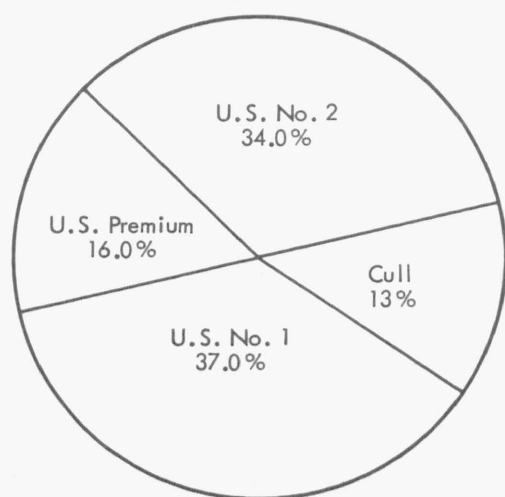


Fig. 18—The proportion of grades of balsam fir and Douglas-fir trees offered for sale by retailers throughout Missouri, 1956.

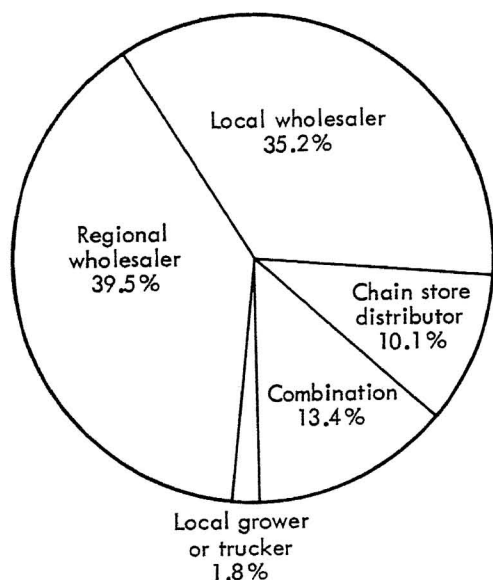


Fig. 19—Where Missouri retailers bought trees, 1956. (Excluding retailers in four largest cities.)

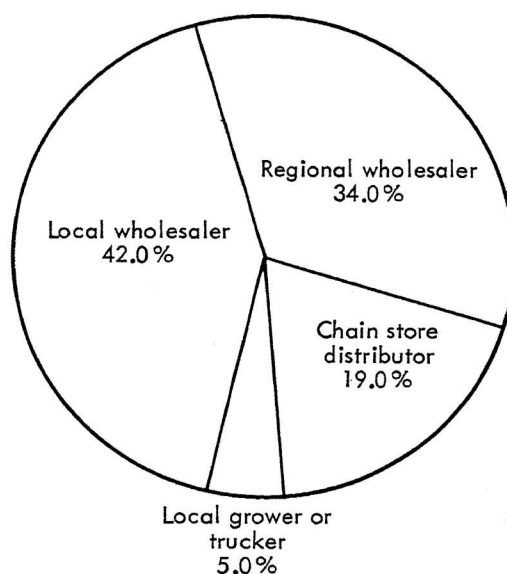


Fig. 20—Volume of trees purchased by Missouri retailers from wholesalers of various types, 1956. (Excluding retailers in four largest cities.)

year. Many of these transactions are on a consignment basis. Under this arrangement, the retailer pays only for the trees he sells. He normally will save the tags from the unsold trees and turn them over to the salesman for credit.

Most of the out-state retailers who get trees from local wholesalers buy them outright. Normally they do not order their trees until sometime in the fall.

Under the outright purchase arrangement, the wholesale price is usually lower than when trees are on consignment, but the retailer assumes the risk of unsold trees.

Large companies which practice consignment selling may award the retailer a slight "cleanup discount" if he moves all of the trees. This encourages retailers to push the last few trees and eliminates the wholesaler loss if they are not all sold.

Out-state retailers in 1956 obtained 64 percent of all trees by outright purchases, the rest on consignment.

The out-state retailer who gets trees on consignment usually pays from \$5.50-\$7.00 per bundle for Douglas-fir and balsam fir. Retailers who buy outright may pay from \$4.00-\$6.00 per bundle. This permits a higher profit if they can move all their trees.

Table 4 compares retail prices of balsam fir and

Douglas-fir by grades and heights in out-state Missouri. Price goes down with lower quality, but this is not as noticeable as would be expected because most retailers price on a straight height basis.

