

New Mexico
Energy, Minerals and
Natural Resources
Department

April 1992



Guidelines for Growing and Marketing Christmas Trees In New Mexico

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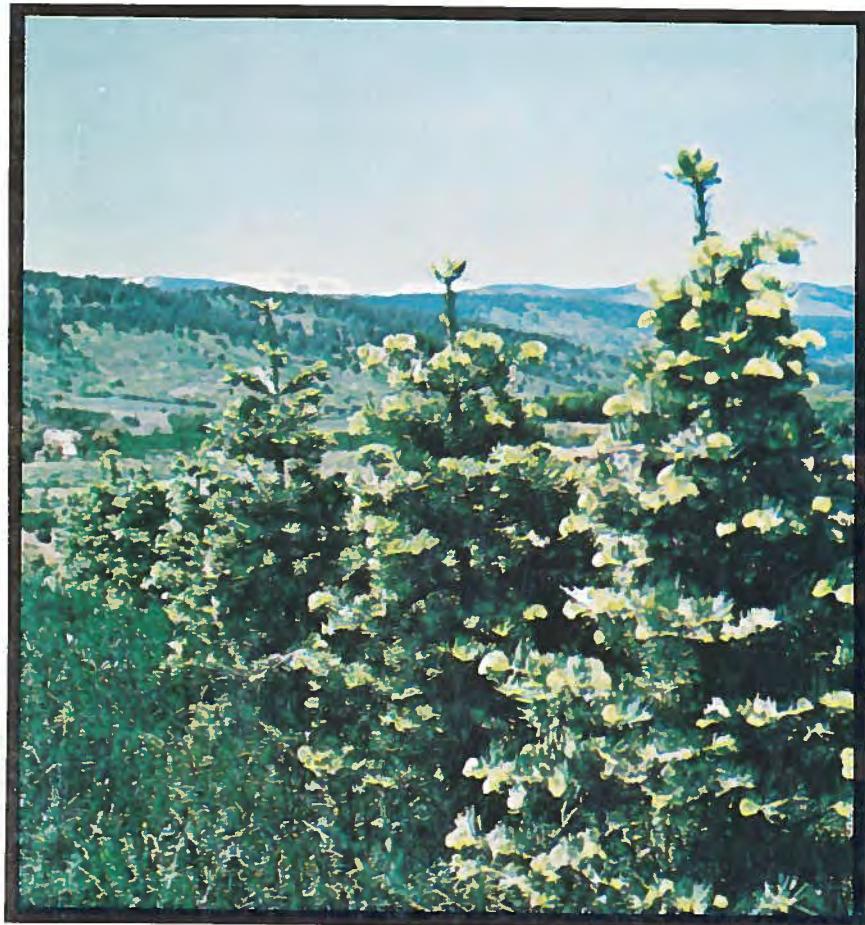


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Industry Trends—Market Outlook for New Mexico

Characteristics of Good Christmas Trees

Like other thriving industries, the growing and marketing of Christmas trees is a dynamic process. Growers must be alert to apparent market trends in order that they may more effectively control the numbers, kinds, sizes, and quality of trees that he is growing, or the manner in which they are being marketed. Some changes are long-term in their development and hence, predictable. Others, being more sporadic, are difficult to follow.

Christmas trees are a unique commodity because market value is based mostly on sentiment aroused by seasonal festivities. Christmas trees have a market value as families and businesses prepare for the holiday season; but after Christmas, cut trees lose their value.

An earlier study has shown that here in New Mexico, quality alone is the most important factor in determining retail price early in the holiday season. As Christmas Day approaches, size becomes the more important factor.

Popular species throughout the state and Texas (where many New Mexico produced trees are sold) include white fir, pinyon pine, Douglas-fir, Scotch pine, blue spruce and Englemann spruce. Popularity of species varies on a regional basis. White fir has been a best seller in the Albuquerque-Santa Fe area in recent years, while Lubbock, Texas prefers Douglas-fir.

Many New Mexico growers are now offering live potted Christmas trees. These trees offer the unique advantage of providing enjoyment during the holiday season with an evergreen beauty for decades to come. Even if customers have no room to plant a potted tree, they can be encouraged to donate their tree to their local church, park or organizations.

Quality has become one of the primary factors for pricing Christmas trees. Accordingly, the successful grower must gear his operation toward quality production. To do this, decisions in the over-all process must rest on an ability to evaluate traits that affect the grade of a Christmas tree. Christmas tree growers must know the kind of product they are trying to produce.

A Christmas tree plantation can earn profits if growth rate is adequate and trees conform to shape and density standards as follows:
(Study Figure 1 for descriptive terms)

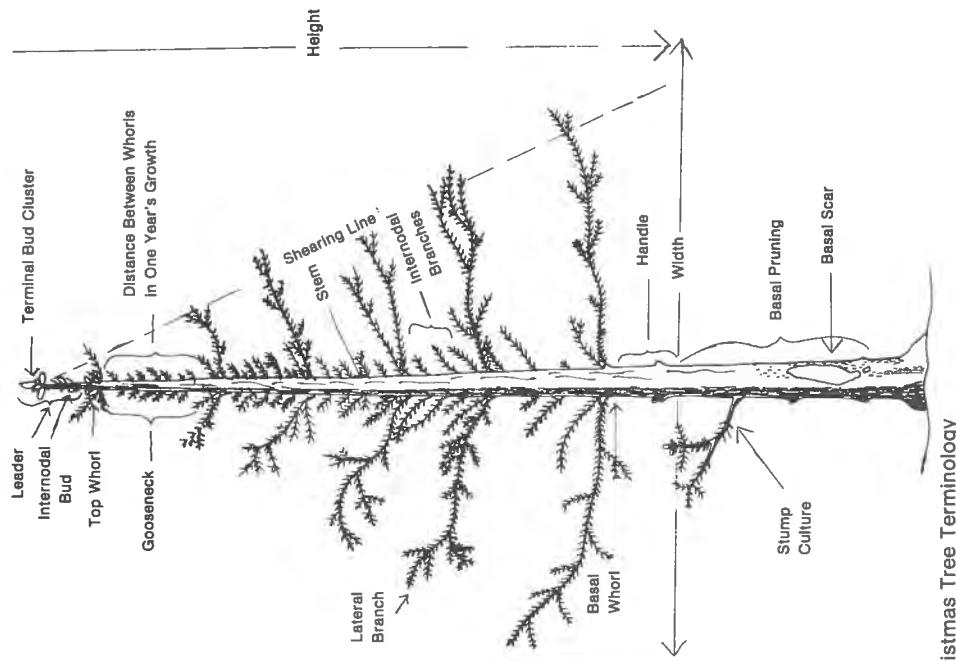


Fig. 1 Christmas Tree Terminology

1. A single and straight main stem, including a well developed, but not excessively long leader.
2. A dense to moderately dense crown. ("Crown density" refers to the compactness and amount of foliage present).
3. A symmetrical cone-shaped crown.
4. The crown should be neither too broad nor too narrow in terms of height. "Taper" is a term used to describe the width of a tree relative to its height.

A taper below 40 percent is termed "candlestick" and a taper above 90 percent (70 percent for species other than the pines) is described as "flaring." A taper of 40 to 90 percent for pines (40 to 70 percent for all other species) is considered acceptable.

5. The tree should have good overall balance. To evaluate "balance", the crown is considered in terms of completeness of fullness on four faces (quarters or sides) and three segments of length (bottom, middle, and top).
6. The bottom whorl of branches should be strong because this provides the optical foundation over which the rest of the crown is developed.
7. The tree should have a handle sufficient in length for mounting the tree in a holder (usually 1 inch for each foot of tree height, plus a small allowance for sawing to obtain a fresh cut preparatory to mounting the tree in water). The "handle" is that part of the main stem below the bottom whorl of the branches.
8. The tree should be fresh, healthy, and clean. "Fresh" needles are pliable and firmly attached. A "clean" tree is practically free of undesirable foreign material.
9. The tree should retain needles throughout the Christmas season.
10. Certain miscellaneous and perhaps minor features, such as fragrance and presence of cones, also enhance the tree's attractiveness.

Christmas Tree Grades

The Agricultural Marketing Service of the U.S. Department of Agriculture has established three standard grades for Christmas trees: U.S. Premium, U.S. No. 1 and U.S. No. 2. Many of the desirable traits listed above are involved in the minimum requirements for the three grades or marketable trees recognized under these standards (see Table 1). Trees that fail to meet even minimum requirements under the standards, fall under a fourth grade, called "culls". Growers can apply grading rules as criteria for evaluating crop quality, even though trees may not be marketed by grade.

