

**DEPARTMENT OF AGRICULTURAL RESEARCH AND EDUCATION  
MONTHLY SUMMARY - MAY 2018**

**INTERNATIONAL COOPERATION:**

- (i) Dr. Trilochan Mohapatra, Secretary, Department of Agricultural Research and Education (DARE) & Director General, Indian Council of Agricultural Research (ICAR), Krishi Bhawan, New Delhi participated in the 51<sup>st</sup> Annual Board of Trustees (BoT) meeting of Bioversity International during 9-11 May, 2018 at Rome, Italy and APAARI Executive Committee Meeting and Regional Expert Consultation on Agricultural Biotechnology during 28-31 May, 2018 at Bangkok, Thailand.
- (ii) Shri Chhabilendra Roul, Special Secretary (DARE) & Secretary (ICAR) participated in the 6<sup>th</sup> CGIAR System Council meeting during 16-18 May, 2018 at Berlin, Germany.
- (iii) A collaborative Work Plan for the period 2018-19 was signed between ICAR and International Center for Living Aquatic Resources Management (ICLARM) also known as Worldfish on 3<sup>rd</sup> May, 2018.
- (iv) Work Plan for the period 2018-20 was signed between ICAR and Ministry of Agriculture, Marine Fisheries, Rural Development and Water & Forest of the Kingdom of Morocco on 4<sup>th</sup> May, 2018.
- (v) Work Plan for the period 2018-19 was signed between ICAR and Ministry of Agricultural Development of Republic of Panama on 9<sup>th</sup> May, 2018.

**MAJOR RESEARCH ACHIEVEMENTS**

**Varietal Improvement:**

- (i) Sweet corn hybrid FSCH 75 and normal corn hybrid FH 3754 have been identified for cultivation in North Hill Zone.
- (ii) Finger millet variety VL 378 has been identified for release for cultivation in rainfed organic farming conditions of Uttarakhand.

**Agricultural Biotechnology:**

- (i) A set of 96 genotypes of the wheat mini core were genotyped using 14 gene targeted, CAAT Box derived polymorphism markers.
- (ii) Three bottle gourd lines were fingerprinted along with a reference set of five varieties with 20 SSR markers.
- (iii) Promoter sequences of Trehalose 6 Phosphate Synthase gene family in pigeon pea have been retrieved for comparative promoter sequence analysis.
- (iv) *Brassica rapa* vr. Yellow sarso line namely, NRCPB rapa 8 which supports high frequency hybrid seed development *in vivo* in interspecific crosses with *Brassica nigra* and obviates the need for *in vitro* embryo rescue during resynthesize of *Brassica juncea*.
- (v) SSR markers have been tested to identify polymorphic markers in 15 paddy varieties. Among them, RM-452, RM-3 and RM-316 were found to be polymorphic and are able to differentiate 15 paddy varieties and DRRH-3 hybrid.
- (vi) Tomato variety *Solanum pennellii* LA-1940 was found resistant to Tuta absoluta and also ToLCV (Ty3). An inter-specific F1 hybrid between *S. lycopersicum* L. (TLBER-38-7-4-27) x *S. pennellii* was raised to introgression genes resistance to both the biotic stresses.

- (vii) Real time q-PCR analysis of light and temperature dependent pathway genes was used for developing hypothetical flowering model in Dashehari mango.

#### **Conservation of Genetic Resources:**

- (i) Forty specimens were added to the National Herbarium of Cultivated Plants bringing the holdings to a total of 23,198 specimens.
- (ii) The major interceptions were *Peronospora manshurica* in soybean from the USA and *Potato spindle tuber viroid* in tomato from Taiwan.
- (iii) One hundred and fifty genomic resources of rice were deposited in the National Genomic Resources Repository.

