were the potato roots as shown (table 3). Equally high odds denoting significance were obtained when the potato varieties having the six lowest infection indices were compared with the six tomato varieties. The difference was greater when the number of females per root system was used as an infection index (6.3 times) than when immature females per gram of root tissue (4.4 times) were used.

**SUMMARY**

In common, with European varieties, all North American varieties of cultivated potatoes and tomatoes tested were shown to be susceptible to the golden nematode. Potato varieties were more strongly attacked than tomato varieties. No other crop or naturalized or native weed plant was found to be attacked, except for *Solanum dulcamara* L., which previously had been reported as a host.

**LITERATURE CITED**


**RESISTANCE TO COMMON SCAB OF POTATOES IN PARENTAL CLONES AND IN THEIR HYBRID PROGENIES**

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In breeding potatoes for resistance to common scab, the usual testing procedure has been to grow the entire population of seedling families in a scab-test plot heavily infested with *Actinomyces scabies* (Thax) Gues. Individual seedling plants apparently resistant to scab were selected at harvest time, and in succeeding years their selected clones were further tested for scab resistance and for other economic characters. In the second and subsequent tests four hills of each selected clone were planted in the scab test plot. Variability in scab infection in the plot was measured by planting every fifth hill with either the Cobbler or Chippewa

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varieties, both of which are susceptible. Resistance was measured and recorded in terms of the "highest scab" method described by Leach, et al. According to this method, a scab index ranging from 1 (shallow, superficial lesions) to 5 (deep, pit lesions) is based on scab pustule type. The reactions of the following varieties illustrate the range of these types: 1—Hindenburg; 2—Jubel, Menominee, Cayuga; 3—Intermediate (no common example available) 4—Sebago; 5—Cobbler and Chippewa.

The following study was made to determine (1) the resistance to scab in subsequent tests of seedling clones grown in the first clonal generation on relatively scab-free soil, and selected without regard to scab resistance as compared with the resistance of siblings of the above clones grown in the scab test plot and selected for resistance; (2) the relation of scab resistance in seedling clones to the clonal resistance of the parents in each cross.

**EXPERIMENTAL RESULTS**

The data in table 1 indicate that the level of infection in the scab-test plot located at Grand Rapids, Minnesota, was fairly consistent during the two years when these studies were made. The 26 clones shown in table 1 had a mean scab index of 2.12 in 1946 and 2.31 in 1947. The scab indices of 3 of the 26 clones was lower in 1947 than in 1946, and those of 9 clones were higher in 1947 than in the previous year. In no case did the reaction of a clone differ by more than one type class in the two years. These results agree with previous observations that a reliable

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<th>Classes of scab reaction</th>
<th>1946</th>
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<tr>
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