



Klima-NE

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Contents:

1. The impact of June flood in Assam
2. Changing climate in the North eastern Region-I
3. 'News on interventions' from across the NICRA-KVKs of NE Region
4. Other news
5. A report on South West monsoon till August 15th 2012

From the Desk of Zonal Project Director



In continuation of our effort to publish the NICRA E0-news letter "Klima-NE" from Zone-III we are happy to circulate this 2nd issue (Apr-Jun) of the 1st volume of the same to the scientific community of the nation.

The monsoon season started this year with a very positive note in the North Eastern region. But the sense of happiness has got reduced to a situation of utter sorrow and devastation in no time as the Flood of June that started in the 1st week of June and continued up to the last week of the same month. The entire state of Assam has turned in to a water bowl affecting initiation of normal kharif farming very adversely. Readers will find a brief account of the same inside. The resultant affect has been visible at the point that in Assam, out of 20 lakh ha of kharif sown area, only 8 lakh ha have been brought in to cultivation this year leaving a short fall of 12 lakh ha. The season is almost going to be over to go for rice in a normal way and the production scenario is very grim at this moment.

Keeping in view of such exigencies, the KVKs of Assam has reciprocated in full vigour by fully utilizing the contingency plans made under the supervision of ICAR. They lend a helping hand by distributing seeds of short/medium duration rice cultivars apart from raising community nurseries of their own and in collaboration with state department of agriculture. The DDG (AE), ICAR participated in one of the seedling distribution ceremony held at Nalbari district of Assam and lauded the efforts of the KVKs. Since, July onward occurrence of heavy floods have not been reported from most of the NE region and the farmers, who are unlucky to miss the current kharif season, are gearing up to take up early rabi crops utilizing the residual soil moisture and water harvested through ponds and other structures.

Regards.

A.K. Gogoi

The impact of June flood in Assam

Floods are a recurring phenomenon in Assam as 45% of its area is prone to floods. The monsoon arrived in the North Eastern part of India on time this year and by June 5th, the entire north east was covered by very active monsoon regime. Incessant rainfall for days together in the hills of Arunachal Pradesh and Tibetan China initiated the 1st wave of serious flood in Assam around June 7th with serious impact in all the 27 districts of Assam. The flood water started receding only after 30th June.

Estimated flood affected people are about 21 lakh in all 27 districts of Assam with a human death toll is around 100. Total flood affected villages are 2809. A total of 10,57,558 farmers' families, including 1,55,989 families of small and marginal and other farmers, were hit by the floods. About 4,83,536 hectare land area came under grip of flood water of which total crop area damaged is about 2,54,935 hectares (50% of total cropped area). Major crops affected are –Boro rice and Ahu rice (in maturity and reproductive stages, respectively), Seedlings of Sali rice, Jute and kharif vegetables. The process of nursery bed and main field preparation for Sali rice have been delayed by almost 1 month in the flood affected areas. Besides, river bank erosion during the high flood period in Brahmaputra and Barak Valleys is a recurrent feature in Assam. Approximately 8000 hectares of land is eroded every year and the state has lost over 4.30 lakh hectares of land since 1954 due to river bank erosion. River bank erosion is posing serious threat to the very existence of the world famous river island 'Majuli' and 'Kaziranga National Park' of Assam.

The role performed by KVKs during post disaster condition

Under such a disastrous situation, the KVKs located in the flood affected districts of Assam reciprocated with issuance of contingent farm advisories to the farmers to be observed during post flood situation. The major advisories issued were-

(a) Crop Production: raising of community nurseries of rice, cultivation of submergence/flood tolerant rice varieties, direct seeding of sprouted seeds of short duration rice cultivars, sowing of kharif pulses where rice cultivation is no more possible during this season, plan for early sowing of rabi vegetables/oil seed crops utilizing residual soil moisture, keep a check on crop pest and diseases and their suitable management options, intercultural operations with readily available tools and implements to minimize weed infestation to reduce further reduction in economic yield and facilitate with information on availability of seeds/fertilizers/chemicals in the market or from other sources;

(b) Natural resource management: repairing of drainage systems to drain out excess water under post flood situation, promotion of raised and sunken bed techniques, tillage management techniques and tools for better establishment of the crop, repairing of bore well and pump sets for timely utilization of ground/surface water;

(c) Livestock/fishery: proper removal and destruction of dead animal bodies to prevent spread of human and animal diseases, handy methods to clean water for drinking purposes of human and animals, cleaning of ponds and repairing of bunds and other structures, proper vaccination schedules to livestock, to keep a check on out break of disease epidemic and aware the farmers through awareness campaigns and information on availability of animal/fish feeds in the district is to be intimated to the farmers.

Changing climate in the North Eastern region-I

Among climate parameters temperature and precipitation (rainfall) are two most important factors determining the plant growth and agricultural productivity. Deviation of any of these parameters from their optimum range limits the crop performance and ultimately affects realization of the economic yield. During the *Kharif* season temperature fluctuation is mostly controlled by amount and distribution of cloud cover and rainfall.

