

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

INTERNATIONAL COOPERATION:

- (i) Organized SAARC Regional Training on *Integrated Nutrient Management for Improving Soil Health and Crop Productivity* at ICAR-IISS, Bhopal in collaboration with the SAARC Agriculture Centre (SAC), Dhaka, Bangladesh during from 5-10 September, 2018.
- (ii) A Collaborative Programme on 'Identifying efficient forage/pasture production and grazing system to manage environmental impact of livestock production' between ICAR-IGFRI & CIAT-Colombia has been developed.

MAJOR RESEARCH ACHIEVEMENTS

Varietal Improvement:

- (i) Six varieties of wheat namely HD3226 (NWPZ-TS-IR), PBW752 (NWPZ-LS-IR), HI1620 (NWPZ-TS-RI), HD3237(NWPZ-TS-RI), PBW757 (NWPZ-VLS-IR), DBW187 (NEPZ-TS-IR) were identified for release.
- (ii) Nine high yielding varieties of various oilseeds and resistant to biotic and abiotic stress Viz. ICH 66 (Castor), RT 372 (Sesame), ISF-1 (Safflower), RH-761 (Indian mustard), JL 1085 and TCGS 894 (Groundnut), LCK 1404, LCK 1529 and RLC 153 (Linseed) have been identified for release.

Agricultural Biotechnology:

- (i) Molecular characterization of *Ratna Chudi*, a landrace of Rice with K-46-1 marker (linked to *Pup 1* QTL) revealed that it may carry novel gene for low P tolerance.
- (ii) Wheat rust resistance genes available in advance Indian wheat material was validated using Sr, Yr and Lr gene specific SSR markers.
- (iii) Total 3120 salinity responsive genes and 9381 drought responsive genes were identified, of which 2134 were common, from the meta-analysis of salinity and drought specific genome-wide microarray data. A database named RiceMetaSys was developed from these results with search options based on genotype, tissue, growth stage, gene or locus ID and physical intervals.
- (iv) Expression analysis of ripening genes during fruit development, ripening and jelly seed formation in mango revealed that ethylene forming genes isoform ACS1 and ACS10 are involved in fruit development and ripening but not in jelly seed formation.
- (v) Molecular analysis of 23 native Cymbidium species completed using 17 ISSR markers of which 08 ISSR markers showed high polymorphism.
- (vi) Trait Specific SNP Resource for *Bubalus bubalis* (SNPRBb) is generated through ddRAD (Double-Digested Restriction Associated DNA) sequencing data analysed from extremely high and low performing animals for milk production, attaining puberty, resumption of post-partum cyclicity & feed conversion efficiency. SNP specific to different traits were documented in the form of database (webapp.cabgrid.res.in/snprbb/) containing genomic variant information [more than 521001 SNPs] of Indian buffalo useful in study of evolution, phenotype selection and life habit of Indian buffalo population.

- (vii) Established an easy derivation and long term propagation method for porcine mesenchymal stem cells from slaughter house bone marrow samples. The cells can be used for large scale production and several other research applications.

Conservation of Genetic Resources:

- (i) Three thousand nine hundred and two accessions (3902) comprising of cereals, vegetables, fibres and fruits were introduced from 15 different countries for supply to various indenters across the country. The important accessions introduced include Wheat cultivar USA-Apogee with very short life cycle and resistance to calcium induced leaf tip necrosis in controlled conditions (EC958797) from USA and wild species of rice (EC955801-828) from Philippines.
- (ii) One hundred accessions were added to the National Genebank bringing the genebank holdings to a total of 4,38,578. Additionally, regenerated material (326 accessions) was added to long-term conservation. Nineteen samples along with the proposals for release of varieties were received for long-term conservation.
- (iii) Seed health testing of 222 samples was carried out for its pest free conservation in National Genebank and 220 samples were found qualified for long term storage.

Natural Resource Management:

- (i) Developed organic farming package of practice maize – potato - okra system at Modipuram (Uttar Pradesh).
- (ii) More than 145 pathotypes of wheat, barley, oat and linseed rust pathogens were maintained as live cultures as well as cryo-preserved. Nucleus inocula were supplied to different scientists/centres to facilitate rust research work elsewhere in India.
- (iii) Screening of 90 rice genotypes including germplasm accessions, land races and improved cultivars for resistance to rice root-knot nematode *Meloidogyne graminicola* in glasshouse revealed that two genotypes (LD24 and Khao Pahk Maw) showed highly resistant reaction.

