



निर्देशक की डेस्क से

ICAR-IISR की तरफ से बधाई!

भारत में सोयाबीन एक महत्वपूर्ण तिलहनी फसल है। यह अच्छी गुणवत्ता वाले प्रोटीन, तेल, खनिजों और आइसोफलेवोन्स, लेसिथिन, टोकोफेरॉल्स जैसे उपयोगी पोषक तत्वों के सबसे किफायती स्रोतों में से एक है, खेती के क्षेत्र को ध्यान में रखते हुए, भारत दुनिया में पांचवें स्थान पर है। निकट भविष्य में खाद्य तेल, पशु आहार और इसकी प्रत्यक्ष खपत के लिए बढ़ती मांगों को पूरा करने के लिए, सोयाबीन वैज्ञानिकों के लिए चुनौती



From Director's Desk

Greetings from ICAR-IISR!

Soybean is an important oilseed crop in India. It is one of the most economical sources of good quality protein, oil, minerals and useful nutraceuticals like isoflavones, lecithin, tocopherols, having immense health benefits. Considering the area of cultivation, India ranks fifth in the world. To meet the increasing demands for edible oil, animal feed and its direct consumption in near future,

यह है कि जलवायु परिवर्तन के अनुकूल प्रौद्योगिकियों को विकसित करके खेती और उत्पादकता के क्षेत्र में वृद्धि करें। संस्थान में, हम अपने सभी अनुसंधान कार्यक्रमों में बहु-विषयक दृष्टिकोण को लागू करके इस लक्ष्य को प्राप्त करने के लिए कड़ी मेहनत कर रहे हैं।

भा. कृ. अनु. प.- भारतीय सोयाबीन अनुसंधान संस्थान, इंदौर से "सोयाबीन समाचार" के वर्तमान अंक को प्रस्तुत करने में मुझे बहुत खुशी है। यह अंक जनवरी से जून, 2020 की अवधि के लिए समाचारों और घटनाओं और प्रमुख अनुसंधान उपलब्धियों की झलक प्रदान करेगा। सबसे महत्वपूर्ण उपलब्धियों में सस्य एवं पोषण संबंधी महत्वपूर्ण लक्षणों जैसे शीघ्र परिपक्वता, फोटो-असंवेदनशीलता, उच्च तापमान, सूखा और लवणता के लिए सहिष्णुता, कीट प्रतिरोधकता, YMV प्रतिरोध, उच्च ओलिक एसिड और अन्य खाद्य संबंधी विशेषताओं के लिए नए सोयाबीन जीनोटाइप का विकास शामिल है। इन सभी जीनोटाइप का मूल्यांकन क्षेत्रीय एवं अखिल भारतीय समन्वित सोयाबीन अनुसंधान परियोजना (AIRCPS) परीक्षणों के तहत भी किया जा रहा है। जीडब्ल्यूएस पैनल का मूल्यांकन करके सूखा, उच्च तापमान, और जल भराव सहिष्णुता के लिए संभावित जनान्द्रव्यों की पहचान की गई है। हमने डिजिटल मंच पर अखिल भारतीय समन्वित सोयाबीन अनुसंधान परियोजना की राष्ट्रीय समूह बैठक का आयोजन किया है। पिछले वर्ष की प्रगति और उपलब्धियों और आने वाले वर्ष के लिए तकनीकी कार्यक्रम पर चर्चा की गई और अंतिम रूप दिया गया। हमने सोयाबीन उत्पादन बढ़ाने के लिए किसानों द्वारा अपनाई जाने वाली विभिन्न गतिविधियों के लिए लघु वीडियो युक्त हमारे यू-ट्यूब चैनल को भी लॉन्च किया है। डीबीटी प्रायोजित बायोटेक-कृषि इनोवेशन साइंस एप्लीकेशन नेटवर्क परियोजना के तहत सीहोर जिले के चयनित गांवों में सोयाबीन उत्पादन की विभिन्न उन्नत तकनीकों का प्रदर्शन किया गया है। संस्थान ने मेरा गाँव मेरा गौरव, और स्वच्छ भारत मिशन जैसे प्रसार कार्यक्रमों का आयोजन किया है, और सोयाबीन उत्पादन बढ़ाने के लिए नवीनतम प्रौद्योगिकियों के बारे में किसानों को प्रशिक्षित किया गया है। कई महिला किसानों को विभिन्न सोया-खाद्य पदार्थों को बनाने के लिए प्रशिक्षित किया गया एवं इसके स्वास्थ्य वर्धक गुणों के बारे में जागरूक किया गया।

the challenge for soybean scientists is to increase the area of cultivation and productivity by developing climate resilient technologies. At the Institute, we are working hard to achieve this goal by applying multidisciplinary approach in all our research programmes.

