



# Newsletter

## GRAMIN KRISHI MAUSAM SEWA DISTRICT AGROMET UNIT

ICAR-AGRICULTURAL TECHNOLOGY APPLICATION RESEARCH INSTITUTE, KOLKATA



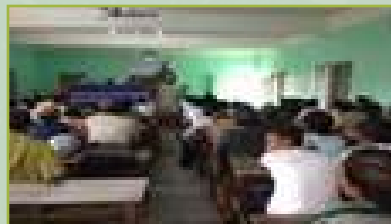
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### GLIMPSSES OF ACTIVITIES



## INTRODUCTION

Government of India has entrusted upon the India Meteorological Department (IMD) the task of establishing weather observing system and development of Gramin Krishi Mausam Sewa in the country. In pursuance hereof, IMD has set up in the country a network of about 130 Agro-Meteorological Field Units (AMFUs) which are multidisciplinary units responsible for preparation and dissemination of district and sub-district agromet advisories. These AMFUs are located at State Agricultural Universities, ICAR centres and other institutions. Each AMFU utilizes the relevant output products including weather data from conventional/automatic weather station (AWS) provided by IMD and ICAR to generate specific advisories for agricultural management for the respective districts of Agro-climatic Zones identified under the area of its jurisdiction and disseminate the same to the farming community. Under the Gramin Krishi Mausam Sewa, the IMD proposes to establish District AgroMet Units (DAMU) in 530 districts, in addition to already operating 130 AMFUs, in order to meet the said expansion. Among other responsibilities, DAMU will receive weather forecast from IMD to prepare and disseminate sub-district level agromet advisory bulletins. ICAR through All India Co-ordinate Research Project on Agro-meteorology (AICRPAM) is pursuing R&D on Agro-meteorology through a network of 35 centres located with SAUs in the country for improvement in weather based advisory and strengthening outreach of advisory bulletin to the farming community. The Central Research Institute for Dry Land Agriculture (CRIDA) and the National Innovation on Climate Resilient Agriculture (NICRA) projects of the Indian Council of Agricultural Research aim to enhance resilience of Indian Agriculture to climate change and climate variability through strategic research and technology. It also provides agro advisories to the crop weather outlook, website established by CRIDA and guides the Ministry of Agriculture on contingency planning during the crop season.

Agrometeorology is an important multidisciplinary subject. Hence, ICAR maintains Agromet observatories as well as Automated Weather Stations (AWS) and record Agromet observations at its Institutions, National Research Centres, Project Directorates, Krishi Vigyan Kendras (KVK) etc. to generate agrometeorological information for use in studies of crops, pests and diseases, soil, agro-forestry, livestock, horticulture, Agricultural Physics, Soil Science etc. Such data will help ICAR Institutes to study crop-weather relationship, relationship between crop-weather and pest/disease and develop region/location specific agromet predictive models. In view of that sixteen KVKs; of which 10 from Odisha and 6 from West Bengal have been selected in Phase-1 to establish DAMU. As of now six KVKs of West Bengal and one from Odisha have been functioning. The KVKs with DAMUs are providing weather forecast bulletins to the farmers since the inception of the Project. Weather forecast bulletins/special bulletins are generated in English and local languages and communicated to the farmers well in advance. Agromet Advisory Bulletins are prepared twice a week and circulated among all the farmers of the district. WB-KVKs with DAMUs prepared Special Bulletins in English and regional languages as per the forecast issued by IMD, RMC, Kolkata and circulated to the farmers of the district well in advance of devastating cyclone AMPHAN. This has tremendous helped the farmers to a great extent in minimizing the loss during the severe cyclonic storm. KVKs took initiatives in popularizing of 'Meghdoot' and 'Damini' mobile Apps for outreach of Agromet Advisories and to help individuals keep updated about thunderstorm/lightening likely to strike in their locations. Initially Orientation programme on Preparation and Dissemination of Agromet Advisories at Block Level under GKMS for Nodal Officers of KVKs of WB & Odisha was organized at ATARI Kolkata in August 9-10, 2018. A Six days training programme on Preparation of Agromet advisories for SMS (Agromet) & Agromet Observer in KVKs of WB, Odisha, Bihar and Jharkhand was organized at WBUAFS Kolkata during August 6-11, 2019. In Phase-II, additional 8 KVKs of WB have been selected to set up DAMUs and instruction conveyed to Hosts of KVKs to recruit the man powers SMS and Agromet observer, and all the KVKs have initiated the process for recruitment.

