

UNIVERSITY OF FLORIDA
GAINESVILLE, FLORIDA

**AGRICULTURAL EXPERIMENT
STATION**

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areas will be reduced to a sufficient condition of uniformity to resume the work originally laid out for it.

STUDIES RELATIVE TO PLANT PATHOLOGY PROBLEMS IN THE EVERGLADES

State Project No. 124

H. H. Wedgworth, Leader

Work upon this project during the year has continued largely to emphasize control phases in the field. In addition to the dusting and spraying experiments referred to below, detailed fertility experiments were carried out cooperatively upon a considerable number of truck crops wherein good opportunity was offered to study the effect of fertility relations upon the incidence of certain diseases. In this connection potash consistently has been observed to be of particular importance in the instance of a number of crops.

POWDERY MILDEW OF BEANS

The dusting and spraying experiments for the control of powdery mildew of beans have been continued in the same manner as previously reported. In addition to sulfur and copper fungicides, two organic mercury compounds were used in one of the experiments. Since only a trace of mildew developed in the check plots in this experiment, little was determined insofar as the control of the disease is concerned. It is interesting to note, however, that no injury resulted from spraying with 1:800 solutions of these materials. Bordeaux mixture 3-6-50 to 3-3-50 and copper-lime dust (20-80) caused severe injury to the bean foliage in a number of cases during the past season. All of the sulfur fungicides used in these experiments have given excellent control of mildew.

EARLY BLIGHT AND BACTERIAL SPOT OF CELERY

The results from the dusting and spraying experiment conducted during the past season confirm those reported previously. Bordeaux mixture gave better control of early blight than any of the other combinations of copper with zinc, manganese or lime-sulfur. Lime-sulfur was of little or no value in the control of early blight. There was only a relatively small amount of the small bacterial spot in the experimental plots this year and this occurred during the early part of the crop season. There was a marked difference, however, in the amount of this disease on the unsprayed plots and the plots receiving copper fungicides.

EARLY AND LATE BLIGHT OF POTATOES

The correlation between the amount of potash supplied to the soil and the relative, apparent resistance of potatoes to early blight, reported previously, was very marked during the past season. In most cases no-potash plots were killed with early blight two to three weeks earlier than where a liberal quantity of the element was supplied. The plants upon plots receiving intermediate quantities of potash were also intermediate in the rate at which early blight developed upon them.

In a dusting and spraying experiment during the fall of 1931, regular bordeaux mixture increased the yield about 20 percent over the unsprayed plots. In this experiment, however, the results were complicated because of manganese deficiencies. It is interesting to note here that plots receiving one-half of one percent of manganese sulfate added to regular bordeaux produced an average of 341.9 bushels per acre whereas those receiving the regular bordeaux (both spray materials applied as four weekly applications) produced only 108.6 bushels per acre (see also Project No. 125). Various spreaders were used with bordeaux without any marked benefit. There was a slight increase in yield when zinc sulfate was added to regular bordeaux, but the differences were so small that the results are not considered significant.

LEAF BLIGHT OF CARROTS

Leaf blight of carrots, caused by *Macrosporium carotae*, was very severe in the carrot variety experiment during the past season. All of the nine varieties and several strains in this experiment failed almost completely due to this disease.

In certain fertilizer experiments it was observed that the disease was more prevalent in low potash plots than in plots receiving potash fertilizers.

Bordeaux mixture gave good control of the disease under field conditions but the regular spraying experiment was not completed.

EVERGLADES SOURCE OF POTATO SEED TRIALS

The source of potato seed trials for the past season included 84 samples of potato seed of the Bliss Triumph, Spaulding Rose and Cobbler varieties and new seedlings which were grown in most of the potato seed producing areas of the country. Although a prolonged drought and a frost interfered seriously with the

satisfactory completion of this study, the comparative results are of considerable interest. There was a wide variation both in the amount of the various virus diseases that appeared and in the yielding ability of the various samples of seed. In the case of the Bliss Triumph variety, the highest yield was obtained from a certified lot of seed which produced 83.9 bushels per acre, whereas the lowest yielding sample produced only 22.0 bushels per acre and had 80 percent of the plants infected with mosaic and leafroll. These plants had a growing period of only 45 days from the time they emerged from the soil.

PHYTOPHTHORA BLIGHT OF PEPPERS

During the past season a Phytophthora blight of pepper, apparently caused by *P. capsici*, was observed as very destructive in the Pompano-Fort Lauderdale trucking section where locally it killed from 10 to 90 percent of the plants in many fields, thus making the total loss to the area considerable. The disease was noted also on young squash plants in this locality. Isolation and cross inoculation experiments proved the organism to be the same in both cases.

Up to the present time the disease has not been observed in the lake region. Tests with artificial inoculation have shown that snap-beans, lima beans and eggplants also are susceptible to the infection.

INVESTIGATIONS RELATIVE TO THE SO-CALLED YELLOWING DISEASE OF BEANS

Project No. 125

H. H. Wedgworth, Leader

During the past season studies upon the relation of soil reaction to the occurrence of yellowing in beans have continued along about the same lines, except that considerably more emphasis has been given to the adaptability of foliar treatments in its control than earlier. As pointed out in previous reports upon this and other projects, Everglades soils with a reaction more alkaline than pH 6.0 are likely to produce plants showing greatly disturbed conditions of growth and consequent yellowing of the foliage and dwarfing of plants.

In certain greenhouse experiments it was found that yellowing could be controlled by spraying with manganese sulfate solutions of varying strengths. While the use of a one-sixteenth of one