Department of Statistics
Post Graduate Institute
Mahatma Phule Krishi Vidyapeeth,
Rahuri-413 722,
Dist. Ahmednagar (MS)

Establishment & Mandates:

The Department of Statistics was established in 1969 in the Mahatma PhuleKrishVidyapeeth, Rahuri. Teaching is the main activity of the Department. The courses in Statistics are taught at B.Tech, M.Sc./M.Tech and Ph.D. levels.

Besides teaching, Statistics Department is actively engaged in statistical analysis and interpretation of field and laboratory experiments conducted by the University research scientists and scholars. The Department renders the work of layout of experiments, analysis and interpretation of research work.

Faculty:

Sr. No.	Name	Designation	Mobile No.	E-mail
1.	Dr. V.S.Wani	Professor	9423468335	vswani9@gmail.com
2.	Dr. C.A.Nimbalkar	Associate Professor	9922760012	canimbalkar@gmail.com
3.	Dr. A.J.Shivgaje	Assistant Professor	9420748400	ashokjs123@gmail.com
4.	Dr. S. D.Shinde	Assistant Professor	7588078466	swatidshinde@rediffmail.com

Academic Programmes

Degree Progarmme wise Supporting Courses Offered

1. **Supporting**:

Sr. No.	Degree Program	Total No. of Courses offered
1	B.Sc. (Agri.)	01
2	B.Tech. (Agril. Engg.)	01
3	M.Sc (Agri)	08

4	M.Tech. (Agril. Engg)	01
5	Ph.D. (Agri.)	03
6	Ph.D. (Agri. Engg.)	01

Supporting courses offered

Bachelor's Programme (B. Sc. / B. Tech.)

S.N.	Course No.	Title	Credits	Discipline
1	Stat-231	Statistical Methods	1+1	Agricultural
2	BS-Stat-237	Statistical Methods	1+1	Agril. Engg.

Master's Programme

1. (M. Sc.)

S.N.	Course No.	Title	Credits	Discipline
1.	STAT-501	Mathematical Methods for Applied Sciences	3+0	All, Compulsory
2	STAT-511	Statistical Methods for Applied Sciences	2+1	All, Compulsory
3.	STAT -512	Experimental Design	2+1	Agro, Hort, SSAC, Phy, Seed Tech, IWM
4	STAT -513	Sampling Technique	2+1	All
5.	STAT-521	Applied Regression Analysis	2+1	All
6.	STAT -531	Data analysis Using Statistical packages	2+1	All
7.	FOR-STAT-513	General Statistical Methods and Research Methodology	1+1	Agro. Forestry
8.	FST - STAT-531	Statistical Methods for Food Science	1+1	FST
9.	MBB- STAT-553	Biostatistics & Computers	2+1	Bio Technology
10	STAT-505	Statistical Methods in Metrology	1+1	Metrology
11	STAT-506	Design of Experiment for Genetics & Plant Breeding	2+1	Genetics & Plant Breeding
12	STAT - 507	Design of Experiment for Plant Protection	2+1	Ento. / Pl. Patho. & Micro.
13	STAT - 508	Design of Experiment for Animal Sciences	2+1	Ani. & Dairy Sci.

2.   M. Tech.

S.N.	Course No.	Title	Credits	Discipline
1	STAT-511	Statistical Methods for Applied Sciences	2+1	All, Compulsory

Doctoral Programme

Ph. D. in Agriculture & Agril. Engineering

S.N.	Course No.	Title	Credits	Discipline
1.	STAT - 601	Advanced Statistical Methods	2+1	All
2.	STAT - 602	Advanced Mathematics for Economics	2+0	Econ. & others
3.	STAT - 603	Analysis of Groups of Experiments	1+1	All
4.	STAT -604	Genetical Statistics	1+2	Genetics & Plant Breeding
5.	STAT - 605	Design of Experiment for Plant Sciences	2+1	Agro / SSAC / Hort. / Phy. /Seed Tech., IWM
6.	STAT -606	Statistical Methods in Biological Assays	1+1	Ento. / Plant Patho.& Micro Bio.
7.	STAT -607	Multivariate Analysis	1+1	All
8.	STAT - 608	Seminar	0+1	All
9.	STAT - 609	Operations Research	2+1	Econ., Extn. & Engg.
10.	STAT - 610	Probabilistic Approach in Design	2+0	Engg.
11.	STAT - 611	Geostatistical Analysis	1+1	Engg.
12.	STAT - 612	Regression Analysis	2+1	All