*"By polluting the oceans, not mitigating CO2 emissions and destroying our biodiversity, we are killing our planet. Let us face it, there is no planet B."*

Emmanuel Macron, President of France

## PURULIA KRISHI VIGYAN KENDRA

### ✿ FARMERS AWARENESS PROGRAMME:

One day Farmers' Awareness Programme (FAP) organized by District Agromet Unit (DAMU) Purulia under Krishi Vigyan Kendra Kalyan across different blocks of the district mainly to highlight the aims and objective of GKMS scheme and significance of weather based Agromet Advisory to enhance farmers' income. 15 FAP's were conducted across the district with active participation of 600 farmers. The participants were highly enthusiastic and motivated regarding establishment of such service in the district which will definitely prove to be fruitful in improving the social, economic growth of the farmers of the district.



### ✿ FIELD VISIT:

Field visits were made by DAMU Purulia primarily to monitor the coverage of the standing major crops, Pest and Disease attack on standing crop and suggesting most suitable control measure to the farmers. Total 22 visits to the farmers' field of different blocks of the district were made during this year by officials DAMU for the purpose. Farmers were also aware about the use of Agromet Advisory bulletin during every visit.

KVK conducted a District level review meeting on Agriculture and Allied Sector on June 12, 2019 at Krishi Bhawan Purulia and organized a 'Meeting cum Interaction programme on District Agromet Unit' on July 8, 2019 at KVK campus, Jahajpur, Purulia. SMS agromet, participated in an interactive session on 'Role of Weather based Agro-Advisory under Dryland Farming condition' during workshop on Dryland Farming held on 3-4 January, 2020. He also took part in an interactive and panel discussion session on 'Weather parameters and its importance in agriculture' in DAESI course for input dealers. 'Weather based farm management for Rabi Pulses' during CFLD programme and 'Climate change and its effect on Agriculture' during AGRIPRENEURSIP DEVELOPMENT of Kanyashree Students.

Popularization of 'Meghdoot', a joint initiative of IMD and ICAR to bring high resolution medium range weather forecast based Agromet Advisories to the farmers were conducted by DAMU Purulia for 10 different blocks of the district. Also participated different other awareness programmes and observation day like Sarada Mela, World Soil day, Plantation Programme etc. where participated were informed about the GKMS scheme. For getting timely alert on lightening 3 programmes regarding popularization of DAMINI app has also been conducted for famers as well as other stakeholders' through online portal.



## MALDA KRISHI VIGYAN KENDRA

The DAMU unit, Malda KVK under the jurisdiction of was functional from June, 2019. 21farmers' awareness programme with an active participation of 1587 famers which were organized with the objective of better understanding of block level agromet advisory service among the farmers and benefit of the scheme. Several brain storming panel discussions were organized with participations of Farmers, scientists, Block and district officials, stakeholders etc. by SMS, Agromet. These programmes were useful in effective preparation of bulletins and taking feedback from the framers regarding its effectiveness. Apart from

organising FAP's, the information was also shared through different farmers interactive programmes like Block administrative meetings, Kisan mela, Trainings at KVK, trainings organized by the district officials etc. The scientists also participated in several lectures and popular TV shows. During the program, the scientists of the KVK also provided informative brochures, pamphlets to farmers, related to GKMS in local vernacular languages for their better understandings. A total of 53 SMS on regular interval were disseminated to almost 1.35 lakhs farmers of the district. For real time dissemination of weather based agro-advisories 21 whatsapp group have been created with approximately 1760 farmers. During extreme events 6 special bulletins were published by the DAMU Unit, Malda KVK which proved to be very much beneficial for the farmers to avert weather risks.



