आनुवंशिकी और पादप प्रजनन विभाग
आचार्य नरेंद्र देव कृषि एवं प्रौद्योगिक विश्वविद्यालय,
कुमारगंज, अयोध्या–224229 (उ०प्र०), भारत

Department of Genetics and Plant Breeding
Acharya Narendra Deva University of Agriculture and Technology,
Kumarganj, Ayodhya-224229 (U.P.), India

ABOUT THE DEPARTMENT: The Genetics and Plant Breeding (GPB) department started doctoral postgraduate degree programmes in 1982, respectively. Since then, the department has been instrumental in providing teaching and research to develop human resources. In 1982, research was strengthened by the start of several commodity-based All India Coordinated Improvement Projects (AICRP). Currently we host five AICRP and over 10 externally funded projects in various crop commodities. The courses and research topics are offered and administered at the university headquarters in Kumarganj, Ayodhya. The experiments are also conducted at Crop Research Stations (CRS) located elsewhere. The department has released 98 high-yielding varieties of 14 cereals, pulses, forage and oil seed crops. Many of these are in the seed production chain; for example, the first rice released in 1982, "Sarjoo-52", Which is still popular in Eastern Uttar Pradesh, Bihar, Jharkhand, and Chhattisgarh. We are among the pioneers in releasing deep water rice varieties such as Jalmagna, Jalnidhi and NDGR-702.

VISION: Attainment of excellence in teaching and research in Genetics and Plant Breeding and renders services to the farming community

MISSION: Molecules to Markets for the Marginal Farmers": Emphasising selecting research interventions through backward linkage analysis, articulation, sustainability, and scalability. Our higher-degree students conduct part of their research at ICAR institutes and CGIAR centres. These are excellent synergistic platforms to build research capacity and improve scientific outcomes.

OBJECTIVES:

- To provide high-quality teaching, experiential learning environments and mentorships for students.
- To conduct interdisciplinary plant breeding discovery and anticipatory research with larger impact potentials through strategic partnerships.
- To acquire resources, generate strategic scientific knowledge, and create improved seeds and effective science communications that inspire others.

FACULTY STRENGTH

Sr. No.	Name of Faculty	Designation
1.	Prof. Sanjeet Kumar	Professor
2.	Prof. Shiv Nath	Professor
3.	Prof. Subhash Chandra	Professor, Pathologist
4.	Prof. V. P. Chaudhary	Professor, Pathologist
5.	Dr. Pankaj Kumar	Associate Professor
6.	Dr. Vinod Kumar Singh	Associate Professor
7.	Dr. Piyusha Singh	Assistant Professor
8.	Dr. Prashant Bisen	Assistant Professor
9.	Dr. Priyanka Jaiswal	Assistant Professor
10.	Dr. Akash Gaurav Singh	Assistant Breeder/Assistant Professor
11.	Dr. Arun Kumar	Assistant Breeder/Assistant Professor
12.	Dr. Gagan Kumar	Assistant Plant Pathologist/Assistant Professor
13.	Dr. Banshidhar	Assistant Breeder/Assistant Professor
14.	Dr. Vinod Kumar Dubey	Assistant Professor (Entomology)
15.	Dr. Charu Priya Chauhan	Assistant Professor

Faculty Profile



Prof. Sanjeet Kumar | LinkedIn
Professor & Head
Genetics and Plant Breeding
sanjeet.kumar@nduat.org
sanjeetk1@gmail.com
Mob. No.: 9934874800

Designation: Professor and Head

Research Interests & Expertise: Plant Breeding and Translational Science

Qualifications: Ph.D. (Plant Genetics)

Other Qualifications: MPhil., ASRB NET & ARS (Plant Genetics)

Research Projects: >20 in National, Regional & International Setups

Experience: 30 Years

Publications: Papers: >50, Review & Book chapters: >25, Invited Presentations: >15, Books: 01.

