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NEWSLETTER

ICAR-Central Research Institute for Dryland Agriculture

July-December, 2015

Sardar Patel Outstanding ICAR Research Institute Award to CRIDA



ICAR-CRIDA was bestowed with "Sardar Patel Outstanding ICAR Research Institute Award-2014" for its contributions in research and technology development for rainfed farming regions in India. Dr. Ch. Srinivasa Rao, Director, CRIDA received the award from Honorable Prime Minister, Sri Narendra Modi at Patna, Bihar on 25th July, 2015.

From the Director's Desk.....

खाद्यान, पशुचारा, ईंधन तथा रेशा उत्पादन, स्वच्छ पानी की उपलब्धता, पोषक चक्र तथा कई अन्य परिप्रणालियों का आधार मृदा है। मृदा एक नियत प्राकृतिक संसाधन है और मानव समयमान पर नवीकरणीय नहीं है। धरती की 40% से अधिक सतह के लिए मृदा अवक्रमण एक खतरा है। जलवायु परिवर्तन मृदा अवक्रमण की गति को बढ़ावा दे रहा है और खाद्य सुरक्षा के लिए एक बड़ा खतरा है। जलवायु परिवर्तन के युग में बढ़ती जनसंख्या को खाद्यान उपलब्ध करवाने की हमारी क्षमता, मृदा को जीवित और पोषक बनाये रखने की योग्यता पर निर्भर करेगी। मृदा की अहमियत को मानते हुए संयुक्त राष्ट्र ने 2015 को अंतर्राष्ट्रीय मृदा वर्ष घोषित किया और "हेल्थी साइल फॉर हेल्थी लाइफ" का नारा दिया। भारत सरकार ने फरवरी 2015 में "साइल हेल्थ कार्ड" योजना की शुरुआत की तथा देश के सभी किसानों को "साइल हेल्थ कार्ड" उपलब्ध करने का उद्देश्य रखा। केंद्रीय बारानी कृषि अनुसन्धान संस्थान (क्रीड़ा) अपने नेटवर्क केन्द्रों तथा निष्क्रा-कृषि विज्ञान केन्द्रों के माध्यम से देश के किसानों को "साइल हेल्थ कार्ड" जारी कर रहा है। अंतर्राष्ट्रीय मृदा दिवस 5 दिसम्बर को क्रीड़ा में मनाया गया। इसके अतिरिक्त, खाद्य सुरक्षा, वातावरण गुणवत्ता, जलवायु परिवर्तन जैसी चुनौतियों का सामना करने के लिए, मृदा के सतत प्रबंधन के लिए तकनीक विकसित करने के लिए भी क्रीड़ा प्रतिबद्ध है।

INSIDE

New Research Initiatives.....	02
Research Highlights.....	02
Scientific Activities	03
Contingency Plans	06
Technology Transfer	06
News from AICRPs.....	08
NICRA.....	09
Visits Abroad.....	10
Important Visitors.....	10
Human Resource Development	11
Forthcoming Events	14
Awards and Recognition	14
Personnel Information.....	15
Cultural and Welfare Activities.....	15

Soil is the basis for food, animal feed, fuel and fiber production, supply of clean water, nutrient cycling and several other ecosystem functions. Soil is a finite natural resource and nonrenewable on a human time scale. Soil degradation poses a threat to more than 40 percent of the earth's land surface, and climate change is accelerating the rate of soil degradation and threatening food security. Our capacity to feed the burgeoning world population in the era of climate change will depend on our ability to keep our soils alive and healthy. Realizing the importance of soil, the United Nations declared 2015 as the International Year of Soils with the slogan 'healthy soils for a healthy life'. The Government of India launched the Soil Health Card scheme in February 2015 with the objective of issuing soil health cards to all the farmers in the country. CRIDA is actively engaged in issuing soil health cards to farmers through its network centres and NICRA – KVKs. The institute celebrated the World Soil Day on 5th December, 2015. CRIDA is also committed to developing strategies for sustainable management of soils for addressing the issues of food security, environmental quality and climate change.

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निदेशक

Ch. Srinivasa Rao
Director
CRIDA



New Research Initiatives

Foliar Supplementation for Managing Mid and Terminal Droughts in Rainfed Regions

Foliar fertilization refers to the supplementation of major, minor and beneficial nutrients, plant hormones, stimulants and other beneficial substances to the plants by spraying them on foliage. Foliar supplementation has several advantages such as meeting the nutrient demand of the crops during times of stress. During severe nutrient deficiency conditions, it facilitates rapid absorption of the nutrient and thereby minimizes the deficiency impact. It also helps in avoiding nutrient fixation and immobilization due to various soil chemical interactions. The advantages of foliar sprays are, among others, plant uptake independent of root, use of only small quantities of fertilizer and ability to combine with other agro-chemicals in single application, and increased quality and yields. Field experiments carried out at CRIDA revealed that foliar spray of 1.5% potassium chloride + 0.25% zinc sulphate + sodium selenite (@ 20g/ha) at 25-30 days of sowing along with the recommended dose of fertilizer at basal and top dressing (90 kg N, 45 kg P₂O₅ and 45 kg K₂O) enabled maize crop to withstand drought conditions. Also, field experiments conducted at Gunegal Research Farm of the institute during the last three years revealed that application of recommended dose of fertilizers and spraying of 0.5% water



Growth of maize as influenced by different foliar treatments

soluble fertilizers (19-19-19) + 0.50% zinc sulphate and + 20g/ha of sodium selenite at 25-30 and 50-55 days of sowing recorded higher chlorophyll content and also resulted in higher grain yield. Foliar spraying of 0.5% water soluble fertilizer (19-19-19) at 25 and 55 days of sowing along with recommended dose of basal fertilizers to sorghum (cv SPV 462) enhanced the chlorophyll content of straw and grain yield of sorghum.

Research Highlights

Packaging of Farm Pond Technology for Livelihood Enhancement

In Adilabad district, Telangana on a pilot basis, a farm pond of 1000m³ capacity having a dimension of 17m x 17 m top, 13m x 13m bottom and 4.0m depth was dug during mid-July 2008 under NAIP. The farm pond got filled up during the first week of August and water was retained even after use till the end of February 2009. The project met the cost of digging while the farmer (Mr. U. Namdev) met the cost of diesel pumpset for lifting of water and pipeline for irrigating tomato on a half-acre plot and could realize a net return of Rs. 72,000/-. The success led to huge demand by other farmers and the farm ponds dug under MGNREGS were re-modeled and few new ones were dug totaling 30 in Seethagondi gram panchayat, Gudihatnoor mandal of Adilabad district. These ponds are of bigger dimension (20m x 20 m top, 15m x 15m bottom and a depth of 4.0 to 5.0 m) and higher capacity (>1000 m³). Ten ponds out of total 30 retained water till the end of February - March and another ten throughout the year even after use, due to recharge from base flow.