#### **Natural Resource Management:**

- (i) In clayey soil drip irrigation and fertigation with 80% recommended dose of fertilizer (RDF) in *Rabi* sorghum crop resulted in saving of irrigation water and fertilizer by 20 and 40% respectively with grain yield of 6.08 t/ha.
- (ii) An organic farming package of practice for chilli plus cotton system with B: C ratio of 1.58 at Dharwad (Karnataka) developed.
- (iii) Groundnut + sunflower and groundnut + hybrid cotton intercropping system reduces the jassids population while groundnut + soybean and groundnut + desi cotton system reduces thrips population.
- (iv) The intercropping of Castor with one or two rows of Mungbean gives higher net return without adversely affecting Castor yield.
- (v) Designed and developed an online Salinity Management App Salinity Expert.

#### **Development of Farm Implements, Machinery and Post - Harvest:**

- (i) Developed a planter cum herbicide applicator for direct sowing of paddy.
- (ii) Developed a tractor drawn three row automatic vegetable transplanter for plug type seedlings of tomato and chilli.
- (iii) Developed tractor mounted air blast sprayer for carrying out spraying work in arecanut and coconut.
- (iv) Developed a brush cutter with fruit holding attachment for pineapple harvesting. It helps in reducing human drudgery and required less time for pineapple harvesting of *Kew* variety.
- (v) Developed a multipurpose tool carrier with the provision of attachment of inclined plate planter, sprayer and three tyne ferti-hoe.
- (vi) An integrated protocol was standardized for preparation of peach probiotic drink, squash and candy.
- (vii) A brahmi enriched aonla-dill blended squash containing vitamin-C and phenolics was developed.

#### **Public Outreach:**

- (i) Frontline demonstrations on oilseed and pulses were taken up all over the country covering an area of 8594.45 ha and involving 21366 farmers.
- (ii) 266 field-days with the participation of 10283 farmers and 305 *Kisan Goshties/Melas* with the participation of 50643 farmers were organized.

- (iii) Over 2460 training courses for 48798 farmers, 239 trainings for 3955 rural youths and 186 trainings for 4095 extension functionaries and in-service personnel were organized in the frontline areas of technology development.
- (iv) Besides, KVK scientists undertook 5722 visits to the farmers' fields for diagnosing various problems and to sensitize them on location specific recommendations during past one month.
- (v) In *Mera Gaon Mera Gaurav* program 637 scientists visited 623 villages and organized 344 demonstrations benefitting 44051 farmers. A total of 6241.83 quintals of seed and 5.84 lakh planting materials were also distributed to 6031 and 20908 farmers respectively.
- (vi) 28300 frozen semen doses of Frieswal bulls were produced for insemination of crossbred cattle at Military Farms and farmers' herd.
- (vii) During the month, vaccinations with 32400 doses of *Ranikhet Disease (RD)*, 3400 doses of Infectious Bursal Disease (IBD), 5300 doses of *Marek's disease* and 2100 doses of fowl pox were carried out in broiler, layer, turkey, guinea/*desi* fowl/emu.
- (viii) 63000 frozen semen doses of Frieswal bull have been produced and cryopreserved for inseminating crossbred cattle at Military Farms and farmers herd.

**Application of Space Technology:**

- (i) One Indian Regional Navigation Satellite System (IRNSS) through ISRO as a part of Ministry of Earth Science project entitled "To explore the potential application of Infrasonic supported by Ionosonde, GPS and Sodar for Earthquake Precursor Studies" is regularly being used for data collection. Weekly data files till 17.05.2018 have been sent to NPL Delhi.
- (ii) Automatic Weather Station (AWS) installed at ICAR-VPKAS, Almora through department of space ISRO and Indian Institute of Remote Sensing (IIRS), Dehradun is being regularly used for weather data collection (average Temperature, maximum and minimum temperature, RH, wind speed, wind direction, solar radiation, rainfall, dew point) as well as transmission to IIRS.
- (iii) Agro-met advisory bulletins were prepared on every Tuesday and Friday at IARI, New Delh based on the past weather data, current weather data and weather forecast received for next five days on different weather parameters viz. maximum and minimum temperature, rainfall, cloud cover, wind speed and wind direction from Regional Meteorological Centre, India, Meteorological Department, Agromet Advisory Unit, Safdarjung, New Delhi in Hindi as well as in English.