Spraying Calendar Recommended by the Central Experimental Farm, Ottawa.

PLANT.	1ST APPLICATION.	2ND APPLICATION.	3RD APPLICATION.	4TH APPLICATION.	5TH APPLICATION.
**Apple*..... Black spot fungus, codling moth, bud moth, borers, oyster-shell bark-louse, apple aphis.	Copper sulphate and Paris green, before buds start. Alkaline wash for borers. Kerosene emulsion, before buds start, for bark lice and aphis.	Bordeaux and Paris green, just before blossoms open. Kerosene emulsion, before buds start, for bark lice and aphis.	Bordeaux and Paris green, soon after blossoms fall.	Bordeaux and Paris green, 10–15 days later. Kerosene emulsion, in June, for bark lice when hatched.	Bordeaux and Paris green, 10–15 days later if spot disease is severe. Alkaline wash, for borers at end of June. Kerosene emulsion, in June for bark lice when hatched. If a late brood of the "slug" appears, spray with Paris green or dust with fresh slacked lime.
Cherry..... Rot, leaf diseases, and injurious insects. Cut out and burn Black Knot.	Bordeaux, before flower buds open; kerosene emulsion; for aphis.	Bordeaux and Paris green, when fruit has set.	Bordeaux and Paris green, 10–15 days later.	Ammoniacal copper carbonate, 10–15 days later.	
Currant..... Fungous diseases, "currant worm."	Paris green, when worms appear.	Hellebore, when fruit is fully formed.	Bordeaux, after fruit is picked.	Bordeaux, 10–15 days later.	
Gooseberry..... Mildew, "currant worm."	Bordeaux and Paris green, as soon as leaves expand. Copper sulphate, before buds start.	Bordeaux, hellebore, or potassium sulphide (applied separately), 10–15 days later.	Ammoniacal copper carbonate or potassium sulphide, 10–15 days later.		
Grape..... Mildew, rot, anthracnose, "thrip" (or leaf-hopper).	Copper sulphate, before buds start.	Bordeaux, when first leaves are half grown.	Bordeaux, when fruit has set. Kerosene emulsion, for leaf-hopper.	Bordeaux, 10–15 days later.	Bordeaux, 8–12 days later if rot is prevalent.
Peach, Apricot, Nectarine..... Rot, leaf-curl, curculio, bud moth.	Copper sulphate and Paris green, before buds start.	Bordeaux (3 lbs. copper sulphate, 3 lbs. lime, 50 gals. water); Paris green (3 oz.), just before blossoms.	Bordeaux and Paris green (3 oz.), soon after fruit has set.	Bordeaux and Paris green (3 oz.) 8–12 days later.	Bordeaux, 10–15 days later.
Pear..... Spot, cracking, leaf blight, codling moth, "slug."	Copper sulphate, before buds start.	Bordeaux, just before blossoms open.	Bordeaux and Paris green, soon after blossoms fall.	Bordeaux and Paris green, 10–12 days later.	Ammoniacal copper carbonate, 10–15 days later if rot is prevalent.
Plum..... Rot, shot-hole fungus, bud moth, curculio. Cut out and burn Black Knot.	Copper sulphate and Paris green, before buds open.	Bordeaux and Paris green, soon after blossoms have fallen.	Bordeaux and Paris green, 10–12 days later. Kerosene emulsion, whale-oil soap solution, or tobacco wash, for aphis.	Bordeaux and Paris green, 10–15 days later. Kerosene emulsion, whale-oil soap solution, or tobacco wash, for aphis.	
Quince..... Red rust of fruit and leaf.	Bordeaux, just before blossoms open.	Bordeaux and Paris green, when fruit has set.	Bordeaux and Paris green, 10–15 days later.	Bordeaux and Paris green, 10–15 days later.	
*6TH APPLICATION.—Bordeaux and Paris green, for winter apples.					
Rose..... Black spot, mildew, "rose thrip," "rose slug."	Mildew in greenhouse. — Paint heating pipes with paste made of equal parts of sulphur, lime, and water.	Black spot.—Ammoniacal copper carbonate.	"Rose Thrip."—Kerosene emulsion, when "thrip" appears.	"Rose Slug."—Paris green (1 oz. in 12 gals. water), or Hellebore (1 oz. in 2 gals.). This may also be applied as a dry powder.	
Raspberry, Blackberry, Dewberry..... Anthracnose, rust.	Copper sulphate, before buds burst.	Bordeaux, 10–15 days later.	Bordeaux, soon after old canes are cut out.		
Strawberry..... Rust.	Bordeaux, after first blossoms have fallen.	Bordeaux, soon after picking season, or burn foliage.	Bordeaux, 10–15 days later.		
Bean..... Anthracnose.	Copper sulphate, ½ oz. to 1 gal. water; soak one hour.	Bordeaux, when rough leaves appear.	Bordeaux, 8–12 days later.		
Cabbage..... Caterpillars.	Paris green and flour, for flea beetle while plants are in hot-beds.	Pyrethrum and flour (1 to 4), dry, for cabbage worms.			
Potato..... Scab, rot, insects.	Formalin or corrosive sublimate, for scab.	Paris green, for Colorado potato beetle. Bordeaux for flea beetle.	Bordeaux, for rot; from 15th July till end of season, 2 weeks apart.		
Tomato..... Rot, blight.	Bordeaux, first appearance of rot.	Bordeaux, when necessary.	Bordeaux, when necessary.		