Development of Farm Implements, Machinery and Post - Harvest:

- (i) Developed a tractor drawn three row automatic vegetable transplanter for potted seedlings.
- (ii) Developed a tractor operated ginger harvester cum elevator.
- (iii) Developed a sensor based warning system for existing chaff cutters.
- (iv) Two row tractor operated potato combine harvester's design was improved for better tuber separation and reducing bruising injury.
- (v) Designed and developed a power operated onion de-topper. This machine is useful to de-top the leaves of harvested onion crop.
- (vi) Developed a generalized energy model for rural eco-system for all sectors (crop production, livestock raising, domestic sector and post-harvest).
- (vii) Developed seedling tray from nano-lignocellulosic biomass based composites.

Public Outreach:

- (i) Frontline demonstrations on oilseed and pulses were taken up all over the country covering an area of 8978.32 ha and involving 25487 farmers.
- (ii) 249 field-days with the participation of 8202 farmers and 582 *Kisan Goshties/Melas* with the participation of 44049 farmers were organized.

- (iii) A total 4322 training courses for 106772 farmers, 392 trainings for 7971 rural youths and 424 trainings for 9968 extension functionaries and in-service personnel were organized in the frontline areas of technology development.
- (iv) Besides, KVK scientists undertook 8698 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 745 scientists visited 749 villages and organized 1112 demonstrations benefitting 50765 farmers. A total of 14553.25 quintals of seed and 23.13 lakh planting materials were also distributed to 4333 and 61321 farmers respectively.
- (vi) During the month, vaccinations with 3850 doses of *Ranikhet* Disease (RD), 3180 doses of Infectious Bursal Disease (IBD), 4100 doses of *Marek's disease* and 2700 doses of fowl pox were carried out in broiler, layer, turkey, guinea/*desi* fowl/emu.

Application of Space Technology:

- (i) 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.
- (ii) Agro-met advisory bulletins are being prepared on every Tuesday and Friday 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. During August 20 – September 19, 2018, total 8 agro-advisory bulletins were prepared in Hindi as well as 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) in both Hindi and English. These advisories and real time weather data along with medium range weather forecast was uploaded on the IARI website (www.iari.res.in).

OTHER MAJOR ACTIVITIES:

- (i) *Hindi Pakhwada* was celebrated at ICAR Headquarter, New Delhi and its research institutes from 14th September to 29th September, 2018. During the *Hindi Pakhwada* various activities like *Prashn Manch*, *Vaad-Vivaad Pratiyogita*, *Hindi Aashu Bhasan Pratiyogita*, *Swarachit Hindi Kaavya Paath*, *Hindi maim Tippan/Praaroop Lekhan*, *Hindi Nibandh Pratiyogita*, *Computer par Uni code maim typing Pratiyogita* or *Sabd Parichay Pratiyogita* were organized. On this occasion, a message poster of Shri Radha Mohan Singh, Union Minister for Agriculture and Farmers Welfare for promotion of Hindi in official work was also released.
- (ii) Department of Agricultural Research & Education/ Indian Council of Agricultural Research celebrated *Swachhta Hi Sewa* movement from 15th September to 2nd October, 2018 with full enthusiasm. The ICAR Head Quarters in New Delhi together

with all the 103 Research Institutes and 702 KVKs located in different parts of the country, are took active part in this movement and conducted a wide range of activities. These activities included cleaning of offices, office buildings and premises, campus, residential areas, villages and localities in the vicinities. Workshops, seminars, awareness camps, rallies, street plays and debates were also organised by ICAR Institutes. Besides these local residents outside and adjacent to the campus of the institutes were also sensitized by the staff members regarding *Swachhta Hi Sewa*. They were instructed not to indulge in throwing of garbage, polythene and glass bottles etc. anywhere other than the garbage bin.

D.O.No.: 4(1)/2018 CDN (Tech.)

Dated: 4th October, 2018

I am enclosing brief note on the significant achievements relating to the Department of Agricultural Research and Education (DARE) for the month of September, 2018.

