COMPARISON OF EFFICIENCY OF POTASSIUM APPLICATION

METHODS TO WALNUTS

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ABSTRACT

A trial was set up in 1987 on a sandy loam soil in a potassium deficient walnut orchard to compare the efficiency of various methods of applying potassium. On this sandy loam soil annual applications of 400 lbs/A/Y of KCL and the single application of 1600 lbs/A every 4 years also corrected deficiency after two years. After four years of treatments only the untreated check has low K levels. All treatments have similar CL levels.

OBJECTIVE

To evaluate the efficiency of three methods of applying potassium.

PROCEDURE

Evaluate the following treatments applied with a Ranchero Spreader: 1) 400 lbs/A KCL banded annually on 2 sides of tree; 2) 400 lbs/A annually out center of spreader in row center making a semibroadcast band-one pass/row center; 3) 1600 lbs/A banded once every 4 years; 4) Untreated check.

RESULTS

Results are summarized in Fig. 1 and 2. All treatments, including the untreated showed adequate leaf K levels after two years. After three years the check trees were again K deficient. After 4 years the K treatment levels were lower than in 1990 but still adequate; the check dropped to a more deficient level. Although chloride has been elevated it is still at nontoxic levels and is the same for all treatments including the check.

CONCLUSION

The annual, as well as the mass dose application, provided excellent correction of K deficiency the second year after application. Maintaining good K status on an annual basis is cost effective and should be preferred by growers rather than spending a large sum of money every 4 or 5 years on a mass application and then perhaps creating a chloride toxicity problem with the mass application. Of particular interest is the semi broadcast band applied in one pass per tree row center. This method of application, which worked well on this soil, cuts equipment time and labor in half providing additional savings. Treatments, including the mass dose have been reapplied during November 1991 and leaf tissue levels will be measured for one or two more seasons.
Fig. 1. Percent July leaf potassium levels.

![Graph showing potassium levels from 1987 to 1991]

- BAND KCL 400#/A/Y
- SEMI-BD.CST KCL 400#/A/Y
- BAND 1600#/A EVERY 4 YRS.
- UNTREATED

Fig. 2. Percent July leaf chloride levels.

![Graph showing chloride levels from 1987 to 1991]

- BAND KCL 400#/A/Y
- SEMI-BD.CST KCL 400#/A/Y
- BAND 1600#/A EVERY 4 YRS.
- UNTREATED