



Department of Agricultural Meteorology
College of Agriculture, Pune
Mahatma Phule Krishi Vidyapeeth
Rahuri-413 722, Dist. Ahmednagar (MS)



Phone: (020) 25535016 Email: amfupune@gmail.com

Preamble

The Centre of Advanced Studies in Agricultural Meteorology (CASAM) was established at College of Agriculture, Pune under MPKV, Rahuri during 1987. CASAM - Project was financially supported by Indian Council of Agricultural Research (ICAR), New Delhi, United Nations Development Programme (UNDP) and Food and Agricultural Organization (FAO). Under this project, provision was made to invite consultants, depute faculty members and import equipments / instruments related to Agricultural Meteorology. International scientists as consultants made 20 visits to the center. After termination of support from UNDP and ICAR, New Delhi, the center is being supported by the State Government of Maharashtra as a non-plan scheme from 1st April, 1994. The CASAM renamed as Centre of Advanced Faculty Training (CAFT) in Agricultural Meteorology from 2010 onward. Separate Department of Agricultural Meteorology is functioning from 14 Feb., 2004.

Mandate / Objectives

- Teaching M.Sc. (Agri.) and Ph. D. (Agri.) course curricula with major courses, minor courses, supporting courses and NCC courses in Agril. Meteorology.
- Conduct research on the effects of weather parameters *viz.*, temperature, humidity, rainfall, BSS etc. and micrometeorological parameters *viz.*, canopy temperature, PAR, CO₂ concentration etc. on plant growth and adaptation, forewarning of pests and diseases in relevance to dry-farming, tree crops, grazing, forestry and livestock including methods of micro climate modification.

Faculty Position

The Centre is manned by the following Faculty Positions:

1. Head, Department of Agricultural Meteorology
2. Professor of Aero-biometeorology
3. Professor of Applied Agricultural Climatology
4. Associate Professor of Hydrometeorology
5. Associate Professor of Crop Biophysics

Present Faculty:

S. N.	Name	Designation	Area of Specialization	Mobile Numbers	E mail ID
1.	Dr. J. D. Jadhav	Head	Agricultural Meteorology, Crop Biophysics	09420356150 09604654150	jadhavcasam151064@gmail.com
2.	Dr. V. A. Sthool	Associate Professor	Hydrometeorology, Soil & Water Conservation	09421067994	vijaysthoool@gmail.com

Academic Programmes

Admission:

The minimum qualification required for admission to M.Sc. Program is B.Sc. (Agri.) B.Sc. (Hort.) or B.Tech (Agril. Engg.). Seven (07) students are enrolled every year on the basis of merit. The minimum qualification required for admission to the Ph.D. Programme is M.Sc. (Agri.) degree in Agricultural Meteorology. Three (03) students are enrolled for the Ph.D. Program every year on the basis of merit.

Intake Capacity of Student per year:

- M.Sc. Agricultural Meteorology - 7 (1 ICAR)
- Ph.D. Agricultural Meteorology - 3 (1 ICAR)

Master's Programme in Agricultural Meteorology

Course Layout Minimum Credit Requirements

Sr. No.	Subject	Minimum credit(s)
1.	Major	20
2.	Minor	09 (Common)
3.	Supporting	05 (Uncommon)
4.	Seminar	01
5.	Research	20
	Total Credits	55
	Compulsory Non Credit Courses	06

Sr. No.	Course Number	Course Title	Credits
A) Major Subjects (Min. 20 credits)			
1	AGM 501	Fundamentals of Meteorology and Climatology	2+1=3
2	AGM 502	Fundamentals of Agricultural Meteorology	2+1=3
3	AGM.503	Micrometeorology	2+1=3
4	AGM 504	Agro-meteorological Measurements and instrumentation	1+2=3
5	AGM 505	Soil Water Balance Climatology	2+1=3
6	AGM 506	Crop Weather Models	1+2=3
7	AGM 509	Applied Agricultural Climatology	1+2=3
B) Minor Subjects (Min. 9 credits)			
1	AGM 510	Aerobiometeorology	2+1=3
2	AGRON 505	Agrometeorology and Crop Weather Forecasting	2+1=3
3	AGM 507	Weather Modification and Risk Management Strategies	2+1=3
C) Supporting Subjects (Min. 6 credits)			
1	STAT 511	Statistical Methods for Applied Sciences	2+1=3
2	STAT 512	Experimental Design	2+1=3
D) Seminar (1 credit)			
1	AGM 591	Masters Seminar	1+0=1

