

Studies on the correlation of peanut chlorosis in Hualien calcareous soils¹

Chin-Hsi Lin²

summary

Field experiments were carried out on alluvial soils derived from schist with light texture, high pH, low organic matter, potassium and micronutrients, to correct the chlorosis of peanut plants by the application of compost, sulfur, and iron material in the spring crop of 1983 at three sites in Hualien district.

The results indicated that foliar spray of 0.5% ferrous sulfate solution could correct chlorosis and increase the iron contents of the leaves remarkably. Application of sulfur had a significant effect on curing of chlorosis through lowering the initial soil pH values and increasing yield.

Compost application relieved the chlorosis slightly and resulted in the increase of yield. Ferrous sulfate incorporated into soils increased the yield somewhat, while Fe-chelate (EDTA₂NaFe) had no effect on the yield except at Shincheng plot.

The yield was greatly affected by the treatments, severity of chlorosis and properties of soils. At Shincheng experimental field where chlorosis occurred early and severely, the plots receiving 3,000kg S together with an addition of either a soil dressing of 100 kg FeSO₄ per hectare or a Fe-spray increased the yields by 138% and 133%, respectively. The plots receiving Fe-chelate (60kg EDTA₂NaFe/ha) or compost (20 T/ha) or compost combined with FeSO₄ increased the yields by 60%, 35% and 45%, respectively. At Beilin (Fenglin) experimental field characterized by the coarse soil texture and low level of chlorosis, the plots receiving 600 kg S together with FeSO₄ or Fe-spray, and Fe-chelate with Fe-spray did not increase the yields. This may be attributed to the inadequacy of S application (only 600 kg of S was used there) and to the non-severity of chlorosis. However compost applied together with or without FeSO₄ did increase the yields by 11% each at Tarong (Fenglin) experimental field, while the application of 600 kg S with FeSO₄ gave the best result (increasing the yield by 17%). The application of compost with FeSO₄ ranked next showing a yield increase of 13%, Fe-spray did not increase the yield. indicating that treatment was not effective.

¹ Research Article No.9 of Hualien District Agricultural Improvement Station. This experiment was supported in part by the Council for Agricultural Planning & Improvement (Project number:72-ARDP-2.2-A-142).

² Soil chemist and Chief, Division of Crop Environment.