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WHEN you are figuring on your lumber bill, just remember we own the forests from which our lumber is cut, and sell direct to the consumer, thus eliminating the middle man's profits. This means better quality in every piece of lumber bought here and quick deliveries.

WOODS LUMBER CO.

THE PROTECTION OF ORCHARD BY SMUDGING

By P. J. O'Gara, Scientific Assistant, Fruit-Disease Investigations, Bureau of Plant Industry.

Weather Conditions Producing Spring Frosts in the Rogue River Valley.

During the spring months it is found that during the day the wind blows mostly from the north or north-east. These winds are not moisture-laden; that is to say, the relative humidity is usually very low, often as low as 25 per cent. During the night when frosts are likely to occur the winds die down altogether or begin to blow slightly from the south. The winds from the south are also very dry, and may even tend to lower the dew point below that observed in the early evening. In giving out the warnings this factor was taken into account. In this valley whenever the winds blow from the west or north-west it is rare that frosts occur, since there is more water than vapor in them.

It is only on the valley floor that any serious injury may be caused by low temperatures during the blooming period or some time thereafter. Even on the valley floor there may be some slight elevations, no frosts occur, when serious injury may result even a few feet below. The hillsides surrounding the valley usually escape frost altogether. However, it is on the valley floor that many of the most profitable orchards are found; hence the necessity of preventing frost injury. It has been found that the temperature two to three feet from the ground may often register several degrees below temperatures taken at higher elevations. For instance, the writer has noted a difference of six degrees between two thermometers, one being about four feet from the ground and the other only 18 inches above it. Since freezing temperatures occur simply by the cold air settling in the lower spots in the valley when the air is perfectly calm, it is evident that this is the most favorable time for maintaining fires or smudges in the orchard. High winds never occur during the time that the temperature may be below the freezing point. It has been previously mentioned that a slight breeze usually comes up from the south during the early morning. However, this breeze is never sufficient to more than waft the smudge through the orchards and does not interfere to any great extent in keeping up the temperature where fires are built. It will be seen that the conditions in the valley are ideal for the prevention of injury from freezing.

Injurious Temperatures.
The temperatures at which the principal orchard fruits are liable to be injured by frost are given in the following table. Some of the figures have been taken from data furnished by orchardists, but the greater part of the table is based on actual observations made on the Pacific coast by the writer. The temperatures given cannot be considered as absolute, since weather conditions previous to a freeze determine to a very great extent the ability of plants to withstand low temperatures. A few days of very warm weather, together with an ample supply of soil moisture, will cause the newly formed

cells of the blossoms and fruits to be filled with a watery protoplasm or cell sap, which freezes more readily than concentrated cell sap. If a freeze follows a period of weather in which temperatures have been such as to produce slow growth, lower temperatures than those given in the table may not cause injury.

Temperatures injurious to fruit when in bud, blossom, etc.:

Fruit—	In In set- At			
	In Blooming	ing other	Bud.	deg.
Almonds	28	30	30	28
Apples	27	29	30	25
Apricots	30	31	31	30
Cherries	29	30	30	29
Peaches	29	30	30	28
Pears	28	29	29	28
Plums	30	31	31	29
Prunes	30	31	31	29

These temperatures are approximately those of the air in contact with the fruits and blossoms. It is quite possible, however, that very delicate measurements would indicate somewhat lower temperatures, due to evaporation from the immediate surface of the plants.

