

UNIVERSITY OF FLORIDA
GAINESVILLE, FLORIDA

**AGRICULTURAL EXPERIMENT
STATION**

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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

percent solution for this purpose produced marked benefit, the use of one-fourth to one percent solutions produced best results. Solutions as concentrated as 5 percent produced marked injury to the foliage. Under greenhouse conditions, applications at 15-day intervals were found about as effective as those of greater frequency, but longer periods between the treatments began to show a reduction in the control of the condition. In comparative trials with different salts of manganese, iron and zinc as one-half percent solution for the control of this condition, it was found that while the chloride of manganese gave about as good results as the sulfate form, it produced severe burning of the foliage as did also the chloride of iron. Ferrous sulfate and ferrous chloride as well as ferric sulfate and zinc sulfate were entirely ineffective in controlling the trouble as was also manganese carbonate under those conditions.

Under field conditions spraying with manganese sulfate was found to be remarkably effective. Plots sprayed at 10-day intervals for four applications beginning two weeks after seeding produced an average of 253 hampers per acre in contrast with a yield of 234 hampers per acre where manganese sulfate was included in the fertilizer at the rate of 50 pounds per acre. In contrast with these yields, untreated plots produced 11 hampers of inferior fruit. Dusting the plants with a mixture of manganese sulfate and sulfur was not found as effective as the spray and also produced a certain amount of damage under certain conditions.

In the course of the spraying experiments for the control of the condition, it was interesting to note the speed of recovery following treatment even in the case of plants that were badly "yellowed." In the course of three or four days a marked difference could be noted in the color of the treated plants. Likewise, it is also of interest to note how quickly the plants tend to lose their color again if the spray applications are too long delayed. Under field conditions the effect is found to continue for 12 to 15 days, depending upon attendant conditions of weather and soil.

In reference to the continued availability of manganese applied to the soil, it appears that there is a marked correlation between this and the moisture condition in the soil, though greenhouse tests upon this point were not entirely conclusive. Certainly there is a marked relation between the availability and the duration of this availability of the element when applied in this way to the degree of alkalinity of the soil at the time of application.