TABLE 4--AVERAGE RETAIL PRICES (DOLLARS) OF BALSAM FIR AND DOUGLAS-FIR IN THE OUT-STATE AREA BY HEIGHT CLASSES AND GRADES, 1956

Grade	Height Classes, Feet						
	0-3	3-4	4-5	5-6	6-7	7-11	Over 11
Premium	1.05	1.43	1.56	2.22	2.62	3.23	8.20
Good	1.03	1.36	1.48	2.20	2.33	3.25	4.09
Utility	1.02	1.33	1.47	2.15	2.31	2.93	2.24
Cull	.99	1.31	1.48	1.86	2.03	3.15	2.39
All grades, weighted average	1.03	1.36	1.50	2.14	2.33	3.14	4.16

So few Missouri-grown trees were found at retail markets that no dependable prices can be given. Some retailers stocked local redcedar, usually cut and delivered by local farmers. The redcedar was usually priced below the northern species and was usually of poor quality.

Retailers showed considerable interest in the prospects of handling Missouri trees in the near future.

The City Retailer

The retail picture in the large urban areas is much different from that in the smaller cities, towns and rural areas. Regular Christmas tree lots, not associated with any other business, handle approximately 40 percent of the trees in cities. Normally, these lots also sell greenery, tree stands and decorations. On many lots, painting and flocking is done on a custom basis. After the customer has chosen his tree in its natural state, it is treated according to his specifications. Some wholesalers also operate retail lots, but these sales account for a small percent of the total.

Fraternal and service club groups in cities operate many lots and they have been gaining more of the business each year. In 1956, they sold approximately 20 percent of the trees retailed in St. Louis.

Some large retailers, particularly chain grocers, buy trees directly from growers or the large regional wholesalers. Most of the trees, however, move through the city wholesale channels to the retailers. Most sales are made outright and few on consign-

ment. During the last few days before Christmas, there is usually a great amount of buying and trading among retailers, where some have over-ordered in certain size classes while others have sold out of trees in certain classes.

Prices paid by city retailers vary widely. The large retailer who buys directly from a grower or regional wholesaler may get his trees for as little as \$4.00 per bundle, while small lots of trees from a local wholesaler may cost up to \$6.00 a bundle. Large retailers usually order early, certainly within the first half of the year.

In 1956, retail prices were higher in urban centers than in the out-state areas. For example, a 5½-foot tree sold for an average of \$2.66 in the city and for \$2.14 out-state. These were mainly balsam fir and Douglas-fir.

Some city retailers do not attach a price to their trees but price them verbally to a prospective customer according to his appearance and apparent ability to pay.

Experimental Marketing

Experiment Station Plantations

The Missouri Agricultural Experiment Station has marketed trees from experimental plantations at Weldon Spring since 1955. The plantations, established in 1950, were the first formal Christmas tree research plots in the state. Sales have been primarily of Scotch and jack pine, since these species made up the greatest part of the 1950 planting. (Fig. 21)

For research purposes, it was necessary to follow the trees all the way to the consumer, therefore distribution was through three retail outlets on a consignment basis. This arrangement permitted pricing and grading by a representative of the Station. The retailer received 40 percent of the retail price. One retailer handled Scotch and jack pine in addition to imported balsam fir. This arrangement provided a comparison of the acceptance of locally grown trees against shipped in trees. The other two

dealers handled only Scotch and jack pine. One outlet was a super market; the other two could be classed as fraternal or charitable organizations. All three were in the Greater St. Louis area, which permitted higher pricing than would be possible in smaller population centers over the state.

The 1950 Scotch pine planting at Weldon Spring totalled about 3000 trees which had a survival of 90 percent. In three years of sales, 1857 trees were sold of which 44 percent were U. S. Premium and brought an average retail price of \$5.05; 46 percent were U. S. No. 1 with average price of \$3.48 and 10 percent were U. S. No. 2 with average price of \$2.60. The average height of all Scotch sold was about 5.5 feet. Premium Scotch was slightly shorter and was generally priced at about \$1.00 per foot. Some special orders of exceptional Scotch sold readily for \$2.00 a foot. At these prices, the trees had a



Fig. 21—An experimental plantation of merchantable Scotch pine. This Missouri plantation yielded a high proportion of U. S. Premium trees as a result of cultural treatments during its development.

ready market and often a truck load was sold as fast as the trees could be unloaded, graded and priced. The city outlets could have sold many more trees had they been available. Only a few of the lowest grade trees remained unsold.

In addition to the 1857 trees sold, 200 remained to be sold in 1958. The balance of the 3000 planted would include trees harvested for bough production, trees damaged by deer and insects, trees stolen from the plantation, and culls still standing.