The lifting of water which was a constraint earlier was addressed during 2011 by providing 1.5 hp pumpset (petrol start, diesel operated) and later they were substituted with 5.0 hp pumpset during 2015 under tribal sub-plan (TSP). The farmers and the line department officials are convinced with the technology and lining of pond is discouraged in areas having black soils, which will save about Rs. 40,000/- on HDPE lining material. The technology is being up-scaled by NABARD under watershed programme and RAD under RKVY through line department. The availability of water in most of the ponds till the end of February/March is the silver lining for improving cropping intensity and diversity in the most disadvantaged district of Telangana State.



Farm pond & 5.0 hp Pumpset (Inset)

Training on farm pond technology

ICAR - CRIDA - ANNEXE BUILDING FOUNDATION STONE LAID

On 13th December 2015, Dr. S. Ayyappan, Secretary, DARE and Director General, ICAR along with Dr. A.K. Sikka, Deputy Director General (NRM) and Dr. Ch. Srinivasa Rao, Director, ICAR-CRIDA laid the Foundation Stone for the Institute Annexe building in the august presence of Dr. S.M. Virmani, Former Principal Scientist, ICRISAT; Dr. A. Padmaraju, Vice-Chancellor, ANGRAU; Dr. B. Venkateswarlu, Vice-Chancellor, VNMKV; Dr. D. Rama Rao, Director, NAARM; Dr. Y.S. Ramakrishna, Former Director, ICAR-CRIDA; Directors of other ICAR Institutes; officials from CPWD and ICAR-CRIDA staff.



After the bhumi puja ceremony, in a brief meeting with the invitees, the contributions of CRIDA were appreciated by the dignitaries who graced the occasion. Dr. Ch. Srinivasa Rao welcomed all the dignitaries. While requesting for continued support from ICAR, he reaffirmed that the headquarters can always rely on CRIDA for technical inputs. In his address, Dr. S. Ayyappan lauded the contributions of CRIDA and mentioned that the headquarters always looked at CRIDA for inputs. He assured that CRIDA would get all necessary support from ICAR from time to time. Dr. A.K. Sikka while acknowledging his association with CRIDA, requested CPWD to complete the building at the earliest, as CRIDA needed this infrastructure. Dr. S.M. Virmani complimented the contributions of CRIDA. Dr. A. Padmaraju extolled the relationship of CRIDA with SAUs and line departments of the State Governments.



Scientific Activities

RFD Meeting

RFD is a Result Frame Work document which has been introduced by the ICAR for monitoring and evaluating the performance of institutes. The RFD document contains agreed objectives, success

indicators and project targets to measure the progress and to evaluate the institute overall performance at the end of the year. RFD meetings were held on 1st July, 2015, 3rd August, 2015, 1st September, 2015, 3rd October, 2015, 2nd November, 2015 and 2nd December, 2015.

Visit of Drafting & Evidence Sub-Committee of the Committee of Parliament on Official Language

Drafting & Evidence Sub-Committee of the Committee of Parliament on Official Language ((12 members) visited Hyderabad on 22.8.2015 under the leadership of CRIDA. They inspected the progress of implementation of Official Language in CRIDA as well as nine other Central Government Offices.



Visit of Committee of Parliament on Official Language

Consultation Meeting on the Use of Space Technology for Crop Loss Assessment During Extreme Weather Events

A consultation meeting was held on 1st September 2015 at Krishi Bhavan, New Delhi under the chairmanship of Hon'ble Minister of State for Agriculture, Dr Sanjeev Kumar Balyan on use of remote sensing technology for crop loss assessment during extreme



Consultation meeting on use of remote sensing technology for crop loss assessment

weather events such as droughts, hailstorms, floods and cyclones. The meeting was attended by Dr S. Ayyappan, Secretary, DARE and DG, ICAR; Dr AK Sikka, DDG (NRM), ICAR; Dr JS Sandhu, DDG (Crop Sciences), ICAR, Sri Narendra Bhooshan, Joint Secretary

(DM), Sri Sanjay Lohiya, Joint Secretary (Crops), Directors of CRIDA, Hyderabad; IIFSR, Modipuram; NIASM, Baramati; IASRI, New Delhi; MNCFC, New Delhi; ADGs, Senior Officers from DAC, DARE, DES, Scientists from ICAR head quarters and different Research Institutes, representatives from AIC, New Delhi; NABARD; AGRISK, Mumbai, etc., In his remarks, Dr Balyan desired that there is a need to use advanced space technologies for reliable and rapid estimation of crop loss during extreme weather events.

Dr M. Prabhakar, Principal Scientist, CRIDA, made a brief presentation highlighting the past experiences on use of remote sensing for crop specific mapping of areas affected by hail storms, unseasonal rains and floods by ICAR institutes and the work plan for taking up pilot studies in selected locations. Dr A.K. Sikka stressed the need for reviewing available spectral vegetation indices for damage assessment. Dr Ch Srinivasa Rao, Director, ICAR-CRIDA appraised the research component in the project and highlighted application domain of the project outcome. This was followed by a presentation of Dr Ravi Shankar from NRSC, Hyderabad detailing the use of remote sensing data for agricultural applications.

Rabi Action Plan

An interaction meeting of KVKs (Zone V) for discussing the crop planning in Rabi 2015-16 by the KVKs of Zone V was jointly organized by ATARI and CRIDA on 26th September 2015 at Hyderabad. The directors of extension education of SAUs and Horticulture University or their representatives from the states of Andhra Pradesh, Telangana and Maharashtra, representatives of directors of ICAR research institutions based at Hyderabad such as IIRR, IIMR, and NAARM and Heads and Scientists of 70 KVKs of Zone V participated in the meeting. Dr. N. Sudhakar, Director ATARI briefed about the purpose of the meeting. Dr.Ch. Srinivasa Rao, Director ICAR-CRIDA, said that KVKs of Zone V have to play an



Rabi action plan meeting

important role in informing the farmers about crop planning and sowing methods based on soil type and following proper management of water, nutrients etc. The technical sessions led by Dr. P.G. Ingole, Director of extension education, Dr. P.D.K.V. Akola and Dr. R.V.S.K. Reddy, Director of extension and Dr. Y.S.R, HU enlightened about the technologies and cultivation practices to be adopted during the rabi season.