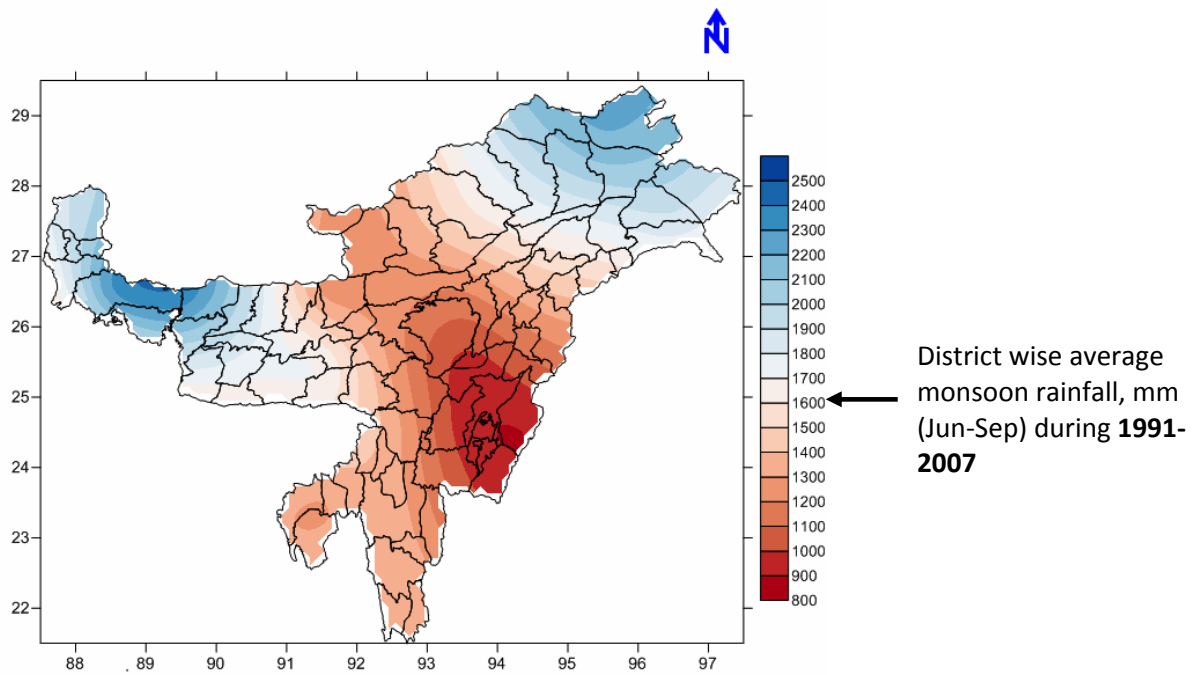
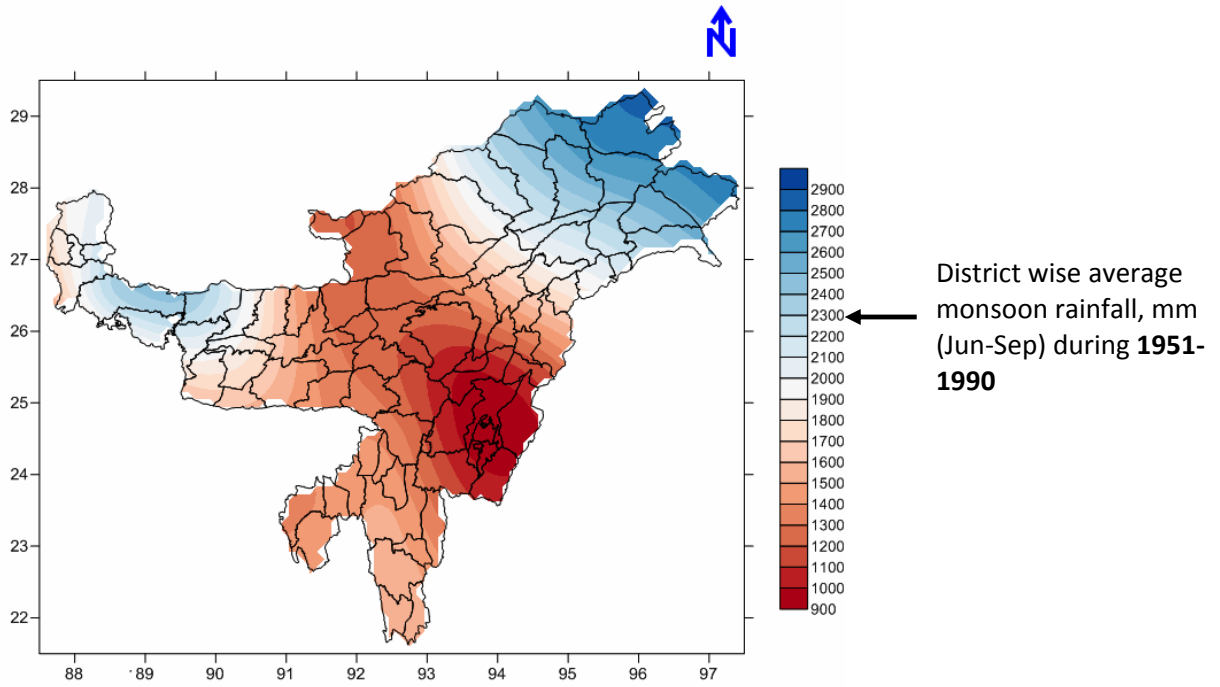
Due to prevalence of rainfed agricultural system in the north eastern region, the crops during the *kharif* season are at the mercy of amount of rainfall received and its distribution. Hence, there is a need to characterize the rainfall distribution pattern with respect to detect any change in its existing design. Apart from that to cope up with any eventual shift in rainfall in negative direction we have to formulate some strategies in the form of either adaptive or contingency or both planning for both crop and livestock so that such extremities in climate can cause least damage to the overall production scenarios.