## ✿ SUCCESS STORIES

**Saving of potato crop from frost Hailstorm in Rabi 2020:** During the year 2020, the district faced a sudden change in Weather during the month of February and there was a sudden forecast of heavy rainfall over Malda district. Thus, taking into consideration and looking into the harvesting of matured potato immediate information were sent to all line departments and farmers through all modes of communication to early harvest the crops in order to avoid the loss. Habib. is cultivating potato in 0.5 acre of land. As per the suggestions of the DAMU unit, Malda KVK, regarding forecast of heavy rainfall forecast, five days in well advance, he immediately harvested the crops within next two days and also influenced other farmers to do so. He thanked the Scientist to save his crop and avoid facing monetary losses. In other case, farmers those who didn't follow advisory their crops were suffering from hailstorm and severe rainfall damage. Due to lack of information regarding this they were not able to save their potato crop. Maximum crops were damaged in the field. For those farmers, he is the centre of attraction for their healthy potato crop. Many people are inspired by him and also request him to add their number in our MausamSewa group. Malda KVK earned token of appreciations from many corners for it's combined effort to save crop up to certain extend which helped them to maintain a stable income from potato crop.



## NORTH 24 PARGANAS KRISHI VIGYAN KENDRA

AAS bulletins are prepared both in English and Regional language (Bengali) and during one year working period 89 nos. AAS bulletins have been prepared biweekly on every Tuesday and Friday and disseminated through different way regularly. Moreover, 2 special bulletins were prepared based on forecast of extreme weather events. E mails, WhatsApp, KVK facebook page and 48 nos. SMS (in m-Kisan portal) were used to deliver AAS bulletins to over seventy thousand registered members of different farmers clubs, FPOs, line departments and ultimately to reach the farmers.

*"Climate change is the single greatest threat to a sustainable future but, at the same time, addressing the climate challenge presents a golden opportunity to promote prosperity, security and a brighter future for all."*

-- Ban Ki-Moon, Secretary General of UN

**Farmers awareness programme/training:** Farmers awareness/training programme is an important part of the GKMS outreach programme. Total 10 nos. of on & off campus awareness programmes have been organized with active participation of 330 nos. of farmers participated. Farmers were acquainted with the role of Agromet advisory service and its implementation in the field on regular basis and advised to harness the natural resources sustainably.

**Krishi Melas:** Krishi Mela works as a platform to showcase new technologies/information or success stories to inspire the farming community. DAMU – North 24 Parganas KVK participated in 2nos. of Krishi mela. ASS bulletins & dissemination mechanism of DAMU were displayed through presentation.



### ✿ SUCCESS STORY:

An important kharif crop of this area is Sesame which was in harvesting stage. According to forecasted data farmers were informed about possibility of medium to high rainfall and advised accordingly. Farmers were advised to collect and store the harvested Sesame crop in safe place; if the crop has not been harvested proper drainage should be maintained. Assessment was done and it was found that farmers who followed the AAS bulletin and SMS have minimized their crop loss to the magnitude of 11q/ha amounting Rs.15, 000 to Rs.17, 000 /ha.



## MURSHIDABAD KRISHI VIGYAN KENDRA

The main aim of this unit is to disseminate weather-based agro advisory to the farming community so that they can minimize their crop loss due to natural calamities. To keep this vision in mind the DAMU unit has started the dissemination of Agromet Advisory Service (AAS) bulletin to the farming community of this district in block level. Presently this unit covers 26 blocks of this district. The AAS bulletin is prepared in both English and Regional language (Bengali). During the financial year 2019-20 total 79 Nos. of bulletin was prepared by this unit biweekly basis on every Tuesday and Friday and disseminated to the farmers. For dissemination of these AAS bulletins several methods are adopted i.e KVK App (Murshidabad Krishi),Whatsapp Group, SMS,E-mail etc and these bulletins are regularly received by all line departments of Murshidabad district,Farmers Clubs, Farmers Producers Organizations of this district with a goal to strengthen the dissemination system. To disseminate these AAS bulletins total 35 nos. of SMSs was sent and each time the number of beneficiaries was 3800. To aware, the farmers about the activities of the DAMU Unit total 11 Nos. of Farmers Awareness Programme (FAP) was organised in different blocks of the district with around 500 farmers.

