

Formulae for Insecticides.

I.—POISONS (for biting insects only).

1.—ARSENATE OF LEAD (paste)—2 or 3 lbs. to 40 gallons liquid spray; $3\frac{1}{2}$ lbs. for potato beetles. Dry arsenate of lead requires only half these strengths.

2.—PARIS GREEN—(a) $\frac{1}{4}$ to $\frac{1}{2}$ lb. to 40 gals.; 1 lb. for potato beetles. If used with water alone, add 1 or 2 lbs. fresh lime. (b) 1 lb. mixed with 50 lbs. land plaster, air-slaked lime or some similar substance, for dusting on plants.

N.B.—With Bordeaux, 1 or 2, may be used; with lime-sulphur only 1; the other causes burning.

3.—POISON BRAN MIXTURE FOR GRASS-HOPPERS

Bran 20 lbs.
Paris Green 1 lb.
Molasses $\frac{1}{2}$ gallon.
Water about 2 gallons.
Lemons 2 or 3 fruits.

Mix thoroughly the bran and Paris green in any large receptacle the night before using. In morning squeeze the juice of the lemons into the water, run pulp and rind through a meat chopper, add this and also molasses to the water, stir well, then pour the liquid upon the poisoned bran, and mix so thoroughly that every part is moist and will fall like sawdust through the fingers. Apply in the morning between 5 and 7 o'clock by scattering so thinly over the infested field, fence corners and roadsides, that the above amount will cover 4 or 5 acres. Sometimes a second application about 3 days later is necessary. Use as soon as the pest is abundant. Do not look for results for 2 or 3 days.

This mixture applied in evening will also kill Cutworms and Army-worms.

4.—WHITE HELLEBORE.—One oz. to 1 gal. water, or dust undiluted over the plants. Hellebore left exposed to air is useless.

II.—CONTACT POISONS (chiefly for sucking insects).

1.—KEROSENE EMULSION—

Kerosene (Coal Oil) 2 gals.
Rain water 1 gal.
Soap $\frac{1}{2}$ lb.

Dissolve the soap in water by slicing and boiling; take from fire, and while hot pour in kerosene and churn vigorously for five minutes. For use dilute with 9 parts of water, so that the above 3 gals. of stock emulsion will make 30 gals. of spray mixture.

2.—WHALE OIL SOAP.—For brown or black aphids, 1 lb. in 4 gals. For green aphids, thrip and leaf-hopper, 1 lb. in 6 gals.

3.—TOBACCO WATER.—Steep 1 lb. refuse tobacco in 1 gal. of water for 1 hour, make up for water that evaporates, or soap, 1 lb. in 1 gal. water for 24 hours with occasional stirring.

4.—Black leaf 40 sold by Tobacco Product Co., Kentucky. Directions on the cans.

A little soap with it helps, but soap cannot be added if used with lime-sulphur.

5.—PYRETHRUM (or insect powder).

Pyrethrum Powder 1 oz.
Water 1 to 2 gals.

Dry mixture. Mix thoroughly 1 part by weight of pyrethrum with 4 of cheap flour, and keep in air-tight vessel for 24 hours before dusting over plants.

Note: Pyrethrum is useless if left exposed to the air.

6.—LIME SULPHUR WASH.

(See under fungicides.)

Formulae For Fungicides.

I.—BORDEAUX MIXTURE:

Copper Sulphate (Bluestone) 4 lbs.
Unslaked Lime 4 lbs.
Water 40 gals.

Dissolve the copper sulphate in a wooden or brass vessel with hot water, pour into a barrel and add cold water to make 20 gals.; slake the lime, preferably with hot water; add cold water to make 20 gals. Stir both barrels well, and pour lime into the copper sulphate barrel. (Never mix concentrated milk of lime and copper sulphate solutions.)