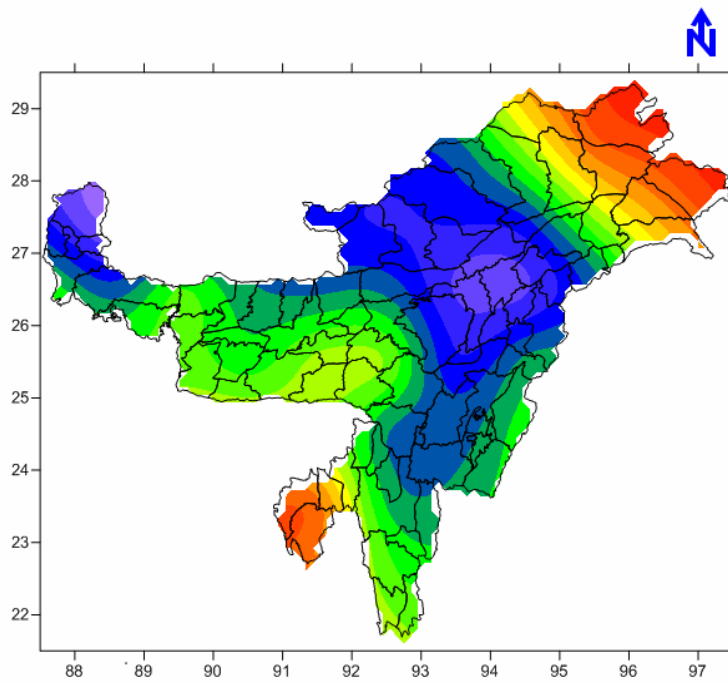
While doing so, we have collected IMD developed long term rainfall data (1951-2007) from Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad. The data set is a gridded one with a high resolution of $1^{\circ} \times 1^{\circ}$ approximately representing an area of 111km x 111km on the ground. The out put of the exercise will be published through this new letter in successive issues. The main intention behind this is to acquaint our KVK staff with prevailing condition of the climate of their respective district. This is also likely to help them in making proper planning/adjustment in existing cropping strategies.

Change in amount of rainfall receipt and Coefficient of variation

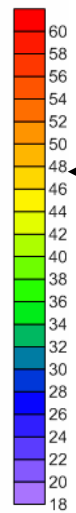
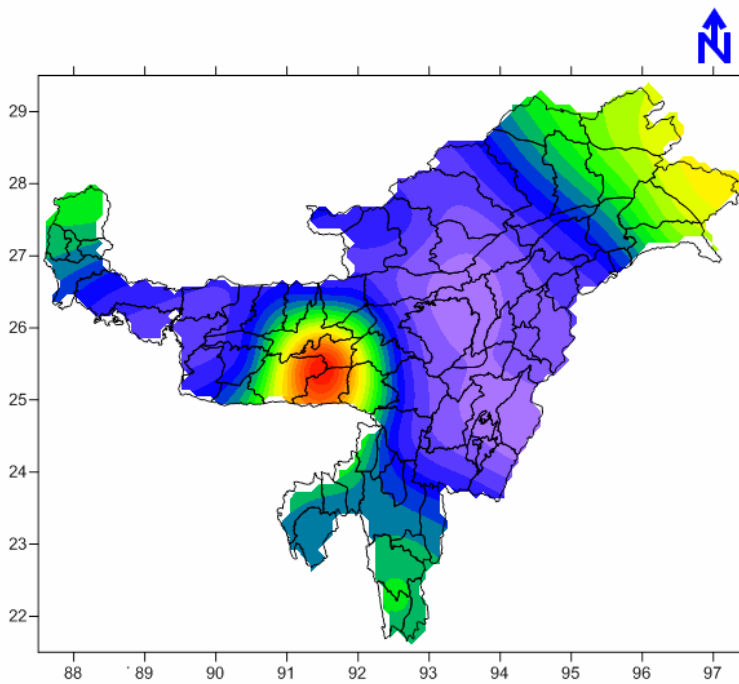
From our analysis of long term rainfall data, it has been found that during the monsoon months (Jun-Sep) the region is receiving less rainfall in post 1990 period (current period) compared to 1951-1990. The range of rainfall receipt during four monsoon months were 900-3000 mm during 1951-1990, which got reduced to 800-2600 mm during 1991-2007. This reduction is applicable irrespective of location in the North Eastern region.

