

# FARM AND ORCHARD

Notes and Instructions from Agricultural Colleges and Experiment Stations of Oregon and Washington, Specially Suitable to Pacific Coast Conditions

## APPLE SCAB AND CODLING MOTH.

By Professors H. S. Jackson and H. F. Wilson of the Oregon Agricultural College.

The time to spray for the apple scab and codling moth is at hand, and since these pests are, generally speaking, the most important troubles of the apple for which spring and summer spraying is necessary, it was thought advisable to issue at this time this bulletin of information regarding their life history and methods of control. The spray for these troubles may be applied in part at the same time, hence for convenience of the growers are treated together.

The proper time for treatment of fungus diseases or insect ravages is always determined by the life history of the organism causing the trouble, hence the life history of each will first be given, followed by the combined method of treatment.

### Life History of Apple Scab.

Apple scab is caused by a fungus which attacks both foliage and fruit. On the foliage the spots are at first more or less circular in outline, olive green or brown in color, becoming darker and irregular in shape as they mature. The leaves are frequently more or less curled or wrinkled. When the spots are abundant, the leaves fall prematurely. Considerable defoliation may take place where infestation is abundant.

On the fruit the fungus produces more or less circular spots of the greenish black color. The vegetative stage of the fungus develop under the cuticle of the apple fruit finally rupturing it by the elongation of the threads which bear the spores. The ruptured cuticle may frequently be seen clinging as whitish membranous shreds about the edge of the recently developed spots. As the spots become older all trace of the fungus may become obliterated and only evidence of the former spot is seen in a large or small rough russeted spot. Frequently the fruit is distorted when mature as the result of early scab infections. Where scab spots are abundant the fruit may become cracked. Scab in any degree of severity on the fruit renders it unsightly and unmarketable.

The spores of the fungus are produced in the spots on leaves or fruit in great abundance and are disseminated by the wind, thus spreading the disease to other leaves and fruit, either in the same or other trees. Several generations may thus occur during the season. One finds the scab spots first appearing in the spring on the under side of leaves on the lower branches. Spores produced in these spots serve to spread the disease to young fruit and to other leaves.

The development of the scab fungus is found to be very much influenced by weather condition. Moisture on the surface of leaves and fruit is essential to the germination of the spores and the consequent infection of the plant. On that account scab is found to spread most rapidly in spring, early summer and fall in the Northwest. The disease spreads little, if any, during the dry season. The mycelium of the fungus present on the leaves which fall to the ground in the fall does not die, but develops in these leaves during the winter as a saprophyte and in the spring produces spores quite different from those borne in the spots on living leaves and fruit, both in the manner of formation and in the shape and size. The spores found in the spots on leaves and fruit are one-celled, rarely two-celled, and are borne on the ends of short threads, while the spores developed on the dead leaves in spring are always distinctly two-celled and are borne in little cylindrical sacs called asci. Eight spores are always developed in each sac. A considerable number of these sacs are borne in hollow more or less pear-shaped receptacles imbedded in the tissues of the leaf. These receptacles containing the asci, known as perithecia, project from the surface of the leaf when mature as little black elevations. These are barely visible to the naked eye. At maturity an opening appears in the projecting elevations. The asci elongate through this opening and the spores are ejected forcibly, and, wafted by currents of air, may be carried to the young leaves of the apple, where they germinate and produce the first scab spots.

This ascus spore stage of the fungus which develops on the fallen leaves is sometimes called the "sexual" or "perfect" stage. The stage which develops on the living leaves and fruit is called the conidial or "summer spore" stage.

The ascus spores are disseminated about the time the blossoms open. So far as is known all primary infection of the leaves and fruit in the spring takes place following the dissemination of the sexual spores.

### Life History of Codling Moth.

The codling moth spends the winter in the larval stage within a silken

cocoon under the bark or in crevices of the tree, or under rubbish on the ground. With the warm days of spring they undergo a complete change, and transforming to pupae later emerge as adults. In this stage the insect is seldom seen as it remains quiet during the day and flies about at night depositing eggs upon the leaves and fruit in the evening about dusk.

The eggs of the spring generation of moths are deposited during June and July and the first young larvae hatch out about June 20th to July 1st. As soon as the larvae hatch out they seek an entrance into the fruit, and in the case of the first generation, mostly enter through the calyx end.

