

FROM THE DESK OF DIRECTOR GENERAL



I am indeed very happy to present this 35th Annual Report of Vasantdada Sugar Institute for the period 2010-11. In this year, VSI looks back with pride and great satisfaction for its achievements and contribution to the sugar industry. In the attempt of achieving the goals set by the founders of the organization, the accomplishments during the year are covered in this report.

The Institute in its pursuit of research, development and education continues to contribute for the growth of sugar industry. Following is a brief summary of the prominent activities carried out in various disciplines.

Quinquennial Review

A periodical review is necessary for assessing the performance of a research organization to decide the future direction of research. In the National Agricultural Research System, it is a regular feature to review the research carried out by various Institutes of ICAR, NRCs, and All India Coordinated Research Projects. At VSI, substantial research efforts have gone into developing need based technologies for sugarcane and also in their dissemination to growers.

VSI, thus for the first time, appointed a Quinquennial Review Team (QRT) to review the research by various sections and divisions under the Department of Agriculture Sciences and Technology. The team consisted of highly experienced, eminent sugarcane scientists in the country comprising of Dr. J.V. Gaud, Former Vice-chancellor, University of Agriculture Sciences, Dharwad, Karnataka (Chairman), Dr. K.Mohan Naidu and Dr. T.V.

Srinivasan both former Directors of Sugarcane Breeding Institute, Coimbatore, Tamil Nadu.

Sugarcane Breeding

One of the significant contributions of VSI to the Maharashtra sugar industry is the establishment of Sugarcane Breeding Centre at Amboli. The breeding facilities provided at this centre can be considered as one of the few among the world's sugarcane breeding facilities where, most of the clones belonging to different species of sugarcane flower naturally. With establishment of this centre, VSI achieves the capability of generating its own genetic material for the future development of the multipurpose sugarcane varieties for sugar, fuel and fibre.

The establishment of the Breeding Centre has provided a unique opportunity for the breeders of VSI to utilize the vast genetic resources available. Through the courtesy of Sugarcane Breeding Institute, Coimbatore, VSI had obtained over 100 inter-specific hybrids involving cultivated and wild species produced at SBI over the years and these are now being used extensively in crosses with commercial cultivars to induct new germplasm in the breeding pool. This has given rich dividends and many new clones are now in different stages of selection. The Institute also has initiated location specific selection programmes to identify varieties with drought and salinity tolerance. Many inter-specific hybrids are being utilized as parents to evolve energy canes with high total biomass which can be grown in sub-marginal lands. These long term breeding efforts will help in identifying new sugarcane varieties with a much wider genetic base.

Molecular Biology & Genetic Engineering

Drought tolerant genes isolated from sugarcane and its wild relative species are being transferred into tobacco plants to check their efficacy. Chloroplast transformation project has been initiated with a grant from DBT, New Delhi. Chloroplast transformation experiments using vectors received from Max Planck Institute, Germany are in progress.

Tissue Culture

Tissue culture section has successfully developed eight high sugar and high yielding genotypes. Seven promising genotypes have been handed over to plant-breeding section for field evaluation. On specific demand from Ramdev sugar and other sugar mills



from Madhya Pradesh, protocol for the micropropagation of sugarcane variety CoJ64 has been developed. Keeping in view the general trend of sugarcane growers to shift to banana cultivation in the contingency of surplus cane production associated with low cane price, the Institute's efforts for diversification of crops to contribute to food security, tissue culture micropropagation in banana and potato was initiated. New protocols for banana and potato micropropagation are standardized and the production of banana tissue culture of Grand Naine variety has been started. Potato was identified as one of the crop for promotion of intercrops of relatively shorter duration. However, seed availability being the main constraints, efforts have been made to produce mini tubers through tissue culture micropropagation for seed. The field trials of potato were conducted at eight different locations in the State of which Amboli and Mahabaleshwar were found moderately suitable for quality seed production.

Sugar Technology

The concept of syrup melter designed and developed by VSI to reduce the vapour consumption at pan station below 20% on cane was successfully implemented in eleven sugar mills which has brought about reduction in total steam consumption and increased capacity utilization.

The project on "Development of guidelines for water conservation in sugar factories" sponsored by CPCB was completed and final report was submitted. Trials of sugarbeet pilot plant were conducted at Rajarambapu Patil Sugar Mill Unit No. 3 (Sarvodaya) and expected recovery of 11.35% was achieved.

Alcohol Technology

VSI has always endeavoured to introduce new need based courses in its curriculum. The University of Pune recently approved the Institute's proposal for a new M.Sc. course in Wine Technology (Brewing, Distilling & Wine making). The first batch will join this course in the academic year 2011-12. This is probably the first time that a post-graduate degree course in this subject is being offered by any Indian University.

This department has also established a new "Sensory analysis laboratory" for training of students and "CHEMCAD-design laboratory" for process simulation and optimization in fermentation, distillation and evaporation plants.

A collaborative agreement with International Centre for Spirits and Liquors (ICSL) i.e. Centre International des eaux-de-vie et boissons spiritueuses (CIEDV), Segonzac, France has been signed. Under this collaboration, the exchange programme of students and faculty is envisaged.

The Central Pollution Control Board (CPCB), New Delhi has recently entrusted the responsibility of the project entitled "Development of standards and guidelines for grain based distillery waste in India" to VSI.

I sincerely acknowledge the unstinted support and guidance of the President Hon. Shri Sharadchandraji Pawar. I place on record the support rendered by Vice-President, trustees and members of the Governing Council in carrying out the work of this Institute. I am really grateful to the efforts of scientists, engineers and entire staff of VSI for their contribution and proactive role in research, education and extension activities. Without their support and trust, nothing could have been accomplished in pursuit of well-being of the farming community. I am also thankful for the support of Central Government Departments, State Government Departments, Research Organizations and Agricultural Universities to VSI.

Shivajirao Deshmukh

Director General