The jack pine from the Weldon Spring plantation averaged approximately 7 feet in height and brought an average retail price of \$2.30 per tree.

One of the retail outlets which handled the experimental trees had never sold Christmas trees before and was located in an area where there was considerable competition from imported trees. This lot sold only 200 trees in 1955, over 500 in 1956 and about 700 in 1957. No advertising was used and the demand grew steadily as consumers became familiar with locally produced trees.

How to Sell Missouri Trees

The Missouri Christmas tree grower can sell his trees in three ways: (1) through a wholesaler, (2) through a retailer, and (3) direct to consumers.

Selling to Wholesalers

By selling to an established wholesaler, a grower can usually dispose of his entire harvest with one sales contract. He can usually sell for cash without the risk of unsold trees. Many wholesalers accept trees at a roadside concentration point and some may even cut the trees, eliminating transportation by the grower. Since the wholesaler takes care of distribution and must also protect himself from risk, the prices paid the grower will be less than if he assumes more of the distribution job.

Selling to Retailers

If the tree grower by-passes the wholesaler and sells directly to retail outlets, he gets more of the



Fig. 22—In certain localities a producer may retail trees in his plantation. A customer chooses the tree he wants and it is then cut for him. (Photo courtesy Missouri Ruralist.)

final sale price. This arrangement may be best for small growers who do not have enough trees to interest wholesalers. On the other hand, unless the grower has only a few trees to sell, he may have to move his trees through several retailers. Then he may need several different contracts for cash or consignment sales and must risk the reliability of the retailers. Practically all retailers will require trees delivered to their lots. Since many retailers operate in a limited space they may not want one large delivery. This complicates transportation during a period when a storm or bad road conditions can result in a substantial financial loss. If the grower can assume these problems, he can expect to receive almost double the price for his trees that he would get by selling to wholesalers.

Selling to the Consumer

The grower can sell directly to the consumer. (Fig. 22) This may have advantages for small growers well located in consumer areas, but it involves some problems. One of the first obstacles is the fact that practically all consumers have been accustomed to purchasing imported trees and have established

habits as to where and when they purchase trees. Having no previous experience with locally grown trees, they may be somewhat reluctant to use them. Several years could be required to build a retail outlet into a sound financial enterprise because of the costs of doing business which are encountered regardless of the volume of business.

These costs may include the wages paid to sales people (Christmas tree buying is sporadic and during busy periods several people may be required to handle customers), lot rental, lighting, business licenses and insurance. There is often the risk of having trees stolen from the lot unless it is continuously attended. The possibility of having trees unsold at Christmas is of course another risk which the grower-retailer must face.

A retail lot is not apt to be a success in towns of fewer than 5,000 to 10,000 persons. In smaller towns, most trees are sold by established businesses, such as grocery stores, which handle a small number of trees each year. In the strictly rural areas, the prospects of retailing are not encouraging since many people cut native redcedar.

Preparing Trees for Market

Harvesting Plantation Trees

Christmas trees can be cut with either hand or power tools. The number of trees to be cut and the available labor will dictate the type of equipment needed. Saws are preferable to axes since it is necessary to "square up" the butts following axe cutting. A small grower can usually handle the cutting job with a small, curved blade pruning saw. These small saws are also available with a 2-3 foot handle which permits the cutter to reach the stems more easily.

A larger producer would normally require some type of power equipment. A lightweight chain saw is a satisfactory power tool for harvesting Christmas trees. One man, with a lightweight chain saw, can cut up to 150 trees an hour where there is a minimum of walking between trees, as in a plantation.

The one-man radial power saws, which permit the operator to stand erect while cutting, appear to be ideal for the harvesting operation.

It is advisable to select in advance the trees to be cut, since not all trees in a planting may be ready to sell the same year. As the trees are marked for cutting, irregular branches may be pruned to improve the shape of the tree. One or two long, irregular limbs can make the tree undesirable to the consumer. The purchaser may select the trees to be cut if this type of sale suits the particular operation.

Before trees go to market, it is important to see that the butts are cut squarely and that any stubs or small branches are removed from the bases. Consumers prefer trees ready to be installed in stands. A tree should have a "handle" 1 to 1¼ inches long for each foot of tree height so that the tree can be fitted into a stand more easily. Since pine trees have heavy stems, which are apt to be unsymmetrical, it is particularly important that they be cut so as to provide a good "handle."

