

Orapin Thongaram 2013: Phenotypic Expression and Variation of Tolerant Guava
'KU-GUARD No.1' to Root-knot Nematode, *Meloidogyne incognita*. Master of Science
(Plant Pathology) Major Field: Plant Pathology, Department of Plant Pathology. Thesis
Advisor: Associate Professor Somchai Sukhakul, M.S. 82 pages.

The objective of this experiment was to study phenotypic expression of guava cv. 'KU-GUARD No.1' tolerance to *Meloidogyne incognita*. The 4 month old guava seedling 'KU-GUARD No.1' and 'Paen Seethong' were inoculated with 400 second- stage juveniles (J2) of *M. incognita* per plant under the greenhouse condition. The experiment was evaluated at 30 and 90 days and also the histological study of guava root tissues was investigated by the microtome technique. The results revealed that at 90 days, gall sizes of 'KU-GUARD No.1' was 0.19 mm in diameter while gall size of 'Paen Seethong' was 0.32 mm. The growth of root system and root fresh weight of 'KU-GUARD No.1' were 4 (level) and 5.07 g. while 'Paen Seethong' were 2.89 (level) and 3.08 g. Plant height at 90 days after inoculated of 'KU-GUARD No.1' and 'Paen Seethong' were 40.81 cm. and 34.03 cm. respectively.

Histological structure of root tissues revealed the difference in the secondary growth stage of root both cultivars. X-section of 'KU-GUARD No.1' root showed higher density of xylem vessel cells than 'Paen Seethong'. Xylem vessel cells were very important for water - mineral transport and strengthening of root tissues in which affected phenotypic expression on growth and tolerance of 'KU-GUARD No.1' to root knot nematodes.

The experiment on open pollinated – seedling of 'KU-GUARD No.1' to root – knot nematode variation on tolerance found that plant height, root fresh weight and growth of root system were not variable and not significantly different between non – infected and infected seedling. However, they were variable in number of root galls, egg masses and egg hatching rate. So, open – pollinated seedling of 'KU-GUARD No.1' tend to tolerant to root – knot nematode.

Student's signature

Thesis Advisor's signature