They feed and develop for about sixteen to twenty days, until mature, and then pass through the same stages as the over-winter larvae, namely: pupae and adult. In the Willamette valley the earliest individuals of this brood of moths begin to appear about the last of July and deposit their eggs upon the fruit and leaves. The egg deposition continues until late in the fall. The eggs begin hatching about August 1st, and the larvae enter the fruit from the sides. These are the over-wintering forms, and when full grown they leave the fruit, and seeking protected places near by, spin winter cocoons.

### Combined Treatment for Apple Scab and Codling Moth.

The first application is primarily an apple scab spray. Use lime-sulphur, diluted 1-30 with water (basis of 30 degree Baume stock solution) and apply just as the buds are separating in the cluster and show color. No arsenate of lead is necessary at this time unless the bud moth is present, in which case add two pounds of neutral arsenate of lead to each 50 gallons of diluted lime-sulphur. If aphids are present add black leaf 40 to the lime-sulphur in the proportion of 1 gallon to 900. When the latter is mixed with the lime-sulphur there will be a small amount of grayish sediment thrown down, which, however, does not affect the value of the spray to any appreciable extent.

The second application should be made just after the petals fall and before the calyx closes. Use lime-sulphur 1-30 to which has been added two pounds of neutral arsenate of lead to each 50 gallons. This is the second scab and the first codling moth spray.

The third application in orchards that are badly infested with apple scab, spray ten days or two weeks after the second with lime-sulphur, summer strength, or with self-boiled lime-sulphur (8-8-50). This is distinctly a scab spray and in regions where scab is not prevalent may be omitted. Where leaf-eating insects are present, two pounds of arsenate of lead should be added to each fifty gallons of spray. In those sections of the state where scab is not present and it is necessary to spray for leaf-eating insects, arsenate of lead may be diluted with water in the proportion of two pounds to fifty gallons.

The fourth application, the second spray for codling moth should be applied at the time the eggs of the first generation moths are hatching or just as the very earliest worms are beginning to enter the fruit. In the greater portion of the Willamette valley this will be usually between June 25th and July 1st, although the dates vary somewhat with the season. This date is also approximately correct for most portions of the Hood River valley, but in Southern Oregon and most portions of the Grande Ronde valley this application should be made somewhat earlier. Use two pounds of arsenate of lead to fifty gallons of water.

The fifth application, an application of arsenate of lead should be applied as a preventive of injury by codling moth about four or five weeks after the fourth. In the Willamette valley this will be about August 1st to 10th. This date, however, varies in different parts of the state as above noted, and the application should be made when the first young larvae are found entering the fruit.

The sixth application, the fourth spray for codling moth, corresponds to the fall spraying for bud moth and should be applied in the Willamette valley about September 25th to October 1st. Use arsenate of lead in the proportion of two pounds to 50 gallons of water. In case the bud moth is not present in the orchard and the previous codling moth sprays have been thoroughly applied this application may be omitted. In case apple scab has been particularly prevalent or the fall rains begin early it would be well to use lime-sulphur 1-30 at this time for the purpose of limiting fall infection. This would also be desirable if the orchard is badly infested with apple tree anthracnose.

### Supplementary Methods of Controlling Apple Scab.

Since the fungus causing apple scab winters over in the decaying leaves on the ground, it is advisable to destroy

### Her Period of Quietude.

It is said to be customary in Bulgaria for a newly married woman to exchange no conversation with any outsider during the first month following the wedding. She is permitted to open her mouth only for the necessary purpose of eating and drinking and is allowed to reply to her husband when the latter chooses to address her. To this custom is attributed the fact that the honeymoon in Bulgaria lasts an entire month.

### In Praise of Ice Cream.

Sunday dinner without ice cream is an imposition on the whole family. Say, brother, did you ever notice the expression of the faces of the children when they were ready for ice cream, and canned peaches were brought in? There is a chance for mutiny and rebellion right there. When the family is feeling grouchy just serve them vanilla ice cream and pour hot thick chocolate over the ice cream. Then life is worth living.

the leaves by burning or early plowing before the time for the first spraying.

The usual application of Bordeaux for apple tree anthracnose just after the fruit is picked may have a beneficial effect in reducing the late spread of the disease on the foliage and hence a reduction of the "sexual" spore stage in the spring.