Training of IAS/IFS Officers under PMKSY

Dr Ch. Srinivasa Rao, Director and Dr K.V. Rao, Principal Scientist participated in the training programs on Pradhan Mantri Krishi Sinchai Yojana (PMKSY) organized during June - October, 2015 for IAS/IFS officers of different states as resource persons to sensitize them about District Agricultural Contingency Plans and also on Resource Conservation Technologies for Watershed Programs. These trainings were held at Bhubhaneshwar, Hyderabad, Pune, Dehradun, Shillong and Delhi.

Mid Term IRC Meeting

Mid term IRC meeting was held on 10th November, 2015. The meeting was chaired by Dr. Ch. Srinivasa Rao, Director, CRIDA and was attended by Project Coordinators and all Heads of Divisions/Sections/Units and Scientists. The Chairman IRC in his opening remarks suggested developing an inventory of NICRA research and TDC component as a ready reckoner. The progress of the research projects was reviewed and suitable suggestions were given, The new project proposals in IRC suggested with modifications were approved.

2nd ICAR Hailstorm Task Force Meeting Organized

The second task force committee meeting on hailstorm management was held at ICAR-NRC for Grapes (NRCG), Pune on 21st November 2015 under the chairmanship of Dr A.K. Sikka, DDG (NRM) along with members Dr N.K. Krishna Kumar, DDG (Horticultural Science), Dr B. Venkateswarlu, Vice Chancellor, VNMKV, Parbhani, Prof M.C. Varshneya, Vice Chancellor, Kamdhenu University, Gandhinagar and Dr P.S. Minhas, Director, ICAR-NIASM, Baramati. The meeting was attended by Directors of several ICAR institutes from horticulture and crops divisions, Project Coordinators, senior officers from IMD, National Horticultural Board, State Agricultural Universities, farmer representatives and scientists. Dr. A.K. Sikka indicated the magnitude and frequency of hailstorms in the last two years and briefed the house on the efforts of



2nd ICAR hailstorm task force meeting

Dr. N. Krishna Kumar expressed that impacts of extreme events are spread across crops. He said that during hailstorm, high wind velocity, size of stones and intensity are the major factors, which affect the extent of damage to the orchards or any fruit or vegetable crops. Dr Ch. Srinivasa Rao, Director, CRIDA and convener of the task force presented minutes of first task force meeting and briefed

the agenda for the day's meeting. Dr V.U.M. Rao, Project Coordinator (Agrometeorology), Hyderabad made a brief presentation on the concept note followed by Dr P.S. Minhas from NIASM, Baramati and Dr Chattopadhyay, DDGM (Agrometeorology), IMD, Pune on the work being carried out at their respective organizations for hailstorm management. This was followed by discussion with all the stakeholders and the project partners on the objectives and activities to be taken up in the project entitled "Hail storm impacts in agriculture and allied sectors and development of adaptation strategies". A time frame was suggested for completion of different activities. The meeting ended with vote of thanks by Dr A.K. Upadhyay, Principal Scientist, NRCG.

Institute Management Committee (IMC) Meeting

The 45th IMC of CRIDA was held on 9th December, 2015 under the chairmanship of director CRIDA. The meeting was attended by IMC members and special invitees from CRIDA. The proceedings of the previous meeting were confirmed.



IMC meeting in progress

RAC Meeting

The XXIV meeting of the Research Advisory Committee (RAC) and IV Common RAC of CRIDA & CAZRI was held at CRIDA, Hyderabad during 17th and 18th December, 2015.



RAC meeting

The meeting was attended by Dr. M.C Saxena, Chairman and members Dr. Y.S Ramakrishna, Dr. A. Padmaraju, Dr. K.D. Singh,

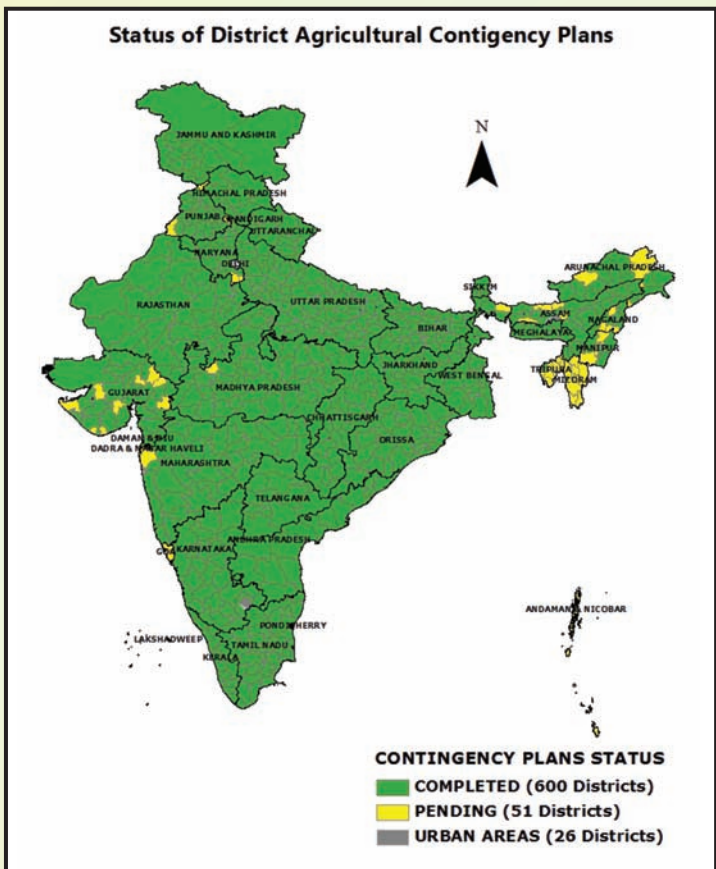
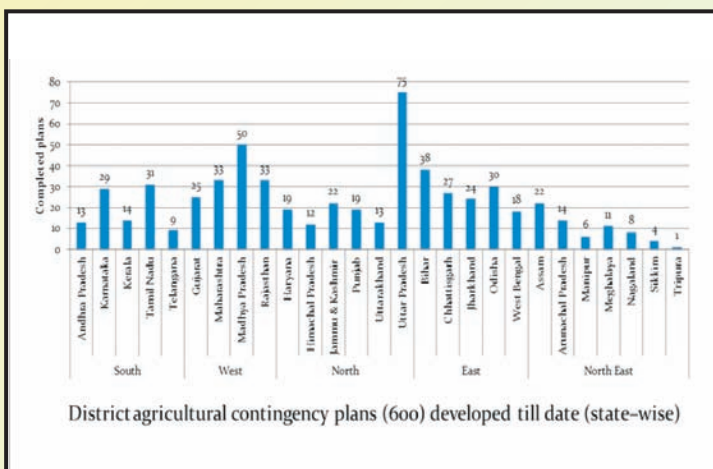
Dr. R.P. Singh, Dr. C.L. Acharya, Dr. S. Pandey, Dr. M.M. Roy, Director, CAZRI, Dr. B.M. Kumar, ADG (Agronomy, Agroforestry & Climate Change), Dr. Ch Srinivasa Rao Director, CRIDA and Dr. G Rajeshwar Rao, member secretary. Dr. Ch Srinivasa Rao, Director CRIDA welcomed the chairman and members of the RAC and briefed them about the achievements made by the institute. RAC

members interacted with scientists of CRIDA in 7 thematic group meetings. The RAC appreciated the progress made by the institute and approved long term and short term collaborative projects proposed by CRIDA and CAZRI. The RAC team visited on-farm trial sites of KVK villages, and GRF on 18th December, 2015 and were impressed with pond technology and supplemental irrigation.