**Table 1.
U.S. Standards for Christmas Trees**

		Required Standards for Grade			
Grade	Density	Taper	Balance	Foliation	Deformities
U.S. Premium	Medium	Normal 40-80% for pines 40-70% other species	4 faces free from damage	Fresh, clean, healthy & well trimmed	Minor only
U.S. No. 1 or U.S. Choice	Medium	Normal	3 faces free from damage	Fresh, clean, healthy & well trimmed	Minor only (Noticeable deformation permitted if tree is otherwise U.S. Prem.)
U.S. No. 2 or U.S. Standard	Light	Normal flaring or candlestick	2 adjacent faces free from damage	Fresh, fairly clean, healthy & well trimmed	Minor only (noticeable deformities permitted if tree is otherwise U.S. No. 1)

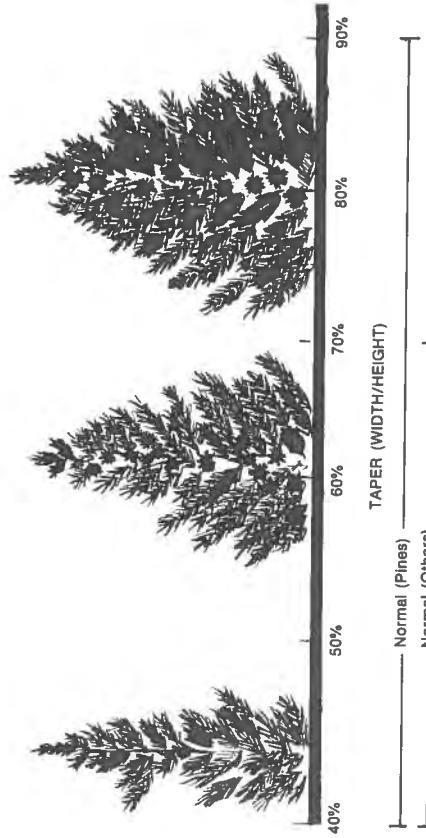


Fig. 2. Tree shapes according to U.S. Department of Agriculture Standards of Taper

Species for New Mexico

Choice of species to plant will depend on site conditions, availability of planting stock and expected markets. In general, native species are the most dependable Christmas tree producers.

Table 2 lists species that are most successfully grown in New Mexico.

A more detailed description of the species adapted to New Mexico conditions follows. Growth rates will vary considerably with site, seed source and culture.

Douglas-fir (*Pseudotsuga menziesii*), is a native evergreen tree species of New Mexico. It usually does extremely well on deep, internally well-drained soils. High quality Christmas trees have been obtained in 6 to 12 seasons.

Douglas-fir normally has a dense crown with a conical shape. It has moderate resistance to drought in native elevation range (6,500 to 10,000 feet), but requires supplemental watering when planted at lower elevations. Resistance to cold temperatures is moderate.

Douglas-fir makes slow initial growth. Seedlings may remain low and bumpy for a number of years. Some trees start height growth well in advance of others. Once height growth has begun, the rate of subsequent growth is good. One important aspect of Douglas-fir Christmas tree production is that additional trees can be grown from stumps after the first trees have been cut. Crops grown from stump sprouts can be harvested on a much shorter rotation without sacrificing quality.

White Fir (*Abies concolor*) is a native evergreen species of New Mexico. The tree is conical with regular whorls of stout branches. It is fragrant, has excellent Christmas tree form and color (bluish green). It grows slowly taking 10 to 15 years to reach six feet. It has low resistance to heat, drought and alkalinity. It is cold-resistant, but foliage may be damaged by winter wind and early frost in mountain valleys. White fir maintains needles throughout the Christmas season and can be shipped without loss of quality.

Colorado Blue Spruce (*Picea pungens*) is an evergreen tree with a natural conical shape. It has moderate resistance to drought and alkalinity, and high resistance to cold. Needles are sometimes extremely sharp and stiff and some may fall before the holiday season ends. It should be favored as a live potted tree for these reasons and because cut trees become brittle during shipment. It requires supplemental watering at low elevations. Estimated time to produce a marketable Christmas tree is 10-15 years.

Ponderosa Pine (*Pinus ponderosa*) A native evergreen species of New



Fig. 3: White fir (*Abies concolor*) Christmas tree ready for harvest.

Mexico. Young ponderosa pine has a pyramidal shape which changes to a more conical shape with age, but does not respond well to shearing. Growth is best on well drained sites where soil is deep and moist. It has moderate resistance to drought and alkalinity, and a high resistance to cold. With irrigation provided, Scotch pine will usually require 5 to 7 growing seasons after planting to reach Christmas tree size. NOTE: You must be careful to select the proper seed origin to avoid winter yellowing of foliage. Fertilizers will not correct discoloration. You

Scotch Pine (*Pinus sylvestris*) One of the most extensively planted European tree species. With enough open space, grows into a shapely tree, and so is very popular and brings a good price to growers. It grows best in moderate climates on well drained sites where soil is deep and moist. It has moderate resistance to drought and alkalinity, and a high resistance to cold. With irrigation provided, Scotch pine will usually require 5 to 7 growing seasons after planting to reach Christmas tree size. NOTE: You must be careful to select the proper seed origin to avoid winter yellowing of foliage. Fertilizers will not correct discoloration. You

should depend on sources from Spain, France or Turkey to avoid problems. Artificial foliage spray may be applied if some of the fast growing selections from northern Europe are chosen.

Afghanistan Pine (*Pinus eldarica*) Medium sized evergreen which was recently introduced to the United States from southwest Asia. It produces evenly spaced branch whorls each year resulting in a dense conical-shaped tree which requires little shearing. Afghanistan pine develops an extensive multiple root (tap root) system at an early age which gives it the ability to survive in hot, arid climates. It has high resistance to drought and alkalinity and moderate resistance to cold. No special fertilization is required. It grows best on well drained organic soils. Christmas trees can be produced in three to four years, two years from seedling in some cases.

Afghan pine is not usually hardy above 5,000 feet elevation, unless

protected from the cold. Because it grows vigorously into the fall months, foliage tends to dry abruptly when cut trees do not receive water from the consumer. Irrigation may be withdrawn toward the end of the production cycle to avoid late growth. Again, TREES MUST BE WATERED IN THE HOME TO AVOID FIRE HAZARD!

Because Afghan pine grows well in southern New Mexico, it can be used as a potted Christmas tree and transplanted, where species such as blue spruce would not survive. Potted Afghanistan pine Christmas trees, can remain indoors as long as three weeks, but a shorter time is better. Keep the tree in a cool room, away from hot air vents, water to keep soil moist (placing ice cubes on the soil surface minimizes drips).

After the holidays, place the tree on a shaded porch or patio to readapt it to the outdoors. Then the tree can be planted.

Arizona Cypress (*Cupressus arizonica*) is a native of Arizona. It has a tendency to develop columnar, rather than conical form, and is considered fair as a Christmas tree. A rapid grower, it reaches six feet in three to six years. It will survive well in sterile or alkaline soils with moderate to heavy watering during hot periods, through the first two years after planting. Although somewhat resistant to drought once established, Arizona cypress should be limited to the lower ½ of New Mexico due to lack of cold hardiness.

Pinyon Pine (*Pinus edulis*) Pinyon grows naturally in open stands on arid slopes. It has a conical shaped crown during juvenile years which becomes round as trees mature. Pinyon will succeed on exposed, dry slopes, but has little resistance to frost. Seedlings and new growth exhibit a bright bluish color. Pinyon is extremely slow growing. Growth rate is somewhat better when irrigated.

