



TRI UPDATE

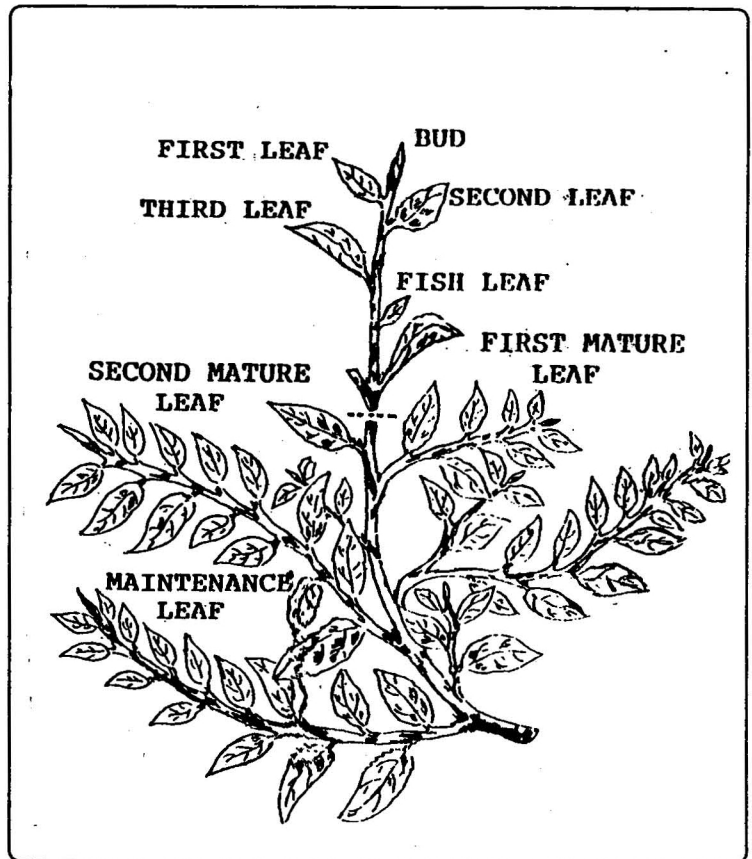
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IDENTIFICATION OF MAGNESIUM DEFICIENCY SYMPTOMS: LEAF ANALYSIS AS A GUIDE IN TEA CROP NUTRITION

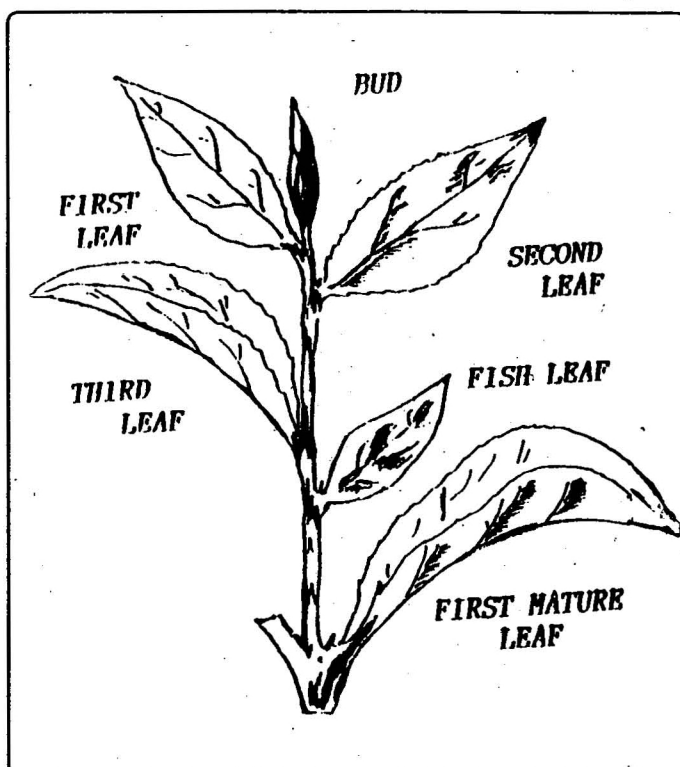
Magnesium deficiency symptoms seen as yellowing of mature leaves due to interveinal chlorosis in tea was observed in mid 1950's. Since then dolomitic limestone has been applied to tea plantations at various levels purely as a prophylactic measure. When acute Mg deficiency symptoms are observed, 3 to 4 foliar nutrient feeds at 2-4% commercial Epsom salt (CES; $MgSO_4 \cdot 7H_2O$) i.e. 8 to 16 kg ha⁻¹ per application per in 400 litres water using knapsack sprayers, are recommended until deficiency symptoms disappear. Further, Mg fortified NPK ground fertilizer mixtures are also recommended to fields that have soil Mg levels below 60 ppm. However in general, not enough attention is paid to the sequence of these three important remedial measures, to rectify leaf Mg deficiency symptoms completely.

This perhaps is one of the causes that leads to Mg deficiency symptoms being widespread in most of the tea plantations in Sri Lanka, particularly in the low and mid elevations, apart from inadequate supply of Mg through ground fertilizer applications.

In order to completely rectify leaf Mg deficiency symptoms it is essential to initially apply a few foliar nutrient feeds from CES to correct the situation. While Mg is supplied from foliar feeds, Mg needs to be supplemented through the soil as well, preferably from Mg fortified NPK mixtures and then as and when time permits from dolomitic limestone applications.



* Fig. 1 - Branch of a tea plant, showing different types of leaves



Further, when the supply of an essential plant nutrient is severely limited, or in excess, plant growth and crop yields are affected, and deficiency or toxicity symptoms may appear in different organs such as leaves, fruits, shoots, bark, etc. These symptoms have been described and illustrated for many crops and they are used as a preliminary guide for the diagnosis of nutritional disorders. Non nutritional factors such as herbicide sprays, pests and diseases may some times cause symptoms similar to those induced by nutrient deficiencies. In addition to visual symptoms exhibited, for accurate diagnosis of plant nutritional disorders and their correct interpretation, a confirmatory method such as leaf analysis is required.

In order to assess the nutrient status of tea plants, the first mature leaves of the shoots as shown in Fig. 1, are recommended to be sampled, particularly in instances where growth abnormalities are suspected to be due to nutritional problems.

Although the first mature leaf is accepted as the leaf to be sampled, it is observed that in the case of Mg, deficiency symptoms appear mostly in the lower maintenance foliage. Preliminary results of studies initiated to test the appropriateness of sampling the first mature leaves indicated that the first mature leaf alone was not an entirely reliable guide for the confirmation of visual observations for Mg deficiency symptoms. Hence, in the event of diagnosing Mg deficiency symptoms, if observed, the growers are requested to forward an additional set of leaves collected from the maintenance foliage, together with the first mature leaves, to the Soils and Plant Nutrition Division, TRI, Talawakele as a precautionary measure.