Research Recommendations

1. Consumption pattern of fertilizers in Maharashtra (2011)

In the last 40 years, the use of nitrogen, phosphorous and potash in the State of Maharashtra has not been observed in the ratio of 2: 1: 1, whereas the use of nitrogen and phosphorous is more. It is therefore recommended to use nitrogen, phosphorous and potash in the ratio of 2: 1: 1 to maintain fertility of soil.

2. Macronutrients contribution in onion seed yield (2015)

On the basis of path analysis, application of fertilizer nutrient as per yield target (STCRC approach) with FYM is recommended for enhancing onion seed production, increasing use efficiency of added nutrients, maintaining soil health and reducing nutrient mining of Inceptisol soil.

3. Trend analysis of productivity of black gram and soybean in presence of autocorrelation (2017)

It is recommended that Cochrane and Orcutt model be employed for auto-correlated time series data to obtain best fit and improved estimates in trend analyses.

4. Technology achievement index for wheat crop (2018)

Principle component analysis reveals that, 99 per cent farmer of the total respondents under study were categorized in low and medium adopters groups, while technology decomposition analysis reveals that, among the University recommended technologies, nutrient management (40.90%), seed treatment (15.33 %), growth stage-wise irrigation management (13.55%), preparatory tillage (8.78%), time of sowing (8.71 %) and improved variety (7.21 %) were the major contributing technologies in the wheat productivity. Hence, it is recommended that the farmers should adopt these technologies to the maximum extent to achieve the potential wheat yield.

5. Mathematical Modelling for Growth Behaviour of Deccani Sheep (2019)

For restructuring the breeding and feeding strategies in order to maintain the high-productive animals and proper selection of Deccani sheep maintained under standard management practices, it is recommended to use Brody model with the following parameters.

For male, $W_t = 31.12 [1 - 0.91 e^{(-0.21 t)}]$
For female, $W_t = 25.34 [1 - 0.87 e^{(-0.27 t)}]$
W_t = is the body weight at age t (month)

6. Trends of kharif groundnut area, production and productivity in Maharashtra (2019)

Area, production and productivity of *kharif* groundnut has been drastically declined in all the districts of Maharashtra. The area under *kharif* groundnut has shifted towards soybean due to its higher minimum support price. Hence, it is recommended to increase the minimum support price of groundnut.

Research Publications

I)   Books/ Booklets

S. N.	Title	Publisher	Authors	Year
1	Statistical Logics for Research	Lambert Academic Publishing Company, Germany.	B.H.Khanand C.A. Nimbalkar	2011
2	Key Notes on Agricultural Economics, Bussiness Management and Statistics	Daya Publishing House, Astra International (P) Ltd., New Delhi 440002.	P.P. Pawar, H.R. Shinde, D.S. Nawadkar and C.A. Nimbalkar (Eds. U.D. Chavan, J.V. Patil)	2015
3	In Situ Recycling Techniques Of Sugarcane Crop Residues And Sugar Industrial Wastes For Better Productivity And Soil Health	Dept of Soil Science and Agril. Chemistry, MPKV, Rahuri, MPKV/Res/Pub.No. 04/2015	D.H. Phalke, S.R. Patil, M. C. Manna, Pharande, C. A. Nimbalkar, P.T. Kolekar and A.V. Solanke	2015
4	Use of ICT tools in Agriculture and Web Designing	Directorate of Extension Education, MPKV, Rahuri No. MPKV/DEE/Extn Pub No. 970/2014	Dr. B.R. Ulmek, Dr. A.J. Shivagaje, Dr. S.G. Bharti& Dr. G.K. Waman	2014
5	MpkvWebste Operating Guide	Agriculture Knowledge Management Unit , MPKV, Rahuri MPKV/DEE/Extn Pub No. /953/2015	Dr. A.J. Shivagaje and Dr. S.G. Bharti	2015
6	Nisagenet And Aishe Operating Guide	Agriculture Knowledge Management Unit , MPKV, Rahuri MPKV/DEE/Extn Pub No. / 567/2015	Dr. A.J. Shivagaje and Dr. S.G. Bharti	2015