### Codling Moth.

Much good can be done by scraping the rough bark from the trees in the winter, and by the practice of clean culture; especially is this true of old neglected orchards.

Be careful not to carry infested fruits into the store house in the fall, as the larvae find many excellent places therein to spend the winter.

### EXPERIMENT STATION NOTES

By R. W. Thatcher, Director, Washington Experiment Station.

The reason for the lack of fertility of pine land soils is not due to the pitch which such land contains, but to an absence of a supply of available nitrogen. The foliage from evergreen trees adds very little to the supply of nitrogen in the soil, while the trees themselves constantly take it from the soil. In soils which have been burned over, the heat burns out a good deal of nitrogen in the upper layers of soil. The ashes are not injurious, but are highly beneficial to the soil.

The real difficulty is that the growing of pine and fir trees on soil poor in nitrogen takes away so large a proportion of the available nitrogen that when the soil is first brought under cultivation it will rarely produce satisfactory crops. After two or three years of cultivation the soil gets into better condition and the nitrogen becomes more available and better crops are obtained. The only remedy for this condition is thorough cultivation supplemented by the use of some fertilizer to put available nitrogen in the soil to start with. For this purpose, barnyard manure is best. Clover would be still better, but clover itself will rarely grow on this soil without artificial fertilizer to start with. The best commercial fertilizer to use on this kind of soil is dried blood, applied either in the fall or early spring. If field peas would grow at all on this soil, they would make a most excellent fertilizer if seeded early in the spring, plowing them under as soon as they have attained their maximum growth.

Repeated attempts have been made to use potassium cyanide as a squirrel poison. The difficulty is to get the odor of the cyanide disguised so that the squirrels will eat anything that has been treated with the chemical. All attempts which I am familiar with have failed. The use of cyanide in the holes late in the season might be effective if some means could be devised for generating the hydrocyanic gas from it. This will require the presence of some acid in the hole to come in contact with the potassium cyanide, or otherwise the poisonous gas will not be given off. The chief difficulty with all these gas poisons is that the holes are so long and crooked that there is difficulty in getting the gas to penetrate far enough to reach the animal before it is absorbed by the soil.

Wherever sagebrush and cactus flourish, these agricultural crops will also grow. If the prevailing vegetation is greasewood or salt grass, the amounts of alkali are sufficient enough to injure most agricultural crops. If the alkali is excessive, however, no vegetation of any kind will grow on the land.

Another indication of alkali is the presence on the surface of the ground of a white crust in the latter part of August. Alkali is simply an injurious excess of soluble salts, and at this season they are brought to the surface by excess of evaporation, and will always appear on the surface in the early fall. White alkali includes any of the soluble salts. "Black alkali," as it is called, is sodium carbonate, and causes the vegetation on the surface of the ground to turn black because of its corrosive effect on vegetation.

### Siberian Wild Flowers.

Siberia seems to have a set program for her flowers, which are beautiful in variety and coloring. September gathers the blue flowers to her bosom, and under her languid and caressing touch blossom myriads of dainty bluebells on long and tender stems.

In the rocky soil of the hilltops blue scabiosa shares its playground with drak blue snapdragon, and in the shady spots of the road grow, tall and hardy, purple blue chrysanthemums.

Earlier in summer yellow holds sway—buttercups, daisies and violets, and after them red-pinks and very deep briar roses. Delicious jam is concocted from the seedpods of the wild rose.

When summer comes an array of jars and glasses and a big kettle join hands with hat boxes and shoe bags and travel countryward. A temporary stove is built of stones not far from the house, and here simmers slowly the year's provision of preserves and jams and jellies, absorbing at the same time great doses of sun and fresh air.—America.

### Treasured Trees.

Two trees to be seen in the main street of Thorshavn, the capital of the Faroe Islands, have an interesting history. Trees resolutely refuse to grow in these islands, except in some few sheltered spots, and the inhabitants therefore prize them greatly. When the road was made it was decided to leave the trees in the middle of the carriage way rather than be guilty of the crime of felling them.

