

வார்டிக வார்டல
ஆண்ட றிக்கை
ANNUAL REPORT

2021



ஓன் ஈர்டேஜது ஂயததத
கரூம்பு ஆராய்ச்சி றிறுவனம்
SUGARCANE RESEARCH INSTITUTE



ANNUAL REPORT – 2021

SUGARCANE RESEARCH INSTITUTE

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VISION

To be the centre of excellence in sugarcane technologies and the leader in sugarcane industry development in Sri Lanka

MISSION

Development and transfer of appropriate sugarcane technologies to enhance competitiveness of, and to contribute to expand and develop the local sugarcane industry in a sustainable manner

BOARD OF GOVERNORS

Dr Nimal Kumarasinghe
Appointed Member – Chairman



Dr. Nimal Kumarasinghe is a Research Scientist. He has worked in Government Research Institutes for 35 years by conducting and managing research. He was a consultant in the Faculty of Graduate Studies of the University of Sri Jayewardenepura and Consultant Director of the Ministry of Minor Export Crop Promotion and he has worked as a contract and visiting academic for 20 years at various National Universities in Sri Lanka. Additionally served as a member of the Open University Council and the Agriculture Faculty Board of the Sabaragamuwa University of Sri Lanka. Further, he has served on a number of national committees, including the Pesticide Technical Advisory Committee (PETEC) and the National Species Conservation Committee of the Bio Diversity Secretariat. He is a Fellow of the Royal Entomological Society, SL Institute of Agriculture, the Afro Asian Society of Nematologists, and the Institute of Biology SL. He serves as the representative member of the Agriculture sector at the Executive Committee of the Organization of Professional Associations' (OPA).

Prof WAJM De Costa
Appointed member

Prof. Janendra De Costa is the Senior Professor and Chair of Crop Science in the Faculty of Agriculture of the University of Peradeniya. He holds a PhD from the University of Reading in the United Kingdom and has over 30 years of research and teaching experience with a major focus on the Physiology of Crops and their tolerance to environmental stresses including climate change.



Prof Udaya Rathnayaka
Appointed member - up to 04.05. 2021



Prof. Udaya Rathnayake in the Vice- Chancellor of the Sabaragamuwa University of Sri Lanka since 2020 and he is the 7th Vice-Chancellor of the University. He completed his bachelour degree from University of Ruhuna in 2001 and he obtained his Master degree from University of Peradeniya in 2004. Further, he completed his PhD from Asian Institute of Technology, Thailand in 2009.

Dr WG Somarathna
Appointed Member - from 05.05. 2021

Dr W.G.Somarathne has been graduated with BA (Hons) in Economics from Sri Jayewardanepura University in 1980. He completed his Master in Agricultural Economics from Imperial College, University of London in 1987, and completed his PhD in Economics, from LaTrobe University, Melbourne, Australia in 1998. Then, he joined the premier Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI) and worked there as a Senior Research Fellow and Head of the Agricultural and Environmental Resource Management Division for about 20 years. He has further worked as a Research Fellow in the SAARC - Human Resource Development Centre in Islamabad, Pakistan for 3 years.



Ms. Sureka N Attanayaka

**Nominated member of the Ministry of Plantation Industries & Export
Agricultures - up to 31.01. 2021**



Mrs. Sureka N. Attanayake, has completed 19 years of service in the Sri Administrative Service, has completed five years of service in the Ministry of Planning Implementation, five years of service in the Management Services Department of the Treasury, and has been the Director of the Ministry of Plantation Industries since 2015. She obtained a Bachelor of Science from the University of Peradeniya in 2001 and a MSc in Information Technology from the University of Colombo in 2005. In addition, in 2011, received an MSc in Regional Development Planning jointly awarded by Germany's Dortmund University of Technology and the University of Philippines.

Mr. RC Watawala

Nominated member of the Ministry of Plantation - from 01.02. 2021

Mr. Watawala is currently working as the Director Development of the Ministry of Plantations since 2018. He graduated with a Bachelor of Science in Biology from the University of Kelaniya in 2002 and completed his MPhil degree in Environmental Chemistry from the University of Jayawardanapura and the University of Adelaide in 2009. Further, he has a Diploma in Counselling and a Post Graduate Diploma in Writing and Communication. He is a researcher and has several research publications.



Ms. Himali Bogodagedara

Nominated member of the Ministry of Finance



Ms. Himali Bogodagedara is working as Director in the Department of External Resources of the Ministry of Finance. She has graduated with Bachelor of Arts Business Statistics from the University of Sri Jayawardanapura. She has completed a Master of Arts (Economics) from University of Kelaniya, Sri Lanka, and a Master of Applied Economics from the University of Adelaide, Australia. In addition, Ms Bogodagedara has earned a Diploma in Planning and Development from SLID Lanka. She is a member of Economic Association of Sri Lanka.