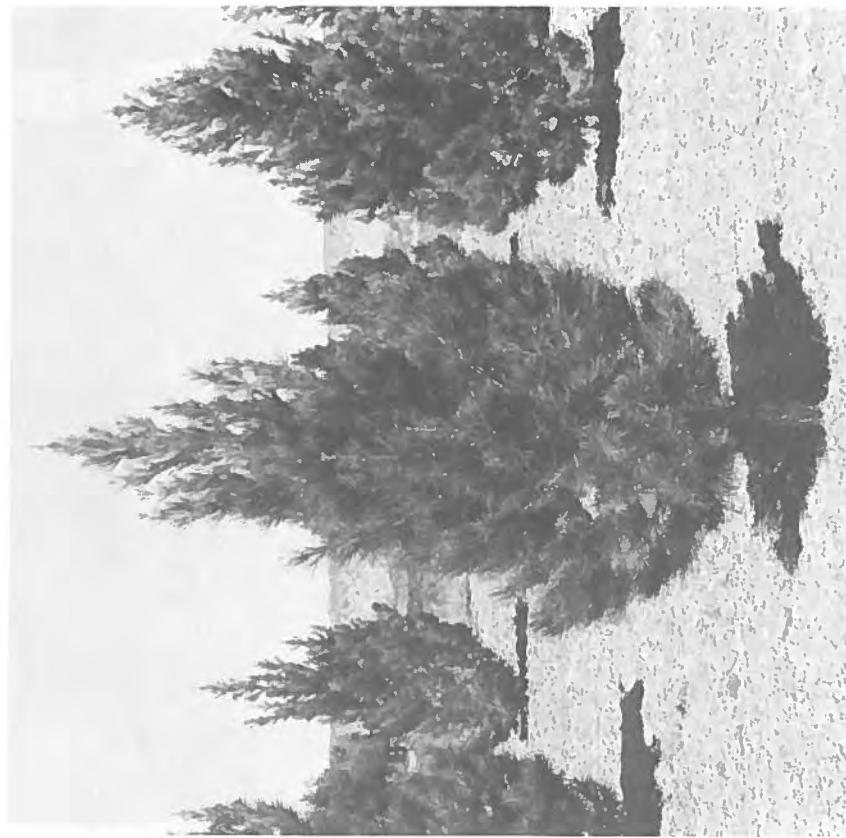


Fig. 4: Afghan pines growing on irrigated land in Southern New Mexico produce excellent Christmas trees under short rotations (usually less than 3 years).

Species for New Mexico						
Species	Moisture	Shade Tolerance	Elevation	Needle	Market	Dramatic Potential
Douglas-fir	Normally on moist site, however, needs shade to establish.	Tolerant	4,000 ft.-10,000 ft.	Short, deep green.	Good, prime	—
White Fir	Requires moist, well-drained soil.	Tolerant	5,500 ft.-10,000 ft.	Long, silver-blue, or silver-green.	Excellent	Occasionally used as an ornamental.
Colorado Blue Spruce	Requires fertile, moist soil & abundant moisture, however, will withstand drought and will tolerate extremes when established.	Tolerant	3,500 ft.-9,500 ft.	Short silvery-green	Good	Excellent Dramatic Potential
Ponderosa Pine	Grows on dry, shallow soils.	Tolerant	5,000 ft.-8,000 ft.	Long, blue-green	Fair	Good Dramatic Potential
Pinyon Pine	Grows in dry, shallow soils.	Intolerant, however, seedlings somewhat tolerate it.	Up to 5,000 ft.	Medium green,	Good	An excellent ornamental, high value for deferred trees.
Afghanistan Pine	Best on well-drained organic soils, high resistance to drought.	Intolerant	Up to 5,000 ft.	Long, blue-green.	Fair	Good Dramatic Potential
Arizona Cypress	Normally moist soil, drought resistant once established.	Intolerant	1,000 ft.-5,500 ft.	Scale like blue-green.	Fair	Good Dramatic Potential
Rocky Mountain Juniper	Best on moist, sandy or gravelly soils, withstands drought.	Intolerant	5,000 ft.-9,000 ft.	Very short, dark-green.	Fair	Good Dramatic Potential

Table 2.

Species for New Mexico

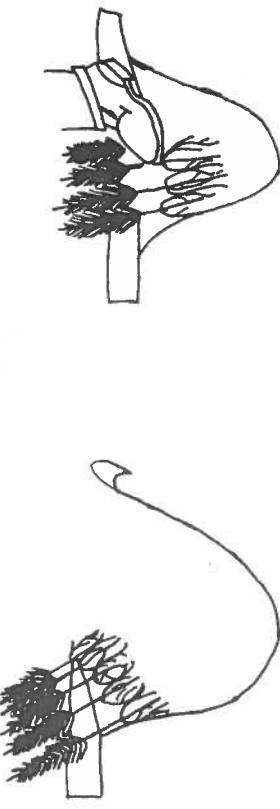
- planted the following spring. Make sure that all competing vegetation is removed, especially perennial grasses.
2. Disking and harrowing just before planting.
 3. Shaping the site for irrigation ditches.
 4. Locating access lanes (about every 200' and along the contour). Occasional disk ing makes them usable as fire breaks).
 5. Constructing fencing to exclude livestock.
 6. Having irrigation water immediately available for first irrigation right after tree seedlings are planted.
 7. Readyng a heeling-in bed (seedling in-ground storage area for bareroot seedlings) if all site preparation will not be completed before the date seedlings are to arrive.

Care of Planting Stock

The quality of the planting stock and the care given to it have much to do with a successful Christmas tree venture. Directly involved are the percentage of trees that will survive and the vigor of those that do live.

Bareroot Stock The most important consideration in handling nursery stock, is to keep seedlings cool and roots moist at all times. The trees must be kept moist until field planted! DO NOT LET THEM DRY. When seedlings are received from the nursery, bundles should be opened and the trees planted. If seedlings cannot be planted immediately, they should be refrigerated or stored in a cool area. Stock may be stored in refrigeration with the bundles unopened. Temperature should not be above 38 degrees F nor below 33 degrees F. Humidity should be above 90 percent. Each bundle of trees should be watered once a week. This may be done by standing the bundles on end and pouring water into the center of each one. Allow excess water to drain off before laying the bundle horizontally. DO NOT store seedlings any longer than necessary. Under the best refrigeration conditions, three weeks to a month should be maximum.

Another method of temporary storage for seedlings is "heeling-in." This is



Steps for heeling-in your trees. (1) Dig V-shaped trench in a moist, shady place. (2) Spread trees out evenly in trench, 3 or 4 trees thick. (3) Fill in loose soil and water well. (4) Complete filling trench with soil and press it down firmly.

Fig. 5 Heeling In

done by digging a V-shaped trench deep enough to receive the full length of the roots. Spread the trees out along the trench and cover the roots with moist soil, then water.

Containerized Stock Two of the major causes of plantation failures in the Southwest are poor physical condition of seedlings, stemming from improper lifting and refrigeration.

Containerized seedlings minimize the impact of these factors on plantation survival. The container method permits seedlings to begin and maintain rapid root growth in a near-natural condition. Seedlings are able to make better use of soil moisture and shock from transplant is reduced. Containers also protect seedlings from mishandling. Survival may be considerably better for container stock than bareroot seedlings on adverse sites.

If the seedlings cannot be planted immediately, store in a shaded area and keep moist. Water about every two days. **N E V E R** use the "heeling-in" method or store them in a refrigerator.

New Mexico State Forestry's Tree Seedling Program has available various species of containerized seedlings. Containerized stock available (species availability subject to change): Douglas-fir, white fir, Colorado blue spruce, ponderosa pine, Scotch pine, Afghanistan pine, and Arizona cypress. (See Appendix 2 for information on where to obtain planting stock and assistance).

When to Plant Most New Mexico tree planting is done in the spring. (Mid-March to Mid-May). The main consideration is to plant just after the last frost and just as soon as the top 18" of soil has thawed out. Fall planting may be considered only when there is no danger of frost heaving at the site and when deep winter snow cover is assured. Seedling survival is increased when the trees are planted prior to Spring growth.

Use of containerized stock will enable the grower to wait for New Mexico's summer rains. Container seedlings should be planted prior to Mid-July in the northern half of the State to allow sufficient root development before winter. Fall plantings as late as October have been successful in the lower one-third of New Mexico.

Planting the Trees

1. The period of exposure between removing planting stock from the bundles, transplant beds, or where they are heeled-in; and placement in the hole should be as short as possible. Take only enough trees so that they can be kept moist. Carry the roots in a box, bucket, or tray. This will make it possible to cover the roots with wet peat moss, sawdust, sloppy mud, or moist burlap. Take out one seedling at a time for planting. Dry roots may mean dead trees.



Fig. 7: Containerized seedlings may be watered prior to extraction to facilitate separation of root plug and container.

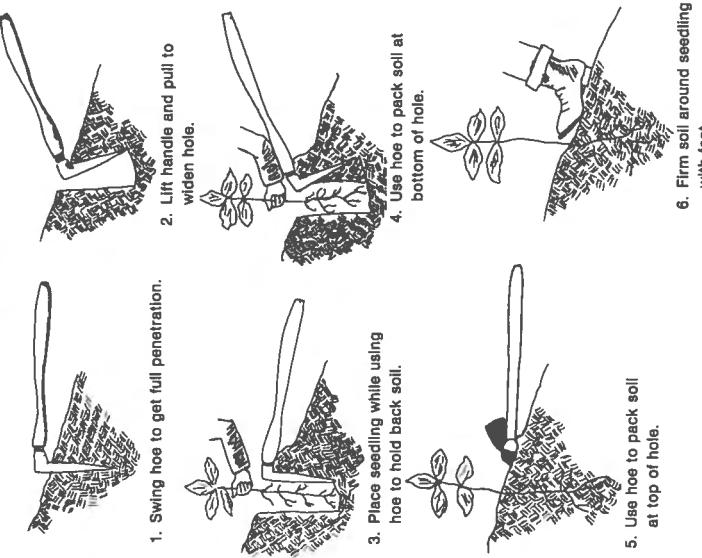


Fig. 8 Planting with a Hoe (Bareroot seedlings)



Fig. 8: New Mexico State Forestry's Tree Seedling Program has available various species of containerized seedlings. The container method permits seedlings to begin and maintain rapid root growth in a near natural condition. Containers also protect seedlings from mishandling.

