

NICRA News

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NICRA
National Initiative on Climate Resilient Agriculture



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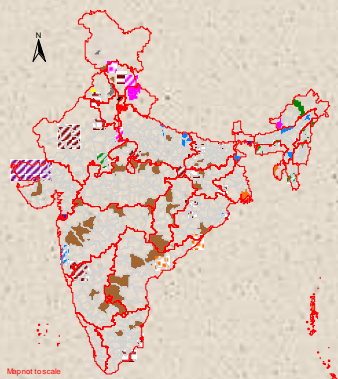
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FROM THE RESEARCH FRONT



One of the major activities of NICRA is to understand the impact of climate variability on pollinator species of different annual (crops) and perennial (orchard) systems. In this direction Investigations were carried out on the impact of climate variability on activity of pollinator population across various locations in the country. Some significant attempts are made in standardizing, sampling, monitoring and foraging behaviour of different pollinator species.

1. Historical meteorological data analysis indicated that changes in date of blossom shower which is important for flowering in coffee was shifted by almost a month which in turn impacted pollinator population of bees.
2. Habitat distribution maps were prepared for two climatic scenarios viz., a) Present using FAO data and b) Future using DIVA- GIS.
3. Pollinator fauna and supporting weed flora were documented from an undisturbed mango orchard. Twenty eight insect species belonging to four orders were recorded. Of them, 18 species were found foraging on mango flowers indicating the importance of off-season conservation
4. Population dynamics revealed that pollinator density was positively influenced by the extent of flowering. Among different abiotic factors, maximum temperature had significant impact on pollinators. A decline in activity of *Apis florea* was observed at temperatures beyond 32°C while that of dipterans was not significantly affected.
5. An artificial diet and a protocol for multiplication of dipteran insect, *Chrysomya megacephala* was developed, through which the pollinators can be multiplied in large numbers and released in the field to augment the natural populations. Surveys indicated that natural pollinator populations are very low and hence this technology will be very useful.

I hope this work will further strengthen and continue in future plan period and so that farmers be guided on conserving and augmenting the pollinator population even under climate change conditions.

B.Venkateswarlu
Director, CRIDA

FROM ACROSS THE KVKs



April, 2013 marked the beginning of another year after closure of the FY 2012-13. Closing of the accounts for the previous year, taking stock of accomplishments made during past year besides planning for the new FY were major activities of the month. From the coordination point of view, the process of continuous monitoring was kept going through conducting of review meetings at KVK and Zonal levels. A review of progress of NICRA project was conducted for KVKs of Andhra Pradesh at the Office of the ZPD, Zone-V, Hyderabad. During the workshop, the progress made by different KVKs and the problems faced in implementation of the project during 2012-13 were discussed. Further, the plan of work for 2013-14 was finalized for each KVK after thorough review. Similarly, Annual Review Workshop of NICRA KVKs under ZPD, Zone-VI was held at CAZRI Campus, Jodhpur for reviewing the progress made and finalization of work plan for 2013-14. These review meetings are also helping us to understand different types of implementation issues faced by KVKs and are serving as a platform for cross learning among KVKs on innovative approaches of technology demonstration.

Rainwater harvesting through farm ponds, percolation ponds, de-silting of canals etc are able to augment water availability and reduce vulnerability against dry spells. The villagers of Kattusiviri (Villupuram), and Kalari and Melamadai (Ramanathapuram) in Tamil Nadu are upbeat about the immediate outcome of rainwater harvesting which has helped in providing life saving irrigation to existing crops in addition to cultivation of additional crops. Similarly, de-silting and renovation of irrigation channels in Matsyapuri of West Godavari (AP) facilitated safe disposal of flood water and saved crops from floods.

A 'Wheat Day' was organized by KVK, Gumla at village cluster Burhu to create awareness among farmers about the potential of rainwater harvesting in enhancing cropping intensity and farm productivity, and cultivation of improved wheat varieties. About 500 farmers from different villages participated in the programme.

KVK, Datia bagged Appreciation Award of IARI, New Delhi for exhibition of climate resilient technologies including rainwater harvesting, in-situ moisture conservation, integrated farming systems and custom hiring of implements, during Pusa Krishi Vigyan Mela 2013.

Besides these, an attempt has been made to compile the best initial outcomes in the form of a publication. Nearly 67 KVKs have contributed excellent stories on coping with climate variability. A copy of this publication is available on NICRA website (<http://www.nicra-icar.in/nicrarevised/>).

Sreenath Dixit
Coordinator
Technology Demonstration Component

Workshop-cum-Training on “Understanding the changes in host-pest interactions and dynamics in mango under climate change scenarios”

A Workshop-cum-Training course on “Understanding the changes in host-pest interactions and dynamics in mango under climate change scenarios” was held at ICAR RCER, Research Centre, Ranchi during 7-8 March, 2013. The programme was conducted with the objective of reviewing the progress of work at different co-operating centres under the project; provide hands-on training on identification of pests and diseases of mango for real-time pest surveillance and handling of RTPS software.

