Assessment the Rice Yield Reduction Caused by Infection of Rice Stripe Virus[1]

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Abstract

Tainan 5 and Tainung 67 were single-plant transplanted and inoculated with rice stripe virus by viruliferous small brown planthoppers at different growth stages to study the effect of virus infection on rice yield. The experiments were conducted in pot under screenhouse conditions in the 1st and 2nd crop seasons of 1985 at Kaohsiung District Agricultural Improvement Station (DAIS). In the 1st crop season 1985, the test plants inoculation with RSV at 15, 30, 45, 60 and 75 days after transplanting(DAT)resulted in 100, 100 ,100, 82 and 74% losses of rice yield for Tainan 5 and 100, 100, 100, 75 and 60% for Tainung 67.In the 2 nd crop season of 1985, Tainung 67 inoculation with RSV at 15, 30, 45, 60 and 75 DAT resulted in 100, 90, 48, 45 and 35% losses of the rice yield, In the 1st crop season 1986, Tainung 67 inoculated with RSV at 15, 30, 45, 60 and 75 DAT resulted in 100, 100, 100, 91 and 50% yield losses respectively. Similar experiments conducted in the field at Kaohsiung DAIS in the 2nd crop season of 1986, test plants inoculated with RSV at 15, 30, 45, 60 and 75 DAT resulted in 100, 99, 60, 43 and 37% losses of rice yield for Tainan 5 and 100, 93, 65, 54 and 38% for Tainung 67. In the 1st crop season of 1986, the effect of rice stripe disease symptom expression stage on the yield of naturally infected plants was studied. Tainung 67 was planted at 7 plants per hill and infected plants were tagged, individually, the yield reduction was 88, 78, 77, 58, 39 and 27% when symptoms appeared at 55 DAT (maximum tillering stage), 67-88 DAT (booting stage), 98DAT(heading stage), 110 DAT(milking stage), 118 DAT(dough stage)and 141 DAT(ripening stage)respectively. In the 2nd crop season of 1986, seedling transplating stage effect on the susceptibility of RSV of rice plants was evaluated at Chie-nan branched station of Kaohsiung DAIS, results indicated the infection rate of RSV of early transplanting , middle transplanting and latter transplanting plants were 68.0, 17.7 and 4.7% respectively. Apparantly the rice seedling transplanting at earlier stage caused higher infection of RSV and resulted in serious yield losses.

Key words: Rice stripe disease, Infection stage, Yield reduction

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