Similarly, the co-efficient of variation (CV) of rainfall, which is a measure of variability of rainfall amount and distribution, has increased considerably during the same period. High CV indicates high probability of getting less rainfall as well as increase in incidence of extreme weather events. The CV range has increased from 16-29 % (1951-1990) to 18-62 % (1991-2007). The indications are not optimistic as far as rainfed agriculture is concerned and the result of same has been experiencing by people of the region as the frequency of severe drought and floods have increased to great extent in the NE region. The situation invites more and more location specific adaptive measures through efficient NRM and crop improvement interventions.





District wise coefficient of variation (%) of monsoon rainfall (Jun-Sep) during **1951-1990**



District wise coefficient of variation (%) of monsoon rainfall (Jun-Sep) during **1991-2007**

News on interventions' from across the NICRA-KVKs of NE Region

Climatic exploitation through cultivation of Oyster Mushroom in Tirap to ensure economic & nutritional security - D. S. Chhonkar, KVK-Tirap, Arunachal Pradesh

Mushrooms are the fleshy growth of some fungus. Selected cultivable mushroom are the component of delicious food stuff particularly of the tribal people. Mushroom is a preferred delicacy among the local inhabitant of Tirap. It is a traditional practice of the local people to collect wildy grown mushroom from jhum plots and forest for own consumption and selling at local market. Both, fresh and preserved (traditionally sun dried) mushrooms have a good demand in local market. It is indicative of the scope of farm diversification through introduction of scientific cultivation of oyster mushroom. The hot humid, sub-tropical climate of Tirap district is favourable for growing oyster and paddy straw mushroom. However, the cultivation technology of oyster mushroom is simple to understand and adopt. Besides, the cost of cultivation and maintenance of oyster mushroom is also fairly less in comparison to other species

Scope of oyster mushroom cultivation in this locality:

1. The climate of the region is favourable for oyster mushroom cultivation to great extent. Oyster mushroom cultivation requires cool – humid climate. It requires 22 –28 °C temperature and 75-85% RH for Mycellium growth (white thread like fungal growth) from spawn. Generally, in this region such climatic condition prevails during September to May.
2. Mushroom cultivation does not require extra land. It can be cultivated within homestead. So, landless, marginal farmers and even non- agricultural labours of this locality can take up it as an additional farm enterprise with affordable cash capital involvement.
3. The required infrastructure can be easily constructed with locally available natural resources. Bamboo, thatch, palm leaves (*toko patta*) can etc. are widely available and used for house construction by the locals. An ordinary such hut with simple modification is sufficient for small scale oyster mushroom cultivation.
4. Mushroom is a minimum risk crop. Unlike other field crops, natural calamities have nil / very less impact on oyster mushroom.
5. Oyster mushroom could be a year round farm enterprise through scientific planning of growing different species under different seasonal climatic condition. An indicative crop calendar with reference to average climatic condition is presented below.



In the year 2011-12, oyster mushroom production was included as an agri-allied farm activity under CRIDA sponsored NICRA project at Sipini village. Necessary infrastructure (cropping room), input, equipments and other logistics etc are arranged under the programme. Good quality spawn were collected from Mycology Research Centre, AAU, Jorhat and North East Institute of Science and Technology (NEIST), Itanagar Branch. Training and demonstration were conducted on bed preparation, spawning, crop maintenance etc. Facilitation was provided at both group and individual level. Mini kits including mushroom spawn, plastic bags, required chemical, and hand sprayer were provided to individual farmer to try at individual level. The programme could succeed in motivating and transferring the technical know-how associated with scientific cultivation of oyster mushroom among the beneficiary group.

Backyard Poultry: A suitable option for the economic empowerment of farmers of Senapati District, Manipur - S.H.Wani, D. Kamei, N. Muhindro, D. Kumar, A. Haribhushan, N. Jyotsna, Kh. Nodyachand, KVK-Senapati, Manipur



Hengbung is one of the adopted villages of KVK-Sylvan, Senapati district of Manipur where ICAR sponsored NICRA project is currently in operation. There are about 30 nos. of landless households in that village. Considering the available resources and interests of the farmers, 15 households were identified for taking up poultry farming. Accordingly, they were imparted skill oriented training on scientific rearing of poultry birds for egg production and were provided with a total of 375 nos. of 4 weeks old *Gramapriya* chicks, where per farmer obtained 25 nos. of chicks. Prior to distribution, the chicks were reared for four weeks in the KVK campus during which de-worming and vaccination were carried out.

Mr. Bhagiman Limbu, aged 48 years, is one of the landless farmers of Hengbung village (part-11), Senapati, Manipur. Mr. Limbu has a small sized family of four members including two children. Prior to the implementation of NICRA project, he made his family living by cultivating 0.6 ha of paddy field as tenant on 50% produce sharing basis. During rest of the year, he worked as an unskilled labour in other non-farm activities to enhance his income. Even with this additional income, he was confronted with much hardship in meeting his family basic needs.

