

## 2<sup>nd</sup> International Conference on **Agricultural & Horticultural Sciences**

Radisson Blu Plaza Hotel, Hyderabad, India February 03-05, 2014

### **Crop coefficient, leaf area index and evapotranspiration of pomegranate (*Punica granatum* L.) for western part of Maharashtra, India**

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The study was carried out to estimate reference crop evapotranspiration, develop crop coefficients, area factors, leaf area index and estimate crop evapotranspiration of pomegranate for western part of Maharashtra state (Latitude 16° 51' to 20° 08' N, Longitude 73° 51' to 76° 00' E and altitude 483.50 to 608.0 m amsl). The crop coefficient values were estimated on weekly basis from the concept of shaded area approach that is widely used for the deciduous crops for the pomegranate plantation of 1<sup>st</sup> year to maturity (5<sup>th</sup> year). Pomegranate crop evapotranspiration and leaf area index was then determined on weekly basis. The values of water to be applied to pomegranate plantation spaced at 3 x 4.5 m and irrigated by the drip irrigation system of 90% efficiency were estimated for this region for 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> years of pomegranate orchards for Ambe, Mrig and Hast bahars. The values of reference crop evapotranspiration, crop coefficient, area factor, leaf area index, crop evapotranspiration and water to be applied presented in this paper would be useful for the appropriate irrigation water management of pomegranate orchards.

#### **Biography**

Deodas T. Meshram completed bachelor's (1995) in Agriculture Engineering from PDKV, Akola and master's (1997) in Water Resources Development and Management from Indian Institute of Technology, Kharagpur. Recently, he completed (2010) Ph.D. from CTAE, MPUAT, Udaipur with specialization of Irrigation Water Management Engineering. He is having total 15 years experience and written number 31 National, 11 International research papers and 3 books. Presently, he is working as Scientist, SS (Soil and Water Conservation Engineering) at NRC on Pomegranate, Indian Council of Agriculture Research, Solapur.

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### **Exploration of novel stress tolerance genes from chaling wild rice**

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Chaling wild rice grows in Chaling, Hunan Province, one of the two most northern distribution sites for wild rice in China. It displays cold tolerance and resistance to rice blast. To identify abiotic and biotic stress tolerance genes from Chaling wild rice, we sequenced the genome using Hiseq 2000. The sequence data contain 6,803 Mb and showed mapping rate 91.93% and coverage ratio 92.94% to the Japonica Nipponbare genome (IRGSP), and mapping rate 88.95% and coverage ratio 84.47% to the Indica 9311 genome. A total of 1,160,685 SNPs (Single Nucleotide Polymorphism) were identified between Chaling wild rice and Nipponbare, with a ratio of 71.25% transition and 28.3% heterozygosity. A total of 1,773,410 SNPs were identified between Chaling wild rice and 9311, with a ratio of 70.83% transition and 22.25% heterozygosity. In addition, 56,801 SVs (Structure Variations) were identified between Chaling wild rice and Nipponbare, with a ratio of 97.31% INs (Insertion) and DELs (Deletion), and 72,987 SVs (Structure Variation) were identified between Chaling wild rice and 9311, with a ratio of 97.47% INs and DELs. Further analysis of abiotic and biotic stress tolerance genes from Chaling wild rice is in progress. Our results suggest that Chaling wild rice is more closed to the Japonica Rice Nipponbare in evolution and provide a basis to utilize stress resistance genes for rice breeding.

#### **Biography**

Zhilong Wang has completed his Ph.D. from National University of Singapore and postdoctoral studies from NIA/NIH and NCSU in USA. Now, he is a professor from Hunan Agricultural University, China. He has published more than 20 papers in reputed journals and serving as an editorial board member of ACST.

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