



Vegetable Newsletter



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From the Director's Desk

Agricultural research, extension and mobilization of human resources of National Agricultural Research System are striving towards consecrated objective of "Doubling the farmers' income by the year 2022" as proposed by our Honourable Prime Minister Shri Narendra Modi Ji. To achieve this, agricultural operation has to be directed in two ways. The first one is to reduce the cost of cultivation and the second one is value addition of the product.



When we look into the conventional vegetable cultivation, we find uneconomic use of irrigation water, fertilizer, pesticides, etc. This results not only in wastage of inputs but also increases the problems of soil pollution and weed infestation. Adoption of water conservation technologies like drip, sprinkler or conservation of moisture through mulching is very important from economic point of view. Vegetable cultivation is a labour-intensive job; yet mechanization can address this problem to some extent, but practically in villages mechanization is not an easy task. Generally, mechanization is economic when the operations are carried out in large areas. But due to fragmented land holdings and bunding in the plots, in our villages particularly in the north and eastern states of India mechanical vegetable cultivation is a farfetched possibility. Here we should remember the concept of "family farming". Best utilization of the available time of the family members and family labour scheduling can help a lot in this regard. Coming to the value addition, vegetable sector has immense opportunity. Micro enterprises at household level, self-help groups at community level and Farmer Producer Organization (FPOs) at village level need to be established and value chain management from production to consumption has to be systematically developed. Processing technologies in vegetables not only reduces the wastage of the raw product but has the capacity to fetch additional income to the villagers. Capacity building of the villagers particularly women in low-cost vegetable processing techniques is required. Quality monitoring of those produce and assured market is also required for sustainability of such enterprises.

B. Singh

NEW CONCEPT

Customized Microarray to identify Natural Antisense Transcripts (NATs) in tomato

Abscission is a highly regulated process of cell separation, by which plants are able to shed their organs in specific zone called abscission zone (AZ). Natural Antisense Transcripts (NATs) the endogenous RNA molecules which are transcribed from the strand opposite to the template DNA strand, and may hybridize with the sense transcripts of the same genomic loci (cis-NATS) or with the complementary transcripts of separate genomic loci (trans-NATs). NATs can regulate gene expression in both prokaryotes and eukaryotes through diverse postulated mechanisms. In spite of the increasing importance of NATs, available information from plants is still low when compared to mammals and unicellular eukaryotes. The common techniques used to identify cis-NATs were in silico analyses of expressed sequence tags (EST) data bases, large scale sequencing of full length complementary DNA (cDNA), genomic annotation of large transcript and strand specific cDNA sequencing RNA-seq (ssRNA-seq).

Our laboratory team (Israel) came up with a smart way to identify NATs without undergoing tedious procedure of directional library, sequencing and analysis. We designed a customized microarray (AMADID: 043310) from our tomato AZ RNA-Seq data and *Solanum* datasets. The customized AZ array is an high-density oligo nucleotide microarray that has three unique features: (1) it has more number of probes compared to commercially available microarrays for tomato, (2) two probes for predicted genes and multiple probes for novel transcripts, (3) its signals are strands specific due to unique probe sets designed in sense and antisense orientation spanning entire transcripts from tomato genome (Figure). The results show that we could identify many NATs spanning across tomato genome and with differential expression pattern. We have adopted this microarray for various tomato abscission zone studies and their data were deposited in the NCBI-GEO respiratory and our collaborators across the globe

have used the customized microarray for various research needs in tomato plants. Therefore, it is ideally suited to investigate the antisense (cis-NATs) transcriptome and differential gene expression studies in tomato.

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PROMISING GENOTYPES

ICAR-IIVR, Varanasi developed cherry tomato lines

VRTCH-1 (Kashi CT-1): This advance line has been developed from selection of a material of Cherry Yellow. Plants are of indeterminate in growth habit, bears 190-200 fruits/plant and an average yield of 2.6-2.9 kg/plant. TSS of fruit is 4.9-5.1 °Brix, and contains beta carotene @ 0.91 mg/100 g FW and lycopene @ 4.29 mg/100 g FW.



VRTCH-2 (Kashi CT-2): This advance line has been developed through a segregating population derived from interspecific hybridization DT-10 (*Solanum esculentum*) and EC-520061 (*Solanum habrochaites*). Plants are of indeterminate in growth habit, bears 200-220 fruits/plant and an average yield of 1.4-1.6 kg/plant. TSS of fruit is 7.5-7.8 °Brix, and contains beta carotene @ 5.34 mg/100 g FW and lycopene @ 1.12 mg/100 g FW.



VRTCH-3 (Kashi CT-3): Plants are of indeterminate in growth habit, bears 160-180 fruits/plant and an average yield of 1.6-1.8 kg/plant. TSS of fruit is 5.2-5.4 °Brix, and contains beta carotene @ 0.95 mg/100 g FW and lycopene @ 3.24 mg/100 g FW.



VRTCH-4 (Kashi CT-4): This line has been developed through segregating population of cross TLBR-3×H-88-

78-1. Plants are of indeterminate in growth habit, bears 240-260 fruits/plant and an average yield of 1.6-1.8 kg/plant. TSS of fruit is 6.7-7.0 °Brix, and contains beta carotene @ 3.19 mg/100 g FW and lycopene @ 0.76 mg/100 g FW.



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ML-5: A potential genotype of king chilli from Manipur

King chilli (*Capsicum chinense* Jacq), one of the world's hottest chili, is originated from North Eastern Region of India. It is known by various names in different regions of north east such as 'Omorok' in Manipur, 'Naga king chilli' in Nagaland and 'Bhut/Bhoot/Bih Jolokia' in Assam. The north eastern region of India is blessed with a huge diversity of *Capsicum chinense* Jacq. as the agro-climatic conditions of this region is conducive for its cultivation. Amongst the 15 local genotypes of king chilli evaluated for yield and related traits, the local line ML-5 from Manipur recorded the highest fruit yield/h, no. of fruits per plant and no. of primary branches/plant (109.0 q, 64.90 and 7.06, respectively). The highest average fruit weight was recorded in the genotype TL-3 (10.33g). The genotype TL-3 was also the earliest in maturity and first harvest (84.67 days). The fruit length and fruit breadth was recorded highest in the genotype NL-1 (6.41 cm and 3.69 cm, respectively).

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GENETIC RESOURCES

Kerala is hub of chilli land races

Plant parasitic Chilli is an important vegetable cum condiment crop which is having immense commercial as well as



therapeutic value. It is considered as nature's wonder with many diverse fruit types within the five cultivated species of *Capsicum*. Though Kerala is not a major chilli producing state, the variability existing in this crop is tremendous. Diverse climate and soil conditions prevailing in different parts of the state have helped in developing different ecotypes in chilli. The warm humid climate of Kerala is ideal for green chilli cultivation. Among the five cultivated species *Capsicum frutescens* (Kanthari mulaku) and *Capsicum chinense* (Malimulagu) are widely cultivated in the homesteads of Kerala. Commercial cultivation of *Capsicum annuum* is limited to Chittoor taluk of Palakkad district, certain villages of Malappuram and Kasargode districts only. Market oriented production of the unique chilli cultivar White Kanthari is prevalent in Thrissur and Palakkad districts. *Capsicum frutescens* is commonly grown in the homesteads and are very small in size (not more than 2-3 cm), pungent and hot. Flower of this chilli species faces down and fruits will be upward facing the sky, and vary in fruit colour (white, purple, light and dark green). Moreover, *Capsicum chinense* is highly preferred in Maldives. The plant grows to a height of about one meter or more. The fruits are fleshy and highly pungent having a typical flavour. It yields substantially under shaded conditions and there are fewer incidences of major diseases like bacterial wilt, collar rot and anthracnose.

