CITATIONS

ICAR Award Ceremony 2010

Indian Council of Agricultural Research
New Delhi
www.icar.org.in

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शरद पवार
Sharad Pawar

Minister of Agriculture & Consumer Affairs
Food & Public Distribution
Government of India
New Delhi 110 114

MESSAGE

I am pleased to know that the Indian Council of Agricultural Research (ICAR) is organizing its Annual Awards Ceremony, 2010 on 16th July 2010. I extend my heartiest congratulations to all the award-winners who have excelled in their chosen field of work and have been awarded for their outstanding contributions towards agricultural research, education and extension. I am confident that the recognition will lead to enhanced zeal and creative work by the awardees as well as enthuse and encourage others to strive harder for greater accomplishments.

I take this opportunity to send my best wishes to all the scientists and extension workers of agricultural universities and the ICAR, and assure them of my full support in their endeavour.

(SHARAD PAWAR)

5 July 2010
New Delhi

प्रो. के.वी. थॉमस
Prof. K.V. Thomas

Minister of State for Agriculture,
Consumer Affairs, Food & Public Distribution
Government of India
New Delhi 110 114

MESSAGE

I am pleased to know that the Indian Council of Agricultural Research (ICAR) is organizing its Annual Awards Ceremony, 2010 on 16th July 2010. I extend my heartiest congratulations to all the award winners for their significant contributions to agricultural research and development in the country.

Application of science and technology at the farm level through effective strategies assumes special relevance in today's context. I am sure, our agricultural scientists will contribute their best in this endeavour. I extend my best wishes to the award-winners, their families and to all others who are part of the National Agricultural Research System.

(Prof. K.V. Thomas)

30 June 2010
New Delhi

डा. एस. अय्यपन
Dr S. Ayyappan

Secretary, Department of Agricultural Research
& Education and Director General,
Indian Council of Agricultural Research
New Delhi 110 114

FROM THE DG'S DESK

Excellence recognized provides an impetus to higher performance. An appropriate incentive-and-reward system in an organization makes its employees proficient and productive besides job satisfaction. The awards, besides acknowledging merit and accomplishments, accelerate healthy competition among individuals, groups and institutions to attain yet higher levels of excellence in their respective spheres of work.

The Indian Council of Agricultural Research has been recognising researchers and farmers for their outstanding contributions with awards every year. It is a matter of great pleasure to announce that during this year, 130 awardees under 11 different categories have been selected, comprising 5 institutions, 122 scientists and 3 farmers. Out of 122 scientists, 10 are women scientists.

Among the State Agricultural Universities and Deemed Universities, the Best Institution Award has gone to the Indian Veterinary Research Institute, Izatnagar. The major accomplishments of the IVRI include recognition of High Security Animal Disease Laboratory (HSADL), Bhopal, as OIE approved reference laboratory, seventh in the world, for highly pathogenic avian influenza diagnosis. The Central Soil Salinity Research Institute, Karnal, has been adjudged as the Best ICAR

institution for its achievements in reclamation and management of salt-affected soils of India. Among smaller institutions, the Central Agricultural Research Institute, Port Blair, and Indian Institute of Spices Research, Calicut, have been bestowed jointly with Best Institution Award. The CARI contributed for increasing productivity in agriculture sector in Andaman & Nicobar Islands and the IISR has established the largest collection of spices germplasm in the world.

Chaudhary Devi Lal Outstanding AICRP Award has been bagged by All India Co-ordinated Research Project for Dryland Agriculture, Hyderabad, for developing location-specific technologies in rainwater management.

Jawaharlal Nehru Awards for high quality Ph.D. theses are to be given to 18 scholars, of which four are women scientists. There are also two women awardees for Panjabrao Deshmukh Woman Agricultural Scientist Award. The Vasantrao Naik Award for Research Applications in Dryland Agriculture for 2009 has gone to the research team from the Central Research Institute for Dryland Agriculture, Hyderabad.

The Jagjivan Ram Kisan Puraskar has been awarded to two farmers, one from Bihar and the other from Andaman & Nicobar Islands. The N.G. Ranga Award for Diversified Agriculture has been awarded to a farmer from Andhra Pradesh.

The ICAR Team Research Award has been bagged by eleven research teams: two in Crop Improvement, one in Natural Resources, two in Engineering and Technology (jointly), two in Horticulture (jointly), one in Fisheries, two in Animal Production and Health, and one in Social Sciences.

The Fakhruddin Ali Ahmed Award for Outstanding Agricultural Research in Tribal Areas has been bagged by two teams of the Scientists from the NEH Region. One

team worked on rice based tribal farming system and the other on pork production.

Six teachers have been selected for the Bharat Ratna Dr C. Subramaniam Award in Crop Science (2), Resource Science (1), Fisheries (1), Veterinary and Animal Science (2).

The authors of four technical books in Hindi, one each in Crop Science, Horticulture, Animal Production and Fisheries have been selected for Dr Rajendra Prasad Puruskar.

I congratulate all the awardees and their family members and hope that these awards will encourage them to achieve new heights in future and would also inspire their colleagues to pursue excellence. The Council sincerely thanks Chairpersons and Members of all the Judging Committees who finalized awardees after a careful evaluation.

1 July 2010
New Delhi

(S. AYYAPPAN)

PREFACE

The ICAR has instituted several awards to recognize extraordinary contributions of scientists, innovative farmers, teachers, women scientists institutions and technical books in Hindi. Some awards are given annually and the others are biennial in nature. The procedure for selecting awardees is a long drawn process and requires meticulous planning and diligent efforts. It starts with national advertisement of awards in the month of October each year and culminates with award ceremony in the month of July next year. In between applications are received, scrutinized and are submitted for careful evaluation by the judging committees. The judging committees are chaired by an eminent scientist of a national stature and 3–5 members, reputed experts in their fields.

The main contributions of the awardees are compiled in the book entitled CITATIONS. We feel that achievements presented in the book would not only satisfy the awardees but would also provide new and emerging areas of work to other scientists, farmers and institutions. We express our sincere gratitude to Dr S Ayyappan, Secretary, DARE and DG, ICAR, for continuous encouragement and guidance and Shri R.K. Mehrishi, Additional Secretary, DARE & Secretary, ICAR, for useful suggestions from time-to-time. The efforts made by Mrs Tandra Bhattacharya, Shri D.D. Sharma, Shri T.C. Tanwar of Award Cell and Shri V.K. Bharti and Shri Ashok Shastri of the DIPA in bringing out this publication, deserve appreciation.

Ravindra Kumar
Principal Scientist (CDN)

N.B. Singh
ADG (Coordination)

SARDAR PATEL OUTSTANDING ICAR INSTITUTION AWARD 2009

Award 2009

THE Indian Council of Agricultural Research (ICAR) is an apex body for coordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences in the country. With 49 research institutes, 11 project directorates, 30 national research centres, 41 state agricultural universities and 1 central agricultural university, it is one of the largest agricultural research systems in the world. In order to recognize the outstanding performance in agriculture, research and education and to promote a sense of partnership, competition, pride and belonging in the mind of the staff, the ICAR has instituted the Sardar Patel Outstanding ICAR Institution Award. Three Awards, one each for Large Institute, Small ICAR Institute and to State Agricultural University/Deemed University, are awarded annually for the best performance in the agricultural research and education in the preceding ten years. Each Award consists of a cash prize of Rs 5 lakh, citation and a shield. The award has been named after Sardar Vallabhbhai Patel (1875-1950), the first Deputy Prime Minister and Home Minister of India.

In all 20 applications were received and the winners for the Sardar Patel Outstanding ICAR Institution Award 2009 with their significant contribution are:

Indian Veterinary Research Institute
Izatnagar 243 122
Uttar Pradesh

AMONG SAUs and 4 Deemed Universities, the Sardar Patel Outstanding ICAR Institution Award 2009 is bestowed upon the Indian Veterinary Research Institute (IVRI), Izatnagar. The highlights of the IVRI's major accomplishments include, recognition of HSADL, Bhopal, as OIE approved 7th such Reference Lab for HPAI diagnosis in the world, ISO 9001-2000 certification of CADRAD (2004), technology development of Bird flu vaccine, small ruminant vaccines (PPR, HPGP, Orf) and improved vaccines for cattle and buffalo (FMD, HS), pigs (Swine fever), camel (pox), platform diagnostic technologies based on nucleic acid, recombinant protein, monoclonal antibodies and synthetic peptides for major viral, bacterial and parasitic diseases of livestock and poultry. The institute has 3 patent grants, 37 patent application submissions and licensing of 5 technologies to 17 commercial houses on non-exclusive basis.

