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FACT SHEET

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new

The Cold-Soak Process . . .

KEYS TO PRESERVATIVE TREATMENT OF WOODEN FENCE POSTS

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Insects and disease quickly destroy most woods in contact with the ground. The heartwood or dark colored center portion of woods such as bois d'arc, mulberry, redcedar, locust and mesquite is naturally durable. The lighter colored sapwood or outer portion is not durable and is readily destroyed by wood pests. Post oak, contrary to common belief, is not a naturally durable wood and will quickly decay in contact with the ground. Naturally durable post material is increasingly difficult to purchase. Posts properly treated with preservatives such as penta and coal-tar creosote have service lives of 25 years or more.

Fencing is a major investment for farmers, ranchers and homeowners in Texas. Standard farm and ranch fencing costs about \$1000 per mile.

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Suspension fences cost about \$500 per mile and semi-suspension fences about \$700 per mile. Residential wooden fences may exceed \$3 per lineal foot. Protect these investments by building fences to last, and increase their service lives by using decay-resistant posts.

Commercial, pressure-treated pine posts will provide the greatest useful life at the lowest cost per year. Save money in cost by home treatment of posts on your farm or ranch.

Treatable Wood Species

The cold-soak treatment of posts is recommended only for the four species of Southern pine — loblolly, shortleaf, slash and longleaf and sweetgum (*Liquidambar styraciflua*). Pines and sweetgum are protected against decay by adequate penetration and absorption of the preservative. Heartwoods of most other hardwood species are

Table 1. Average life of fence posts

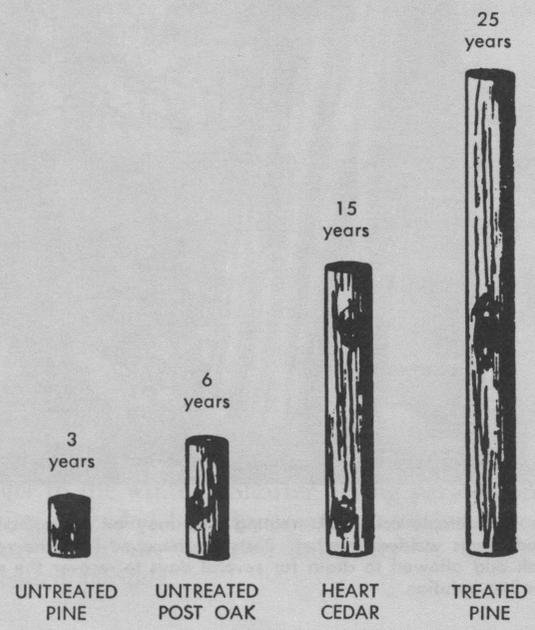


Table 2. Cost per year of service

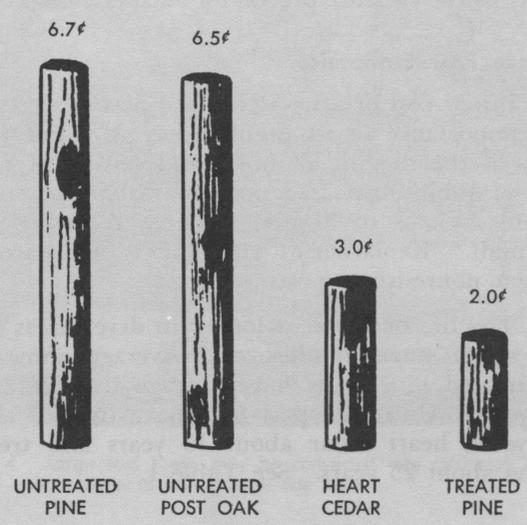




Fig. 1. A drum-type mechanical peeler will peel about 300 posts per day. Some additional hand peeling will be required to remove all of the inner bark. A sharpened hoe with a straightened-out shank is a good hand peeler.

