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A NOTE RELEVANT TO *LEAF SCORCH DECLINE* OF COCONUT

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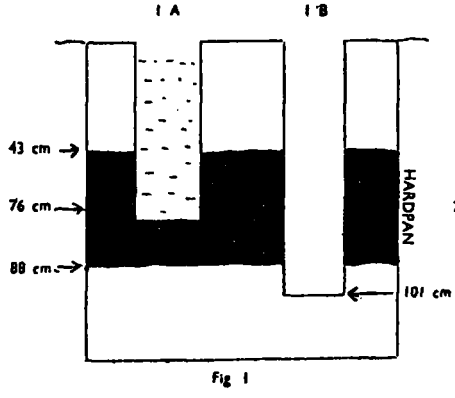
Experiments on infiltration of water into lateritic profiles have indicated that the gravely clay loam hard pan is a water impeding layer, and the resulting periodic moisture saturation after rains may be a fundamental soil physical factor in *Leaf Scorch Decline.*

A detailed soil survey of the coastal plain of the Ambalangoda-Galle regions has indicated a relationship between "Leaf Scorch Decline" of Coconut with soil physical conditions such as the presence of a lateritic hardpan, and a fluctuating water table in the soil profile.

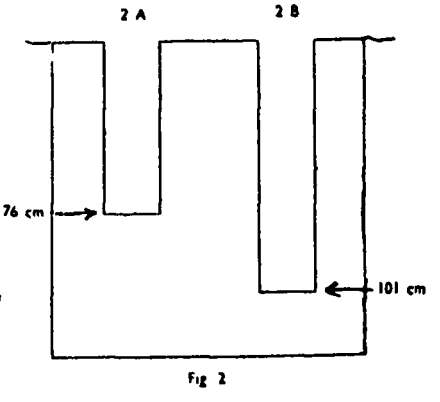
Geologists and soil scientists have hitherto believed that the lateritic profile is highly permeable to the conduction of surface waters into the soil. Recent work carried out on infiltration of water into the soils of the Gonapinuwella region however clearly indicates that the older concepts cannot be universally applied to all lateritic soils.

In the accompanying diagrams, borings 1A and 1B were made in a soil having a lateritic hardpan. Similar boarings were made in a lateritic soil without the hardpan, as indicated in 2A and 2B. All the borings were filled with water and the rates of infiltration were determined by standard methods.

Whilst the level of water in 1A, where the hardpan was present remained static for a period of hours, the rate of infiltration in 1B, 2A and 2B where the hardpan barrier was absent, was rapid.



Experiments on infiltration of water into a lateritic profile with a hardpan.



Experiments on infiltration of water into a lateritic profile without a hardpan.

The above results clearly indicate that the lateritic hardpan is a water impeding layer, and if this is correct, then it follows that contrary to generally accepted ideas, the lateritic soils of the above category should be waterlogged during rains.

After a heavy shower of rain, borings were made into the soil at Sirikandura Estate, Dodanduwa according to the specifications given in figures '1' and '2'. There was intense water-logging in the soils above the hardpan (figure 1A) whilst soils not impeded by the hardpan barrier were comparatively dry.

The idea that the lateritic hardpan is a water impeding layer leads to a concept that the fundamental soil physical cause of *Leaf Scorch Decline* may be the periodical moisture staturation and subsequent drying up of the soil profile.

The periodic cycle of wet and moist phases has a direct effect on the hardening of clays to a stony impenetrable consistency 'during the dry season, so that the lateritic hardpan undergoes "concretion" and the sub-soils of the deniya areas form "stony" clays.

Perhaps we could postulate at this stage that the concept of wet and dry phases in these soils may also affect soil chemical and soil microbiological activity causing the symptoms that characterise *Leaf Scorch Decline* of coconut palms.