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Identification of high water use efficient rice genotypes using scanning electron microscope

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Water use efficiency varies substantially among species and genotypes within a species. WUE could be improved by decreasing transpiration without a concomitant reduction in CO_2 uptake. 48 rice germplasm comprising drought tolerant lines, Nerica varieties, landraces, and modern cultivars were screened for high water use efficiency based on anatomical features like no of stomata, size of each stomata and distance between stomata were measured using scanning electron microscope model JOEL-JSM 5600. Genotypes under study were classified into three different groups as high water use efficient with lower number of stomata (2-4) with larger size (18-21 µm) and increased distance between the stomata (38-50 µm), medium water use efficient are with stomata no (4-6), size of the stomata (14-18 µm) and distance between stomata (35-38 µm) similarly low water use efficient are with more stomata (6-8) smaller in size (12-14 µm) and lesser the distance between stomata (less than 35 µm). Lower number of stomata with increase in the size of guard cells, increased pore size and increased distance between stomata were responsible for water use efficiency. The presence of abundant, closely spaced, smaller size stomata is responsible for higher evapotranspirational losses. There was positive correlation exhibited at 1% level of significance between size and the distance between the stomata on both leaf upper and lower surface.

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Field efficacy of newer insecticides against major sucking pests of Bt cotton

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Among the ten insecticides evaluated against major sucking pests infesting the Bt cotton, five were of bio-pesticides (Neem oil 1.0%, NSKE (Neem seed kernel extract) 5.0%, Azadirachtin 0.0009%,*Vertticllium lecanii* (Zimmermann) at 2.5 kg/ha and *Beauveria bassiana* (Balsamo.) at 2.5 kg/ha) and five were chemical pesticides (Acetamiprid 0.004%, Thiamethoxam 0.01%, Imidacloprid 0.0089%, Dinotefuran 0.008% and Flonicamid 0.02%) at KVK farm, JAU, Targhadia (Rajkot) during *Kharif*, 2012-13. The result on the field efficacy of newer insecticides against major sucking pests of Bt cotton (G Cot Hy 6 BG II) showed that the chemical pesticides caused higher mortality, while bio-pesticides caused moderate to lower mortality of sucking pests. Among the insecticidal treatments, flonicamid 0.02%, acetamiprid 0.004% and imidacloprid 0.0089% were found more effective against aphid, jassid, thrips and whitefly on Bt cotton followed by thiamethoxam 0.01% and dinotefuran 0.008%. Among the bio-pesticides, neem oil 1.0% and *V. lecanii* at 2.5 kg/ha were found moderate effective and NSKE 5.0% and *B. bassiana* at 2.5 kg/ha found least effective against sucking pests of Bt cotton.

Biography

M K Ghelani completed BSc (Agri.) and M.Sc. (Agri.) & continued with Ph.D. (Agri.) at the age of 23 years from Junagadh Agricultural University (Gujarat). He has got 20 Gold Medal for being first/highest OGPA in BSc (Agri.) and also in different subjects of BSc (Agri.) during 8th Annual Convocation held at JAU, Junagadh. He has secured first rank at the University level examination in subject of Entomology in M.Sc. (Agri.) at Junagadh Agricultural University, Junagadh.

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