

7<sup>th</sup> Global Summit on

# Plant Science

October 07-08, 2019 | Madrid, Spain

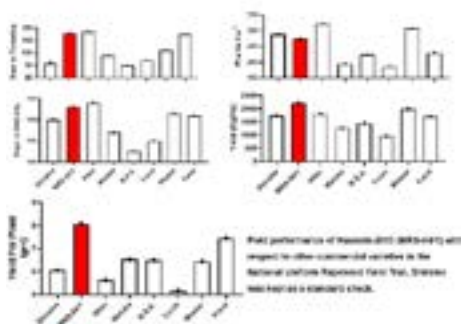


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### Development of improved seed: Maximization and commercialization of Hasnain-2013 a high yielding rapeseed variety

Pakistan is an agricultural country facing severe shortage of edible oil production. Statistics about the edible oil import Pakistan shows that it ranks no 1 on the list of imported food items. For instance the total edible oil demand of the country for the year 2017-18, was 4.268 million tonnes, out of which only 12% i.e. 0.533 million tonnes was produced locally and the rest (88%) was imported costing US\$ 3.63 billion of foreign exchange. It is hurting to note that that since year 2000, the imports of edible oil is doubled, while progress in its domestic production is stagnant. The availability of high yielding quality certified seed the main obstacle for getting self-sufficiency in edible oil production. Hence a research project was initiated on wide hybridization for genetic transgression through alien genetic transfer in 1998. A high yielding, early maturing, non-shattering, aphid resistant rapeseed variety, Hasnain 2013 was developed and was released by the relevant agencies in 2013, for general cultivation. Hasnain 2013 produce three times more seed as compared to local cultivars. Hence a project was initiated for maximization of Hasnain-2013 through production of best quality certified seed for improved farm production for improved livelihood of the farmer and reducing import bill of the edible oil. The early generation seed was sown on 200 acres of land of the progressive farmers. Simultaneously, on site field days and awareness seminars were organized regarding field performance of Hasnain-2013. We distributed 12.5 tons of certified seed, wherefrom 50 tons of certified seed is procured. The variety produce almost three times more seed as compared to local cultivars, hence widely accepted by the rapeseed growers. This paper communicates our field experience with the development of improved seed, its maintenance, maximization, certification and large scale seed production for extraction of edible oil and sustainably running the seed industry.



## Recent Publications

1. Khan S, Ahmad H, Khan MS, Mehmood SA, Nisar A, Feng X (2019). Ethnogenetic analysis reveals that Kohistanis of Pakistan were genetically linked to west Eurasians by a probable ancestral genepool from Eurasian steppe in the Bronze Age. Mitochondrion, DOI:10.1016/j.mito.2019.05.004
2. Zakaria M, Fatima A, Klar J, Wikström J, Abdullah U, Ali Z, Akram T, Tariq M, Ahmad H, Schuster J, Baig SM, Dahl N (2019). Primary microcephaly, primordial dwarfism and brachydactyly in adult cases with bi-allelic skipping of RTTN exon 42. Human Mutation, DOI:10.1002/humu.23755
3. Afridi SG, Irfan M, Ahmad H, Aslam M, Nawaz M, Ilyas M, Khan A (2018). Population genetic structure of domain I of apical membrane antigen-1 in Plasmodium falciparum isolates from Hazara division of Pakistan. Malaria Journal, DOI: 10.1186/s12936-018-2539-3
4. Majeed A, Muhammad Z, Ahmad H (2019). Plant growth promoting bacteria: role in soil improvement, abiotic and biotic stress management of crops. Plant Cell Reports, DOI:10.1007/s00299-018-2341-2
5. de Barrosit P, et al. (2018). The first horse herders and the impact of early Bronze Age steppe expansions into Asia. Science, DOI:10.1126/science.aar7711

## Biography

Habib Ahmad is presently working as the Vice Chancellor of the historic Islamia College, Peshawar, Pakistan. He is Tenured Professor of Genetics. He has received various awards in recognition of his scientific research and achievements. He has got the coveted honour of being a resource person and an inspirational speaker at many national and international universities. He is the author of more than 300 hundred research papers. Along with his exceptional contributions to Genetics, he has emerged as an authority on biodiversity and molecular anthropology of Hindu Kush Himalayas of Pakistan.

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