

Preservatives Lengthen Life of Wood Fence Posts

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Which fence post should I use, steel, concrete or wood?

This question may be foremost in the minds of farmers or ranchers planning to confine livestock or to protect crops. Appearance, serviceability, life and cost are primary considerations when choosing the kind of post for the fence line.

Light service requirements around buildings and along roads will require the installation of a post with moderate strength, cost and durability. Value of property is generally enhanced by the appearance of fences, and hence the post selected depends on the individual. Corals will require more strength and a higher fence cost for good service and long life.

Preservatives Needed

Protective coatings and/or preservative materials are required for posts even under dry atmospheric conditions. Steel posts rust readily unless painted with appropriate materials. For below-surface protection, asphalt dipping of the steel or reinforced concrete post is unquestionably the best protection. The extra cost of reinforced concrete posts is usually not warranted unless used where appearance is an important factor. They should not be used around livestock and must always be protected with a coating to prevent rusting of the reinforcing rod.

Wood posts have proven satisfactory under most conditions, if properly treated. It has been found that *on the farm treatments* can increase the post life from four to six times at a cost of 20 to 30 cents per post, a low investment for the service rendered. Several preservatives are now being used, namely pentachlorophenol, coal-tar creosote and zinc chloride.

Most woods can be treated satisfactorily with these preservatives by one of several methods.

Generally, a mixture of 50% coal-tar creosote and 50% crankcase oil makes an effective preservative. A mixture made up of 5% pentachlorophenol and 95% crankcase oil will provide the same protection. Twenty to 50% solution of zinc chloride in water has given good results when steeping posts for periods long enough to provide retention of a pound of salt per cubic foot of post.

Treatment Methods

Soaking in oil solutions (coal-tar creosote and pentachlorophenol) or steeping in water-borne solutions (zinc chloride) for 24 to 48 hours gives good results with most wood posts. The heartwood of some trees is difficult to penetrate with any preservative. Pressure-treatment by commercial firms is the only means that such posts can be wholly treated. Pressure-treatments give up to 40 years of useful life, though surfaces cannot be readily painted and costs are several times that of the home grown and home treated post.

Some wood species have been found to absorb oils or water solutions very readily by placing two or three feet of post in the liquid for a period of time. Tamarisk trees which grow rapidly to post size in a few years under Arizona climatic conditions are of this kind.

Sound for 24 Years

A project was started in 1935 by the Agricultural Engineering Department to obtain information on fence post treatment, preservatives and expected life of treated tamarisk posts. Some posts were treated green and some dry by standing them in tanks of the preservatives exposing 28 to 30 inches of length for 12 hours. After 24 years in a fence line surrounding an irrigated field near Coolidge, 50% of the posts are in good condition. About half the posts were treated green and half dry, with coal-tar creosote and an equal number of each treatment has failed.

A comparison of green and dry-treated tamarisk posts with coal-tar creosote, wood-tar creosote, pentachlorophenol, and zinc chloride was begun in 1942 by setting out 101 posts on the Page Ranch (north of the Santa Catalina Mountains) and at the UA Campbell Avenue Farm (irrigated) near Tucson.

Four posts remain on the irrigated area, of which three are coal-tar creosote treated green and one treated dry. An expected life with these treatments would be 12 to 14 years under these conditions compared to three or four years for untreated posts. Most of the posts set on the unirrigated desert soil are still in good condition except for the wood-tar creosoted ones. The failures to date (of eight set) have been five wood-tar creosote treated green and five dry, one pentachlorophenol treated green and one dry, and two coal-tar creosote treated green and one dry.

Untreated Posts Nearly Gone

There have been no failures to date of the zinc chloride treated posts. Only one out of six untreated posts set in 1950 remains standing. The expected life for posts in desert areas and treated with pentachlorophenol, coal-tar creosote or zinc chloride is at least 18 years and possibly 20 to 25 years.

Wood-tar creosote is not recommended as a preservative because of the relatively short life of the posts treated with this preservative.

FENCE POSTS at the Page Ranch sampling area. Note even break on end of posts, showing apparent strength at time of failure, with only surface half inch affected with fungi, as indicated by V-notch at arrow.