AMONG the large institutes, Sardar Patel Outstanding ICAR Institution Award 2009 is bestowed upon the Central Soil Salinity Research Institute (CSSRI), Karnal, for its remarkable achievements in reclamation and management of 1.8 million ha of salt-affected soils of India. The institute developed technologies for use of poor quality water, urban/industrial effluents, waste water through chemical and bio-remediation approaches in different agro-ecological situations of the country.

Six varieties of rice, two of wheat, and three of Indian mustard for the salt-affected areas were developed by the Institute. The CSSRI also prepared regional salt-water balance models and comprehensive salinity database, which provide deep insight for developing location-specific strategies for reclamation and management of salt-affected soils.

Central Soil Salinity Research Institute
Karnal 132 001
Haryana

Central Agricultural Research Institute
Port Blair 744 101
Andaman and Nicobar Islands

AMONG the small Institutes, the Sardar Patel Outstanding ICAR Institution Award 2009 is given jointly to (i) Central Agricultural Research Institute, Port Blair, and (ii) Indian Institute of Spices Research, Calicut.

The Central Agricultural Research Institute (CARI) has played decisive role in upgrading agriculture and allied sectors of Andaman & Nicobar Islands. Its major contribution is increasing productivity and profitability of agriculture sector while sustaining existing ecosystems. The Institute played vital role in cataloguing of different flora and fauna and developing gene bank for economically important plants. Its important accomplishments related to farming community are—preparation of soil maps, development of improved high-yielding variety of crops of which 'Samruddhi' arecanut variety takes the place of pride. The CARI stood with islanders in times of disasters like Tsunami. It provided technology backstopping to A&N Administration and NGOs for imparting training to farming community for securing livelihood, and successfully demonstrated Integrated Tsunami rehabilitation technologies in four villages, namely Guptapara, Manjery, New Manglutan and Indiranagar, of South Andaman.

THE major contribution of the Indian Institute of Spices Research (IISR), Calicut, is in creating largest collection of spices germplasm in the world and also in preservation of microbial collections. The institute has developed several biocontrol agents for spices crops. Integrated pest and disease management for spices has been successfully demonstrated in the farmers' fields. The institute has fine-tuned its programme to conduct research in the areas of nutraceuticals and colouring agents, GAP in spices, GIS based biodiversity conservation, novel molecules from plants and microbes and novel value-added spices. The IISR has developed an efficient automated administration (ARISoft) system for office administration, leading to paperless office.

Indian Institute of Spices Research
Calicut 673 012
Kerala

ICAR AWARD CEREMONY 2010

CHAUDHARY DEVI LAL OUTSTANDING ALL INDIA CO-ORDINATED RESEARCH PROJECT (AICRP) AWARD 2009

Award 2009

To recognize outstanding performance of an All India Co-ordinated Research Project (AICRP) and its co-operating centres in terms of linkages, research output and its impact, and to promote a sense of partnership, pride and belonging in the minds of co-operators, the ICAR has instituted the Chaudhary Devi Lal Outstanding AICRP Award. The award is annual, and consists of Rs 1 lakh in cash, a citation and a plaque. The award has been named in the honour of Chaudhary Devi Lal (1914-2001) who was Deputy Prime Minister and Agriculture Minister of India.

In all 15 applications were received and the winner of the Chaudhary Devi Lal Outstanding All India Co-ordinated Research Project Award 2009 with its significant contribution is:

ALL India Co-ordinated Research Project for Dryland Agriculture (AICRPDA) is in operation since 1970. The project through its 25 centres and 8 operational research projects located in core rainfed agro-climatic regions across India, developed location-specific technologies through major programmes of research in rainwater management, cropping systems, contingency plans, integrated nutrient management, farm mechanization, alternate land use system and participatory varietal selection. Eighty-seven technologies were developed by the project and verified in farmers' fields. Its centres have got national prominence based on the expertise on natural resource management and are recognized by the Ministry of Rural Development, GoI, to function as technical support, monitoring and capacity building institutions in the watershed programmes.

All India Coordinated Research Project for Dryland Agriculture

Project Coordinated Unit
Central Research Institute for
Dryland Agriculture
Hyderabad 500 059
Andhra Pradesh

JAWAHARLAL NEHRU AWARD FOR OUTSTANDING POST-GRADUATE AGRICULTURAL RESEARCH 2009

Award 2009

THE Jawaharlal Nehru Award for outstanding Post-graduate Agricultural Research was instituted by the ICAR in 1969, to promote high-quality research during Ph.D. programme. Annually, 18 awards are given for outstanding original research work in agriculture and allied sciences. Each award consists of a cash prize of Rs 20,000 and a medal and a citation. The award has been named after Pt Jawaharlal Nehru (1989-1964), the first Prime Minister of India.

One hundred and thirty-one applications for the Jawaharlal Nehru Award for outstanding Post-Graduate Agricultural Research 2009 were received. The successful applicants in different disciplines with their significant contributions are:

DR MARATHI used for first time a set of 126 polymorphic markers including Rice Genic Non-Coding Microsatellite markers, Hypervariable Simple Sequence Repeat markers for the construction of genetic linkage map. The Multi-location phenotyping of RIL population has led to identification of 128 quality trait loci (QTLs), out of which 51 are novel.

Dr Balram Marathi obtained Ph.D. Degree from the Indian Agricultural Research Institute, New Delhi.

Dr Balram Marathi
Scientist (Breeding)
Regional Agricultural Research Station
Acharya N.G. Ranga Agricultural University
Mulugu Road, Warangal 506 007
Andhra Pradesh

Crop Science and Crop Improvement

Dr N.G. Hanamaratti
Sr Scientist (Plant Breeding)
Agricultural Research Station
Mugad 580 007
Distt Dharwad
Karnataka

Crop Science and Crop Improvement

Dr HANAMARATTI identified stable QTL for photosynthetic rate, transpiration rate and leaf area under drought stress in rice for the first time at SSR markers RM261, RM21 and RM260, respectively, across two genetic backgrounds. Rice NIIL and RF-55-198 were found consistently superior and hence released.

Dr Nemappa Gangappa Hanamaratti obtained Ph.D. degree from the University of Agricultural Sciences, Dharwad, Karnataka.

DR SHAH applied micromanipulation-free cloning technique successfully for the first time for production of cloned embryos and offspring in buffalo. He observed that blastocyst rates were higher in cumulus cell reconstructed embryos in comparison to those derived from fetal or adult fibroblasts. He obtained birth of two calves by electrofusing enucleated oocyte and donor nuclei, then culturing them in the lab and by transferring resulting embryos to recipient buffaloes. Thus for the first time embryo cloning through somatic cell nuclear transfer has been achieved.

He obtained Ph.D. degree from the National Dairy Research Institute, Karnal, Haryana.

Dr Riaz Ahmad Shah
Lane No.4, Firdousabad
Batamaloo
Srinagar 190 009
Jammu and Kashmir

Biotechnology (Plant/Animal/Fishery)

Dr Ashutosh
JSPS Fellow
Plant Breeding and Genetics Lab
Graduate School of Agriculture
Tohoku University
SENDA -I 981-8555
Japan

Biotechnology (Plant/Animal/Fishery)

DR ASHUTOSH studied cytoplasmic male sterile (mori) *Brassica* and found that male sterility and fertility was associated with changes in transcript pattern of mitochondrial *atp á* gene and showed 4 amplicons associated with male fertility trait. Polymorphic amplicons were cloned and used for designing SCAR primers. Linkage analysis using MAPMAKER showed two AFLP and one SCAR marker linked to male fertility gene with a map distance ranging from 0.6 to 2.9 cM.