A stock solution of each may be made and kept indefinitely if not mixed. Dissolve 40 lbs. copper sulphate in 40 gals. of water by suspending just below the surface of the water in a coarse sack. Each gallon of the liquid will now contain 1 lb. copper sulphate. Slake any desired quantity of lime and put into a box or barrel in shaded place, or sunk in the ground. Keep covered with small amount of water to exclude the air. Calculate how much is required for 4 lbs. lime if well stirred.

To test Bordeaux mixture, let a drop of ferrocyanide of potassium solution fall into a little of the mixture in a saucer. If this

causes it to turn reddish brown, add more lime until no change takes place.

II.—LIME SULPHUR WASH.

1.—HOME BOILED (for use on dormant wood only).

Fresh stone lime 20 lbs.
Sulphur (flour or flowers) 15 lbs.
Water 40 gals.

Slake 20 lbs. of lime in about 15 gals. boiling water in a kettle or other boiling outfit. While slaking add the 15 lbs. sulphur made into paste by the addition of a little water. Boil vigorously, with stirring, for 1 hour. Dilute to 40 gals. with cold or hot water. Strain and apply at once.

2.—HOME MADE CONCENTRATED LIME-SULPHUR—This may be used as a substitute for commercial lime-sulphur, but is only about two-thirds as strong as a rule.

Sulphur (a fine grade) 100 lbs.
Fresh stone lime, high in percentage of calcium 50 lbs.
Water 40 or 50 gals.

Put about 10 gals. water in the boiling outfit, start fire, add sulphur, stir to make paste and break lumps, then add remaining water, and when near boiling put in lime. Stir frequently while slaking until all the sulphur and lime are dissolved. Add water from time to time to keep up to 40 or 50-gal. mark. Boil 1 hour, then strain through a screen of 20 meshes to inch into storage barrels. Make enough at once for a season's work. Cover well to keep out air, or pour oil of any kind over surface to depth of 1 inch for same purpose.

To determine how much to dilute for different applications use an hydrometer with specific gravity readings, and apply the following rule:

Put the hydrometer in the clear liquid when it is cold and the sediment has all been settled for a day or two. Note the number to which it sinks. Suppose this is 1:240. The strength for use before the buds burst should be about 1:300 or stronger. To determine how much to dilute a strength of 1:240 to get 1:300, divide the three figures to the right in 1:240 by 30, that is 240 divided by 30=8. This means that each gallon of such a wash must be diluted to 8 gals. with water to give us a strength of 1:300, the proper spring strength. For the second application 1:600 is about the right strength. To get it divide the 240 by 9 which gives 26.23 or roughly speaking 27. This means that each gallon of wash of the strength of 1:240 must be diluted to 26 $\frac{2}{3}$ or 27 gals. to make the right strength for the second application. For the third application and any later ones 1:900 is about the right strength and to get this we proceed in the same way and divide 240 by 8=30, so that each gallon must be diluted to 30 with water for this application. If the strength of the concentrated were 1:212 or any other number, you would in the same way divide the three figures to the right by 30, 9 and 8 respectively to get the proper dilutions for each spraying.

TABLE FOR CHANGING BEAUME READINGS INTO THEIR EQUIVALENT SPECIFIC GRAVITY READINGS.

Beaume.	Specific Gravity.	Beaume.	Specific Gravity.
18 =	1.111	27 =	1.230
19 =	1.150	28 =	1.240
20 =	1.159	29 =	1.250
21 =	1.168	30 =	1.260
22 =	1.178	31 =	1.271
23 =	1.188	32 =	1.282
24 =	1.198	33 =	1.293
25 =	1.208	34 =	1.305
26 =	1.219	35 =	1.317

Note.—Commercial lime-sulphur should be tested with the hydrometer and diluted according to the same rules as the home-made concentrated form.

3.—SELF BOILED (chiefly for use on peach foliage).

Fresh stone lime 8 lbs.
Sulphur (flour or flowers) 8 lbs.
Water 40 gals.

