

can be insured with greatest success.

Live stock is subject to many diseases, and enormous financial losses to the breeder are the result of these diseases among his stock. Such diseases as anthrax, blackleg, tuberculosis, glanders, hog cholera, chicken cholera and many others are the result of the action of different species of bacteria. Each disease is caused by a different species of organism and when once the particular variety of organism responsible for a certain disease finds its way into a herd or flock, unless proper precautions are taken, the disease will usually spread until every individual becomes affected, and in many cases death is the result. The disastrous results of such diseases as anthrax, hog cholera and tuberculosis are proverbial, and it is only during the last thirty or forty years that the causes of these diseases have been ascertained and methods for their control and eradication instituted. This is the work of bacteriologists and such work is necessarily of tremendous importance to agriculture in that it tends to preserve our stock from the ravages of these fatal diseases.

Many destructive plant diseases as "fire blight" of apple and pear trees, bacterial wilt of cucurbits, black rot of cabbage, soft rot of vegetables, bacteriosis of beans, crown gall and hairy root of fruit trees, etc., are due to the activities of different species of bacteria. A knowledge of them and methods of controlling their ravages is

of considerable importance in agriculture and horticulture and this knowledge is obtained and supplied in connection with the science of bacteriology.

Dairying has to do with the handling of milk and its products, butter and cheese. It is well known that milk, one of the most essential of our food substances, is normally the most perishable of our foods.

This perishability is due entirely to the action of the bacteria which invariably get into it. The souring or curdling of milk is due to the action of acid-producing bacteria; the sliminess or ropiness of milk so troublesome in the summer time is due to slime producing bacteria, the putrefaction and gas-production in milk is due to putrefying and gas-producing bacteria. The good and bad flavors in butter and cheese, also their keeping qualities, depend largely on bacterial action.

The science of bacteriology determines the nature of these bacteria, how they get into these food materials, and how they can be controlled so as to get the best results from the production, handling and consumption of milk butter and cheese.

In many other ways that space will not permit us to dwell upon, bacteria are vitally linked up with agriculture. What has been stated above, however, is sufficient to indicate that though bacteriology is the youngest, and agriculture the oldest of the sciences, the two are inseparably connected.