II)   List of the recent and more than six NAAS rating Research Articles

Sr. No.	Name of the authors(s)	Title of the published paper	Name of the recognized journal	Year	Vol. Issue and Page No. of Journal	NAAS rating
1	Dhumal, Sangram, Karale, Anil,**Nimbalkar Charudatta,** Chavan, Uttam; Jadhav, Satish	Preparation of pomegranate juice concentrate by various heating methods and appraisal of its physicochemical characteristics	Food Science & Technol. Submitted	2013	50(1) :473-484	6.36
2	Anushre, P.U., R.M. Naik, R.A. Satbhai, A.P. Gaikwad and **C.A. Nimbalkar**	Differential biochemical response of rice (*Oryza sativa* L.) genotypes against rice blast (*Magnaportheoryzae*)	Cogent Biology ISSN: 2331-2025.	2016	2 (1) : 1264162	7.39
3	Kad, V.P., A.F. Zaki, **C.A. Nimbalkar** and J.K. Dhemre	Quality attributes and storage stability studies of carbonated ready to serve (RTS) drink made from Mandarin orange	Journal of Food Science and Technology,	2017	--	7.24
4	Mote, M.G., U.Y. Bhoite, S.D. Mandakmale and **C.A. Nimbalkar**	Genetic divergence on reproduction and production traits among Gir crosses	Indian J. Ani. Sci. ISSN 0367-8318, In Press	2017	--	6.17
5	AtishPatil and **C.A. Nimbalkar**	Suitability of Extractant for Soil Available Silicon and Silicon Response to Upland Paddy Grown on Alkaline Soils of Central India (LPLA-2017-0289)	Journal of Plant Nutrition., 2017 In Press	2017	--	6.51
6	Mane, S.H., S.D. Mandakmale, **C.A. Nimbalkar**, D.H. Kankhare and A. T. Lokhande.	Economics of feeding protected protein and protected fat on crossbred cattle.	Indian Journal of Animal Research ISSN : 0367-6722	2017	51 (6) : 1080-1085, 2017	6.09

7	**Nimbalkar, C.A. , S.D. Shinde, V.S. Wani and A.J. Shivgaje**	Technilogy adoption in wheat crop of Western Maharashtra	Indian Journal of Economics and Development	2018	14 (1) : 143-148	4.82
8	**S.D.Shinde,**V.A.J adhav and D.K.Deokar, **C.A.Nimbalkar**	Prediction of lifetime milk production in half breed cattle using principle com,ponentanalyis	MULTILOGIC IN SCIENCE : ISSN 2277-7601	2018	7(25): 299-301	5.2
9	Bangar, Y.C. , V.S. Lawar, **C.A. Nimbalkar**, O.V. Shinde and R.G. Nimase	Heritability estimates for average daily gain and kleiber ratio in deccani sheep	Indian J Small Ruminants (ISSN: 0971-9857)	2018	24(1):18-21	5.25
10	Karma B.R, U.D. Chavan,S.B. Lande, C.A. Nimbalkarand U.S. Dalvi	Physical and sensory quality of Reselle seed flour cookies	Int. J. Adv. Res. Biological Sciences ISSN 2348-8069	2018	5(5)160-171	12.43
11	Bangar, Y.C., V.S. Lawar, R.G. Nimase and **C.A. Nimbalkar**	Comparison of non-linear growth models to describe the growth behaviour of Deccani sheep	Agricultural Research ISSN 2249-720X	2018	7(4):490-494 https://doi.org/ 10.1007/s4000 3-018-0338-2	5.9
12	Bhalerao V.P., A.N. Deshpande and **C.A. Nimbalkar**	Potassium dynamics in inceptisols as influenced by graded levelds of potash for banana	Communications in Soil Science and Plant Analysis, Taylor and Francic. ISSN: 0010-3624 (Print) 1532-2416 (Online)	2018	49(15): 1896-1906. https://doi.org/ 10.1080/00103 624.2018.1485 930	6.59
13	Khedkar, D. D., S. B. Gadge, A. V. Shejul, **C. A. Nimbalkar**	Effect of Drip Fertigation Levels on Nutrient Uptake of Green Pea (*Psiumsativum* L.)	Environment and Ecology ISSN 0970-0420	2018	36 (4) : 1074-1078	4.18
14	Dingre S. K. , S. D. Gorantiwar , S. D. Dahiwalkar , J. B. Shinde and **C. A. Nimbalkar**	Effect of deficit irrigation on crop yield and water productivity of sugarcane *(Saccharumofficinarum* L.) under semiarid conditions	Contemporary Research in India (ISSN 2231-2137	2018	V(Spl): 119-124	3.23

