



Director's desk

It is gratifying to place before you the first issue of NIBSM Newsletter. The institute is approved in the current five year plan period. The effort to root itself and establish functional campus with residential facilities for academic activities is taken up by the NIBSM team with the support of various arms of Indian Council of Agriculture Research under Department of Agriculture Research and Education.

Born on 7th October, 2012 NIBSM has commenced its march towards integrating research in all areas of biotic stress in agriculture. The Institute is in the process of establishing Institute Management Committee and Research Advisory Committee. The hub & spokes model of identifying problem oriented research shall be taken up with various institutions in network mode.

The progress of the NIBSM depends on the availability of its staff that are approved and recommended by the Expenditure Finance Committee on 25th March, 2012. The government approval to create them along with the approval to purchase its vehicles would give impetus to its progress.

Association of NIBSM with National Institute of Abiotic Stress Management, Baramati and Indian Institute of Agricultural Biotechnology (IIAB), Ranchi as well as with a number of ICAR institutes (deemed universities) as also with promising state agricultural Universities (SAU) is being planned for outreach programmes of research in biotic stress management. The institute shall take up policy research and develop technical papers on issues that have grappled the nation with difficult issues on pesticide use for accelerated production of agricultural commodities. The trident of NIAM, NIBSM and IIAB shall strive for integrated national research plan in solving abiotic and biotic stress response of crops and animals.

I wish to receive comments of readers on the road map of NIBSM.



Dr. T.P. Rajendran
OSD

Institute profile

The **National Institute of Biotic Stress Management at Raipur (Chhattisgarh)** with Deemed University status, is established at Raipur (Chhattisgarh) to utilize cutting-edge scientific approach for solutions to address the emerging health issues of crops and animals. The Expenditure Finance Committee met on 25th March, 2012 and approved the proposal. The Union Cabinet gave approval for the proposal for establishing the National Institute of Biotic Stress Management at Raipur, Chhattisgarh on 23rd August, 2012. The institute is established at an outlay of Rs 121.1 crore in 12th five year plan. The Indian Council of Agricultural Research appointed Dr. T.P. Rajendran, Assistant Director General (Plant Protection) as its Officer-on-Special Duty, since October 2012. In pursuance to this, the Chhattisgarh State government handed over the **Government Rice Research Centre, Baronda (seed) farm** (41.239 ha), vide Department of Agriculture GO No. 1159/F-9-08/BPR/2008/14-2 dated 22-03-2011 to Department Agriculture Research and Education (ICAR), Ministry of Agriculture, Government of India.

Biotic stresses have been the perceived difficulty to achieve genetic potential of crops and animals under captive production system called agriculture. Diseases, pests, ecto / endo-parasites, weeds etc. affect the productivity in agriculture. Farming system-based agriculture demands attention towards mitigation of such biotic stresses, through effective surveillance, forewarning as well as therapeutic solutions. Farmers need to be provided with fresh knowledge on the amelioration from biotic stress as well as to suggest the 'do-s and don't-s', as items of good agricultural practices (GAP) that would reduce the impedance of biotic stresses in their farming and animal world. The threat-perception need to bring forth effective planning of surveillance and disaster management plans for each pest species and its episodes of invasion in various parts of our country, which is sub-continental in size. Several upheaval episodes of pestilence in the past have caused great economic loss to Indian farmers. The overall assessment of such loss and ways and means of their timely mitigation would improve farmers' confidence in bringing better profitability.



Stresses from biotic (biological) origin in all sectors of agriculture have been the challenge for the attaining aspirations for enhancement of productivity of commodities. Pursuit of agriculture is for both livelihood and for commerce to create new ecologies that have impacted on nature. Biological system involves interdependent food chain and food web that self-regulate over-pasturage as well as exhibit the resilient compensation. Plant protection strategies have been hand-in-glove with the farm production strategies that the government pursued over the last few five year plan periods. These have apparently evolved over time in accordance with the demands of biotic stresses in various agro-climatic conditions. Intensification of cropping for apparent reasons shared the threats and risks of crop loss due to intense herbivory (feeding of plant parts) and consequent heart-bum of severe crop loss to farmers. Overemphasis of chemical pest management led to strong ecological lessons that revived the thinking on biological balancing in agro-ecosystems.

The NIBSM is to take up the existing research gap to undertake basic and strategic issues in biotic stress management and health care in agricultural farms. Being deemed-to-be-university in its proposed institutional plan, capacity enhancement and generation of quality human resource to provide a new band of trained manpower with knowledge in integrated management of biotic stresses would be a force to reckon with for farmers. The Government investment besides development of manpower and infrastructure for policy planning research in biotic stress management will create national asset of quality human resource and capacity as a unique institution for plant health care perspectives in the light of changing agro-climate, cropping patterns / systems as well as commercial / trade environments of crop commodities. This Institute will house an interdisciplinary infrastructure that is required for frontier research and applications in crop health related issues and for training students and scientists in cutting edges of interdisciplinary research, translation and service.