Storing Trees

The pines, particularly jack and to some extent Scotch, show a characteristic yellowing immediately after dormancy begins in the fall. This undesirable

yellowing, according to some authorities, can be traced to the strain or variety of the trees producing the seed from which the planting stock was grown. Work is underway to attempt to produce strains which will hold the desirable blue-green color through the winter months. When extreme yellowing or browning occurs, trees may be completely unsaleable. This is currently one of the main criticisms of Missouri trees.

One way to get around this problem is early cutting. This was done for two years in harvesting trees from experimental plantings on the Weldon Spring Experimental Farm. Jack pine trees were cut in late October, stacked in a concrete building and sprayed with water at weekly intervals until they were delivered to retail outlets. At the time of sale, these trees had a freshly-cut appearance and sold readily. Trees of similar quality left standing in the plantation were relatively unsaleable due to winter yellowing.

This technique should work equally well with Scotch and red pine if storage facilities are available. Most producers will not have a concrete building available, but outdoor storage using a covering of cull trees or plastic covers should also be possible.

Another reason for early cutting is that adverse weather near the delivery date can seriously upset sales arrangements. A grower must deliver trees on the date promised.

The location of tree storage should be considered carefully. Muddy fields, icy conditions or continued rain might make movement from storage difficult. In Missouri there is always the possibility of having trees "iced in."

Transporting Trees

The transportation of pine Christmas trees presents problems not encountered with the imported species such as balsam fir and Douglas-fir. Most species of pine, except jack pine, have rather stiff branches and must be handled as individual trees



Fig. 23—Freshly cut Scotch pine being loaded at an experimental plantation for delivery to a St. Louis retailer a week before Christmas, 1957.

rather than in bundles. This reduces considerably the number of trees which can be hauled on any load. (Fig. 23.)

Dense Scotch pine trees are heavy and difficult to handle. A standard truck with a 16-foot bed and high rack will hold approximately 100 dense trees averaging 5 to 6 feet in height. If it is necessary to haul trees which are frozen, this same truck will hold only about half as many without much breakage. Frozen trees are very fragile and can be seriously damaged by rough handling.

Loading loose trees takes about as much time as cutting and yarding. Experimental work indicates that loading a 16-foot truck bed with 100 trees requires two men, preferably three, and the time varies from one to two man-hours.

Unloading takes about half as much time as loading. If the trees are being sold by grades, the grading can easily be done as they are being unloaded. Grading is much easier when the trees can be examined individually. Grading in the plantation before cutting is difficult because of a tendency to neglect the grading rules and grade by comparing one tree with others adjacent.

Scotch pine is a problem for the dealer with limited space, since loose trees are difficult to stack to conserve space, compared to bundled trees.

Painting and Flocking

In the past few years there has been a greatly increased demand for artificially finished trees, especially in cities. Trees of many colors are now available. Usually a painted tree will retail for two or three times the price of a tree in its natural condition. Flocked trees (a coating of finely ground cotton applied with an adhesive) are increasing in popularity. Figure 24 shows how to apply this finish. Flocked trees command even greater prices and may sell for as much as \$10 per foot for commercial display purposes.

Both painting and flocking were investigated at the Weldon Spring Experiment Farm. Cost summaries based on using several types of paint in addition to white flocking are given in Table 5.

TABLE 5--COST OF FLOCKING AND PAINTING
EXPERIMENTAL TREES OF MEDIUM
DENSITY, 4-5 FEET HIGH

Type of Finish	Cost, Dollars		
	Labor ^{1/}	Material	Total
Oil base white paint (\$1.80/gallon)	0.15	0.45	0.60
Water base white paint (\$2.40/gallon)	0.10	0.40	0.50
Aluminum paint (\$3.00/gallon)	0.06	0.20	0.26
Gold lacquer (\$9.00/gallon)	0.06	0.60	0.66
White flocked	0.10	3.00	3.10

^{1/}Labor computed at \$1.00/hour



Fig. 24—Flocking a Scotch pine with a natural tree of that species in the background. One gun applies an adhesive, the other, the flocking material.

Painting and flocking are best done at the retail point, since artificially finished trees depreciate with handling and hauling. Advance storage, especially of flocked trees, is a problem since they cannot be piled without some damage. This work is

usually done by large retailers and wholesalers. Since the market for these trees is limited, the only way to insure a profit is to treat them on a custom basis for either dealers or individuals.