### ✿ SUCCESS STORY:

Murshidabad district received a good amount of rainfall ( 13-20 mm) on 25- 27 October, 2019. At that time the rice was in harvesting stage in the field. The farmers of this district received the forecast of the rainfall through AAS bulletin and through mkisan portal and they were advised to harvest their crop which attained 80% maturity level. Those who were unable to harvest their crop were advised to arrange for proper drainage facility to minimize the crop loss.After the assessment it was found that those farmers who followed the Agromet Advisory Service (AAS) bulletin can minimize their crop loss upto 60% which costs Rs. 7200 to Rs.9000 per bigha.



## JALPAIGURI KRISHI VIGYAN KENDRA

District Agromet Unit (DAMU) was assigned to Jalpaiguri KVK with the vision to support farming community with weather based advisory services. For smooth functioning of the unit two man-powers (one SMS & one Agromet observer) was recruited on March, 2019. The main activity of this unit is aimed at lending support to the farm planers and farmers by disseminating advance information related to weather condition through block level agromet advisory bulletin for day to day agricultural operations, minimize crop loss and proper utilization of natural resources.

AAS bulletins are prepared both in English and Regional language (Bengali) and during one year working period 88nos.AAS bulletins have been prepared biweekly on every Tuesday and Friday and disseminated through different channels regularly. Moreover, special bulletins are prepared based on forecast of extreme events & one special bulletin was produced. Emails, WhatsApp group with more than 200 active members and SMS (m-Kisan) are used to deliver to around 3500 farmers.

**Farmers awareness programme/training:** Farmers awareness/training programme is an important part of the GKMS outreach programme. Total 8nos. of on & off campus awareness programmes have been organized and 272 nos. of farmers participated. Farmers were acquaintance with the role of Agromet advisory service and its implementation in the field on regular basis and advised to harness the natural resources sustainably.

**Krishi mela:** Krishi mela works as a platform to showcase new technologies/information or success stories to aspire the farming community. DAMU - Jalpaiguri KVK participated in 2Krishimela organized by WBUAFS & UBKV respectively on 11.12.2019 & 14.01.2020. ASS bulletins & dissemination mechanism of DAMU were displayed through presentation.



### ● SUCCESS STORY

During Rabi season good amount of rainfall (67mm) received from 25th -26th February at Malbazar block of Jalpaiguri district. Main Rabi crop of the area is potato which was in harvesting stage. According to forecasted data farmers were informed about possibility of medium to high rainfall and advised accordingly. Farmers were advised to collect and store the harvested potato crop in safe place; if the crop has not been harvested proper drainage should be maintained. Assessment was done and it was found that farmers who followed the AAS bulletin and SMS have minimized their crop loss to the magnitude of 15-20q/bigha amounting Rs.10,000 to Rs.12,000/bigha.



## CUTTACK KRISHI VIGYAN KENDRA

A total of 107 bilingual bulletins have been issued till date along with 9 special bulletins during extreme events. More than 1 lakh farmers were covered during cyclone events like, Fani, Bulbul and Fani. DAMU, Cuttack participated on 6 Radio talks and one Audio talk were broadcasted to cover larger mass on AAS and related topic on AIR Cuttack and NIBIO NGO group respectively. To acquaint the farmers with the importance of the weather based agro-advisories, 16 Farmers Awareness Programme and Training were conducted covering 11 blocks and 772 Farmers and Farmwomen of the district.



An orientation cum Agro advisory panel meeting was organised by District Agromet Unit (DAMU) on 16/07/19 at KVK campus in which Director NRRI, Cuttack, Nodal officer KVK Cuttack, OIC KVK, DDA, DAOs, NGOs & all SMS of KVK were attended and shared their valuable remarks. 20 whatsapp groups are created for easy and large dissemination of AAS and forecast warning to the all extension functionaries of Cuttack district, stake holders, and progressive farmers. Total no of beneficiaries of the advisory in the district is 776.

### LINKAGE WITH DIFFERENT ORGANISATION, INSTITUTE, NGO GROUP OF CUTTACK DISTRICT

- Lecture on climate resilience agricultural practices and Weather based agro-advisory service were delivered by SMS, DAMU, KVK, Cuttack as resource person at Banki block. The programme is jointly organized by KVK Cuttack and catholic charity (NGO group).
- An awareness program on 'Block level agromet advisory service system' was conducted by DAMU, KVK Cuttack at Nischintakoili block with NIGAM NGO group.