He further observed that *atp* á transcript in male sterile line was 2.7 kb long whereas in the fertility restorer line, it was 1.7 kb long.

Dr Ashutosh obtained Ph.D. degree from the Guru Govind Singh Indraprastha University, Delhi.

DR SATENDRA KUMAR MANGRAUTHIA studied structural and functional genomics of three different viral proteins involved in suppression of RNA silencing and their regulatory role in inter-viral synergy. These silencing suppressor protein genes were isolated, sequenced and characterized from three agriculturally important viruses belonging to different genera—Papaya ringspot virus, Cucumber mosaic virus and Papaya leafcurl virus.

Dr Satendra Kumar Mangrauthia obtained Ph.D. degree from Indian Agricultural Research Institute, New Delhi.

Dr Satendra Kumar Mangrauthia
Plant Pathology Section
Directorate of Rice Research
Rajendranagar
Hyderabad 500 030
Andhra Pradesh

Crop Protection including Microbiology

Dr Mala Mukherjee
11, Satpura
Anushaktinagar
Mumbai 400 094
Maharashtra

Crop Protection including Microbiology

DR MALA MUKHERJEE carried out a cloning and functional analysis of adenyl cyclase gene in *Trichoderma virens*. The knock-out mutants, defective in tac 1, were generated using double cross-over homologous recombinations and phenotypes. The cAMP levels dropped below detectable limits in the tac 1 mutants. The mutants generated would serve as a genetic stock for further studies on the cAMP signalling in fungi, in general, and *Trichoderma* spp., in particular.Dr Mala Mukherjee obtained Ph.D. degree from the Bhabha Atomic Research Centre, Trombay, Mumbai, Maharashtra.

DR PAL has identified and quantified a wide range of low molecular weight organic acids in rice rhizosphere, which play a key role in detoxifying aluminium (Al) in acid soil by complexation reaction. Among organic acids, tartaric acid concentration was highest, followed by oxalic and citric acids. Organic acid concentration in rhizosphere was correlated positively to root volume, dry matter and nutrient uptake by rice. Her results have shown that secretion of organic acids was more under Al toxic condition. She studied adsorption-desorption of Al in acid soil and used various kinetic equations to assess risk of aluminium toxicity in acid soil. External addition of tartaric acid decreased aluminium concentration significantly in the soil solution and improved rice growth. The research has laid the foundation for development a potentially viable technology for rhizosphere manipulation by using tartaric acid to detoxify aluminium in the acid soil.

She obtained Ph.D. degree from the Indian Agricultural Research Institute, New Delhi.

Dr Sharmistha Pal
Scientist (Soils)
Central Soil and Water Conservation Research and Training Institute
Research Centre
Sector 27-A, Madhya Marg
Chandigarh 160 019

Soil Science and Natural Resource Management and Agronomy

Dr J. Kusuma Grace
Plot No.904, S3, BRC Apartments
Lane Opp to Sainikpuri Telephone Exchange
Defence Colony, Sainikpuri
Secunderabad 94
Andhra Pradesh

Soil Science and Natural Resource Management and Agronomy

Dr GRACE carried out studies to assess soil quality under different long-term land management (soil-nutrient management) treatments in rainfed Alfisols under two ongoing long-term experiments under sorghum-castor and sorghum-mungbean systems. She evaluated soils by their physical, chemical and biological quality parameters. And computed sustainable yield index (SYI) based on long-term yield data and soil quality indices (SQI) using state of art linear scoring techniques. She identified key indicators that contributed considerably towards soil quality index.

She obtained Ph.D. degree from the Jawaharlal Nehru Technological University, Hyderabad.

DR SUKHEN CHANDRA DAS undertook breeding programme for improvement of banana for resistance against nematodes (*Helicotylenchus, Radopholus, Pratylenchus* and *Meloidogyne*) and *Fusarium* wilt. He developed several hybrid lines involving commercial triploids. The primary tetraploids developed were crossed with diploids and triploids to develop secondary triploids resistant to nematodes and wilt.

Banana hybrids H 516 and H 531 were found resistant and H 511, H 534, H 537, H 571, H 572 and H 589 were tolerant to *Helicotylenchus, Radopholus, Pratylenchus* and *Meloidogyne* with better agronomic traits.

He obtained Ph.D. degree from the Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu.

Dr Sukhen Chandra Das
Townpratapgarh
Gaingail Road
Near Surjasen Samaj Kendra
Agartala 799 001
Tripura(W)

Horticulture

Dr Mohinder Kaur
Department of Vegetable Crops
Punjab Agricultural University
Ludhiana 141 004
Punjab

Horticulture

DR MOHINDER KAUR worked on *in-vitro* plant regeneration and genetic transformation in brinjal (*Solanum melongena* L.) using *CrylAc* and *GUS* genes. She standardized efficient plant regeneration protocols for brinjal for genetic transformation. She was successful in transforming brinjal with *CrylAc* verUU abd *CrylAc* gene(s) by agrobacterium and by particle-gun mediated transformation. Her work may aid in enhancement of yield and quality of brinjal.

She obtained Ph.D. degree from the Punjab Agricultural University, Ludhiana, Punjab.

DR JATINDRA KUMAR SAHU developed a pilot scale plant, suitable for mechanized production of *chhana*, *paneer* and *sandesh*. In this plant, standardised *sandesh* production can be carried out with better quality and hygiene, and also with comfort to workers. It is expected that it will bring a remarkable change in Indian dairy industry for mechanized production of *chhana, paneer* and *sandesh* in a continuous manner.

He obtained Ph.D. degree from the Indian Institute of Technology, Kharagpur, West Bengal.

Dr Jatindra Kumar Sahu
Associate Professor and Head
Department of Agricultural Engg.
School of Technology
Assam University (A Central University)
Silchar 788 011
Asom

Engineering and Technologies (Dairy Food and Post-harvest Technology, etc.)

Dr Indavarapu Srinivas
Senior Scientist (Farm Machinery and Power)
Division of Resource Management
Central Research Institute for Dryland Agriculture
Santoshnagar
Hyderabad 500 059
Andhra Pradesh

Engineering and Technologies (Dairy Food and Post-harvest Technology, etc.)

DR INDAVARAPU SRINIVAS developed a technology consisting of a mini oil expeller and pretreatments for *Pongamia* and *Jatropha* seeds for higher oil recovery and low energy consumption. This reduces free fatty acids in *Jatropha* and *Pongamia* oils which are otherwise a major problem in biofuel industry. Performance of a stationary engine was evaluated using biodiesel and diesel blends and found it better in terms of specific fuel consumption, brake thermal efficiency, and reduced emissions of carbon monoxide (CO), hydro carbon (HC), oxides of nitrogen (NO_x) and smoke density. This technology would also help in on-farm value-addition of *Pongamia* and *Jatropha* oilseeds and byproducts, thereby creating employment and income-generation opportunities in rural sector.

He obtained Ph.D. degree from the Jawaharlal Nehru Technological University, Hyderabad, Andhra Pradesh.

DR MOHAN studied molecular mechanism in hormonal and dietary fat regulation of lipogenic genes, fatty acid synthesis and stearol coA desaturase in pigs. He analysed regulation of expression of these lipogenic genes by hormones, mediated by transcription factors such as sterol regulatory element binding protein 1c (SREBP-1c), peroxisome proliferator activated receptor (PPAR Ò) and CCAAT enhancer binding protein â (CEBP â). He established expression of lipogenic genes, fatty acid synthase and stearol CO desaturase in the pineal gland of pigs.

He obtained his Ph.D. degree from the Assam Agricultural University, Khanapara, Guwahati, Asom.

