

**DEPARTMENT OF GENETICS AND PLANT BREEDING**  
**COLLEGE OF AGRICULTURE, NAU, BHARUCH**

**MISSION**

It focuses upon the education of polytechnic, undergraduate and postgraduate students for understanding the modern-conventional and biotechnological approaches on plant breeding and seed production of field crops, pulses and oilseed crops. The faculty integrates traditional plant breeding approaches with emerging technologies and strategies. We educate the next generation of plant breeders to be well-qualified geneticists with training in physiology, molecular genetics, plant tissue culture, genomics and bioinformatics. The division work with the following mission and vision for the upliftment of society:

- Generate excellent human resource in plant breeding & genetics, capable of solving future challenges in the crop improvement scenario.
- Ensure quality teaching in the plant breeding, genetics, cytogenetics, biotechnology and related subjects and also create an opportunities for pursuing innovative and cutting edge research by the PG and Ph.D students and faculty of the Department.
- Attract fellowships and research projects from various national and international agencies
- Placement of students in reputed Institutes/Universities/MNCs
- Improve crops by sustainable utilization of indigenous and exotic gene-pools following modern plant breeding approaches for enhancing food production, productivity and nutrition level in accelerated and précised manner under changing climate scenario.
- Disseminate technologies through public outreach programs.
- Recognition of the Department work at national and international forum

## VISION

- Continuous development of latest infrastructure to enable cutting end research and training in advanced areas of crop improvement and facilities
- Improving varieties and seed production in the conditions of traditional agriculture in South Gujarat
- Phenotypic and genotypic characterisation of genetic resources to develop biofortified lines of local crops like pigeonpea, mungbean cotton, etc.
- Development and utilization of molecular markers to initiate and improve marker assisted selection in mandatory crops
- Assessment of cereal crops for low gluten content and later utilizing them in breeding programme to develop low or gluten free dough for bread making purpose
- Introduction of new crops and there assessment to enhance existing genetic pool of the university
- Budding methods to make plant breeding more efficient, such as improved identification, selection and transformation methods
- Developing statistical and computer programme in collaboration with statistical department to enable efficient use of all data we are and will generate for crop breeding
- Developing plant types which can withstand harsh environmental conditions and suit the cropping pattern using genomic approaches.
- Public-Private partnership for genomics, molecular breeding and transgenic development and adaptability
- Development of promising climate resilient varieties in field crops, oilseed crops, etc
- Technology refinement for accelerated and high precision crop improvement
- Establish linkages with renowned (India & Abroad) Labs/ Institutes to exchange the faculty & research scholars for sharing knowledge & expertise in innovative areas of plant breeding
- To Collect, evaluate, maintain and characterize the genetic resources of mandatory crops
- To conserve the valuable crop genetic resources by in-situ methods and under controlled conditions
- To evolve superior crop varieties/hybrids with high yield, quality, biotic and abiotic stresses using classical and also using biotechnological tools
- To conduct multidisciplinary research for pyramiding multiple traits in crop varieties

## **THRUST AREAS**

- Accelerated & High-Precision Crop Breeding by employing modern Plant Breeding approaches: prioritizing Rainfed Agriculture
- Breeding strategy for changing climatic scenario in Southern Gujarat
  1. organic & low input management
  2. participatory plant breeding
- Refinement of new protocols for addressing fundamental research issues
- Focus on nucleus seed production
- Establishment of NAU, Bharuch Plant Germplasm Resource Network, involving Research Centre's, KVKs & the NBPGR, ICRISAT and others
- Commercialization of the breeders' technology through Public-Private Interface.
- Increasing the sustainability in crop yield through development of improved varieties by efficient utilization of genetic resources.
- Safeguarding the available biodiversity.
- Enhancement in application of biotechnological tools and products.
- Collection, evaluation, characterization, documentation and conservation of mandate crops diversity and their utilization for improvement in seed yield.
- Application of biotechnological tools for genetic enhancement in crops.

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