

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

—By—
Prof. P. J. O'Gara, Pathologist. Written especially for the Medford Mail Tribune.
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TENTH INSTALLMENT.

The Iron Sulphide Spray.

The iron sulphide spray, which is a recent development in the control of apple mildew and other mildews, is, as its name indicates, a compound of sulphur and iron. As has been stated before, when commercial lime-sulphur solution is added to a solution of iron sulphate (FeSO₄), or copperas, as it is commonly called, the black ferrous sulphide is precipitated, and since lime-sulphur solution is composed chiefly of polysulphides of calcium, there is, therefore, as a result of the combination, an excess of sulphur, which is thrown down in the reaction. Both the free sulphur and the iron sulphide are in a very finely divided flocculent form, and the precipitated sulphur undoubtedly adds much to the fungicidal properties of the mixture.

If the stock lime-sulphur solution has a concentration of 32 degrees Beume (specific gravity 1.267), it will require about 0.232 gallons to precipitate one pound of pure iron sulphate. In round numbers, and to insure a slight excess of the lime-sulphur solution, we may use a quart of 32 degree Beume test lime-sulphur solution for each pound of iron sulphate to be precipitated. Of course, if the density of the lime-sulphur solution is lower than 32 degrees Beume, a slightly greater quantity of lime-sulphur will have to be used; and if the test runs higher than 32 degrees Beume, a smaller quantity of the lime-sulphur solution will be necessary. From the table comparing the Beume and equivalent specific gravities, one may readily calculate the amount of lime-sulphur solution to use when the test is above or below 32 degrees.

To prepare one hundred gallons of spray, which is to be used on foliage, proceed as follows: Use a barrel holding about 50 gallons and fill it about three-fourths full of water. Dissolve in it 10 pounds of iron sulphate (copperas) by suspending it in a sack just as for dissolving blue-stone in making up the Bordeaux spray. When the iron sulphate is dissolved, add 10 quarts of 32 degrees Beume test lime-sulphur solution, stirring constantly. If 32 degrees Beume lime-sulphur is not at hand, then calculate the amount necessary for lime-sulphur of any other density. The reaction takes place immediately, and when the lime-sulphur is all added, the barrel should be filled with water, the contents well stirred and allowed to stand for 15 to 24 hours. The object in using a slight excess over the required amount of lime-sulphur solution is to insure that all the iron sulphates will be precipitated. After standing about 15 hours, the iron sulphide, free sulphur and other compounds which are formed in the reaction, will settle to the bottom, forming a thick, black muck. The clear supernatant liquid should have a slight yellow color, indicating that a slight excess of lime-sulphur was used, and that, therefore, all the iron sulphate is precipitated. The supernatant liquid should be drawn off and thrown away, and the barrel again filled with water. The precipitate should be well stirred and then allowed to stand and settle. This process is termed "washing." Repeat this washing process until the water is no longer colored yellow, indicating that all

the lime-sulphur solution has been washed out. The black muck so prepared should be diluted up to 100 gallons for spraying. This spray, it is to be understood, is to be used while the trees are in full leaf, hence the care taken in washing out the lime-sulphur solution which has been in excess. Good results may be obtained by using this spray at half strength; and since tobacco extract or lead arsenate may have to be used at the same time, they may be added to it without fear of injurious effects from the combination.

If apple trees have been badly mildewed during the previous year, which may be seen by noting the peculiar stubby, whitish terminal growths and the unhealthy appearance of the fruit spurs, it may be necessary to use the iron sulphide spray in combination with the regular lime-sulphur solution in the dormant spray, or without it, just before the buds open in the spring. In this case, no washing will be necessary and the spray may be made up as follows: Partly fill a 100-gallon tank and add the regular amount of lime-sulphur solution for the spring spray for scale, woolly aphid and green apple aphid, and to this add 15 quarts more of commercial lime-sulphur solution. Then add 15 pounds of dissolved iron sulphate (copperas) and fill up to 100 gallons, stirring the mixture thoroughly. For the scale, and other insects mentioned above, the amount of concentrated lime-sulphur to be used should be such as to give a density to the dilution of about 4.5 degrees Beume, or about 1.030 specific gravity. This should be calculated before adding the copperas and extra lime-sulphur, on the basis of 10 gallons total mixture. This matter of scale spraying will be considered later.

The washed iron sulphide spray as first given should be applied during the growing season, the first application using this form of the iron sulphide spray being made with the first codling moth spray; that is, just after the petals have fallen or before the calyxes of the apple blossoms have closed in. As noted above, the lead arsenate may be added to the iron sulphide spray without any injurious effect. It might be a good plan to advise only half strength of iron sulphide spray, since a little carelessness in failing to wash the precipitate enough might result in some burning of the foliage and russeting of the fruit. As the iron sulphide dries on the trees, it will change from black to a reddish-brown. The material has good sticking qualities, and in spite of heavy rainfall, will remain well on the trees.