Dr D.B. Ahuja, CC-PI, NCIPM, New Delhi made a presentation on functional understanding of RTPS software. Experience of different centres in uploading data was shared among the participants. CCPIs in general desired access to the uploaded RTPS data for editing, analysis and report generation.

Presentations were made by Dr A Verghese, Dr V.N. Jalgaonkar, Dr P.K. Shulka and Dr A Bhagwan on the finer aspects of identification of mango hopper, fruit fly, thrips, diseases and phenological stages of mango, respectively. Matters related to scope of improvement of manual on RTPS of mango, compilation of Annual Report 2012-13 of the project were also discussed. All the participants were provided hands-on training on identification of specimens of insect, diseases and phenological stages of mango.

Fallow Lands brought under Cultivation through Rainwater Harvesting and Utilization

The KVK, Gumla is implementing the Technology Demonstration Component (TDC) of the National Initiative on Climate Resilient Agriculture (NICRA) in Gunia village. The major climatic variability faced in the village during 2011-12 was less number of rainy days coupled with high intensity rainfall events. Before implementation of the project, farmers of Gunia and adjoining villages were compelled to follow mono-cropping due to scarce water resources. After assessing the available water resources in the area, the KVK mobilized the villagers to store water by building a sandbag dam locally called "*Bora-bandi*" across the seasonal rivulet Mahsaria. This changed lives of Gunia villagers and opened up the opportunity for double and triple cropping by providing source for irrigation during *rabi* and summer seasons. In addition, 11 farm ponds (*jalkund*) were constructed on selected farmers' fields. Three existing farm ponds were renovated by cleaning and plugging of seepage losses. As a result, water storage capacity of farm ponds was increased by 60% and seepage losses were reduced by 80%.



Construction of Sand Bags Check Dam by Villagers

Deepening of Irrigation channels, Matsyapuri, KVK West Godavari (Undi), Andhra Pradesh

NICRA village Matsyapuri is a prominent village in the [Veeravasaram mandal](#) of the [West Godavari](#) district, Andhra Pradesh. The village was affected by floods due to Neelam cyclone that lashed the east coast during the first week of November, 2012. There are two irrigation channels (Mentepudi channel and VWS channel) which serve as the major irrigation source in the village. These channels were filled with silt, weeds and narrowed due to the cyclone reducing their capacity to supply irrigation water to tail-end areas. As a consequence, surrounding fields over an area of nearly 650 ha were flooded during the monsoon. To prevent frequent flooding of the fields, the farmers requested NICRA staff to facilitate the deepening of these two irrigation channels. Once the de-silting and deepening of the channels were completed the irrigation water could reach water to tail-end areas, and also provided scope for efficient disposal of rainwater by avoiding flooding and submergence of crops. It was noticed that level of flood water was up to a height of 42 cm in the area under the deepened channels and there was no overflowing of flood water, whereas in other areas where there was no means to dispose-off flood water, submergence was up to 122 cm and the crop was completely submerged under flood water. The paddy yield was 4-5 t/ha in the areas surrounded by renovated channels whereas the yields ranged from 0 to 1.5 t/ha in other areas.

Before completion of renovation work



Mentepudi-Matsyapuri



VWS channel

After completion of renovation work



Mentepudi-Matsyapuri



VWS channel

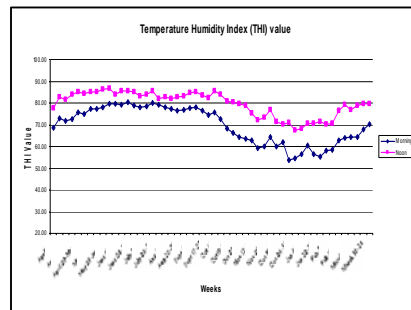
Timely Sown Mustard can Escape Frost and Aphids

Krishi vigyan Kendra, Datia has taken up 50 demonstrations to demonstrate the advantages of timely sowing and cultivation of improved mustard variety (Pusa jai kisan). The crop was sown during 15-30 October, 2012 with pre sowing irrigation. Late sown mustard was affected by frost that generally occurs during the first week of January and was also prone to aphid attack. However, the early sown crop was not affected by low temperature (-1.5°C) coupled with frost that was observed around 7th January 2013. Further the crop was also saved from aphid attack. As a result, early sown mustard variety (Pusa jai kisan) produced a seed yield of 1475 kg/ha compared to local check (1100 kg/ha).



Improved Shelter for Large and Small Ruminants

KVK, Jodhpur has developed an improved method for sheltering both large and small ruminants. This shelter creates a micro-environment that is cooler by 2-4°C than other housing structures during summer. Similarly, it will ensure that cold waves from north do not affect the livestock besides keeping the shed warm due to plenty of sunlight during day time in winter. Thatched panels below roof (as shown below) act as insulating material for moderating temperature in the livestock housing.



Field Day on Summer Paddy Cultivation

Summer paddy cultivation was taken up in 10 ha after Bora-bandi on Mahsaria rivulet. Necessary inputs including seeds as an improved variety 'Anjali' and fertilizers were made available by the KVK. Regular follow-up and advisory services were provided through training and farmer-scientist interaction. A grain yield of about 30-35 q/ha was obtained ensuring food security to the farmers. A net return of Rs 12600 and benefit: cost ratio of 1.7 was recorded with paddy cultivation during summer.



