- **MOU**
    1. India Meteorological Department, New Delhi
    2. Indian Space Research Organisation (ISRO), Ahmedabad
    3. National Remote Sensing Centre, Hyderabad
- **Extension work**

Extension work in agriculture plays a crucial role in disseminating valuable information and advisories to farmers, thereby enhancing productivity and mitigating risks due to climatic factors. Here are the key extension activities mentioned:

All India Coordinated Research Project on Agrometeorology (AICRPAM):

This project focuses on studying the impact of various climatic factors on crops such as cotton, soybean, and pigeon pea.
The project involves demonstrating these crops under different climatic conditions to understand their response and resilience.
The findings from this project help in formulating strategies and recommendations for farmers to optimize crop management based on climatic conditions.

Gramin Krishi Mausam Seva Scheme:

Under this scheme, Agromet Advisory Bulletins (AAB) are issued twice a week.
These bulletins provide crucial information on weather forecasts, climatic trends, and crop-specific advisories.
The distribution covers six districts of Marathwada and nine talukas of Parbhani district in Maharashtra.
The AABs are disseminated through various media channels to reach approximately 13 lakh farmers.

Pokra Project:

This project focuses on delivering agro-climatic advisories to villages in Marathwada region.
Specifically, it covers 4800 villages, aiming to provide localized advisories that are relevant to the specific micro-climatic conditions of each area.
The advisories under this project help farmers make informed decisions regarding crop management, irrigation, pest control, and other agricultural practices based on prevailing climatic conditions.
These extension activities are critical in bridging the gap between scientific knowledge and practical application in agriculture. By providing timely and accurate information, farmers are empowered to mitigate risks associated with climate variability and enhance their agricultural productivity sustainably.

- **Staff Position**

Sr. No	Name of staff	Post
1.	Dr. Kailas Kamaji Dakhore	Agrometeorologist/ Assitant Professor
2.	Shri. A. R. Shaikh	Agri. Assistant
3.	Shri. Yadav Eknathrao Kadam	Senior Research Fellow
4.	Shri. Bapurao Sanjay Bhalerao	Young Professional-II
5.	Shri. Ramkrishna Balaji Mane	Young Professional-II
6.	Dattarao Raosaheb Bobade	Met Observar

- **Significant Achievements (Top Five)**

Patent/IP/Technologies/ Varieties/Machineries Developed / Methodologies/ Recommendations	**Year**
1. I led the successful implementation of the Continuous Rainfall Criteria (CRC) for farmer remuneration in Maharashtra. This pioneering initiative utilized NDVI-based assessments to objectively evaluate crop damage caused by continuous rainfall. By ensuring precise and timely compensation grounded in scientific data, we empowered farmers to mitigate financial losses and bolster resilience against climate-related risks. Our efforts not only modernized agricultural policies but also promoted sustainable farming practices, fostering the welfare of rural communities across Maharashtra.	2023
2. During the Kharif season of 2023, the Marathwada region faced a significant mid adverse drought marked by a prolonged dry spell in August. According to the Government of India's drought manual, a dry spell lasting 21 days during the critical growing period of Kharif crops qualifies an area for mid adverse drought compensation under the Pradhan Mantri Fasal Bima Yojana (PMFBY) scheme. To assess the impact of this dry spell, a comprehensive analysis was conducted. This analysis evaluated the extent of crop damage and loss caused by the adverse climatic conditions, particularly focusing on the affected regions within Marathwada. Utilizing the guidelines of PMFBY, which include objective criteria such as NDVI-based assessments and crop yield data, compensation was meticulously calculated and disbursed to eligible farmers.	2023
3. The crop coefficient (Kc) values provided are essential for estimating the water requirement of soybean crops during different growth stages in the **Marathwada region. Here's how these values are typically used:** Initial Stage (1-28 days): Kc = 0.64 This stage covers the early growth phase of soybean plants when they are	2023

establishing root systems and initial vegetative growth is occurring. Mid Stage (29-84 days): Kc = 1.31 The mid stage represents the period of active vegetative growth and flowering in soybean plants. This is when the crop is utilizing more water to support biomass production and reproductive processes. End Stage (85-110 days): Kc = 0.66 During the end stage, soybean plants are nearing maturity, and there is a reduction in vegetative growth. The crop is focusing more on seed development and filling. **Application in Estimating Crop Water Requirement:** To estimate the crop water requirement (ETc) at any given time during the growing season, the Kc value corresponding to the growth stage is multiplied by the reference evapotranspiration (ETo) for the location. ETo is typically estimated using weather data and represents the evaporative demand of the atmosphere. ETc = Kc * ETo **Significance for Marathwada:** Marathwada region experiences specific climatic conditions that influence crop water needs. These Kc values are tailored for local conditions, helping farmers and policymakers make informed decisions regarding irrigation scheduling and water management practices. Using these Kc values ensures that soybean crops receive adequate water during critical growth stages, optimizing yield potential while conserving water resources	
4. The crop coefficient (Kc) values provided are crucial for estimating the water requirements of Bt. cotton crops during various growth stages across Maharashtra. **Here's a breakdown of how these Kc values are typically applied**:	2023

Initial Stage (1-30 days): Kc = 0.51 This stage corresponds to the early development phase of Bt. cotton, where the plants are establishing and undergoing initial vegetative growth. Mid Stage (31-111 days): Kc = 1.24 The mid stage covers the period of active vegetative growth and flowering in Bt. cotton. This is when the crop requires the highest amount of water for biomass production and reproductive processes. End Stage (112-164 days): Kc = 0.95 During the end stage, Bt. cotton plants are maturing, and there is a decrease in vegetative growth. Water requirement decreases as the crop transitions to focusing on boll development and maturation. **Application in Estimating Crop Water Requirement:** To calculate the crop water requirement (ETc) at any given time during the growing season, multiply the Kc value corresponding to the growth stage by the reference evapotranspiration (ETo) for the location. ETo represents the evaporative demand of the atmosphere and is typically estimated using weather data. ETc = Kc * ETo **Significance for Maharashtra:** Maharashtra's diverse agro-climatic zones influence Bt. cotton water requirements. These specific Kc values are tailored for the state's conditions, aiding farmers and agricultural authorities in efficient irrigation management and water resource planning. By using these Kc values, stakeholders can optimize water use efficiency, enhance crop productivity, and mitigate risks associated with water stress during critical growth stages of Bt. cotton.	
5. If the soil moisture is reduced due to dry spell, the yield of soybean crop is decreases as follows this is recommended for Marathwada region 1, Vegetative stage :- 39.1% 2. Flowering stage :- 55.4%	2023

3.	Pod formation stage :- 45.1%	
4.	Pod development stage :- 23.0%	
5.	Vegetative stage to Flowering stage :- 62.8%	
6.	Flowering stage to pod formation stage :- 67.3%	
7.	Pod formation to pod development stage :- 59.1%	