

ASSESSMENT OF MICRONUTRIENTS STATUS OF SOILS UNDER MILLET CULTIVATION IN GEIDAM LOCAL GOVERNMENT YOBE STATE, NIGERIA

¹Mulima, I. M., ¹ Ismaila, M. ¹ Benisheikh, K. M. & ²Saminu, I.

1 Yobe State College of Agriculture Gujba, P.M.B. 1104 Damaturu, NIGERIA

2. Faculty Agriculture and Agricultural Production, ATBU, Bauchi, NIGERIA

ABSTRACT

Micronutrients are metallic chemical elements necessary for plant growth in only extremely small amounts. Although required in minute quantities however, micronutrients have the same agronomic importance as macronutrients and play vital roles in the growth of plants. The transformation from the fallow and shifting cultivation practices prevalent among farmers to intensive continuous cultivation of soils and the use of improved crop varieties which take up many nutrients from the soil are major causes of deficiency of these micronutrients. In addition to this, the current fertilizer recommendation for crops in Northern Nigeria is only for macronutrients; continuous application of one or two macronutrients may in due course deplete the soil reserve of other nutrients and limit the crop performance. A total of 26 composite soil samples were collected at 0-15 and 15-30 cm depths from thirteen different, purposively selected representative locations (Guwalturam, Lawal Bukarti, Tororo, Mobanti, Kukawa India, Shaneneri, Abbati, Kori Fadama, Kiri Kasama, Kalgeri, Gonari Kukawa, Kirjin Tilo and Yalemari) in Geidam LGA of Yobe State, Standard laboratory methods were used to determine the physical and chemical properties of the soil samples. The results of the present study have indicated that the soils were generally sandy to loamy in texture, slightly acidic (Mean = 6.55), low in organic carbon and CEC, low in Ca and K; medium in Na and medium to high in mg contents. The total Nitrogen and the available Phosphorus of the studied sites indicated high and low contents respectively. Generally, Cu was found to be in the medium category while Zn was generally low in both zones. However, the soils contained Fe and Mn above the critical limits for crop production and categorized as “high”. This might be a potential environmental problem as they may, upon complex reactions, result in the formation of plinthite / petroplinthite leading to hard pan formation; restricting rooting depth and causing infiltration and drainage problem in the soil. It is suggested that supplementary application of Zn will be required for sustainable arable crop production in the soils studied and application of organic matter to improve the overall fertility of the soil and to reduce the possible development of plinthic / petroplinthic layers.