Best prepared in quantities of 24 lbs. at a time to get sufficient heat. Place 24 lbs. lime in a half barrel, add enough cold water to start it slaking well and to keep the sulphur off the bottom. Dust the 24 lbs. sulphur over the lime, having first worked the sulphur through a screen to break lumps, then add whatever further amount of water is necessary to complete the slaking. Stir well with a hoe to prevent the lime caking on the bottom. As soon as the slaking is over, add enough

cold water to cool the whole mass and prevent further combination. Strain into spray tank. Keep well agitated while spraying.

III.—DISINFECTANTS (for pruning tools and for wounds on trees):—

1.—Corrosive sublimate, 1 part to 1,000 by weight=1 tablet to 1 pint of water. Apply with a swab on end of a stick.

CAUTION.—Corrosive sublimate is a deadly poison to man or beast if taken internally. It will also corrode iron or metal, so use in a glass or wooden vessel and be sure to wash these out very thoroughly when through using them.

2.—Lime-sulphur about twice spring strength, or bluestone, 1 lb. dissolved in about 14 gals. water, may be used to disinfect wounds or cankers, but is not satisfactory in case of Pear Blight.

STICKER

Resin 2 lbs.
Sal Soda (crystals) 1 lb.
Water 1 gal.

Boil together till a clear brown color which takes from 1 to 1 $\frac{1}{2}$ hours. Cook in an iron kettle in an open place. Add the above to 40 gallons Bordeaux; for use on smooth foliage like onions, cabbage or asparagus. If used with arsenate of lead, or Paris Green, add 1 or 2 lbs. of fresh lime to every 40 gallons of spray.

The Farmer's Calendar.

The season for spraying is here again and we trust the Spray Calendar compiled by L. Caesar, of the Ontario Agricultural College, will be looked for as it has been in years past. In revising the Calendar, Mr. Caesar has made alterations and additions. The "Remarks" regarding apples, pears, plums and cherries have been largely re-written and certain things have been added regarding San Jose Scale. A few things of minor importance have been omitted and new treatments have been added, such as preparations to use against grasshoppers, army worms and cut worms. The Spray Calendar should be kept in a convenient place, always accessible, for the recommendations apply to the garden and fields as well as to the orchard. It is the most concise piece of information that a farmer, fruit-grower or gardener can have before him.

Association Vs. Member Re Selling Apples Outside the Society.

Unity and harmony in a co-operative association are very necessary attributes on the part of its members singly and collectively. The constitutions and by-laws are never severe when we compare them with the regulations of other corporations, and it is incumbent upon every member of an association to do his part in order that the managing body may more effectively execute its duties. Considerable interest was aroused some time ago when the Oakville Fruit Growers' Association took action against one of its members to recover a 50-cent-per-barrel charge for all apples sold outside of the association. This restriction is embodied in the constitution of every association, but in only a few cases have they been sure as to the validity of the clause. In the case of the Oakville Fruit Growers' Association vs. one of its members, Justice Middleton decided in favor of the Association, and the member in question was obliged to pay the charge of 50 cents per barrel, as stipulated in the clause of the constitution, plus the cost. This is practically a test case in this regard.

The association is incorporated under the Ontario Companies' Act, and the clause of the constitution, over which the trouble arose, is worded as follows: "All good barreling apples grown by members of the Association (excepting for their own use) are to be handled by the Executive committee, and any member disposing of his or her own apples shall pay to the Association the sum of 50 cents per barrel."

A Cobalt correspondent writes that he would like to see more advertisements of potatoes, turnips, beets, carrots and other vegetables for sale in "The Farmer's Advocate." He wants to get in touch with people having these goods for sale. He says he can pay more than the Toronto market quotations for them. Our correspondent should also advertise.

The crowning achievement of the farm and garden year is to make real the ideals of the seed catalogue. The attainment is worth the effort in satisfying healthy appetites at the table and ones love of the beautiful.

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