After he took up poultry farming for egg production, he could earn as much as Rs 11052/- as gross income from the sale of eggs, which had enhanced his income. Now, he is relieved much of the problem and can meet the family need to a greater extent. He found this vocation much lucrative as compared to others. This vocation has motivated him to continue with more no. of units. Economics of egg production has been worked out and presented as under in respect of Mr. Limbu poultry unit:

Table: Economics of egg production of one unit (25 nos. of birds)

Sl.no.	Particular	Quantity/Number	Amount (Rs.)
1	A. Expenditure:- Cost of 4 weeks old <i>Gramapriya</i> chick @Rs 64/- per chick	25 nos.	1600*
2	Cost of concentrated feed	200 kg	1900
3	Local feeds	-	790
4	Vety. medicine	-	780
Total cost			5070
B. Gross Income			
5	Nos. of eggs produced	1842 nos. @ Rs 6/- per egg	11052
6	C. Net Income	-	5982

* The B:C ratio is found to be 2.2 : 1.

KVK-West Tripura in the process of establishing 'Livestock seed village'

– L.C. Patel, KVK- West Tripura, Tripura

Source of dual purpose poultry chicks and high yielding piglets in Tripura is scanty and due to bird flu and other emerging diseases associated with climate shifting, parent farms of both the species are affected, thereby creating problem in maintaining constant source stock. However, maintaining large stock with commercial feed by farmers is not possible due to high price of feed, therefore, backyard system of rearing poultry and piggery with possible scientific management including protection from weather stress in a locality was assumed as solution to the problem. Keeping these facts in mind, KVK-West Tripura executed the plan at their adopted ADC village, North Pulinpur under NICRA demonstration component.

Swarnadhara varieties of birds were distributed among 18 nos. of farmers with the consent of keeping the birds for propagation and distribution among other nearby farmers at the village. Vaccination and other health care was assured from the KVK and time to time awareness, animal health cum vaccination camps, in collaboration with ICAR Tripura Centre, College of Veterinary Science and Animal Husbandry, Tripura, Animal Resource Development Department of Tripura and other nearby KVKs were organized at the location. The distributed birds started laying eggs and the fertile eggs were sold to other farmers for brooding and some were utilized by the beneficiary itself for brooding by using deshi broody hen.



Each beneficiary was given a target to maintain a flock size of 50 to 100 from the initial 10 nos. of birds. Weekly weight gain by birds, date of starting egg laying, no. egg layed per day, egg set for hatching, viable chick produced, fertile egg sold, egg sold for table purpose, egg damaged were assigned to record by the farmers which will be verified by the KVK time to time. Best practicing farmer in this category was assured to felicitate by award during a judging competition.

Three SHGs in the location were selected for maintaining pig seed farm and thereby assistance was provided in construction of pig shed and procurement of high yielding pigs (Landrace & White Yorkshire) under NICRA. However, they were convinced for feeding the pigs with locally available ingredients as suggested by KVK expert where vaccination and other preventive measure were assured and provided by the KVK. Each SHG was supplied with five nos. of piglets in the ration of 1:4 Male: Female for propagation and distribution to other farmers in nominal rates. The piglets are now at pubertal stage and are expected to be conceived within the month of July 2012. Deworming, swine fever vaccine and other preventive measures were taken up by the KVK. It is expected and monitored to establish the village as pig seed farm in the locality in near future.



System of rice intensification is a great relief to the intermittent drought and flood affected farmers of Dhubri, Assam

– CK. Sarma, BC Deka & BC Nath, KVK-Dhubri, Assam

KVK Dhubri has been implementing National Initiative on Climate Resilient Agriculture project at Udmari Part-IV & V village under Bilasipara sub-division of Dhubri district, Assam. These two villages are often affected by flood during kharif season, not allowing the farmers to grow kharif field crops. Hence, rice crop is mainly cultivated as summer rice or as early ahlu crop under irrigated condition. With the sharp rise in fuel price, irrigated rice cultivation has become less remunerative and farmers are now searching for alternative method. It is needless to mention that competing demand for water along with the effects of climate change are reducing the availability of water for use in the agricultural sector, within which the largest consumer of water, by far, is production of irrigated rice. There is need to find ways to raise rice production while reducing its requirements for water but also mitigating adverse climate change that results from GHGs emission from continuously flooded rice field.



System of Rice Intensification (SRI) is currently attracting the greatest attention to address the issue of 'more yield with less water'. Also, SRI principles encourage approaches which might help to mitigate climatic vulnerability in a more sustainable and holistic way if applied in a meaningful way. Considering its importance in the present day context of climate change, SRI technology was demonstrated during summer season, 2012 (cv. *Joyoti*) in 2.0 ha area in the farmer's field of NICRA village. The crop was transplanted with very young seedlings (15 – 18 days old) with wider spacing (25 cm x 25 cm) and single seedlings/hill and maintaining mostly aerobic soil conditions up to panicle initiation, actively aerating the soil during plants' vegetative growth. After visualizing the growth of the crop and also because of less water demand, many farmers have shown their keen interest to adopt this technology next year in summer rice.

Frequent animal health camps are deterrent to disease break out in Sonitpur district of Assam - Bendangyanger, KVK-Mokokchung, Nagaland

Krishi Vigyan Kendra, Sonitpur have been organizing various animal health care programme at Punioni –Baghchong, the NICRA adopted village.