Missouri Begins Christmas Tree Production

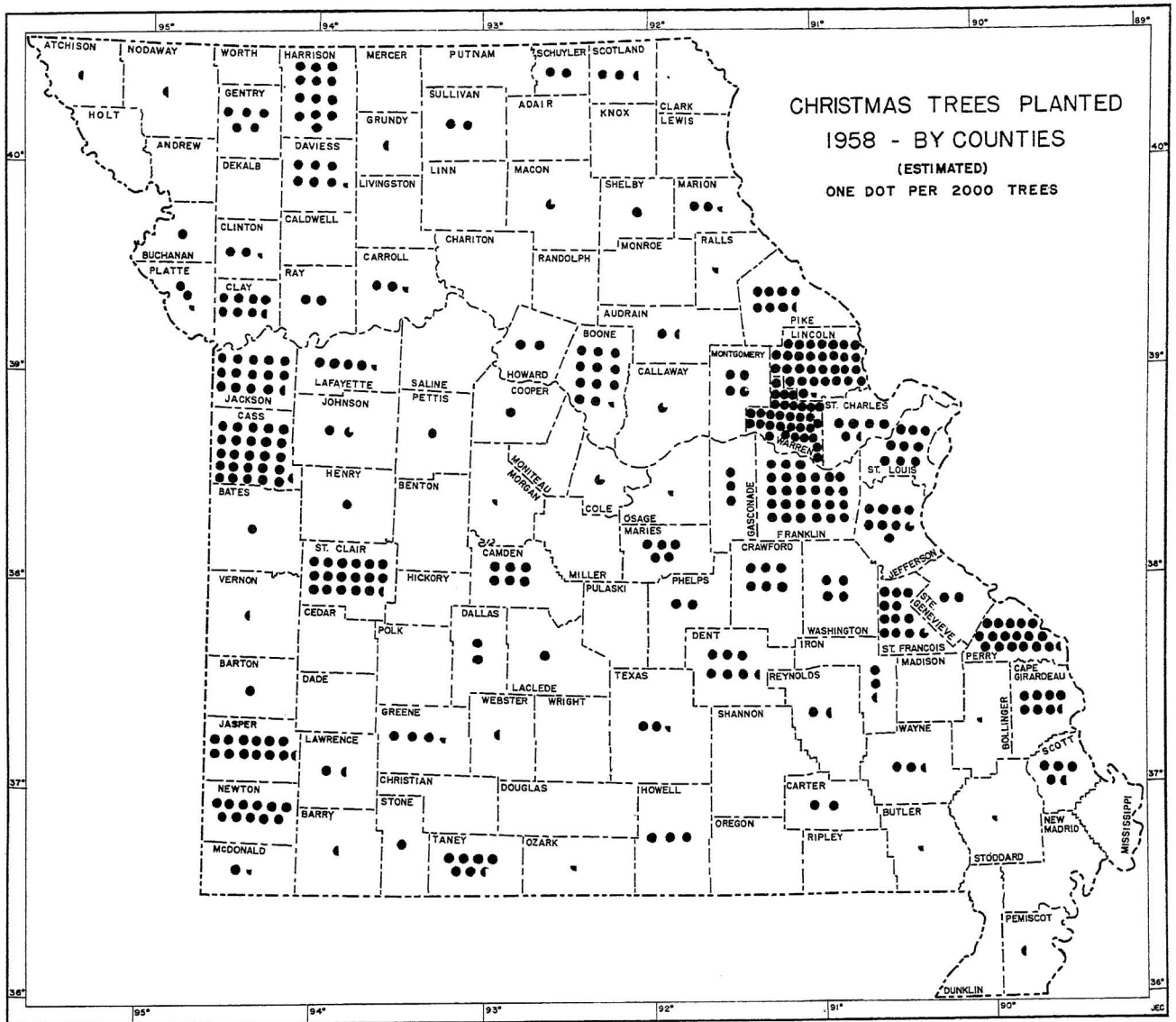
Plantings Increasing

Tree planting in Missouri in 1957-58 broke all past records. The Missouri Conservation Commission has expanded its nursery facilities to meet the increasing demand for planting stock.

Much of this increased planting is being done for Christmas tree production. Many growers are planting from 500 to 60,000 Christmas trees a year. There are several reasons for this growing interest: (1) News stories from other regions have described success in this industry. (2) Nursery catalogs have painted glowing pictures of profits to be reaped with little or no work or investment. (3) Blanket recommendations have provided growers with little fundamental knowledge on the problems and pitfalls they must overcome. (4) People are usually willing to gamble a little on the possibility of getting in on the ground floor of a very profitable venture.

