Root phenotyping for field management of crops

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Root being the hidden half of the plant, of late emerged as the critical most part for advancing the crop improvement research. This is done by identifying markers for specific root character, cloning and transforming to transfer the QTLs as an add-on to other genotypes for drought, high temperatures, salinity and water logging once root trait is prioritised. However, root phenotyping also helps in field management of crops as discussed here.

Rainfed mungbean (Vigna radiata var. radiata (L.) R.Wilczek grown with a drought management measure of making one conservation furrow (CF) after every three crop rows in drylands (the recommended practice) was studied for plant rooting depth and spread in the adjacent row (adjacent to CF) with an objective of assessing the impact of CF on root growth for fine tuning the drought management practice. Sampled root architecture of the crop both along the rows as well as across the rows showed rooting depth deeper by 5 cm in the CF adjacent plants compared to the middle row plant. With regard to spread of the root, the CF adjacent row plant could spread towards the furrow while no such spread was observed with the middle row plant. Therefore, it is concluded that recommendation could be refined to conservation furrow for every two rows of rainfed mungbean crop spaced at 30 X 10 cm when the average rainfall is around >560mm.

Biography

V Maruthi has completed her PhD in Agronomy at TNAU, Coimbatore and ICRISAT, Hyderabad, Post Doctoral at Rothamsted Research, U.K. She is a Principal Scientist (Agronomy) in Central Research Institute for Dryland Agriculture (CRIDA), a premier institute of ICAR, New Delhi. She has published more than 35 papers in reputed journals and has been serving as an editorial board member of repute for Indian Journal of Dryland Agriculture Research and Development.