DEPARTMENT OF BOTANY
Est: 1912 Intermediate Course, 1951 Undergraduate Course, 2017 Postgraduate Course & 2018 Five Year Integrated Course
SRI PRATAP COLLEGE
NAAC ACREDITED (CYCLE-II) WITH GRADE-A
MOULANA AZAD ROAD SRINAGAR 190001

Report: Maize Seed Production and Breeding Trials

Department of Agricultural Technology & Department of Botany

Sri Pratap (SP) College, Srinagar

Session: 2026

The Department of Agricultural Technology, in collaboration with the Department of Botany, Sri Pratap College, Srinagar successfully conducted an extensive programme on maize seed production, demonstration, and breeding during the academic session 2026. The programme was conceived with the dual objective of strengthening the Institutions' research capabilities in crop improvement while providing experiential learning opportunities to Undergraduate (UG), Postgraduate (PG), and Integrated Graduate (IG) students through field-based training in modern plant breeding and seed production technologies. The activities were undertaken with particular emphasis on developing climate-resilient maize germplasm, improving lodging resistance, ensuring nutritional security through biofortification, and establishing institutional self-reliance in germplasm development suited to the temperate agro-climatic conditions of Jammu & Kashmir.

A major component of the programme involved maintenance and nucleus seed production of sweet corn. Students received comprehensive practical training in scientific crop management, controlled pollination, selection procedures, and seed production techniques. The breeding programme focused on the advancement of segregating populations through the successful development of an F_2 seed generation using carefully planned breeding strategies. Sib-mating was employed to maintain adequate genetic variability within family lines while preserving desirable agronomic characteristics, whereas self-pollination was carried out on selected superior plants to enhance homozygosity and facilitate the fixation of economically important traits. The successful production and harvest of the F_2 seed generation represent a significant milestone, as the material will serve as the foundation for future population improvement, recurrent selection, and generation advancement programmes. The initiative has also laid the groundwork for establishing an independent institutional germplasm repository, thereby reducing dependence on external breeding material and strengthening the long-term crop

Date:14-08-2026

improvement programme of the College. Parallel to the seed production programme, an extensive maize hybridization and maintenance breeding programme was undertaken to familiarize students with practical breeding methodologies and to develop improved maize lines possessing enhanced agronomic performance, lodging resistance, and wider adaptability to changing climatic conditions. Top crosses were successfully executed using PV-2 as the donor parent and KG-3 and PLM-7 as recipient parental lines with the objective of combining desirable nutritional traits (protein quality and pro-vitamin A) and generating superior breeding populations for subsequent selection. In addition, targeted breeding efforts were initiated to address lodging, one of the major production constraints affecting maize cultivation in the temperate and intermediate hilly regions of Jammu & Kashmir especially white maize. Selected NSS donor lines possessing desirable plant architecture and stalk strength were utilized as sources of lodging resistance to develop breeding populations with improved structural stability, reduced susceptibility to lodging under adverse weather conditions, and enhanced productivity.

The programme also provided a strong research platform for postgraduate and integrated degree students by facilitating dissertation-based field experimentation. Experimental plots were scientifically planned, laid out, managed, and successfully completed following standard agronomic and statistical protocols. These research trials enabled students to gain practical exposure to experimental design, field layout, crop management, biometric observations, data recording, statistical analysis, and interpretation of research findings. The field investigations generated valuable primary data for ongoing postgraduate and integrated degree dissertations while significantly enhancing students' technical competence in agricultural research methodologies and scientific documentation.

Collectively, these initiatives have substantially strengthened the academic and research ecosystem of Sri Pratap College by effectively integrating classroom teaching with hands-on field experimentation. The programmes have provided students with practical exposure to modern plant breeding, hybridization, maintenance breeding, controlled pollination, and seed production technologies, thereby equipping them with essential scientific skills required for higher research and professional careers in agriculture and plant sciences.

Scanned with OKEN Scanner

Simultaneously, the development of climate-resilient breeding material and the establishment of an institutional sweet corn germplasm repository represent important milestones towards achieving long-term research sustainability and genetic resource conservation within the College.

The successful execution of these programmes reflects the close academic collaboration between the Departments of Agricultural Technology and Botany in promoting research-driven education and innovation in crop improvement. Through systematic nucleus seed production, hybridization, maintenance breeding, and dissertation-oriented research, the College has taken significant strides towards developing improved maize genotypes with enhanced lodging resistance, adaptability, and productivity under temperate agro-climatic conditions. These initiatives are expected to contribute meaningfully to regional agricultural research, support sustainable maize production, strengthen institutional breeding programmes, and further reinforce Sri Pratap College's position as a leading centre of excellence in agricultural education, plant breeding, and climate-resilient crop improvement in Jammu & Kashmir. The Departments of Agricultural Technology and Botany extend heartfelt gratitude to the Principal, Prof. (Dr.) Haris Izhar Tantray for providing every possible support in establishing the facility. Thanks, are also due to the Dryland Agriculture Research station, Rangreth, SKUAST-Kashmir, Srinagar for providing technical guidance and germplasm for augmentation of maize breeding program at S.P College.

Dr. Shamshir ul Hussan
Asst. Prof. Department of
Agriculture Technology

Dr. Barket Ali
Head, Department of Botany

Principal
SP College, Srinagar

Scanned with OKEN Scanner






