IRON DEFICIENCY ON AVOCADOS; ADVANCES IN DIAGNOSIS, IMPLICATIONS IN PRODUCTIVITY AND IN RESERVE LEVELS

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This paper provides the results of a field trial on soil acidification as an alternative solution for the iron chlorosis in avocados trees, as well as the results of an iron nutritional survey in the main growing area of Chile.

The diagnosis of iron deficiency on avocado is rather difficult because the traditional iron analysis on leaf is not accurate enough. Visual deficiency symptoms are useful only in those cases when other methods have clearly demonstrated the presence of iron deficiency.

The main results indicate that avocado plant productivity is restricted with a severe or moderate iron deficiency while in extreme cases the death of the plant may occur. A mild deficiency apparently does not affect tree productivity. Furthermore, a reduction of tree vigour and production was related with decreasing carbohydrate levels in the roots.

Analysis of total iron in the leaves was absolutely ineffective to detect iron problems, while a non destructive SPAD determination was very effective to detect differences between mild and severe symptoms. Analysis of Fe+2 fractions on leaves was fairly effective with a provisional standard of 16 mg kg^{-1} of Fe +2 in leaves.

The presence of iron chlorosis may be detected in soils with bicarbonate levels above 2.1meq l^{-1}, showing a high incidence in iron chlorosis in soils with contents above 5meq l^{-1}. Finally no deficiency symptoms were detected in soils with iron levels over 15 mg Kg^{-1} of DTPA -iron.