In the use of smudge fires where the temperature may reach as low as 20 degrees F., the writer has found that by using fifty wood fires per acre a temperature of 28 to 29 degrees could be maintained in an orchard. In other words the temperature could be raised 8 to 9 degrees. Where it was necessary to raise the temperature 4 or 5 degrees, only half as many fires were required. A mixture of wood and coal was probably a little better than wood alone. Since the coal is mined near Medford and is not very expensive it is probable that this material will be in great demand another year should it be necessary to prevent frost injury. Crude oil was used only to a very little extent, for the reason mentioned before—that it did not burn readily. Where it was used the temperature was not raised more than 2 or 3 degrees when 40 smudge pots were burned to an acre. Straw and manure, which were used mostly as a smudge in the morning just before the sun came up, were intended only as a blanket to prevent the sun from warming up the blossoms too quickly. These materials were rarely used alone, since in most instances it was hardly possible to raise the temperature more than a degree or two with them. Where some sawdust which had been saturated with tar was used in connection with straw and manure the temperature was raised from 2 to 3 degrees with about forty fires to an acre.

The difference between the smudged orchard and the unsmudged orchard, or even parts of some orchards remaining unsmudged, was very marked. In several instances the orchard that had been smudged set a full crop, while in those that were similarly located and not smudged, the crop was entirely destroyed. There is certainly no doubt in the writer's mind that had the growers smudged generally it would have re-

quired much less work on the part of those who did smudge. For instance, where an insolate orchardist smudged and his neighbor did not there was a tendency for the fires to produce an upward current of air, causing cold currents to rush in and lower the temperature.

Value of Firing the Orchard When the Cost is Compared With the Value of the Crop.

The writer has recorded several interesting statements from growers who fired and smudged successfully. Mr. W. H. Brown states that with the cost of about \$6 per acre for the season he was able to save 10 acres of apples, and estimates the value at about \$6000. The previous year one freeze occurred on May 5 destroying his entire crop.

Mr. G. E. Marshall makes the following statement: "The entire quantity used for the season was 5 pounds of crude oil (used principally in saturating shavings and other material), 1000 old rails, 300 old stumps, 1 ton of waste bitumen, 3 tons of coal, 800 large bundles of tree prunings, 25 loads of manure, and three loads of planing-mill shavings. With this material I saved the crop on 9 acres of Yellow Newtown, 7 acres of Mammoth (Red Cheek Pippin), and about 2 acres of Jonathan apples, also 6 acres of Winter Nellis and 3 acres each of Anjou and Bartlett pears (total 20 acres). I did not smudge three acres of Comice pears as they were mostly killed." Mr. Marshall did not state the value of his crop, but it is doubtless no less than that of Mr. Brown's.

APRICOTS.

Apricots are ripening fast. Order early. ADAMS BROS., 709 1/2.

If it's "for sale," want advertise it!

Notice.

All persons knowing themselves to be indebted to VAN DYKE'S will please call and settle, as books must be balanced at once on account of store having been sold to F. W. Gray.

WRIGHT'S INVESTMENTS

Modern 7-room Home. Well built and arranged. On paved street in highest part of city. \$3,800. Terms. Modern 5-room bungalow home, new and in the right place. Close in. \$3,250. Terms. New 5-room bungalow home; close to Oakdale. Can finish to suit your taste. Only \$2,300.

We have a large list of CHOICE HOMES, and the prices are right.

J Bruce Wright & Co. 132 WEST MAIN. PHONE 2691.

Double Your Business--- Let In The Sunlight

Suppose you knew a man who kept his shades drawn tight all day and burned kerosene instead of letting in the sunlight.

Suppose you knew a man toiling along a dusty road who would not accept a lift—when there was plenty of room in the wagon; Suppose you knew a miller—with his mill built beside a swift-running stream—who insisted on turning the machinery by hand.

All foolish, you say? And yet look around you—how few retailers take advantage of the great advertising campaigns run by food, textile, cloth and every other manufacturing line that you can name.

Think a moment! What was the last advertisement you read and wondered just which store in town would be progressive enough to have the goods in stock so you could see them—and purchase?

More goods are sold under the evening lamp at home than you dream of.

Practically every live retailer advertises in his local papers. But how.

Put up your lightning-rod! Let your customers know that you can deliver to them the goods which great advertising, paid for by manufacturers, has interested them in.

