1st National Genetics Congress

on

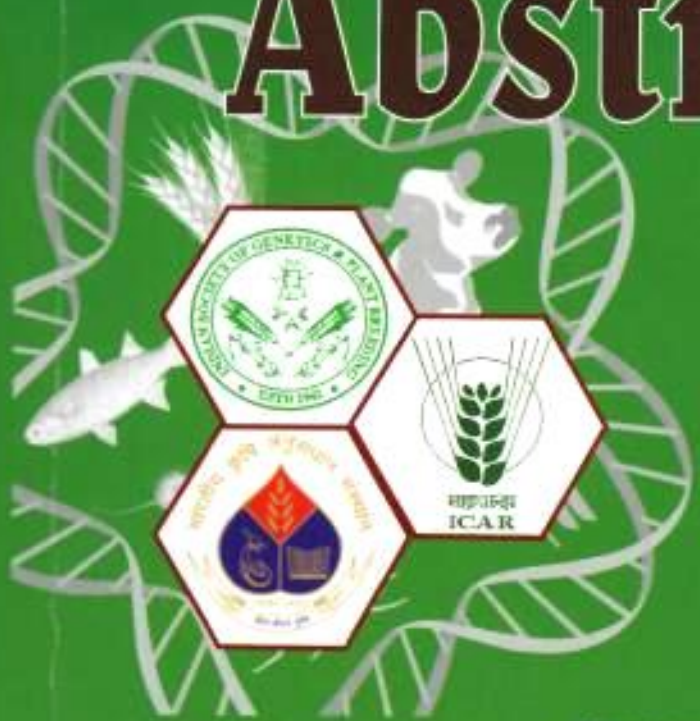
Genetics for Sustainable Food, Health and Nutrition Security

December 14-16, 2018

at

ICAR-Indian Agricultural Research Institute
New Delhi 110 012

Book of Abstracts



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PS III – 7

Doubling grain Fe and Zn concentration in sorghum to combat the micronutrient malnutrition in sorghum eating populations

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Dietary induced micronutrient malnutrition (MNM) is one of the greatest global challenges of our times and India has largest number of malnourished people globally. Sorghum is among the major staples and a cheapest sources of micronutrients therefore, biofortification of sorghum is of high priority. From screening of more than 4000 accessions and breeding lines we identified promising donors for Fe and Zn and established the genetic control. Fe and Zn are quantitatively inherited. While grain Zn in predominantly under additive gene control, non-additive gene actions also has role in controlling grain Fe. To develop hybrids with high Fe and Zn both parents should have high Fe and Zn. We demonstrated the prediction of F_1 hybrid performance based on mid-parental value for Fe and Zn. Both Fe and Zn are positively correlated (r=0.6 to 0.8) and simultaneous improvement for Fe and Zn is feasible. Using RIL population sorghum genetic map was constructed with 2,088 markers (1148 DArTs, 927 DArTSeqs and 13 SSRs) covering 1355.52 cM with an average marker interval of 0.6cM. Forty-seven QTLs (individual) and 7 QTLs (across) environments with small main-effect and 21 co-localized QTLs for Fe and Zn were identified.

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Genetic and correlation studies in rice for high grain zinc content and grain yield traits

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180 advanced rice lines derived from the cross PR 122 x IR10M 196 were evaluated for 12 grain yield and micronutrient traits (Iron and Zinc) along with checks in *kharif* 2016. Recorded phenotypic data were subjected to analyse correlation and to find mode of inheritance. For