I have great pleasure in presenting the current issue of "Soybean News" from ICAR-Indian Institute of Soybean Research (ICAR-IISR), Indore. It will provide glimpses of news and events, and salient research achievements for the period January to June, 2020. The most significant achievements include development of new soybean genotypes with various agronomically and nutritionally important traits such as high yield, early maturity, photo-insensitivity, tolerance to high temperature, tolerance to drought, water logging, insect resistance, YMV resistance, high oleic acid and other food grade characteristics. All these genotypes are being evaluated under station trials and AIRCP trials. By phenotyping the GWAS panel for drought, water logging tolerance and high temperature tolerance traits, several potential donors for these stresses have been identified. We have organized National Group Meeting of AIRCPS on digital platform. The progress and achievements of last year and technical program for coming year was discussed and finalized. We have also launched our *You Tube Channel* comprising of short videos for different activities to be followed by the farmers for enhancing soybean production. Demonstration of various improved technologies of soybean production has been done in selected villages of Sehore district under DBT sponsored Biotech-Krishi Innovation Science Application Network project. Institute has organized outreach programs like *Mera Gaon Mera Gaurav*, and *Swachh Bharat Mission*, and trained number of farmers, including regarding the recent technologies to enhance the soybean production. A number of women farmers were also trained regarding preparation of various soya-foods its health promoting benefits.

The 34th Annual Institute Research Council Meeting of the institute was held on 16th - 17th June, 2020 using Zoom application. The meeting was chaired by Dr Nita Khandekar, Director (Acting), ICAR-Indian Institute of Soybean Research and was attended by all the scientists. Dr Nita Khandekar, in her opening remarks, welcomed all the scientists and requested them to participate in the discussion and encouraged them to offer constructive suggestions for strengthening the research programmes and work for the larger interest of the ultimate stakeholders. Dr Sai Prasad, Principal Scientist (Plant Breeding) & Head, Dr K.C. Sharma, Principal Scientist (Agronomy), from ICAR-IARI-Regional Station, Dr Venkatta Kumar, Principal Scientist & Head (Agriculture Extension), Dr Chandra Prakash, Senior Scientist (Computer Applications), Division of Social Sciences, IIHR, Bengaluru and Dr G.K. Gupta, Principal Scientist (Plant Pathology) and Ex-Director, ICAR-Indian Institute of Soybean Research, Indore acted as 'Experts' in their respective fields. Project-wise presentations of research work done along with envisaged programmes for year 2020-21 were made by individual scientists. Dr Sai Prasad critically evaluated the progress of all the projects of Crop Improvement Division and gave useful suggestions. He emphasized that biotic stresses are becoming a major problem in the soybean growing areas and breeders should focus on the development of varieties keeping them in mind. Chairman, Dr Khandekar insisted that all the breeding programs should have multidisciplinary approach and should involve pathologist, entomologist, physiologist and other scientists.



In the concluding remark, Dr Khandekar appreciated the research work conducted at the institute and emphasized that the projects should have multidisciplinary approach and scientists from various disciplines should come together for strengthening of soybean research. Dr Khandekar also expressed that research projects should culminate into technologies which are directly useful to the farmers and other stake holders in the agriculture sector.

50th Annual Group Meet of All India Coordinated Research project on Soybean

50th Annual Group Meet of AICRP on Soybean was organized on 20th May 2020 through video conferencing. It was attended by 75 Soybean Scientists across the country. During inaugural session, the Chief Guest Dr. T. Mohapatra, Secretary DARE and DG, ICAR welcomed every one and congratulated the AICRP for developing > 120 high yielding and disease resistant varieties including first KTI free variety. He emphasized that meeting of AICRP for twice a year and informed that low productivity of the crop is major concern and by increasing the production and productivity of major oil seed crop will helps in reducing import of edible oil to greater extent. He also urged that all the Directors of Oil seed crop must be invited for AICRP workshop. Chief guest informed that the current productivity of soybean must be enhanced and some of patches of soybean growing areas recording >1500 Kg /ha and it must reach to 2000

kg/ha by encouraging best production system and engaging with KVK and state Agricultural Department. He urged all scientists to reduce the agronomy gap by using good agricultural practice and other digital languages. Promising germplasm may be imported and utilized in breeding programmes. Speed breeding and value addition should be given much needed thrust. Looking at increased weeds in soybean crop, DG asked the scientist to look for possible ways of using the roundup ready/ herbicide tolerant soybean to reduce the weed problem. DG urged the requirement of strong Human resource development programme (HRD) for AICRP centers and expressed his concerns to reduce the varietal mis-match in breeder seed production. Dr. S.P. Tiwari (Ex-Vice Chancellor, Ex DDG, Edn & CS), in the address mentioned engineering of lots of genes to address climate change issues and expressed the concern on reduction in area due to aberrant climate. He also urged that speed breeding program must be included in the technical program and appreciated the institute in taking up GGE biplots analysis. Dr T.R Sharma, DDG (CS) emphasized that the scientist must use the sequencing information of > 46,000 genes available in the public domain. He stressed upon improving the narrow genetic base of the crop by employing and utilizing wild species. Scientists must take up breeding for tolerance to water logging, early maturity and food grade soybean. DDG also stressed up on haplotypes breeding and strong HRD for all the AICRP centres.



