

The Nature of the Variety Tongil (Suweon 213-1) in Resistance to the Striped Rice Borer,

Chilo suppressalis W.*

Seung Yoon Choi**

(接受 : 1976. 1. 5)

Summary

This study was conducted to evaluate the nature of the variety Tongil (Suweon 213-1) in resistance to the striped rice borer, *Chilo suppressalis* Walker, comparing with those of Rexoro (susceptible check) and TKM-6 (resistant check) selected at IRRI.

1. The striped rice borer moths much more preferred the variety Tongil for oviposition than the varieties Rexoro and TKM-6. The variety Tongil had more egg masses and more number of eggs than the varieties Rexoro and TKM-6, while TKM-6 having more egg masses and more number of eggs than Rexoro. This reaction was consistent throughout the test regardless of the number of tillers per hill.

2. In laboratory, preference of larvae for feeding was studied with 5cm of stem pieces of the varieties. The results showed, in contrast to the case of ovipositional preference, that the striped rice borer larvae least preferred the stems of Tongil among the test varieties, while larvae much more preferred the stems of Rexoro than those of TKM-6.

3. The larval weights at 20 days later infested on the 40 day-old plants were the lowest on Tongil among the test varieties. On the variety Rexoro the larvae had heavier body weights(43.0mg), higher pupation (64.9%) and higher adult emergence (83.3%) than those on Tongil (larval weights 30.3mg, pupation 60%, adult emergence 60.7%) and TKM-6 (larval weights 35.7mg, pupation 56.3%, adult emergence 51.9%). The pupal weights, however, were not consistent among the test varieties and/or sexes in comparison with the larval weights, pupation and adult emergence above mentioned.

4. Field experiments indicated that the incidence of dead hearts at 70 days after transplanting was relatively higher on the variety Tongil (11.1%) than those on Rexoro (8.9%) and TKM-6 (8.4%), and the incidence of white heads at harvest was, in contrast to the dead hearts, lower on Tongil (9.8%) than those on Rexoro (27.4%) and TKM-6 (13.9%). At harvest lower larval survival observed on Tongil (49 larvae/40 hills) than those on the susceptible variety Rexoro (104 larvae/40 hills) and on the resistant variety TKM-6(70 larvae/40 hills). The average larval weights collected from three test varieties at harvest were 80.5mg from Tongil, 83.7mg from TKM-6 and 99.6mg from Rexoro.

5. Increased nitrogen fertilizer application to the variety Tongil, the striped rice borer damage was increased. Also, preference of larvae for feeding significantly increased with the increase of nitrogen fertilizer application.

6. Any specific association between the plant characters and striped rice borer resistance could not be found. The variety Tongil even having large number of tillers, short plant height, large stem, broad leaf, etc, had still high preference of moths for oviposition, low preference of larvae for feeding, low damage, and relatively high antibiosis.

7. Resistance of the variety Tongil to the striped rice borers seemed to be associated with the low feeding preference and the relatively high antibiosis, not associated directly with the ovipositional preference.

* Ministry of Sci. & Tech. R-75-42 1975. 24p.

** 서울대학교 農科大學 : College of Agriculture, Seoul National University, Suweon, Korea, 170.