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Maintenance of self-incompatible (SI) S-allele lines in cole crops (*Brassica oleracea*)

The trend of F1 hybrid seed usage in vegetable crops is increasing globally in terms of species, cultivars and volume of seed used. The popularity of F1 hybrid cultivars is due to their vigor, uniformity, disease resistance, stress tolerance and good horticultural traits including earliness and long shelf-life expressed and thereby giving consistent stable high yield. The presence of sporophytic SI in *Brassica*

vegetables has proved effective for commercial hybrid seed production. But, the maintenance of parental S-allele lines is one of the basic requirements for continuous hybrid seed production. The development and maintenance of homozygous S-allele lines is costly affair. The various techniques being adopted are, bud pollination, tissue culture, exposing plants to high concentration of CO₂ (3-5%) for 8-24 hrs at 100% relative humidity. But these approaches are tedious and not cost effective. The use of NaCl sprays has proved effective for the temporary breakdown of self-incompatibility in *Brassica oleracea*. The application of 5% NaCl sprays made 15 minutes before plus 15 minutes after self-pollination in the S-allele lines of *B. oleracea* at open flower stage at all the flowering regimes resulted in good seed set. This method is being followed by different workers for overcoming self-incompatibility in *Brassica* vegetables and accelerating hybrid breeding programmes.

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AQUATIC VEGETABLE

Water chestnut (*Trapa bispinosa*): A unique gift of wet-land

Plant parasitic Water chestnut is an edible aquatic nut crop mainly grown as submersed plant. Kernel contains a large amount of protein (up to 20%), starch (up to 52 %), tannins (up to 9.4%), fat (up to 1.0 %) and sugar (up to 3.0 %). It is also a good source of fiber, vitamin B and minerals i.e. Ca, K, Fe and Zn. Nuts with different husk colour like green, red or purple and a blending of red and green colour are found. The fully mature nuts are placed in container with little water to germinate the seeds. The sprouted seeds are



sorted out and broadcast in the nursery tanks. At the beginning of monsoon, the seedlings are lifted from the nursery tanks and transplanted in pond. Fruits develop at the basal portion of the rosettes. Harvesting of nut is usually done at the month of September and continues up to November. Fresh nut yield ranges between 25-30 q/ha area of pond. Harvested kernel can be stored in the bottom of the fridge in sealed plastic bags or containers to prevent them from drying out. In view of the importance of water chestnut, crop improvement programme has been initiated at ICAR-Indian Institute of Vegetable Research, Varanasi, in order to popularize and augment its production among growers. In this regard, four diverse genotypes of Water chestnut were characterized for number of leave per plant, number of fruit per plant, leaf length, leaf width, fruit pedicel length, number of spine per fruit, fresh fruit weight, shelled nut weight, dry nut weight, dry matter content and TSS. Among all, VRWC-1 adjudged as promising genotype for dry matter content and fresh nut yield. Content of Zn, Fe and Mn were more in nut husk than shelled nut. Popularization and proper augmentation of water chestnut on a large scale could make a significant contribution towards nutritional security and economic upliftment of the society. In addition to food and nutritional security, this is also likely to generate on-farm and off-farm employment.

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Floristic studies of honey bee

Honey bee visits various groups of plant viz., vegetables, cereals, fruit trees, plantation trees, ornamental plants, etc. to obtain nectar, pollen or both for multiplication and survival. Constant availability of bee flora is the necessity for bee keeping. Plants differ in their flowering period from one place to other due to topographic variation, climate and other cultivation practices. The insight into bee flora of Jakhini, Varanasi region enable us to utilize bee flora at the paramount, to

harvest a commendable yield of honey and other bee products coupled with effective pollination, which also enhances crop yields. This region has its own honey flow and floral dearth periods of short and long duration. Such knowledge on bee flora will help in the effective management of bee colonies throughout the year. Different vegetables/crops grown in the Jakhini, Varanasi region were periodically observed for flowering period and visit of honey bee. The results of present investigation revealed that among different vegetable crops, bottle guard, bitter guard, okra, sponge guard, pumpkin, cucumber served as bee flora from August–November; while brinjal and Indian bean were found suitable bee flora from September–March. Pea, tomato and summer squash served as bee flora from December–March. In case of cereals maize, bajra and sorghum were found suitable as bee flora from September–October, and mustard served as bee flora from December–March in oilseed crops. In Fruit crops, banana, guava, papaya and wood apple were found useful. In ornamentals, rose, calendula, marigold and tecoma were preferred by honey bees as a bee flora, and hemelia and ixora were not preferred. Amongst the plantation trees, Moringa was highly preferred by honey bees followed by babul, kadam and peepal.

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PEST MANAGEMENT

First report of charcoal rot (*Macrophomina phaseolina*) in *Basella alba*

Plant parasitic Malabar spinach (*Basella alba* L.) commonly known as Poi Sag is cultivated as a perennial leafy vegetable in India. During 2016, plants were observed with charcoal rot symptoms at the research farm of ICAR–IIVR and in six farmers' fields ranging in size in Varanasi district of Uttar Pradesh, India. 30-40% disease incidence was recorded and symptom consisted of brownish to black discoloration at the collar region of the stem and branches that progressed into wilting and drying of the entire plant. Infected plant stems appeared shredded and contained black microsclerotia. Pathogenicity was confirmed by

artificial inoculation on basella plants. Symptoms typical of charcoal rot on the collar region were first observed 12



days after planting, whereas plants in check remained healthy. The causal agent re-isolated from the symptomatic plant tissue was found to be morphologically and culturally identical to the inoculated isolate. On the basis of morphological characteristics and a pathogenicity test the isolated charcoal rot causing pathogen was identified as *M. phaseolina*. For molecular identification, elongation factor gene was amplified and sequenced. The obtained sequences showed 100% homology with *M. phaseolina* (DQ677929). To our knowledge, this is the first report of *M. phaseolina* causing charcoal rot on *B. alba* in India and world. The report has been published in Plant Disease Journal, a reputed international journal of American Phytopathological Society (APS).

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Bacterial wilt: A threatening disease of Solanaceous vegetables in eastern UP

Plant parasitic bacterial wilt caused by *Ralstonia solanacearum* (EF Smith) is one of the most widely spread and economically important plant disease of solanaceous vegetables. It has quarantine status, comprises 5 races and 6 biovars and ranked second among top ten bacterial pathogens. Recently its occurrence on solanaceous vegetables is being noted in farmers' field of Varanasi, Sonebhadra and Mirzapur district, coinciding with warmer and higher humid month of August–Nov. 2017. A wide array of hybrid varieties of brinjal, chilli and tomato of the multinational companies were found under cultivation in different farmers' field where disease incidence was recorded up to 75%. The bacterial wilt incidence were recorded up to 75% in brinjal hybrids having oblong, purple fruits (name of seed company unknown) and in tomato cv. Namdhari 585, farmers' fields at Arazi line and Kiryat (Mirzapur). However, its incidence was 40% in chilli cv. VNR 305, fields at Kusi Dour (Sonebhadra). Interestingly, 'VNR 305' the popular hybrid of chilli was found highly susceptible at Kusi

Dour location in Sonebhadra but chilli hybrid 'Josh' was found completely resistant at same location. Differential disease reaction of same hybrid cultivar was observed in different locations of Sonebhadra district. This is the first report of the occurrence of the *R. solanacearum* in Sonebhadra in chilli. Disease is more prevalent in high soil moisture, soil temperature and acidic soil pH. Initially, the symptoms appeared as drooping in lower leaves before wilting. Later, vascular system particularly xylem of affected plants showed light brown discoloration with slimy bacterial ooze (exudates). Finally, all the affected plants wilted, defoliated and dried. Whitish ooze comes out from the vascular vessels of affected plants when stem suspended in clean water.