Christmas tree production, like any other industry which involves land, labor, weather, and economics, must be approached in a business-like manner. It is unfortunate that people have undertaken tree growing as a result of incorrect publicity and false ideas of inevitable success. Thousands of good quality experimental trees have been produced in Missouri and have been sold profitably. On the other hand, thousands have been planted only to die as a result of drouth, improper species and soil conditions, and lack of care. The speculator who believes he can plant trees, then return in a few years and reap a handsome profit will probably be shocked by his failure.

Studies show that planting for Christmas tree production has increased from less than 1000 trees planted by three persons in 1947 to nearly 790,000 by 275-300 persons in 1958. (See map.) The



greatest increase was during 1954-58. Scotch pine has led species-wise since 1952. Scotch pine plantings in the spring of 1958 were four times greater than for the second ranking species, jack pine.

Survival Rates

It is estimated that about 2 million Christmas tree seedlings were planted in Missouri in the period 1947-58. About half of them survived. This period had extremes in weather. During the drouth years, 1952-56, many plantations failed completely. No significant number of Missouri grown trees has appeared on the market. Fewer than 6000 plantation trees were sold by nine growers in 1956 and even

fewer were marketed in 1957, probably because of the effects of the drouth a few years earlier.

Plantings made in 1956 and later have had a much higher than 50 percent survival rate. The first really significant contribution to the supply should begin around 1960. Jack pine, because it grows faster, will probably appear in greater numbers sooner than Scotch pine, but this trend should change as the larger number of Scotch pine being planted reaches Christmas tree maturity. Many planters have used both species, since jack pine is ready to sell sooner, but they are swinging more to Scotch since it will consistently bring a higher price.

Planting Systems

Trees have been planted under a wide variety of conditions using many systems. Spacing of trees has varied from 3 feet to 8 feet. A 4-foot spacing has been most common, but some planters are changing to a 5-foot spacing, which provides a little more growing room for the trees. From 200 to 5000 trees have been planted to the acre. A state average is about 1850 per acre. (A 4-foot spacing permits about 2700 while a 5-foot spacing allows about 1700 per acre.)

Approximately 48 percent of Missouri planters have used some type of cultivation or weed control and 52 percent of all of the planters find this cultural treatment beneficial.

Size of Plantings

In 1957 about 120 Missourians planted Christmas trees. Nearly a third of these plantings were less than 1000 trees; about 26 percent were between 1000-2000 trees, and about 18 percent numbered between 2000-4000. The number of plantings dropped consistently as the size of planting increased. An apparent gap existed in plantings of sizes between 16,000-32,000; however, about 3 percent were over 32,000. The predominance of small plantings indicates that these may be sidelines or hobbies in conjunction with other farm operations. Landowners with a few idle acres may plant a few thousand seedlings hoping to supplement their regular incomes. It can be assumed that persons planting more than 32,000 seedlings have a commercial operation in mind.

The size of plantings will certainly affect marketing practices as trees become saleable. Small planters will have little chance to move trees through existing wholesale channels if they attempt individual operations. Their best marketing opportunity may lie in contacts with tree retailers in neighboring towns. In many places small producers may sell their trees themselves from the plantation or from lots in nearby communities.

The larger grower should ultimately be able to sell to wholesalers, depending upon the number and quality of his trees and his facilities for processing and transportation.

Christmas tree producers' associations can pool trees of small producers for marketing. In this way,

they can collect enough trees to interest large buyers. Price-wise, this type of marketing can be an advantage to small growers.

Not many Missouri trees have been sold in the past few years. Some of these were sold on the stump and some delivered to dealers or consumers.

Bough Marketing

Growers should not overlook the market for evergreen boughs and other greenery they can produce along with Christmas trees. In 1956 only about 5,000 pounds of boughs were sold from Missouri plantings. Some growers plant species desirable for bough production, such as pitch, red, and Austrian pine. Certain species produce cones at an early age, which enhance the appearance of boughs used for decoration. Selling boughs from otherwise cull trees provides a good outlet. Some growers feel that it is best to sell only the top two U. S. grades as trees, thus improving the reputation of their trees.

Christmas Tree Grades

Christmas trees are often bought and sold without either the buyer or seller seeing them. The need for standard grades has grown with the industry.

Some states which are primarily interested in one or two species have developed grading systems. The Agricultural Marketing Service of the U. S. Department of Agriculture set up United States Standards for Christmas Trees, effective November 1, 1957. These are now in wide use.