Contingency Plans

ICAR, DAC Interface meetings on Enhancing the preparedness of Agricultural contingencies in Kharif 2015 were conducted in 11 states of India viz, Telangana, Maharashtra, Karnataka, Haryana, Gujarat, Uttar Pradesh, Rajasthan, Chattisgarh, Jharkhand, Madhya Pradesh. So far 600 districts agricultural contingency plans were developed.

Updation of the contingency plans along with SAU's and ICAR institutes was done through updation workshops for 68 districts of 6 states viz, Maharashtra (8), Andhra Pradesh (13), Gujarat (10), Chattisgarh (27), Tripura (7), Andaman & Nicobar Islands (3).



Technology Transfer

Mera Gaon Mera Gaurav

Mera Gaon Mera Gaurav (MGMG) programme was initiated in ICAR-CRIDA by adopting 75 villages in 7 districts of Telangana and one district of AP in September 2015. All 60 scientists of the institute formed into 15 groups of 4 scientists in each group, and each group adopted 5 villages. The districts are Adilabad, Mahbubnagar, Khammam, Warangal, Anantapur, Medak, Rangareddy and Nalgonda. The main objective of MGMG is to provide awareness, information and knowledge to farmers in a timely manner. A participatory approach is being followed in all its extension activities.

Farmers - Scientists Interaction Meeting

A two day Farmer - Scientist interaction program was organized at KVK, CRIDA, Hayathnagar Research Farm during 9 and 10 July, 2015. About 25 farmers from 11 divisions of Ranga Reddy Dt.



interaction of scientists with farmers during MGMG village visit

covering 25 mandals and 15 field staff of ATMA (ATMs and BTMs) participated in the program. Dr. B. Subbarayudu, Project Director,

ATMA, Ranga Reddy Dt. was the chief Guest and the program was presided over by Dr. M. Prabhakar, Principal Scientist and Program Coordinator, KVK. PD, ATMA in his inaugural address requested the farmers to make best use of the two days program and actively participate in the deliberations.

Kisan Sammelan

A two day Kisan Sammelan program was organized during 28-29 September, 2015 at ICAR-Krishi Vigyan Kendra, Ranga Reddy Dist, CRIDA, Hayathnagar Research Farm, Hyderabad. The theme of the Sammelan on the first day was 'Crops and Horticulture Technologies' wherein crop cafeteria, live demonstrations on crops (varieties, INM, IPM, soil & water conservation), live demonstration on vegetables (mulching, shade net, nurseries, raised beds) was shown to the farmers. Seminars were organized on vegetables management and crop management. Dr. Ch. Srinivasa Rao, Director, CRIDA presided over the meeting and Dr. N. Sudhakar, Zonal Director, ATARI (Zone-V) was the chief guest. Zonal Director, ATARI (Zone-V) in his address emphasized the importance of KVKs in the district and urged the farmers to utilize the services rendered by KVK. Dr.Ch. Srinivasa Rao, Director, CRIDA explained the farmers about the dryland technologies available in CRIDA, contingency crop planning under deficit rainfall situation and interacted with the farmers on problems of crop damage due to mid season drought. He further requested the farmers to use the improved technologies for meeting the future challenges. About 150 farmers from Yacharam, Manchal, Hayathnagar, Moinabad and other places of Ranga Reddy district participated in the program.



Kisan Sammelan of KVK

On the second day i.e., on 29th September 2015, the theme of the Sammelan was livestock production & management, fodder technologies, soil & water conservation, farm mechanization and women empowerment. Live demonstrations on fodder, livestock, silage making, azolla, mineral mixture, KVK model watershed, soil & water conservation techniques, were shown to farmers. About 165 farmers and farmwomen participated in the program on the second day. Seminars were organized on livestock and fodder technologies, farm mechanization & soil and water conservation and women empowerment and livelihood.

Animal Health Camp

To emphasise on livestock rearing for enhancement of better rural livelihoods, Krishi Vigyan Kendra (Ranga Reddy Dist), CRIDA, Hyderabad conducted a one day animal health camp at Gaddamallaiguda village of Yacharam mandal, Ranga Reddy district on 9th October 2015. The camp enabled to understand the general

livestock health status, prevailing management practices and diseases in the village. Based on the diagnosis and treatment given for various cases during the camp it is inferred that most of the large ruminants were undernourished as they are being fed on the available grazing bunds, dry roughages, improper feeding schedules without any supplementation of mineral mixture.



Awareness creation on health status of livestock

World Soil Day

ICAR-CRIDA, Hyderabad organized the World Soil Day celebrations at Kotha Thanda Village, Atmakur (S) Mandal, Nalgonda district on 5th December 2015. Smt. Kalindini, Assistant Project Director, DWMA, was the Chief Guest of this function. About 262 farmers from Patharlapahad cluster villages, Scientists from CRIDA, Officials, under TOT activities from Department of Agriculture and Horticulture, Telangana, DRDA, Nalgonda district and Scientists from KVK, Gaddipally attended the meeting and shared their views with the farmers. Scientists from CRIDA (Drs. K. Sammi Reddy, K. Srinivas, G. Nirmala, B. Sanjeeva Reddy, and K. Nagasree and AK Indoria) explained the farmers about soil sample collection, soil health status and soil test based fertilizers and manures to be applied to different crops. On this occasion, the Chief Guest distributed Soil Health Cards to the farmers.



Distribution of soil health cards on world soil day

KVK Ranga Reddy Dt., ICAR- CRIDA organized World Soil Day on 5th December 2015 at its adopted village, Gaddamallaiguda, Yacharam mandal, Ranga Reddy District. About 156 farmers and several public representatives participated in the program. Dr. M. Prabhakar, Head, KVK briefed the gathering on the importance of soil health management and various activities undertaken by CRIDA-KVK in the district. Sh. Manchireddy Kishan Reddy, Hon'ble MLA, Ibrahimpatnam and the chief guest for the program in his address requested the farmers to take soil testing regularly and reduce use of chemical fertilizers. He further highlighted the ill effects of high doses of chemical fertilizers, and suggested use of organic manures.