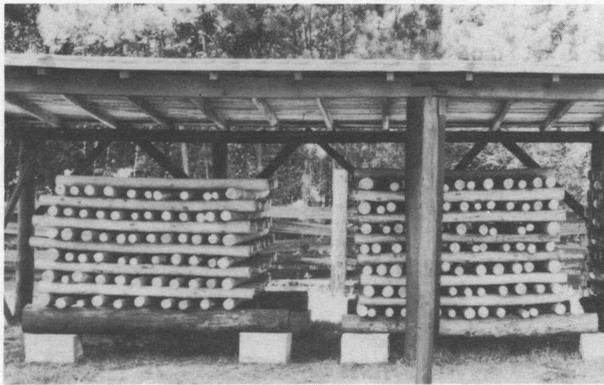


Fig. 2. Peeled posts should be stacked in a criss-cross fashion 4 to 6 inches apart to allow for good air circulation. The posts should be covered to protect them from the rain and direct sunlight.

more difficult to penetrate and should be treated only by the pressure process for adequate protection.

Fence Post Economics

Initial cost of a wooden fence post is secondary in importance to its usable life. A major fence cost is the digging of holes and setting of posts. Nondurable, untreated posts may require replacement every 3 to 5 years in areas receiving high rainfall. Replacement costs often are excessive when nonresistant posts are used.

The life of a post is longer in dryer areas than in wetter, more humid areas. Averages show that untreated pine posts have average lives of about 3 years. Untreated post oaks have lives of about 6 years, heart cedar about 15 years and treated pine about 25 years. See Table 1.

However, in costs per year of service life, the treated pine is about one-third that of untreated post oak (6.5¢ per year) and untreated pine (6.7¢). Treated pine (2¢ per year) is by far the cheapest post. Heart cedar costs about 3¢ per year. See Table 2.

Posts are obtained in timber thinnings as a primary product or as a by-product of the timber production operation. They are harvested from precommercial thinnings, from removal of weed trees or understory thinnings or from tree tops left by other product harvesting operations. Post production should be an integral part of a timber operation.

Although posts are partially competitive to pulpwood, posts can utilize small diameter material. If the stumpage is sold outright, prices of pulpwood and posts are comparable. In thick pine stands, about 10 posts per acre can be thinned annually from East Texas woodlands. These have a delivered sale value of about 10 cents each or \$1 per acre.

Wood Preservatives

Many chemical preservatives are available for treating wood against decay. Some preservatives use water as the carrier to impregnate the wood, and



Fig. 3. Simple cold-soak treating vats may be made from old used drums welded together. Posts are removed from the vertical tank and allowed to drain for several days to recover the excess treating solution.

others use oil. Oil-borne preservatives have proven superior where wood, like fence posts, is in contact with the ground. A new wood treating process by Press Cap or Slurry-Seal methods, using a water-borne preservative called chromated copper arsenate (CCA), shows good protection against decay and termites.

Preservative oils generally have a high resistance to leaching, making them more suitable for outdoor exposure. Heavier, less volatile petroleum oils help protect the wood from weathering, but may affect its cleanliness, odor, color and paintability.

Two good oil-borne preservatives are coal-tar creosote and pentachlorophenol. Commonly called creosote and penta, respectively, they are equally good preservatives for treatment of posts. Penta, however, is recommended for cold-soaking pine posts because creosote requires at least a hot-cold soak for satisfactory penetration.

Penta is available in the ready mix or concentrated liquid form. The concentrate can be purchased and mixed with No. 2 fuel oil at a considerable savings in cost. Most chemical supply firms carry the penta concentrate. Penta is also available in the dry or "salt" form, but it is more difficult to mix with the carrier than the liquid concentrate. Avoid old crankcase oil as a carrier liquid because it reduces penetration and causes skin eruptions in cattle called "Disease X."

If the wood is to be painted, treat it with penta-WR in a carrier of naphtha or other mineral spirits. A highly volatile carrier leaves the surface fairly free of oil so that paint will adhere to it. Soaking the wood in the liquid provides good protection. Brush application of several coats of penta-WR offers some protection. Allow the wood to dry several days before painting.

Cold-Soak Treating Process

Prior to treatment, air dry or season posts to be treated by this process. If not sufficiently dry, they will not absorb enough preservative (about 6 lbs./cubic foot of wood) to provide protection. If allowed to dry too long, the posts absorb more of the preservative than needed and the cost of treatment increases sharply.