It is hard to measure tree quality. Species differ greatly in density, color, taper; however, the use of any grading system is better than none at all and the U. S. grades should do much to standardize tree quality.

Table 6 is a condensation of the U. S. Standards for Christmas Trees but is not intended to be a complete statement of the grades. Missouri growers are urged to write to the Agricultural Marketing Service and request a copy of the U. S. Standards.

Definitions

Certain definitions accompany the U. S. Standards. A condensed version of the important definitions follows:³

TABLE 6--A CONDENSATION OF THE U. S. STANDARDS FOR CHRISTMAS TREES. (3)

Factor	U. S. Premium	U. S. No. 1	U. S. No. 2
Density	Medium density (Based on characteristics of the species)	Medium density (Based on characteristics of the species)	Light density
Taper	Normal for the species	Normal (flaring or candlestick permitted if tree is otherwise U. S. Premium)	Normal (flaring or candlestick permitted if tree is otherwise U. S. No. 1)
Balance	4 complete faces	3 complete faces	2 complete faces
Foliage	Fresh, clean and healthy	Fresh, clean and healthy	Fresh, fairly clean, and free from damage
Deformities	Not more serious than minor	Not more serious than minor (noticeable deformities permitted if tree is otherwise U. S. Premium)	Not more serious than minor (noticeable deformities permitted if tree is otherwise U. S. No. 1)

DENSITY. "Density" is an expression of the amount of foliage and is influenced by the number, size and arrangement of branches. Different species have different branching habits and density must be judged on the basis of species characteristics.

TAPER. "Taper" expresses the relationship of the width of the tree to its height. The percent of taper is determined by dividing the width of the base of the tree by the height and multiplying by 100. Normal taper for the pines is 40 to 90 percent. Candlestick taper for the pines is less than 40 percent and flaring taper is more than 90 percent. For species other than pine, normal taper is 40 to 70 percent; candlestick taper is less than 40 percent and flaring taper is more than 70 percent.

BALANCE. "Balance", or the overall structure of the tree, must be considered on the basis of species characteristics. Faces are judged by dividing the tree into one-quarter segments by eye, thereby forming four faces. Similarly, the tree is divided into a bottom, middle and top segment to evaluate other characteristics. The type and arrangement of branches must be considered in any judgment of balance.

FRESH. Needles are pliable, turgid and firmly attached with only a slight amount or no shattering.

CLEAN. The tree is practically free of moss, lichens, vines or other foreign material.

HEALTHY. The foliage possesses a thrifty, fresh natural appearance characteristic of the species.

FAIRLY CLEAN. The tree is moderately free of moss, lichens, vines or other foreign material.

DAMAGE. "Damage" includes defects which materially affect the appearance of the foliage such as noticeable galls, abnormal needle loss and needle curling, noticeable dead twigs and spotty appearance due to areas of dead needles.

MINOR DEFORMITIES. These are defects which are not particularly noticeable and do not affect the general appearance of the tree, such as slight crooks and forks in the stem. Some species of pines frequently have curved stems. Curved stems on trees of these species shall be considered as a minor deformity when the condition is readily apparent and affects the general appearance of the tree.

NOTICEABLE DEFORMITIES. These are defects which affect the appearance to some extent but not seriously. They include weak branches, multiple leaders, broken branches, barren lower whorl and curved stems.

HANDLE. The "handle" is the base of the tree trunk below the first whorl.

HEIGHT. "Height" for unshaped trees means the distance from the point of attachment of the lowest whorl to a point at which the longest branch in the top whorl, when bent upward, touches the central leader of the tree; and for shaped trees means the distance from the point of attachment of the lowest whorl to the top of the central leader.

CULLS. "Culls" are those trees which will not meet the requirements of any of the specified U. S. Grades.

