

Mineral Deficiencies in Coconut Palms

Most coconut soils in Sri Lanka are deficient in the major plant nutrients nitrogen (N), phosphorus (P) and potassium (K). In certain areas particularly in the wet zone, magnesium (Mg) has also been found to be deficient. Mineral deficiencies adversely affect the growth and production of coconut palms. Generally a mineral deficiency produces characteristic and striking symptoms on the foliage. Thus the condition can be readily identified in the field and appropriate remedial action could be taken.

Visual deficiency symptoms

A. Nitrogen

Nitrogen deficiency results in pale green leaves. The whole crown of the palm appears pale green or yellowish green with the discolouration prominent in younger leaves (water logging, severe drought, competition from heavy infestation with grasses and sulphur deficiency may also produce similar symptoms). In case of a severe nitrogen deficiency, the old leaves become conspicuously yellow to golden yellow before turning reddish and grey reddish when dying.

B. Potassium

In potassium deficiency, the crown appears yellowish. In the older leaves, scattered minute pale green spots appear. As the leaf gets older the spots enlarge and coalesce and their colour changes first into olive green and then gradually to reddish brown (Figure 3)

In the leaflets the spots are concentrated in the middle part on either side of the ekel while the tissue along the edges and the ekel remains relatively green.

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Yellowing and scorching of the leaflet tips and margins, which gradually extend upwards, can be seen in more advanced stages.

C. Magnesium

In magnesium deficiency also the crown would appear yellowish. However, mature leaves would show a green band left on either side of petioles.

The green band on either side of the petiole is due to the basal end of leaflets remaining green. In leaflets too, strips of tissue on either side of the ekel remain green. Generally, the yellowing commences at the lower end of leaflets in mature leaves, and gradually extends upwards (Fig. 1).

As the yellowing advances there is a tendency for the leaflets to scorch prematurely, beginning at the tips and margins. Some times the yellowing is accompanied by a brown pin-head type of mottling.

Remedial Measures

A. N and K deficiencies

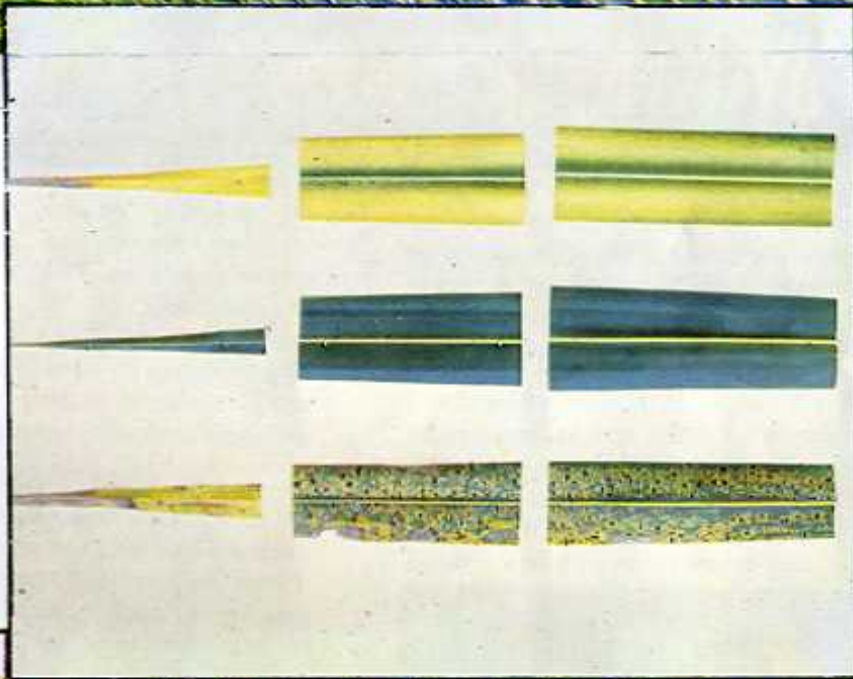
Cu mixture should be applied for the young palms (YPM mixtures).

CU1, CU2, CU3 should be applied for adult palms. In acute potassium deficiency, it may be necessary to apply an additional dose of Muriate of Potash.

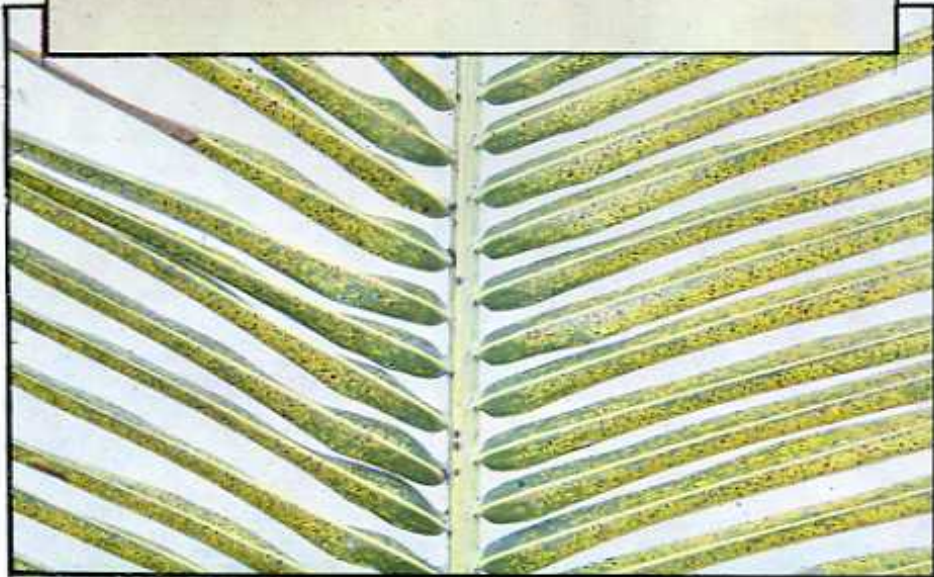
පිච්චය: **1**
FIG:
පැළ.ම:



පිච්චය: **2**
FIG:
පැළ.ම:



පිච්චය: **3**
FIG:
පැළ.ම:



B. Mg deficiency.

- (i) Kieserite should be applied for young and adult palms until recovery as follows :
 - Young palms (36 to 72 months) — 1/2 kg (1 lb) per palm half yearly
 - Adult palms — 1 kg (2 lb) per palm half yearly
- (ii) As a long term preventive measure ground dolomite limestone should be applied as follows :
 - 2.0 kg (4 1/2 lb) per palm once in three years (in the wet zone)
 - 1.5 kg (3 1/4 lb) per palm once in three years (in other areas)

In the case of palms showing acute Magnesium deficiency symptoms normal manuring should be suspended during the first year of application of kieserite.