2. Containerized seedlings may be watered prior to extraction to facilitate separation of root plug and container. The planting hole should be dug slightly deeper than the length of the plug. Dry surface soil should be removed before the hole is prepared. Satisfactory planting tools include power or hand auger, shovel, mattock, or planting hoe.
3. Place seedling in hole at the depth it grew in the nursery. This depth is indicated on the stem by the ground line, which is usually about one-half to one inch below the first needles. It is better to plant a little too deep than too shallow, but never deep enough to bury any foliage.
4. *Let the roots hang naturally without turning or twisting.*
5. Hold the tree in this position with one hand; then fill in with soil (about a third at a time), and tamp firmly with the other hand until the hole is filled. *Firm tamping is necessary to avoid air pockets.*
6. Use only moist mineral soil to fill the hole. Do not mix soil with snow, grass, sticks, rocks, etc. The roots must be in direct contact with the soil.

7. After the hole is filled, tamp again with your heel or handle of the planting tool. Tamp firmly.
8. Cover the ground around the tree with a thin layer of loose soil as a mulch, or mulch with other material.
9. Water after planting to aid in packing the soil around roots and to assure ample water for a start.

One man power augers have become popular in recent years, and a simple unit can keep three or four men busy planting. Auger planting works best in loamy soils and can be difficult on sites with heavy clay, rocks, or massive roots. Heavy litter or vegetation on the soil surface must be scalped away ahead of the auger or the soil from the planting hole is lost in this surface debris.

Machine planting is practical only when soil conditions are favorable to adequate machine packing of the ground around the seedling root system. Heavy soils which are wet or sticky at planting time should be planted by



Fig. 10: Machine planting of Afghan pine on irrigated land in southern New Mexico. Conventional farm machinery with farm-constructed planter can reduce planting time.

one of the several hand methods discussed. Soil should be moist when seedlings are planted.

The size of planting, condition of the site, and the availability of a planter are main considerations in determining whether or not to use a planting machine. Machine plantings usually give better survival than hand methods on sites that are favorable for machine operation. Hand planting may be more economical than machine planting, if the planting operation involves less than a few thousand trees. On large planting jobs, a machine usually will cut planting costs considerably. Hand planting generally averages between 300 to 600 trees per man day on well prepared sites. Planting machines ordinarily range from 600 to 1,000 trees per hour. (Contact your nearest Division of Forestry office for more information and assistance as to how to plant your trees).



Fig. 9: Machine augers can speed the work and can be operated by one man.

Spacing

Plantation Management

Proper spacing is an important item in plantation management. Seedlings are small and the tendency is to plant them thicker than they need to be. Two common spacing methods used are 5×5 and 6×6 feet. The $5' \times 5'$ spacing allows room for development of a six to eight foot tree; the $6' \times 6'$ spacing a little taller. A closer $4' \times 4'$ spacing can be used if smaller trees (table tops) are harvested before reaching the usual six to eight foot size, or if especially narrow (less than 50 percent taper) trees are to be produced. The number of trees per acre using these spacings is:

$4' \times 4'$ 2,722

$5' \times 5'$ 1,742

$6' \times 6'$ 1,210

Tree spacing patterns may be either:

X X X X X	X X X X X
X X X X X	X X X X X
X X X X X	X X X X X
X X X X X	X X X X X
X X X X X	X X X X X

OR

X X X X X	X X X X X
X X X X X	X X X X X
X X X X X	X X X X X
X X X X X	X X X X X
X X X X X	X X X X X

The spacing example on the right allows for more even crown development with slightly closer between row spacing.

Moisture availability, cultivation machinery and markets will determine optimum spacing. These factors should be given consideration in the planning stages.

Irrigation

Plantation irrigation is necessary in New Mexico. Amount and frequency will vary according to site and soil type, but even at high elevations some irrigation during the first year is necessary for satisfactory survival and establishment. In hotter, drier areas, irrigation should be planned for one to two week intervals during the summer, or until rain restores soil moisture. Seedlings should be irrigated often enough to keep soil moist and plants in active growth. It is especially important to have water available when succulent new growth appears and during bud development. New growth will droop and die back if water is withheld, resulting in poorly formed trees. Supplemental water can be applied through sprinklers, trickle emitters or by flooding. The method of choice will depend on water source, cost of labor and equipment and topography.

Weed Control

A serious handicap to survival and good development of a young plantation is competition for soil moisture and light by other vegetation. Weed control is beneficial and essential in that it (a) reduces competition, (b) lessens danger of rodent damage and (c) reduces fire hazard. Weed control within 3 to 4 feet of seedlings is necessary until trees have grown well above the influence of grass or weeds that may become established. Control is recommended for at least the first two years following planting. Keep your planting free of weeds and grasses by SHALLOW cultivation or with herbicides. Cultivation can be done with one of several types of mechanical cultivators suitable to soil type and farm machinery available. You must balance weed control measures with proper concern for soil erosion that might arise from cultivation. Consult your local Soil Conservation Service to avoid irreparable damage to your land.

In the Southwest, much attention is usually given to perennial grasses because they grow primarily during the spring dry period of May and June, and are capable of using most of the available soil moisture at the expense of newly planted seedlings. On abandoned croplands, seedlings must contend with alfalfa with high water requirements and the ability to strongly compete for moisture in the upper 6 inches of soil.

Most growers today use various chemicals for weed control. Herbicides

can be effective in reducing weed growth within the tree row. Some herbicides can be applied at low rates per acre over the tops of newly planted seedlings with very good results. Contact your nearest District Forester or County Extension Agent for the best chemical to use and the method and rate of application for your area. If you do decide to use an herbicide, be sure to read all directions and labels very carefully.

REMEMBER: Herbicides can damage or kill trees if applied without proper care.

Mulching

In areas protected from strong wind, a light mulch of leaves, leafmold, wood chips, or other similar material around seedlings may conserve soil moisture. Mulching also reduces soil temperature and discourages weed growth.

Fertilization

Fertilization is used to improve color, luster, and density of needles and to increase growth rate and vigor of leaders and branches. Slow growing trees with light, off-color needles and weak branches are most likely to benefit.

Fertilizer must be used with caution! Improperly applied, fertilizers injure seedling roots, cause needle browning, and trees may grow too fast. In addition, stimulation of competing vegetation may cause serious management problems. Large scale applications should not be made until sufficient small trials have proven the effectiveness of the application under local conditions.

Fertilization of trees at planting time may burn roots and is not recommended. Once trees are established, fertilizer can be applied in bands alongside trees, or scattered evenly under the drip line of the tree. Fertilizer should never be placed in direct contact with the root system. The rate of application varies considerably, depending on soil deficiency. However, one-third to one-half cup of fertilizer is usually adequate for newly established trees. Fertilizer should be added in early spring, before trees break dormancy.

Generally, the most common deficiency is lack of nitrogen, especially in abandoned fields. Best results from nitrogen fertilizer are obtained by scattering it evenly under the drip line in early spring, when buds first begin to swell. Nitrogen increases green color, needle bulk, and branch stiffness during the following summer and fall. It stimulates height-growth only slightly during the first growing season after its application, but frequently doubles during the second growing season. Therefore, nitrogen should normally be applied only to those trees that will be cut the same year, except on sites where growth is extremely slow or where shearing is contemplated. Nitrogen should be applied only where good weed control can be maintained.

Use of fertilizers will stimulate the growth of grass and weeds and an effective herbicide program should be coordinated with nutrient applications.

Fig. 11: A white fir plantation established in shallow furrows following soil preparations. Small grain wind-break collects winter snow and protects seedlings from sun and wind during the first year or two.



Other Protection Problems

Trees of seedling size are subject to various forms of weather and animal damage.