Dr Mohan N.H.
Scientist (SS)
National Research Centre on Pig
Rani
Guwahati 781 131
Asom

Animal Production and Veterinary Science

Dr Konadaka Sri Rajaravindra
Scientist
Project Directorate on Poultry
Rajendranagar
Hyderabad 500 030
Andhra Pradesh

Animal Production and Veterinary Science

DR RAJARAVINDRA carried out characterization of candidate genes, expression profile of the candidate gene by Real Time PCR and macrophage function assay in a study on brucellosis disease resistance. The partial sequencing of 1932bp of *TRL4* gene obtained encoded for 643 a.a of the carboxy terminal. The complete CDS of TNFá was 705 bp and it codes for protein of 234 residues. MIP-1á CDS of buffalo consisted of 282 bp which coded for protein of 93 a.a. The buffaloes were screened for seronegativity. The seronegative animals are used for microsatellite analysis of 3 UTR of *NRAMP1* gene for genotyping animals as GT_{13} and non GT_{13}. He further studied expression of the candidate genes in induced buffalo macrophages 24 hr post induction.

He obtained Ph.D. degree from the Indian Veterinary Research Institute, Izatnagar, Uttar Pradesh.

DR SINGH studied molecular functional characterization of α-1 and α-2 isoforms of Na^+-K^+-ATPase, in sheep pulmonary arteries by ouabain inhibition curve. He showed that α-1 isoform regulates the basal tone of blood vessels in sheep and the fatty acids eicosapentaenoic acid, docosahexaenoic acid and arachidonic acid decreased expression α-1 isoform of sodium pump. Fatty acid-induced vasorelaxation of pulmonary and coronary arteries revealed the involvement of sodium pump in vasodilation of critical blood vessels. Eicosapentaenoic acid produced relaxation through that L type calcium channel. NO release from the vascular endothelium. Mechanistic studies on eicosapentaenoic acid revealed primary involvement of NO along with endothelium Ca^{2+} influx through L-type chemical channel.

He obtained Ph.D. degree from the Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya evam Go Anusandhan Sansthan, Mathura, Uttar Pradesh.

Dr Thakur Uttam Singh
Scientist
Division of Pharmacology and Toxicology
Indian Veterinary Research Institute
Izatnagar 243 122
Uttar Pradesh

Animal Production and Veterinary Science

Dr Mohan Chitradurga Obaiah
Scientist
Central Institute of Fisheries Technology
Matsyapuri P.O.
Willingdon Island
Cochin 682 029
Kerala

Fisheries

DR MOHAN, considering the nutritive value and increasing demand for fish, chose a method of preserving fillets of seer fish through dual action Active packaging method, which can replace the vacuum packaging, and modified atmosphere packaging. He obtained positive results under Active packaging by preserving fish fillets from 25 to 30 days against 6 to 15 days.

He obtained Ph.D. degree from the Central Institute of Fisheries Education, Mumbai, Maharashtra.

DR RAVI KUMAR has developed a methodology based on ANN to track larvae which helps to assay and understand olfactory and repellence ability. To make the system error- free, he has adopted a new procedure by separating different parts of the larvae such as head, tail etc. to address deformation studies. For classifying different insects based on their body colour, colour image processing was developed. He also attempted a new approach for measuring insect movement and to understand dynamism of an image sequence with some quantitative approach.

His work has got immense application in pest-control programme and will greatly help in understanding and formulating biological pest control programmes and in developing an Integrated Pest Control Strategy.

Dr Ravi Kumar obtained Ph.D. degree from the National Institute of Technology, Tiruchirapalli, Tamil Nadu.

Dr Nakka Ravi Kumar
Scientist (Computer Application in Agriculture)
Division of Social Sciences
Central Plantation Crops Research Institute
Kasargod 671 124
Kerala

Social Science including Home Science

Dr Kale Narayan Murlidhar
Plot No. 2, Khedkar Nagar
Behind Swami Vivekananda
Ashram
Akola 444 041
Maharashtra

Social Science including Home Science

DR KALE'S research has contributed towards a greater understanding of the causes concentration and consequences of suicide among farmers in rainfed regions of the country, where it has assumed alarming proportions in the recent years.

His research has brought out that suicide is an outcome of a number of socio-psychological factors triggered by frequent crop failure, lack of alternative income-generating opportunities, scarce irrigation facilities, inductiveness, alcoholism and inability of the incumbent to fulfil family and social obligations.

Suicides are committed mostly among socially and economically marginalized poor households. The economic consequences of suicides are fatal for the family of the incumbent–include loss of income, asset depletion and deterioration of human capital among others.

Dr Kale obtained Ph.D. degree from the Dr Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra.

PANJABRAO DESHMUKH WOMAN AGRICULTURAL SCIENTIST AWARD 2009

Award 2009

THE ICAR instituted an outstanding woman agricultural scientist award in 1995 on the UN International Year for Women, to recognize and reward women agricultural scientists for their contributions in agricultural research and development. All women scientists working in the institutions under the ICAR system, including state agricultural universities, are eligible for this award. The award carries a cash prize of Rs 50,000 and a citation. It has been named after Panjabrao Deshmukh (1898-1965), who was the Minister of Agriculture in the first cabinet of Pandit Jawaharlal Nehru in 1952. He established the Bharat Krishak Samaj and launched a campaign called *Food for Millions* in 1955.

In all 26 applications were received and the winners for the Panjabrao Deshmukh Woman Agricultural Scientist Award 2009 with their significant contributions are:

Dr V.G. MALATHI
Principal Scientist
In-charge, Plant Virology Unit
Division of Plant Pathology
Indian Agricultural Research Institute
New Delhi 110 012

DR MALATHI characterized genomic components of begomoviruses causing yellow mosaic disease in grain-legumes and leaf curl disease in tomato, potato and cucurbits, and established individual virus identity. She showed that legume viruses are distinct from other begomoviruses and both monopartite and bipartite tomato begomoviruses are associated with diverse betasatellites, which have a βCl protein functioning as silencing suppressor. She also developed immuno and diagnostic protocols and reagents for specific detection of begomoviruses.

She is currently working as Principal Scientist, Division of Plant Pathology, Indian Agricultural Research Institute, New Delhi.

DR NAGALAKSHMI's work has indicated that in sheep nutrient requirements are not same for growth and for immunity. Daily gain of 100 g could be obtained by feeding 10.5% CP diets, while for higher immune response 15.5% CP was required. The energy requirement is 152.2 kcal ME/kg $W^{0.75}$ for growth and immunity. The Zn concentration of 30 ppm was required for optimum growth but 45 ppm dietary Zn resulted in higher immune response. The optimum Cu concentration required in diet for higher humoral immune response in lambs was predicted as 16 ppm. The sheep could be reared for optimum growth and immunocompetence by rearing under intensive system depending solely on locally available crop residues (sunflower heads, sorghum stovers and maize stovers) and concentrate ingredients, with no dependency on green fodder.

Dr Nagalakshmi is Associate Professor in the Sri Venkateswara Veterinary University, Hyderabad, Andhra Pradesh.

Dr D. NAGALAKSHMI
Associate Professor
Department of Animal Nutrition
College of Veterinary Science
Sri Venkateswara Veterinary University
Rajendranagar
Hyderabad 500 030
Andhra Pradesh

VASANTRAO NAIK AWARD FOR OUTSTANDING RESEARCH APPLICATIONS IN DRYLAND AGRICULTURE 2009

Award 2009

THE Vasantrao Naik Award for Outstanding Research Applications in Dryland Agriculture was instituted in 1994. An annual award of Rs 1 lakh is given to a scientist or an extension worker, who's contributions are outstanding in water conservation and dryland farming. The award has been named after Vasantrao Naik (1913-1979), who is regarded as the father of Green Revolution in Maharashtra.

In all 10 applications were received, and the winner for Vasantrao Naik Award for Outstanding Research Applications in Dryland Agriculture 2009 with significant contribution is:

Dr B. Venkateswarlu (Director), Dr M. Osman (Principal Scientist), Dr P.K. Mishra (Project Coordinator), Dr D.H. Ranade (Senior Scientist), Dr K.V. Rao (Senior Scientist), Dr S. Dixit (Principal Scientist), and Dr C.S. Rao (Principal Scientist) developed and popularized *in-situ* and *ex-situ* rainwater conservation practices for semi-arid regions of India. They worked with about 5,000 farmers in five districts on adoption and refinement of farm pond technology. Adoption of *in-situ* conservation practices resulted in 10-15% of yield gains in the project districts, which translates to an average additional net benefit of Rs 750/ to 1,000/ha. The technology has potential for drought proofing, in moderating floods, in contributing to adaptation for climate change and stabilizing crop yields.

