

Regional agrominerals as support to Evergreen Revolution

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Abstract

Evergreen revolution is defined as a proposal from the southern hemisphere to ensure the sustainability of tropical agriculture. The objective of this approach is to allow the expression of the soil and plant microbiome to reduce the need for the application of pesticides. In addition to allowing cleaner agricultural production, this process lowers costs and ensures permanent soil cover on a permanent basis.

Excessive use of NPK derived mainly from northern hemisphere sources increases external dependence on nutrients and intensive use of fossil energy. The new regional agrominerals being studied in the tropics allow an efficient use of nutrients in production systems without causing biological imbalances in soils. On the other hand, these new agrominerals promote soil changes in the long term. A significant change of soil properties can be predicted with the continuous application of these agrominerals. The main changes in soils are related to the increase of the permanent cation exchange capacity (CEC) of mineral origin, which are generally low in tropical soils.

The agrominerals that are intensively studied in the tropical regions are of silicate origin. Soil remineralizers and K fertilizer produced by hydrothermal processes (hydropotash, HYP) are the main examples.

The remineralizers allow soil conditioning and still provide essential nutrients. HYP are high-efficiency regional potassium fertilizers, and provide silicon and CEC. Agronomic research has demonstrated the generation of emergent properties in soils: increased capacity to sequester carbon; increased water retention; generation of permanent CEC.

The research of these new agrominerals depends on a regional study of agricultural soils and the need for nutrients and conditioners for the production systems. The methodological set is being called Agrogeological Zoning.