E) Master's Research (20 credits)			
1	AGM 599	Master's Research	20
F) Non Credit Compulsory Courses			
1	PGS 501	Library and Information Services	0+1=1
2	PGS 502	Technical Writing and Communication Skills	1+0=1
3	PGS 503	Intellectual Property and its Management in Agriculture	1+0=1
4	PGS 504	Basic Concepts in Laboratory Techniques	0+1=1
5	PGS 505	Agricultural Research Ethics and Rural Development Programme	1+0=1
6	PGS 506	Disaster Management	1+0=1

Doctoral Programme in Agricultural Meteorology

Course Layout Minimum Credit Requirements

Sr. No.	Subject	Minimum credit(s)
1.	Major	15
2.	Minor	08
3.	Supporting	05
4.	Seminar	02
5.	Research	45
	Total Credits	75
	Compulsory Non Credit Courses	06

Sr. No.	Course Number	Course Title	Credits
D) Major Subjects (Min. 15 credits)			
1.	AGM 601	Climate Change and Sustainable Development	2+1
2.	AGM 602	Weather Forecasting	2+1
3.	AGM 603	Air pollution Meteorology	2+1
4.	AGM 605	Analytical Tools and Methods for Agrometeorology	2+1

5.	AGM 606	Strategic Use of Climatic Information	2+1
6.	AGM 609	Advanced Micrometeorology	3+0
7.	AGM 610	Advanced Climatology	2+1
8.	AGM 611	Agrometeorology for Multiple Cropping Systems	2+1
9.	AGM 691	Doctoral Seminar I	1+0
10.	AGM 692	Doctoral Seminar II	1+0
11.	AGM 699	Doctoral Research	45
E) Minor Subjects (Min. 08 credits)			
1.	AGM 604	Weather, Climate and Livestock	2+1
2.	AGM 608	Database Management and Commercialization of Agrometeorological Data in e-services	1+2
3.	AGM 607*	Mathematics in Agriculture and Biology	2+1
4.	AGM612	Advanced Aerobiometeorology	2+1
*This course is not offered by the Department of Agril. Meteorology College of Agriculture, Pune			
F) Supporting Subjects (Min. 05 credits)			
1.	AGM 603	Air Pollution Meteorology	2+1=3
2.	AGM 611	Agrometeorology for Multiple Cropping Systems	2+1=3
F) Seminar (02 credit)			
1.	AGM 691	Doctoral Seminar (Major)	1+0=1
2.	AGM 692	Doctoral Seminar (Minor)	1+0=1
G) Doctoral Research (45 credits)			
1.	AGM 699	Doctoral Research	45
F) Non Credit Compulsory Courses(06 credits)			
1	PGS 501	Library and Information Services	0+1=1
2	PGS 502	Technical Writing and Communication Skills	0+1=1
3	PGS 503	Intellectual Property and its Management in Agriculture	1+0=1
4	PGS 504	Basic Concepts in Laboratory Techniques	0+1=1
5	PGS 505	Agricultural Research Ethics and Rural Development Programme	1+0=1
6	PGS 506	Disaster Management	1+0=1

Laboratories

- Crop Modeling Laboratory
- Computer Lab

Computer Lab



- Instrument Cell

Scientific Instruments:

- 1. Line Quantum Sensor
- 2. Vaisalla sensor
- 3. Automatic Weather Station
- 4. Pressure Plate Membrane Apparatus
- 5. Micro Logger sensor
- 6. Sun scan or Digital Plant Canopy Analyser
- 7. Sapflow Measurement System
- 8. Steady State Porometer
- 9. Leaf Area Meter
- 10. Spectroradiometer
- 11. Infrared Thermometer
- 12. Instruments such as Open Pan Evaporimeter, Stevensons Screen, Anemometer, Windvane, Sunshine Recorder, Dew guage, soil thermometer etc.

Departmental Library



Experimental Farm

2.5 acres of experimental field is available with the department including Agril. Meteorology Observatory

Research Schemes

I] Centre of Advanced Faculty Training in Agricultural Meteorology (CAFT)

- Established during 1987 as CASAM
- 100 % Financial support from ICAR
- Renamed as CAFT from 2010.

Mandate / Objectives:

- Human Resource Development in the field of Agricultural Meteorology.
- Advance training to the Professors and Scientists from SAU & ICAR Institutes in the field of Agricultural Meteorology / Crop micrometeorology / Fundamentals of Agricultural Meteorology.