This was followed by technical presentations by PIs Dr Sanjay Gupta (Plant Breeding), Dr. A.N. Sharma (Entomology), Dr. Shamarao Jahagirdar (Plant Pathology), Dr. S.D. Billore (Agronomy & FLD), Dr. M.P. Sharma (Microbiology) and Dr. L. Sophia Devi (Food Technology and Value Addition). Dr. P.K. Chakrorty, Member ASRB, New Delhi, Dr. D.J. Bagyaraj, Professor Emeritus, Bangalore, Dr.L.H. Malligawad, Professor emeritus, UAS, Dharwad, Dr. D.K. Yadava, ADG (Seeds), ICAR, Dr. D.K. Agrawal, Director, ICAR-Indian Institute of Seed Research, Mau, Dr. S.K. Jha, ADG(OP), ICAR, New Delhi, Dr. Rajan, ADG(PP), ICAR, New Delhi and Dr. Katiha, TSP I/c ICAR also participated as chairman of various sessions. During the AGM three special lectures were also delivered: Development of specialty varieties in soybean by Dr. Vineet Kumar, PS (Biochemistry), IISR, Indore, Molecular approaches for soybean improvement by Dr. Milind Ratnaparkhe, Sr. Scientist (Biotech), IISR, Indore and Mapping of YMV resistance genes in cultivated and wild soybean and their deployment in development of YMV resistant soybean varieties by Dr. Anita Rani, PS (Plant Breeding), IISR, Indore. Technical Programmes of research for 2020-21 were also presented by respective PIs.

Dr. T.R. Sharma, DDG(CS), ICAR remained with the group throughout the day and gave his valuable comments and guidance for improvement of research programmes and sensitized the scientists to strive for quality research work. During AGM, the varietal Identification committee screened the identification proposals and identified total nine varieties for release in different agroclimatic zones: (i) NRC 128 for NPZ and EZ, (ii) NRCSL-1 for EZ, (iii) RCS 11-07 for EZ and SZ, (iv) AMS 2014-1 for EZ, (v) NRC 136



Research Activities



- NRC132, lipoxygenase-2 free soybean, developed through marker assisted modified backcrossing, identified for release in Southern and Eastern zone



- **NRC 128:** The entry was evaluated for 3 years in AICRPS and was presented for identification in NPZ and Eastern Zone (EZ). Based on its wider adaptation in two zones and yield superiority of 20% in NPZ (2269 Kg/ha) and 23% in EZ (1871 Kg/ha) it was identified for release in the states of Punjab, Uttar Pradesh (except Bundelkhand region of UP), Delhi, West Bengal, Bihar, Jharkhand, Chhattisgarh, Orissa.
- **NRC 130:** NRC 130 was presented for identification in CZ. It is an early maturing entry (92 days) and its yield (1515 Kg/ha) was equivalent to the best check JS 20-34 (1508 kg/ha). Considering its early maturity, it was identified for release in CZ comprising the states of Madhya Pradesh, Bundelkhand region of UP, Rajasthan, Gujarat and Marathwada and Vidarbha region of Maharashtra.

- **NRC 132:** NRC 132 was identified in Eastern and Southern Zones. It is the first soybean variety of India with less beany flavour. Its yield in EZ was 1652 Kg/ha and it recorded an increase of 9% over the best check. Its yield in SZ was 2287 Kg/ha which was 1% higher than the best check. It has been identified for release in the states of West Bengal, Bihar, Jharkhand, Chhattisgarh, Orissa in EZ and Southern Maharashtra, Karnataka, Telangana, Andhra Pradesh and Tamil Nadu in SZ.
- **NRC 136:** It was identified for Eastern Zone. It yielded 1700 Kg/ha and recorded an increase of 12% over the best check. The entry has been identified for release in the states of West Bengal, Bihar, Jharkhand, Chhattisgarh, Orissa.



- **NRC 147:** NRC 147 is the India's first high oleic acid ($42 \pm 5\%$) and was presented for identification in Eastern and Southern Zone. It was directly introduced in AVT I and evaluated for 2 years. Its yield in SZ was 2362 Kg and was 4% higher in yield over the best check. In EZ its average yield (1400 Kg/ha) was less than the best check but it matured 9 days earlier. The entry has been identified for release in the states of West Bengal, Bihar, Jharkhand, Chhattisgarh, Orissa in Eastern Zone and Southern Maharashtra, Karnataka, Telangana, Andhra Pradesh and Tamil Nadu in South Zone.
- **NRCSL 1:** The entry was evaluated for 3 years in AICRP and was presented for identification in EZ and Southern Zone (SZ). In EZ, it recorded yield of 1706 Kg/ha (12% yield superiority over check) and was identified for release in the states of West Bengal, Bihar, Jharkhand, Chhattisgarh, Orissa.
- NRC142, the specialty soybean genotype, free from both undesirable components, namely, Kunitz trypsin inhibitor and lipoxygenase-2, and developed through marker assisted forward breeding entered AVTII in Eastern and Southern zone, and in AVT I in North Eastern zone
- NRCSL2 YMV resistant variety developed through marker assisted backcrossing identified entered AVT II in Central zone
- Early maturing genotype NRC152 (87-90 days) which is also free from both the undesirable components, namely, Kunitz trypsin inhibitor and lipoxygenase-2, and developed through marker assisted forward breeding entered AVT I in Central zone
- Early maturing and lipoxygenase-2 free genotype NRC150 developed through marker assisted forward breeding entered AVT1 in Central zone