The iron sulphide spray, it is to be understood, is a mildew spray, not only for apples, but for other plants. It is an excellent spray for treating roses for mildew. In the Rogue River valley, some very interesting work last year in controlling apple mildew showed that a single spraying just before the buds opened controlled the mildew perfectly. The first orchard to use this new spray was the Burrell orchard, which is under the direction of Superintendent Rolfe. At this time, Mr. Rolfe states that the trees are in excellent condition, but that he will apply the iron sulphide spray again this year in order to keep the mildew under control.

REV. GEO. MOSELEY

will lecture at the Natatorium at Medford, March 7th, 8 o'clock, on the "Power and the Elevation of Christian Womanhood," also the "Cause of the Downfall of Young Women of the Present Day." Mr. Moseley is one of the best platform orators, Bible student and minister of the gospel. He has traveled through Europe, on the seas and in many parts of the United States lecturing and preaching the gospel. He was a student of the Great British school of arts. He has been master machinist of one of the largest engine works in Pittsburg, Pa., having full charge of setting on and discharging and setting the scale of wages. He was superintendent of one of the best engine works at Cleveland, O. Mr. Moseley was platform orator in the east in 1892-94 and won the victory in some of the great strikes. He also is a fine flute and piccolo player and tenor singer. He comes from the best of homes. Come and hear him. Seats on sale at Haskins' drug store. Lecture 50 cents.

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 \$2.
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Haskins for Health.

TRANNA BURIAL NEXT MONDAY

Funeral of the Late P. A. Tranna to Take Place Monday Morning at 10 o'clock—Interment at Jacksonville to Follow Short Service.

The funeral of the late P. A. Tranna, member of the G. A. R., and a resident of the state of Oregon for 33 years, will be held Monday morning at 10 o'clock in the Catholic church here. The interment, which will be held under the auspices of the G. A. R., will follow in the Catholic cemetery at Jacksonville.

Mr. Tranna died Wednesday night at the family home at 518 King street. He was 79 years old.

ARE YOU INTERESTED IN A GOOD INVESTMENT?

One hundred acres Butte Creek bottom, under irrigation, perpetual water right. All for apples or pears; can make big money raising onions, celery, tomatoes and all kinds of vegetables; big money in subdividing; joins a new townsite and the railroad; all under new wire fence; can be bought for one-half the price of adjoining land. Buy from owner and save the commission. Address Box 36, Medford, Or.

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, a said city, for a period of six months.

B. S. RADCLIFF & CO.

CITY NOTICES.

RESOLUTION.

Be It Resolved by the City Council of the City of Medford, Oregon: That there be and hereby is called a special election in and for the City of Medford, to be held on the 10th day of March, 1911, between the hours of 9:00 o'clock a. m. and 5:00 o'clock p. m., for the purpose of submitting to the qualified electors of said city, for their approval or rejection, the following entitled amendment to the charter of the City of Medford: 1. An amendment to the charter of the City of Medford, providing for a board of registration, and its duties and the registration of voters. 2. An amendment to the charter of the City of Medford, amending section 72 thereof, providing for an increase of the bonded indebtedness of said city to the extent of \$20,000, said sum to be used for the purpose of making improvements in the water system of said city and paying for trunk, sanitary and storm sewers, hereafter or hereinafter constructed by said city. 3. An amendment to the charter of the City of Medford, amending section 72 thereof, providing for an increase of the bonded indebtedness of said city to the extent of \$8,000, said sum to be used for the sole purpose of the improvement of the fire department of said city. 4. An amendment to the charter of the City of Medford, amending section 72 thereof, providing for the creation of a sinking fund for the purpose of the retirement of the bonds of the City of Medford. 5. An amendment to the charter of the City of Medford amending section 72 of said charter, providing for the payment of amount paid by purchasers at sales of property for delinquent assessments in said city in case the sale is vacated, set aside, or declared void by any court. The following named persons are hereby appointed judges and clerks of said election: First Ward: J. W. Ling Judge, D. T. Lawton Judge and clerk, L. I. Damon Judge and clerk. Second Ward: Joe Derry Judge, Chas. P. Talent Judge and clerk, Wm. Ulrich Judge and clerk. Third Ward: P. W. Cholgrin Judge, I. Summerville Judge and clerk, H. H. Lortner Judge and clerk. The following are hereby designated as the places for holding said election: First Ward: Hall over Haskins Drug store. Second Ward: Hotel Nash sample rooms. Third Ward: City Hall. It is further resolved that the recorder of said City of Medford be and hereby is ordered to give notice of said election in the manner provided by the charter in the case of annual elections of said city. The foregoing resolution was passed by the city council of the City of Medford, Oregon, on the 16th day of February, 1911, by the following vote: Merriek absent, Watt aye, Wortman aye, Emerick aye, Elbert aye, and Millar aye. Approved February 16th, 1911. W. H. CANON, Mayor. ROBT. W. TELFER, City Recorder.