No. of Trainings: 30 (From 1998 to 2018)

No. of faculties trained from SAU's and ICAR Institutes: 570 (From 1998 to 2018)

Areas of Training:

- Fundamentals of Agricultural Meteorology.
- Advances in Crop Micro-Meteorology.
- Crop Modelling.
- Agricultural production and Protection Meteorology.

II] Gramin Krishi Mausam Sewa (GKMS) : funded by : IMD, Ministry of Earth Sciences Govt. of India, New Delhi

- Adhoc Project on Experimental Agromet Advisory Services during April, 1993 to 2006
- Integrated Agromet Advisory Service from 2007 to 2012
- Gramin Krishi Mausam Sewa (GKMS) from 2012 to till date

Mandate/ Objectives:

- To validate weather prediction with real time data.
- To issue agro-advisory for Principle crops of Pune Region.
- To assess the impact of Agro-advisory.

Staff Position:

- Research Associate - 1
- Agromet Observer - 1

Farmer Awareness Program (FAP) Conducted under GKMS: 3

- Farmers Registered on mKisan Portal for SMS - 9,11,503 from June 2013 to June 2019 (Pune, Solapur and Jalgaon District)
- No. of SMS Sent - 484 from June 2013 to June 2019

III] Forecasting Agricultural output using Space, Agro-meteorology and Land Based Observations (FASAL):

IMD in collaboration with Agromet Field Units located in State Agricultural Universities/ ICAR institutes/ IITs has started issuing national/ state/ district level multiple in-season crop yield forecast for eleven major crops since 2010. CHAMAN project for horticulture has been included for chili, tomato, potato, citrus fruits, banana and mango. Crop yield forecast is being issued by IMD at planting, mid season and pre-harvest stage. Crop yield forecast is being issued based on the statistical and crop growth simulation models.

Mandate / Objectives:

- To establish the relation between weather and crop growth, development and yield for Sugarcane, Sorghum, Cotton etc.
- To assess and establish the relationship between weather, field level management practices and land factors for crop yield forecasting.
- To determine genetic coefficients for popular varieties of Sugarcane and Cotton for running crop simulation models for crop yield forecasting.
- To issue multiple crop yield forecast for Sugarcane and Cotton in Western region of Maharashtra state at mid season and pre-harvest stage.

Staff Position:

- Senior Research Fellow - 1

Training organized under FASAL Scheme

- Organized Training Program cum Workshop on Crop Yield Forecasting using Statistical and Crop Growth Simulation Models for SRF's of AMFU and IMD during 18th to 21st October, 2016.
- No. of participants - 22

On going Research

- Studies on rainfall variation in Pune, Nandurbar and Dhule district for analysis of droughts and extreme events.
- Response of groundnut (*Arachis hypogaea* L.) varieties under different sowing windows in *kharif*.
- Studies on the effect of sowing windows on different varieties of drilled paddy in relation to climate change.
- Response of fenugreek (*Trigonella foenum-graecum* L.) varieties for table purpose under different sowing windows in *kharif* season.

Adhoc Projects Completed

- Extension Agro-meteorology for Haveli Tahasil of Pune District.
- Onset and progress of dry spell and drought monitoring in Purandhar Tahasil of Pune District.
- Integrated use of nitrogen in different cropping system and validation by DSSAT 3.5.
- Development of weather based forewarning systems crop pest and diseases- sugarcane crop (NATP-ICAR).
- Economic impact of AAS, NCMRWF.

Achievements

- **Education :**
- Awarded M.Sc. Degree to 136 students in Agril. Meteorology
- Awarded Ph.D. degree to 8 students in Agril. Meteorology
- **Research:**
 - **Recommendations Passed in Joint Agresco:** 27 Research recommendations on Monsoon Model, Pests and Diseases Forewarning Model, Climate change and prices, Crop Modelling, Crop Weather Pest Calendar etc.

Memorandum of Understandings:

- MoU between Department of Agril. Meteorology, MPKV, Rahuri and India Meteorological Department, Ministry of Earth Sciences, Govt. of India on Weather Based Agromet Advisory Services.
- MoU between Department of Agril. Meteorology, MPKV, Rahuri and Watershed Organization Trust (WOTR), Pune for developing crop specific weather based advisories.

Publications

• Scientific - 78
• Technical - 56
• Popular - 63
• Training Compendium - 30

Contact Details

Head, Department of Agricultural Meteorology &
Director, Centre for Advanced Faculty Training Agricultural
Meteorology & Principal Nodal Officer, AMFU,
College of Agriculture, Shivajinagar, Pune-411 005
Phone: (020) 25535016
Email: amfupune@gmail.com