Students Guided: > 15

Awards & Recognitions: 2005: **"Lal Bahadur Shastri Young Scientist Award"** (2003-2004) by ICAR; 2006: "**Young Scientist Award"** (2004) by UPCAR (Uttar Pradesh Council of Agricultural Research), Lucknow; 2006: **"ICAR Award for Outstanding Team Research"** (2003-04) by ICAR; 2007: **"Pran Vohra Young Scientist Award"** (2006-07) by Indian Science Congress Association (ISCA), Kolkata. Contributions to the institute's awards: **2010: CGIAR Science Award for Outstanding Partnership to ICRISAT and World Vegetable Center**.



Prof. Virendra Prasad Chaudhary
Professor
vpchaudhar1949@gmail.com
Mob No. : 9473888114

Designation: Principal Scientist/Professor
Research Interests & Expertise: Plant Pathology, Wheat Pathology
Qualifications: Ph.D. (Plant Pathology)
Experience: Teaching: 18 Years; Research: 07 years; Industry: --; Extension: 14
Journal Publications: 20, **Books:** 02, **Book Chapters:** 02,

Students Guided: Ph.D.: 04 M.Sc.: 20
Awards & Recognitions: 0



Prof. Subhash Chandra
Professor
drsch716@gmail.com
Mob. No. 9450768159

Designation: Professor
Research Interests & Expertise: Plant Pathology
Qualifications: Ph.D. in Plant Pathology
Ph.D. University: ANDUAT, Kumarganj, Ayodhya,
Other Qualifications: NET in Plant Pathology in 2001 from ASRB,New Delhi
Experience: 18 Years
Research Projects / Consultancies / Patents: Research Projects: 02 Copyright:
Publications: Research Papers: 70, Books: 16; **Book Chapters:** 21
Students Guided: M.Sc.:17 Ph.D.:05
Awards & Recognitions: 28



Dr. Pankaj Kumar
Associate Professor
pk_scientist@yahoo.com
Mob. No.: 9415918411

Designation: Associate Professor
Research Interests & Expertise: Pulse Entomology
Qualifications: Ph.D. (Entomology)
Other Qualifications: ASRB NET (Entomology)
Experience: 22. Years
Research Project: 02
Publications: Research Papers-42**, Books:** 08, **Book Chapters:** 4
Students Guided: 29
Awards & Recognitions: Young Scientists Award



Dr. Piyusha Singh
Assistant Professor
piyusha_singh@yahoo.com
Mob. No.: 9458362834

Designation: Assistant Professor
Research Interests & Expertise: Wheat Breeding and Molecular Biology
Qualifications: Ph.D. (Genetics and Plant Breeding)
Other Qualifications: ASRB NET
Experience: 7.0 Years
Publications: Research Papers-30**, Books:** 04, **Book Chapters:** 10
Students Guided: 25
Awards & Recognitions: Best Teacher Award, Women Scientist Award



Dr. Prashant Bisen
Assistant Professor
pbisengpb@gmail.com
pbisen@nduat.org
Mob. No.: 7905192682

Designation: Assistant Professor

Research Interests & Expertise: Breeding for abiotic stress tolerance in major cereal crops

Qualifications: Ph.D. (Genetics and Plant Breeding)

Other Qualifications: ASRB NET (GPB) & CSIR NET (Life Sciences)

Research Projects: Two ongoing projects as a PI

Experience: 6.0 Years

Publications: Research Papers: >25, Books/ Edited Books: 04, **Book Chapters:** 8

Students Guided: — 06 (M.Sc.)