A mass vaccination programme of cattle against the two endemic bacterial diseases, *Haemorrhagic Septicemia* and Black Quarter was conducted on 21st October 2011 at Punioni- Baghchong. Around 100 animals owned by 75 farmers of the locality were vaccinated. Few needful veterinary drugs such as vitamins, mineral supplements, anthelmintics, antidiarrhoeals etc, were also distributed during the vaccination campaign. On 5th January 2012, a mineral mixture distribution programme was organized in the village to create awareness programme against dietary supplementation of necessary minerals to productive livestock animals. In this context, 370 kg of AAU Vetmin, mineral mixture developed by Department of Physiology, College of Veterinary Science, Khanapara, Ghy–22, was distributed among 75 livestock farmers of the locality .



A sound knowledge of the livestock owners on scientific management practices and animal disease treatment and prevention is likely to boost the economic return of the livestock enterprises. Under the breed introduction programme of NICRA project, the Vanaraja breed of poultry was introduced into the village recently. The improved poultry breed was intended to rear in the backyards to boost the production of the backyard farming sector of the locality. Presently the introduced poultry breed is been raised under the semi intensive system of management with excellent returns.



World Environment Day celebrated and Custom Hiring Centre inaugurated at NICRA adopted village in Ri-Bhoi, Meghalaya

– RK Bordoloi, KVK-Ri Bhoi, Meghalaya

To commemorate the world environment day on 5th June, 2012 KVK Ri Bhoi under the ICAR Research Complex for NEH Region celebrated the day at Kyrdem village near Umiam. The programme was chaired by the Director ICAR Dr S. V. Ngachan and Dr. A. K. Gogoi Zonal Project Director Zone III as the guest of honour, besides other heads of divisions from the ICAR complex. More than 100 farmers gathered on the occasion and took a pledge for a greener environment.

The Programme started with planting of saplings by the dignitaries and farmers, where a large number of trees were planted which are of medicinal and cosmetic values.

On the same occasion the custom hiring centre of small agricultural equipments, which has been provided under NICRA was also inaugurated, where by the villagers will be facilitated to use various agricultural implements like Paddy thresher, sprayers, Cono - weeders etc. at a nominal cost. The custom hiring center is being maintained by 'Village Climate Risk Management Committee'.



Farmers are optimistic about the intent of NICRA project in sustaining their livelihood – T Samajdar, KVK-West Garo Hills, Meghalaya

An interview was conducted with three village headmen (Nokma) of the adopted NICRA villages at West Garo Hills, to have their views after implementation of the technology demonstration component of NICRA project regarding impact of climate change on agriculture and the livelihood of the farmers.

In the interview farmer's stated that earlier (i.e, 10 years back) plenty of water was available for cultivation of crops as they received sufficient amount of rainfall with fine distribution throughout the season, the temperature was moderate and the severe insect pest and diseases occurrences were very less in crops and the livestock. That ensured high production and productivity of crops earlier.

But, at present the productivity and profitability from farming has got reduced drastically under the impact of frequent aberrant weather and subsequent emergence of insect pest and new diseases which were unknown to the farmers before, for example, dieback or wilting in Areca nut and wilting or drying up of branches in Cashew nut, which causes great losses to the farmers are very prominent now a days. Further, natural streams are drying up because of insufficient rainfall and higher evaporation rate.

Due to reduced profitability some of the villagers have shifted their occupation from agriculture to other activities like wage labour etc. but off late, on and after the introduction of some of the interventions under NICRA project like cultivation of paddy supported by NRM measures to ensure water supply during stress periods, cultivation of winter maize and winter vegetables, construction of water harvesting structures, nutrient management of soil by locally available materials and allied activities like oyster mushroom cultivation and bee keeping, the farmers are satisfied and convinced to some extent and getting confident in sustaining agricultural production and allied activities as income generating sector. They are very much interested to take up farming in a new and focused way as manifested through the NICRA program.



Nandook, of East Sikkim, gears up with NICRA project to be a climate resilient model village – A.K. Mohanti, KVK-East Sikkim, Sikkim

Amidst the alarming trend in climatic change over the past century, India experiences a global warming variation from 0°C to 60°C and global cooling fluctuations ranges from 0°C to – 20°C, which negatively impacts the medium term (2012-2039) national yield projections from 4.5 to 9 percent that implies a cost of climate change to be more detrimental with the falling of 2 percent of GDP per year.

To address the challenge, under NICRA project, the KVK-East Sikkim organized a day long workshop on “NICR : Awareness and Convergence Workshop” at Nandok village, East Sikkim on 11th April, 2012. The key objective of the workshop was to develop awareness among all the stakeholders including farmers regarding the **Climate Resilient Agriculture** by the convergence of all the line agencies like Dept. of FS&AD, Dept. of HCCD, and Dept. of AHLF & VS, Govt. of Sikkim; ICAR, CAU, NABARD, SIMFED, NERAMAC, etc. More than 200 farmers, farm women, rural youths, emerging entrepreneurs and delegates from ICAR, line departments & experts from the fields of agriculture and allied sector attended the conclave.