Dissolve the copper sulphate (bluestone) by suspending it in a wooden or earthen vessel containing 4 or 5 or more gallons of water. Slack the lime in another vessel. If the lime, when slacked, is lumpy or granular, it should be strained through coarse sacking or a fine sieve. Pour the copper sulphate solution into a barrel, or it may be dissolved in this in the first place, half fill the barrel with water, add the slacked lime, fill the barrel with water and stir thoroughly. It is then ready for use.

Stock solutions of dissolved copper sulphate and of lime may be prepared and kept in separate covered barrels throughout the spraying season. The quantities of bluestone, lime and water should be carefully noted.

FOR POTATO ROT use 6 lbs. coppor sulphate instead of 4.

INSECTICIDES.

KEROSENE EMULSION.

Kerosene (coal oil) ..... 2 gals.
Rain water ..... 1 gal.
Soap ..... ½ lb.

Dissolve the soap in water by boiling; take from fire, and, while hot, turn in kerosene and churn briskly for five minutes. To be diluted before use with 9 parts of water.
For bark lice and other sucking insects.

PARIS GREEN.

Paris green ..... 1 lb.
Lime (fresh) ..... 1 lb.
Water ..... 200 gals.

For dry application.—One lb. Paris green with 50 lbs. flour, land plaster, slacked lime or any other perfectly dry powder.
For insects which eat foliage.

HELLEBORE.

White hellebore ..... 1 oz,
Water ..... 2 gals.
Or to be dusted undiluted over attacked plants.

PYRETHRUM (OR INSECT POWDER).

Pyrethrum powder ..... 1 oz.
Water ..... 3 gals.

For dry application.—Mix thoroughly 1 part by weight of insect powder with 4 of cheap flour, and keep in a close vessel for 24 hours before dusting over plants attacked.

WHALE-OIL SOAP.

For scale insects (young) ..... 1 lb. in 5 gals. water.
For aphis ..... 1 lb. in 8 gals. water.
For San Jose scale (in winter) 2 lbs. in 1 gal. water.

TOBACCO AND SOAP WASH.

FOR PLANT LICE OR APHIS.

Soak for a few hours 10 lbs. tobacco leaves (home grown) in warm water; strain off and add 2 lbs. whale-oil soap. Stir till all is dissolved, and dilute to 40 gallons. Apply early and two or three times at short intervals.

ALKALINE WASH.

FOR BORERS.

Soft soap reduced to the consistency of thick paint by the addition of a strong solution of washing soda in water. If applied with a brush during the morning of a warm day, this will dry in a few hours and form a tenacious coating, not easily dissolved by rain.

FUNGICIDES.

DILUTED BORDEAUX MIXTURE.

FOR FUNGI ON FRUIT TREES.

Copper sulphate ..... 4 lbs.
Quicklime ..... 4 lbs.
Paris green (for leaf-eating insects) ..... 4 oz.
Water (1 barrel) ..... 40–50 gals.

COPPER SULPHATE SOLUTION.

Copper sulphate (bluestone) ..... 1 lb.
Water ..... 25 gals.

As soon as dissolved it is ready for use. *For use before the buds open only.*

AMMONIACAL COPPER CARBONATE.

Copper carbonate ..... 5 ozs.
Ammonia ..... 2 qts.
Water (1 barrel) ..... 40–50 gals.

Dissolve the copper carbonate in the ammonia. The ammonia and concentrated solution should be kept in glass or stone jars, tightly corked. It is ready for use as soon as diluted with the 50 gals. of water. To be used when Bordeaux cannot be applied on account of staining the fruit.

FORMALIN, CORROSIVE SUBLIMATE.

For potato scab soak the tubers either:

1. For two hours in a solution of commercial formalin (formaldehyde), 8 ozs. in 15 gals. of water; or,
2. For 1½ hours in a solution of corrosive sublimate, 2 ozs. in 16 gals. of water. When dry cut up for planting.

Formaline has the advantage of being neither poisonous nor corrosive, while corrosive sublimate is a fatal poison if taken internally. It also corrodes metals. The solution should therefore be made in wooden vessels. All treated seed should be planted, and any solution left over should be poured into a hole in the ground. Formalin and formaldehyde are merely two names for the same preparation.

Spring Work for April.

