

SUMMARY

Observations were made on the effects of organic materials on lime-induced chlorosis in cacao seedlings.

Two types of organic amendment, at two levels, with and without lime, were applied to the surface or mixed throughout a highly calcareous soil.

The results are quite pronounced and show that the presence of an organic material, will significantly reduce and in some cases prevent, the development of chlorotic symptoms in cacao seedlings.

As a result of this erosion - the crab and humic soils have been greatly reduced, removing nutrients and trace elements.

It is thought that this loss of organic matter has directly affected the availability of iron to cacao under certain soil types in Trinidad. This unavailability of iron manifests itself in a chlorotic condition of the leaves and is quite evident when the flushes begin to harden. Symptoms appear to be more severe on highly calcareous soils, and prolonged wet soil conditions. Apparently the iron combines with the calcium carbonate in the soil, forming insoluble ferric carbonates, rendering it unavailable for absorption by the cacao roots. The high water content tends to aggravate this condition.

Some workers in this field, recognize a division of the iron in the soil and plant, into 'active' (functional) and 'inactive' (residual) forms. With calcareous soils, there is a tendency for the iron to be 'inactive' and on entering the leaf, after absorption, is unable to participate in the chlorophyll enzyme system - consequently chlorosis develops. Applications of organic matter to the soil around citrus and field crop have tended to overcome this chlorotic condition of the leaves. Whether it is the availability of iron in an available or 'active' form or the production of organic acids, which in turn react with the carbonates, rendering the iron available is a matter for further experimental work.