Celebration of Jai Kisan Jai Vigyan week

On 26th December, 2015, Jai Kisan Jai Vigyan day was celebrated at Gunegal Research Farm, CRIDA and was attended by about 45 farmers belonging to Chaudarpally, Yacharam and Gunegal villages of Yacharam mandal and Rangapuram village of Manchal mandal of Ranga Reddy district. Interaction sessions followed by field visits were undertaken to mark the occasion.

Later, the farmers were taken around the farm and were shown the field experiments pertaining to conservation agriculture, organic agriculture and the crops raised in fields using the harvested water through farm ponds.

On 29th December 2015, about 75 farmers from Bapuji thanda , Boring thanda, Ayyavari thanda villages of Patharla pahad gram panchayat, of Nalgonda District adopted under the Mera Gaon Mera Gaurav programme participated in the celebrations. A quiz programmes was organised to test farmers' awareness and



Demonstration on use of dryland implements during Jai Kisan Jai Vigyan week

knowledge on crop production practices, livestock production and management, government schemes implemented and farm machinery and implements.

News From AICRPs

AICRPDA

AICRPDA-NICRA Third Annual Review Workshop

The third annual review workshop of AICRP for Dryland Agriculture (AICRPDA) - National Innovations on Climate Resilient Agriculture (NICRA) network programme was held at AICRPDA Centre, Ananthapuramu, A.N.G.R. Agricultural University (ANGRAU) during 01-03 September, 2015 to review the progress achieved during 2014-15, both on-station and on-farm situations. The workshop was inaugurated by Dr. A. Padma Raju, Hon'ble Vice Chancellor, ANGRAU and presided over by Dr. K. Raja Reddy, Director of Research and Director of Extension I/c, ANGRAU. Dr. T. Ramesh Babu, Dean of PG Studies & Dean of Agriculture, ANGRAU, Dr. G. Ravindra Chary, Project Coordinator, AICRPDA, Dr. T. Yellamanda Reddy, Dean of Agriculture (Retd.), ANGRAU, and Dr. Y. Padmalatha, Associate Director of Research, Regional Agricultural Research Station, Nandyal, Scientists from 23 AICRPDA centres, scientists from ARS, Anantapuramu and PC Unit, AICRPDA, Hyderabad participated.

In the Plenary Session, Dr. Ch. Srinivasa Rao, Director, CRIDA stressed on the need to have more scientific documentation of different interventions and suggested the centres for popularization and upscaling of successful interventions in neighbouring villages/districts. Dr. Ravindra Chary presented on the action points emerged during the workshop to strengthen AICRPDA-NICRA programme.

Two Day Vetting Workshop on Doable Rainfed Technologies

A two day vetting workshop on doable rainfed technologies in Maharashtra State was organized during 15-16 October, 2015 at ICAR-CRIDA. Sixteen scientists from three AICRPDA centres (Akola, Parbhani and Solapur) located in Maharashtra participated.



Stakeholder Consultation Workshop

A one-day district level stakeholder consultation workshop was held at AICRPDA Centre, Ballawal Saunkhri (PAU) on 19th November 2015 to develop an action plan for upscaling of rainfed technologies



developed by AICRPDA centre, Ballawal Saunkhri for the domain districts of Hoshiarpur, Gurdaspur, Nawanshahr and Rupnagar located in Kandi region of Punjab. Dr Ashok Kumar, Additional Director of Research, PAU, Dr. P.S. Aulakh, Additional Director of

Extension, PAU, Dr G Ravindra Chary PC, AICRPDA, Hyderabad, Sh. Jagjit Singh, SDM, Balachaur, officials from line departments, KVKs, and farmers participated in the workshop.

XV Working Group Meeting of AICRPDA

The XV working group meeting of All India Coordinated Research Project for Dryland Agriculture (AICRPDA), CRIDA, was held at AICRPDA centre, Biswanath Chariali, Assam Agriculture University during 24-27 December 2015. Dr. K. M. Bujarbaruah, Hon'ble Vice Chancellor, AAU, Dr. Ch. Srinivasa Rao, Director, CRIDA, Dr. G.N. Hazarika, Director of Research, AAU, Dr. D.K. Borah, Dean, Faculty of Agriculture, AAU, Dr. S.K. Sharma, Director, Central Research Institute for Arid Horticulture, Dr.J.J.R. Narware, Director, FMTTI, NEH Region, Dr. G. Ravindra Chary, Project Coordinator (Dryland Research), Dr. Basant Kandpal, Principal Scientist, NRM Division, ICAR, Dr. T.C. Baruah, Associate Dean, BN College of Agriculture, scientists from Tezpur University, AAU, AICPRs, CRIDA and 30 main/sub/ORP centres of AICRPDA network participated.

Dr. Bujarbaruah, in his presidential address, appreciated the achievements made in research across AICRPDA network. Dr. Srinivasa Rao highlighted that technologies developed across AICRPDA are integrated into various state and national programmes. Dr. Hazarika gave an overview of rainfed agriculture research in AAU. Dr. Dr. Ravindra Chary briefed about the purpose of the meeting and an overview of progress of research in AICRPDA



network. Best dryland farmer awards were given to 7 farmers from the domain districts including AICRPDA-NICRA and AICRPDA-TSP adopted villages. On the occasion, 22 publications from AICRPDA centres and PC unit, AICRPDA, were released. The participants also visited on-station experiments at Biswanath Chariali and on-farm trials/demonstrations under AICRPDA- NICRA in Chamua village, Sonitpur district of Assam.

AICRPAM

Working Group Meeting of AICRP on Agrometeorology

The annual working group meeting of AICRP on Agrometeorology (AICRPAM) was held at OUAT, Bhubaneswar during 17-19 Nov 2015. The inauguration on 17 Nov was presided over by Prof. M.K. Khan, Hon'ble Vice Chancellor (in-charge) of OUAT. Dr. Ch. Srinivasa Rao, highlighted about the greater role of the project, among the AICRPs, in meeting the challenges of climate change. Dr. VUM Rao, Project Coordinator (AICRPAM) presented the progress made during 2014-15 and also threw light on the preparedness of the project for upcoming QRT (2011-15). Four 'Agroclimatic atlases' and 12 technical bulletins on 'Agrometeorology of crops' of respective centres were released during the inaugural session. The meeting consisted of seven technical sessions in which the cooperating centres presented their progress of research work under five themes, viz., agroclimatic characterization, crop-weather relationships, crop growth modeling, weather effects on pest and diseases and agromet advisory services.



