

CALIBRATION OF SOIL TEST AND DETERMINATION OF POTASSIUM FERTILIZER REQUIREMENT FOR WHEAT

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ABSTRACT

Eleven experiments on wheat were conducted by the department of Soil Science NWFP Agricultural University Peshawar, during the years 1987 to 1991 in northern, southern and central regions of NWFP, Pakistan for calibration of soil test potassium with yield. Potassium was applied at 0, 30, 60, and 120 kg ha⁻¹ to wheat along with basal dose of 120 kg N and 90 kg P₂O₅ ha⁻¹. Based on the data collected, the soils were divided as low (< 85.7 mg kg⁻¹), medium (100 to 220 mg kg⁻¹), and high (> 220 mg kg⁻¹) with respect to available potassium. Application of modified Mitscherlich equation to data showed that the critical level of NH₄OAC available potassium in soil was 143 mg kg⁻¹ assumed on 90% relative yield of wheat crop.

INTRODUCTION

Wheat and its products are a dominant component of the food of people of Pakistan but the country had experienced acute shortage of this commodity and the government had to spend millions of rupees in foreign exchange on its import. To ameliorate this situation, concerted efforts were made to enhance the production. The research and extension services were reorganized and strengthened. Improved production technology was developed and introduced among the farmers. As a result of these efforts, wheat production rose from 0.66 million tons with the average of 934 kg ha⁻¹ (1975-76) to 1.15 million tons with the average of 1366 kg ha⁻¹ (1990-1991) in NWFP (Agri. Statistics of Pakistan, 1990-91).

Efficient and economic use of fertilizer consists of the application of correct quantities of nutrients according to the needs of soil and crop on the basis of soil test. Soil testing is a process which involves consideration of the response of crops to various fertilizers, its proper method and time of application with respect to different soil properties. The interpretation and utilization of soil test values for fertilizer formulation depends on the calibration of the soil test values with the yield of the crops under different soil and ecological conditions.