

the surface is usually the last stage of the disease. Because of this, external parasites may be controlled by spraying with fungicides when they appear, while for internal parasites we must adopt preventive spray or, in some cases, cutting out.

BACTERIA.

Bacteria are colourless plants like the fungi. In fact, botanists regard them as degenerate descendants of the fungi. They are, however, much simpler in structure than most other fungi, each plant-body being composed of a single cell only. Though spores are formed in some cases, these are not for purposes of reproduction, but simply to tide the organism through unfavourable conditions, each bacterium forming but a single spore. Bacteria are exceedingly small and cannot be seen without the aid of a 'powerful' microscope. They enter their host-plant through wounds, breathing-pores, water-pores, and, as is sometimes the case in the fire-blight, through the nectaries of the flowers. They invade the tissues of the plant and injure it by blocking the sap-tubes, by robbing it of food materials, and in other ways.

Two common examples of bacterial plant-diseases are the fire-blight and the crown-gall.

PREVENTION OF PLANT-DISEASES.

In considering the methods for the control of plant-diseases, emphasis should be laid upon preventive measures. Too frequently when the grower is aroused to the seriousness of a disease the damage is already done. He should therefore so regulate his farm practice as to prevent as far as possible any disease from gaining a foothold in his orchard or field.

To do this the following rules should be followed:—

- (1.) Maintain plants in as vigorous a condition as possible by proper cultivation, etc.:
- (2.) Follow clean cultural methods:
- (3.) Start with sound stock and healthy seed:
- (4.) Practise crop-rotation where possible:
- (5.) Practise timely and thorough:
- (6.) Report and submit samples of diseases with which you are not familiar.

(1.) He should study to keep his plants as healthy as possible, for it is a well-known fact that most diseases cannot gain a foothold and maintain themselves as readily in a vigorous plant as in one with impaired vitality.

(2.) Do not leave lying about remnants of crops, prunings, etc., but gather and destroy by fire. Remove dead branches from your trees, scrape off the rough patches of bark, cut out and paint over all cankered areas.

(3.) In setting out young trees or in planting seed or potato-tubers, always be sure that they are absolutely free from disease. Just as a corrupt tree will not bring forth good fruit, so it is impossible for diseased stock or infected seed to produce a strong healthy plant.

(5.) Make spraying part of the regular orchard practice. Spraying at any time or in any manner will not produce clean fruit. To be of any value it must be done at the proper time, in the right manner, and with appropriate materials. To do this the grower must know for what he is spraying and have some knowledge of the disease in question, in order to determine when it can most readily be reached. The spray should be applied, if possible, ahead of the infection period of the fungus.