Potassium Nutrition of Some Tropical Plantation Crops

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“Plantations” developed in colonial times when a demand existed for certain agricultural commodities that indigenous agriculture did not produce in adequate quantity or quality.

Crops that require expensive processing facilities, such as the oil palm (Elaeis guineensis Jacq.), are still predominantly grown on large plantations, whereas crops such as coconut (Cocos nucifera L.) and rubber (Hevea brasiliensis H. B. K.), where primary processing can be simple, are now largely grown by smallholders.

Plantation crops are an important source of foreign exchange and provide secure employment for a large number of people. Because they are grown for commercial purposes rather than for subsistence, these crops have played a very significant role in the introduction and advancement of production-oriented research in the agriculture of many developing countries.

The range of harvested products is very wide. These include sugar (sugar-cane) [Saccharum sp.], fruit (banana [Musa sp.], pineapple [Ananas comosus (L.) Merr.], fruit coat and oil seeds (oil palm, coconut), seeds (cocoa [Theobroma cacao L.], coffee [Coffeea arabica L.]), latex (rubber), fiber (abaca [Musa textilis Née]), mature leaves (tobacco [Nicotiana tabacum L.]) and the young shoots (tea [Camellia sinensis (L.) Ktze.]). This diversity of products corresponds to a similarly wide range of plant types, agricultural practices, and niches where these crops fit into existing soil and climatic conditions. With a few exceptions (tobacco), plantation crops are tree crops or other perennials that are better adapted to a tropical environment than short-growing season crops.

Potassium is usually the least needed major nutrient in low-yield agriculture but climbs into a dominant position when yields are maximized. This point is emphasized by the fact that the intensively managed plantation crops, in spite of occupying only a small percentage of the total agricultural land, account for a large share of all K used in the tropics.

The first part of this chapter reviews the K nutrition of some tree crops, and the second part discusses two herbacious perennials. The distinction between tree crops and herbacious perennials was made because of the higher demand on the physical and chemical soil properties by the latter group of plants.