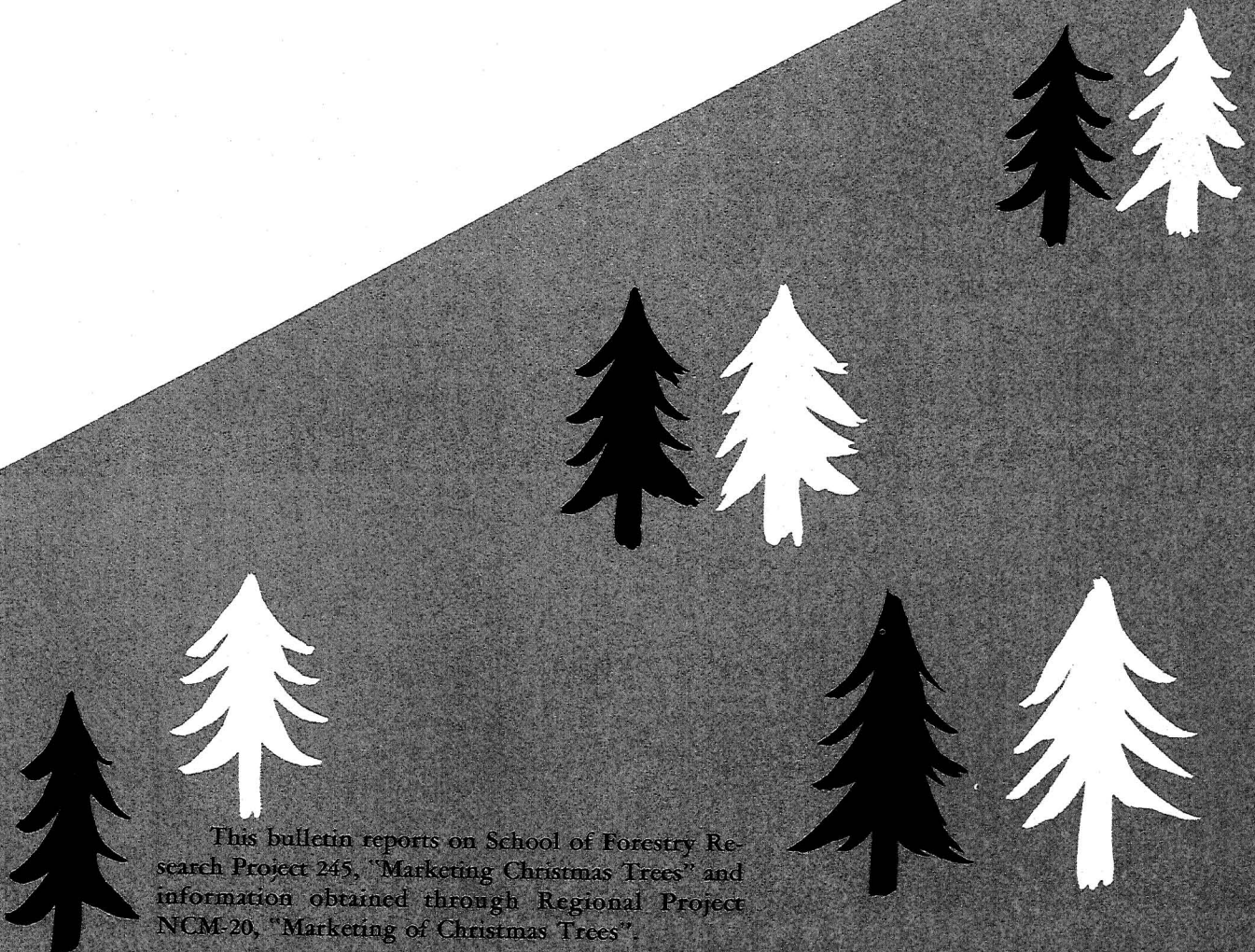
• • •

LITERATURE CITED

1. Sowder, A. M. 1957. *Many Trees Grow for Christmas*. American Christmas Tree Growers' Journal, February 1957.
2. Sowder, A. M. 1952. *Christmas Trees—the Tradition and the Trade*. U. S. Dept. Agr. Agriculture Information Bull. 94.
3. Agricultural Marketing Service 1957. *United States Standards for Christmas Trees*. U. S. Dept. Agr. 22 F. R. 7767.

MISSOURI CHRISTMAS TREE MARKETING FACTS

1. *Missouri used an estimated 1,090,000 Christmas trees in 1957. About 70 percent of Missouri households used trees. Of these, 22 percent cut their own.*
2. *Most trees offered for sale at retail are produced in northwestern and northern United States and Canada. A gradual transition to plantation-grown Missouri trees should begin about 1960.*
3. *Approximately 2,000,000 trees have been planted for Christmas trees in Missouri during the period 1947-58. Nearly 790,000 of these were planted in 1958. Severe drouth eliminated many of the earlier plantations.*
4. *Preference studies have shown that consumers readily accept Missouri-grown Scotch pine. Producers must emphasize quality tree production.*
5. *Missouri producers must follow sound production principles and become familiar with marketing structures and patterns.*



This bulletin reports on School of Forestry Research Project 245, "Marketing Christmas Trees" and information obtained through Regional Project NCM-20, "Marketing of Christmas Trees".