"Flowers are smiles of God's goodness."—*Wilberforce.*

We can now sow seeds of petunias, verbenas, asters, mignonette, phlox drummondii, etc. Have ready some flat boxes or old pans filled nearly full with a rich, rather sandy soil, free from lumps. Putting through a coarse sieve will free the soil from lumps and put it in better condition for fine seeds.

Cover the fine seeds with about three to four times their own size depth of gritty soil. In sowing coarse seeds observe the same rule. It is Nature's secret.

The seed-pans must be kept moist, never allowed dust dry or they will become baked, and then good-bye to the germinating seeds. To keep them moist, put a pane of glass over each pan and it will keep them about right. They must be protected from the direct rays of the sun, as it will likely cut them off, or else by heating the moist soil so hot it kills the young, tender things, causing them to turn brown in the little stem and topple over. After life has once begun do not cover with the glass—they will need the free air. When the plants begin to have two to four leaves it is time to move them, giving them more room. Have a box of soil ready (a box two inches deep is best). Fill to half an inch of its depth with a nice fibrous loamy soil, with a sprinkling of sand in it. The sand helps to make drainage. Great care must be taken when moving the tiny seedlings to keep from breaking the roots or crushing the stem. The roots are the chief source of nourishment the wee seedling has, hence when partially broken the plant can never regain the vigor lost.

In moving from the seedling box, pot or pan, take a case knife and run it directly under the seedlings, and thus loosen thoroughly the seed-bed soil. Then take each seedling by the leaf in the forefinger and thumb of the left hand, and, putting knife under it, take it out steadily; and to plant it in its new and larger home, make holes with a stick or bone like a flattened cedar pencil in the box of soil, planting the seedling much as it was formerly, only a little deeper in the soil, making it firm—not too firm. The usual way is to plant these about two to four inches apart each way. Seedlings like company. One dozen will do better than a single one in a box, only be sure to re-transplant, pot or put into garden before they are crowded or drawn. Water with a fine sprayer until the plants are well established (assuming always that the roots are sufficiently moist), giving them plenty of sunlight. But don't give them sunlight for a couple of days after transplanting: partial shade is the best at this time. Keep them growing in the sunniest situation, as in a dark place you will never secure nice stocky, bushy plants of the blooming sort for transplanting out of doors—no, nor for pot plants indoors.

If you want the very best results from sweet-pea sowing, get them into the ground at the very earliest opportunity, even though we have night frosts. Make a trench about twelve inches deep, put into it about six inches of well-rotted manure and mix up with the soil, then sow your seed and cover three inches deep. They will soon throw out strong roots, and ere the leaves appear will have good hold of the manure. Be sure to stir the soil constantly, always drawing a little to the plant, and keep wet. The plants will soon get stout and strong. You will then have the earliest sweet peas in the neighborhood obtainable from spring planting, giving you pleasure for your earnest endeavor.

Liquid manure in the water will bring along lilies rapidly. If the water be always tepid the lilies will soon come into flower. One thing to be observed about "callas" is, do not let them have too much pot room. The smaller the pot the more likely is the plant to bloom and to continue blooming. The very best out of the soil goes to make blooms, whereas if the pot were large the lily would make a great show of foliage and very little sign of bloom.

DORIS.

Water Wheel to Run Cream Separator.

To the Editor FARMER'S ADVOCATE:

Regarding the enquiry of Thos. Cairns, of B. C., in your issue of February 15th, for dimensions of water wheel to run a cream separator, as he does not give the height of head under which the wheel would work, I can only give a partial reply to his enquiry. One horse power would be ample for his requirements if there is not too great a length of shafting (not more than 20 feet) to run in order to convey power to separator.

Rule.—Multiply the weight of water in pipe, or flume, by the perpendicular descent in feet (or head); multiply the result by 60, divide by 33,000; ⅔ of the quotient will be the available power. Example: What power will a volume of water 4 inches in diameter and 20 feet high develop applied to a good turbine wheel?

$$\frac{5.454}{1000} \times \frac{20 \times 20 \times 60}{33000} \times \frac{2}{3} = 2\ 3\text{-}5 \text{ horse power.}$$

Note.—A column of water 4 inches in diameter weighs 5.454 lbs. for each foot in height.—School Practical Science, Toronto.

The diameter of wheel will vary according to the height of head.

The A. R. Williams, Company, Limited, Front street, Toronto, can supply him with either a Leffel Improved Double Turbine, manufactured in Springfield, Ohio, or with a Canadian Little Giant. The Leffel will furnish more power under the same conditions.

FRED. D. FEENY.

Westbourne, Man.

Rio Grande Wheat Wanted.

SUBSCRIBER, Dufferin Co., Ont., asks where Rio Grande spring wheat seed can be purchased. Readers having Rio Grande spring wheat seed to dispose of may find a paying market by advertising it in next issue of the FARMER'S ADVOCATE.