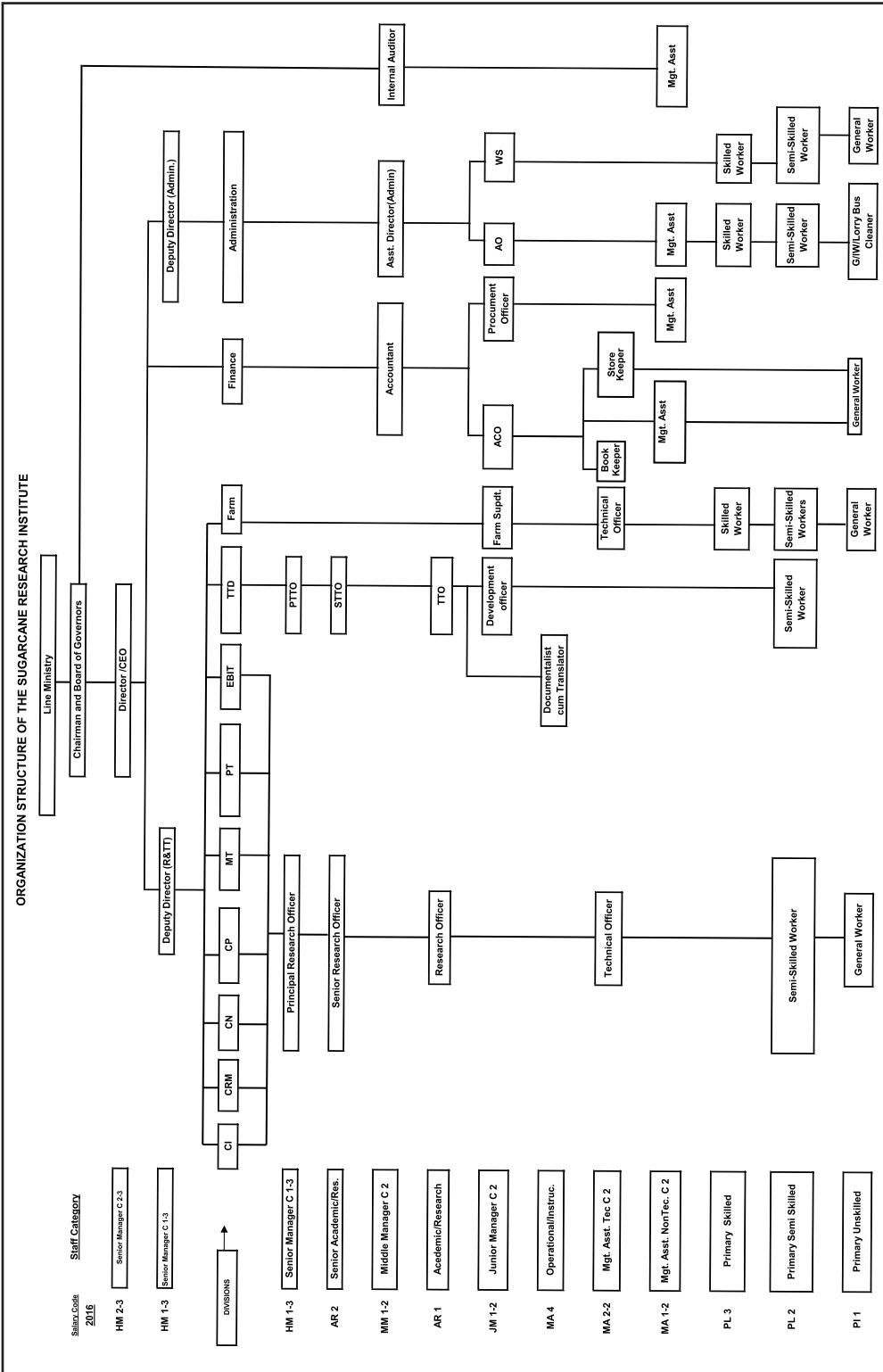
Dr MS Perera

Ex-Officio member - from 01.09. 2021

Dr. MS Perera is the Director/ CEO of the institute. He has completed both his bachelor's degree and Doctor of Philosophy from the University of Peradeniya. Dr. MS Perera joined the SRI in 1993 as a Research Officer and he has held several positions including Senior Research Officer and Principal Research officer in the Technology Transfer and Development Division.



Organizational Structure of the Sugarcane Research Institute



Approved Cadre of the Sugarcane Research Institute - 2021

Designation	Salary Code	Service Level	Approved Cadre	Existing Cadre
Director - CEO	HM 2 - 3	Senior	1	1
Deputy Director (Admin)	HM 1 - 3	Senior	1	1
Deputy Director (R & TT)	HM 1 - 3	Senior	1	0
Principal Technology Transfer Officer	HM 1 - 3	Senior	1	0
Principal Research Officer	HM 1 - 3	Senior	5	0
Senior Technology Transfer Officer	AR 2	Senior	1	0
Senior Research Officer	AR 2	Senior	4	4
Technology Transfer Officer	AR 1	Senior	1	1
Research Officer	AR 1	Senior	16	15
Internal Auditor	MM 1 - 2	Senior	1	1
Accountant	MM 1 - 2	Senior	1	1
Assistant Director (Administration)	MM 1 - 2	Senior	1	1
Development Officer	JM 1 - 2	Tertiary	5	5
Works Superintendent	JM 1 - 2	Tertiary	1	1
Accounting Officer	JM 1 - 2	Tertiary	1	1
Administrative officer	JM 1 - 2	Tertiary	1	1
Procurement Officer	JM 1 - 2	Tertiary	1	1
Farm Superintendent	JM 1 - 2	Tertiary	1	1
Documentarist cum Translator	MA 4	Tertiary	1	0
Book Keeper	MA 2 - 2	Secondary	1	0
Store Keeper	MA 2 - 2	Secondary	1	1
Technical Officer	MA 2 - 2	Secondary	20	19
Inspector of Works	MA 2 - 2	Secondary		1
MA(Typist, Typist/Clerk, Clerical, Accounts Clerk, PA)	MA 1 - 2	Secondary	18	11
Tele. Operator/Receptionist	MA 1 - 2	Secondary	1	1
Work Supervisor	MA 1 - 2	Secondary	-	1
Mechanic	PL 3	Primary	1	1
Electrician	PL 3	Primary	2	1
Fitter	PL 3	Primary	1	1
Welder	PL 3	Primary	1	1
Carpenter	PL 3	Primary	2	2
Mason/Plumber	PL 3	Primary	1	0
Blacksmith	PL 3	Primary	1	1
Tractor Driver	PL 3	Primary	2	3
Driver	PL 3	Primary	12	8
Circuit Bungalow Keeper	PL 2	Primary	1	1
Lab/Field Attendant	PL 2	Primary	9	9
Water Pump Operator	PL 2	Primary	3	3
GW(Peon/Messenger, Labour, Stores Labour, Office Labour, Farm Labour	PL 1	Primary	70	58
Lorry/Bus Cleaner	PL 1	Primary	1	1
Worker *	PL 1	Primary		34
Total			193	193