Dr Venkateswarlu and his associates are working at the Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad, Andhra Pradesh.

Dr B. Venkateswarlu
Director
Central Research Institute for Dryland Agriculture
Hyderabad 500 059
Andhra Pradesh

JAGJIVAN RAM KISAN PURASKAR 2009

Award 2009

THE ICAR has instituted Jagjivan Ram Kisan Puruskar to recognize outstanding contribution and distinguished farming attributes of an individual farmer in the area of agricultural productivity and allied activities. The award is bestowed for creative approaches, innovative farming, technological acceptance and contribution in enhancing productivity and income. The award carries a cash prize of Rs 100,000 and a citation. Two awards are given annually one each in crop science and livestock production/poultry/fish farming. It has been named after Jagjivan Ram (1908-1986), who was Deputy Prime Minister and also Union Minister for Food and Agriculture in the Union Cabinet.

In all 17 applications were received and the winners for the Jagjivan Ram Kisan Puruskar with their significant contributions are:

SHRI SUDHANSHU KUMAR introduced scientific techniques and methods of farm management and farming and got immediate results with mango. He pruned trees, removed diseased branches, used rejuvenation technique, manured trees twice a year, made proper irrigation facilities and adopted an annual spray schedule. Also he used match-stick to dab little amount of ethrel on the fresh stalks of mango for ripening. An innovation He was able to increase income from the sale of mangoes of a 9-acre plot from Rs10,000 to Rs 600,000 in a span of eight years. He showed cost-effectiveness of sprinkler and drip in litchi against conventional flood irrigation. He also used pheromone traps in controlling fruit- flies.

Shri Sudhanshu Kumar
Village & P. O. Nayanagar
Distt. Samastipur 848 208
Bihar

Crop Production

Shri Manindra Mistry
Village Deshbandhugram
P.O. Diglipur
North & Middle Andaman District
744 202
Andaman & Nicobar Islands

Livestock/Poultry/Fish Farming

SHRI MANINDRA MISTRY, a progressive farmer from Diglipur, north Andamans, introduced rohu, catla, silver carp, grass carp, bata, japani poti, folio, hybrid magur species of fishes in north Andaman and produced fish seeds. He earns Rs 60,000 from pissiculture related activities every year. He tried freshwater pearl and prawn culture, and earned around 1 lakh by selling 1,000 kg fish for kitcher. He has his own poultry which meets his family requirement and also earns money and generates employment for rural-youth. Shri Mistry uses pesticides and fungicides judiciously and has never come across epidemic or outbreak of insects or disease pests in his field. For Agri-Eco-Tourism, he has developed a sitting place near his pond. He practices integrated farming combining duckery, poultry, agriculture and fish.

N.G. RANGA FARMER AWARD FOR DIVERSIFIED AGRICULTURE 2009

Award 2009

FOR recognizing outstanding contributions in diversified agricultural activities, the ICAR instituted an annual award of Rs 1 lakh for the first time in 2001 in the name of Professor N.G. Ranga (1900-1995). The award is meant for diversified agricultural activities, and is given to an individual practising new entrepreneurship/ enterprises/management strategy, for the additional information to the existing one in diversified agriculture in India, which shall result in generating additional income to individual farmer/farming community.

In all 15 applications were received for the N.G. Ranga Farmer Award 2009, and the winner is:

Shri Bandaru Srinivasa Rao
Door No.2-2-101-A,
Ananthavarappadu via Etukuru
Vatticherukuru mandal
Guntur District 522 014
Andhra Pradesh

SHRI BANDARU SRINIVASA RAO, an enterprising progressive farmer has been practising diversified agricultural methods of farming. He mainly grows crops like paddy, cotton and chillies and uses System of Rice Intensification (SRI) for cultivation of paddy, polyhouse technology for raising Bt cotton seedlings, and organic farming for cultivation of chillies.

He has been involved in fabrication of tractor-mounted sprayer and in modification of Taiwan sprayer with three nozzles. He also took keen interest in creating awareness among farmers about seed treatment, intercrops, IPM, INP1, etc., which resulted in increased yield of different crops by 1-3 quintals per acre with additional income of Rs 4,000-6,000.

ICAR AWARDS FOR OUTSTANDING INTERDISCIPLINARY TEAM RESEARCH IN AGRICULTURE AND ALLIED SCIENCES FOR THE BIENNIUM 2007-2008

Award 2009

To give incentives for outstanding interdisciplinary research in agriculture and allied sciences in India and to recognize teams of research workers who have set high standards for co-operative endeavour in Agriculture, Animal Husbandry, Fisheries and Allied Sciences, the ICAR has instituted ICAR Awards for Outstanding Interdisciplinary Team Research in Agriculture and Allied Sciences for the Biennium. There are 9 awards of Rs 100,000 each given once in two years, based on the last 5 years continuous research of applied type in 7 categories.

For the Biennium 2007-2008, 53 applications were received and the winners are:

Dr Amar Nath Shrivastava
Principal Scientist
Department of Plant Breeding and Genetics,
JNKVV, Jabalpur 482 004
Madhya Pradesh

Crop Improvement

In 2002, the prevalent Soybean JS 335 variety became susceptible to diseases and pest, which caused instability in Soybean production system. The team led by Dr A.N. Shrivastava took this as challenge and initiated research programme on soybean. As a result, three varieties, namely 'JS 93-05' (Early), 'JS 95-60' (extra early) and JS 97-52 (multiple resistant), were released, which became very popular and broke monopoly of JS 335. Substantial area has been covered under improved varieties as a result of concrete seed production programme.

The team members include Dr A.N. Shrivastava (Principal Scientist), Dr S.K. Rao (Dean and Director), Dr (Mrs) S. Rao (Professor), Dr R.K. Varma (Principal Scientist), Dr M.S. Bhale (Senior Scientist), Dr D. Khare (Senior Scientist), Dr M.K. Shrivastava (Scientist), and Shri B.D. Ghode (Scientist) and they are working at the JNKVV, Jabalpur, Madhya Pradesh.

THE team led by Dr Roy developed interspecific hybrids of berseem using *in-vitro* embryo rescue method; this is the first global report involving different species. In oats, the transfer of traits from primary and secondary genepool has resulted in the development of new varieties with desirable traits. In *Pennisetum*, interspecific hybrids with wild species and their backcross progenies with desirable traits are under evaluation in rainfed or limited irrigation areas.

The team includes Dr A.K. Roy (Principal Scientist and Head), Dr D.R. Malaviya (Principal Scientist), Dr P. Kaushal (Senior Scientist), Dr Amresh Chandra (Principal Scientist) and Dr R.N. Choubey (Principal Scientist), and they are working at the IGFRI, Jhansi, Uttar Pradesh.

Dr A.K. Roy
Principal Scientist & Head
GSM Division
Indian Grassland and Fodder
Research Institute
Jhansi 284 003
Uttar Pradesh

Crop Improvement

Dr Ranjan Bhattacharyya
Scientist, Crop Production Division
VPKAS
Almora 263 601
Uttarakhand

Natural Resource Management

THE team under the leadership of Dr R. Bhattacharyya evaluated carbon sequestration potential (CSP) in the north-western Himalayas of soil through adoption of integrated nutrient management (INM), conservation tillage, diversified cropping and location-specific organic farming. Positive role of short-term zero tillage (ZT) and minimum tillage (MT) in CSP and improvement in soil properties under irrigated rice-wheat, and rainfed soybean and fingermillet based cropping systems, respectively, was extensively studied. Other significant achievements include: appraisal of INM effects on sustainability indices under long-term fertility experiments; quantification of improvement in soil properties and SOC-sequestration under organic farming.