The participants appreciated KVK-East Sikkim for taking up the complex challenges of this region like multiple abiotic stresses on crops and livestock, shortage of water, land degradation and loss of bio-diversity etc. posed by climate change. Stress was laid upon technological empowerment of farming community with special emphasis on women empowerment. On this occasion the Village Climate Risk management Committee (VCRMC) office and Custom Hiring Centre (CHC) were also inaugurated in the village. The concept of community participatory based custom hiring centre (CHC) was highly appreciated, which facilitates small agricultural implements for various farm operations under NICRA project.



Other news

Visit of Deputy Director General (AE) to KVK-Nalbari to assess post flood condition and distribution of rice seedlings among farmers on 7/8/2012

Hon'ble Deputy Director General (Extension) of ICAR, New Delhi Dr. K.D. Kokate visited Krishi Vigyan Kendra, Nalbari on 7/8/2012 to take on the spot assessment flood damage and also to participate in seedling distribution ceremony organized by the KVK to help the flood affected farmers of the district. The KVK raised rice seedlings in an area of 1 hectare for free distribution of flood victims. More than 300 farmers had attended the function. The DDG was also accompanied by Hon'ble MLA of Nalbari LAC Mr. Jayanta Malla Barua, Dr. A. K. Gogoi, ZPD, (Zone-III), Dr. H.C. Bhattacharyya, DEE, AAU, Jorhat ; Mr. Abu Suffian, Superintendent of Police, Nalbari district among others. An agri-exhibition was also organized, which was participated by the KVKs of Darrang, Barpeta and Nalbari districts reflecting the outcome of various KVK's interventions and giving exposure to the technologies released by AAU and other organizations.

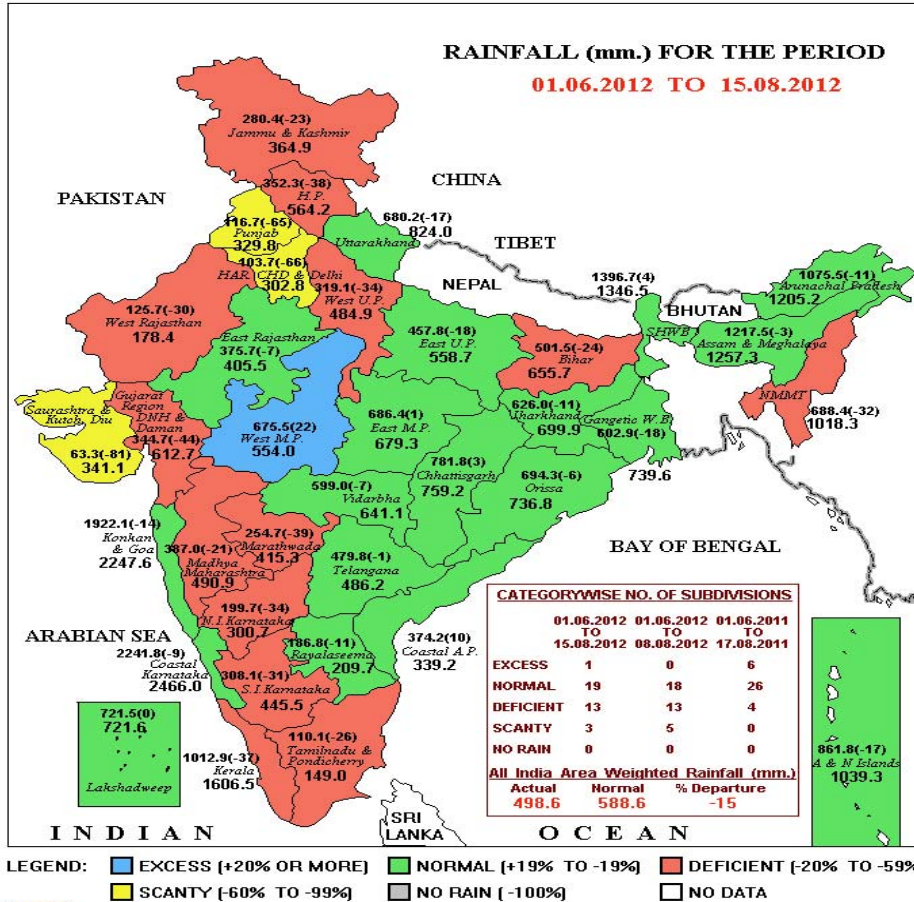
Dr. K.D. Kokate appreciated KVK Nalbari for the various activities the KVK is performing and for being able to maintain convergence among different departments of the district. Assam produced a record 50 lakh tonnes of rice in 2011. He thanked the farmers of Assam for such a noble effort. Dr. Kokate in his speech mentioned the need of contingency crop planning to face frequent weather aberrations. He also emphasized on increasing cropping intensity, maintain seed/fodder banks for use under various disastrous situations and their timely distribution to the farmers. He stressed on rational and judicious management of water resources. He urged the state government to facilitate with good marketing facilities to the farmers, which alone could help agriculture to flourish in the region.

Dr. K.D. Kokate, Dr. A.K. Gogoi and Mr. Jayanta Malla Baruah distributed rice seedlings to the farmers in the meeting and released two numbers of bulletins on contingency measures for post flood situation meant for flood affected farmers.