Being deemed university, it would take up post-graduate, doctoral and post-doctoral studies in agricultural biosecurity and agricultural biosafety and related subjects. Within this global orientation, access to regional students the Asian and African countries will be emphasized. The educational programme is designed to create for students

amazing opportunities to engage in research where they learn the tools by integrating science, engineering and biology to provide tangible crop health care solutions.

The mandate of NIBSM is to 1) develop academic acumen, core competence and think tank for policy support research to generate impacting management strategies for current plant protection issues in agriculture; 2) establish global capability to attract non-resident, laureate scientists to work in frontier areas of biotic stress biology and 3) rationalisation of inter-disciplinary research in biotic stress management of agriculture so as to format necessary tools and techniques that form the standard operating procedures in conducting experiments.

Technology development through innovation and inter-disciplinary research for development of novel of biotic stress management strategies, bio-security assessment and risk analysis and for rural entrepreneurship development are the proposed output from NIBSM.

Organisational Structure

This management Institute shall be headed by Director, who is equivalent in position to the Deputy Director General in ICAR. The NIBSM shall have five schools, viz., Applied plant health care, Plant health biology, Genomics and bioinformatics, Plant protection nanobiology and Policy research in Biotic Stress Management. Suitable changes in these in accordance with the needs of times shall be made to accommodate priorities and challenges.

They could develop research themes, led by group (Theme) leaders who could be global leaders in the respective fields. These theme leaders shall form research teams to network institutions and scientists from NARS as well as from other systems. Useful discoveries and break-through inventions in specific areas that have eluded solutions are anticipated. The NIBSM shall provide basic infrastructure and facilities to undertake core strategic research on biotic stress organisms of a multidisciplinary nature and act as a mother institute for crop health research in the country. The institute should pioneer and lead the nation in interdisciplinary research to provide holistic and cost-effective solutions for crop health care. Themes across teams have to be identified in order to bring in core research competence in matrix mode.

The research carried out at this institute will be supported through its various programmes and collaborations. The NIBSM may establish a close working relationship with the institutions on Translational Science and Technology Institute



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of Department of Biotechnology, IITs, IIMs and with Biotechnology centers at regional and international level. NIBSM could consider supporting biotic stress research in strategic institutions where partnership is critical for collaborative research and as an endeavor to support research in such institutes and defined as Regional Resource Centres (RRCs), Regional Resource Units (RRUs) and Centres of Excellences (CoEs). It will give access to its technology platforms to scientists from other institutes and R&D system industry. The model of extramural collaborations will be supported through mechanisms such as distinguished professorship, visiting professorship, adjunct professorships, scientist-exchange programmes etc.

Herbivory has been the process of food acquisition by organisms, be it microbes or large animals. Plants trap solar energy to convert into chemical energy in the form starch, protein, sugars and a number of biochemicals that animals instinctively depend for sustaining their health, metabolism and biological needs. The increased expansion of agriculture as commercial enterprise has the impact on over-grazing on crops by many organisms such as insects, mites, nematodes, disease causing microbes and the like. These organisms have become pests in farm lands. The biotic stress in animals includes the diseases and parasites that depend on these large animals for their food and life.

Modern science is closely linked to innovation, enterprise, industrial development and formation of research consortia. Research and innovation are built on partnerships between scientists, venture capitalists, technologists, domain experts, entrepreneurs and regulators. The institute will create facility from which many such partnerships will emerge. As a centre of education, training and research in contemporary areas of innovative crop protection with intimate contributions from the countries of the region and academic institutions from the rest of the world, it would provide a meeting place for innovation, enterprise, and industrial development.

Foundation Stone laying ceremony

The Union Minister for Agriculture and Food Processing Industries, Shri Sharad Pawar laid the Foundation Stone of National Institute of Biotic Stress Management at Baronda, Raipur on 7th October, 2012 in presence of the Dr. Raman Singh, the Chief Minister, Chhattisgarh, Dr. Charan Das Mahant, Minister of State of Agriculture and Food Processing Industries, the State Agricultural Minister, Shri Chandrasekhar Sahoo, Dr. S.



Ayyappan, Secretary, Department of Agriculture Education and Research & Director General, ICAR, Dr. S.K. Datta, Deputy Director General (Crop Science) Dr. S.K. Patil, Vice Chancellor, Indira Gandhi Krishi Vishwavidyalaya, Dr.T.P. Rajendran, Assistant Director General (Plant Protection) / Officer-on-Special Duty and host of senior officials of the Chhattisgarh government and

Indira Gandhi Krishi Vishwavidyalaya.



