

OBSERVATIONS ON MANGANESE DEFICIENCY IN THE PECAN

Overseas evidence (Sharpe and Gammon 1958) suggests that the leaf deformity known as "mouse ear" (Figure 1) develops in the pecan (*Carya illinoensis* (Wangenh.) K. Koch) when leaf manganese falls below 100 p.p.m., and that a low level of leaf manganese is always associated with high soil pH values, as manganese is insoluble and unavailable under these conditions.

Samples of pecan leaves, mainly of the variety Nellis, showing "mouse ear" were collected in south-eastern Queensland and on examination found to contain 100 p.p.m. manganese. A survey undertaken in the spring of 1963 showed the manganese level in leaves of healthy plants around Brisbane to range between over 400 p.p.m. and less than 40 p.p.m. About one-third of the samples contained less than 100 p.p.m., yet showed no foliar symptoms of deficiency.



Fig. 1.—Pecan leaf showing "mouse ear"; healthy leaf on right.

It was observed that often samples of larger leaves contained lower percentages of manganese than smaller leaves. Attempts were made to correlate total manganese content of the leaf with leaf area. Correlation between log (total manganese in leaf) and leaf area was found to be good (Figure 2). Both healthy and deformed leaves were used in establishing the correlation. Preliminary investigations indicate that an even higher correlation may exist between average weight of leaf "moisture" and average weight of manganese per leaf.

It appears from these observations that the total amount of manganese per leaf may be a more reliable criterion than the percentage of manganese in determining manganese deficiency in the pecan, due to a "dilution" effect in large, healthy leaves. Further work will be undertaken in 1964-65.

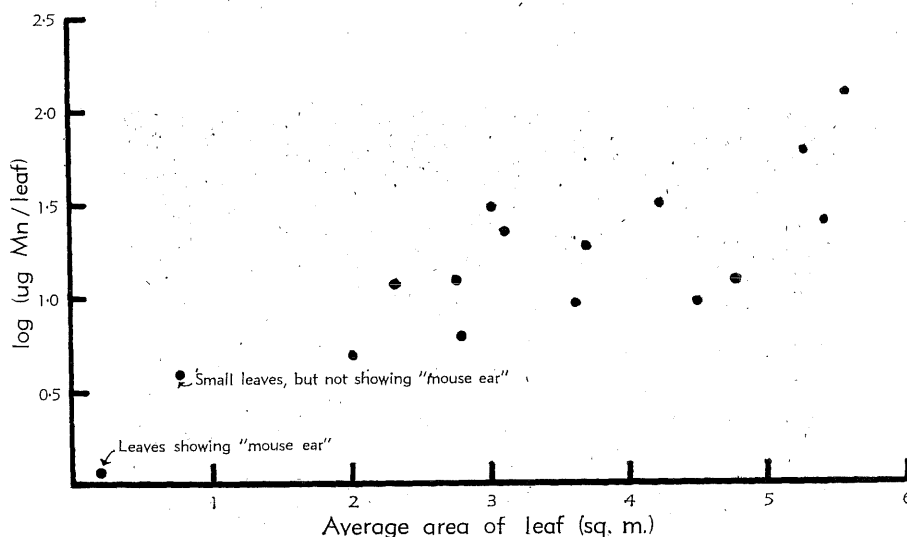


Fig. 2.—Relationship between total manganese per leaf and leaf area in the pecan. Data for healthy plants except where marked.

REFERENCE

- SHARPE, R. H., and GAMMON, N. Jr (1958).—Pecan growing in Florida. Bull Fla. Agric. Exp. Sta. No. 601.

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