Pure culture was established from infected samples of chilli, tomato and brinjal. Infected tissue were macerated in distilled sterilized water then plated onto cas amino peptone glucose agar (CPG Agar) and Kelman's triphenyl tetrazolium chloride (TZC) medium. The isolates grew faster on the CPG Agar, and their virulent and avirulent (mutant) colonies differentiated on the TZC medium after 24 hr of incubation at 28 ± 1 °C. On the basis of colony characteristics on TZC medium and utilization of sugar and sugar alcohol, pathogen isolates were identified as *R. solanacearum*. The wide variability was appropriately reflected by the phenotypic and pathogenic variation among the tested isolates. On the basis of host range/cross pathogenicity test and oxidation of sugars and sugar alcohols all the isolates categorized as race 1 and biovar 3. Although breeding for race specific resistance is most effective, yet it is difficult due to the broad diversity spectrum among races/biovars in the pathogen. Disease management remains difficult due to non-feasibility of chemical control, exceptional survival ability soil and non-hosts. However, cultural, biological and host resistance can be opted for effective and economically viable management of bacterial wilt.

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First report of groundnut bud necrosis virus infecting *Solanum torvum* Sw. in India

Plant parasitic *Solanum torvum* Sw. is commonly known as turkey berry (Samtawkte in Mizoram) belongs to the family Solanaceae. It is used in day to day life of common man in the treatments like tooth decay, wounds, reproductive problems, arterial hypertension and fever and are rich source of vitamins. Characters of drought tolerant and resistance to soil borne pathogens and nematodes of *S. torvum* are being exploited in crop improvement program of Solanaceous vegetables such as tomato and brinjal. A disease characterizing necrotic and circular chlorotic spots on the leaves of *S. torvum* plants are observed in IIVR research farm, Varanasi, Uttar Pradesh during December 2015 with a disease incidence of 10-15%. All the symptomatic samples are positive in Direct Antigen Coating-Enzyme Linked Immunosorbant Assay (DAC-ELISA) with polyclonal antisera raised against groundnut bud necrosis virus (GBNV) belongs to Genus Orthotospovirus (Family Tospoviridae). Further samples are subjected to the Transmission Electron Microscopy, in which enveloped spherical shaped virions of size ranging from 80-120 nm size are observed. To confirm the presence of GBNV, total RNA was extracted from symptomatic samples were subjected to reverse transcription polymerase chain reaction (RT-PCR) using a specific primers to the coat protein (CP) gene of GBNV. The CP gene nucleotide sequence (MG913145) had 98% identity earlier reported strains of GBNV from India. These results confirm the infection of PBNV on the *S. torvum* from India. Though *S. torvum* is used as a resistance source for the biotic and abiotic stresses in breeding program, it is susceptible to the GBNV infection. While utilizing in the crop improvement program, care should be taken for GBNV resistance in *S. torvum* accessions. To the best of our knowledge, this



is the first confirmed report of GBNV on *S. torvum* from India.

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Natural mixed infection of two orthospoviruses on bitter gourd in India

In 2016, a yellowing disease was observed on bitter gourd plants in research farm at ICAR-IIVR, Varanasi, UP, India with a disease incidence of 15%. Symptoms include stunting of plants; yellowing of leaves; bud necrosis; and thickening and leathery appearance of leaves with downward cupping. Symptomatic samples were tested by DAS-ELISA with polyclonal antiserum raised against peanut bud necrosis virus (PBNV).

Additionally, total RNA was subjected to reverse transcription polymerase chain reaction (RT-PCR) using degenerate primer pair specific to L RNA



Yellowing on bitter gourd

segment of orthospoviruses amplified approximately 800bp only from the symptomatic samples. In order to detect the species associated, RT-PCR was performed with two set of primer pairs specific to PBNV (GK PBNV F/R) and watermelon bud necrosis virus (WBNV) (GK WBNV CP F/R). The 830 bp and 947 bp PCR products obtained respectively for PBNV and WBNV were sequenced and analysed. These results confirm the mixed infection of PBNV and WBNV on bitter gourd. To our knowledge, this is the first documented serological and molecular evidence for the natural mixed infection of PBNV and WBNV on bitter gourd in India.

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Polerovirus: An emerging threat for cucurbits cultivation in India

Poleroviruses (genus *Polerovirus*, family *Luteoviridae*) are emerging as a major threat to cucurbits cultivation worldwide. These are efficiently transmitted by aphid species, *Myzus persicae* and *Aphis gossypii* in a persistent and circulative manner. Genome of this virus constitutes single-stranded (ss) positive sense RNA of 5.7 kb size packed inside isometric virus particle of approximately 25 nm diameter. First *Polerovirus* causing yield loss of 40-50% on melon and cucumber from France was cucurbit aphid-borne yellows virus (CABYV). At present, among the 13 formally accepted *Polerovirus* species CABYV, melon aphid-borne yellows virus (MABYV) and Suakwa aphid-borne yellows virus (SABYV) were reported to be prevalent in Asia. So far occurrence of polerovirus (CABYV) on cucurbits

was reported only on bitter gourd from southern India during 2017. Upon infection of poleroviruses, plants shows stunted growth with yellowing, thickening and green vein banding of younger leaves while older leaves exhibit chlorosis. In northern India, poleroviruses are found infecting cucurbitaceous crops such as squash and bitter gourd with disease incidence



ranging between 30-50% during both kharif and summer seasons. Infection of poleroviruses are confirmed through reverse transcription polymerase chain reaction (RT-PCR) assay using universal polerovirus primer pair (PolGenUp2: 5'GATGARGGTCGYTACCG3'; PolGenDown2: 5'ACCTCGACTTTRAARCC 3'), which yielded an amplicon of approximately 600 bp in infected samples. As this virus is causing considerable yield loss

in different parts of world, future works should be focused on devising crop and region specific management strategy for its effective control before spreads to other crops through the polyphagous aphids vector.

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EVENTS

Field Day of Solanaceous vegetable crops organized at ICAR-IIVR, Varanasi

Zonal Technology Management Unit of ICAR-IIVR organized a field day of Solanaceous vegetables on 06.01.2018 to demonstrate and commercialize hybrids, varieties and promising advanced lines of tomato, brinjal and chilli developed by the Institute. The programme was



attended by 25 representatives, which include breeders and marketing strategists from of 11 private sector seed companies dealing in vegetable seeds like Ankur Seeds Pvt. Ltd., Sattva Seeds Pvt. Ltd., Mahyco Seeds Ltd. Known-you Seeds, Bankim Prasad Ghosh Seeds Pvt. Ltd., East West Seeds, Taikojin Seeds LLP, Acsen Hyveg Pvt. Ltd, Sungrow Seeds Pvt. Ltd. NSL Seeds Pvt. Ltd and Ajeet Seed. The representatives from seed-companies visited the field of the institute and appreciated the performance of different varieties, hybrids, advanced breeding lines and pre-breeding lines of solanaceous vegetables developed by the institute. The participants thoroughly observed the promising genotypes and expressed their willingness to get the promising advanced breeding lines having high degree of resistance to diseases and pests, high potential and good fruit quality targeting different market segment in

these crops across the country. The delegates had a fruitful interaction with the breeders of the institute and provided critical and valuable feedback on the present market needs in these crops.

Feed the Future- India Triangular International Training Programme (FTF-ITT) organised at ICAR-IIVR, Varanasi

Feed the Future-India Triangular Training Programme (FTF-ITT) on “Production, Processing and Marketing of Organic Vegetables” was organized at ICAR-IIVR, Varanasi for 15 days from. 06-20th February 2018. In this training program, 21 participants from 11 different Afro-Asian



countries including 05 from Afghanistan, 03 from Myanmar, 02 each from Kenya, Uganda, Malawi, Ghana and Sudan, and 01 each from Mongolia, Botswana, Liberia and Democratic Republic of Congo. These participants were selected by MANAGE, Hyderabad based on diverse working areas viz., Planning, Administration, Teaching, Research and Extension in Agriculture, and allied fields namely Livestock, Fisheries, Natural resource management, Nutrition, Agribusiness, Post- Harvest and Values Addition, Marketing etc. The training program was inaugurated by Prof. Panjab Singh, Former Secretary, DARE and DG, ICAR, New Delhi and Chancellor, RLB CAU, Jhansi and President, NAAS as Chief Guest on 7th February, 2018. Dr BK Pathy, Director, Agricultural Marketing, MANAGE, Hyderabad was the Guest of Honour in the inaugural session.