The team includes Dr Ranjan Bhattacharyya (Scientist), Dr S. Kundu (Principal Scientist), Dr Ved Prakash (Retired Sr Scientist), Dr B.L. Meena (Scientist-SS), Dr Supradip Saha (Scientist-SS), Dr S.C. Pandey (Sr Scientist), Dr A.K. Srivastava (Principal Scientist and Head), VPKAS, Almora (Uttarakhand), and Dr H.S. Gupta, now Director, IARI, New Delhi.

THE team under the guidance of Dr G.R. Patil developed ready-to-reconstitute *Rasmalai* Mix and *Basundi* Mix; which are technological breakthroughs as osmotic dehydration, air drying and spray drying techniques have been combined together. Low-fat, oven-baked ready-to-reconstitute *Gulabjamun* and Milk cake have also been developed by the Combined Factor Preservation technique (Hurdle Technology). Technological manipulations involving non-conventional drying techniques coupled with the conventional ones have been used.

The team consists of Dr G.R. Patil (Joint Director-Academic), Dr R.R.B. Singh (Senior Scientist), Dr A.A. Patel (Principal Scientist), Dr M.J. Solanky (Professor), Dr Sunil Patel (Associate Professor), Dr Satish Kulkarni (Principal Scientist) and Dr Surendra Nath B. (Principal Scientist). This team is awarded jointly with the team led by Dr Satish Kulkarni.

Dr G.R. Patil
Joint Director (Academic)
National Dairy Research Institute
Karnal 132001
(Haryana)

Engineering and Technology

Dr Satish Kulkarni
Principal Scientist
National Dairy Research Institute
Southern Campus
Bengaluru 560 030
Karnataka

Engineering and Technology

THE team under the leadership of Dr Satish Kulkarni has provided vital research and development support for process upgradation of three popular indigenous milk products – *Payasam, Kunda* and *Chhana Podo*. Processes were standardized for manufacturing two varieties of *Payasam* – *Palada*, a sweet delicacy of Kerala and *Gasa Gase* (*Khus-Khus*), a speciality of Karnataka – for commercial application. To produce convenient-to-use dry mixes for *payasam* with long shelf-life, crystallization drying technique was developed. The technique has been transferred successfully to the industry and the product is being marketed in Kerala. A time- and energy-saving mechanized process for large-scale production of *Kunda* was also developed. The technology for *chhana podo* has been successfully transferred to entrepreneurs for commercial exploitation.

The team consists of Dr Satish Kulkarni (Principal Scientist), Dr B. Surendranath (Principal Scientist), Dr B.V. Balasubramanyam (Principal Scientist), Dr B.C. Ghosh (Principal Scientist), Dr (Mrs) Menon Rekha (Scientist-SS), and they are working at the National Dairy Research Institute, Southern Campus, Bengaluru. This team is awarded jointly with the team led by Dr G.R. Patil.

THE team led by Dr J.S. Minhas developed India's first heat-tolerant early-maturing potato variety 'Kufri Surya'. 'Kufri Surya' has excellent processing qualities and is the first French-fry variety developed in the country. The variety can plug gaps in year-round supply of fresh potatoes for processing industries through early crop in northern plains and *kharif* crop in peninsular areas.

The team includes Dr J.S. Minhas (Principal Scientist), Dr Devendra Kumar (Principal Scientist), Dr T.A. Joseph (Principal Scientist), Dr S.M. Paul Khurana, Dr S.K. Pandey, Dr B.P. Singh (Joint Director), Dr P.S. Naik (Project Coordinator) and Dr Satya Vir Singh (Principal Scientist). This team is awarded jointly with the team led by Dr K. Madhavi Reddy.

Dr J.S. Minhas
Principal Scientist
Central Potato Research Institute
Shimla 171 001
Himachal Pradesh

Horticultural Sciences

Dr K. Madhavi Reddy
Principal Scientist
Division of Vegetable Crops
Indian Institute of Horticultural Research, Bengaluru 560 089
Karnataka

Horticultural Sciences

THE team led by Dr K. Madhavi Reddy surveyed production statistics of chilli in Andhra Pradesh and Karnataka and observed that the diseases are the main contributing factors to low yield. They carried out isolation, biological and molecular characterization of major pathogens infecting chilli and identified resistant sources against local severe isolates. They further developed multiple disease resistant chilli lines: Two predominant local varieties (PLVs), namely 'G 4' and 'Pusa Jwala', were identified into which resistance genes were introgressed. They further improved management technologies for chilli production: Two fold increase in yield was observed by following polythene mulch and foliar feeding of 100% WSF containing 19:19:19 NPK applied thrice.

The team includes Dr K. Madhavi Reddy (Principal Scientist), Dr M. Krishna Reddy (Principal Scientist), Dr N. Ramachandran (Principal Scientist), Dr C. Gopalakrishnan (Principal Scientist) and Dr S.S. Hebbar (Senior Scientist). This team is awarded jointly with the team led by Dr J.S. Minhas.

THE team under the guidance of Dr S.K. Sarkar studied "Off-season maturation and spawning of Indian major carps". They standardized method for maturation and spawning of Indian major carps through photothermal manipulation under controlled environment a breakthrough in freshwater aquaculture. This along with broodstock diet (CIFABROOD) and application of molecular tools are expected to revolutionize seed production sector by supplying carp seed throughout the year.

The team includes Dr S.K. Sarkar (Principal Scientist), Dr S. Nandi (Senior Scientist), Dr P. Routray (Senior Scientist), Dr A. Saha (Senior Scientist), Dr J. Mohanty (Senior Scientist), Dr S. Dasgupta (Technical Officer), Dr D.K. Verma (Technical Officer) and Dr C. Devaraj (Scientist).

Dr S.K. Sarkar
Principal Scientist
Division of Fish Nutrition and Physiology
Central Institute of Freshwater Aquaculture
Kausalyaganga
Bhubaneshwar 751 002
Odisha

Fisheries

Dr Abhijit Mitra
Senior Scientist
Animal Genetics Division
Indian Veterinary Research Institute
Izatnagar 243 122
Uttar Pradesh

Animal Production and Health

DR MITRA and associates studied genes (cDNA/genomic sequences) encoding *interferon-tau* (INFT), *prostaglandin E synthase* (PGES), *prostaglandin F synthase* (PGFS), *osteopontin* (OPN), *ubiquitin cross-reactive protein* (UCRP), *cyclooxygenase2* (COX2) and *ghrelin* and cloned and characterized in buffalo. These sequences are the first-ever complete sequence of any gene regulating maternal recognition of pregnancy (MRP) in buffalo. Differential expressions of these genes in uterine endometrium during different reproductive phases of buffalo were also studied. Characterization and expression profiling of the candidate genes have delineated underlying mechanism of MRP in buffalo and will serve as a useful resource for developing markers for selecting buffaloes having better uterine receptivity.

The team includes Dr Abhijit Mitra (Senior Scientist), Dr S.K. Agarwal (Principal Scientist), Dr Paritosh Joshi (Principal Scientist) and Dr A.K. Sharma (Senior Scientist).

DR SAMPATH and associates studied livestock productivity at the field level through strategic supplementation of limiting macro- and micro-nutrients through farming system approach. The survey conducted at farm-gate level on feeding systems in coastal and rainfed agro-eco zones of Karnataka showed that mismatch of nutrients with inadequate fibre and energy in diet is the most limiting macronutrients respectively. They observed that strategic supplementation of locally available resources like areca sheath in coastal zone and ragi grain in rainfed zone to dairy cows improved milk yield, milk composition, and was economical. They showed that supplementation of most limiting minerals in the form of area-specific mineral mixture to dairy animals under field conditions improved reproductive efficiency. This technology has been commercialized and adopted at Karnataka Milk Federation. During the studies for improving bioavailability of copper and zinc using organic/chelated sources, the team observed increased mineral retention, improved anti-oxidant and immune status in sheep.

The team includes Dr K.T. Sampath (Director), Dr N.K.S. Gowda (Principal Scientist), Dr D.T. Pal (Senior Scientist), Dr C.S. Prasad (ADG-AN&P), ICAR, Dr S. Selvaraju (Scientist-SS), Dr I.J. Reddy (Senior Scientist), Mr. T. Chandrappa (Scientist) and Dr P. Krishnamoorthy (Scientist), PD_ADMAS, Bengaluru.

