

## **Process Innovations in Peanut Breeding and Testing Pipelines at ICRISAT**

**J. PASUPULETI\***, T. V. MURALI, and S. S. MANOHAR, Groundnut Breeding Unit, Research Program-Asia, International Crops Research Institute (ICRISAT), Patancheru, Telangana, India 502324.

An annual genetic gain of 0.7% for pod yield equivalent to 57 Kg/ha of pod yield per year was recorded in Spanish Bunch varieties bred at ICRISAT over a period of 15 years (1996-2000), and suggested a need to focus on enhancing genetic gain for 100-seed mass and shelling outturn to further enhance the pod yield. Peanut breeding program at ICRISAT uses genetic gain as a metric to measure the health of the breeding pipeline. Process innovation such as rapid recycling of elite parents, rapid generation advancement (RGA), cost-effective genotyping, early generation testing in target sites, multi-environment testing to address G X E have contributed to enhanced rate of genetic gain in peanut Breeding and Testing Pipelines at ICRISAT in recent years. For example, the 'process innovations' resulted to drastically cut down the number of years required to develop high oleic lines in Spanish and Virginia Bunch background adapted to Africa and Asia. The hybridization started in 2011 and in 2017, 16 high oleic lines were advanced to national release testing in India. Use of data management tool and data capturing devices enhanced operational efficiency. The modern work flows that employ these innovations are being optimized.

'Product Design' and stage-gate systems of product development and advancement are some of the key elements of modernizing peanut breeding program at ICRISAT, now being implemented under CRP-GLDC. Peanut Network Groups represented by CG, NARS and private sector is a platform to develop Product Design, Product development and testing, delivery and decisions on Product advancement. In such a network, the CG center Breeder's will play the role of the Network Coordinator. Recently, Asia group workshop has come up with Product plans to implement.