

pounds or more, 2 to 3 grams of sodium nitrite and 10 to 20 grams of sodium thiosulphate should be used, and the solution should be injected intravenously. With both sheep and cattle the injection of thiosulphate may be repeated, but only one injection of the nitrite should be given. The solutions keep well and so may be made up ready for use. If desired, they can be sterilized by boiling without being materially changed.

A. B. CLAWSON, H. BUNYEA, and J. F. COUCH,
Bureau of Animal Industry.

LUMBER and Log Stains Can be Controlled by Chemical Treatments Unseasoned lumber and logs from some of the most important commercial trees are subject to serious discoloration, caused by sapstaining and molding fungi. The fungi may enter logs lying in the woods or at the mill, or lumber in the mill yards, or during subsequent handling. Log infections continue to develop in the lumber cut from the logs and serve as a source of infection to other lumber in the same yards. Damage in transit is especially common in export shipments. Such discolorations have lowered the quality and increased the cost of wood products both to the manufacturer and to the consumer. While strength properties of the wood are ordinarily little affected, its utility value is greatly reduced where a natural finish is desired.

During recent years a decided prejudice against the use of discolored products has developed among domestic and foreign consumers. This prejudice has been in part justified by the fact that decay in early stages is often associated with and masked by stain. Foreign buyers particularly have objected to discolored material and have been allowed large damage claims or have shifted their purchases to less susceptible woods. In an effort to meet consumer demands for unstained lumber, manufacturers have adopted more rigid grading rules which limit the amount of discolored material in the common as well as in the finish grades of lumber. The increased prejudice, coupled with the fact that second-growth timber contains more sapwood than does virgin timber, has made the problem of control increasingly important.

Control Methods Commercially Applicable

Investigations on sap stain and mold control were begun in 1928 with financial assistance from lumber agencies of the Gulf States. A preliminary survey indicated that the development of cheap and efficient antiseptic chemical treatments offered most promise of yielding control methods of immediate commercial application. Current chemical treatments were of limited usefulness, since they were only partly effective on softwoods and not applicable to hardwoods. In addition, the small mills with few exceptions had not found it practicable to incorporate current stain-control methods in their manufacturing practices. The tests conducted since 1928 have provided the large pine and hardwood industries with equally cheap and much more efficient treatments for lumber, veneer, and other wood products.

Two of these treatments, low concentrations of an organic mercury compound and a mixture of chlorinated phenols in water, are effective on both pine and hardwoods and can be used by mills cutting both types of wood. A third treatment, borax in saturated solution, is equally effective on hardwoods, but is inferior on pine. Figure 45 compares the appearance of untreated lumber with that of lumber dipped in one of the new antiseptic solutions. The potential use of these treatments has been materially increased through recent tests demonstrating their feasibility for the small-mill industry. Increased value is indicated also by their prevention of some of the incipient

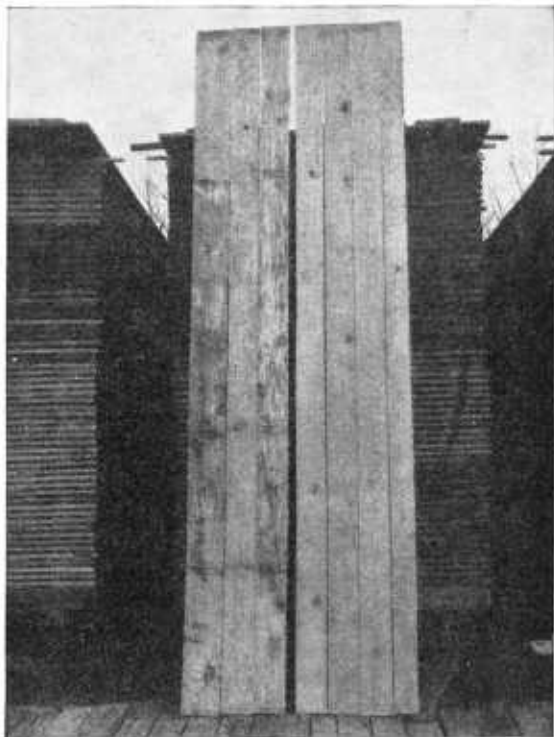


FIGURE 45.—Typical boards from untreated (left) and treated (right) test piles of southern pine lumber.

decay infections originating in lumber during storage periods. Such infections are important factors in replacement costs necessitated as a result of decay of wood in use. Experience so far with export lumber indicates that the treatments will reduce transit losses materially. Continued experimentation is expected to increase their value further for this purpose and for some other products and conditions not yet satisfactorily covered.

Chemical antiseptics similar to those mentioned for stain control on lumber, but with different methods of application, have proved effective in reducing fungus deterioration of stored logs. Recommendations can

be made for the prevention of stain and decay during normal storage periods in the Gulf States for seasons when insects are inactive. Promising results have also been obtained with the use of these materials as pretreatments for the control of stain and decay in fence posts during seasoning prior to impregnation with preservatives.

Economic Value of the Treatments

The development of efficient treatments of low cost and easy application has aided pine and hardwood manufacturers in improving quality of both domestic and export products. It has stimulated an interest in stain control and hence in a generally improved product, as is evidenced

by the wide-spread adoption of these treatments by small as well as by large southern mills. The extension of stain-control methods to the small-mill industry is of decided significance in view of the fact that over 50 percent of the pine production in the South during certain recent years has come from the small mills. The efforts of the wood industry in general to raise the reputation and utility value of its products will be aided considerably if the standard of small-mill production is improved.

The significance of these stain-control treatments to the foreign buyer is indicated by the frequent specifications for chemically dipped lumber. American lumber is shipped to more than 50 countries, and discolorations occurring before and during transit have seriously handicapped some of the most important species in competition with other woods. Overcutting timber stands to supply the demand for higher grades of lumber has been reduced through sap-stain control and the consequent reduction in the proportion of lumber that goes into the lower grades. In other words, utilization practices have been improved and forest conservation has been aided thereby.

RALPH M. LINDGREN, *Bureau of Plant Industry.*

MARKETING Agreements and Licenses Buttress Work of Cooperative Associations

During the 19 months since the enactment of the Agricultural Adjustment Act some 55 marketing agreements and 95 licenses have been approved. These agreements and licenses relate to a wide variety of farm products and affect directly or indirectly a large number of farmers. It is important, therefore, to review briefly these activities and to indicate in some measure the place which such activities should occupy in a continuous program of agricultural readjustment.

The authorization for marketing agreements under the adjustment act is very broad. The only limitation placed upon such agreements is that they must aid in the accomplishment of the purpose of the act, which is to restore the purchasing power of farm products. Parties to such agreements may include producers, associations of producers, processors and others "engaged in the handling of any agricultural commodity or product thereof, in the current of or in competition with, or so as to burden, obstruct, or in any way affect, interstate or foreign commerce."

The marketing programs which have been developed through the medium of marketing agreements and licenses are not readily subject to simple classification. By far the largest groups of programs, however, and those which are likely to be most important as a part of a continuous policy of agricultural adjustment are distinct in that they represent a further development and use of marketing plans which had been previously formulated and to some extent utilized for several years by cooperative and private handlers of particular products. Those familiar with the use of clearing houses and with various efforts at industry-wide cooperation in dealing with serious marketing problems in the fresh-fruit and vegetable industry during the past decade will recognize the marketing-agreement program of the past two seasons, insofar as it relates to this group of products, as the logical outgrowth of these earlier efforts. Likewise, the essential features of the marketing agree-