15	Karma BakoRimamcwe, U.D.Chavan, Ashok Kadlag and **V.S.Wani**	Effect of Addition of Roselle Seed Flour on Color and Textural Properties of Cookies	International Journal of Current Microbiology and Applied Sciences ISSN 2319-7706	2018	7(4): 3726-3737	5.38
16	**Shivagaje A.J,** Kasture M.S. Shelke C.G and Nalwade A.J	On some Aspects of Statistical Analysis: A case study approach	International Journal of Agriculture Economics and Statistics	September 2018	Vol 9, No. 2, 399-406	4.24
17	Kasture M.S.,**Shivagaje A.J,** Shelke C.G and Nalwade A.J	An application of Navie based Classifier to explore Big data using XLSTAT	International Journal of Agriculture Economics and Statistics	September 2018	Vol 9, No. 2, 286- 289	4.24
18	Mote, M.G. , U.Y. Bhoite, Y.G. Fulpagare, **C.A. Nimbalkar** and Y.C. Bangar	Genetic Divergence Analysis Of Gir Crossbred cattle based on some important parameters	International Journal of Livestock Research IISN 2277-1964	2019	9 (3): 84-90	5.36
19	Giakwad, D.S., Y.G. Fulpagare, U.Y. Bhoite, D.K. Deokar and **C.A. Nimbalkar**	Effect of dietry supplementation of ginger and cinnamon on growth performance and economics of broiler production	International Journal of Current Microbiology and Applied Sciences ISSN 2319-7706	2019	8 (3): 1849-1857	5.38
20	Patle, P.N., A.L. Pharande, A.D. Kadlag, A.G. Durgude, S.R. Patil and C.A. Nimbalkar	Loss and dynamics of total nutrient content in soil during making process in Western Maharashtra	Journal of Pharmacognosy and Phytochemistry	2019	SP2 : 73-75	5.21
21	Danawale, N. J. , A. K. Kolge, D. P. Pacharne, A. D. Tumbare And C. A. Nimbalkar	Tomato production as influenced by different irrigation regimes and fertigation schedules during rabi season	Bulletin of Environment, Pharmacology and Life Sciences ISSN 2277-1808	2019	8(6) : 77-81	4.95

22	Archana Pawar, A.N.Deshpande and **C.A.Nimbalkar**	Effect of potassium levels on fractions of potassium at various growth stages and yield of ratoon banana (musaparadisiaca) and correlation between them under fertigation in Inceptisol (jpln.201900239)	Journal of Plant Nutrition and Soil Science	2019	--	8.16
23	Mahendra Gorakh Mote, **Charudatta Anantrao Nimbalkar**, Dilip Kundlik Deokar, and Ulhas Shivajirao Gaikwad	Effect of Genetic and Non-genetic Factors on First Lactation Production Traits in Gir Crossbreds	Agricultural Research ID: AGRI-D-18-00490R2	2019	--	5.9
24	**Shinde S.D., C.A.Nimbalkar,** M.B.Gund, A.J. Nalavade and K.N.Patil	Trends of kharifgroundnt area, production and productivity in Maharashtra	Research Journal Multilogic in Science	2019	--	5.2

Salient Achievements

Guidance in Planning, Layout and Data Analysis of Scientific Experiment

Apart from teaching the Departmental staff helps to Scientists & Research scholars of this University and other Universities for analyzing and interpreting their experimental results. The Academic Staff of the Department is involved as a committee member for Students of various disciplines in Planning, Layout and Data Analysis of their Scientific Experiments.

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