National Initiative On Climate Resilient Agriculture

NICRA Annual Workshop

The fourth national annual review workshop of the "National Innovations on Climate Resilient Agriculture (NICRA)" project was held at ICAR-Central Marine Fisheries Research Institute (CMFRI) during 13-14 August, 2015. Dr. S. Ayyappan, Secretary, DARE & Director General, ICAR, inaugurated the workshop. He complemented NICRA team for the significant progress and mentioned the importance of product oriented research to address the occurrence of extreme weather events. He stated that the Village Resource Centres should become climate counseling centres and emphasized the need to work with the farmers and help them find



DG. addressing the participants of NICRA workshop.

solutions to their problems related to intra and inter seasonal climatic variability. Dr. Ch. Srinivasa Rao, Director CRIDA presented the overview of NICRA and explained about the expectations of NICRA and way forward. About 200 Scientists and experts from 40 Indian Council of Agricultural Research (ICAR) institutes and State Agricultural Universities participated in the deliberations of workshop

Other NICRA Activities

- 8th Meeting of the High Level Monitoring Committee on National Innovations on Climate Resilient Agriculture on 5 October, 2015 at NASC, New Delhi.

- Workshop on 'Impacts-Vulnerability-Adaptation for India's Third National Communication to UNFCCC' during 28-29 October, 2015 organized by MoEF & CC, New Delhi.
- 2nd Meeting of the Subcommittee on "Climate Change and Resilience" of the Commission on "Inclusive and Sustainable Agricultural Development of Andhra Pradesh" on 5th November, 2015 at CESS, Hyderabad.
- Workshop on "Vulnerability Analysis" in National Mission on Sustainable Himalayan Ecosystems during 17-18 November, 2015 at ICAR-IISWC, Dehradun.

Visits Abroad

Dr. B. Narsimlu, Senior Scientist (SWCE) visited Asian Institute of Technology, Bangkok, Thailand and presented a paper entitled "Effect of climate change on hydrological regimes of Pahuj river basin (ungauged) India and its consequences on fodder production using SWAT Model" in The Regional Forum on Climate Change 2015 during 1-3 July, 2015.

Dr. M. Maheswari, Head DCS visited ISMECRI, BALITRO, Indonesia during 25-27 August, 2015 for attending the workshop on "Management Innovation on Environmental Stress on Spices Crops".

Dr. V.U.M Rao, Project Coordinator, AICRPAM visited Geneva, Switzerland during 01-03 September, 2015 as an expert member for "CCI expert Team on Infrastructural and Institutional Capabilities" and participated in deliberations..

Under DAAD Re-invitation program, **Dr. Suseelendra Desai** was deputed to Institute for Biochemistry and Biotechnology of Plants, WilhelmsWestfalische University, Germany during 1st October to 30th November 2015. Dr. Desai laid out pot culture trials using combination of chitosans and plant growth promoting microorganisms for enhanced growth of sorghum.



Dr. Desai carrying out research

Dr. Ch. Srinivasa Rao, Director, CRIDA participated in UNFCCC CoP-21 at Paris, France and presented a paper on "Technologies for Climate Change Adaptation" in a side event on agriculture sector as a member of the Indian delegation during 3-6 December, 2015.



Dr. Srinivasa Rao at CoP 21 meet

Important Visitors

African Team Visits CRIDA

A team of thirty nine (39) agricultural extension officials from Kenya, Liberia and Malawi undergoing training programme on "New Dimension in Agricultural Extension" at MANAGE, Hyderabad visited ICAR-Central Research Institute for Dryland Agriculture, Hyderabad on 29th August 2015. The team interacted with Director, CRIDA on issues pertaining to agriculture and livestock management. The team also got acquainted with recent

technologies/data developed by the institute displayed in the Dryland Museum and also visited the Phenomics facility.

Prof. Ramesh Chand, a renowned Economist and Hon'ble Member of NITI Ayog, GOI visited AICRPDA Centre, Ballawal Saunkhri (Punjab Agricultural University) on 23rd October, 2015. Prof. Ramesh Chand advocated efficient rainwater management and development of location-specific integrated farming system models including agro-forestry with focused research in dryland agriculture.



African delegates visit to phenomics facility



Demonstration of farm machinery to delegates

Other Visitors

Visitor(s)	Date(s)
International	
Dr. Robert Thompson from US Consulate, Washington	September 21, 2015
Malaysian Team	November 21, 2015
National	
Trainees from WALAMTARI, Hyd. (40 Trainees) visited HRF/KVK	July 23, 2015
Progressive farmers from Madhya Pradesh region, Datia Dist. (26 farmers)	August 20, 2015
Drafting and evidence subcommittee of the Committee of Parliament on Official Language	August 21-22, 2015
Final B.Sc (Agril.) Students from Vanavarayar Institute of Agriculture, TNAU. (145 students)	September 1, 2015
Final B.Sc (Horticulture) students from Adhiparashakthi Horticultural college, Kalavai (TNAU) (52 students)	September 5, 2015
149 7th Semester B.Sc (Honrs.) Agri. Students from C. P. College of Agriculture, SDAU, Gujarat (149 students)	October 25, 2015

Human Resource Development

Capacity Building on 'Agromet Data Analysis, Crop Simulation and Modeling' by AICRPAM-CRIDA

A ten-day capacity building program was organized by AICRP on Agrometeorology (AICRPAM) unit at CRIDA for the scientists of its 25 cooperating centres during 28 July to 6 August, 2015. The major objectives of this program were to develop and finalize the crop weather calendars for the major crops of and also to prepare the technical bulletin entitled 'Agrometeorology of the Crops' by analyzing long-term crop experimental datasets. The program was inaugurated by Dr. Ch. Srinivasa Rao, Director, CRIDA. In his address to the participating scientists he suggested that their research should address the issues of agro-ecosystem towards coping strategies for weather aberrations.

During the program, 23 crop weather calendars were prepared, an outline was prepared for bulletin on 'Agrometeorology of Crops' and agromet data analysis was undertaken for preparation of agroclimatic atlas. Dr. Y. S. Ramakrishna, Ex-Director, CRIDA was the chief guest in the valedictory function held on 6 August, 2015. He pointed out that regions suitable for different crops can be identified under this project by characterizing the agrometeorological requirements of different crops.



