

Lime-Sulphur—Its Use as a Fungicide and an Insecticide

—By—
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(Seventh installment.)

The Sediment.
In making up a lime-sulphur wash there is always more or less sediment which, on settling, accumulates on the bottom of the crock. This sediment is composed, for the most part, of uncombined lime and sulphur as well as insoluble compounds derived from the lime and sulphur and of various impurities of the lime, principally magnesium. The combined sulphur in the sediment is largely calcium sulphite (CaSO₃) with small amounts of calcium sulphate (CaSO₄) which increases with the length of boiling. As has been shown before, this comes largely from the change of calcium thio-sulphate (CaS₂O₃) into calcium sulphite. When the lime-sulphur is properly made the amount of sediment left in the strainer is insignificant and may be thrown away. However, when the quantity is large and there is a considerable amount of free sulphur present it should not be thrown away but should be retained and mixed with another batch. If the sediment is not largely sulphur, its value is questionable. Some have added it to the dissolved lime and sulphur using it as a marker; by a marker is meant something which will, after drying, show on the tree. At this point it is well to caution those who make their own lime sulphur not to use too much lime in making up the spray for the purpose of having it show up on the tree. The use of excess lime always results in producing a less amount of the higher sulphides, and should, therefore, be guarded against in weighing out the lime and sulphur. Never guess at weights. The practice of measuring by bulk is not weighing.

Effect of Adding Lime to Diluted Lime-Sulphur Solution.

The practice of diluting a concentrated lime-sulphur and then adding a quantity of slaked lime just before applying the mixture to the trees is common. The object of adding the lime is, of course, to make the spray show up on the trees. Some growers feel that there should be body enough to the spray so that it may be seen after it has dried on the trees. A chemical study of lime-sulphur to which lime has been added before spraying on the trees has shown that the amount of sulphur in the form of sulphides is decreased to a considerable extent. It has also been shown that the quantity of thio-sulphate is increased when lime is added and we would naturally expect this, since the polysulphides, namely, tetra-sulphide of calcium (CaS₄) and penta-sulphide of calcium (CaS₅) are decreased. Free sulphur also increases as the result of the breaking down of the higher sulphides. It has been mentioned before that the view is generally held that the penta-sulphide of calcium (CaS₅) is the most effective compound in the lime-sulphur wash for destroying insects, and, since this is true, any treatment of the lime-sulphur which would tend to lower the quantity of this compound should be avoided. It is quite possible, when a lime-sulphur wash is treated with lime before being applied to the trees, that very little calcium penta-sulphide or tetra-sulphide reaches the tree. Only the lower sulphides, if any, together with calcium thio-sulphate (CaS₂O₃), calcium sulphite (CaSO₃), calcium sulphate (CaSO₄) and free sulphur may be found in the solution.

If the lime used to mix with the commercial lime-sulphur solution is a magnesium lime the results are also unfavorable. The magnesium lime does not form sulphides, but it tends to decompose and decrease the amount of calcium polysulphides already in the solution, and, as we have seen before, in doing this hydrogen sulphide (H₂S) is formed and sulphur is lost through the formation of this compound which escapes as a gas.

The Process of Dilution.

The lime-sulphur as commercially obtained, or home-made, cannot be

used as made and must, therefore, be diluted. It is essential that a definite method of solution be followed. Any guess work in dilution is sure to result unsatisfactorily, especially so when dilutions are made for summer spraying. Two solutions may look exactly alike and yet differ widely in density so that an accurate method must be based primarily on the density of the particular lime-sulphur solution that is being diluted. It would even be advisable to obtain the density of the diluted spray rather than base the dilution, or number of dilutions, on the density of the concentrate as stated on the container. It is unlawful to misbrand fungicides or insecticides, but, nevertheless, we do find some of them on the market that do not come up to the guarantee as stated on the label. Very often, too, we find the density of a lime-sulphur solution above the written guarantee, and while this is commendable, showing honesty in the manufacture of the brand, it is just as important to know the exact density where we may be working on a narrow margin as in the case of summer spraying. A slight additional strength of mixture might mean the burning of delicate foliage, which means, often, the loss of a crop.