- NRC149 a YMV resistant genotype with high oil content developed through marker assisted breeding entered AVT I in three agroclimatic zones
- An early maturing Kunitz trypsin inhibitor free genotype NRC 181 in the genetic background of JS97-52 developed through Marker Assisted Backcrossing (MABC) entered IVT in Central zone. NRC127, the first Kunitz trypsin inhibitor free developed from the Centre, is an essentially derived variety of JS97-52. NRC181 is early maturing version of NRC127.
- Two early maturing double null, Kunitz trypsin inhibitor and lipoxygenase-2 nulls, genotypes, namely, NRC180 and NRC183 entered IVT in Central zone
- NRC187 early maturing Kunitz trypsin inhibitor free vegetable soybean breeding line and NRC188 a KTI positive vegetable soybean genotype entered IVT
- Novel QTIs associated with biosynthesis of sucrose and raffinose family oligosaccharides identified in two F_2 populations
- NRC 151 an early maturing genotype which was developed from the cross JS335 \times PI205085 (Lox 3 null accession) showed high protein content (45.0 % protein content -dry weight basis) from the 2019 cropping season harvest which is statistically same as observed in previous years.
- A RIL population (F_{10} ; N=171) derived from cross JS 97-52(tolerant) \times NRC 37 (susceptible) was phenotyped in summer field trial-2020 for delayed leaf senescence, a dehydration avoidance trait, a range of variation (1-5) was observed on a rating scale 1 to 5, where 1 being sensitive and 5 being delayed senescence line. 5 out of 171 RILs scored 5 rating.
- A GWAS panel was also screened in summer field trial-2020 for delayed leaf senescence trait. 14 out of 320 soybean accessions viz., TGX 849-309 F, Bragg, EC390977, Kaeri 651-6 etc. scored 5 rating (tolerant) during phenotyping.
- Genotypes viz., JS 20-98, NRC 146, DS 97-12 and JS 20-38 found to be better performing soybean accessions for high temperature stress during polyhouse studies conducted under controlled day/night temperatures [Normal - (30°C/20°C) Elevated temperature - (40°C/28°C)] conditions and summer season screening.
- Soybean genotypes viz., TGX 317-37 E, JS 20-38, Sel 3-73, Sel 1-34, JS 20-98, Hardee, NRC 128 performed better than tolerant check (JS 97-52) for water logging tolerance in terms of stem elongation rate, foliar damage score and plant survival rate during water logging stress at early vegetative stages (V_2 - V_3).
- Polygenic inheritance was revealed for foliar damage score (water logging tolerance trait) during segregation analysis of F_2 population (N= 485) derived from JS 20-38 (Tolerant) \times JS 95-60(Susceptible) under early vegetative stage (V_2 - V_3) water logging stress.
- Collected model input data base (soil profile data: 37 locations, meteorological data: 59 locations) from different sources.
- Identified different soybean production zones such as primary (20), secondary (29), tertiary (79) and others (96) with total (224) based upon the area under the crop in each district. All soybean production zones were again

distributed into different agro ecological zones (21) given by ICAR-NBSS&LUP, Nagpur (Figure 1).

- Calibration and validation of CROPGRO model under DSSAT was done for different soybean cultivars (JS 95-60, JS 335 and JS 97-52) by using 3 years experimental data at ICAR-IISR, Indore under both irrigated and rainfed conditions. The CROPGRO model under DSSAT again validated to 14 AICRP soybean centers by using already conducted experimental data of all three cultivars at the centers located across India.
- Estimated genetic coefficients for different soybean cultivars by using CROPGRO soybean model in DSSAT.