- 5 Lectures on "Importance of block level agromet advisory service through GKMS" were given by SMS, DAMU, KVK Cuttack to different extension functionaries and NGOs of Cuttack district.



- Three lectures on 'Weather parameters and their impact on agricultural production' and 'Relevance of agro meteorological information for crop production' and 'Global warming and its impact on agril. Production' on 22.05.2019 and 29.05.2019 and 31.01.2020, respectively for DAESI students at ATMA, Cuttack delivered by SMS, Agrometeorology, DAMU, KVK Cuttack.

- An OFT was conducted on 'Assessment of CR-801 against drought and flood condition' at Badamba and Tangi-Choudwar block of Cuttack district. Similarly, A FLD programme was conducted on short duration pulse variety IPM-02-03 against drought at Badamba block, Cuttack.
- Poster presentation was done at ICAR-NRRI, Krishi mela and exhibition on 6th December 2019 and another on national rice workshop on 28th February 2020.



- A Brainstorming-cum-review workshop of District Agromet Unit (DAMU), KVK Cuttack was organized on 26.02.2020 at conference hall of social science division, ICAR-NRRI, Cuttack. A number of dignitaries like Dr. D. Maity, Director, ICAR-NRRI, Cuttack, Dr. H. R. Biswas, Director, MC, BBSR, Dr. GAK Kumar, Head SSD, ICAR-NRRI and Nodal Officer, KVK, Dr. A. Baliarsingh, Professor, Dept. of Agrometeorology, OUAT and Principal Nodal officer, GKMS-OUAT, Dr. Dillip Ranjan Sarangi, OIC, KVK Cuttack and Nodal officer, DAMU, KVK, Cuttack were present in that workshop. SMSs of KVK, all Heads of district agriculture departments and stake holders, Agriculture officers from each block, 10 selected progressive farmers from each block, NGOs and media persons participated in the workshop.

## ★ SUCCESS STORIES

1. A farmer named Mr. Kulamani Rana, Gopinathpur, Badamba, Dist-Cuttack, Odisha, ph no-8144500063 has cultivated 4acre Groundnut+5acre Rice+10 guntha Sugarcane in last year. His input cost in fertilizer, pesticide, irrigation was minimized 3000@ 2times=Rs.6,000/- in groundnut, 4000@ 3 times= Rs.12000/- in groundnut, 1500@ 2 times= Rs.3000/-in sugarcane respectively due to proactive farm action as per the forecast of rain. Also 12q rice is saved after harvesting by safe storage due to forecast of rain.
2. A farmer named Mr. Dharanidhar Nayak, Sundarada, Niali, Dist-Cuttack, Odisha, ph no-8895197533 has cultivated 2acre g.gram+b.gram)+8ac Rice(Maudamani)+2 ac rice (1018) and also has 7 cows . His input cost in pesticide, irrigation was minimized 2400@ 3 times in rice (Maudamani) = Rs.7200/- and 600@ 5times= Rs.3000/- in 2ac 1018 variety rice respectively due to forecast of rain. Gundhibug in 8ac rice was efficiently controlled due to effective timely advisory. 60% of mung and biri were saved before super cyclone Fani as following the advisory. Procurement of foods was done before super cyclone Amphan for livestock( 7 Cows) .



## PUBLICATIONS

### ★ RESEARCH PAPERS

1. S. Thakur, F. H. Rahman, S. K. Bhattacharjya, A. Chakraborty, B. Mahato, C. Ghosh, P. Biswas, L. Maity, D. Dutta, S. Patra, S. Rath, M. K. Bhattacharjya and V. Pradhan (2020). Agrometeorological Advisory Service: A key to enhance farmers' income in Red and Lateritic zone of Purulia district of West Bengal. Current Journal of Applied Science and Technology. 2020; 39(18): 55-60.
2. D. Majumder, R. Roy, F. H. Rahman and B.C Rudra, (2020). Impact assessment of block level agro advisories for saving input cost of farmers under old Gangetic plains of West Bengal - A case study in Malda. Current Journal of Applied Science and Technology. 2020; 39(20): 86-96.
3. J. Akhter, D. Majumder, A. Deb, and L. Das (2020). Assessing the performance of multi-sources gridded data to estimate long-term rainfall change over north-central region of India. Mausam, 71(2): 225-232.
4. D. Majumder, J. Akhter and L. Das (2019). Evaluation of LARS-WG model for generating climate data over lower Gangetic West Bengal. Journal of Agrometeorology 21(3): 372-375.