Yours Sincerely,

Encl: As above.

(Trilochan Mohapatra)

Shri Pradeep Kumar Sinha
Cabinet Secretary
Cabinet Secretariat
Rashtrapati Bhavan
New Delhi – 110004

Draft e-mail to Sh. Pradeep Kumar Sinha, Cabinet Secretary
(email: cabinetsy@nic.in, subhag@nic.in)

Dear Sir,

I am enclosing monthly summary relating to the Department of Agricultural Research & Education (DARE) in the given format for the month of September, 2018.

Regards,

Yours sincerely

Trilochan Mohapatra



Indian Council of Agricultural Research

Krishi Bhavan, New Delhi

COORDINATION UNIT

F.No. 4(1)/2018-CDN(Tech.)

Date: 04/10/2018

Sub: Monthly DO Letter from Secretary Department of Agricultural Research & Education DARE to Cabinet Secretary, reporting the important activities of the Department for month of September, 2018.

On the basis of material received from the Subject Matter Divisions, other Divisions of ICAR, ICAR Institutes and the D.G. Office, a monthly DO letter from Secretary, DARE to Cabinet Secretary reporting the important activities of the Department for the month of September, 2018 has been prepared and attached for kind perusal and approval please.

(A. S. Mishra)
Principal Scientist

ADG (TC)

A brief report relating the activities of DARE for the month of September, 2018 was prepared on the basis of the information received from SMDs/Institutes. A copy has already been forwarded to the Cabinet Secretary. For further circulation the copy of the report along with its Hindi translation is placed for signature of Secretary, DARE & DG, ICAR.

(A.S. Mishra)
Principal Scientist

ADG (TC)

Secretary (DARE) & DG, ICAR

Secretary (DARE) & DG, ICAR

**F.No. 4(1)/2018 CDN (Tech.)
GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE
DEPARTMENT OF AGRICULTURAL RESEARCH & EDUCATION
KRISHI BHAVAN: NEW DELHI-110001**

Dated:

The undersigned is directed to circulate herewith a copy of the Monthly Summary of the Department of Agricultural Research & Education for the month of September, 2018.

**(Shiv Prasad Kimothi)
Asstt. Director General (Coord.)**

Encl: As above

To

All Members of the Council of Ministers.

Copy with enclosures forwarded to:-

1. Chairman,
Union Public Service Commission,
Shahjahan Road,
New Delhi
2. Secretary to the President,
Rashtrapati Bhavan,
New Delhi
3. Secretary to the Vice-President,
6, Maulana Azad Road,
New Delhi
4. Member of NITI Aayog,
NITI Aayog Bhawan,
New Delhi
5. All DDGs
6. Director DKMA
7. DS (WS)
8. Dr. K.P. Singh, Pr. Sci., e-Governance Div., ICAR

F.No. 4(1)/2018 CDN (Tech.)
GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE
DEPARTMENT OF AGRICULTURAL RESEARCH & EDUCATION
KRISHI BHAVAN: NEW DELHI-110001

Dated:

The undersigned is directed to circulate herewith a copy of the Monthly Summary of the Department of Agricultural Research & Education for the month of September, 2018.

(Shiv Prasad Kimothi)
Assistant Director General (Coord.)

To

The Principal Information Officer, Ministry of Information & Broadcasting.

Copy with Copy of the summary forwarded to:-

1. Secretary, Deptt. of Telecommunication.
2. Secretary, Deptt. of Education, Shastri Bhavan, New Delhi
3. Secretary, Deptt. of Statistics, Sardar Patel Bhavan, New Delhi
4. Secretary, Deptt. of Scientific & Industrial Research, Technology Bhavan, New Mehrauli Road, New Delhi.
5. Secretary, Legislative Deptt., Shastri Bhavan, New Delhi
6. Secretary, Deptt. of Non-Conventional Energy Resources, Block 14, C.G.O. Complex, Lodi Road, New Delhi.
7. Secretary, Deptt. of Water Resources, Shram Shakti Bhavan, New Delhi.
8. Secretary, Urban Development, Nirman Bhavan, New Delhi
9. Secretary, Deptt. of Rural Development, Krishi Bhavan, New Delhi