1. Fire protection is essential. Fire can suddenly and completely destroy a Christmas tree plantation. The likelihood of fire is a paramount consideration in selecting a plantation site. A firebreak around the plantation should be cleared of all vegetation and kept clean. Any brush or other material from the original site preparation should be disposed of prior to planting. Weed control within the plantation will also reduce fire hazard.
2. Theft and trespass are best guarded against by locating the plantation where it can be watched or patrolled. Theft can be a real problem at harvest time. (See Appendix 3 for state laws that help protect the landowner).

3. Deer may cause considerable damage to young seedlings. Where deer are numerous, trees may be browsed so badly that they become unacceptable as saleable Christmas trees. Also, after trees reach heights of 3 feet or more, they may be damaged by deer antlers. Deer repellants are not always reliable. The effectiveness of any repellent will be determined partly by the care used in its application, its weathering ability, the severity of the season, and general food availability (The New Mexico Game and Fish Department can assist with problems that may arise from deer). Deer proof fences can be built and, in the long run, provide the best protection.

4. Rabbit and rodent damage can ruin a young plantation and control may prove difficult. Removal of cover, tight fences around the plantation and individual tree screens may offer solutions depending on severity of the problem and farm economics. Information about poison and repellants can be obtained from the New Mexico Game and Fish Department.
5. Seedling disease in New Mexico is not cause for concern in plantations. However, you should be on the look-out for insects that may cause serious damage. These include tip and shoot moths, pine needle scale, *ips* engraver beetles, Douglas-fir tussock moth, and spruce budworm. Greatest damage can occur from pine tip moths, spider mites and spruce gall aphids.

Pine Tip Moth These insects primarily attack very young ponderosa from 6 inches to 6 feet. Although mortality is rare, heavily infested trees may be severely stunted or deformed. Generally, ponderosa pine grow out of the susceptible state within a few years but the branch tips of pinyon are susceptible to attack for many years. The adult insect develops in May and June, and damage is evident in early summer. Tips, twigs, laterals, and terminals turn a straw color, and needles fall off in late fall.

In the forest environment, chemical control measures are rarely necessary except in young plantations. Heavily attacked tree plantations may require an insecticide for control.

1. **Spruce Gall Aphid** There are several kinds of spruce gall aphids which form cone-shaped galls on the terminal twigs of various spruce species. The most common in New Mexico is Cooley spruce gall aphid. It is often troublesome in Christmas tree plantations, where the young trees may be aesthetically damaged by large numbers of unsightly brown galls. These insects attack two different host trees: spruce and Douglas-fir. On small spruce Christmas trees, galls may be pruned off and disposed of before the release of the nymphs which become winged and migrate to Douglas-fir. It may also help to plant spruce or Douglas-fir exclusively. Instead of planting both tree species together.

Spider Mites Spider mites can be green, yellow, orange or red, often with black or dark pigmented patterns. The spruce spider mite can damage many of the conifers that may be grown in New Mexico as Christmas trees. Species of spruce, fir, junipers, pines and Douglas-fir are among the principal hosts of the spruce spider mite. Spider mites feed by sucking plant juices from the leaves with their needle-like mouth parts, thus causing spotting, fading, yellowing, silvering, browning, and premature fall of leaves. Heavy infestations may be detected by the conspicuous webbing.

Spraying of the trees may be necessary, but the right spray must be used because some chemicals aggravate mite infestations. Contact your nearest District Forester or the Forestry Division in Santa Fe if you suspect insect damage.

6. Root rots often result from over-irrigation and can be controlled somewhat by cutting down on frequency of irrigation.

Natural Stand Conversion

several branches at the base of the tree for stump culture subsequent to harvest. A few years after the tree has been cut, limbs begin to turn up and with the exception of one main stem, are pruned.

Pruning and shearing of pinyon trees in natural stands will create a more attractive Christmas tree, competitive with artificial and plantation grown trees. (See Figure 2 for acceptable tree shapes).

Natural stand conversion should be considered if you own forest land with stands of small trees of species in demand for Christmas trees. You must determine if the trees exhibit desirable growth characteristics. This can be done by observing the vertical distance between branch whorls. The stand must also be accessible for tree removal in October and November.

Good planning is the key to converting a natural stand of small trees to profitable Christmas tree production.

Three steps are required:

1. Hardwood control: Remove competing hardwood trees and brush.
2. Space thinning: Remove excess trees so that the best trees may develop into quality Christmas trees. Periodic thinning can eliminate:
 - * Crowding which creates competition for nutrients and space and slows growth.
 - * Unwanted trees which fail to develop into marketable stock.
 - * Trees too large for Christmas trees and not needed for seed trees.
 - * Unwanted species.
3. Basal pruning; remove unwanted lower branches between bottom whorl of the saleable tree and the ground. One or more whorls may be left near the ground if completed basal pruning would remove as much as $\frac{1}{3}$ of the total tree crown, or if stump culture is to be practiced.

The final step to converting the natural stand to a productive area is development of an all-weather access road to the Christmas tree area.

Natural Stands of Pinyon Christmas Trees

Pinyon trees can be harvested and cultured into saleable Christmas trees. They can also be cut on a rotation basis if desired.

Cultural techniques include thinning, pruning, and shearing, stump culture, and weed control. If the management goal is complete conversion, then these techniques would be applied to trees surviving cabling or chaining. Regeneration planting may be needed to sustain tree production on some sites.

Thinning involves removal of trees in dense stands so that those remaining will receive sufficient sunlight for limbs to develop uniformly on all sides. During thinning, "handles" can be made on main stems of trees by removing branches for a foot or so below what will become the basal whorl of the tree. These are cut below a full whorl of branches, leaving

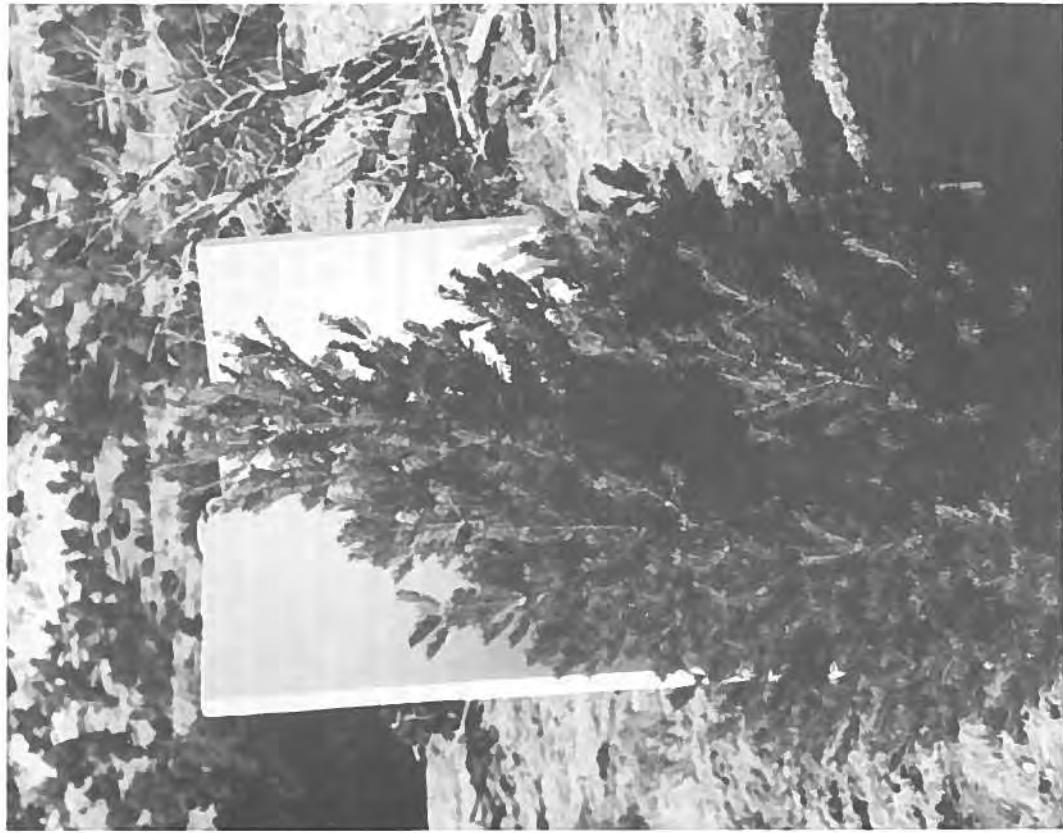


Fig. 12: Juvenile pinyon pine showing excellent taper and foliage density. Naturally grown specimens are a favorite of many New Mexico families.