* In addition to the permanent cadre, workers were made permanent on continuous service according to the budget proposals in 2014

CHAIRMAN'S REVIEW



A total of Rs 365.00 million from the consolidated fund had been formally designated for the Sugarcane Research Institute (SRI) for the calendar year 2021. Out of this allocation, a total of Rs. 285 million meant for recurrent expenses, and the remaining Rs. 80 million for capital expenses. However, the institute only received Rs 325.75 million from the Treasury in 2021. It was made up of Rs. 55.8 million in capital expenditures and Rs. 269.9 million in recurrent expenses. As a result, the consolidated fund's assigned Rs 40.7 million was not received. Only 69.75% of the funds allotted for capital construction were received, even though 94.7% of the funding for recurrent expenses were obtained.

Ten meetings of the Board of Directors were conducted during the course of the year. Several significant policy decisions have been made, such as the introduction of experimental foreign varieties to commercial plantations, improvement of sugar substitute production through the revitalization of rural sugarcane jaggery industries, conversion of sugarcane agriculture to organic farming practices, creation of a policy framework for research programs with outside funding sources, the staff training policy, and the establishment of a consultative committee on research and technology transfer. According to the institute's mandate, the reviewed performance was at the following levels of satisfaction.

The number of sugarcane varieties developed by SRI has expanded to 22,694 ha, or 86% of the total sugarcane growing areas. The suitability of imported sugarcane varieties with high sugar content for local commercial cultivations, incorporation of 29 imported sugarcane varieties (20 varieties from Vietnam and 9 varieties from China) to the sugarcane germplasm, and seedlings produced from 25 crosses imported from China for selection programs were among the significant accomplishments of the research and development activities carried out by the institute during the course of the year. Before being made available for commercial cultivation, 27 promising varieties from the 2002 series and 27 promising varieties from the 2003 series were multiplied for large-scale evaluation at the Lanka Sugar Company (Private) Limited facilities in Pelwatta, Gal Oya Plantations (Private) Limited in Ethimale Plantations (Private), and Lanka Sugar Company (Private) Limited in Sevanagala. By establishing observational fields at Lanka Sugar Company (Private) Limited - Sevanagala, Lanka Sugar Company (Private) Limited - Pelwatta, Gal Oya Plantations (Private) Limited - Higurana, and Ethimale Plantations (Private) Limited - Siyambalanduwa, evaluation of foreign varieties was continued under different agroecological conditions.

Three public-private partnerships research were conducted; a) Effect of Starch Based Super-Absorbent (ZEBA) on Sugarcane Growth and Yield, b) the evaluation of the acceptability of Yara as a replacement fertilizer and c) the performance of a granular insecticide, Chlorantraniliprole 0.4%, for the management of borer pests proceeded throughout the year.

The services provided to the industries during the year 2021 included; enhancing the electric, water circulation, and heating systems of the current hot-water treatment plant (HWP) at Lanka Sugar Company Limited (LSCL), Pelwatta, supervising the installation of a new automated HWP at Ethimale Plantation (Pvt) Ltd as a joint venture, introducing a soil microbial inoculum for Sevanagala compost preparation, and offering technical assistance to Lanka Sugar Company (Pvt) Ltd to make compost from filter-mud and vinasse for Lanka Sugar Company (Pvt) Ltd, Sevanagala.

Crop protection research were conducted throughout the year, including the identification of a new herbicide Saflufenacil 68 g/L + Dimethanamide P 600 g/L EC that is effective at controlling weeds in sugarcane at the pre-emergent stage as well as the ongoing monitoring of pest and disease status in plantations.

The specific fertilizer research carried out over the course of the year included the discovery of a beneficial effect of soil micronutrient Zn on improvement in cane quality of variety SL 96 128 and the creation of a program for converting inorganic farming into organic sugarcane farming by introducing organic fertilizer and biochemical and bio-control measures in accordance with the government policy guidelines. Another outstanding accomplishment of the institute this year was the development of a fertilizer metering mechanism to apply organic fertilizer pellets produced by SRI and the evaluation of a new two-wheeled, tractor-mounted fertilizer pellet applicator for inter-row fertilizer application.

The Institute helped farmer communities in the north of the island produce jaggery and syrup by providing support for the Anavillunthan, Kilinochchi, processing facility. The Anavillunthan processing plant introduced jaggery and syrup for the local Kilinochchi market as a result of the institute's technical advice to the Anavillunthan sugarcane growers organization. Further initiatives included extending sugarcane agriculture to the Skandhapuram area of Kilinochchi, offering technical assistance to farmers in Skandhapuram regarding sugarcane farming, and maintaining the Vannerikulam seed cane nursery to supply Kilinochchi Skandhapuram farmers with seed cane. Initial preparations were made to build "*Uk Waga Gammuna*" under the direction of the State Ministry in non-traditional sugarcane-growing regions in various parts of the country, such as Nagoda - Galle, Welioya - Mulathew, and Ruwanwella - Kegalle.

Establishment of three organic sugarcane farming observation fields at the SRI research farm, Galoya, and Ethimale sugar enterprises in accordance with the organization's updated organic sugarcane farming research program, Maintaining the SRI TTD eSMS service for the exchange of extension messages between scientists, extension officers, and farmers in the sugarcane business, as well as maintaining the SRI Facebook page and website were among the other services fulfilled during the cause of the year.

