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Balanced Crop Nutrition: Fertilizing for Crop and Food Quality

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**Abstract:** Globally the ratio of  $N:P_2O_5:K_2O$  changed from 2.5:1.3:1 in the 1980s to 3.6:1.4:1 in 2002 as N consumption outstripped that of K. Regardless of their decreased nutrient consumption, developed countries maintained a modest increase in agricultural production. Positive and similar growth rates for agricultural products and nutrient consumption prevail in developing countries, but with the use of a 35% higher nitrogen (N) to potassium (K) ratio than in developed countries. The outcome of a negative K balance is presented here using examples from India, China, Egypt, and Bulgaria. Reasons for a negative K balance stem mostly from farmers' lack of knowledge and socio-economic factors. Maintaining a negative K balance results in decreased soil fertility and stagnating and even decreasing productivity. Balanced and timely application of nutrients needs to be demonstrated through different parameters according to the prevailing agro-climatic conditions. Results from long-term experiments and intensive investment in educational activities play an important role in demonstrating the benefits of balanced fertilization. In contrast, when analyzing nutrient applications in organic agriculture, it appears that often these may not be sufficient to meet a crop's requirement in quantity and time of application and hence creating soil nutrient mining and pollution. Balanced fertilization is significant in reducing pest and disease infestation, which results in higher returns through larger yields and better quality. Finally, the economic benefit from site-specific nutrient management practices is demonstrated for Southeast Asia's farmers.

**Key Words:** Potassium, nutrient ratio, negative balance, balanced fertilization

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