Pruning Christmas Trees

When to Start Shaping Trees

The time to begin shaping will depend on growth of trees. Usually there is a period of slow growth while the tree is becoming established after which growth increases rapidly exceeding one foot per year. If rapid growth is not checked, the tree will have a spindly or "leggy" top. Pruning should be started as soon as the leader develops a length out of proportion to the laterals. Usually this occurs when the tree is 2 to 3 feet tall. This will be the third to fourth year after planting for most pines, third to fifth year for spruce and firs, and may be after the 1st year for such rapid growers as Afghanistan Pine.

Shearing? Shaping? Pruning?

Shearing, shaping and pruning are all terms used by Christmas tree growers when referring to the art of a well-formed, compact, shapely tree. The term "shaping" is the most precise, and it is done by both shearing and pruning.

"Pruning" involves the studied and selective removal or cutting back of individual branches. Only long leaders are pruned back to a suitable length. Extra stems or leaders are pruned away, exceptionally strong side branches are pruned back to a node, and the bases of trees are cleaned by the pruning away of any superfluous or dead branches.

"Shearing" is the clipping of both terminal and lateral shoots. Shearing is usually confined to the removal of parts of the shoots of the current or most recent growing season. Shearing trims trees without consideration of individual branches. In either case, shearing or pruning the tree is being "shaped."

Pruning Objectives

1. Allow only one main stem and, therefore, only one leader.
2. Assure a sufficiently compact crown.
3. Develop symmetry and balance in the crown.
4. Establish and improve the base of the tree.

What Tree Shape is Best?

The ideal shape for Christmas trees should resemble a cone, wide at the base and tapering uniformly to the tip. The ideal tree would be about two-thirds as wide as it is high, or a taper of 66½ percent. This means a tree that is six feet high would be 4 feet wide at the base. Acceptable taper in spruces and firs is from a minimum of 40 percent to maximum of 70 percent. In the pines, which often have a greater taper, acceptable standards will range from a minimum of 40 percent to a maximum of 90 percent. (See Figure 2).

A simple rule to follow for pines is to shear when needles are $\frac{1}{2}$ to $\frac{3}{4}$ the length of last year's needles. The leader should be cut to one foot lengths and the top whorl to 6 to 8 inches. Lateral branches should be cut to maintain a cone-like symmetrical form.

Spruces and Firs Unlike the pines, which are always pruned during periods of active growth, this group of trees is usually pruned during dormancy, that is, during late summer, fall, winter and early spring. Light pruning can even be done during the growing season, however, the dormant season is recommended for several reasons.

- * work can be scheduled during the off season for other activities.
- * weather is often more desirable for work.
- * in dormant shaping the remaining buds receive additional nutrients during the following growing season and usually give added vigor to the tree.
- * last year's shaping wounds are usually covered by current year's growth.

Table 3.
**Approximate Time Schedule for Shearing the Pines
(Slight Variations May Occur Due to Site Quality)***

Dates	Age	Height of Trees	Practice to Apply
June 1 to Aug. 10	1st year	4 to 10 in.	None
	2nd year	10 to 20 in.	None
	3rd year	20 to 30 in.	First shearing, remove multiple stems and deformities. Cut back terminal and laterals. Remove bottom whorl of branches to produce handle.
June 1 to Aug. 10	4th year	3 to 4 ft.	Second shearing, select main terminal, cut back, then shear laterals.
June 1 to Aug. 10	5th year and 6th year	4 to 6 ft.	Third and fourth shearing—need little work. Pay special attention to terminal leader. Cut to length then clip any extra long growth from laterals.
June 1 to Aug. 10	7th year or 8th year	5 to 7 ft.	Allow to grow out. Little to no shearing, except extra long terminals.
Nov. 15 to Dec. 20	7th year or 8th year	5 to 7 ft.	Harvest

* On the very good sites, trees will grow rapidly and need shearing in their third year and will be ready for harvest at the end of the sixth growing season. On poorer sites the growth may be much slower; the trees will not need shearing until the fourth season, and will require 7 to 8 years to reach harvestable size.

Table 4.
Approximate Time Schedule for Shaping Spruces and Firs*

Dates	Age	Height of Trees	Practice to Apply
	1st to 3rd year	5 to 20 in.	None
Oct. 1 to Apr. 1	4th to 5th year	20 to 30 in.	First shearing, remove multiple stems and deformities. Cut back leader and shear laterals. Remove bottom whorl of branches to produce handle.
Oct. 1 to Apr. 1	6th to 7th year	30 to 40 in.	Second shearing, clip main terminal and shear laterals. Cut out abnormal lateral growth.
Oct. 1 to Apr. 1	8th to 10th year 11th to 12th year	4 to 6 ft. 5 to 7 ft.	Same as above. Allow to grow out and harvest.

*On the very good sites, trees will grow rapidly and need shearing in their third year and will be ready for harvest at the end of the seventh or eighth growing season. On poorer sites, the growth may be much slower; the trees will not need shearing until the fourth season, and will require 12 to 13 years to reach harvestable size.

Pruning Tools

Many different tools are used for pruning and shearing. Personal preference, determined in part by one's training, is a factor. Small *pruning shears* of the anvil type are a good choice. Available in several sizes, they are light and less fatiguing than most cutting instruments. *Hedge shears* can be used effectively if you can avoid the tendency to prune in a stair-step fashion up the tree. A sickle and machete can be used to do a fast job. *Trimming knives* are used extensively in the Pacific Northwest. Growers that use knives are in most cases the ones that produce trees of superior quality. Safety precautions must be taken when using knives, and leg guards required.

Power driven *hedge pruners* are in wide use, but they are much more expensive to operate. Gasoline and electric powered models are available. Rotary types are the most popular of the power driven tools.

Pruning tools should be maintained in a sharp condition and any moving parts well oiled. Resin accumulations should be periodically scraped from the tool's surface or removed with such solvents as turpentine or mineral spirits.

How to Shape and Shear

Pines Begin pruning by cutting the leader to desired length (12 to 14 inches is usually best); then clip the laterals of the terminal whorl so that they are shorter than the terminal. The leader is cut at 45° angles, with the slope of the cut facing west, promoting faster healing. An angle cut is needed to form a strong apical bud at the top end of the cut. Next proceed around the tree and clip all laterals so as to shape the tree into a cone. While shearing the lateral branches, it is best to hold the shears or knife at an angle so as to cut the branches in line with the contour of the cone rather than as flat steps. When using the knife, use a continuous downward stroke. Prune off the bottom whorl of branches to produce a handle at the base of the main stem.

On the second and third shearings, proceed in the same manner as for the initial shearing but take more care to select and insure a main terminal leader. Remember to hold the lower laterals in so the tree will have proper taper. Shearing should not be done during the last season before the tree is harvested except to remove obvious deformities.

Scarring

1. Basal: Skin off strip of bark 4" to 21" long to generally slow the growth. Scar should be about 10" below bottom whorl to avoid damaging the "handle".
2. Leader: Slice a thin strip from base of leader. This will slow leader growth one year without affecting the lateral branch growth below the scar.

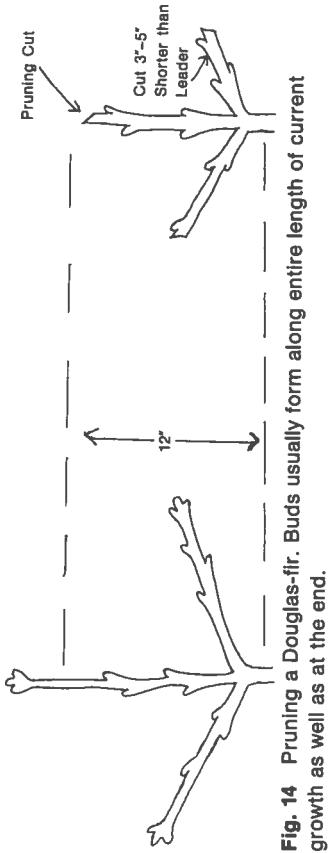


Fig. 14 Pruning a Douglas-fir. Buds usually form along entire length of current growth as well as at the end.

Stump Culture

If a tree is cut above a branch whorl, it will often turn upward and produce another tree or trees. Although less common, a new leader can also be produced by adventitious buds which develop below the cut.

When the superfluous branches are removed and the best is given routine pruning treatment, a good tree may result. Excess branches are removed to prevent crowding and interference with the favored branch.

Pines Pines may produce a new tree from an up-turned limb but these are generally less straight and usually the crowns are not as compact as the original tree. Because this practice often produces inferior trees, stump culture cannot be recommended as a general practice in pine stands.

Douglas-fir and True Firs Stump culture has the greatest value in both wild stands and plantations of the true firs and Douglas-fir. Branches left on the stump turn up in a very straight and erect manner and properly cultured can produce Christmas trees on a faster rotation than trees grown from seed.