In addition, the method of disseminating technology included the publication of two volumes of the SRI Newsletter (also known as *Puwath Hasuna* of SRI). The establishment of nurseries and training were continued for farmers of small-scale sugarcane jaggery and treacle industries of Badulla, Kilinochchi and NuwaraEliya districts. A total of 195 farmers and 135 field officers were trained on innovative sugarcane technologies as part of the institute's technology dissemination program through the execution of 22 training programs/field demonstrations. During the course of the year, 87 field demonstration sites were established and maintained in sugar mill districts, and advice pamphlets and information sheets on various aspects of sugarcane growing were distributed.

Among the other initiatives pursued in relation to the development of the sugar sector were the formulation of the Sugarcane Sector Policy, evaluation of proposals for new sugarcane factories at Weli Oya (1500 TCD), Horowpathana (5000 TCD), and Bibile (4,000 TCD), and submission of recommendations to the State Ministry. Research collaborations were maintained with overseas organizations such as the Plant Protection Research Institute (PPRI) in Vietnam and the Yunan Agricultural Science Academy in China.

The development of infrastructure needed for research and development operations at Uda Walawe main station, Deniyaya substation, and Kanthale substation, was completed during the course of the year. The necessary tools and equipment, such as those for creating compost and fertilizer pellets as well as software, were given to the appropriate research divisions, increasing the possibility of developing novel technologies. During the year, work was done on the institute quarters' infrastructure facilities, SRI circuit guesthouse, and auditorium.

The institute's cadre was revised to accommodate the appropriate number of qualified employees to carry out its mission. The relevant members of the staff received three short-term training and six long-term training to improve their skills. Four additional research officers maintained their postgraduate research programs while one research officer was released to pursue a Ph.D. degree programme. The Assistant

Director (Administration) and Accountant received postgraduate training, that was pertinent to their respective subject areas.

The Sugarcane Research Institute Act and the Manual of Procedures (MOP) were being revised, and the revision of the institute's Scheme of Recruitment (SOR) was completed and submitted to the Management Services Department via the line ministry for approval.

The Institute's main research station at Uda Walawe, the Breeding station at Deniyaya, the Quarantine station at Hantane, and the Pathology farm at Siyambalanduwa all ran according to their own working schedules throughout the year's lockdown periods without interfering with the scheduled research and development activities. Lack of trained staff, particularly for scientific and upper managerial posts, and difficulty hiring staff in accordance with the recruitment rules in the current circumstances were the major impediments to the institute's performance.



Dr. Nimal Kumarasinghe
Chairman

DIRECTOR'S REVIEW



The Sugarcane Research Institute continued its functions in the year 2021 to contribute to developing the sugarcane industry of Sri Lanka by conducting research for generating new knowledge/technologies on sugarcane, disseminating the technical know-how to sugar companies, farmers, and other relevant stakeholders, producing and supplying foundation seed cane and expanding sugarcane cultivation for small-scale processing industries. A long-term research program consisting of sugarcane crop improvement, crop and resource management, crop nutrition, crop protection, farm mechanisation, and processing, and product development was continued aiming at developing technical know-how to cater to the needs of the development of the sugarcane industry in the country. A technology transfer program was carried out to disseminate the knowledge/technologies generated by the research program to sugar companies, farmers, and other relevant stakeholders. A development program consisting of the production of foundation seed cane of the new sugarcane varieties recommended by the institute was also continued.

There are many promising varieties bred after the year 2002 and are at different stages of selection. The promising varieties; fifty-eight from the 2010/2011 series, 22 varieties from SL 2009 series, 22 varieties from SL 2008 series, 24 from SL 2007 series, and 23 from the 2006 series, which have been identified as promising varieties, based on the high cane and sugar yields and disease resistance were performed final step evaluation before large mill testing. Twenty-eight promising varieties from the 2002 series and 27 promising varieties from the 2003 series were multiplied for large-scale evaluation at Lanka Sugar Company (Private) Limited, Pelwatte, Gal Oya Plantations (Private) Limited, Ethimale Plantations (Private) Limited and Lanka Sugar Company (Private) Limited, Sevanagala before releasing for commercial cultivation. 29 imported sugarcane varieties (20 varieties imported from Vietnam and 9 varieties from China) and seedlings generated from 25 crosses imported from China for the selection program were incorporated into the sugarcane germplasm. Foreign Variety evaluation trials are established and maintained at Lanka Sugar Company (Private) Limited - Sevanagala, Lanka Sugar Company (Private) Limited – Pelwatte, Gal oya plantations (Private) limited – Higurana, and Ethimale Plantations (Private) Limited – Siyambalanduwa. During the 2021 crossing season, 1,025 crosses were made. These crosses are directional for sugar and cane yield improvement and disease resistance (smut, leaf scald, and white leaf diseases). Processing of true seeds of these crosses is in progress. *Ex-situ* conservation of 1,659 sugarcane accessions in duplicate plots at Sugarcane Breeding Station at Enselwatte, Deniyaya, and maintaining the breeder's seed garden with 45 commercial and near-commercial varieties at the Sugarcane Research Institute, Uda Walawe.

Under the sugarcane crop and resource management, Saflufenacil 68 g/L + Dimethanamide P 600 g/L EC was identified as an effective new herbicide to control weeds in sugarcane at the pre-emergent stage. The pattern of maturity of 2003 series varieties ie.SL 03 336, SL 03 341, SL 03 425, SL 03 442, SL 03 762, SL 03 983, SL 03 1025, SL 03 1077, SL 03 1134, SL 03 5428, SL 03 5441 and SL 03 5445 with different times of planting within the year were identified. SL 03 5428, SL 03 5441, and SL 03 5445 were identified as high flowering varieties compared to Co 775 when the crop is planted in the maha season. It was identified that the application of polythene mulch produces a similar yield in plant crops compared to

weedicide application and manual weeding under rain-fed conditions and it increased the tillering of sugarcane. Sunhemp and Mung bean were introduced as suitable green manure crops to a fallow sugarcane field. Under the sugarcane development project at Killinochchi, Jaggery, and syrup produced by the Anavillunthan processing unit were introduced for Kilinochchi local market. Further, the expansion of sugarcane cultivation to Skandhapuram area in Kilinochchi and maintenance of Vannerikulam seed cane nursery to provide seed cane for Kilinochchi Skandhapuram were continued.