| Code | Description | JS 95-60 (coefficient value) | JS 335 (coefficient value) | JS 97-52 (coefficient value) |
|-------|---|---------------------------------|-------------------------------|---------------------------------|
| CSDL | Critical Short-Day Length below which reproductive development progresses with no day length effect (for short day plants) (hour) | 13.57 | 12.35 | 11.52 |
| PPSEN | Slope of the relative response of development to photoperiod with time (positive for short day plants) (1/hour) | 0.139 | 0.315 | 0.317 |
| EM-FL | Time between plant emergence and flower appearance (R1) (photothermal days) | 24.5 | 22.0 | 23.3 |
| FL-SH | Time between first flower and first pod (R3) (photothermal days) | 6.0 | 6.5 | 10.5 |
| FL-SD | Time between first flower and first seed (R5) (photothermal days) | 13.5 | 13.0 | 13.7 |
| SD-PM | Time between first seed (R5) and physiological maturity (R7) (photothermal days) | 28.10 | 32.00 | 35.0 |
| FL-LF | Time between first flower (R1) and end of leaf expansion (photothermal days) | 18.00 | 18.00 | 18.00 |
| LFMAX | Maximum leaf photosynthesis rate at 30°C, 350 vpm CO_2 , and high light ($mg\ CO_2/m^2-s$) | 1.381 | 1.030 | 1.001 |
| SLAVR | Specific leaf area of cultivar under standard growth conditions (cm^2/g) | 392. | 400. | 353. |
| SIZLF | Maximum size of full leaf (three leaflets) (cm^2) | 226.9 | 180.0 | 148.6 |
| XFRT | Maximum fraction of daily growth that is partitioned to seed + shell | 1.00 | 1.00 | 1.00 |
| WTPSD | Maximum weight per seed (g) | 0.16 | 0.15 | 0.12 |
| SFDUR | Seed filling duration for pod cohort at standard growth conditions (photothermal days) | 17.6 | 22.0 | 25.3 |
| SDPDV | Average seed per pod under standard growing conditions (#/pod) | 2.29 | 2.20 | 1.78 |
| PODUR | Time required for cultivar to reach final pod load under optimal conditions (photothermal days) | 7.50 | 7.50 | 7.50 |
| THRSH | Threshing percentage. The maximum ratio of (seed/(seed + shell)) at maturity. Causes seeds to stop growing as their dry weight increases until shells are filled in a cohort. | 78.0 | 78.0 | 78.0 |
| SDPRO | Fraction protein in seeds ($g(\text{protein})/g(\text{seed})$) | .400 | .400 | .400 |
| SDLIP | Fraction oil in seeds ($g(\text{oil})/g(\text{seed})$) | .200 | .200 | .200 |



- The CROPGRO-Soybean model under DSSAT was simulated for soybean growth and grain yield an average of 35 years across 43 districts of India under irrigated and rainfed conditions to assess the extent of climatic variability (Rainfall, Tmax, Tmin, Tavg, Solar radiation) on potential yield (irrigated) and rainfed yield. Results revealed that there was a significant and positive association between rainfed grain yield and seasonal rainfall ($r=0.76^{***}$). The positive and non-significant association was observed between minimum, maximum and average temperature with grain yield of soybean under rainfed and irrigated condition. Whereas, positive and significant association existed between solar radiation ($r=0.75^{***}$) and irrigated grain yield.
- Analyzed the simulated yield potential under irrigated (3649 kg ha^{-1}) and rainfed (2326 kg ha^{-1}) conditions across 43 districts in India. Estimated yield gap between irrigated and rainfed conditions, was found to be 1323 kg ha^{-1} and this can be considered as simulated yield gap in India.

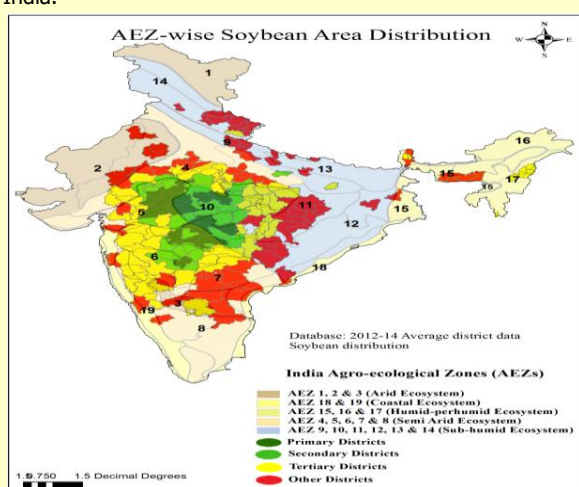


Figure 1: AEZ-wise Soybean Area and Production Clustering of Districts

- Spatial rule-based clustering of soybean districts has been categorized into primary, secondary, tertiary and other clusters using average of 2012-15 TE data. The clusters were contributing > 50%, next >35%, next 13% and last <2% area and production respectively and prepared the Hot-Spot spatial cluster map of districts based on Agro-ecological zone as depicted in the spatial map in figure 1. The clustering has been done to assess the important region which needed emphasis for better production.
- Chitin detection media was prepared for detection of chitinase enzyme activity. 12 endophytic bacteria was cultured on chitin detection media. Among the isolates EB 5 (*Bacillus circulans* subgroup A) having chitinase activity.
- Total 12 bacterial strains were spot on CAS agar plates inoculated on each plate. Among the isolates EB 16 (*Bacillus circulans* subgroup A) and EB 28 (*Kurthia gibsonii*) were showing high siderophore production.
- Six endophytes were identified as based on cultural, morphological and ITS sequence. Endophytic fungus belonged to three families such as Nectriaceae, Trichocomaceae and Ceratobasidiaceae. The phylogenetic tree was constructed for all isolate by UPGMA method.

The tree revealed association and relatedness among the isolates.

Extension Activities organized by ICAR-IISR during Jan-June 2020.