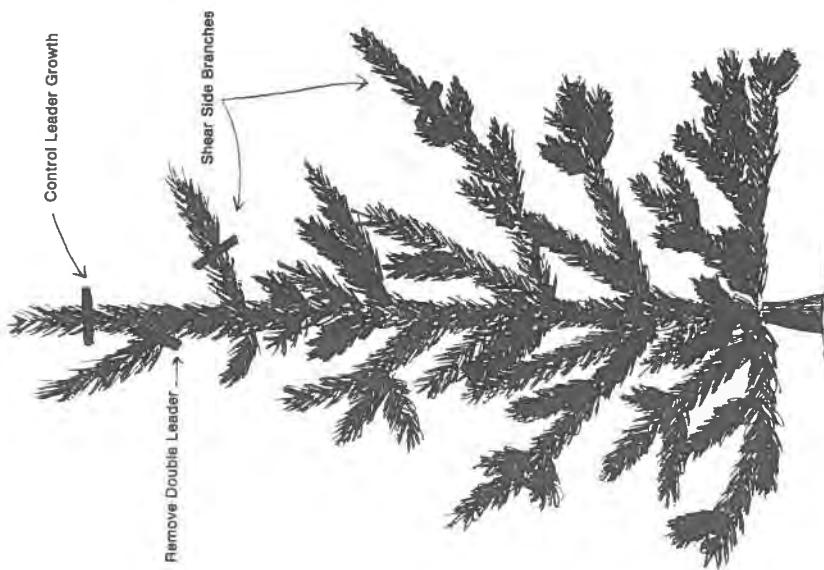


Fig. 13 Example of Pruning a Pine

Spruces and Firs Begin shaping by first cutting back the terminal leader to proper length (8 to 12 inches). Make the cut at an angle $\frac{3}{8}$ to $\frac{1}{2}$ inch above a good live single bud which will grow and develop into a terminal shoot.

WARNING: If this cut is made just above two or more buds in a cluster, you may encourage the development of multiple leaders.

After the main terminal is cut to proper length, proceed to shear the lateral branches and shape them into a cone-shaped tree without regard to individual branches. If there are some that are extra long, cut them back to form. Dormant buds will then develop and the new growth from these buds will cover up the shearing wounds. Remove the bottom whorl of branches to produce a handle at the base of the stem.

Second, third and fourth shearings on these trees will be much the same as the first but with special emphasis upon maintaining a single terminal leader and satisfactory taper.

Harvesting and Marketing

loading and unloading and if stood upright to thaw out. However, prolonged storage will cause needle loss.

Harvesting

Cutting Although local markets will support cutting into December, harvest for wholesale markets is usually done in late October and throughout November. Trees at remote locations and higher elevations should be cut first, leaving more accessible trees for later removal in case of bad weather. Cutting should occur as close to the shipping date as possible to maintain freshness. Stored or stock piled trees should be kept in a moist, shady and cool place.

A harvest cut in any particular area may spread over 2 or 3 years, removing each year's prime trees. The area should be cut clear the final year and replanted, naturally reseeded or stump cultured. Scotch pine will require early cutting to prevent foliage yellowing or browning.

Transportation Roughly 1,200 piled white fir or 1,500 Douglas-fir trees may be loaded on a standard semi-trailer. Pines and blue spruce will fill a standard semi-truck with only 500-700 trees due to their stiffer branches. Roughly, 150-200 trees can be loaded on a 1-ton-flat-bed truck.

Careful loading is essential, as many of the trees may freeze and become extremely brittle. Damage to trees can be reduced if the truck is lined with boughs to cushion the trees.

Tree Bundling Some producers bundle trees just prior to shipping by:

1. Laying several trees across sawhorses and wrapping with twine.
2. Stove piping, shave tree, butt first, through a large diameter pipe, wrapping with twine as it comes out the other end. Tie with standard untreated binder's twine. Average production: 150-200 bundles per man per 8 hour day.

Standard Tree Bundles (Bales)

Tree Height	Numbers in Bundle
2' and less	10-12
2'-4'	6-8
4'-6'	5-6
6'-7'	4
7'-8'	3
8'-10'	2
10' and over	1

Many producers will pile their trees rather than bundling them. Piling trends to flatten the trees and often allows a greater number to be loaded on a truck. Trees recover well from piling if handled carefully during

Marketing

Marketing Marketing is the most poorly understood and mis-managed phase of the entire Christmas tree business, and must be a successful operation to achieve reasonable profit. After six or more years of planting, fighting weeds, insects, disease, rodents, deer, drought, floods and hail and shearing in 90 degree plus heat, the Christmas tree operator deserves a fair return on his investment. He must protect his interests with careful financial planning.

Most growers with a small number of trees to market should probably try to merchandise as many trees at retail as possible for they can receive a mark up for cutting and transporting the trees and will receive top dollar for their product. All retail sales should be cash, hence no loss or bad credit.

Medium size growers may wish to wholesale a portion of their crop and retail as many as time permits. The largest growers may find that their volume is such that they will operate only on the wholesale level.

Wholesaling Trees In wholesaling trees from the plantation, there are two major outlets. One is to dealers or other wholesalers, the other is directly to the retailer. In addition, some sales may be made to municipalities for street decoration. Generally, it is more profitable to sell directly to the retailer.

Method of Selling Trees There are a number of different methods available to the grower for the sale of Christmas trees whether you market trees cooperatively or as an individual.

1. Wholesaling
 - A. On the stump
 1. Entire block, all harvestable trees
 2. Tagged trees
- B. Cut Trees
 1. Decked at the plantation
 2. Delivered to rail sidings
 3. Loaded on trucks or rail cars
 4. Delivered directly to retail lots
2. Retailing
 - A. On the stump (buyer selection and cutting)
 - B. Cut trees
 1. At the farms to retail trade
 2. At retail lots owned or rented by growers
3. Consignment
 - A. Cut trees delivered to retailer on consignment, payment to be received only for trees sold—not recommended.

In making wholesale sales, contacts should be made early in the season (July or August). A sales contract should be executed and the grower should insist on partial payment at this time with the remainder paid at time of delivery. Such a contract should contain the following information:

1. Quantity of trees sold by species, size and grade.
2. Legal land description defining the cutting area boundaries, and description of the trees to be cut.
3. Price per tree or per linear foot and conditions of payment.
4. Date to start cutting and termination date of the agreement.
5. Identity responsible person for harvest, transportation of trees to place of delivery and payment toward sale.
6. Handle length.
7. Place and date of delivery.
8. When title to trees passes from grower to buyer.
9. Any special requirements or conditions (slash disposal, stump treatment, protection of uncut trees, right to use roads, repair of damaged improvements, bond to guarantee contract performance).

If more growers would have available printed contracts similar to the one illustrated (Figure 15) and insist on their use, far fewer growers would be left holding the bag after their trees were gone.

Method and Time of Payment Christmas trees are a perishable product and their value drops precipitously on December 25th each year. Sellers should insist on being paid for their trees prior to this date by all except those dealers who have well established credit.

Retailing of Trees Highest per tree profits can be realized when the grower sells directly to the customer, but retailing is very demanding in time and sales imagination. Retail growers must be aware of the need and opportunities for effective advertising. Success will hinge on improved services; better trees, good display of merchandise, convenient and adequate parking, and a prompt and courteous sales procedure.

Grover-retailers often elect to operate well-located sales lots in or near cities. Another profitable method is "choose and cut" selling. Customers select, cut, and carry trees from the plantation. Buyers are often willing to drive long distances for this privilege and often pay higher prices.

NO. _____	DATE _____	Received subject to terms and conditions contained herein.	
FROM: _____	of _____	, New Mexico,	
owner of the premises on which the following described Christmas trees, evergreen boughs, or other plants (without roots attached) were grown do hereby grant, sell and convey to _____		CONSIGNEE _____	DESTINATION _____
for and in the consideration of \$ _____ and other good and valuable considerations, receipt of which is hereby acknowledged and give consent and permission to enter upon the premises to remove and transport the following:			
NUMBER	DESCRIPTION OR ARTICLES	signature of CONSIGNOR	
		This shipment shall not be delivered without payment of freight and other charges of:	
	\$ _____ dollars		
signature of TRUCKER			
Legal description of land where grown:			
Township _____	Range _____	Section _____	Portion of Section _____
County _____			
or, I have in my possession written evidence of the lawful acquisition of above article.			
Witness (signature) _____		Legal signature of OWNER _____	
Witness (signature) _____		Address _____	
		Address _____	

FIG. 15 Memorandum of Sale and Shipment

Appendix 1 Costs and returns per acre for Christmas Tree Production

Appendix 2 Additional Sources of Information

The following is a list of items to consider to determine if growing Christmas trees will be a profitable enterprise.