Valedictory session (above photograph) and group photo of the participants

Training on 'Improved Production and Management Techniques in Dairy Farming'

A one-day training programme was organized at KVK, Hayathnagar Research farm on 1 August 2015. About 26 farmers from different parts of Ranga Reddy District participated in the program. Initially farmers were taken to fodder cafeteria and explained different fodder crops suitable for rainfed and irrigated conditions. Farmers showed keen interest for growing perennial hybrid Napier, hedge lucerne and annual grasses like giant bajra were exposed to value addition of milk, preparation of dairy products like skimmed milk powder, butter, ghee, and shown live milk processing operations in the dairy plant.

Training on 'Soil Health Management and Soil Test Based Fertilizer Recommendations'

Commemorating the International Year of Soils - 2015, Krishi Vigyan Kendra, Ranga Reddy District, ICAR-CRIDA organized a one-day training programme on soil health management and soil test based fertilizer recommendation in KVK premises, Hayathnagar Research Farm, Hyderabad on 26 August 2015. About 100 soil health cards were prepared for the farmers of the KVK adopted village, Gaddamalliahguda. Dr. Ch. Srinivasa Rao, Director, CRIDA graced the occasion and interacted with the farmers on soil health related issues. He enlightened the importance of soil health cards and the need to revive soil health through traditional means. Director, CRIDA distributed the Soil health cards to the participating farmers along with the training brochure on soil health management.



Distribution of soil health card (above photograph) and training session

Training cum Awareness on 'Integrated Farming System'

Two on-campus programs on Integrated Farming Systems (IFS) under 'Development of Crop Colonies' program of Department of Agriculture, Govt of Telangana were organized on 1st and 3rd September 2015 at KVK, Hayathnagar Research Farm, ICAR-CRIDA. About 50 farmers from Ibrahimpatnam and Hayathnagar mandals participated in the program. Participating farmers showed keen interest on sheep, goat, dairy and backyard poultry.

SERB Training on 'Agro-meteorological Techniques for Risk Assessment and Management of Extreme Events'

Science and Engineering Research Board (SERB), Govt. of India sponsored 21-day training program on "Agrometeorological techniques for risk assessment and management of extreme events" was organized at ICAR-CRIDA during 01-21 September 2015. The participants of the training program included scientists/researchers from 16 states across 10 disciplines. Hands on training on DSSAT, Weather Cock, PET Calculator, and AQUACROP software programs was provided. During the inaugural session held on 01 September 2015, the Chief Guest Dr. B.V. Ramana Rao stressed the need for systematic research approach to extreme events in developing suitable adaptation strategies.



Inaugural session (above) & Valedictory session of SERB training (below)

In the valedictory function on 21 September 2015, Chief Guest Dr. P. Sanjeeva Rao from DST, appreciated the efforts of CRIDA agronomists and logistic support of ICAR-CRIDA in conducting SERC and SERB training programs. Dr. Ch. Srinivasa Rao, Director, CRIDA felt that these training programs form a platform for knowledge transfer and management and also help in building long-term collaborations between research organizations.

Capacity Building on Soil Health Improvement Technologies and Up-scaling Strategies

As a part of International Year of Soils celebrations, ICAR- ATARI (Zone V) and CRIDA, Hyderabad jointly organized capacity building programme on soil health improvement technologies and upscaling strategies on 24th September 2015. 50 KVK Scientists from Andhra Pradesh, Telangana and Maharashtra participated in the programme. Chief guest Dr. A Padma Raju, Hon'ble Vice-chancellor, Acharya N.G. Ranga Agricultural University, stressed on the importance of soil health management for enhancing production and productivity.



Capacity Building Programme

Dr. Ch Srinivasa Rao, Director ICAR-CRIDA explained the role of healthy soils in national food security and indicated that soil in agriculture fields is the national property and need to be protected. He also highlighted various soil management efforts being made under the NICRA programme by 121 KVKs in the form of GPS based soil testing, application of tank silt for improving the soil moisture retention for drought mitigation, soil organic carbon management, soil health card based fertilizer application, resource conservation agriculture etc. Dr. N Sudhakar, Director ICAR-ATARI (Zone V) requested the KVK scientists to promote the concept soil test based fertilizer application and INM practices for judicious nutrient management.

Training to Young Farmers on 'Crop and Soil Health Management'

Training programs on 'Crop colonies' and 'Soil health management' for sustainable income were organized at Kandukur, Pudur and

Chevella mandals of Ranga Reddy district on 5, 6 and 8 October 2015, respectively. About 50 farmers belonging to SC and ST category from each mandal participated in the training program. Importance of soil testing, procedures for soil sample collection and the benefit of soil test based fertilizer recommendations were explained to the farmers using case studies. In addition to the farmers, some of the public representatives viz., Sh Ashok Goud, Chairman, Mandal Praja Parishad (MPP), Kandukur; Sh. Narsingam Reddy, Chairman, Primary Agriculture Cooperative Society (PACS), Kandukur; Assistant Directors of Agriculture viz., Mr Deva Kumar, Dr Mery Rekha, Smt. Neelima and other field staff of Department of Agriculture participated in these programs.



Experts interacting with farmers

Training on 'Organic Farming and Soil Health Management'

A series of training programs were conducted on 15 and 19 October 2015 at Yacharam and Manchala mandals of Ranga Reddy district under the Paramparagath Krishi Vikas Yojana (PKVY). This program was organized for about 50 small and marginal farmers from Arutla village, Manchala mandal and Nallavelli village, Yacharam mandal, Ranga Reddy District. Emphasis was given on green manuring, green leaf manuring, vermicomposting, biofertilizers, bio agents botanical pesticides etc. They were also exposed to the process of organic certification, the importance forming into clusters and the related forward and backward linkages for marketing organic produce. These two trainings resulted in registration of 45 early adopters (farmers) into clusters and farm history sheet was prepared for each one of them.

Training on Climate Resilient Agriculture Technologies

Krishi Vigyan Kendra, Ranga Reddy Dt., ICAR-CRIDA organized a three day training program from 23 - 26 November, 2015 on Climate Resilient Agriculture Technologies to about 25 field staff of LAYA, an NGO working in the high altitude tribal districts of Vijayanagaram, Vishakhapatnam, Srikakulam and East Godavari of Andhra Pradesh. During the training, field visit to watershed, fodder cafeteria, livestock rearing units and KVK instruction farm were also organized. On the request of participants, improved fodder slips were provided for field demonstrations in their respective regions.

