Chapter 25

Phosphorus Nutrition of Cotton, Peanuts, Rice, Sugarcane, and Tobacco

L. E. NELSON

Mississippi State University
Mississippi State, Mississippi

I. INTRODUCTION

Crops considered in this chapter occupy almost 14% of the world's cropland (FAO, 1974, 1975a, 1975b, 1977). Three of them, cotton, sugarcane, and tobacco, are normally well fertilized and, in some regions, these crops consume a large fraction of the fertilizers applied to crops. An attempt will be made to estimate the P requirements of these crops in terms of total uptake and of removal in the harvested portion of the crop. In addition, P composition and factors influencing it will be reviewed. Finally, a summary of foliar and tissue analyses will be presented along with critical concentrations where available.

Based on the 1974–1976 3-year average, cotton was produced on 31.9 million ha; the Soviet Union, China, and the United States accounted for 20.8, 18.6, and 17.0% of the world production of cotton lint, respectively (FAO, 1977). Other important producers are India, Pakistan, Brazil, Turkey, Egypt, Mexico, and Sudan. The area devoted to peanuts was 19.2 million ha; India and China accounted for 32.1 and 15.6% of the world production, respectively. Other important peanut-growing countries are the United States, Senegal, Nigeria, Sudan, Brazil, Argentina, and Burma. Rice was grown on 140 million ha; China and India accounted for 34.3 and 20.1% of the world production, respectively. Other important producers are Indonesia, Bangladesh, Japan, Thailand, Burma, Brazil, Korea, and the Philippines. Although the United States is 11th in world production, producing less than 2%, it is one of the largest exporters of rice (FAO, 1975b). Sugarcane was grown on 12.5 million ha; India and Brazil accounted for 21.2 and 14.4% of the world production, respectively. Other important producers are Cuba, China, Mexico, United States, the Philippines, Pakistan, South Africa, and Indonesia. Tobacco was grown on 43 million ha; China and the United States accounted for 18.6 and 17.3% of the world production, respectively. Other important producers are India, USSR, Brazil, Turkey, Bulgaria, Japan, Canada, and Rhodesia.