They will get the habit—and you will get the business. Practically every manufacturer stands ready to help you help yourself. Ask them for electrotypes suitable to run in your own advertising. Hook their trade mark to your store.

Consumer demand for advertised goods is now divided broadcast among all the stores in town.

Use your advertising in local papers to focus this demand upon your store—And don't forget to send for those helpful electrotypes.

Read this again, for it means money to you.

The Best Ranch On Evans Creek

This sounds like all advertisements, but if you will inquire of any of the citizens in the neighborhood or at Woodville, they will make the same assertion.

On account of our extensive plans for the development of our 640-acre orchard at Woodville, we have decided to sell our Sunnyside stock and hay ranch of 173 acres on Evans creek.

If you want deep, rich, black soil with irrigation for an alfalfa and stock proposition, an ideal location for raising horses, cattle and hogs, joining an unlimited outside range with abundant water and feed, this surely will fill the bill.

120 acres now in alfalfa, wheat, oats, vetch, corn and beans, balance deep red soil, partly timbered with oak, making a good fall pasture for hogs; 25 acres of this will make a fine orchard tract with very little expense.

Perpetual and exclusive water right to all the water in May's creek; good six-room house, surrounded by oaks and laurels; new framed barn just completed, 72x44, with 20-foot posts, accommodating 12 horses, 65 tons hay, 2000 bushels grain and all wagons, farm machinery, tools and workshop; large hay shed, running water in corral; ranch fenced and cross-fenced with age wire. Quarter mile to school; R. F. D. and Woodville grocery delivery daily; Home telephone system in operation August 15.

To effect a quick sale we have put the price at \$100 per acre, half cash, balance three years at 6 per cent.

BAGLEY @ STREETS

Orchardists and Ranchers, Woodville, Oregon.

FOR SALE

One of the best locations in Medford for Family Hotel or Apartment House

250 by 100 feet east front. Comprising five lots or original townsite. It will take \$2,000 cash to handle this property. Easy terms on balance. Write or inquire at 240 South Grape Street or Phone No. 4172.

\$12,500—Thirty-two acres, two miles from Talent, Anderson creek bottom land; five-room box house, good barn and other outbuildings; there are on this place 12 acres in Newtown and Spitzenberg apples, 6 and 7 years old, which have a fair crop this year; between the apples are peach fillers, which are heavily loaded. In addition there are three acres of pears 2 years old and three acres planted to pears last winter; also four acres of alfalfa and about five acres of fine timber; there are two good wells and a complete pumping plant for irrigation; \$6500 will handle this place and the balance can be paid at the rate of \$1000 a year.

\$15,000—Seventy-five acres, same neighborhood; good new five-room house, large barn and other outbuildings; spring water piped to the buildings. There are on this place 11 acres of 3-year-old Newtowns and Spitzenbergs with peach fillers, about an acre of bearing family orchard, 10 acres of alfalfa, about an acre of bearing grapes—about 45 acres all told under cultivation, balance in timber which could be cheaply cleared. At \$200 an acre this place is a snap. It would take half cash to handle, balance easy.

\$300 an acre—Fines fruit and garden land in the valley, half way between Phoenix and Talent; level, black free soil; divided into 10-acre tracts; one-fourth cash, balance in four annual payments with 6 per cent interest.

\$12,000—Sixteen and a half acres, midway between Jacksonville and Central Point, facing the hill road; finest building site in the valley. There are eight acres of pears in bearing, trees from 5 to 8 years old, and about an acre and a half of grapes in bearing, balance in timber, which is all good fruit land. Half cash will handle.

\$20,000—Less than \$425 an acre for 47 1/2 acres, one mile from Central Point, all good land, good buildings, about 40 acres planted to standard varieties of apples and pears from 1 to 4 years of age, balance in alfalfa. This place will subdivide nicely. It is easily worth \$100 an acre more than is asked.

W. T. YORK & CO.

If you are interested in Medford property, talk with our city man, Mr W. V. Moore.