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North Zone Regional Farmer's Fair-2018 organised by ICAR-IIVR

Hon'ble Union Minister for Agriculture and farmers welfare Shri Radha Mohan Singh inaugurated the North Zone Regional Farmers Fair 2018 in Varanasi in the presence of Shri Surya Pratap Shahi, Minister of Agriculture, Government of Uttar Pradesh on 23rd February. The farmer's fair was organized by ICAR-Indian Institute of Vegetable Research, Varanasi in collaboration with PPV&FRA, New Delhi; Department of Agriculture and Co-operation, Ministry of Agriculture and farmer welfare, Govt. of India, New Delhi; Department of Agriculture, Govt. of Uttar Pradesh and APIV, Varanasi. Shri Radha Mohan Singh, while addressing the farmers said that the farmer fair is important for gaining the current technological knowledge. He also briefed about the various schemes launched by the Govt. to achieve the target of doubling the farmers' income by 2022. He advocated the farmers to prepare the soil health card for proper management of soil health and to reduce the production cost by 8-10%. He highlighted few of the schemes like Pradhan Mantri Fasal Bima Yojna, Operation Green, e-NAM, Gokul Gram Nirman and other schemes related to fishery, beekeeping, horticulture, watershed management, etc. Dr Bijendra Singh, Director, ICAR-IIVR in his welcome address highlighted the importance of horticultural crops in doubling the farmers' income. He also said that for sustainable agriculture, diversified farming including dairy, beekeeping, poultry, fishery, etc. is the need of the hour. 'SabjiGyan' a mobile App developed by ICAR-IIVR in collaboration with TCS has been launched by Shri Radha Mohan Singh on this occasion. The App will be useful to vegetable growing farmers where they can simply ask their queries by voice messages. 70,000 farmers have already connected to this App. On this occasion, several farmers at national and state level were awarded with medals for innovative farming and setting the role model for other farmers. A special award, Pandit Deen Dayal Upadhyay Antyoday



Krushak Puraskar was awarded to Miss Rupkala Devi from Varanasi for her enormous contribution in family farming. On this occasion Shri Anil Rajbhar, Minister for Food Processing, Govt. of UP, Shri Ravindra Jaiswal, MLA, Shri Surendra Singh, MLA, Shri Chet Narayan Singh, MLC, Shri Kedar Nath Singh, MLC, Smt Aparajita Sonkar, Jila Panchayat Adhyaksh and Dr KV Prabhu, Chairman, PPVFRA, New Delhi were present.

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भारतीय सब्जी अनुसंधान संस्थान, वाराणसी में किसानों ने सुना माननीय प्रधानमंत्री जी का सम्बोधन एवं लिया मधुमक्खी पालन का प्रशिक्षण

दिनांक 17 मार्च 2018 को माननीय प्रधानमंत्री श्री नरेन्द्र मोदी जी ने कृषि उन्नति मेला 2018 का अवलोकन किया, जिसका आयोजन भारतीय कृषि अनुसंधान संस्थान, पूसा, नई दिल्ली द्वारा किया गया था। इस अवसर पर प्रधानमंत्री जी ने देश के किसानों एवं वैज्ञानिकों को दिल्ली से ही सम्बोधित किया। प्रधानमंत्री के इस सम्बोधन के सजीव प्रसारण को भारतीय सब्जी अनुसंधान संस्थान, वाराणसी में एलसीडी लगाकर किसानों वैज्ञानिकों तकनीकी अधिकारियों एवं छात्रछात्राओं को दिखाया गया। इस अवसर पर प्रधानमंत्री द्वारा 25 कृषि विज्ञान केन्द्रों की आधारशिला रखी गयी एवं कार्बनिक फसल उत्पाद के विक्रय एवं उत्पादन के लिए एक डिजिटल पोर्टल का उद्घाटन किया गया। अपने सम्बोधन में प्रधानमंत्री जी ने किसानों की आय बढ़ाने के लिए चार स्तरीय योजनाओं पर ध्यान आकर्षित किया। प्रथम. ऐसे कौन.कौन से कदम उठाये जाये जिनसे खेती पर होने वाला खर्च कम हो, द्वितीय. ऐसे कौन.कौन से कदम उठाये जाये जिनसे उन्हें अपनी उपज की उचित कीमत मिले, तृतीय. खेत से लेकर बाजार तक पहुंचाने के बीच फसलों, फलों, सब्जियों की जो बर्बादी होती है उसे कैसे रोका जाये, चौथा. ऐसा क्या तकनीक अपनायी जाए जिससे किसानों की अतिरिक्त आय हो इस अवसर प्रधानमंत्री ने कहा कि किसानों की आय में सुधार के लिए इनपुट लागत में कमी, उत्पादन



के लिए उचित मूल्य सुनिश्चित करना और आय के वैकल्पिक स्रोत बनाना जिससे किसानों को अतिरिक्त आय हो। प्रधानमंत्री ने बताया कि देश के 22 हजार ग्रामीण बाजारों को जरूरी इंफ्रास्ट्रक्चर

के साथ विकसित किया जा रहा है जिन्हे ई.नाम प्लेट फार्म के साथ जोड़ दिया जायेगा। खेत के 5 से 15 किलोमीटर के दायरे में किसान के पास ऐसी व्यवस्था होगी जो किसानों को देश के किसी भी बाजार से जोड़ देगी। सरकार FPO को बढ़ावा दे रही है जिससे किसान अपने क्षेत्र में अपने स्तर पर छोटे-छोटे संगठन बनाकर भी ग्रामीण बाजारों एवं बड़ी मण्डियों से जुड़ जाये। इस अवसर पर फार्मस फस्ट कार्यक्रम के अन्तर्गत मधुमक्खी पालन: सब्जी उत्पादन एवं जीविकोपार्जन का आधार विषय पर प्रशिक्षण कार्यक्रम का आयोजन किया गया। इस कार्यक्रम के मुख्य अतिथि श्री सुरेन्द्र नारायण सिंह, माननीय विधायक, रोहनिया, वाराणसी थे। इस अवसर पर संस्थान के कार्यवाहक निदेशक डा. ए. बी. राय ने मुख्य अतिथि एवं अन्य गणमान्य लोगों का स्वागत किया एवं संस्थान के उपलब्धियों के बारे में बताये।

Farming System Research was emphasised during Kisan Mela cum Kisan Sangosthi at Sonbhadra

ICAR-IIVR organised Kisan Mela cum Kisan Sangosthi for the tribal farmers of Sonbhadra district of Uttar Pradesh on 28-29th March 2018 under TSP programme. Director, ICAR-IIVR, Dr. B. Singh was the chief guest of the function. More than 3000 tribal farmers participated in that occasion. Technical sessions on different aspects of vegetable production were conducted by the scientists emphasising the farming system research. Besides technical sessions, vegetable showcasing was also arranged to demonstrate the improved vegetable varieties developed by IIVR. Farmers shared their experiences about the benefits they are getting from the TSP programme and progressive farmers were awarded for outstanding vegetable farming with scarce resources of that region.