Earlier farmers cultivated wheat in 2 to 3 ha area only. After the Bora-bandi about 50 ha area was brought under wheat cultivation. Further, after creation of water resources, demonstrations on off-season vegetable cultivation were conducted in 10 ha involving 85 farmers. This included cultivation of okra, tomato, vegetable cowpea, bottle gourd, ridge gourd and bitter gourd by using stagnant water of the rivulet. All the vegetables were grown by ridge & furrow method, which enhanced water use efficiency.

A 'Wheat Day' was organized on 20 March, 2013 at village cluster Burhu to create awareness among farmers about the potential of rainwater harvesting in enhancing cropping intensity and farm productivity. About 500 farmers from different villages participated in the programme.



Appreciation Award Received by KVK, Datia

Krishi Vigyan Kendra, Datia bagged Appreciation Award of IARI, New Delhi for participation and exhibition of climate resilient technologies in the Pusa Krishi Vigyan Mela held during 6-8 March, 2013. Climate resilient technologies that were prominently displayed through posters and pictures caught the attentions of visitors. Practices such as rainwater harvesting, in-situ moisture conservation, integrated farming system, production of compost, green manuring and custom hiring approach for farm mechanization were discussed by farmers who visited the KVK stall. Dr. J.S. Samra, CEO, National Authority of Rainfed Agriculture, Govt. of India gave away the award to Dr. R.K.S. Tomar, Programme Coordinator, KVK, Datia.



Review Meetings

A review of progress of NICRA project was conducted for KVKs of Andhra Pradesh on 12th March, 2013 at the Office of the ZPD, Zone-V, Hyderabad. All the NICRA KVKs of Andhra Pradesh participated in the meeting. The Programme Coordinators of NICRA KVKs presented details of progress achieved in the year 2012-13 and proposed Action Plan for 2013-14. Each programme was discussed thoroughly and suggestions were made for improving Action Plans. The focus of climate resilient interventions was sharpened keeping in view the relevance of the interventions on reducing climatic vulnerability.



Annual Review Workshop of Zone VI

Annual Review Workshop of NICRA KVKs under ZPD, Zone-VI was held at CAZRI Campus, Jodhpur on 16th March, 2013. The workshop was inaugurated by Dr. S. Dixit, representative of Director, CRIDA, Hyderabad in the presence of Dr Y.V. Singh, ZPD, Zone-VI and Dr Ch. Srinivasrao, Principal Scientist from CRIDA, Hyderabad. Programm Coordinators of seven NICRA KVKs (Rajasthan-4 KVKs and Gujarat-3 KVKs) and Scientists of ZPD office participated in the workshop.

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Review of NICRA Progress at Villupuram and Ramanathapuram, Tamil Nadu

Dr DVS Reddy nodal officer from ZPD-VIII visited KVK Villupuram on 12th March 2013 and reviewed the work done under NICRA. After this, he visited village Kattusiviri together with the Dr N. Sathiah, Programme Coordinator, other SMSs of KVK and SRFs where NICRA programmes have been implemented. Five farm ponds of size 30 m x 30 m x 1.5 m and five injection wells have been developed in the village. Due to these structures, farmers could cultivate some crops utilizing the water stored in the ponds and also open wells whereas in others' fields no farming activities were observed as the open wells had dried up. It was suggested to improve the water-use efficiency of harvested rainwater through promotion of micro-irrigation techniques. Possibility of convergence with the NHM/Micro-irrigation scheme is also being examined. There are some issues with the usage of custom hiring equipments, as the committee managing it lacks the required dynamism. However, there is scope to improve the timeliness of operations by improving the functioning of custom hiring centre.

The villagers of Kalari and Melamadai in Ramanathapuram, where NICRA is being implemented, are enthusiastic about the ongoing NRM interventions. The two farm ponds of 30 m x 30 m x 1.5 m in the farmers' fields and also few community ponds of bigger size have improved water availability status. As a result, farmers are able to additionally cultivate vegetables by utilizing stored water for protective irrigation and are earning good returns. By seeing this development, other farmers are also coming forward to dig ponds in their lands. Further, introduction of micro-irrigation for chilli has shown good impact as the farmer could cultivate more land with limited available water. The community threshing yard constructed under the scheme is being used by the farmers for drying their produce.

Women's Day Celebrated

A Medical Camp was arranged on the eve of Women's Day on 8th March for women under NICRA project in Yagantipalle, Kurnool District. Chief Guest was D. Yaganti Reddy (village head). Mrs Nagamani (CDPO), Mr. Srinivasulu (special officer, SHI & CS), Mr. Sreedhar (Headmaster), Dr V. Girija Veni (Scientist, CRIDA), and Dr G. Dhanalakshmi (PC for Kurnool district in Zone V under NICRA project) also participated in the programme. About 150 women participated and underwent health check-up. Dr. Lunganna gave valuable suggestions for healthcare of the women.



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