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Preservative Treatments of Fence Posts

1941 Progress Report on the Post Farm

By

T. J. STARKER

Bulletin Series, No. 9-C

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A Project of the School of Forestry

Engineering Experiment Station
Oregon State System of Higher Education
Oregon State College

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on

The Post Farm

By

T. J. STARKER

Professor of Forestry

IN 1927 the "Post Farm" was established on a south exposure in the Peavy Arboretum of the School of Forestry, Oregon State College. The ground in which these test posts are planted is cut over, Douglas-fir land, uniform in character, thus giving each post an equal chance in contacting and resisting decay organisms.

For those who receive this report for the first time, it will appear incomplete. If interested further, a request should be made to the Oregon State Engineering Experiment Station for the preceding publications: Bulletins No. 9, 9-A, and 9-B. As was mentioned in Bulletin No. 9-A, those who desire to keep their information up-to-date can do so by enlarging page 12 in Bulletin No. 9 and tabulating the later data or inserting clippings from the supplementary reports.

To date there have been 1,442 posts set in this experimental area.

In the 1941 examination 28 posts were removed, based on the failure of these posts to resist a 50-lb pull at 2 feet above ground level. This compares with 59 and 25 removed for 1939 and 1940 respectively.

The following numbers of posts failed in the various series indicated:

| <i>Series</i> | <i>Species</i> | <i>Treatment</i> | <i>Removed 10/15/41</i> | <i>Total Removed to date</i> |
|--------------------------------|----------------|------------------|-----------------------------|----------------------------------|
| 5 | Douglas-fir | ACM Treater Dust | 1 | 1 |
| 13 | Yew | None—round | 1 | 5 |
| 15 | White fir | None—split | 2 | 21 |
| 19 | Oregon oak | None—split | 2 | 12 |
| 31 | Sitka spruce | None—4 x 4—rough | 5 | 26 |
| 37 | Western larch | None—4 x 4—S4S | 2 | 19 |
| 47 | Cascara | None—round | 4 | 5 |
| 48 | Lodgepole | None—dead | 4 | 4 |
| 49 | Lodgepole | None—live | 7 | 7 |
| Total number removed, 10/15/41 | | | 28 | |

Some comment about these removals should be made as last year some of the newspapers of the state carried erroneous headlines on a correct story of the progress of the "Post Farm" as, for instance, "Untreated Fir Excels in Test." The reverse of this headline can be noted from the foregoing table as every post removed this year was an untreated post except one in Series 5. Considerable difficulty was experienced in properly applying the Anaconda Copper Mining Company's Treater Dust and this may have been the cause of

the one failure in this series. This company has since changed its product into a paste that is more easily applied. This series of posts was planted in the farm March 20, 1938.

In Series 13, consisting of western yew, 5 posts in all have been removed. Stress must be placed on the amount of heartwood that even yew posts must possess in order to resist decay. It has been the posts with a large percentage of sapwood that have failed first.

In a release from the Southwest Forest and Range Experiment Station on native juniper the following specifications are set up as necessary for a 40-year fence:

| <i>Where Used</i> | <i>Minimum Diameter of Heartwood in Round Posts</i> | <i>Minimum Size of Heartwood in Split Posts</i> |
|---------------------|---|---|
| In dry desert soils | 3½ inches | 3½" x 3½" |
| In semimoiest soils | 4 inches | 4" x 4" |
| In moist-wet soils | 4½ inches | 4½" x 4½" |

If long life is desired, the amount of heartwood in each post cannot be overemphasized whether the post be of juniper, western yew, or other species.

The interesting thing in Series 15, composed of white fir split posts, is that 2 years after their insertion on March 5, 1929, there was one failure and for the succeeding 10 years there have been failures every year, yet on October 15, 1941, the date of our last examination, there were still four posts that resisted the test pull.

In the Oregon oak, Series 19, it is again the amount of heartwood that determines the life of a post.

Series 31, Sitka spruce, has run its course. There were 26 posts in this series placed April 15, 1933, and the last 5 were removed this year. These results give this species an average life of 68 months compared with 84 months for untreated Douglas-fir.

Western larch, Series 37, has had 19 of the 25 posts removed in about 8 years of service, which indicates that the moist climate of western Oregon reduces the record for durability that this species maintains in the eastern part of the state.

Series 47 is the second trial for cascara or chittum, as the first one consisted of only 12 small samples. Indications at present seem to point toward a rather short life for this species.

It will be interesting to compare Series 48 and 49 consisting of lodgepole pine posts cut from dead and live timber. The first failure in each, 4 and 7 respectively, occurred this year.

Attention is also called to the race between the three principal commercial pines for durability. Thus far western white pine has had the greatest mortality with 24 out of the series of 25. Ponderosa pine has lost 20 and sugar pine 17 in the same period. The western larch planted the same day has lost 19, but the posts are slightly smaller in cross section, having been made of surfaced stock.

The three salt treated series are worthy of comment as these were some of the first posts to be placed in the "Post Farm" on January 7, 1928. Of the 75 posts in Series 2, 3, and 4, not a single failure has occurred although the check series placed at the same time, untreated, lasted an average of 84 months or 7 years.

After issuance of Bulletin No. 9-B last year the following comment about the salt treatment was received from a citizen in Linn County, Oregon, where a fence had been rebuilt after 32 years in service. "In some the salt had not

dissolved and they had rotted off. The rest were perfectly sound. At the time these posts were treated, the salt solution was a secret. My father paid \$10.00 for the recipe."

For instructions on applying the salt treatment, reference should be made to Bulletin No. 9.

In the "Post Farm" are many commercially treated posts generously contributed by cooperating firms. Most of these have shown no failures and it is expected that some will show an average life of 20 to 40 years. The purpose of this test is to determine the durability of untreated posts and the efficacy of various treatments.

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