

Home Course In Modern Agriculture

X.—Some Insect Pests

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AMONG the enemies which the farmer has to combat perhaps none are more troublesome than insects. Nothing is more aggravating than to have a promising crop of fruit or grain attacked by a horde of "bugs" and greatly injured if not entirely ruined.

Insects, like weeds, are very difficult to deal with if you go at them one at a time, but if properly managed they can be easily held in check. From the standpoint of the damage they do, insects may be divided into two classes—those which attack field crops and those which are injurious to fruit and garden crops.

There are a number of insects which attack corn. While these are seldom present in large enough numbers to destroy any considerable part of the entire crop, the money value of the damage they inflict on the corn grown on a quarter section each year amounts to no small sum.

One of the most important of these pests is the corn root worm. The eggs, which are laid in the cornfield during August or September, hatch during the next June or July. The worms when full grown are about one-third of an inch long and as big around as a pin. They bore up inside the roots, injuring them so badly that the growth of the plant is seriously checked. Often, too, the roots are so weakened that the corn blows down badly. Some time during August the worm goes through a transformation called pupation, which changes it into a small light green beetle. This beetle feeds on the silks and tips of ears and lays eggs for the next year's crop of worms.

Another insect which lives on the roots of corn is the root louse. These lice are very small and helpless. They are kept through the winter in the egg stage in ant hills. In the spring after they hatch they are placed on the corn roots by the ants. The ants are very fond of a sweet fluid which is secreted by the lice, and they take care of them for this purpose.

Other insects which do more or less damage to the corn crop are the stalk borer, wireworm, white grub, bill bug, cutworm, etc. These insects live and multiply in grass land and from there find their way into the adjoining cornfields. They do the greatest damage, however, when the grass land is plowed up and put into corn.

The damage from nearly all insects affecting corn, small grain or grass can be readily prevented by a good system of rotation. This is especially true if clover is used, since such insects as cutworms and grubs do not work to any extent on clover. The frequent plowing of the ground and change of crops where a rotation is followed are fatal to most insects. Damage from these pests will be still further reduced if the soil is kept so well supplied with plant food that the plants can get a quick start in the spring. Treated in this way, they are more vigorous and better able to withstand insect attacks.

These remedies, with the exception of the last, cannot be applied to or-

moths appears about the middle of July. It is this brood which does the most damage. It is the worms which hatch from the eggs laid by them that are so often found to fall and winter apples.

Many poisons, of which paris green is the one most commonly used, are effective in destroying the codling moth. Paris green is usually used in connection with bordeaux mixture, which is a remedy for the various fungous diseases which affect the leaves and fruit.

To make this mixture dissolve five pounds of copper sulphate and five pounds of lime separately in twenty-five gallons of water each. When they are thoroughly dissolved mix the two solutions and add four ounces of paris green. The lime in this solution is added to prevent the chemicals from injuring the leaves and to make the mixture stick better.

Three sprayings are sufficient for the codling moth. The first should be given immediately after the blossoms fall, the second from ten to twenty days later and the third about the last of July.

One of the chief insect enemies of the plum and one which also attacks many of the other fruits is the curculio.



FIG. XX—A SPRAYER AT WORK

The curculio beetle lays its eggs in the young fruit shortly after it sets. In doing so it leaves a half moon shaped scar, which is its trademark. One of the surest ways of getting rid of this insect is to jar the beetles from the tree at this time.

Spraying is also an effective remedy. The bordeaux-paris green mixture may be used, but arsenate of lead is better since it is less liable to injure the fruit. It is applied at the rate of three pounds to fifty gallons of water. The spray should be applied just before the blossoms open, just after they fall and again about fifteen days later. Poisonous sprays should never be applied to fruit trees while they are in blossom. It is not necessary in order to destroy the insects and will kill many of the honeybees, upon which the blossoms are so dependent for pollination.

The insects that have been mentioned so far live by eating the leaves and fruit and in doing so take up enough of the poison to put an end to their destructive work. There is another class of insects, however, for which such remedies are not effective. These are the sucking insects, of which plant lice are the most common examples. Insects of this kind feed by drilling through the outer layer of the leaf or bark and sucking the plant juices. They thus escape damage from any poison which may be on the surface.

To get rid of sucking insects some substance which will kill by coming in contact with them must be used. There is nothing better for this purpose than kerosene emulsion. This is made by dissolving half a pound of soap in a gallon of boiling water. This mixture is then taken from the stove and two gallons of kerosene added. The compound should be churned violently for a few moments by pumping it up with the spray pump and back into the pail. This causes the oil to mix thoroughly with the water. Before using, this original mixture is diluted with six to ten parts of water.

A common insect affecting garden crops and one that is hard to handle is the spotted cucumber beetle. This is a serious enemy of cucumbers, squashes, melons and other plants of like nature. Spraying does little good and is liable to injure the tender plants as well. Where but a few hills are raised, covering them for the first two weeks with a small box with mosquito net stretched across the top is a good preventive measure. Another effective way is to go over the patch in the morning while the dew is on and the beetles cannot fly, knock them to the ground by giving the plant a slight blow and put a drop of kerosene on each one.