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कृषि मंत्रालय के अधिकारियों द्वारा भा.कृ.अनु.प.-भारतीय सब्जी अनुसंधान संस्थान का राजभाषा सम्बन्धी कार्यों का निरीक्षण

कृषि मंत्रालय, भारत सरकार के सहायक निदेशक डा. पूरन सिंह एवं श्री दीपक कुमार खत्री, वरिष्ठ हिन्दी अनुवादक, कृषि अनुसंधान एवं शिक्षा विभाग (डेयर), नई दिल्ली द्वारा संस्थान का राजभाषा सम्बन्धी निरीक्षण दिनांक 19 एवं 20 अप्रैल, 2018 को किया गया। संस्थान के निदेशक डा. बिजेन्द्र सिंह की अध्यक्षता में निरीक्षण अधिकारियों, संस्थान के विभागाध्यक्षों, वरिष्ठ प्रशासनिक अधिकारी एवं राजभाषा कार्यान्वयन समित के सदस्यों की उपस्थिति में एक बैठक आयोजित की गयी, जिसमें निदेशक महोदय ने संस्थान में राजभाषा से सम्बन्धित किये जा रहे कार्यों की जानकारी दी। इसके बाद सहायक निदेशक, राजभाषा ने अपने सम्बोधन में सभी विभागाध्यक्षों का अनुसंधान कार्यों में राजभाषा कार्यान्वयन बढ़ाने तथा वरिष्ठ प्रशासनिक अधिकारी से सभी प्रशासनिक कार्यों को राजभाषा/द्विभाषी में करने के लिए आग्रह किया। इसके साथ ही उन्होंने राजभाषा कार्यान्वयन समित के राजभाषा कार्यान्वयन के लिए राजभाषा वार्षिक कार्यक्रम में दिये गये लक्ष्यों को पूर्ण करने का आग्रह किया।

राष्ट्रीय कृषि विज्ञान अकादमी-वाराणसी अध्याय का शुभारम्भ एवं किसान कल्याण दिवस का आयोजन

राष्ट्रीय कृषि विज्ञान अकादमी- वाराणसी अध्याय के क्षेत्रीय कार्यालय का शुभारम्भ भारतीय सब्जी अनुसंधान संस्थान, वाराणसी में दिनांक 02 मई, 2018 को राष्ट्रीय कृषि विज्ञान अकादमी के अध्यक्ष डा. पंजाब सिंह एवं उपाध्यक्ष डा. ए.के. श्रीवास्तव द्वारा किया गया। इस राष्ट्रीय कृषि विज्ञान अकादमी- वाराणसी अध्याय के समन्वयक डा. बिजेन्द्र सिंह, निदेशक, भारतीय सब्जी अनुसंधान संस्थान, वाराणसी हैं। इसके अलावा संस्थान में संचालित भारतीय सब्जी विज्ञान समिति के नये कार्यालय का उद्घाटन डा. कीर्ति सिंह एवं डा. गौतम कल्लू, पूर्व अध्यक्ष, भारतीय सब्जी विज्ञान समिति द्वारा किया गया। इसी अवसर पर संस्थान में संचालित अन्य समिति एसोशिएसन आफ परमोसन्स आफ



इन्वोशन इन वेजीटेबल्स के कार्यालय का उद्घाटन डा. रामबदन सिंह, पूर्व अध्यक्ष, राष्ट्रीय कृषि विज्ञान अकादमी ने किया। उपयुक्त तीनों कार्यालय एक ही भवन में कार्य करेंगे। इस अवसर पर डा. कीर्ति सिंह, पूर्व अध्यक्ष, कृषि वैज्ञानिक भर्ती बोर्ड, नई दिल्ली, डा. रामबदन सिंह, पूर्व

अध्यक्ष, राष्ट्रीय कृषि विज्ञान अकादमी, डा. गौतम कल्लू, पूर्व कुलपति, जबलपुर कृषि विश्वविद्यालय, डा. आई.एस. सोलंकी, सहायक उपमहानिदेशक, भारतीय कृषि अनुसंधान परिषद् एवं वाराणसी अध्याय के अन्तर्गत आने वाले राष्ट्रीय कृषि विज्ञान अकादमी के फेलो उपस्थित रहे। मा. प्रधान मंत्री जी के आह्वान पर ग्राम स्वराज अभियान के अन्तर्गत "सबका साथ, सबका गांव सबका विकास" के मद्देनजर इस अवसर पर किसान कल्याण दिवस का भी आयोजन किया गया। जिसमें संस्थान के वैज्ञानिकों के साथ-साथ काशी हिन्दू विश्वविद्यालय के वैज्ञानिकों गण एवं लगभग 50 किसानों तथा 5 किसान उत्पादक समूह-वाराणसी, गाजीपुर एवं चन्दौली जनपद से भाग लिया। इस अवसर पर वैज्ञानिकों द्वारा सब्जियों के साथ-साथ समेकित कृषि प्रणाली पर चर्चा किया गया जिससे किसानों की आय 2022 तक दुगुनी की जा सके। संस्थान के निदेशक डा. बिजेन्द्र सिंह ने आये हुए सभी गणमान्य लोगों का स्वागत किया एवं अपने सम्बोधन में कहा कि सब्जी एवं अन्य फसलों के उत्पादन के साथ-साथ प्रसंस्करण पर विशेष ध्यान देने की आवश्यकता है। डा. सिंह ने बताया कि किसानों के लिए संस्थान द्वारा मधुमक्खी पालन, सब्जी पौध उत्पादन, वर्मीकम्पोस्ट, सब्जी बीज ग्राम एवं सूक्ष्म जैविकों का व्यवसायिक स्तर पर उत्पादन कर किसान उत्पादक समूह द्वारा किसानों की आय दुगुनी की जा सकती है। संस्थान द्वारा सदैव इन कार्यों के लिए किसानों को प्रशिक्षण के साथ-साथ तकनीकी जानकारी उपलब्ध करायी जा रही है।

Dr. A. K. Singh, DDG (Horticultural Science), ICAR, New Delhi joined Farmer-Scientist interface

Farmer-Scientist interface was organised on 4th May 2018 at Dhanapur village, Varanasi under Farmer FIRST project to sensitize the farmers about nutritional security for better livelihood. DDG (Horticultural Science), ICAR, New Delhi Dr. Anand Kumar Singh was the chief guest of this programme. More than 500 farmers participated in this interface. Besides that, a training programme on seed storage management was also organised. Farmers were sensitised about dry seed storage with zeolite beads. Zeolite beads along with plastic container were distributed among the



farmers. For promotion of organic farming plastic vermicompost pit was also distributed to the farmers.

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Institute biosafety committee meeting held at ICAR-IIVR, Varanasi

The Institute Biosafety Committee Meeting was conducted to review ongoing projects related to transgenic work on 4th May 2018. The meeting was initiated with the introductory remarks by Chairman, IBSC Dr B Singh, Director of the institute. Dr Achuit Kumar Singh, Member secretary, IBSC briefed about the ongoing/proposed rDNA related research work. DBT nominee Prof. RK Asthana, Dept. of Botany, BHU, external expert Prof JP Shahi, Institute of Agricultural Sciences, BHU and the internal committee members of the IBSC Dr AB Rai, Dr Jagdish Singh, Dr PM Singh, Dr Sudhakar Pandey, Dr HC Prasanna and Mr Suhas Karkute participated and gave important suggestions for carrying out rDNA related research work.



IPR awareness and searching web-based IPR databases programme

A programme on IPR awareness and searching web-based IPR databases had been organized by ZTMU unit on 1st June 2018 with the help of M/s Patracode, Bengaluru, who are channel partners of Questel in India. Questel keeps updating tools with new features for an effective and efficient Patent, Design and Trademark search & analysis.

International Yog Day celebrated at ICAR-IIVR

International Yog Day, 2018 was observed at ICAR-IIVR, Varanasi on 21st June, 2018 in the IIVR-BHU Campus Guest House, Sunderbagia, Sunderpur, Varanasi, with great enthusiasm and



participation by the employees of the Institute, including the Guest House Visitors. Various Yogasans including Pranayam, Kapal-Bharati, Surya-Namaskar, Bhujangasan, etc. were practiced by the employees under the able guidance of 2 outside Yog experts. It was emphasized that regular practice of Yogasans would be helpful in cure and prevention of several diseases viz. diabetes, blood pressure, heart & lung related diseases and other common ailments, pains, aches, etc. At the conclusion of the session, all participants resolved to practice yog daily and also pledged to widespread the benefits and practice of Yog amongst their living environment.