Accurate dilution is very simple and easily accomplished with the aid of a hydrometer having a Specific Gravity scale. Unfortunately, the hydrometer which is most used is the Beaume. This instrument does not give the density except in a relative way since the scale is entirely arbitrary. Besides the Beaume there are a number of others, but all of them should be discarded including the Beaume. The Beaume hydrometer assumes the density of water to be zero, and a liquid twice as heavy as water is taken at 76 degrees. The difference between different degrees on the Beaume scale is not constant, and, therefore, there is no way of calculating from it actual densities. It is to be hoped that the Beaume hydrometer will soon be discarded and the Specific Gravity hydrometer, which gives actual densities, substituted. As stated before, a hydrometer is an instrument for determining densities of liquids either heavier or lighter than water. The instrument is constructed of glass and consists of three parts: first, the upper part or stem of uniform diameter upon which graduations are marked; second, a bulb or enlargement of the tube; third, a small bulb at the bottom containing shot or mercury which causes the instrument to float in a vertical position. The point at which the instrument floats in water depends upon the temperature of the water, but a certain temperature is assumed for each hydrometer and the point on the stem to which it sinks in the water is marked "1" on the Specific Gravity scale. If it is to be a Beaume instrument the point is marked "0." Now, if some salt or other substance has been dissolved in the water, the hydrometers will no longer stand at "0" or "1" but will tend to rise to some other point on the scale. This point on the Beaume scale will read so many "degrees Beaume," while on the Specific Gravity scale it will read "1" plus some fraction which will represent the actual increase in density of the solution. The principle of the hydrometer is that a body floating in a liquid will displace a quantity of water equal to the weight of the floating body. Therefore, a hydrometer which sinks to "1" on the Specific Gravity hydrometer when immersed in water will not sink so deep in a liquid which is heavier than water the buoyant effort of the denser liquid being greater. The Specific Gravity hydrometer tells at once how many times heavier than water a liquid is. For instance, if the Specific Gravity hydrometer sinks to the point 1.333 on the scale it indicates that the liquid is one and one-third times as heavy as water.

Try a Little Liner in the Mail Tribune Wants.

LOCAL REALTY PRICES IN 1900

Prices Originally Asked by the O. & C. Railroad for 'What is Now Down Town Property Discovered in S. P. Files—Great Increase.

While delving through the old files in the Southern Pacific depot this morning, Agent A. S. Rosenbaum unearthed letters of instruction, dated 1900 and addressed to J. S. Howard, then agent here, placing the values on the lots comprising the O. & C. townsite.

This property, which now comprises the entire downtown portion of Medford, could have been bought then for a sum which would not now touch many of the blocks within its boundaries.

According to the document, lots 10 and 11 in block 78, upon which the new Medford Hotel is being erected, were priced at \$110 for the two. The present valuation of them is somewhere above \$15,000.

Two lots on the corner of Central avenue and Fifth street, recently offered to the Federal government as a site for the new post office building for the sum of \$12,000 were purchasable in 1900 for \$350.

Three lots west of the present Hafer residence could have been bought then for \$160, while now it is not likely that \$6,000 would handle them.

Block 7, upon which is now located the Watt residence, could have been purchased for \$300. This parcel is estimated now as being worth about \$5,000.

As another evidence of the cheapness of Medford property then, all lots were sold upon the ten year plan, while now the lots in the original townsite are in such demand that cash figures as the consideration in most of the deals.

POLK'S OREGON AND WASHINGTON State Gazetteer and Business Directory.

Just issued for 1911-12, is the most complete work of the kind ever published. It contains an accurate business directory of every city, town and village in Oregon and Washington, and the names and addresses of country merchants and professional men, lumbermen, etc., who are located adjacent to villages; also lists of government and county officers, commissioners of deeds, state boards, statutory provisions, terms of courts, names of postmasters, postoffices, express, telephone and telegraph offices, justices of the peace, hotels, daily and weekly newspapers, besides much other information useful to all classes of business and professional men. A descriptive sketch of each place is given, embracing various items of interest, such as the location, population, distances to different points, the most convenient shipping stations, the products that are marketed, stage communication, trade statistics, the nearest bank location, mineral interests, churches, schools, libraries and societies. An important feature is the classified directory, giving every business arranged under its special heading, thus enabling subscribers to obtain at a glance a list of all houses manufacturing or dealing in any particular line of goods. The work generally is compiled to meet the wants of the business community and is so thorough as to deserve their liberal patronage. Price \$9.