A report on South West Monsoon till August 15th 2012

भारत मौसम विज्ञान विभाग
INDIA METEOROLOGICAL DEPARTMENT



Source: India Meteorological Department

The South West Monsoon has already covered entire country. Few locations/districts of Manipur, Mizoram and Tripura had experienced early season drought as the intensity and distribution of monsoon rainfall were far below normal. But, very recently these places have received good amount of rainfall and the farmers are back to their farming activities, though late. The KVVKs of the drought affected districts are backing the farmers with suitable NRM and crop technological interventions. The Assam KVVKs are also engaged in raising of community nurseries to raise medium/short duration high yielding as well as flood tolerant rice cultivars and distributing free of cost to the farmers.

*A report on rainfall receipt in NICRA districts of NE region
(From 1-3-2012 to 15-8-2012)*

District	Actual rainfall received (mm)	Normal rainfall (mm)	% Departure from normal	Category
Arunachal Pradesh				
West Kameng	928.9	1711.0	- 46	Deficient
West Siang	918.0	1118.9	- 18	Normal
Tirap	1172.8	1694.9	- 31	Deficient
Assam				
Dhubri	1442.2	1336.9	+ 8	Normal
Dibrugarh	1074.1	1116.4	- 4	Normal
Cachar	2284.4	1621.2	+ 41	Excess
Sonitpur	965.5	906.3	+ 7	Normal
Manipur				
Imphal East	702.0	830.7	- 15	Normal
Senapati	323.4	913.0	- 65	Scanty
Meghalaya				
Ri-Bhoi	604.6	969.0	- 38	Deficient
West Garo Hills	948.2	1151.5	- 18	Normal
Mizoram				
Lunglei	916.0	1217.3	- 25	Deficient
Nagaland				
Dimapur	295.8	533.3	- 45	Deficient
Mokokchung	936.0	1269.2	- 26	Deficient
Phek	955.0	859.5	+ 11	Normal
Sikkim				
East Sikkim	1341.2	1198.4	+ 12	Normal
Tripura				
West Tripura	871.1	976.3	- 11	Normal

Source: India Meteorological Department

Acknowledgement: KVKs from whom we have received write-ups for this 2nd issue of 'Klima-NE' news letter- Tirap, Senapati, West Tripura, Dhubri, Mokokchung, Ri Bhoi, West Garo Hills and East Sikkim

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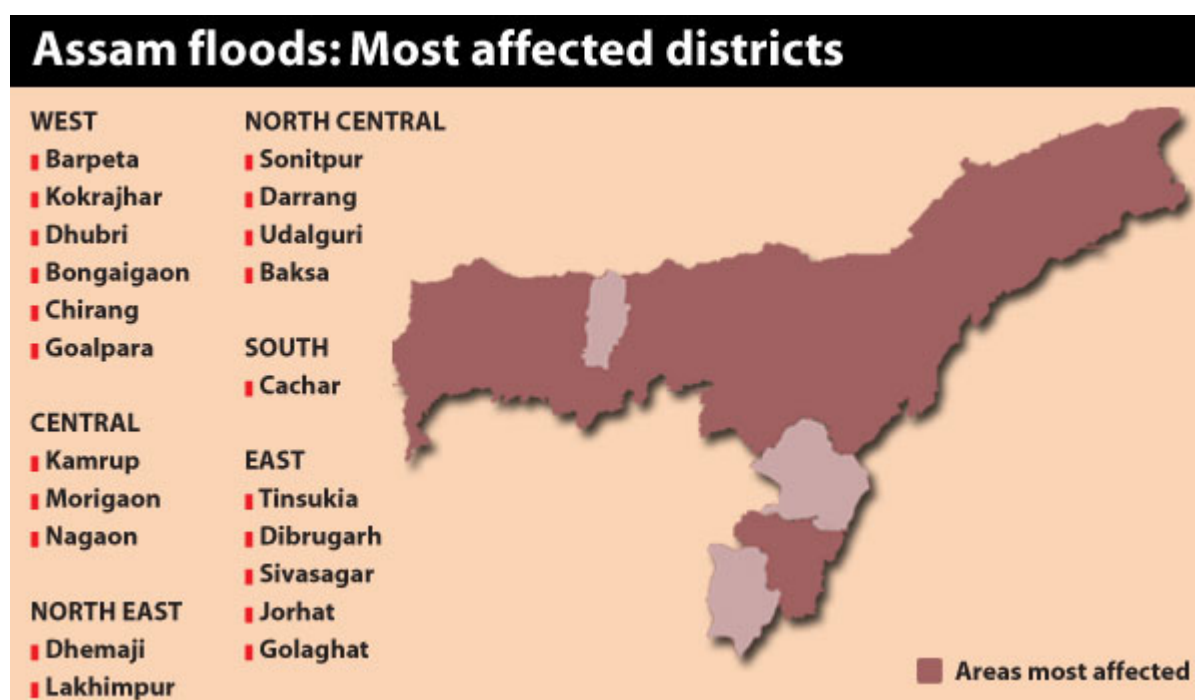


Fig: Assam districts severely affected during flood of June 2012

(Source: The Hindustan Times)

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