20th RAC Meeting conducted at ICAR-IIVR

20th Research Advisory Committee (RAC) Meeting conducted at ICAR-IIVR on 22-23rd June 2018 under the chairmanship of Dr KE Lawande, Former Vice Chancellor, Dr BSKKV, Dapoli, Former Director DOG, Pune. Director ICAR-IIVR, Dr B Singh welcomed the RAC and briefed about the institution activities. Then the Head of the Divisions presented the research activities of the respective divisions. The RAC gave very constructive suggestions to improve the ongoing research programme and also interacted with the scientists of the institute.



Independence Day celebrated at ICAR-IIVR

72th Independence Day of the republic of India was celebrated at ICAR-IIVR, Varanasi with great enthusiasm on 15th August 2018. Director of the institute Dr. B. Singh in his speech told that scientists have work hard for nutritional security of the country. He appreciated the excellent work done by the scientists for the farmers.



Pledge in Sadbhawna Diwas

The birth anniversary of ex-Prime Minister, Government of India (Late) Shri Rajiv Gandhi is observed as “Sadbhavana Diwas” on 20th August, every year. The theme of Sadbhavana is to promote National Integration and Communal Harmony among people of all religions, languages and regions. The idea behind observance of “Sadbhavana Diwas” is to eschew violence and to promote goodwill among the people. On this occasion, a Pledge taking ceremony had been observed on 20th August 2018 at 10.30 A.M. in this Institute.



राजभाषा कार्यशाला

भा. कृ. अनु. प. – भारतीय सब्जी अनुसन्धान संस्थान, वाराणसी (उत्तर प्रदेश) द्वारा दिनांक २४/०८/२०१८ को संस्थान में एक दिवसीय राजभाषा कार्यशाला का आयोजन किया गया। इस कार्यशाला का विषय “राजभाषा हिंदी के प्रगामी प्रयोग को बढ़ावा” देना था। इस कार्यशाला के मुख्य अतिथि प्रोफेसर ओम प्रकाश सिंह, निदेशक, हिंदी पत्रकारिता संस्थान, महात्मा गाँधी काशी विद्यापीठ, वाराणसी तथा विशिष्ट अतिथि डॉ. संजय सिंह, सचिव, नराकास, डीजल लोकोमोटिव वर्क्स, वाराणसी थे। इस कार्यशाला में संस्थान तथा इससे जुड़े के. वी. के. एवं क्षेत्रीय केन्द्र, सरगटिया के १६ प्रतिभागियों ने भाग लिया। अपने उद्घाटन संबोधन में संस्थान के निदेशक एवं अध्यक्ष, राजभाषा कार्यान्वयन समिति, डॉ. बिजेन्द्र सिंह ने सभी अतिथियों एवं प्रतिभागियों का स्वागत किया। उन्होंने बताया कि संस्थान द्वारा किसानों के लिए विकसित तकनीकों को उन तक प्रभावी रूप से पहुंचाने के लिए हिंदी में कृषि साहित्यों का प्रकाशन किया जा रहा है। कार्यशाला को दो सत्रों में विभाजित किया गया था जिसमें प्रथम सत्र “हिंदी लेखन में सामान्य त्रुटियाँ एवं समाधान” एवं द्वितीय सत्र “कार्यालयीन एवं वैज्ञानिक शब्दावलियों का प्रयोग” विषय पर केन्द्रित था। विशिष्ट अतिथि ने अपने व्याख्यान में हिंदी के भाषा विज्ञान की कृषि में महत्ता को बताया। मुख्य



अतिथि ने वेदों में सब्जी कृषि के ज्ञान को बताते हुए हिंदी में संस्थान द्वारा किसानों हेतु उपयोगी साहित्य लेखन की सराहना की। डॉ. सुरेश कुमार वर्मा ने व्याख्यान में प्रसाशनिक कार्यों में हिंदी की शब्दावलियों के प्रयोग को बढ़ावा देने का अनुरोध किया। डॉ. ए. एन. त्रिपाठी ने वैज्ञानिक लेखन में हिंदी की शब्दावलियों के प्रयोग और संभावनाओं पर व्याख्यान दिया। इस कार्यक्रम में निदेशक महोदय ने सभी प्रतिभागियों को प्रमाण पत्र प्रदान किया।

माननीय केन्द्रीय कृषि एवं किसान कल्याण मंत्री ने वाराणसी में आयोजित “बदलता बनारस” - कृषक कल्याण कार्यशाला का किया शुभारम्भ

माननीय केन्द्रीय कृषि एवं किसान कल्याण मंत्री श्री राधा मोहन सिंह जी ने बड़ालालपुर, वाराणसी में आयोजित “बदलता बनारस-कृषक कल्याण कार्यशाला” का शुभारम्भ 14 सितम्बर 2018 को बतौर मुख्य अतिथि किया। इस कार्यक्रम में बनारस के तीन ब्लॉक आराजीलाइन, सेवापुरी एवं काशी विद्यापीठ के लगभग 6300 किसानों ने भाग लिया। इस कार्यक्रम में केन्द्र एवं प्रदेश सरकार के विभिन्न विभागों के 13



स्टाल लगाये गये थे। इस अवसर पर बोलते हुए मा. केन्द्रीय कृषि मंत्री ने भारत सरकार एवं कृषि मंत्रालय द्वारा किसानों हेतु चलाई जा रही कई महत्वाकांक्षी परियोजनाओं जैसे फसल बीमा योजना, मृदा स्वास्थ्य कार्ड योजना, गोकुल ग्राम योजना, पशुधन बीमा योजना, राष्ट्रीय कृषि बाजार, मधुमक्खी पालन, दुग्ध, मछली पालन एवं कृषक उत्पादक संगठन योजना के अन्तर्गत किसानों को प्राप्त हो रहे लाभों के बारे में बताया। मा. मंत्री जी ने कहा कि नीम कोटेड यूरिया के प्रयोग से यूरिया के खपत में 10 प्रतिशत तक की कमी आई है। मृदा स्वास्थ्य प्रबंधन हेतु मृदा स्वास्थ्य जाँच के लिए 10 हजार प्रयोगशालायें चलायी जा रही हैं और किसानों को मृदा स्वास्थ्य कार्ड प्रदान किया जा रहा है। परम्परागत कृषि विकास योजना के अन्तर्गत जैविक खेती का क्षेत्रफल बढ़ रहा है जिससे किसान अपने उत्पादों का बाजार में उचित मूल्य प्राप्त कर रहे हैं। किसानों से जल प्रबंधन के माध्यम से धान एवं गेहूँ की खेती में सब्जियों की खेती एवं मत्स्य पालन के भी समावेशन करने का अनुरोध किया। राष्ट्रीय गोकुल मिशन के अन्तर्गत गंगा तीरी गायों के संवर्धन एवं नस्लों के उन्नयन हेतु 'प्रोजेन सार्टेड सीमेन' के प्रयोग

से गायों को गर्भित करने से बछड़ों के बजाय बछियों का जन्म होगा जिससे बछड़ों की वजह से खेती में हो रही समस्याओं का समाधान हो सकेगा। इस अवसर पर मा. मंत्री जी ने सभी किसानों एवं हित ग्राहियों की समस्या भी सुनी एवं किसानों से समस्या के समाधान के सुझाव भी मांगे एवं कार्यशाला में आयोजित कृषि संगोष्ठी के माध्यम से किसानों को उनकी विभिन्न समस्याओं को विशेषज्ञों के साथ परिचर्चा के माध्यम से समाधान प्राप्त करने का अनुरोध किया। उन्होंने कहा कि अन्नदाता किसान कृषि को व्यवसायिक रूप में अपनाकर देश की खाद्य एवं पोषण सुरक्षा को सुदृढ़ कर माननीय प्रधानमंत्री जी के 'वर्ष 2022 तक कृषि से किसानों की आय दो गुनी' करने के स्वप्न को साकार कर सके। प्रगतिशील किसानों ने सब्जी उत्पादन, मत्स्यिकी, दुग्ध उत्पादन, मधुमक्खी पालन आदि से जुड़ी अपनी सफलता की कहानी भी सुनाया।