Awards & Recognitions: National Talent Scholarship, UGC Research Fellowship



Dr. Arun Kumar
Assistant Professor, Genetics and Plant Breeding
arungpb@nduat.org
Mob. No.: 7983893550

Designation: Assistant Professor/Assistant Breeder

Research Interests & Expertise: Mustard Breeding

Qualifications: Ph.D. (Plant Genetics)

Other Qualifications: ASRB NET (Genetics and Plant Breeding)

Research Projects: (PI-01, Co-PI- 04)

Experience: 3 Years

Publications: Papers: >20, Books: 05, Book chapters: >10

Students Guided: 4 (PG-GPB)



Dr. Akash Gaurav Singh
Assistant Professor
singhagnduat@gmail.com
Mob. No.: 8736031933

Designation: Assistant Professor/Assistant Breeder
Research Interests & Expertise: Abiotic Stress Breeding
Qualifications: Ph.D. (Plant Genetics)
Other Qualifications: ASRB NET (Genetics and Plant Breeding)
Research Projects: 3 in National Setups
Experience: 3 Years
Publications: Papers: >10, **Review & Book chapters:** >5
Students Guided: 4 (PG-GPB)



Dr. Gagan Kumar
Assistant Plant Pathologist/Assistant Professor
gkcbhu@gmail.com
Mob. No.: 8896286455

Designation: Assistant Plant Pathologist/Assistant Professor
Research Interests & Expertise: Oilseed Pathology
Qualifications: UG: B.Sc. (Ag.); PG: M.Sc. (Ag.) Plant Pathology; Ph.D.: Yes
Other Qualifications: ASRB NET
Research Projects: 2 Ongoing
Experience: 6.0 Years
Publications: Research Papers-20, Books: 01, **Book Chapters:** 22
Students Guided: —03
Awards & Recognitions: APS Travel Award, UGC Research Fellowship



Dr. PRIYANKA JAISWAL
Assistant Professor
jaiswal.priyanka029@gmail.com
Mob. No.: 9452370912

Designation: Assistant Professor

Research Interests & Expertise: Wheat and Barley Improvement, Molecular Breeding, Biometrical Genetics

Qualification: PhD, Genetics and Plant Breeding

Other Qualifications: ASRB NET I and II

Research Projects: 1 Ongoing (Co-PI)

Experience: 4.0 Years

Publications: Research Papers-20, Books: 01, **Book Chapters:** 10

Lab manual -01

Students Guided: —04

Awards & Recognitions: BHU GOLD Medal (M. Sc.), ICAR JRF-SRF Fellowship

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Dr. Banshidhar
Assistant Professor/ Assistant Breeder
banshidharrnjha@gmail.com
Mob. No.: 9450509319

Designation: Assistant Professor/ Assistant Breeder (Currently at CRS Ghaghra Ghat)

Research Interests & Expertise: Deep Water Rice Improvement, Chickpea Improvement, Biometrical Genetics

Qualifications: PhD, Genetics and Plant Breeding

Other Qualifications: ASRB NET I and II, CSIR NET, UGC NET

Research Projects: 1 Ongoing (PI) ; 1 Ongoing (Co-PI)

Experience: 4.0 Years

Publications: Research Papers-22, **Books:** 01, **Book Chapters:** 10

manual -01

Students Guided: 04

Awards & Recognitions: ICAR NTS, ICAR JRF Fellowship, ICAR JRF-SRF Fellowship, Vice Chancellor Gold Medal (Ph. D)



Dr. Vinod Kumar Dubey
Assistant Professor (Entomology)
vinodkumardubey42@gmail.com
Mob. No.: 9456890250/9720140856

Designation: Assistant Professor (Entomology)

Research Interests & Expertise: Insects Taxonomy, Host plants resistance, Pesticides Residue Analysis and Beekeeping

Qualifications: Ph.D. (Entomology)

Other Qualifications: ASRB NET (Entomology)

Research Projects: Ongoing projects (PI: 02; Co-PI: 05)

Experience: >2 Years

Publications: Research Papers: >30, **Books/ Edited Books:** 03, **Book Chapters:** 34

Students Guided: 01 (M.Sc.)

