

**F.No.4 (1)/2019-CDN (Tech.)**  
**GOVERNMENT OF INDIA**  
**MINISTRY OF AGRICULTURE**  
**DEPARTMENT OF AGRICULTURAL RESEARCH AND EDUCATION**  
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**MONTHLY SUMMARY No. 05 FOR THE MONTH OF MAY, 2019**

**1. Important policy decisions taken during the month:**

**Nil**

**2. Important policy matters held up on account of prolonged Inter-Ministerial consultations:**

**Nil**

**3. Compliance of CoS decisions**

S.No.	No. of decisions pending for compliance	CoS for	Proposed action plan/time lines for compliance of decisions	Remarks
i	ii		iii	iv
1.	-		-	-

**4. No. of cases of sanction for prosecution pending for more than three months - Nil**

**5. Particulars of cases in which there has been a departure from the Transaction of Business Rules or established policy of the Government – Nil**

**6. Status of implementation of e-Governance**

No. of files created in e-office		Files movement in e-office		No. of receipts created in e-office		Total movement of receipts in e-office	
Electronic	Physical	Electronic	Physical	Electronic	Physical	Electronic	Physical
<b>1497</b>	<b>48</b>	<b>19806</b>	<b>1284</b>	<b>8934</b>	<b>671</b>	<b>16620</b>	<b>2773</b>

**7. Status of Public Grievances**

No. of Public Grievances redressed during the month	No. of Public Grievances pending at the end of the month
<b>123</b>	<b>109</b>

**8. Compliance of ACC directions/orders:** Department has complied with the directions/orders of ACC

**DEPARTMENT OF AGRICULTURAL RESEARCH AND EDUCATION  
MONTHLY SUMMARY - MAY 2019**

**INTERNATIONAL COOPERATION:**

- (i) Dr. Trilochan Mohapatra, Secretary, DARE & DG ICAR participated in the joint Bioversity International and International Center for Tropical Agriculture (CIAT) Board Meeting during 20-23 May, 2019 held in Rome, Italy.
- (ii) A joint research project entitled "KISAN MITRA between ICAR-Indian Grassland and Fodder Crops Research Institute (IGFRI), Jhansi and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad approved within the objective of Doubling the farmers' income in Bundelkhand region of Uttar Pradesh".

**MAJOR RESEARCH ACHIEVEMENTS**

**Varietal Improvement:**

- (i) Groundnut varieties viz. Dh 256, *Girnar-4* (ICGV 15083) and *Girnar-5* (ICGV 15090) identified for release.
- (ii) Wheat varieties viz. VL *Gehun* 967, VL *Gehun* 2014 and VL *Gehun* 3004; Barley variety VLB 130; VL Maize hybrid 57 of maize, VL Madua 380 of finger millet and VL Soya 89 of soybean notified for release.
- (iii) VL *Sabji Matar* 13 (Early maturity) and VL *Sabji Matar* 15 (Medium maturity) of garden pea notified for release.
- (iv) One finger millet variety VL 378 identified for release.

**Agricultural Biotechnology:**

- (i) Two hundred sixteen genic-SSRs were validated in *kodo* millet for use in molecular characterization.
- (ii) A comprehensive database, RiceMetaSysB developed for identification of blast and bacterial leaf blight responsive genes in rice using publicly microarray datasets.
- (iii) Activation tagging, a protocol for generating functional genetic resources, useful in generating gain of function mutants in potato, standardized.
- (iv) CRISPR/Cas9 mediated gene editing technique demonstrated in tomato.
- (v) The genes responsible for the biosynthesis of Rotundone, an important aroma compound discovered from black pepper fruit transcriptome.
- (vi) Validation of powdery mildew marker in vegetable pea viz. AD-60, scx171400, C5DNAmet, sc-OPD161600 for er-1 and er-2 genes accomplished.
- (vii) Transformation of Cry1Ac gene in okra by In-planta method was attempted and confirmation of NPT-II gene in In-Planta transformed okra plant (Cry1Ac gene) with the help of npt II gene specific primers was done.
- (viii) Produced ornamental banana hybrids with significantly increased bract colour and pigmented/coloured leaves.
- (ix) Gene sequencing for 33 bacterial isolates obtained from outbreak of coli-septicemia completed and confirmed as *E. coli*, *Alcalagenesfecalis* and *Streptococcus* sp. by NCBI blast analysis.