Costs of Growing Trees

Site preparation, labor

Site preparation, equipment

Purchase of seedlings

Planting, labor

Disking, labor

Disking, equipment

Herbicide application, labor

Herbicide cost

Mowing, labor

Mowing, equipment

Shearing, labor

Shearing, equipment

Fertilizer, labor

Fertilizer, cost

Protection, cost

General overhead

Total cash costs

Interest on costs, cumulative
Total growing costs

Harvesting costs

Labor

Equipment

Transportation

Total harvesting costs

Income

Gross Income from tree sales

Net Income after harvest cost

Net Income

Containerized stock for Christmas trees can be obtained from the Energy, Minerals and Natural Resources Department, Forestry and Resources Conservation Division. Contact your nearest District Forester or the Division's Santa Fe Office for information about the seedling program and for assistance.

SANTA FE OFFICE

P.O. Box 1948

Santa Fe, NM 87504-1948

827-5830

SOCORRO DISTRICT

District Forester

P.O. Box 946

Socorro, NM 87801

835-5728

LAS VEGAS DISTRICT

District Forester

Rt. 1 Box 100

Chama, NM 87520

588-7831

CAPITAN DISTRICT

District Forester

P.O. Box 441

Las Vegas, NM 87701

425-7472

CHAMA DISTRICT

District Forester

Rt. 1 Box 100

Chama, NM 87520

588-7831

CIMARRON DISTRICT

District Forester

P.O. Box 5

UTE Part, NM 87749

376-2204

BERNALILLO DISTRICT

District Forester

P.O. Box 458

Bernalillo, NM 87004

867-2334

Mora Research Center, located near Mora is an agriculture experiment station, where many field tests on Christmas tree production can be observed. Visit the facility at your convenience to see many of the species and methods described in the text.

Appendix 3
New Mexico State Laws

State statutes have been developed to protect the interest of the forest landowner and the forest resource.

68-2-22. Cutting and Removing Woody Material Without Written Consent.

No person shall cut, remove, transport or sell any woody material without written consent of the owner or proof of ownership, whether the land is publicly or privately owned. The written consent shall contain a legal description of the land where the woody material is removed, the name and address of the legal owner, the volume of material to be removed, and the date of execution and the expiration date of the consent. In addition, any person purchasing woody material from another for the purpose of resale must possess a valid bill of sale, the amount of material purchased and the name, address and signature of the seller. The written consent, bill of sale or true copy shall be carried on every person in charge of cutting, removing, transporting or selling woody material and shall be exhibited to any officer of the law, forestry agent, forest ranger, forest patrolman or conservation officer at his request at any time. This provision shall not apply to campers, picnickers, hunters and fisherman who gather woody materials for use in immediate vicinity of their campsite or private landowners removing woody material from their own land for their personal use.

68-2-22.1 Christmas Tree Tag Fee--Applicability--Cost--Deposit Into Forest Protection Revolving Fund.

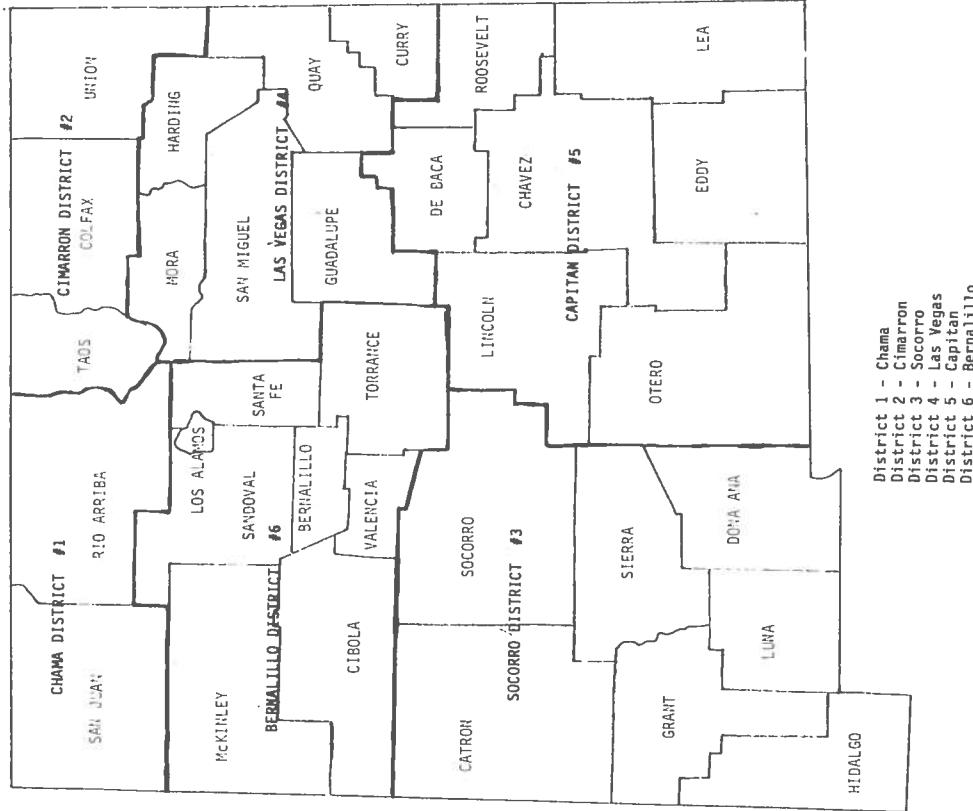
A. Each tree cut or removed from public or private land in New Mexico and being transported for the purpose of sale or any other tree being offered for sale for the purpose of Christmas decoration shall bear a nontransferable tag purchased from the Forestry Division of the Energy, Minerals and Natural Resources Department. The tag shall be attached to the tree before the tree is transported by any means within the state and shall not be removed except by the ultimate consumer or user.

B. The Forestry Division shall charge a fee for each tag sold, the fee to be established by regulation, but not to exceed fifty cents (\$.50) per tag.

C. Christmas tree tags shall be valid for only the calendar year in which they are issued.

D. This section shall not apply to any live balled or burlapped, potted or containerized tree sold or offered for sale by a nursery regulated by the New Mexico Department of Agriculture under the provisions of the Plant Protection Act, Chapter 76, Article 5, Sections 11 through 18 NMSA 1978.

E. Nothing in this law requires a person to purchase a Division Christmas tree tag when the tree is cut and removed under the permit from the land of another for personal use.



F. All receipts from the sale of Christmas tree tags shall be placed into the Forest Land Protection Revolving Fund.

G. Violations of this section constitute a misdemeanor as provided for in Section 68-2-17 NMSA 1978.

68-2-23. Definitions.

As used in Section 68-2-22 NMSA 1978:

- A. "woody material" includes any live or dead evergreen, coniferous or deciduous tree, branch, bough, bush, sapling or shrub in its natural condition, trimmed or untrimmed, and with or without roots;
- B. "owner" means any public agency, state or federal, person, partnership, firm, corporation or recognized agents thereof owning or having legal control to the surface rights of the land upon which the woody material is located and having legal authority to issue permits or enter into agreements for the disposal thereof;
- C. "commercial forest" means forest land which is producing or capable of producing crops of industrial wood. This includes areas suitable for management to grow crops of industrial wood of a site quality capable of producing in excess of twenty cubic feet per acre of annual growth; and
- D. "prevention" involves the manpower, equipment and training and the public programs designed to reduce the potential of accidental or malicious fire starts.

68-2-26. Enforcement--Forest Conservation Act.

Any officer of the law, forestry agent, forest ranger, forest patrolman or conservation officer enforcing the provisions of the Forest Conservation Act (68-2-1 through 68-2-28 NMSA 1978) may:

- A. stop any vehicle or means of conveyance containing woody material for the purpose of making an inspection and investigation;
- B. inspect woody material in any vehicle or other means of conveyance including common carrier; and
- C. seize and hold any property used in violation of this section and upon determination by the appropriate court that a section of the Forest Conservation Act has been violated, keep or dispose of the property upon order of the district court. All money collected, if any, shall be deposited into the Forest Land Protection Revolving Fund.

68-2-27. Using False Information To Comply With The Forest Conservation Act.

It is unlawful for any person to use false information or documentation to obtain any permit, license or other benefit under the Forest Conservation Act (68-2-1 through 68-2-28 NMSA 1978). Any person who is found guilty of violating the provisions of this section shall be sentenced according to Section 68-2-17 NMSA 1978.

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