- Mera Gaon Mera Gaurav:** The programme is being implemented in 25 villages of Indore districts in which five multidisciplinary team of scientists are maintaining close contact with farmers. Beside soybean, the scientists are facilitating information flow of other agricultural commodities and the agricultural/developmental schemes launched by Government of India for the overall development of rural masses.
- One day training programme:** During Jan-June 2020, the institute organized 17 one day farmers' training programmes on Improved Soybean Production Technology involving 613 farmers and farm women. Similarly, 4 one day training programmes were organized on "Processing and Utilization of Soybean for Food Uses" with total participation of 149 women belonging to Madhya Pradesh.
- Training programmes under TSP:** The institute organized 3 training programmes in the tribal dominated Barwani district of Madhya Pradesh in association with Krishi Vigyan Kendra, Barwani on 10th, 11th and 12th March 2020. A total of 471 farmers and farm women from the tribal community were trained on "Improved Soybean Production Technology, Seed Production and Processing of Soybean for Food Uses" under these programmes.

4. Participation in Agricultural Exhibitions

| Sr. No | Event/Place | Organized by | Venue | Dates |
|--------|-----------------------------|-------------------|-----------------------------|-------------------|
| 1 | Global Potato Conclave-2020 | ICAR-CPRI, Shimla | Mahatma Mandir, Gandhinagar | 2-30 January 2020 |

- Launch of YouTube Channel of the Institute:** The institute launched its YouTube Channel "IISRSoybean Indore" during June 2020. Short film/videos containing relevant information on package of practices, management of biotic/abiotic stresses, and technical aspects of soybean production technologies are being updated on this channel on regular basis. Videos on specific advisories for soybean growers are also uploaded on this channel which has received a tremendous response from the viewers across the country.
- Weekly advisories on soybean considering COVID 19 transmission :** The institute also released specific weekly advisories especially for soybean growers containing relevant information on how to prevent the transmission of CORONA virus among the farming community by adopting specific measures like regular hand washing, Use of facemask, social distancing etc. Further, advisories were also issued on specific agronomic practices for ensuing kharif season-2020 involving land preparation, preparatory tillage, application of farm yard manure, carrying out germination test for the available seed, purchase of input etc to be used during the crop season.
- Quiz on Indian Constitution:** The event was organized at the institute on 29th February 2020 with the participation of institutional staff. The quiz involved a total

of eight round covering the issues like Genesis of the constitution, know your constitution, fundamental rights, preamble of the constitution, Constitution: people and amendments and current affairs.



List of extension publications of ICAR-IISR

- A. **Bilingual Extension Bulletin:** Soybean Production: Package of Practices and Technical Recommendations (Eds. B.U. Dupare, S.D. Billore and A.N. Sharma). Extension Bulletin No. 15. ICAR-IISR Publication. Pp: 100.
द्विभाषी विस्तार बुलेटिन: सोयाबीन उत्पादन: सस्य क्रियाए एवं तकनीकी अनुशंषाए (संपादन: बी.यु. दुपारे, एस. डी. बिल्लोरे एवं ए. एन. शर्मा) विस्तार बुलेटिन क्रमांक 15. भारतीय सोयाबीन अनुसन्धान संस्थान प्रकाशन. पृष्ठ; 100

B. विस्तार फ़ोल्डर्स

1. सोयाबीन: उन्नत प्रजातियाँ, गुणधर्म, उत्पादन क्षमता एवं परिपक्वता अवधि. (विस्तार फोल्डर 18.)
2. सोयाबीन: खरपतवार प्रबंधन. (विस्तार फोल्डर 19)
3. सोयाबीन: समेकित कीट प्रबंधन. (विस्तार फोल्डर 20)
4. सोयाबीन: समेकित रोग प्रबंधन. (विस्तार फोल्डर 21)
5. सोयाबीन: प्रसंस्करण तकनीकी एवं खाद्य उपयोग. (विस्तार फोल्डर 22)

Awards and Recognition

- Best oral presentation award for research work entitled "Soybean-wheat system productivity and economics as influenced by agronomic biofortification under conservation and conventional tillage practices" at 5th Uttar Pradesh Science Congress on '*Enhancing Farmer's Income and Water Conservation*' held on 22-24th February, 2020 at Banaras Hindu University, Varanasi (UP), India.



- **Best Oral Presentation Award** at the National Seminar on, "Technological Innovations in Oilseed Crops for Enhancing Productivity, Profitability and Nutritional Security" jointly organized by Indian Society of Oilseeds Research, Hyderabad and ICAR-IOR, Hyderabad, held at Hyderabad during February 7-8, 2020 for the poster entitled, "Comparative genomics studies of Rpp1 gene associated with soybean (*Glycine max*) rust resistance " presented by Ratnaparkhe et al.
- **Best Poster Award** at the National Seminar on, "Technological Innovations in Oilseed Crops for Enhancing Productivity, Profitability and Nutritional Security" jointly organized by Indian Society of Oilseeds Research, Hyderabad and ICAR-IOR, Hyderabad, held at Hyderabad during February 7-8, 2020 for the poster entitled, "Identifying Drought Tolerant Germplasm Through Multiplexing Polygenic Traits in Soybean" presented by Satpute et al.