Awards & Recognitions: National Talent Scholarship, Best Oral Presentation



Dr. Charupriya Chauhan
Assistant Professor
chauhan.charupriya@gmail.com
Mob. No.: 8218703979

Designation: Assistant Professor

Research Interests & Expertise: Minor millet breeding

Qualifications: Ph.D, Genetics and Plant Breeding

Other Qualifications: ASRB NET

Research Projects: 2 Ongoing

Experience: 5.0 Years

Publications: Research Papers-20, Books: 01, **Book Chapters:** 08

Students Guided: —03

Awards & Recognitions: University Topper Certificate, Department Topper Certificate, Student Excellence Award

PROGRAMMES OFFERED

- **M.Sc. (Ag.) Genetics and Plant Breeding**
- **Ph.D. Genetics and Plant Breeding**

PG and Ph.D. Courses:

Course Code	**Course Title**	**Credit Hours**
GPB 501*	Principles of Genetics	3 (2+1)
GPB 502*	Principles of Plant Breeding	3 (2+1)
GPB 503*	Fundamentals of Quantitative Genetics	3 (2+1)
GPB 504	Varietal Development and Maintenance Breeding	2 (1+1)
GPB 505	Principles of Cytogenetics	3 (2+1)
GPB 506*	Molecular Breeding and Bioinformatics	3 (2+1)
GPB 507	Breeding for Quality and Special Traits	3 (2+1)
GPB 508	Mutagenesis and Mutation Breeding	3 (2+1)
GPB 509	Hybrid Breeding	3 (2+1)
GPB 510	Seed Production and Certification	2 (1+1)
GPB 511	Crop Breeding-I (Kharif Crops)	3 (2+1)
GPB 512	Crop Breeding-II (Rabi Crops)	3 (2+1)
GPB 513	Breeding Vegetable Crops	3 (2+1)
GPB 514	Breeding Fruit Crops	3 (2+1)
GPB 515	Breeding Ornamental Crops	3 (2+1)
GPB 516	Breeding for Stress Resistance and Climate Change	3 (2+1)
GPB 517	Germplasm Characterization and Evaluation	2 (1+1)
GPB 518	Genetic enhancement for PGR Utilization	2 (1+1)
	Major courses 20 (minimum 20 credits from above courses including *marked Courses)	
	Minor courses 08 Supporting courses 06 Common compulsory courses 05	
GPB 591	Seminar	01
GPB 599	Thesis/ Research 30	Total Credits 70
Course Code	**Course Title**	**Credit**
GPB 601*	Advances in Plant Breeding Systems	3(3+0)
GPB 602	Advances in Biometrical Genetics	3(2+1)
GPB 603	Molecular Cytogenetics for Crop Improvement	2(2+0)
GPB 604	Plant Genetics Resources, Conservation and Utilization	2(2+0)
GPB 605*	Genomics in Plant Breeding	3(3+0)
GPB 606	Population Genetics	2(2+0)
GPB 607	Crop Evolution	3(3+0)
GPB 608	Breeding Designer Crops	2(1+1)
GPB 609*	IPR and Regulatory Mechanism (e-course)	1(1+0)
	Major courses (Minimum 12 credits from 12 above courses including *marked Courses)	
	Minor courses 06 Supporting courses05	
	GPB 691 Seminar I	

	01 GPB 692 Seminar II	
	01 GPB 699 Thesis/ Research 75 Total Credits 100 Comprehensive (Pre-qualifying) Examination (Non-credit of 100 marks) Satisfactory/ Not satisfactory *Compulsory Major Courses	

List of Major equipment Available in the Department

Sr. No.	Name of equipment	Quantity
1.	BOD	01
2.	Hot plates	01
3.	Hot air Oven	01
4.	Binocular Microscope	01
5.	Compound Microscope	10
6.	Thermocycler	1
7.	Mini Gel electrophoresis	1
8.	Maxi Gel electrophoresis	1
9.	Gel documentation system	1
10.	Deep fridge	1
11.	Refrigerator	1
12.	Autoclave	1
13.	Water Bath	1
14.	Weighing Balance	1
15.	Mini PCR plate Centrifuge	1
16.	Mini spin centrifuge	1
17.	Vortex Mixer	1
18.	UV Transilluminator	1
19.	Microwave Oven	1
20.	Fluorescence Microscope	1
21.	Battery Backup (Inverter)	1
22.	Seed Counter	1