Shri Sharad Pawar

Shri Sharad Pawar, in his speech, told that Chhattisgarh has great opportunities in Horticulture, Dairy and Fisheries along with post-harvest processing of agricultural commodities. He commended the state for the excellent performance in agriculture sector as also for the record rice production and procurement.

Chhattisgarh has varied type of soil and climate and a very good opportunity to undertake farming of all such crop that have commercial benefit to the farmers. I understand that it is a challenging task as this state has geographical area of 13.8 m ha. Rice is a lifeline of the people of the state. It is cultivated in approximately 3.8 m ha. He

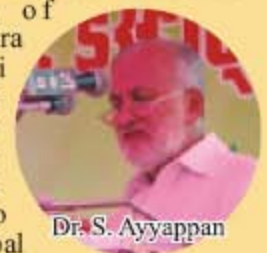
exhorted scientists to utilize the rich rice genetic collection of the agricultural University to breed well adopted rice hybrids and varieties to double the state productivity. He felt that the responsibility of NIBSM and Indira Gandhi Krishi Vishwavidyalaya to work in tandem to achieve the task of developing entrepreneurship-rich agricultural technologies and food processing to benefit its population, having huge tribal and weaker sections is significant. He said that the National Institute of Biotic Stress Management, Raipur is a unique institution that would take up research on biotic stress of national importance and would soon become Deemed University offering academic courses in various areas of biotic



Dr. Charandas Mahant



Dr. Raman Singh



Dr. S. Ayyappan



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stress management. The Chief Minister thanked the Central Government to provide its first ICAR institute during 12th plan period in the form of

National Institute of Biotic Stress Management at Baronda, Raipur. He said that the state's aspiration to achieve greater growth in various fields of agriculture could get a shot in the arm due to this significant move. The State Agriculture Minister spoke about the potential benefits that the people of the state would accrue out of the research and education that would fall in place at this deemed university institution.



Chhattisgarh government hands over land to NIBSM

Chhattisgarh government transferred 41,239 ha land to NIBSM under ICAR in March, 2013 through revenue mutation. The land

transfer through the Memorandum of Understanding to take over 41,239 ha land for NIBSM campus from the Indira Gandhi Agricultural University, Raipur was signed on behalf of ICAR on 16/3/2013 by the Officer-on-Special Duty, NIBSM.

Development of Master plan of NIBSM campus

The Baronda campus would have a master-plan to go in for realistic estimation of the cost for campus development and to see if the approach to establish state of the art pre-fabricated structures to accommodate the requirements of Administrative block, research facilities including the schools/ divisions/ laboratories, field laboratories, modern

insectary, glass houses, greenhouses, poly-houses etc. in the available land resource. The existing structures shall be refurbished and kept serviceable for the full life of the buildings.

Kharif crop plan

Seed production of leading paddy varieties, viz., such as Swarna, Mahamaya, IR-64, PKV-HMT, MTU-1010, MTU-1001 for Chhattisgarh state is proposed. Certain field experiments are proposed for *Kharif* to study the weed seed biology due to herbicide application in rice-wheat cropping system & competitiveness of rice varieties against seasonal weeds. The weed seed biology is medium term study to understand their adaptation to herbicide exposure and agro-techniques.

Posting of Staff

Dr. T.P. Rajendran, Assistant Director General (Plant Protection), ICAR, New Delhi has been given additional charge as Officer-on-Special-Duty, NIBSM, Raipur (C.G.) as per ICAR order No. 114(1)/2012-Per-III dated 10/10/2012.

Shri V.D. Bhiwapurkar, Administrative Officer, has been transferred from Central Institute of Arid Horticulture, Bikaner to NIBSM, Raipur (C.G.) vide ICAR office order No. 3-2/2010 Estt-I dated 23/11/2012 and joined on 14/01/2013.

Shri Krishan Kumar, Senior Finance & Accounts Officer, National Centre for Integrated Pest Management, New Delhi has been authorised with additional charge of SF & AO of NIBSM, Raipur (C.G.) as per ICAR order No. 17(6)/2004-Estt-I dated 29/10/2012

Dr. Vijay Kumar Choudhary, Scientist (Agronomy), has been transferred (vide ICAR office order No.35(148)/06-Per-I dated 03/01/2013 from ICAR Research Complex for NEH Region, Regional Centre, Basar, Arunachal Pradesh to NIBSM, Raipur (C.G.) and joined on 22/02/2013.

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