## SOME COOKERY FRILLS

### POTATO SOUP IS IMPROVED BY A DASH OF VINEGAR.

### Individual Pate is Out of Date—Delicious Salad of Different Nuts and Fruits and Shredded Celery.

The usual insipidity of potato soup is improved by adding a dash of vinegar just before serving. As all may not like the flavor the cruet can be passed.

All fruit salads are improved by marinating in French dressing, though later served with mayonnaise.

Instead of the individual pate, it is more popular now to pass one or two large pates, each guest serving herself. Fill with mushrooms, oysters or creamed sweetbreads.

Biscuits or French rolls for formal use are more diminutive than ever. The former should be the size of a 50-cent piece and a quarter-inch thick. A delicious salad was made from different nuts, white grapes, a little shredded grape fruit, pineapple cut into cubes and shredded celery. Mask in mayonnaise or serve with a cream dressing.

When a boiled egg is the usual breakfast dish, vary it by breaking it raw into the eggcup and cooking in hot water to the desired consistency. The flavor is quite different than when cooked in the shell.

Fingers of bread about four inches long, quarter of an inch wide and the same thickness buttered thickly and browned in a quick oven are delicious to serve with boiled eggs.

Salad is now usually passed in a salad dish, but when served directly on the individual plates an appetizing and artistic effect can be had by making nests of shredded lettuce or endive, in which are eggs made of cream cheese colored with spinach juice and sprinkled thickly with paprika or black pepper. Cover with mayonnaise.

In baking a cake, stint the flour in the batter and you will have a much more tender cake.

Good cranberries cannot be made if the sugar is allowed to boil in with the berries. After the cranberries are soft and strained through a colander add a scant pound of sugar to a quart of berries, bring to a boil and cook four minutes. Put three-quarters of a pint of boiling water on the berries when first cooked.

### HOUSEHOLD.

For darning stockings use crochet cotton. It is preferable to darning cotton, as it does not harden when washed.

If your pies overflow in the oven insert a short piece of uncooked macaroni in the top crust. This is better than the paper funnel.

An excellent cleaner for painted surfaces is made as follows: Two quarts of hot water, two tablespoonfuls of turpentine, a pint of skimmed milk and enough soap to make a weak suds.

When steel knives and forks have become stained with fish they can be rubbed with fresh orange or lemon peel, and the taint will disappear entirely.

When making a mayonnaise in which only the yolks of eggs are used, the economical housekeeper will use the whites for a dessert, such as apple snow, for frosting, or for meringue on a pie.

### For Silk Cushions.

If you have silk-covered cushions in your house, you must have noticed how often the feathers or down comes through, giving the pillow a fuzzy, unsightly appearance. This could have been avoided, and can be the next time, by ironing the inside of the silk with an iron that has been rubbed with shoemaker's wax.

This ironing, done before the pillow is made up, will act as a sort of thin varnish on the silk, and will prevent the feathers from working through.

### Coffee Cream Cake.

One and one-half cups sugar, two of flour, two eggs, 2½ teaspoonfuls baking powder, pinch of salt, about three-fourths of a teaspoonful lemon, one-fourth cup butter, one tablespoonful coconut. Melt butter, break in eggs without heating, pour in one-third cup of milk half cup cold coffee; make in three layers.

Cream for filling—One pint milk in double boiler, one-half cup of flour, two eggs beaten, salt, essence, one cup sugar; boil ingredients.

### Orange Baskets.

Cut as many oranges as will be required, leaving half the peel whole for the basket and a strip half an inch wide for the handles. Remove pulp and juice; use juice for making orange jelly. Place baskets in a pan of broken ice to keep upright. Fill with orange jelly. When ready to serve put a spoonful of whipped cream over the jelly in each basket. Serve in a bed of green leaves.

If by chance paint spots stick to window panes, do not use a knife to loosen them. A cloth wet in hot vinegar will clean them perfectly.

A white porcelain bathtub that has grown brown may be most perfectly cleaned by the use of spirits of turpentine applied with a flannel cloth.

### Sausage Roll.

Make a rich biscuit dough, roll out, put in each a fried sausage and pinch over like a turnover. Bake until brown.

# WIT and HUMOR



## ONE WAY OF GETTING EVEN

Policeman is Willing to Allow Dentist Torture Patient After Latter Tells His Story.

"Here," said the policeman after he had hurriedly entered the dentist's reception room, "what's goin' on? You've had a man in there hollerin' bloody murder for nearly half an hour. Why don't you give him something to stop his pain?"