**संस्थान में जनवरी-जून 2020 के दौरान राजभाषा-
कार्यान्वयन संबंधी विभिन्न गतिविधियाँ**

भारतीय संविधान में हिन्दी को संघ की राजभाषा के रूप में स्थापित किया गया है एवं संविधान के भाग सत्रह, अनुच्छेद तीन सौ इक्यावन में वर्णित है कि राजभाषा हिन्दी को इस तरह से विकसित किया जाए ताकि वह भारत की विविध संस्कृति को व्यक्त करने में समर्थवान हो। अतः राजभाषा के रूप में हिन्दी की भूमिक अत्यंत महत्वपूर्ण तथा दायित्व-युक्त है। इस उद्देश्य का वहन करते हुए भा.कृ.अनु.परि.-भारतीय सोयाबीन अनुसंधान संस्थान, इंदौर में राजभाषा हिन्दी के प्रसार-प्रचार हेतु अनेकानेक कार्यक्रम किए जा रहे हैं। जिनका स्वरूप भारतीय सोयाबीन अनुसंधान संस्थान में राजभाषा कार्यान्वयन के क्षेत्र में उत्तरोत्तर प्रगति के साथ दृष्टिगोचर होते हैं, जो राजभाषा के प्रगामी प्रयोग में अत्यंत सार्थक सिद्ध हो रहे हैं। इस क्षेत्र में किए जा रहे क्रियाकलापों का संक्षिप्त विवरण निम्नवत् हैं :

क) राजभाषा नियम, 1976 के नियम 8 का अनुपालन : संस्थान के अधिकारी एवं कर्मचारी शासकीय कार्यों हेतु राजभाषा नियम, 1976 के नियम 8 के उपनियम (1) तथा (4) के अनुसार लिखे जाने वाली टिप्पणियाँ एवं अन्य कार्य हिन्दी में करते हैं।

ख) राजभाषा कार्यान्वयन समिति की तिमाही बैठक

- प्रथम बैठक : दिनांक 04 जनवरी 2020
- द्वितीय बैठक : दिनांक 05 जून 2020

ग) प्रशिक्षण : संस्थान में राजभाषा के प्रचार-प्रसार हेतु कृषकों एवं प्रशिक्षणार्थियों को प्रशिक्षण संबंधित सारी सामग्रियाँ हिन्दी में प्रदान की जा रही हैं।

घ) शब्दकोश में वृद्धि : संस्थान में प्रतिदिन एक शब्द हिन्दी एवं अंग्रेजी को द्विभाषी रूप में "आज का शब्द" के रूप में प्रदर्शित किया जा रहा है, ताकि कर्मचारियों, अधिकारियों एवं वैज्ञानिकों के हिन्दी शब्द ज्ञान में वृद्धि करने के साथ ही साथ हिन्दी के कार्यालयीन उपयोग में भी सहायता प्रदान कर सके।

ङ) अनुवाद द्विभाषी प्रपत्र : संस्थान में कार्यालयीन कार्य में प्रयुक्त होने वाले विभिन्न पत्रों, प्रपत्रों आदि का अनुवाद कार्य भी प्रगति पर है, जिससे दैनिकी के साथ ही प्रायः प्रयुक्त होने वाले सभी प्रकार के पत्रों, प्रपत्रों का द्विभाषी मुद्रित रूप सम्मिलित है। यह कार्य राजभाषा कार्यान्वयन की दिशा में स्थाई एवं आधारभूत उपलब्धि है।

च) राजभाषा तिमाही रिपोर्ट का प्रेषण : संस्थान में राजभाषा हिन्दी से संबंधित समस्त कार्यों का विवरण तिमाही हिन्दी रिपोर्ट के माध्यम से संबंधित विभागों को ऑनलाइन एवं दृतगामी डाक सेवा से प्रेषित किया जाता है। इस कार्य को धरातलीय रूप प्रदान करने में संस्थान के समस्त संबंधित अनुभाग का सक्रिय एवं सहायनीय योगदान होता है।

छ) राजभाषा अधिनियम, 1963 की धारा 3 (3) :

संस्थान में राजभाषा अधिनियम, 1963 की धारा 3 (3) से संबंधित दस्तावेजों जैसे : सामान्य-आदेश, अधिसूचनाएं, प्रेस विज्ञप्तियाँ, संविदा, करार, लाइसेंस, पर्मिट, टेंडर के फार्म और नोटिस, संकल्प नियम इत्यादि को (हिन्दी और अंग्रेजी) द्विभाषी रूप में निकाला जाता है, ताकि राजभाषा संबंधित दिशा-निर्देशों का पालन सतत होता रहे।