5. Debjyoti Majumder, Rakesh Roy, Paramita Bhowmik, Bankim Chandra Rudra, Adwaita Mondal, Bhabani Das and Samima Sultana. 2020. Impact and Perceived Constraints in Adoption of Climate Resilient Technologies in Flood Prone Areas of West Bengal, India. Int. J. Curr. Microbiol. App. Sci. 9(04) : 797-806. doi: <https://doi.org/10.20546/ijcmas.2020.904.095>.

#### ✿ **BOOK CHAPTER/WORKSHOPS/TRAININGS**

1. Debjyoti Majumder and Rakesh Roy (2019). Modern Water Management Techniques under Climate change scenarios. Advances in Agronomy. Vol7. 1-17. ISBN No- 978-93-5335-721-4.
2. SMS, DAMU, Cuttack NRRI presented paper on “Piloting DAMU for providing weather based agro-advisories for climate resilience action by farmers of Cuttack district of Odisha” at National conference on climate change organized by Utkal university, Odisha on 12th March 2020.
3. All the scientists from DAMU, West Bengal and Cuttack NRRI participated in workshop conducted by ICAR ATARI Kolkata and WBUAFS on Preparation and Dissemination of Agro-advisories for newly recruited SMS held from 6-11 August, 2019 at WBUAFS, Kolkata.
4. SMS of DAMUs of West Bengal participated in 4 days HRD training programme on ‘ Climate Resilient Agri-Horticulture Practices- Need of Hour’ held at WBUAFS campus, Kolkata during 4-7th November, 2019.
5. SMSs of Malda, Jalpaiguri, Purulia, Murshidabad, North 24 parganas and Cuttack NRRI KVK attended 13th Annual Review Meeting on GKMS’ at RVSKVV, Gwalior held during 18-20th December 2019.

#### ✿ **POPULAR ARTICLES**

1. Jena D, Sarangi D R, Sahoo T R, and Mohanta R K. 2019. Cultivation of rice on extreme weather conditions. Technical Bulletin no. 20. Krishi Vigyan Kendra Cuttack, Santhapur, India.
2. D. Majumder. Technical Bulletins on Importance of Weather based agro-advisories, Malda KVK, Ratua.
3. Jena D, Sarangi DR, Sahoo TR and Mohanta RK. 2019. Gramin Krishi Mausam Seva. Extension Bulletin No. 3. Krishi Vigyan Kendra Cuttack, Santhapur, India.
4. Jena D, Sarangi DR, Sahoo TR and Mohanta RK. 2019. Meghdoot Mobile app- An initiative by IMD-ICAR. Extension Bulletin No.5. Krishi Vigyan Kendra Cuttack, Santhapur, India.

#### ✿ **NEWS PAPER ARTICLES**

1. D Jena. Cultivation practices before onset of monsoon. Prameya: A daily Odia Newspaper. Date: 18th June 2019.
2. D Jena. Rice varieties for climate change situations. Prameya: A daily Odia Newspaper. Date: 9th July 2019.
3. D. Jena. Drought management planning. Prameya: A daily Odia Newspaper. Date: 23rd July 2019.
4. D. Jena. Block level Agromet advisory services for farmers. Prameya: A daily Odia Newspaper. 10th December 2019.
5. D. Jena. Meghdoot app- An initiative by ICAR-IMD. Prameya: A daily Odia Newspaper. Date: 18th February 2020.
6. D. Jena. Post cyclone crop management after super cyclone Amphan. Prameya: A daily Odia Newspaper. 27th May 2020.
7. D. Majumder. Articles on “Locust Alert” in Ananda Bazaar Patrika. 1st June, 2020.

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