Recommendations on soil fertility management are provided by the research conducted under the crop nutrition programme. A site-specific fertilizer recommendation model for sugarcane-growing soils under four soil categories based on soil Phosphorous and Potassium concentrations was formulated. Further, the Formulation of a classification key for sugarcane-growing soils at *Sevanagala* based on Potassium buffering capacity was completed. And the pattern of adsorption to concentration relationship of soil Phosphorous and the soil micro-nutrient status (i.e. Fe, Mn, Zn, and Cu) in sugarcane-growing soils at *Sevanagala* was identified. Production of different types of organo-mineral fertilizer pellets and laboratory quality evaluation, and establishment of a research trial to evaluate their performance on sugarcane cultivation were done. The first ratoon crop research trials under rain-fed and irrigated conditions to identify the suitability of compound fertilizers for sugarcane cultivation were maintained. A positive effect of soil micronutrient, Zn on improvement in cane quality of variety SL 96 128 was identified. Further, the introduction of a soil microbial inoculum for *Sevanagala* compost preparation and maintenance of the plant crop of the research trial at *Sevanagala* under rain-fed and irrigated conditions to identify the effect of Urea and Sulphate of Ammonia fertilizers for sugarcane cultivation has been continued.

Under sugarcane crop protection, the highest priority was given to controlling white leaf disease (WLD) and sugarcane borers. The institute also regularly monitored the disease and pest situations in commercial sugarcane plantations, and the relevant officials of the sugar companies were made aware of the prevailing situations to enable them to take timely action to contain the spread of diseases and pests. Furthermore, regular awareness and training programmes were conducted for farmers and field-level officers to improve and update their knowledge on the management of sugarcane diseases and pests. Incorporating two management strategies; intercropping mustard with sugarcane and increasing the spacing between two planting rows to integrated vector management (IVM) of WLD for an efficient vector management program. Successful laboratory-rearing protocols were developed for two predators of *Euborellia* spp (Earwig) and *Micarspis discolor* (Ladybird beetle). It was identified that Chlorantraniliprole 0.4% (w/w) is an effective chemical for controlling sugarcane moth borers. The most effective seed-cane treatment for controlling the primary transmission of major sugarcane diseases was identified. Treatment combinations with 36 and 48 hours of cold soak treatment followed by 54 C for 50 min hot water treatment significantly reduce the disease incidence of leaf scald disease, and white leaf disease and recorded good germination, and yield parameters. The finding of biochemical indices namely total phenolic contents in leaves and morphological namely hardness of the bud, Foliage Inclination Angle (FIA), and the number of scale leaves as candidate indirect markers for smut disease resistance in sugarcane could be used for early identification of smut resistance in sugarcane in the varietal selection programs.

In the SL 2013 series, 29 highly resistant, 18 resistant genotypes for smut disease and 60 highly resistant, 20 resistant genotypes for leaf scald disease have been identified.

Development of a database of the sugarcane farming-related machinery manufacturers and updating with the Asia Pacific region was completed under the sugarcane farm mechanization programme. Design and

fabrication of a two-wheel tractor-mounted fertilizer applicator, development of a fertilizer metering mechanism to apply organic fertilizer pellets made by SRI, and fabricating equipment needed for the production of biochar on a laboratory scale were completed under the sugarcane farm mechanization programme. Further, works on upgrading the electric system, water circulating system, and heating unit of the existing hot-water treatment plant (HWP) at Lanka Sugar Company Limited (LSCL), Pelwatte and installing a new automated HWP at Ethimale Plantation (Pvt) Ltd were attended as a collaborative project. A platform for drone image analysis using open-source software was established. Conducting a preliminary investigation at the SRI farm with RGB and Multispectral images and developing a basic level computer program to collect data from a sensor or human control app and store that data in clouds then that data could be queried when necessary were other important aspects covered under Mechanization Technology development.

SL 07 5931, SL 07 3570 and SL 07 3530 varieties from SL 2007 series were identified as superior varieties for quality jaggery production under the processing technology research programme. A field trial at Uda Walawe with the variety SL 96 128 was maintained to evaluate the potential of using sugar factory and distillery wastes for the production of a carrier medium for phosphate-solubilizing micro-organisms. The performance of SL 96 128 variety was tested by conducting large mill tests in Ethimale sugar factory to give recommendations for increasing sugar yield. Further, post-harvest deterioration of SL 96 128 and SL 98 2524 varieties were analyzed based on the months of February and July. A semi-automated agitation system with 3 degrees of rotation and VFD speed controlling mechanism and a new Jaggery pan to increase production capacity and be suitable with the proposed agitation system were designed for the Jaggery production unit at Sugarcane Research Institute, Uda Walawe.

The costs and returns of sugarcane cultivation were updated based on the prices of the year 2021. The average cost per hectare of cane cultivated was Rs. 411,903, Rs. 313,519, Rs. 227,809, Rs. 290,600, and Rs. 227,086 for Sevanagala irrigated and rain-fed sectors, Pelwatte, Hingurana, and Ethimale respectively. The average net income from one hectare of sugarcane per year at Sevanagala was Rs 245,034 and 149,356 under irrigation and rain-fed respectively. At Pelwatte under rain-fed and Hingurana under irrigation, the net income was Rs 121,503/ha/year and 135,449/ha/year respectively, and that at Ethimale under rain-fed was Rs. 108,914/ha/year. Estimating the commercial value of a tonne of sugarcane at Sevanagala, Pelwatte, and Gal-oia sugar industries during the year 2020 as Rs. 21,156, Rs. 19,184, and 23,330 respectively. Accordingly, the commercial value of sugarcane produced from one hectare of land in the irrigated sector Sevanagala, rain-fed sector Pelwatte and Gal-oia 2020 were Rs. million 2.3, 1.05 million and 1.6 million respectively, and it was much higher than the income of competitive crops. The quantity and the value of sugar imports during the year 2021 was 552,000 tonne and Rs. 51.4 billion respectively. The factors affecting the quantity of sugar imports and retail price of sugar in Sri Lanka were analyzed and found that the real sugar import tax and local sugar production quantity significantly affect the quantity of sugar importation and global market sugar price, exchange rate and real import tax significantly influence the local market real sugar price.

