

## Dissemination of Agro-advisory Bulletin to the farmers for increasing better yield under NICRA Project

**A. M. Khobragade, R. B. Mane and Y. E. Kadam**

<sup>1</sup>Principal Investigator NICRA-AICRPAM, VNMKV, Parbhani

<sup>2</sup>young Professional-II, (NICRA) VNMKV, Parbhani

<sup>3</sup>senior Research Fellow CM Fund, VNMKV, Parbhani

\*Corresponding Author: [ramkrishnamane81@gmail.com](mailto:ramkrishnamane81@gmail.com)

Climate change is a very important area of concern affecting the production and productivity of different crops and livestock in the country as well as in the world. The Earth's average temperature has been rising since the late 1970s, with nine of the 10 warmest years on record occurring since 1995. The Earth's average surface temperature has increased by 1.5°F (0.83°C) since 1880. Since agriculture makes up roughly 16 per cent of India's Gross Domestic Product (GDP), a negative impact on production will greatly affect the country as a whole. As against a 7-8% growth rate of economy in the last few years, agriculture and allied sectors in the last decade and half have registered a much lower growth trajectory and face stagnation in India. Climate change induced by increasing greenhouse gases is likely to affect crops differently from region to region

Farming has never been easy especially for the poor farmers in India. Farmers have to face a host of challenges, the most difficult of which is dealing with the uncertainties of nature. The Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report, concluded that the poorest countries would be hardest hit by climate change, with reductions in crop yields in most tropical and sub-tropical regions due to decreased water availability, and new or changed insect pest incidence. The negative impact of climate change on agriculture and allied sectors could result in problems related to food security and may threaten the livelihood activities upon which most of the Indian population depend. Thus, to help the farmers to better cope with the climate change, the Indian Council of Agricultural Research has launched a Project called 'National initiative for Climate Resilient Agriculture' during 2011. Under this project

### Objective

1. Micro level (block level) Agromet advisories (success stories, validation of weather forecast etc.)
2. Monitoring and compilation of extreme weather events and its impacts on agriculture in jurisdiction.
3. Quantification of the negative and positive impacts of climate change on agriculture.



### Techniques used in preparation of AAS bulletins:

#### Inventory of techniques used for translation of weather forecast in to Agricultural operations if any.

- Soil-water conservation- Rain water management through land configurations like BBF to provide adequate drainage needs greater emphases in this crop.
- Stop burning agricultural waste of crops like wheat, paddy or other crops and put them to other productive uses
- Efficient use of irrigation water and *in situ* and *ex-situ* rain water harvesting are critical in irrigated and rainfed agriculture, respectively
- Promoting conservation agriculture and other practices to build soil organic carbon.
- The advisory for avoiding spraying particularly at noon time when normally the wind speed is higher. The sprayings/dustings of various insecticides, pesticides and fungicides were to be done either in early morning or at evening time.
- The spraying of insecticides/pesticides should be avoided for the day when predicted rainfall was more than 5.0 mm.
- Irrigation frequency to be adjusted according to rainfall situation, soil type and atmospheric evapotranspiration demand and also at critical growth stages of the crop particularly for summer crops.



- Protective irrigation facility should be created by preparation of farm ponds, recharging of tube wells and by saving water per irrigation by adopting sprinkler irrigation in *rabi* season or in dry spell during *kharif* season.
- Nursery seedlings in horticultural vegetables always prefer for planting, it has useful to increasing the net income as well as saving the water and also labour charges.

### Feedback and Suggestions of farmers

The feedback of farmers about Agromet Advisory Bulletin recorded time to time after distributing the bulletin to the farmers. This feedback is explained in the following paragraph according to various characters of Agromet Advisory Bulletin.

### Management practices suggested in advisory

The management practices suggested in advisory was easy to understand and can be easily adopted by the farmers on their farm. The inputs recommended in advisory are helpful to selected villages or nearby villages. The farmers also appreciated the management practices given in advisory like sowing, weed management, insect pest and disease management, fertilizer management, cultural practices, harvesting and storage. Following is the some feedbacks received through management practices.

1. **Interculturing** operations like hoeing- In village rainfall receipt was very less and therefore in Agromet advisory it is suggested to carry out the timely interculturing operations like hoeing to conserve the soil moisture and to control the weeds and with this many farmers carried out the suggested timely interculturing operations in standing crops like cotton, soybean and Pigeon pea etc.
2. **Plant protection operations like spraying of pesticides**- During crop growing season there is receipt of rainfall which leads to the incidence of some pests like aphids, thrips, mealy bug, pink bollworm and disease on cotton crop. For control of these pests and diseases we regularly suggested in

Agromet advisory the spraying of pesticides on cotton crop and the farmers adopted the spraying operations as suggested in AAB.

