

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

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

### Development of mapping population for grain zinc content in pigeonpea

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Pigeonpea is an important legume crop predominantly produced by small hold farmers in semi arid tropics and subtropics. It is a prominent dietary source of protein, supplementing vegetarian diet in developing countries but its micronutrient content is suboptimal in cultivated varieties. As zinc deficiency is increasingly acknowledged as one of the most serious public health problems, tapping pigeonpea's potential for grain zinc improvement using focused molecular breeding approach stands essential. In order to design a strategy to improve zinc content in pigeonpea, 240 germplasm lines of pigeonpea procured from ICRISAT were phenotyped for grain zinc content and biomass related traits. Significant variability was observed for grain zinc and biomass related traits, where zinc content ranged from 1.53 mg to 6.95 mg/100 g, mean zinc content being 3.06 mg/gm. Further, seed zinc content of all germplasm lines were reconfirmed and selected five contrasting genotypes showing consistent ranking in zinc content under common growing condition. Selected contrasts were crossed to generate mapping population. Further, these parents were screened with 171 locus specific SSR markers, of which 64 SSRs are polymorphic. Using polymorphic markers true F<sub>1</sub>s were identified and selfed to develop F<sub>2</sub> mapping population. A set of 265 F<sub>2</sub> plants have been developed and genotyped to carry out QTL analysis for grain zinc content. The phenotyping will be carried out in F<sub>3</sub> seeds.

#### Biography

Basavarajeshwari R has completed her MSc in Crop Physiology from University of Agricultural Sciences, Bangalore and presently pursuing her PhD in Dept. of Crop Physiology, UAS Bangalore. She is interested in molecular breeding with respect to crop quality improvement.

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### Field evaluation of groundnut (*Arachis hypogaea* L.) cultivars for physiological and growth parameters

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A field trial was conducted with five groundnut cultivars (JL-24, ICGV91114, Narayani, Abhaya, Dharani) in 2013 Kharif. Physiological observations such as photosynthetic rate (Anet), stomatal conductance (g<sub>s</sub>) transpiration rate (Tr), difference in air and leaf temperature (Tdiff) and intrinsic leaf level WUEas well as leaf parameters at pegging stage and biomass and yield parameters at final harvest were recorded. The cultivar Narayani recorded higher Anet, g<sub>s</sub> and Tr with lowest Tdiff among the cultivars studied. Whereas the cultivar Dharani recorded moderate Anet and lowest g<sub>s</sub> and Tr and showed highest WUE than other cultivars. The leaf area and leaf biomass of the cultivar ICGV 91114 was highest whereas the specific leaf weight (SLW) was highest with Dharani. The cultivars ICGV 91114 and Abhaya recorded highest root length whereas JL-24 and Abhaya recorded highest root biomass revealing that the root system in Abhaya enable to draw moisture from different soil depths. The cultivar ICGV 91114 registered highest total biomass at harvest with maximum allocation of biomass to reproductive parts as it has highest pod and seed weight. However, it is interesting to observe that HI (%) was highest with JL-24 though it has moderate total biomass and seed yield. From these results it can be inferred that with better root system and seed yield the cultivar Abhaya is expected to perform superior even under moisture stress conditions.

#### Biography

Sunitha Vaidya completed M.Sc. (Biosciences specialization in Biotechnology) and MPhil (Biosciences) from Sri SathyaSai Institute of Higher Learning, Puttaparthi, India. She had received Smt. Eshwaramma Gold medal for excellence in MPhil in 2010 and currently pursuing Ph.D. (Botany) in Central Research Institute for Dry Land Agriculture (CRIDA), Hyderabad registered under Osmania University.

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