### Conservation of Genetic Resources:

- (i) A total of three hundred forty accessions added to the National Genebank for Ex-situ germplasm conservation bringing the genebank holdings to a total of 440991 accessions. Additionally, one thousand three hundred sixty five accessions of regenerated material was added to long-term conservation.
- (ii) Eight hundred and sixty accessions comprising of cereals, oilseeds, grain legumes, fruits and vegetables introduced from nine different countries. The important accessions introduced are landraces of soybean from Japan (978204-978213) and improved cultivars of citrus from South Africa (EC978218-978222).
- (iii) A total of nine thousand seven hundred forty two samples of imported exotic germplasm were processed for quarantine clearance and released to indenters. *Puccinia carthami* on *Safflower* imported from the USA was an important pathogen interception. For export, 297 samples were processed for quarantine clearance and 296 samples were released. Three phytosanitary certificates were also issued.

### Natural Resource Management:

- (i) Developed organic farming package of practice of direct seeded basmati rice in furrows and soybean in beds - vegetable pea and mustard with Furrow Irrigated Raised Bed (FIRB) system at Pantnagar (Uttar Pradesh).
- (ii) In clayey soil, subsurface drip irrigation and fertigation with 80% recommended dose of fertilizer (RDF) at 7.5 cm below ground level to two-eye budded sugarcane sets in paired row (60:120 cm) resulted in cane yield of 182 t/ha, 36.3% water saving and 20% fertilizer saving compared to recommended practice (3 eye budded sets, surface irrigation at IW:CPE 1.0 and 100% RDF).
- (iii) Standardized apple based Horti-agri-pasture system under temperate conditions of Kashmir valley.
- (iv) Indian bees, *Apis cerana* found to be the most important pollinator of broccoli with 8.6, 8.8 and 9.9 bees/ m<sup>2</sup>/ min in low, mid and high flower densities.
- (v) Application of bleaching powder @1% was found effective in managing potato cyst nematode infestation in soil.

### Farm Implements, Machinery and Post - Harvest:

- (i) Developed light weight multi-crop thresher for Uttarakhand hills.
- (ii) Developed tractor rear offset mounted cotton stalk puller.
- (iii) Developed electro-pneumatic spraying system for whitefly control in cotton crop
- (iv) Developed protocol for production of bio-oil and removal of moisture.
- (v) Developed cotton based smart heating gloves.
- (vi) Spray coating of brinjal fruits with chitosan (1%) can be used for prolonging shelf life and reducing post-harvest losses.
- (vii) Developed and commercialised Plankton<sup>Plus</sup> – a value added product from fish processing wastes for boosting plankton production in aquaculture rearing systems. Plankton serves as natural food for fish and shrimps.
- (viii) Developed a new cell line from eye tissue of snowtrout (*Schizothorax richardsonii*) using explant method. It was found suitable for toxicological and gene expression studies.

### **Public Outreach:**

- (i) Frontline demonstrations on oilseed and pulses were taken up all over the country covering an area of 7558.91 ha and involving 21209 farmers.
- (ii) Organized 429 field-days with the participation of 9608 farmers and 287 *Kisan Goshties/Melas* with the participation of 16241 farmers.
- (iii) A total 2054 training courses for 36437 farmers, 1015 trainings for 5385 rural youths and 500 trainings for 5413 extension functionaries and in-service personnel were organized in the frontline areas of technology development.
- (iv) In *Mera Gaon Mera Gaurav* program, 676 scientists visited 593 villages and organized 475 demonstrations benefitting 32894 farmers. A total of 7635.77 quintals of seed and 31.60 lakh planting materials were also distributed to 24026 and 36369 farmers respectively.
- (v) During 20 April– 19May, 2019, total 8 agro-advisory bulletins were prepared in Hindi and in English and SMSs were sent to the farmers through Kisan portal. These advisories are sent to IMD for preparation of national bulletins and uploaded on the IMD website ([www.imdagrimet.gov.in](http://www.imdagrimet.gov.in)) in both Hindi and English. These advisories and real time weather data along with medium range weather forecast were uploaded on the IARI website ([www.iari.res.in](http://www.iari.res.in)).

### **Application of Space Technology:**

- (i) A unique satellite data reception centre has been established in the Division of Agricultural Physics. These data are being used for monitoring crop health and drought condition in all the districts of the country. This information is regularly updated in the webportal <http://creams.iari.res.in>, which is available to all stakeholders for their own decision making. <http://creams.iari.res.in>, which is available to all stakeholders for their own decision making.

### **Other Major Activities:**

- (i) AVIMEGH: A digital android based mobile application developed for community-based breeding in Malpura sheep. This will enable instant entry in the database by breeder/shepherd/data enumerator himself/herself.
- (ii) Directorate of Cold Water Fisheries (DCFR), Bhimtal established rainbow trout hatchery and raceways at Dzuleke in Kohima district of Nagaland. Inauguration and interaction with farmers was organized under the Chairmanship of Commissioner cum Secretary, Fisheries and Aquatic Resources, Govt. of Nagaland on May 13, 2019.