Ongoing Research Projects

Sr. No.	Title of the project	Amount (in Lakhs)	Funding Fgency	Name of PI
Ad Hoc Projects (Operational)				
1.	Collection and evaluation of millet germplasm for improvement and value addition: focus central-east Uttar Pradesh - Four Years	56.10	UPCAR, Lucknow	Dr. Shiva Nath

2.	Screening and evaluation of mustard germplasm for Alternaria blight resistance and agronomic traits -Two Years	15.00	CSTUP, Lucknow	Dr. Gagan Kumar
3.	Traits specific breeding for cytoplasmic male sterility (CMS), fertility restoration, low erucic acid and major biotic stresses in Indian mustard (*Brassica juncea*) - Three Years	43.61	SADP	Dr. Sanjeet Kumar
4.	Characterization and evaluation of barnyard millet core collections under CRP on agrobiodiversity - One Year	3.00	ICAR-NBPGR, New Delhi	Dr. Sanjeet Kumar
5.	Characterization of rapeseed-mustard germplasm under CRP on agrobiodiversity - One Year	5.00	ICAR-NBPGR, New Delhi	Dr. Sanjeet Kumar
6.	Deciphering Salt Stress Mechanisms in Lentil (*Lens culinaris* Medikus) through Transcriptome Profiling - Two Years	8.00	CSTUP, Lucknow	Dr. Akash Gaurav Singh
7.	Developing Seed Standards and a Gene Pool for Subtropical Grasses and Berseem along with Transforming through the IFS Model and Improving Climate Resilience in Oat Genotype - Three Years	33.11	UPCAR, Lucknow	Dr. Charupriya Chauhan
8.	The investigation of *Metarhizium anisopliae* 5% (strain code: IPL/KC/44) *Beauveria bassiana* 5% (strain code: IPL/BB/MI/01) (SC lethal concentration) (LC50 and LC 90) against okra shoot and fruit borer, *Earias vitella* Fab.	2.54	IPL Biological Ltd. Gurugram, Haryana	Dr. Vinod Kumar Dubey
9.	Identification and characterization of maize landraces of Uttar Pradesh for nutritional potential with biotic and abiotic stresses	31.53	UPCAR, Lucknow	Dr. Prashant Bisen
10.	Genetic enhancement adamchini and sonachur rice for developing a publica private breeding platform	82.10	Agriculture Education & Research, U.P. Govt	Dr. Prashant Bisen

11.	Integrative Omics Approaches for Evaluation of Chickpea Genotypes for Fusarium Wilt Resistance and Soil Stress Adaptability	55.00	Agriculture Education & Research, U.P. Govt.	Dr. Banshidhar
12.	Tailoring Microbial Metabolite Blends for Sustained Field Efficacy against Major Plant Diseases of Eastern Uttar Pradesh	101.00	Agriculture Education & Research, U.P. Govt	Dr. Gagan Kumar
13.	Genetics insights for terminal heat and anaerobic germination for development of late sown varieties in mustard along with assessing adaptability of elite groundnut varieties for major stress with development of standard agronomical practices for both the crops.	37.72	UPCAR, Lucknow	Dr. Arun Kumar
14.	Diversity, distribution and pollination efficiency of insect pollinators and its assessment in beehive products	31.63	UPCAR, Lucknow	Dr. Vinod Kumar Dubey

Major achievements in the Department (Teaching, Research and Extension)