NOTICE OF ELECTION.

Notice is hereby given that a special election will be held in and for the city of Medford on March 10th, 1911, for the adoption or rejection of those certain proposed charter amendments to the charter of the city of Medford, set forth in the foregoing resolution. Said election to be held at the time and places designated in said resolution.

ROBT. W. TELFER, City Recorder City of Medford.

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For Sale

15 acres, 3 miles from Talent, fenced, timber, alfalfa and fruit land, good house, pure water, 1/4 mile from school, 300 young pear trees, lovely place; \$2000, one-half down.

This 15 acres is one of the loveliest small ranches in southern Oregon. Sheltered by the hills from the cold winds of winter, deep, fertile soil, an ideal place for health. \$134 Acre.

Also 34 acres, 1 mile from Talent, 12 acres of fruit, family orchard in bearing; apples, Newtowns, 12 acres, peach filled; 7 acres timber, irrigated, dwelling house shaded by large laurel trees, plenty of water; fertile soil; garden spot; pumping plant; terms, \$15,000, \$7000 cash, the balance in payments of \$1000 yearly at 6 per cent.

Also 20 acres alfalfa and fruit land, with timber, 1 mile from Talent; \$6500 cash down; just think what a snap, a little over \$300 an acre. Where can you find near the depot and railroad a cheaper place? \$325 Acre.

Town lots in the newly incorporated town of Talent, Or., on the installment plan.

From \$150 to \$500 a lot. A fine four acre ranch near Talent; very fertile alfalfa and fruit soil. Well watered, all fenced and cultivated; peach orchard, young, of 160 trees bore last year. Apple trees 36, Apricot 1, cherry 2, English Walnuts 2, Pear 12, Plum 5, Quince 21, Nectarines 1.

Tokay and Malaga grapes 3 year old. Strawberries 1-2 acre Raspberries and Logans for family use, chicken ranch, chicken house, new woodshed.

Wagon shed, etc., good house, spring, water piped to house, creek runs through the place. Only \$1800 cash down.

Also 17 acres, 14 acres commercial fruit bearing orchard, 2 miles from Talent, \$10,000, one-half on time.

Also 80 acres fine timber, \$2000, one-half down.

Also 22 acres, \$2133 acre. Forty acres, about 3 miles from Talent and Phoenix, Ore: fruit land; 2 good springs, 5-room house, outbuildings, small fruit, 5 acres cleared; a good poultry ranch, over \$1000 of standing timber; \$1200 down, balance on time to suit the buyer; only \$50 an acre. Look all over the country and see if you can find a place so cheap.

Also 29 acres, orchard and alfalfa land; 2 1-4 miles south of Talent, Or.; 1300 young fruit trees, apples, peaches and pears; one acre in bearing; house, barn and outbuildings; all fenced, most of it being Page wire fence, 19-strand, rabbit tight; sub-irrigated and tiled; \$2225 acre; over half down, the rest on time at 7 per cent.

Also lands, alfalfa and fruit, from 20 to 800 acres. Write, enclosing stamps, or come and see me.

L. N. Judd Talent, Oregon

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A fine tract, quarter of a mile from Talent, 8-room house, good barn; 300 trees. Price \$4,000; terms given.

Good business opportunities and locations, all paying.

A 66-acre tract, 5-room house and large barn, 3 miles from Talent, partly cleared and lots of good wood on place, must be sold soon; will go for \$1100.

A 60-acre tract, water to irrigate same; has a 5-room house and barn to hold 6 head of horses, implements to run the place, and a wagon. This place put up 30 tons of hay last year, and no water was used. Price, \$2000, half down.

A 74-acre tract, 2 1-2 miles from Talent; good 8-room house and large barn; 8 acres under ditch and in alfalfa and garden land; 34 acres under plow, and trees; 20 acres of orchard, of which 5 acres are in bearing; good terms and easy payments.

A 14 1-3 acre tract, lies entirely in city limits; has 9-room plastered house, good barn, well and power for irrigation of whole tract. Partly set of trees; easy terms. For plenty of other bargains call or address

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W. B. JACKSON, Ass't Cashier.

The Medford National Bank

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Surplus, \$20,000.00

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