INTRAVARIETAL SELECTION FOR SALT TOLERANCE IN RICE

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ABSTRACT

A pot-culture experiment was conducted on KS282, IR6 and IR10198-66-2 in artificially salinized soil. The average number of tillers per plant decreased with increasing salinity. Maximum number of tillers per plant were produced by IR6, followed by IR10198-66-2 and KS282. The average grain & straw yields decreased with increasing salinity. However, the rices did not behave differently under salinity. Large intravarietal variations in grain yield were observed for all the rices. Positive correlations were observed between the paddy yield and the K percentage in rice straw of individual plants.

INTRODUCTION

Genetic variation for salt tolerance has been established in many plant species (Mass and Hoffman, 1977). Intravarietal differences for salt tolerance in wheat have been reported by Shakoor et al. (1978) and Rashid (1986). For rice, marked intervarietal differences were reported by Akbar et al. (1972), Subramanian (1979), Bajwa (1982) and Verma & Neue (1984). A considerable variation in the response of individual rice plants of a

MATERIALS AND METHODS

This research work was carried out during 1988 in the Department of Soil Science, University of Agriculture, Faisalabad. A pot experiment was conducted in the warehouse with sandy clay loam soil. Nursery of two salt-tolerant rice varieties (KS282 and IR 6) and a slat-tolerant experimental line (IR10198-66-2) was raised in earthen pots.

The experiment was laid out in completely randomized design with four salinity levels including control and three replications. Glazed pots were filled with 12 kg of air-dried soil previously passed through a 2 mm sieve. A basal dose @ 75, 25 and 50 mg N, P and K kg^{-1} soil was mixed with soil before filling each pot. Six 39-day old seedlings were transplanted in each pot and thinned to 4, ten days later. The original soil having EC_e of 1.6 dS m^{-1} was treated as control and salinity levels of 6.0, 9.0 and 12.0 dS m^{-1} were developed, 13, 16 and 19 days after transplanting (DAT) by adding mixture of salts.