Even though the planned training activities were curtailed due to Covid situations, the promotion of the application of the research findings was continued by conducting a technology transfer program. The emphasis was placed on the promotion of SRI-developed sugarcane varieties and intercropping with sugarcane. Programmes were also conducted to improve the knowledge of the farmers and field officers of the sugar companies on soil fertility management and disease and pest management. A total of 195 farmers and 135 field officers were trained on new sugarcane technologies by conducting 22 training programmes/field demonstrations for farmers and 2 training programs for field officers. The following activities were also carried out to improve the knowledge of field officers, farmers, and other stakeholders:

- Making a total of 56 visits to farmers' fields in the Sevanagala, Pelwatte, Siyambalanduwa, and Hingurana areas
- Establishing and maintaining 87 field demonstration sites on varieties and intercropping with sugarcane in sugar mill areas.
- Publishing two volumes of the SRI Newsletter (*Puwath Hasuna* of SRI).
- Continuing SRI TTD *eSMS* service for transfer extension messages between researchers, extension officers, and farmers in the sugarcane sector. Continuing the sharing of sugar industry information through the SRI FB page and updating the SRI website.
- Three observational fields were established and maintained on organic sugarcane farming at SRI research farm, Galoya, and Ethimale sugar companies in compliance with the revised research program of SRI on organic sugarcane farming. The observations are being obtained and awareness programs for agricultural staff of sugar companies and farmers have been planned to be conducted in 2022.

The institute also provided training services to students from schools, technical colleges, agriculture schools, and universities. In addition, the necessary information was provided to interested parties for their involvement in the sugarcane industry development in the country.

The following activities were also carried out to contribute to developing the sugar industry:

- Providing technical support to expand sugarcane cultivation in Skandhapuram, Kilinochchi.
- Introduction of sugarcane jaggery and syrup for Kilinochchi local market by Anavillunthan processing unit.
- Maintenance of Vannerikulam seed cane nursery.
- Providing technical support on sugarcane cultivation for Civil Security Department in Viswamadu, Kilinochchi.

During the year under review, vacancies; Director, Internal Auditor, and Procurement Officer were filled to strengthen the manpower requirements of the institute. The Principal Research Officer/Technology Transfer Officer vacancies could not be filled due to the non-availability of qualified candidates. The process of revising the cadre also continued to increase the staff requirements in scientific and technical and administrative support staff to carry out the expanded research and development functions of the institute. Capacity building of staff was continued by providing long-term and short-term training opportunities. Two Research Officers were granted study leave for pursuing studies leading to a Ph.D., in addition to the continuation of the previously-released two Research Officers of their postgraduate studies. One of the Development Officers was given the opportunity for long-term post-graduate training while Assistant Director (administration) and Accountant were continued the given opportunity for long-term post-graduate training in the subjects relevant to their work at the institute. Furthermore, research, technical, accounting, and administrative staff were provided with opportunities for attending short training courses relevant to their work.

To provide the infrastructure requirements for research and development activities and for providing a congenial working environment for the staff, the following activities were continued:

- i. Improvement of crop and resource management, crop nutrition and biotechnology laboratories and conference room, renovation of the old office building for an auditorium, and rehabilitation of the perimeter fence.
- ii. Procurement of important laboratory instruments/office and household equipment and furniture.

The work on amendment of the Sugarcane Research Institute Act to broaden its scope and authority according to the current as well as future needs of the development of the sugarcane industry in the country was continued.

The main limiting factor for fulfilling the mandate of the institute was a shortage of trained and experienced manpower and the non-availability of finance in time. Recruiting and retaining staff at scientific, technical, and managerial grades has to be given high priority for the sustenance of the institute to fulfill its mandated functions.



Dr. M.S.Perera
Director/Chief Executive Officer

PROGRESS AND PERFORMANCE REPORT

Progress and Performance Report of Sugarcane Research Institute by 31 December 2021

1. Sugarcane Research Institute Action Plan – 2021- Progress of Special Projects / Activities

Sixty-eight (68) activities were carried out under eight major research and development projects in the Sugarcane Research Institute Action Plan 2021.

The physical and financial progress of the eight projects undertaken as on December 31, 2021 in accordance with the Action Plan of the Sugarcane Research Institute - 2021 has been mentioned ahead of the targets in Tables 01 and 02.

Table 1. Percentage of physical progress against target for projects carried out as per Sugarcane Research Institute 2021 Action Plan as on 31 December 2021

Projects	Physical Progress (%)	
	Targeted	Achieved
1. Development of superior sugarcane varieties	100	90
2. Development of improved crop management practices	100	95
3. Development of soil fertility management practices for sugarcane cultivation	100	95
4. Development of pest and disease management practices	100	95
5. Development / introduction of suitable machinery for sugarcane cultivation	100	90
6. Development and streamlining of value added production process in sugarcane cultivation	100	90
7. Dissemination of knowledge and technology on sugarcane cultivation	100	90

Table 2. Percentage of financial progress against target for projects undertaken as per the 2021 Action Plan of the Sugarcane Research Institute as at 31 December 2021