R. L. POLK & CO. Seattle, Wash.

NOTICE.
J. D. McArdle will arrive in Medford the 25th inst. with plans and specifications for his bungalow and garage to be built on Oakdale avenue, Medford. Contractors are invited to bid. Mr. McArdle can be seen at the Nash hotel.

Automobile Repairing.

CRATER LAKE GARAGE
22 South Riverside
Phone Main 4282.
Home 298 K.
N. H. Mark

Van Dyke Realty Co.

CITY PROPERTY
FARMS, FRUIT RANCHES
124 E. MAIN STREET.

"BATCH'S" WIN FROM BENEDICTS

Single Men Defeat the Married Men Bowling Match Rolled at "Nat"—Sooy-Smith High Man With 208, Telfer High Average.

A team composed of Bachelors defeated a team made up of Benedicts in a bowling match rolled on the Natatorium alleys last night by a score of 2358 to 2295. Both teams rolled good games, the honors for individual plays being divided one to each team with G. Sooy-Smith of the Bachelors high man with 208 while Robert W. Telfer of the Benedicts, high average with 175.

The match was the outcome of a number of games played by the city league. The Natatorium Specials carried off the honors there so in order to change the line-ups, the teams that rolled last night were made up.

Three games were played last night the totals being 805,765 and 788, for the Bachelors and 678,764,763 for the Married Men.

The teams were composed of: Married Men—R. W. Telfer, F. Hutchings, W. Keyes, O. J. Patton, and F. Diamond.

Bachelors—G. Sooy-Smith, W. Woods, W. Antle, J. Kish, and M. L. Patton.

PILES CURED IN 6 TO 14 DAYS.

PAZO OINTMENT is guaranteed to cure any case of itching, blind, bleeding or protruding piles in 6 to 14 days or money refunded, 50c.

NOTICE.

Notice is hereby given that the undersigned will apply to the city council of the city of Medford, Or., at its regular meeting on March 7, 1911, for a license to sell spirituous, vinous and malt liquors in quantities less than a gallon at its place of business at No. 31 South Front street, in said city, for a period of six months.

B. S. RADCLIFF & CO.

Haskins for Health.



REV. WILLIAM PARSONS, D. D., who will lecture at the Medford opera house Tuesday night on "The Making of the Constitution," under the auspices of the Presbyterian Men's club. Don't fail to hear this lecture. Dr. Parsons is a very forcible Chautauqua lecturer and this is one of the most interesting lectures ever given before an audience.

J. E. ENYART, President J. A. PERRY, Vice-President
F. E. MERRICK, Vice-President JOHN S. ORTH, Cashier
W. B. JACKSON, Ass't Cashier.

The Medford National Bank

Capital, \$100,000.00
Surplus, \$20,000.00
SAFE DEPOSIT BOXES FOR RENT. A GENERAL BANKING BUSINESS TRANSACTED. We SOLICIT YOUR PATRONAGE.

GET THE HABIT

Of calling us if you have any electric work of any kind. We can fix you up in the best possible style.
It is a Good Habit and Will Cost You Nothing

Electric Construction Co.
PHONE MAIN 6591 220 WEST MAIN STREET

RIFLE SHOTS TO SHOOT FOR GOLD

Natorium Management Posts \$10 Prize for Best Target—Open to All Comers, Including Ladies—Separate Prizes for Women Also.

The management of the Natatorium has posted a cash prize of \$10 to be awarded to the person scoring the best target in the shooting gallery.

The range to be shot over is the small target range over which the regular weekly matches are held.