भारतीय सब्जी अनुसंधान संस्थान, वाराणसी में हिन्दी चेतना मास का शुभारम्भ

भारतीय सब्जी अनुसंधान संस्थान में हिन्दी चेतना मास का शुभारम्भ 14 सितम्बर 2018 को हिन्दी दिवस के उपलक्ष्य में मुख्य अतिथि प्रो. रामकली सराफ, विभागाध्यक्षा, हिन्दी विभाग, कला संकाय, काशी हिन्दू विश्वविद्यालय, वाराणसी के उद्बोधन से हुआ। यह कार्यक्रम 12 अक्टूबर, 2018 तक आयोजित किया जायेगा जिसमें दैनिक व कार्यालयीन कार्यों में हिन्दी को अपनाने एवं इसके प्रचार-प्रसार को बढ़ावा मिल सके। मुख्य अतिथि ने कहा कि हिन्दी दूब जैसी है जो सर्वाधिक जनमानस को समेटे हुये है। यह ज्ञान-विज्ञान की भाशा ही नहीं अपितु भारतीयता एवं भारतीय संस्कृति की भी प्रतीक है। इसकी जड़े जनता के भीतर है। हमारा संवैधानिक दायित्व है कि अनुवाद की गाथा को समाप्त कर सीधे हिन्दी में लेखन पठन-पाठन एवं संवाद की सहायता से इसे अधिक जनसंचारी बनाने हेतु दृढ़संकल्पित होना चाहिये। इस अवसर पर संस्थान के कार्यवाहक निदेशक डा सुरेश कुमार वर्मा ने स्वागतीय सम्बोधन में संस्थान में हिन्दी में हो रहे कार्यों की समीक्षा एवं हिन्दी चेतना मास की विस्तृत रूप-रेखा प्रस्तुत किया।



श्रीमती ए. नीरजा, अतिरिक्त सचिव, कृषि एवं किसान कल्याण मंत्रालय द्वारा 'एग्रो वेस्ट कन्वर्टर' का उद्घाटन

भा.कृ.अनु.प.-भारतीय सब्जी अनुसंधान संस्थान, वाराणसी द्वारा सब्जियों की जैविक खेती पर शोध कार्य पिछले कई वर्षों से चल रहा है। इसके अन्तर्गत

संस्थान पर समुचित फसल अवशेष के विभिन्न माध्यमों जैसे नाडेप कम्पोस्ट, वर्मी कम्पोस्ट आदि के द्वारा कार्बनिक खाद बनाया जाता है जिसमें समय अधिक लगता है। इसी क्रम में फसल अवशेष को कम समय में उच्च गुणवत्ता के कार्बनिक खाद में परिवर्तित करने वाली मशीन' एग्रो वेस्ट कन्वर्टर' का उद्घाटन श्रीमती



ए. नीरजा, अतिरिक्त सचिव, कृषि सहकारिता एवं किसान कल्याण विभाग, कृषि एवं किसान कल्याण मंत्रालय, भारत सरकार द्वारा 14 सितम्बर 2018 को संस्थान के शोध प्रक्षेत्र पर किया गया। इस अवसर पर वैज्ञानिकों से विचार-विमर्श करते हुए श्रीमती ए. नीरजा ने कहा कि यह एक सराहनीय कदम है। इस प्रकार की मशीनों का कालोनियों में उपयोग कर कचरा प्रबंधन एवं स्वच्छ भारत अभियान में योगदान करने की क्षमता है। भा.कृ.अनु.प.-भारतीय सब्जी अनुसंधान संस्थान के निदेशक डा. बिजेन्द्र सिंह ने बताया कि संस्थान जैविक खेती पर किसानों एवं अधिकारियों के लिए प्रशिक्षण कार्यक्रम आयोजित करता है, आने वाले दिनों में किसानों को इस मशीन के द्वारा फसल अवशेष प्रबंधन का समुचित प्रशिक्षण दिया जायेगा जिससे की किसान अपने खेतों पर ही फसल अवशेष को अच्छी गुणवत्ता के कार्बनिक खाद में परिवर्तित कर पायेंगे।

भा.कृ.अनु.प.- भारतीय सब्जी अनुसंधान संस्थान, वाराणसी ने मनाया अपना 28वाँ स्थापना दिवस

भा.कृ.अनु.प.- भारतीय सब्जी अनुसंधान संस्थान, वाराणसी ने दिनांक 28 सितम्बर, 2018 को अपना स्थापना दिवस मनाया। इस समारोह का शुभारम्भ मुख्य अतिथि माननीय डॉ.

मंगला राय, पूर्व-सचिव, कृषि अनुसंधान एवं शिक्षा विभाग एवं महानिदेशक, भारतीय कृषि अनुसंधान परिषद् ने दीप प्रज्वलित कर किया। इस अवसर पर मुख्य अतिथि डा. राय



ने प्रसंस्करण, मूल्य संवर्धन, बीज उत्पादन द्वारा किसानों को प्राप्त होने वाले लाभों को बताया। उन्होंने किसानों की आमदनी में वृद्धि के लिये उन्नत तकनीकों को अपनाने, आपदा प्रबंधन एवं संवेदी सूचना तंत्र को अपनाने के मूलमंत्रों की जानकारी दी। उन्होंने कृषि, बागवानी, दुग्ध उत्पादन, अण्डा एवं मछली उत्पादन के क्षेत्र में आशातीत वृद्धि की सराहना करते हुये आय बढ़ाने की दिशा में अनुसंधान कार्य करने का अनुरोध किया।

मृदा के स्वास्थ्य प्रबंधन के लिये सूक्ष्म तत्वों की आवश्यकता एवं जीवाणुओं की महत्ता को बताया। जलवायु परिवर्तन के कृषि पर प्रतिकूल प्रभाव के प्रबंधन हेतु कृषि में सूक्ष्मजीवों के अनुप्रयोग हेतु अनुसंधान कार्य करने की सलाह दी। समारोह के विशिष्ट अतिथि पूर्व उप महानिदेशक (उद्यान), डा. गौतम कल्लू ने कहा कि संरक्षित खेती कर सब्जियों की उत्पादकता बढ़ाई जा सकती है। उन्होंने टमाटर की फसल में विषाणुओं के प्रकोप से होने वाली आर्थिक क्षति को बताते हुये रोग रोधी किस्मों को लगाने का आग्रह किया। इस अवसर पर भारतीय सब्जी अनुसंधान संस्थान के निदेशक, डा. बिजेन्द्र सिंह ने अतिथियों का स्वागत करते हुए संस्थान की स्थापना से लेकर अब तक हुए शोध एवं विकास कार्यों के बारे में बताया। उन्होंने वैज्ञानिक शोध एवं मेरा गाँव मेरा गौरव व फार्मर्स फर्स्ट जैसे प्रसार कार्यक्रमों द्वारा किसानों को हो रहे लाभों को बताया। अपने सम्बोधन में उन्होंने कहा कि संस्थान ने अब तक सब्जियों की 68 किस्मों को विकसित किया है जिसमें से 39 किस्मों के प्रजनक बीज का उत्पादन किया जा रहा है। कटाई उपरान्त प्रौद्योगिकी के अन्तर्गत ब्रोकली के परिरक्षण हेतु तकनीक विकसित की गयी है जिसमें ब्रोकली को 49 दिनों तक 3-10 डिग्री सेल्सियस तापक्रम पर भण्डारित किया जा सकता है। इस अवसर पर दक्षिण एशिया क्षेत्रीय केन्द्र, अन्तर्राष्ट्रीय चावल अनुसंधान संस्थान, वाराणसी के निदेशक डा. यू.एस. सिंह भी उपस्थित रहे। इस अवसर पर प्रगतिशील किसानों में मल्लूडीह, कुशीनगर के श्री हरिनारायण कुशवाहा एवं धानापुर के श्री प्रेम कुमार सिंह व श्रीमती रमा देवी एवं रामरक्षा (भालूकूदर) व श्रीमती सुनीता देवी (पटरज) को प्रशस्ति पत्र देकर सम्मानित किया। इस अवसर पर वाराणसी एवं सोनभद्र जिलों के 450 किसान उपस्थित रहे। इस अवसर पर संस्थान में विज्ञान के क्षेत्र में उत्कृष्ट कार्य हेतु डॉ. अवधेश बहादुर राय, प्रधान वैज्ञानिक (सब्जी फसल संरक्षण), कृषि प्रसार हेतु डॉ. राजेन्द्र प्रसाद, कृषि विज्ञान केन्द्र (भदोही) एवं डॉ. अनुराधा रंजन, कृषि विज्ञान केन्द्र (देवरिया), तकनीकी वर्ग में श्री सुभाष चन्द्र एवं प्रशासनिक वर्ग में श्री सुशील गुप्ता एवं सह कर्मचारी वर्ग में श्री जटाशंकर पाण्डेय को प्रशस्ति पत्र देकर सम्मानित किया गया।