Projects	Financial Progress (Mn. Rs)		
	Target	Achieved	Progress (%)
1. Development of superior sugarcane varieties	36.5	33.57	92
2. Development of improved crop management practices	13.86	13.86	100
3. Development of soil fertility management practices for sugarcane cultivation	13.93	13.93	100
4. Development of pest and disease management practices	17.72	17.72	100
5. Development / introduction of suitable machinery for sugarcane cultivation	6.36	6.36	100
6. Development and streamlining of value added production process in sugarcane cultivation	5.40	4.63	86
7. Dissemination of knowledge and technology on sugarcane cultivation	27.38	23.25	85

Achievements in 2021

1. Evaluation of suitability of imported sugarcane varieties with Seedlings produced from 29 imported sugarcane varieties (20 and 9 imported from Vietnam and China respectively) and 25 imported cultivars from China for seedling addition to sugarcane genome and high sugar content for local commercial cultivation.
2. Multiplied 27 varieties of 2002 series and 27 varieties of 2003 series showing superior characteristics for large-scale evaluation before release for commercial cultivation at Lanka Sugar Company – Sevanagala, Lanka Sugar Company- Pelwatte, Galoya Plantations (Private) Limited, and Ethimale Plantation (Private) Ltd.
3. Carried out continuous evaluation of foreign varieties under different agro-ecological conditions by setting up observation fields at Lanka sugar Company - Sevanagala, Lanka Sugar Company - Pelwatte, Galoya Plantation (Private) Company Limited and Ethimale Plantation (Private) Company.
4. Evaluation of Drip Irrigation System in Sugarcane Cultivation in Sevanagala Sugar industry area as a Public Private Partnership Research Program.
5. Improved production of healthy seed sugarcane by upgrading electrical system, water circulation system and heating unit of existing Hot Water Treatment Plant (HWP) at Lanka Sugar Company - Pelwatte and installation of new automatic HWP at Ethimale Plantation (Pvt.) as a collaborative project.
6. Introduction of soil microbial inoculum for composting and providing technical assistance to Ceylon Sugar Company - Sevanagala to prepare compost from filter-mud and vinasse.
7. Identification of Saflufenacil 68 g/L + Dimethanamide P 600 g/L EC as an effective pre-emergence herbicide for controlling weeds in sugarcane.
8. Identification of chlorantraniliprole 0.4% (w/w) as an effective chemical to control sugarcane moths and monitor pest and disease conditions in sugarcane fields and given necessary recommendations.
9. Identified that soil micronutrient zinc (Zn) has a positive effect on improving sugarcane quality in the variety of SL 96 128.
10. Development of a program to convert inorganic farming into organic sugarcane cultivation in line with government policy by introducing organic fertilizers and bio-chemical and bio-control methods.
11. Develop a database of sugarcane related machinery manufacturers and updated it with data relevant to the Asia Pacific region.
12. Development of a fertilizer application machine for organic fertilizer granules made by SRI and evaluation of new two-wheeler tractor mounted fertilizer granule application machine for inter-row fertilization.
13. Training 195 farmers and 135 field officers on new sugarcane technology by conducting 22 training programs/field demonstrations in the technology dissemination program of the institute.
14. Distribution of advisory leaflets and information sheets on various aspects of sugarcane cultivation and establishment and maintenance of 87 field demonstration sites in sugar mill areas.
15. Establishment of three observation fields on organic sugarcane cultivation at SRI Research Farm, Galoya and Ethimale Sugar Companies in accordance with SRI's revised research program on organic sugarcane cultivation.
16. Continuous implementation of SRI TTD *eSMS* service among researchers, extension officers and farmers.
17. Publication of two volumes of SRI newsletter (Puwath Hasuna of SRI).

2. Special programs / projects / activities undertaken for the development of sugarcane sector.

1. Program for the introduction of high sugar content imported varieties of sugarcane currently available in the seed stock at the Sugarcane Research Institute for commercial cultivation.
2. Introduction of high productivity sugarcane varieties for field level monitoring in sugar industry
3. Development of Information and Product Commercialization Center at Colombo Office of Sugarcane Research Institute.
4. Production and supply of primary seedcane of new improved sugarcane varieties for the sugarcane industry for further multiplication.

5. Upgrading the website of the Sugarcane Research Institute for easy access to information related to sugar production.
6. Providing necessary technical knowledge on sugarcane crop management including fertilization with special emphasis on use of organic fertilizers, pest and disease management, improving the fertility of degraded soils etc.
7. Carrying out crop protection services to prevent the spread of pests and diseases in sugarcane plantations
8. Expansion of sugarcane cultivation in Kilinochchi district with more emphasis on jaggery and syrup production

3. Financial Progress (Capital / Recurring / Sanctioned Amount / Working Amount / Financial Progress / Bills in hand) (as on 31.12.2021)

Details of Expenditure	Approved Amount	Received Imprest	Financial Progress	Bills in hand
Capital	80	55.80	55.80	-
Recurrent	285	269.9	269.9	15.1
Total	365	325.7	325.7	15.1

4. Special projects / programs / activities to be carried out in the year 2022

In addition to the general research and development activities carried out by the Sugarcane Research Institute, the following special projects / programs / activities will be carried out in the year 2022.

