PROBABLY the first investigations on the effect of seed inoculation on maturity of peas were made at the University of Wisconsin by Whiting (3), and Whiting, Fred, and Stevens (4). The results indicated that inoculation delays maturity. This fact, plus the material increases in yield of canning peas reported, have aroused wide interest. In spite of this, the results of these investigations have never seemed entirely applicable to New York conditions. At the annual schools for canners and canners' field men there are questions regarding inoculation, and skepticism regarding the possibility of applying Wisconsin results to New York conditions. Because of the uncertainty regarding the benefits to be expected from inoculation of peas in New York, it was felt desirable to study the question under New York conditions.

To accomplish this, a cooperative investigation between the College and the Station was carried out over a period of several years. Most of the information on effect of inoculation on maturity, however, was obtained in 1938, 1939, and 1940, and the results obtained in these years are presented in this paper. The effect of inoculation on yield of canning peas is still being investigated and will be reported later. The present paper, therefore, may be read as a report of progress on this project.

With the exception of the above-mentioned reports, there is little evidence in the literature to indicate that inoculation affects the time of maturity of peas. These reports are interesting, however, because of the definite results following inoculation. Although on a given field, small areas were harvested simultaneously for experimental purposes from both the inoculated and check strips, in actual practice it is reported (4) that the canner found it advisable to cut the inoculated strip 1 to 7 days later.

This represents a great delay in date of harvesting of inoculated peas. Under these conditions, inoculation is advantageous in that it allows a somewhat greater period during which the peas may be harvested and consequently makes possible the reduction of peak loads at viner stations and packing factories.

Jones and Wade (1), reporting on observations in California, state that peas were picked at intervals and weighed without shelling. Although the maturity of the peas was not compared, it seems marked differences between inoculated and uninoculated peas should be reflected in the weights of the peas picked on each plot at the different dates. Had the inoculated peas been retarded greatly in maturity, there should have been relatively higher weights of peas in the later harvests than in those picked as compared to the uninoculated. Since this was not true in both check and uninoculated strips were compared, there probably was no effect of inoculation on maturity.

METHODS

In the present tests, it seemed advisable to follow the procedure of Whiting, et al. (2, 3, 4) in regard to the experiment, and to secure, if possible, a fair number of data from farms where peas were grown. This should give some idea whether inoculation has any effect on peas grown under the diverse conditions represented by different fields. As a result, these tests were carried out in fields of growers producing peas for canning purposes.

The first year, 1938, seeds were inoculated with commercial culture and at harvest time, three samples were taken from each of the plots, each sample was taken directly across the line from a corresponding one on the other side. When this could not be done, samples were taken in such a manner that each was obtained in a region comparable in topography and soil characteristics to the corresponding one across the line. The data on sieve sizes were obtained by direct determination of weights of peas passing through a No. 3 sieve, as compared to the weights remaining above. The latter were listed as large peas, as compared to the former which were classed as small. All results for 1938 were from the region of Mount Morris, N. Y.

The results of this experiment suggested, however, that the test strips were too small. For this reason, larger plots were used in 1939; also, it was felt that something might be gained by carrying out experiments in several different fields. For this reason work was begun in 1939 in the region of Mount Morris, Syracuse-Auburn (Fulton re