

Studies on the breeding of the high yielding variety for second crop rice in southern Taiwan (2) study on the effect of planting season on the selection efficiency¹

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summary

Sixteen rice varieties, which randomly chosen from local and introduced varieties, were used to evaluate the effect of planting season on the relative selection efficiency for yield and various major agronomic traits.

The mean values of various traits were smaller in the second crop than the first crop and most of them showed the greater coefficient of variation in the second crop.

Genetic variances were much larger than environmental variances in the traits of days to heading, plant height and 1000-grain weight which resulted in higher heritabilities. Generally, the heritability estimates were higher in the first crop season.

Genetic correlations between yield and filled grains per panicle, and between yield and total dry weight were high in the both crop seasons. The high positive and negative genetic correlations were also observed between grain yield and days to heading, and between yield and panicle number per plant for the second crop, respectively.

Direct responses to selection for various traits were similar in the both growing seasons. Correlated responses to selection for yield were large in the selections of days to heading, filled grains per panicle, plant height and total dry weight. Indirect selections for yield based on days to heading, filled grains per panicle and total dry weight in the second crop were larger than direct selection.

Genetic correlations between two cultural environments for various traits were close to unity except for harvest index and the relative selection efficiencies for the second crop season based on various traits in the first crop were small, suggesting that direct selection in the first or second crop was necessary to develop high yield genotype for each crop season.

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