Peeling and Drying

Dry posts for 60 to 90 days in the summer, and longer in the winter. Shorter drying periods occur during extended hot, dry weather and longer ones occur when the relative humidity is high for extended periods.

Peel the posts clean, removing the thin layer of inner bark as well as the coarse outer bark. Scrape the paper-thin inner bark clean. Otherwise, the preservative will not penetrate the wood. Spring or early summer is the best time to peel posts because the bark will "slip" or peel more readily. A sharpened hoe with a straightened-out shank is a good hand peeler and is effective in cleaning machine-peeled posts. Mechanical peelers can be made for about \$300, the exact cost depending upon the builder's ingenuity. Obtain plans for constructing a tight chain or drum peeler from the Extension forestry specialists. See figure 1.

For proper drying, stack posts in a criss-cross fashion or with the layers in the opposite direction. Place them on treated posts raised at least one foot off the ground. Stack the posts 4 to 6 inches apart in each layer to provide good air circulation. Cover the posts to protect them from rain and to reduce the cracking or splitting caused by direct sunlight. See figure 2.

Treating

A treating vat can be made from metal, wood with a metal liner, concrete or any other material capable of holding the preservative and strong enough to hold the posts. It must be large enough to completely submerge the posts for treating. Some tanks are made long enough to hold two lengths of posts, and can also be used to treat lumber or short poles.

A small, inexpensive vat can be made from 55-gallon metal drums. Cut out the ends and weld the drums together, leaving a bung hole in each end to drain the preservative. Sink small drum tanks vertically into the ground or place horizontally in a wooden or metal cradle. Cut the top end from the tank for the vertical position. See figure 3.

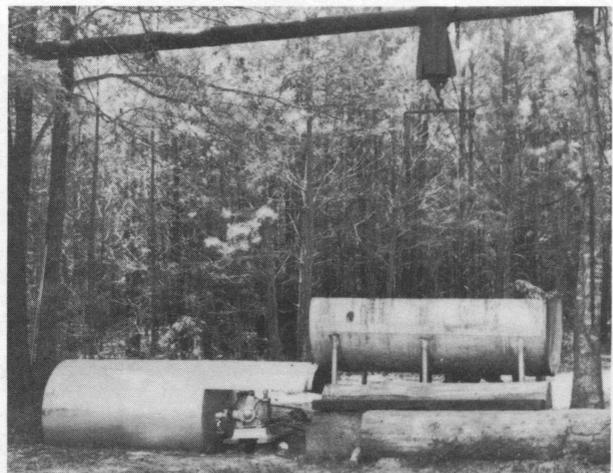


Fig. 4. Large fuel tanks may be converted into cold-soak vats. They will hold up to 25 posts in one load.

For the horizontal tank, cut from it about one-third of the circumference lengthwise. Sections cut from either the vertical or horizontal tank can be hinged to the lower portion and used as a lid to keep foreign matter out of the treating solution.

Large, horizontal tanks can also be made from old service station gasoline storage tanks. See figure 4.

Construct devices to hold posts below the surface of the treating solution. Hinge them to the tank or wedge them into the sides. When removing posts from the tank, place them in one or more vertical barrels for several days to recover the excess solution which drips from them. Then pour it back into the main tank.

Mix penta concentrate at the rate of 1 gallon of penta to 10 gallons of No. 2 fuel oil, yielding a recommended five per cent solution. Mix the solution only on warm days and stir it thoroughly. Cost of the solution will run about 38¢ per gallon. One gallon will treat about 7 two-inch posts, 4 three-inch posts and 2 four-inch posts.

The best time to treat posts is during warm weather because it improves the solution mixture and facilitates absorption of the preservative. Soak posts from two to four days in warm weather, and longer in colder weather. Judge the amount of preservative absorbed by the drop in solution height in the tank.

After soaking, allow posts to dry. Then stack them under cover and store until needed.

Penta is poisonous to plants, so be careful not to spill or splash it on desirable plants. It is also toxic to some people. For this reason, wear rubber gloves while working with the solution or with freshly treated posts. Avoid breathing the fumes, and wash hands or other exposed portions thoroughly after using penta.

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