S. No	Major Achievement
1.	A total of 55 students, comprising 20 Ph.D. scholars and 35 M.Sc. students, successfully completed a 15-day hands-on training on statistical and biological data analysis organised by the Department of Genetics and Plant Breeding, ANDUAT, Ayodhya.
2.	"King Mongkut's Institute of Technology Ladkrabang (KMITL), Thailand, and ANDUAT signed MoU to promote academic exchange, research partnerships, and capacity building through joint programmes, innovation-driven initiatives, and institutional cooperation effective from 5 July 2025.
3.	Several promising entries were contributed to AICRP Initial Varietal Trials (IVT) in mungbean, urdbean, chickpea, lentil and field pea, and numerous elite lines were nominated to state varietal trials. Significant progress was achieved with field pea genotype NDP-24-4 and chickpea genotypes NDG 23-5 (late-sown) and NDG 23-6 (timely-sown), which exhibited superior performance and were promoted to Advanced Varietal Trial-II (AVT-II). These elite lines have shown considerable promise and are potential candidates for release as varieties by the Central Varietal Release Committee (CVRC).
4.	The forage crops improvement programme is mainly focusing on oats and maize. A core set of 150 oats germplasm were collected. These sets are being assessed for salinity tolerance and suitability for dual purposes, *i.e.,* for high fodder yield, nutritional quality, and seed yield. Three entries of Fodder oat (Dual) is under the State Varietal Testing trial conducted at 10 RATDS centre of state. 1st year of evaluation is done during Rabi-2025-26.

5.	. In oilseed breeding, rapeseed-mustard breeding science team has acquired 2400 new germplasm accessories from ICAR-NBPGR, New Delhi for discovery research. Molecular tools such as the multiplex PCR (m-PCR) were developed and validated for four different male sterile cytoplasm of *Brassica*, erucic acid contents and seed coat colour. These marker tools are being used for cost-effective traits-specific screening of large germplasm and experiential learning by research students.
6.	Under AICRP of wheat and barley, the wheat seeds of Var. DBW 316 and 386 were distributed to SC and ST farmers. The total seeds were distributed for the DBW 316 (5 quintals) and DBW 386 (16 quintals). 30 kg of wheat seeds per farmer was distributed to 70 farmers.
7.	One hundred twenty-five kg of seeds of the Radhika variety of Indian mustard were distributed among 50 farmers of Uchahpali village in the Milkipur subdivision of Ayodhya. The area covered by each farmer was 1 acre, and the total area was 50 acres.
8.	Under AICRP on MULLaRP, FLD was conducted for the lentil crops. The seeds (Var. IPL-315) were obtained from IIPR, Kanpur, Uttar Pradesh, and seeds were distributed to 20 farmers in a cluster for 20 ha. surrounding the villages of the ANDUAT campus.
9.	Vipul Kumar, MSc. (Ag.) student has secured 1st rank in UPCATET-2025 in Genetics and Plant Breeding.
10.	Five students qualified ASRB NET.

Distinguished Alumni of the Department

Sr. No.	**Name of students**	**Designation**	**Organization**
1.	Dr. Rajesh Singh	Ex Vice Chancellor	DDU Gorakhpur and Purnia University, Purnia
2.	Dr. O.N. Singh	Ex Vice Chancellor	BAU, Ranchi
3.	Dr. N. P. Singh	Ex Vice Chancellor	BUAT, Banda
4.	Dr. Sanjay Singh	Director General	UPCAR, Lucknow
5.	Dr. Govind Mishra	Assistant Professor	DDU Gorakhpur University
6.	Dr. Arun Kumar	Assistant Breeder	ANDUAT, Kumarganj
7.	Dr. Baudh Bharti	Assistant Breeder	ANDUAT, Kumarganj
8.	Dr. Tarkeshwar	Assistant Breeder	ANDUAT, Kumarganj
9.	Parsa Ram	Associate Professor	Physics Wallah Vadodara Vidhyapeeth
10	Dr. Rishabh Gupta	Assistant manager	Green Agrevolution Pvt. Ltd.

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Photographs of different activities