Dr K.T. Sampath
Director
National Institute of Animal Nutrition and Physiology
Adugodi
Bengaluru 560 030
Karnataka

Animal Production and Health

Dr B. Ganesh Kumar
Senior Scientist
National Centre for Agricultural Economics and Policy Research
Dev Prakash Shastri Marg
Pusa, New Delhi 110 012

Social Science

DR KUMAR and associates analyzed the major aspects of the fisheries sector such as its growth, trends and composition, demand-supply of marine and inland fish species structure, conduct and performance of fish marketing, price spread, the status of infrastructure of fishing harbours, wholesale and retail fish markets, export performance of Indian fisheries sector. The study included major marine fish species such as sardines, mackerel, seer fish, pomfrets, tuna and shrimp and inland freshwater fish species such as rohu and catla, catfish, hilsa and prawn. Dr Kumar also conducted a comprehensive consumer survey to study their preferences and expenditure levels in Kolkata, Chennai, Delhi, Cochin, Hyderabad and Tuticorin. The study indicated number of policy measures and marketing initiatives to be undertaken by the concerned development agencies for a faster, inclusive and sustainable growth of fisheries sector.

The team includes Dr B. Ganesh Kumar (Senior Scientist), Dr K.K. Datta (Head, DESM), Dr P.K. Katiha (Principal Scientist), Dr T. Ravisankar (Senior Scientist), Mr N.K. Barik (Scientist), Dr P.S. Ananthan (Scientist), Dr R. Suresh (Professor), and Dr G. Vidya Sagar Reddy (Associate Professor).

FAKHRUDDIN ALI AHMED AWARD FOR AGRICULTURAL RESEARCH IN TRIBAL AREAS FOR THE BIENNIUM 2007-2008

Award 2009

THE ICAR instituted Fakhruddin Ali Ahmed Award for Outstanding Agricultural Research in Tribal Areas. The award has been named after Late Shri Fakhruddin Ali Ahmed (1905-1977), who was the President of the ICAR during 1971-74. Two awards of Rs 50,000 each are given biennially for outstanding research in the tribal regions of the country: one in Agricultural Sciences and the other in Animal Sciences including Fisheries.

For the Award of the biennium 2007-2008, 10 applications were received. The successful candidates are:

Dr A.K. Tripathi
Senior Scientist
ICAR Research Complex for NEH Region
Umroi Road, Umiam
(Barapani) 793 103
Meghalaya

Plant Science

DR TRIPATHI and associates studied rice-based tribal farming systems of North East India giving strong emphasis on participatory technology selection and dissemination, gender-sensitive technologies and farmer preference. The core innovative aspect of the work was landscape management paradigm that took into account pockets of favourable wetlands and fragile uplands. Forty-five different technologies ranging from varieties to water harvesting were validated with active participation of farming community. Overall adoption of technologies was more than 20% and benefit : cost ratio ranged from 4.2 to 19.82. They also identified five new varieties of rice.

Dr A.K. Tripathi, Dr A. Pattanayak and Dr S.V. Ngachan are working at the ICAR Research Complex for NEH Region, Umiam, Meghalaya.

DR PATHAK with his team worked to improve upon the livestock and poultry production system and showed increased animal productivity while managing inputs *in-situ*. The pig breed recommended showed a potential to increase pork production by 33% when reared under traditional tribal production system, same breed if reared under improved production system, increase would be to the tune of 136%. The improved dual-purpose bird increased egg production by 125% and chicken meat production by 100%. Through integrated animal-fish culture model developed, the farm-family could earn 1.25 to 2 fold higher net economic returns compared to traditional system.

Dr K.A. Pathak, Dr A. Kumaran and Dr S.V. Ngachan worked together at the ICAR Research Complex for NEH Region, Mizoram Centre.

Dr K.A. Pathak
Joint Director
ICAR Research Complex for
NEH Region
Mizoram Centre
Kolasib 796 081

Animal Science

BHARAT RATNA DR. C. SUBRAMANIAM AWARD FOR OUTSTANDING TEACHERS FOR THE BIENNIUM 2007-2008

Award 2009

THE ICAR has instituted nine National Awards of Rs 50,000 each for outstanding teachers once in two years to provide incentives and encouragement for good teaching and recognize outstanding teachers in Crop Sciences, Horticulture, Veterinary and Animal Sciences, Fisheries, Natural Resource Management, Agricultural Engineering, Home Science and Extension Education. The award is named after Dr. C. Subramaniam (1910-2000) the man who ushered in an era of self sufficiency in food production.

All staff members engaged in under-graduate or post-graduate teaching in Deemed Universities, ICAR Institutes and State Agricultural Universities are eligible to apply for these awards. The participating teacher should have a minimum of 10 years teaching experience in the subject of his/her specialization and should currently be spending a minimum of 66% or more of his/her time in teaching.

For 2007-2008, 24 applications were received and the successful candidates are:

DR VIJAYAKUMAR has handled 13 Under-graduate courses and 6 Post-graduate courses and guided 9 M.Sc.(Ag.) students. As a researcher he had developed Hybrid Seed Production Technology for *Bhindi*. He has published 31 research articles, established Seed Testing laboratory, and has conducted various courses on independent study in Seed Technology. As a teacher he encouraged and motivated students to participate in extra-curricular activities.

Dr A. Vijayakumar is Professor of Seed Science and Technology and Deputy Registrar (Education) at the Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu.

Dr Arumugam Vijayakumar
Professor of Seed Science and Technology and
Deputy Registrar (Education)
Registrar's Office
Tamil Nadu Agricultural University
Coimbatore 641 003
Tamil Nadu

Crop Sciences

Dr Dhirendra Khare
24, Ravindra Nagar
Adhartal
Jabalpur 482 004
Madhya Pradesh

Crop Sciences

DR KHARE has been associated for teaching at Bachelor, Master and Doctorate degree levels for the last 24 years. He had developed two courses of Seed Sciences and Technology, offered at Bachelor and Master degree programmes. He also developed question bank on course related to Seed Science and Technology, lecture notes, various slides for spotting and manual on thesis writing. He has published more than 60 research papers. He is associated with two network projects besides AICRP on National Seed Project (Crops).

Dr Khare is Associate Professor at the Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh.

DR SINGH spent considerable time with students in explaining basic principles involved, like fundamental soil physics, soil water-plant system and soil- water- plant environment system. Besides, he gave a lot of emphasis on practical classes where he explained all the input parameters through simulation models to students either individually or in a group of two. In advanced courses, he stressed upon latest developments on specific topics.

Dr A.K. Singh is Deputy Director General, Division of Natural Resource Management at the Indian Council of Agricultural Research, New Delhi.

Dr Anil Kumar Singh
Deputy Director General (NRM)
Indian Council of Agricultural Research
New Delhi 110012

Resource Science

Dr Kalkuli M. Shankar
Professor and Head
Department of Aquaculture
Karnataka Veterinary, Animal and
Fisheries Sciences University
College of Fisheries
Mangalore 575 002
Karnataka

Fisheries

DR SHANKAR in 1994 designed and introduced courses in Biotechnology for BFSc and MFSc programmes in the University for the first time in the country. He also managed research on aquatic health and biotechnology with 3 international and 7 national projects. Ten M.Sc., 7 Ph.D. and 2 Post Doctoral students were trained in these projects. A total of 23 international and 11 national publications have been published from the students' theses with due credit to students as first authors. His two students got best thesis award from PFGF, Mumbai. He was awarded as Best Teacher Award in 2002 by PFGF, Mumbai, based on evaluation by the Alumni.

Dr Shankar is Professor and Head, Department of Aquaculture, College of Fisheries, Karnataka Veterinary, Animal and Fisheries Sciences University, Mangalore, Karnataka.

DR S.K. AGARWAL has been associated with the Post-graduate teaching in Animal Reproduction for the last 20 years. He guided 12 students for Ph.D./M.V.Sc. in Veterinary Gynaecology and Obstetrics. He was conferred with Best Teacher Award of the Deemed University, IVRI, in 1998. His research work has been well recognized and he has received various awards—the Nils Lagerlof Award, Basu Memorial Gold medal, G.B. Singh Memorial Award and Indian Dairy Association Award.