ज) हिन्दी कार्यशालाएं : संस्थान के अधिकारियों एवं कर्मचारियों की हिन्दी में कार्य करने के दौरान होने वाली समस्याओं के निराकरण हेतु संस्थान में हिन्दी कार्यशालाओं का आयोजन किया जाता है। इसके अतिरिक्त कार्यशालाओं के आयोजन का मुख्य ध्येय यह भी होता है कि हिन्दी का प्रयोग किस प्रकार सरल से सरलतम की ओर बढ़ाया जा सकता है। इसलिए प्रत्येक तिमाही में कम से कम एक हिन्दी कार्यशाला का आयोजन किया जा रहा है, ताकि संस्थान के सभी स्तरों में हिन्दी में कार्य संपन्न करने का रूझान में उत्तरोत्तर प्रगति हो सके। इस उद्देश्य हेतु संबंधित विषयानुसार कार्यशालाएं सम्पन्न की जाती हैं। जनवरी-जून 2020 में अब तक 02 कार्यशालाओं का आयोजन किया गया, जिसकी सूची इस प्रकार से है :

| क्र. | दिनांक | विषय | अतिथि वक्ता |
|------|---------------|---|---|
| 1 | 12 मार्च 2020 | चित्र के माध्यम से भाषा का विकास | डॉ. बारस्कर .एन.डी., सहा. अधि. तक मुख्य., भारतीय सोयाबीन अनुसंधान संस्थान, इंदौर |
| 2 | 25 जून 2020 | संसदीय राजभाषा समिति के निरीक्षण संबंधित प्रश्नावली | डा. अमरनाथ शर्मा प्रधान वैज्ञानिक विभाग प्रमुख - फसल संरक्षण, भारतीय सोयाबीन अनुसंधान संस्थान, इंदौर |



हिन्दी कार्यशाला के दौरान प्रशिक्षण प्रदान करते हुए अतिथि वक्ता डॉ. एन.डी. बारस्कर।



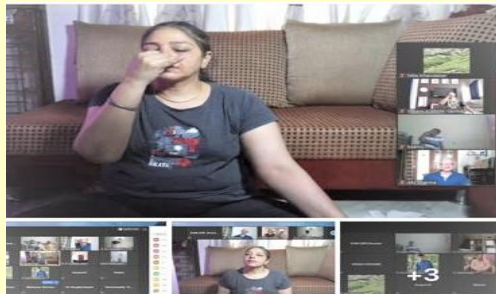
हिन्दी कार्यशाला के दौरान प्रशिक्षण प्रदान करते हुए अतिथि वक्ता डॉ. अमरनाथ शर्मा

झ) यूनिकोड की सुविधा : संस्थान के अधिकारियों तथा कर्मचारियों की हिन्दी में कार्य करने की रुचि में वृद्धि करने हेतु समस्त कम्प्यूटर में हिन्दी यूनिकोड की व्यवस्था प्रदान की गई है, जिससे एक समान फॉन्ट के माध्यम से पूरा संस्थान एक ही दिशा की ओर अग्रसर हो सके।

ञ) मौलिक लेखन कार्य का प्रादुर्भाव : संस्थान में राजभाषा संबंधी विभिन्न क्रियाकलापों के साथ मौलिक लेखन कार्य को दृतगामी आयाम प्रदान करने में अधिकारियों एवं कर्मचारियों की रुचि अद्वितीय है। विभिन्न प्रतिष्ठित संस्थानों द्वारा इनकी लेखनी को स्थान प्राप्त होते हैं।

International Yoga Day 2020

6th International Day of Yoga (IDY) was celebrated at the Institute on 21st June 2020. On this occasion Ms. Manjeet Kaur, Yoga Trainer, arranged a Yoga, Dhyan and Meditation session for all the staff members on Zoom App. She demonstrated various asana and explained their roles and benefits for enhancing immunity power.

**World Environment Day 2020**

World Environment was celebrated at the Institute on 5th June 2020. On this occasion Dr. Nita Khandekar, Director planted saplings in the office campus. Tree plantation at Horticulture block was done by staff of the Institute.



List of staff promoted as TSL:

| Sl. No. | Name of Staff | Designation |
|---------|-------------------|-------------|
| 1. | Smt. Chunki Bai | T.S. |
| 2. | Smt. Sagari Bai | T.S. |
| 3. | Smt. Rumli Bai | T.S. |
| 4. | Smt. Meera Bai | T.S. |
| 5. | Smt. Romu Bai | T.S. |
| 6. | Smt. Teju Bai | T.S. |
| 7. | Smt. Sarita Bai | T.S. |
| 8. | Smt. Parvati Bai | T.S. |
| 9. | Smt. Sangeeta Bai | T.S. |
| 10. | Smt. Surja Bai | T.S. |
| 11. | Smt. Sagar Bai | T.S. |
| 12. | Smt. Rekha Bai | T.S. |

Superannuation's

Dr. Virendra Singh Bhatia

Director and Principal Scientist (plant Physiology)

Date of Joining ICAR: 14.03.1985

Date of Retirement: 31.05.2020

Impact of climate change on soybean

Identification of photoperiod insensitive, drought, water logging and heat tolerant genotypes



Dr. Amar Nath Sharma

Principal Scientist (Entomology)

Date of Joining ICAR: 14.01.1987

Date of Retirement: 30.06.2020

IPM modules for major insect-pests

Identification of insect resistant/ tolerant genotypes



Mr. Sukhram Singh Vasuniya

Assistant Chief Technical Officer

Date of Joining ICAR: 27.03.1990

Date of Retirement: 30.06.2020

Plant Pathology, Plant Physiology

Obituary

Shri Prahlad Singh, SSG-II on 05.04.2020.

प्रकाशक/ Published By

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 निदेशक/ Director
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