Forthcoming Events

S.No	Title of the Event	Date
1.	Third Annual Review Workshop of AICRPDA-TSP	February, 2016
2.	Model Training Course on "Efficient soil management techniques for minimizing climate change impacts in rainfed areas"	February 2-9, 2016
3.	National Science Day	February 28, 2016
4.	Fourth Annual Review Workshop of AICRPDA-NICRA	March, 2016
5.	CRIDA Foundation Day	April 12, 2016
6.	National workshop on Resilient indicators	April, 2016
7.	AICRPAM-NICRA Annual Review Meeting-cum-Farmers' Interactive Session	April 27-29, 2016
8.	Brain storming session on "Future Thrusts and Strategies for Agrometeorological Research, Education and Extension"	April 29-30, 2016
9.	IRC Meeting	May, 2016
10.	World Environmental Day	June 5, 2016

Awards And Recognition

CENTRAL RESEARCH INSTITUTE FOR DRYLAND AGRICULTURE (CRIDA), Hyderabad, Telangana was conferred **Sardar Patel Outstanding ICAR Institute Award 2014** for the Large Institute category. ICAR-CRIDA has made outstanding contributions in basic, strategic research and technology development in rain water harvesting, development watershed models, location specific in-situ and farm pond technology for different rainfed agro-eco regions of the country.



Dr. Ch.Srinivasa Rao, Director, CRIDA and Dr. B.Venkateswarlu, Honorable VC, VNMKV, Parbani received the **"Hari Om Ashram Award of ICAR for outstanding research work done in the field of Natural Resource Management (Soil health and carbon sequestration in rainfed systems of India)"**. The award was presented by Honorable Minister of State for Agriculture, Government of India on 25th July, 2015 at Patna, Bihar.



Dr. K.Venkanna, Assistant Chief Technical Officer received the **"Jawaharlal Nehru Award for Outstanding Doctoral Thesis Research in Agricultural and Allied Sciences 2014"** from the Honorable Minister of State for Agriculture, Government of India on 25th July, 2015 at Patna, Bihar



Dr D.B.V. Ramana, Pr. Scientist (LPM) was selected for the 2015 **Norman E. Borlaug International Agriculture Science and Technology Fellowship Program (Borlaug Fellowship)**. Under this Program he worked on "Enhancing Nutrient Use Efficiency in Ruminants: Role of DFM and Enzymes" at Ruminant Nutrition Laboratory, Animal Sciences Department, Texas A& M University, College Station, Texas, USA from 11th September to 07th December, 2015.



AICRPDA Centre, Bangalore (Drs. B.K. Ramachandrappa, M.A. Shankar, M.N. Thimmegowda, A. Sathish, B.N. Jagadeesh and Ch. Srinivasa Rao) received the **"Vasant Rao Naik Award-2014"** for outstanding research and application leading to improvement of dryland farming systems. AICRP for Dryland Agriculture, Bengaluru centre bagged the **"Best Field Demonstration Award"** during Krishimela-2015, organised by University of Agricultural Science, Bengaluru from 19-22 November, 2015.



Dr. M. Vanaja, Principal Scientist (Plant Physiology) was awarded "**Fellowship of Indian Society for Plant Physiology (FISPP)**" for significant research contributions in the field of Plant Physiology.

Dr Arun K. Shanker, Principal Scientist (Plant Physiology) received the "**Scientist of the Year-2015 Award**" by National Environmental Science Academy (NESA).



Er. R.Nagarjuna Kumar, Scientist (Computer Applications in Agriculture) was honored with **Fellow of Association for the Advancement of Biodiversity Science** for the best work done in the field of computer applications in agriculture.

Personnel Information

Promotions/Joinings/Transfers

Name	Discipline	Date of joining
Dr G. Ravindra Chary	Project Coordinator (Dryland Research), AICRPDA	September 19 , 2015
Mr. S. Gopal Rao	Asst. Chief Technical Officer	October 1, 2015
Mr. P.Somesh Kumar	Assistant Administrative Officer	November 12, 2015
Mr. Mahesh Kumar	Assistant Administrative Officer	November 12, 2015
Dr. Y.G.Prasad	Principal Scientist, CRIDA to Director, ATARI, Zone V	November 30, 2015
Mr. P.Ramakrishna	Technical Officer, CRIDA	December 7, 2015



Dr G. Ravindra Chary, Principal Scientist, Joined as a Project Coordinator, (Dryland Research), AICRPDA with effect from September 19 , 2015

CRIDA Staff wish them all success

Superannuation

Name	Discipline	Date of superannuation
Dr. C.R.Thyagaraj	Principal Scientist (FMP)	August 31,2015
Dr. V.S.Rao	Principal Scientist (Horticulture)	August 31,2015
Shri. A.Malla Reddy	Asst. Chief Technical Officer	August 31,2015
Shri. J.B.Ramappa	Chief Technical Officer	September 30,2015
Shri. P.Somesh Kumar	Assistant Administrative Officer	November 30,2015
Shri. G. Prem Kumar	Asst. Chief Technical Officer	November 30,2015

CRIDA family wishes them all a happy & peaceful retired life

Cultural And Welfare Activities

Independence Day Celebration

The 69th Independence Day of India was celebrated on August 15, 2015 with enthusiasm and gaiety. The director hoisted the flag and addressed the staff of CRIDA. He motivated the staff to work with commitment so as to help farmers during 2015 drought situation. Later, cash awards (CCS & CCRC) were distributed to the SSC toppers of CRIDA staff children on this occasion.



Hindi Diwas

CRIDA organized Hindi day on 26th September, 2015. Director, CRIDA was the Chief Guest of the Programme. On this occasion, the winners of the Hindi competitions were awarded with CASH prize by the Chief Guest.



Sadbhavana Diwas

“Sadbhavana Diwas” was observed on 20th August 2015. Accordingly, a pledge taking ceremony was held on 20.08.2015 .



Swacch Bharat

“Swacch Bharat Mission” was organized at CRIDA during September 25 - October 11, 2015. All the staff participated in the event for cleanliness in office premises.



Rashtriya Ekta Diwas

The institute observed "Rashtriya Ekta Diwas" (National Unity Day) on 30th October, 2015. A pledge was taken accordingly by all the staff to commemorate the event.

Vigilance Awareness Week

“Vigilance Awareness Week” was observed from 26 - 31st October, 2015. Lecture by Chief Vigilance Officer was organised on 26th November,2015.



Constitutional Day

CRIDA celebrated 'Constitutional Day' on 26th November, 2015 to commemorate the 125th Birth Anniversary of Dr BR Ambedkar.

Health Camp

A health camp with free Cardiology and Orthopedic screening was conducted on 18.12.2015 for all the staff members of the Institute. A team of doctors from M/s. Yashoda Hospital, Malakpet, Hyderabad were deputed for this purpose.

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केन्द्रीय बारानी कृषि अनुसंधान संस्थान
Central Research Institute for Dryland Agriculture



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