"Give him something to stop his pain? My dear sir, you don't understand. I had occasion to take a lady to lunch one day last week—oh, it was a business matter, nothing more—and this chap saw me. Well, the next day he happened to meet my wife, whom he knew before she was married, and he mentioned that he had seen me and wanted to know what the other lady's name was. Of course, I—

"Oh, never mind. Go ahead and kill him."

### Too Much of a Risk.

The beautiful girl had fallen into the lake, and, much to the displeasure of the moving picture man, the tried and tested hero refused to go to her aid.

"What's the trouble with you?" demanded the moving picture man angrily. "Why didn't you jump in and rescue the maid?"

"Skeered I might get drowned," responded the hero nonchalantly.

"But you are wearing your new hero medal?"

"That's just the trouble. The blamed medal weighs so much I'm skeered I'd sink."

### May Be for Effect.

"I never before saw a man so enthusiastic about the future of his town."

"He does indeed seem to be very enthusiastic about the future of his town, but I have often wondered if he really feels that way or is merely playing a part."

"Why do you question his sincerity?"

"I happen to know that most of his money is invested in town lots he would like to sell."

### Overdone.

"The doctors are urging all kinds of sanitary measures and precautions upon the public."

"Yes, if all the recommendations and warnings were followed, a man's home would look like a hospital."

### A MARINE JOKE!



### Midshipman Easy—I wonder what

people will say when they hear I am going to marry old Widow Hillyuns?

Lieut. Blunt—"They'll probably say you're a mariner for money."

### His Finish.

"I was surprised to see old Titewad's death notice in your paper this morning."

"You must be mistaken. The only notice concerning Titewad was the account of how he lost a thousand dollars in speculation."

"Well, he didn't live after that, did he?"

### The Usual.

City Editor—Anything new about that accused deaf mute?

Reporter—He got his hearing today.

City Editor—What happened?

Reporter—He'd nothing to say.—Puck.

### Discovered.

"Why do you think Myrtle is in love?" asked the girl's father.

"I noticed this morning when I was in the library that a book of poems by Owen Meredith had been tampered with."

### Practical.

He—If I should kiss you, I suppose you'd go and tell your mother.

She—No, my lawyer.—Boston Trap script.

A New Jiriksha. A one-wheeled jiriksha, on the monocycle principle, is being introduced among the Chinese of the Malay states. It is said to be safe, and to have many advantages over the old-fashioned vehicle. The wear and tear is reduced to a minimum, the work of the pullers reduced and speed increased.

America's Sweet Tooth. If America's annual candy supply were loaded on one train there would be over eight thousand trucks full of boxes, buckets and glass jars. The load of sweetmeats for the sweet tooth of the American girls costs the consumers about \$125,000,000 every year.

## YES! IT'S TRUE!

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### Olive Oil for Leather.

Leather furniture, especially when placed near the register, is liable to dry and crack. An excellent method of keeping it from looking old and showing cracks is to go over the leather with a soft rag dipped in olive oil, and then going over the whole surface again with a dry rag. It is not necessary to go over the leather more than once in three or four months, just enough to keep it soft.

## SOUR STOMACH

"I used Cascarets and feel like a new man. I have been a sufferer from dyspepsia and sour stomach for the last two years. I have been taking medicine and other drugs, but could find no relief for a short time. I will recommend Cascarets to my friends as the only thing for indigestion and sour stomach and keep the bowels in good condition. They are very nice to eat."

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### Cause of Faintness.

Fainting is a loss of consciousness due to the diminution of blood supply to the brain. It occurs most frequently in weak, sensitive women, but it occurs also to men as well. It usually occurs in crowds or in crowded theaters and churches where the atmosphere is close and the air foul.

## Non-alcoholic Sarsaparilla

If you think you need a medicine, ask your doctor. If you think you need something for your blood, ask your doctor. If you think you would like to use Ayer's non-alcoholic Sarsaparilla, ask your doctor. Consult him often. Keep in touch with him.

## Ayer's

Ask your doctor to name some of the results of constipation. His long list will begin with sick-headache, biliousness, dyspepsia, thin blood, bad skin. Ask him if he would recommend using Ayer's Pills.

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