FROM THE DESK OF DIRECTOR GENERAL

I am very happy to present this 33rd Annual Report of Vasantdada Sugar Institute for the year 2008-09. The sugar industry in the country is passing through a critical phase because of shortage of sugarcane coupled with tightening of sugar supplies. This has resulted in unprecedented rise in sugar prices. During the period under report, Maharashtra produced 4.57 million tonnes of sugar, which was lesser by 4.49 million tonnes (49.5%) as compared to previous year.

The Institute successfully dealt with the challenges faced by the sugar industry in this period. This report summarizes the activities carried out by various departments. The noteworthy achievements are highlighted below:

Sugarcane Breeding Centre

Using the sugarcane germplasm planted at Sugarcane Breeding Center, Amboli, 369 crosses were made during 2006-09 period and more than 49543 seedlings were planted at VSI and other locations for selection. Out of these, 678 genotypes were at clonal selection stage. It is expected that new varieties with desirable traits will start emerging from the year 2012 onwards. A programme of inter-specific hybridization has been undertaken for widening the genetic base. Multi-location trials have been planned in all zones for determining the performance of five clones (reported in the previous Annual Report) proposed by VSI. The mill test conducted for CoVSI 9805 at different sugar mills indicated that the variety is superior to mid-late variety Co 86032.

Molecular Biology and Genetic Engineering

Stress inducible full-length genes (ScMyb1 and ScMyb18) responsible for drought tolerance and phytoplasma infection were isolated and were being evaluated for their expression studies. These genes will be useful for developing transgenic sugarcane. A methodology involving use of multiplex PCR for detection of grassy shoot disease and whip smut in a single reaction was also developed. The division also developed and evaluated 200 transgenic sugarcane plants for resistance to early shoot borer, internode borer and abiotic stress tolerance. Out of these 11 transgenic plants were found positive by ELISA test for early shoot borer resistance.

Tissue Culture

Eight promising genotypes developed by tissue culture technique were given to three sugar mills for testing their field performance. Another six genotypes were in developmental stage. Cost effective micropropagation protocols for potato, banana and castor were under development.

In addition to above, research proposals on silicon nutrition in sugarcane and release of CoVSI 9805 variety were finalized and recommended to Joint AGRESCO for approval.

Environmental Sciences

The University of Pune granted affiliation to the Institute for conducting M.Sc. (Environmental Sciences) course from June 2008.

Sugar Technology

The department initiated sugar quality awareness programme, as a result, two sugar refineries were established. Detailed project reports for setting up six more refineries were also prepared.

In view of bagasse based cogeneration plants which were under installation in 19 sugar mills, VSI designed a vapor bleeding scheme for achieving 36% steam consumption. A seminar on “Modern trends for reduction in steam consumption in sugar processing” was organized for creating awareness.

Sugar Engineering

Excessive use of power electronics in sugar industry has created a new problem called

"harmonics". VSI modernized a converter transformer by using a shield in secondary windings to control harmonic penetration in the system for achieving the norms of IEEE519. A detuned harmonic filter was developed to overcome the failure of ACBs, motors and cables due to harmonics.

Short-term Training Courses

In addition to regular courses, the Institute also conducted need based short-term courses for personnel from the sugar industry. More than thousand persons including sugar engineers, sugar technologists, distillery chemists, agriculture officers, Government officers and farmers participated in these training courses.

International Consultancy

During the period under report, the Institute offered consultancy for Greenfield projects in Ghana and modernization of two sugar plants in Ethiopia.

Upgradation of Infrastructure

The infrastructure modernization programme was continued on massive scale during the period under report. At the Institute's Naigaon farm construction of office, implement shed, storehouse, threshing yard, staff and workers quarters were completed.

State-of-the-art research laboratories for Alcohol Technology, Environmental Sciences and a CAD CAM laboratory for students were established with modern equipments and amenities.

I gratefully acknowledge the unstinted support and guidance of the President of VSI Hon. Shardchandraji Pawar. I place on record the support rendered by Vice-President VSI, Trustees and Members of the Governing Council in carrying out the work of this Institute. I am really grateful to the scientists for their efforts 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.

Shivajirao Deshmukh
Director General