3. **Crop residue management:** The crop residue was used as surface mulching materials. The mulches are thermo insulators, have smother effect on weeds, protect the soil from rain drop impact, reduce salinization and barriers to vapour transfer thus conserve soil moisture. It is also beneficial for soil microorganisms and on degradation adds organic matter to the soil.

### Crop residues of green gram crop incorporated into soil in drip irrigated cotton and pigeon pea

1. **Farm keep fallow in *kharif* and wheat is sown in *rabi***- It refers to keeping the land vacant without raising any crop during a particular season/year. The main objective of fallow in rotation is to give rest to the soil and conserve the soil moisture in the field.
2. **Moisture conservation practices**- As there was a long dry spell during the critical growth stages of crop, in Agromet advisory we suggested to carry out the water conservation practices like opening of furrow 25-30 DAS after every two rows of crops for long duration and wide spacing crops like cotton, pigeon pea and after every 4-6 rows of crop for short duration and short spacing crops like Jowar, Soybean, green gram, blackgram and Vegetables to conserve the rain water.

### Success story of farmers

Name of farmer : Ashok Salgode  
 Mobile No. : 9923136713  
 District : Parbhani  
 Cultivated crops: Kharif: Sugarcane, Soybean, Pigeonpea, Cotton

### Implemented techniques/operation/management as per AAB

- ✓ Sowing was done as per suggestion i.e after sufficient recorded the rainfall (75 to 100 mm).
- ✓ Sowing of soybean on BBF method.
- ✓ Foliar spray of 2% urea at pod formation stage.
- ✓ Spray the KNO<sub>3</sub> during dry spell.
- ✓ Postponement of insecticidal/foliar spraying due to rainfall forecast.
- ✓ Mulching operation carried out in Vegetable, cucumber & watermelon crop during summer season
- ✓ Cover the citrus plant using green net to protect the fruit crops to be protected from high temperature & Yield quality was improve

- ✓ Management of mealy bag on custard apple as per Agromet advisory bulletin
- ✓ Pruning operation management applied as per suggestion in Agromet advisory bulletin

**Higher profit obtained by Shri. Ashok Salgade is mainly due to**

- Adoption of issued advisories and farm operations accordingly.
- Postponement of insecticidal/ foliar spraying due to rainfall forecast.

- Foliar spray of 2% urea at pod formation stage.
- Spray the KNO<sub>3</sub> during dry spell
- Timely intercultural operation application coinciding with soil moisture stress period.
- Immediate drainage of excess water-logged areas in crop field
- • Timely harvest of the crop during rain-free weather avoiding any delay and its safe drying and storage.
- Seed rate, spacing and Fertilizer application as per recommendation.

**Table 1: Quantification of the negative and positive impacts of climate change on agriculture**

Sl. No.	Aspects of climate change realities	Positive impacts
1.	Irregularity in monsoon	
	Dry spell during August and early September	Due to dry spell increase the temperature, humidity, BSS and no cloudy condition to major crops like cotton, pigeon pea, sorghum, Maize crops does not have to face biotic impact.
	Heavy rainfall during end of September and early October	Long duration pigeon pea cultivar does not have to face moisture stress at pod formation to grain filling stage which produces chaffy grains. Good soil moisture residue for cultivation of rabbi crops, turmeric, vegetable and orchard crops. Timely sowing of wheat helping to avoid terminal heat stress and hailstorm damage. Due to heavy rainfall event washout the insect pest on crops.
	High temperature during May month	Reduce the pest attack on pomegranate orchard.
Sl. No.	Aspects of climate change realities	Negative impacts
1.	Irregularity in monsoon	
	Dry spell during June	➤ Dry spell occurred in June month to timely sown crop don't germination properly to resowing operation carried out or germinated crops was wilting due to don't sufficient residual soil moisture. ➤ Dry spell occurred at early stage to increase the temperature to adverse impact on growth & development of <i>kharif</i> crops.
	Dry spell during August and early September	➤ During this time timely sown cotton crops at flowering to square formation stage & pigeon pea at vegetative stage to crop was face moisture stress and impact on growth & development. ➤ During this time timely sown soybean crops at pod formation to crop was face moisture stress to decrease the yield.
	Heavy rainfall with wind speed during end of September and early October	➤ Lodging of <i>kharif</i> crop was observed due to high wind speed. ➤ Water logging condition in <i>kharif</i> crops due to adverse impact on crops ➤ Horticultural crops were stagnated with water ➤ Flower drops in cotton crops.
2	High temperature during May month	➤ Fruit & flower drop in horticulture crops. ➤ Sun burning in vegetable crops

\*\*\*\*\*