Where any of these eggs are raised on a large scale the most effective remedy is the use of "trap plants." Plant the field to squashes a week or ten days before time to plant the main crop. Beetles are especially fond of squashes and will gather on them in large numbers as soon as they come up. Just about the time the other plants begin to peep through the ground the squashes can be sprayed with very strong kerosene emulsion and will destroy both the squash beetles. There will usually be enough of the latter left in the neighborhood to do much damage.



FIG. XIX—CORN PLANTS INJURED BY ROOT WORM

chard and garden crops, since these must be grown on the same land year after year. For the insects affecting these crops spraying is the best remedy.

The principal insect that attacks the apple is the codling moth. These insects pass the winter in a ball of silk, or cocoon, which they spin around themselves. These cocoons are hidden beneath the bark and under rubbish. Such as happen to escape the hungry search of woodpeckers and other birds change to the pupa stage in the spring. In this stage changes take place inside the body of the worm which so transform it that early in June it comes out of the cocoon as a small brown moth.

These moths lay great numbers of eggs which hatch into small worms. These worms eat their way into the apple through the blossom end. The apples thus affected usually fall off, and in a short time the worms crawl out and again spin cocoons around themselves. The life cycle is lived over again, and a second brood of the

FRIBBLES OF FASHION.

What is Smart in Spring Suits—Ash Gray a Fashionable Color.
Among the spring suits there are as many three piece as two piece costumes. Curiously, the former seem to be dearer than the latter—the only indication that the vogue is a little on the wane. One smart three piece suit is of striped granada in a soft massé. The hipless coat is trimmed with soft



STYLISH PLATED SILK.

lustrous silk. The empire gown is finely braided.

Ash gray is one of the modish shades of the season, and so far this shade is exceedingly difficult to procure. In silk the color is charming.

By no means have plated skirts been tabooed, but are being brought out in new and prettier models than ever before. The skirt illustrated has eleven gores and is ornamented with bands and material covered buttons.

JUDIC CHOLLET.

A pattern of this stylish plated skirt may be had in six sizes—22 to 32 inches bust measure. Send 10 cents to this office, giving number (669), and it will be promptly forwarded to you by mail.

FASHIONS ON THE FLY.

Charming Styles in Neckwear For the Summer Girl.

In neckwear all styles are seen, and the Dutch neck, the high boned stock, the turnover linen collar in Eton and Dutch styles, also the Piccadilly and the muffled stock, are worn this spring. Straight and narrow skirts will be very fashionable as the summer advances. An effort is being made to introduce handsome trimmings at the hem, which will be in striking contrast to the now popular straight up and



TAILORED WAIST OF LINEN.

down effects, so becoming to the majority of women.

Although the net sleeves will be much used, long sleeves of satin will be repeatedly seen on gowns fashioned of voile and other light materials suitable for summer wear.

A scarf that has come to us from Paris is of silver threads woven in Brussels lace. The scarf is finished with a border of silver cloth.

A new and attractive design is offered in this model shirt waist, which closes at the side front. The plaits are so arranged that they give a panel effect at the front, and the sleeves are so designed that they simulate a closing to the elbow.

JUDIC CHOLLET.

A pattern of this shirt waist may be had in six sizes—from 32 to 42 inches bust measure. Send 10 cents to this office, giving number (669), and it will be promptly

A BUDDING GENIUS.

Ambitions and Hard Work of the Boy Saint Gaudens.

Immediately on being approached to Avet I applied for admission to the drawing school of the Cooper institute, and every evening after my return from work at 6 o'clock and a hasty tea I went down there, where my artistic education began.

I can recall there the kindly impression produced on me by Abram S. Hewitt as he glanced at me during some function. Father at that time was making shoes for the Cooper family, and I suppose that that is why he looked at me. The feeling of profound gratitude for the help which I have had from that institution abides with me to this day.

It was during the next two or three years that my first aspirations and ambitions made themselves felt. I became a terrific worker, toiling every night until 11 o'clock after the Cooper institute was over, in the conviction that in me another heaven born genius had been given to the world.

I can recall thinking in public conveyances that if the men standing on the platform around me could realize how great a genius was rubbing elbows with them in the quiet looking boy by their side they would be profoundly impressed. As a result, I was so exhausted by the confining work of cameo cutting by day and by drawing at night that in the morning I was literally dragged out of bed by mother, pushed over to the washstand, where I gave myself a cat's lick somehow or other, driven to the seat at the table, administered my breakfast, which consisted of tea and large quantities of the long French loaves of bread with butter, and tumbled downstairs, out into the street, where I awoke.—"Reminiscences of Augustus Saint Gaudens" in Century.

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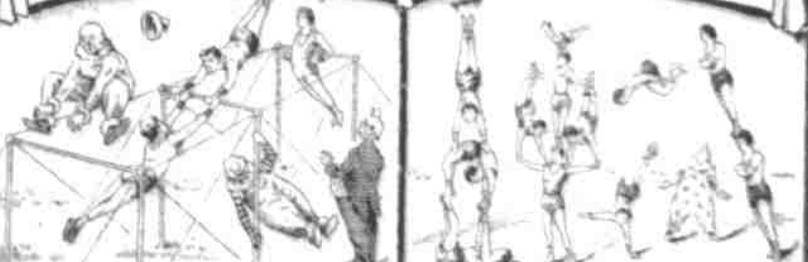
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