The prize shoot is open to all comers and in order to give women gun enthusiasts an ever break with the men, the afternoon of Wednesday March 1st, has been set aside for the management for them. Separate prizes of cut glass and china pieces will be posted for ladies shooting over other ranges.

The prize for last week was carried off by Gus Stinson, with a score of 24 out of a possible 25.

LIQUID CURES ECZEMA

WHERE SALVES FAIL

In regard to skin disease, medical authorities are now agreed on this: Don't imprison the disease germs in your skin by the use of greasy salves, and thus encourage them to multiply. A true cure of all eczematous diseases can be brought about only by using the healing agents in the form of a liquid.

WASH THE GERMS OUT.

A simple wash: A compound of Oil of Wintergreen, Thymol, and other ingredients as combined in the D. D. D. Prescription. This penetrates to the disease germs and destroys them, then soothes and heals the skin as nothing else has ever done.

A 25 cent trial bottle will start the cure and give you instant relief.

Medford Pharmacy, near post office.

If the real estate ad "reads all right," go and see the property, and you'll probably find that the ad is "straight" and candid.

A REAL CITY STORE

New, Clean Merchandise Displays

No doubt you have entered a big city grocery and viewed with pleasure the tastefully arranged displays of clean, shining bottle goods and new package goods. You can see the same kind of displays in our

New, Modern Store

Everything is new from floor to ceiling. The groceries carried in this store are FIRST QUALITY and everything is sold at reasonable prices

Allen Grocery Co.

South Central Avenue
Half a Block From Main Street

Main Street Business Property

Nets Over 8 Per Cent Interest

Best location. Great increase in value. Lot 50 feet by 140 feet. Splendid buy for investment or speculation. Special price for quick action. Address

Owner, Medford

P. O. BOX NO. 477.



HOARDED WEALTH
is all right if kept in a secure place, but the majority of the "unwise thrifty" prefer to hide their money, at home, or in some out-of-the-way place, instead of intrusting it to the safe keeping of a reliable bank. We number among our depositors some of the shrewdest and most prominent commercial men in town—a fact that fully attests our reliability.

Farmers & Fruit Growers Bank

Hemingway's Arsenate of Lead

Is pure and fully equal in quality to any Lead Arsenate obtainable even at much higher prices.
It is guaranteed to show following analysis:

Arsenic Oxide15 Per Cent
Lead Oxide, about32 Per Cent
Soluble Arsenic, under1-2 Per Cent

Improperly made Lead Arsenate gives disastrous results. A good lead arsenate should contain no free Acetic Acid, only a trace of Free Arsenic Acid, and from 15 Per Cent to 17 Per Cent of combined Arsenic Acid. It should mix readily with water and remain a long time in suspension.

HEMINGWAY'S LEAD ARSENATE combines all these good qualities. It is unique in possession of prolonged sticking power and It Does Not Scorch.

Hemingway's Lead Arsenate is Harmless to the plant but deadly to the insect. Hemingway's lead arsenate is used extensively in the Rogue River Valley by prominent fruit growers with unqualified success.

PRICES F. O. B. MEDFORD

In 500 lb. packages 9 1-4c per lb. net
In 100 lb. packages 9 3-4c per lb. net
In 50 lb. packages 10 1-4c per lb. net
In 25 lb. packages 11 1-4c per lb. net

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PORTLAND, OREGON.

Our Correspondents

CENTRAL POINT ITEMS
The Ladies' Aid of the M. E. church will have a bargain day sale at the Quality Store, Saturday, fresh bread, cakes and etc.
Deputy Game Warden C. B. Gay was in town Monday on business.
J. W. Myers and his Deputies inspected a car load of trees Monday and also inspected the orchards in this vicinity.
Mr. Hubbard and Miss Hubbard, Mrs. J. W. Myers, A. C. Frier and wife, Mr. Hoke and party, Henry Warner, were Medford visitors Monday.
J. F. Williams is repairing the local telephone system here, by putting up new poles, rewiring and etc.
Our orchard and ranch men are very busy now, the good weather allowing them to resume work in all departments. Their were calls for labor Monday that could not be filled.
The revival meetings at the M. E. church are still going on. The good work is progressing nicely with some converts.