Honey processing plant along with bottling machine installed at ICAR-IIVR, Varanasi

A Centre of excellence (COE/IBDC) on bee keeping has been established at ICAR-IIVR, Varanasi. Honey processing plant along with bottling machine has been successfully

installed on 23 October, 2018. The processing plant is semi-automatic and it can process 500 kg honey per day. Dr. Bijendra Singh, Director of institute has explained that the honey processing plant can be utilized for processing of honey. Besides this, it can be utilized for the training purpose to the farmers, bee-keepers and other stakeholders involved in bee-keeping. In addition to this, processing plant and bottling machine can be utilized on a service basis in the region. The honey processed from this plant is free from wax and other impurities and it can be directly utilized for commercial sale.



Krishak Jagrukta Abhiyan (Badalta Banaras) Farmer-Scientist interaction organised by ICAR-IIVR, Varanasi for Participatory Technology Development (PTD)

One of the biggest outreaches programmes of ICAR-Indian Institute of Vegetable Research, Varanasi was Krishak Jagrukta Abhiyan (Badalta Banaras) in Varanasi districts of Uttar Pradesh. Kisan Gosthis and farmer-scientist interactions were organised to solve the grass-root problems of the farmers, sensitize them about good agricultural practices and a path finder towards doubling farmer's income up to 2022 which is dream of our Hon'ble Prime Minister of India. This programme was conducted in three phases. On 15-16 November 2018 programme was conducted in 12 Naya Panchayat, 86 Gram Panchyat and 175 villages of Sewapuri block in which 2650 farmers participated. During 28-30 November 2018 programme was conducted in 16 Naya



Panchayat, 117 Gram Panchayat and 216 villages in which 5800 farmers participated. And in the last phase on 15th December 2018, programme was conducted in 8 Naya Panchayat, 56 Gram Panchayat and 72 villages in which 2418 farmers participated. In total 36 Naya Panchayat, 259 Gram Panchayat and 463 villages were covered under Krishak Jagrukta Abhiyan in which 10868 farmers participated. Team of scientists from ICAR-IIVR visited consecutively the fields of farmers of Varanasi district and organised Krishak Jagrukta Abhiyan (Farmer-Scientist interface) to pave the way of modern agriculture. Not only ICAR-IIVR, but experts from other organizations like Institute of Agricultural Sciences, Banaras Hindu University, ICAR- Indian Institute of Seed Science, Mau, ICAR-National Bureau of Agriculturally Important Microorganism, Mau, ICAR- Central Institute of Subtropical Horticulture, Lucknow, ICAR- Indian Institute of Wheat and Barley Research, Karnal, ICAR Research Complex for Eastern Region, Patna



also collaborated in this mega programme. Lectures on different aspects were delivered by the scientists to boost up modern agriculture technologies like improved vegetable production technology, organic agriculture, integrated disease and pest management, scientific seed production and storage, post-harvest technology, soil health maintenance and importance of soil health card, farm waste management and production of vermicompost, precision farming, weed management, importance of microorganism and bio agents, cropping system and cropping sequences, farm management practices, nursery raising and protected cultivation,



dairy management, backyard poultry, fishery, apiculture, mushroom production and other agriculture related activities.

Awareness generated about importance of vegetable kitchen garden and nutritional garden at the door step of each household. Vegetable kitchen garden packets consisting seeds of improved vegetable varieties developed by ICAR-IIVR were demonstrated to the farmers. Most of the seeds of the vegetable kitchen garden packets are of open pollinated in nature, so that farmers can store their own seed and cultivate in next season. Not only vegetables, seeds of fortified wheat, chick pea, garden pea, saplings of plantation crops like tissue cultured banana, grafted mango and guava also distributed among the farmers as per their need and interest.

AWARDS AND RECOGNITIONS

Indian Society of Vegetable Science (ISVS) recommended various Awards/Fellows for the year 2017 to the following personalities:

- Dr Kirti Singh Life Time Achievement Award-2017 in Vegetable Science to Dr N Rai, PS, IIVR, Varanasi.
- Dr Bishwajit Choudhary Memorial Award-2017 for Outstanding Vegetable Scientist to Dr AT Sadashiva, PS & Head, Division of Vegetable Crops, IHR, Bengaluru.
- Dr Dwarika Nath Memorial Award-2017 to Dr Prerana Thakur, Div. of Vegetable Science, PAU, Ludhiana for best PhD thesis “In-vitro Production of Double Haploids (DH) in Onion (*Allium cepa* L.)” under chairmanship of Dr AS Dhatt.
- Dr Harbhajan Singh Memorial Award-2017 to Dr AS Dhatt, Gagandeep Kaur, MK Sidhu and Sukhninder Kaur for paper “Morphological and molecular characterization of *Solanum melongena* and related species” for best paper published in Vegetable Science 44(1): 1-11.
- ISVS Fellows-2017 conferred to 10 scientists/academicians such as Dr SK Sanwal, PS,

CSSRI, Karnal; Dr Rajesh Kumar, PS, IIVR, Varanasi; Dr Narayan Chawda, VNR Seeds, Raipur; Dr Anant Bahadur, PS, IIVR, Varanasi; Dr MV Prasad, Head, Dept. of Horticulture, SHUATS, Allahabad; Dr AK Sureja, PS, Division of Vegetable Science, IARI, New Delhi; Dr Dharendra Kr Singh, Professor, Dept. of Vegetable Science, GBPUAT, Pantnagar; Dr S Nirmala Devi, Professor, Department of Vegetable Science, KAU, Kerala; Dr Neeraj Singh, PS, IIVR, Varanasi; and Dr S Satpathy, Head, Crop Protection, CRIJAF, Barrackpore.

APPOINTMENT/ TRANSFER/ RETIREMENT

Appointment	Date of Joining
Dr. Swati Sharma, Scientist	02.07.2018
Dr. Hare Krishna, PS	14.07.2018
Dr. Indivar Prasad, Scientist	19.07.2018
Sh. Mukesh, Tech. Assistant	29.07.2018
Ms. Poornima, Tech. Assistant	30.07.2018
Sh. Sudhir, Tech. Assistant	13.08.2018
Sh. Prakash Modanwal, Tech. Assistant	27.08.2018
Dr. Sujan Majumdar, Scientist	09.10.2018
Ms. Vijya Rani, Scientist	10.10.2018
Transfer	Date of Relieving
Dr. H.C. Prasanna, PS	29.06.2018
Sh. Y. Bijen Kumar, Scientist	13.07.2018
Retirement	Date of Retirement
Dr. A.B. Rai, Head	31.08.2018
Dr. Rajendra Prasad, PC	30.09.2018

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