Dr S.K. Agarwal is Principal Scientist in the Division of Animal Reproduction at the Indian Veterinary Research Institute, Izatnagar, Uttar Pradesh.

Dr S.K. Agarwal
Principal Scientist
Division of Animal Reproduction
Indian Veterinary Research Institute
Izatnagar 243 122
Uttar Pradesh

Veterinary & Animal Sciences

Dr Tammineedi Satya Chandrasekhara Rao
Associate Dean
College of Veterinary Science
Sri Venkateswara Veterinary University
Tirupati 517 502
Andhra Pradesh

Veterinary and Animal Sciences

DR RAO is heading Department of Anatomy for more than 12 years in Sri Venkateswara Veterinary University. He prepared 11 laboratory manuals; assisted Dr Noden of Cornell University, USA, in creating website – vet Embryo; published 86 research papers, the highest number in the discipline of Veterinary Anatomy in South India. He was conferred Meritorious Teacher Award by Government of Andhra Pradesh. He was selected for Dr V.R. Bhamburkar IAVA Silver Jubilee Award for Veterinary Anatomist of the year 2009 and Dr G. Venkataratnam Best Administrator Award by Senior Veterinarian Association, Vijayawada.

Dr Rao is Associate Dean, College of Veterinary Science, Sri Venkateswara Veterinary University, Tirupati, Andhra Pradesh.

वर्ष 2007-2008 का डॉ. राजेन्द्र प्रसाद पुरस्कार

Award 2009

पशु विज्ञान तथा मात्स्यिकी सहित कृषि में मौलिक स्तर के हिन्दी में शोध कार्य के लिए डॉ. राजेन्द्र प्रसाद पुरस्कार की स्थापना 1975 में की गई थी ताकि भारतीय लेखकों को वैज्ञानिक कृषि से संबंधित विषय पर हिन्दी में मूल पुस्तकें लिखने के लिए प्रोत्साहित किया जा सके। डॉ. राजेन्द्र प्रसाद (1884–1963) भारत के प्रथम राष्ट्रपति थे तथा गांवों से उनका गहरा संबंध था। इन पुरस्कारों के अंतर्गत 9 पुरस्कारों, प्रत्येक 50,000 रु., को दो वर्षों में एक बार प्रदान किया जाता है। भा.कृ.अ.प. के विज्ञापन के आधार पर पुरस्कार हेतु 46 पुस्तकें प्राप्त हुई थीं। सफल लेखक एवं पुस्तकें इस प्रकार हैं :

डॉ. के. वीणा कुमारी
88, 16 क्रास, 2 मेन
ए.ई.सी.एस. लेआउट
गेडालाहल्ली
बैंगलौर 560 094
कर्नाटक

फसल विज्ञान

पुस्तक का शीर्षक : अंडमान निकोबार द्वीप समूह की तितलियाँ

डॉ. के. वीणा कुमारी, प्रशांत मोहनराज, रमेश चंद्र श्रीवास्तव, संजीव कुमार वर्मा

'अंडमान निकोबार द्वीप समूह की तितलियाँ' पुस्तक एक मौलिक शोध कार्य का परिणाम है। यह पुस्तक पोर्ट ब्लेयर की जैव विविधता के सबसे महत्वपूर्ण पहलुओं को रेखांकित करती है। प्रस्तुत पुस्तक में पोर्ट ब्लेयर में पाई जाने वाली तितलियों की विविधताओं को गुणधर्मों, चित्र व्यवहार, आवास तथा कुछ अन्य महत्वपूर्ण विशेषताओं जैसे मिमिक्री आदि की मदद से समझाया गया है। यह पुस्तक पोर्ट ब्लेयर में पाई जाने वाली तितलियों की पहचान करने में भी मदद करती है। तितलियों की विभिन्न प्रजातियों का मौसम, तापमान वनस्पतिक विविधता तथा प्रदूषण से प्रभाव को भी दर्शाया गया है। यह पुस्तक उपयोगी है तथा युवा वैज्ञानिकों तथा तितलियों का विशेष अध्ययन करने वालों तथा जैव विविधता में रूचि रखने वालों में एक नयी रूचि जागृत करेगी।

पुस्तक का शीर्षक : सब्जी बीज उत्पादन की नवीनतम तकनीक

डी के सिंह, दुर्वेश कुमार सिंह

डॉ डी के सिंह एवं दुर्वेश कुमार सिंह द्वारा लिखी गई "सब्जी बीज उत्पादन की नवीनतम तकनीक" पुस्तक में सब्जी उत्पादन एवं बीजोत्पादन संबन्धी समस्त जानकारी 30 अध्यायों में प्रदान की गई है। पुस्तक की भाषा सरल है तथा शैली सकारात्मक प्रभाव डालती है। यह पुस्तक विभिन्न परीक्षणों एवं शोध कार्यों के अनुभव पर आधारित है जो कि छात्रों, प्रशिक्षकों, तकनीकी प्रशिक्षकों, अध्यापकों, प्रसार कार्यकर्ताओं, उत्पादकों आदि को उनकी सब्जी उत्पादन की तकनीकी प्रदान करने में सहायक सिद्ध होगी।

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पुस्तक का शीर्षक : स्वच्छ मांस उत्पादन

डॉ. बी.डी. शर्मा, डॉ. एस.के. मैंदीरत्ता

डॉ. बी.डी. शर्मा एवं डॉ. एस.के. मैंदीरत्ता द्वारा रचित पुस्तक 'स्वच्छ मांस उत्पादन' में मांस उत्पादन, मांस के संदूषण के कारण एवं होने वाली हानि के विषय में जानकारी दी गयी है। पुस्तक में वर्णित अध्यायों में वधशाला की सुविधाओं एवं स्वच्छता, व्यक्तिगत स्वच्छता, मांस पशुओं का परिवहन, वधपूर्व एवं वधपश्चात् पशु का निरीक्षण, खाने योग्य होने का निर्णय, कारकस कटिंग, पैकेजिंग, विपणन व्यवस्था, आदर्श मांस की दुकान की बनावट, मांस को दूषित होने के कारण एवं रोकथाम के उपाय और मांस के कारण होने वाले कुछ रोगों के विषय में भी सरलता से बताया गया है। साथ ही कुछ प्रमुख बीमारियों के विषय में भी जानकारी देने का प्रयास किया गया है। इसके अतिरिक्त एक महत्वपूर्ण भाग प्रतिउत्पादों का उचित उपयोग और मांस का प्रसंस्करण तथा मांस का मूल्यवर्धन भी है, जो कि उपभोक्ताओं को स्तरीय मांस उत्पाद उपलब्ध कराने एवं अधिक मूल्यअर्जन पर आधारित है। हिन्दी में यह पुस्तक मांस क्षेत्र में कार्य कर रहे व्यक्तियों को किस प्रकार पशुपालन से लेकर प्रसंस्कृत मांस उत्पाद बनाने तक, स्वच्छतापूर्ण कार्य कर, उपभोक्ताओं की स्वास्थ्य रक्षा के लिए मार्गदर्शन करती है।

पुस्तक का शीर्षक : मछलियों में रोग प्रबंध

विराट रमन चित्रांशी

'मछलियों में रोग प्रबंध' नामक पुस्तक में मछलियों एवं झींगों में बीमारियां, कब, क्यों और कैसे फैलती हैं, आर्थिक महत्व की मछलियों व झींगों में होने वाली प्रमुख बीमारियों एवं इनका उपचार, आहार अंगों व आहार जनित बीमारियां आदि विषयों पर विस्तार से सरल भाषा में लिखा गया है। पुस्तक में सात अध्याय हैं तथा अंग्रेजी–हिन्दी शब्दावली भी दी गई है। निःसन्देह यह पुस्तक मछली पालन क्षेत्र में रूचि रखने वाले जल कृषकों, वैज्ञानिकों, शिक्षाविदों, उद्यमियों एवं प्रबंधकों के लिए उपयोगी सिद्ध होगी।

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