1. Continuation of the program of introduction of imported high sugar sugarcane varieties currently available in the seed stock in the Sugarcane Research Institute for commercial cultivation.
2. Continuation of the program to introduce high productivity sugarcane varieties into the sugar industry for field level monitoring.
3. Development of Information and Product Commercialization Center at Colombo Office of Sugarcane Research Institute.
4. Production and supply of primary seedcane of new improved sugarcane varieties for the sugarcane industry for further multiplication.
5. Development of Strategies for Application of Optimum Agricultural Technology to sugarcane cultivation
6. Updating the Sugarcane Research Institute website so that information about the sugar manufacturing is available.
7. Providing necessary technical knowledge on sugarcane crop management including fertilization with special emphasis on use of organic fertilizers, pest and disease management, improving the fertility of degraded soils etc.
8. Carrying out crop protection services to prevent the spread of pests and diseases in sugarcane plantations
9. “Uk Gammana Project” to create small scale jaggery and syrup manufacturing rural industries

DIVISIONAL REPORTS



CROP IMPROVEMENT DIVISION

CROP IMPROVEMENT DIVISION

Staff

Ms AMMS Perera BSc, MSc	-	Senior Research Officer and Head
Mr KP Wickramasinghe BSc (Agric.), M Phil	-	Research Officer
Ms RDRR Ranathunga BSc, MSc	-	Research Officer
Mr AJMCM Siriwardhane, BSc	-	Research Officer (resigned on 30.04.2021)
Ms ALC Kumari	-	Senior Technical Officer
Mr RA Premachandra	-	Senior Technical Officer
Mr D Weerasinghe	-	Senior Technical Officer
Mr MKD Ubesena	-	Technical Officer
Mr SH Karunaratne	-	Lab/Field Attendant
Mr RGSL Premaratne	-	Lab/Field Attendant (transfer to the CP division)

Achievements

Research

- Incorporation of 29 imported sugarcane varieties (20 varieties from Vietnam and 9 varieties from China) to the sugarcane germplasm and seedlings generated from 25 crosses imported from China for selection program.
- *Ex-situ* conservation of 1,659 sugarcane accessions in duplicate plots at Sugarcane Breeding Station at Enselwatte, Deniyaya, and maintaining the breeder's seed garden with 45 commercial and near-commercial varieties at the Sugarcane Research Institute, Uda Walawe.
- Performing 1,025 crosses using field lantern and solution crossing techniques. These crosses are directional for sugar and cane yield improvement and disease resistance (smut, leaf scald and white leaf diseases). Processing of true seeds of these crosses are in progress.
- Multiplication of 27 promising varieties from 2002 series and 27 promising varieties from 2003 series for large scale evaluation at Lanka Sugar Company (Pvt) Ltd, Pelwatta, Gal Oya Plantation (Pvt) Ltd, Ethimale Plantation (Pvt) Ltd and Lanka Sugar Company (Pvt) Ltd, Sevanagala.
- Multiplication of promising varieties for large-scale evaluation at Uda Walawe; 54 from 2004 series and 25 from 2005 series.
- Conducting final step evaluation prior to the large-scale evaluation; 23 from SL 2006 series, 24 from SL 2007 series, 22 from SL 2008 series, 22 from SL 2009 series and 58 from SL 2010/2011 series.
- Evaluating foreign varieties at Lanka Sugar Company (Pvt) Ltd – Sevanagala and Pelwatta, Gal Oya plantation (Pvt) Ltd – Higurana and Ethimale Plantation (Pvt) Ltd – Siyambalanduwa.

Training Trainees

- Trained two students from Kundasale School of Agriculture.



CROP AND RESOURCE MANAGEMENT DIVISION

CROP AND RESOURCE MANAGEMENT DIVISION

Staff

Mr ALC De Silva BSc (Agric.), MPhil	-	Senior Research Officer and Head
Mr LMJR Wijayawardhana BSc (Agric.), MPhil	-	Research Officer
Mr GAA Chaturanga BSc (Agric.), MSc	-	Research Officer
Mr PRB Chandrasena BSc (Agric.), MSc	-	Farm Superintendent
Mr WG Nimal	-	Senior Technical Officer
Mr IP Manawadu HND (Electronic Engineering)	-	Technical Officer
Mr DMGH Chaturanga Dip (Agric.)	-	Technical Officer

Achievements

Research

- Identification of effective new herbicides, Saflufenacil 68 g/L + Dimethanamide P 600 g/L EC to control weeds in sugarcane at pre-emergent stage.
- Identifying that polythene mulching in plant crop of sugarcane produces similar yield compared to chemical and manual weeding under rain-fed conditions.
- Identification of the pattern of maturity with crop age of 2003 series varieties i.e. SL 03 336, SL 03 341, SL 03 425, SL 03 442, SL 03 762, SL 03 983, SL 03 1025, SL 03 1077, SL 03 1134, SL 03 5428, SL 03 5441 and SL 03 5445 with different times of planting within the year.
- Identification of early maturing new variety SL 03 983 that matured at 10-11 months age and its sugar content reduces after 10-11 months.

Development

- Providing technical support to expand sugarcane cultivation in Skandhapuram, Kilinochchi.
- Introduction of sugarcane jaggery and syrup for Kilinochchi local market by Anavillunthan processing unit.
- Maintenance of Vannerikulam seedcane nursery.
- Providing technical support on sugarcane cultivation for Civil Security Department in Viswamadu, Kilinochchi.

Services

- Land preparation of 42 ha for seedcane nursery and research trial establishment.
- Maintenance of four ha seedcane nursery at D4 and D5 areas in research farm.
- Supplying of 380.68 metric tons of factory cane to Lanka Sugar Company (Pvt) Ltd, Sevanagala through factory cane harvesting contractor.
- Providing 2.83 metric tons of seedcane for Lanka Sugar Company (Pvt) Ltd, Sevanagala.
- Repairing 800 m barbed wire fence around the farm.
- Using herd of buffalos to control weeds in roads and barren areas at the research farm.
- Starting and continuation of compost production unit in research farm.

Training Trainees

- Training of Ms MD Paranamana and Ms PAH Ruvinka, undergraduates of the Faculty of Agriculture, University of Ruhuna for their industrial training program.



CROP NUTRITION DIVISION

CROP NUTRITION DIVISION

Staff

Mr HAS Weerasinghe BSc, MSc, MPhil, MI Biol .	-	Research Officer-In-charge
Mr BR Kulasekera BSc (Agric.)	-	Research Officer
Mr UWLM Kumarasiri BSc (Agric.)	-	Research Officer
Mr GS Udawatte	-	Technical Officer
Ms WAS Wijesuriya Dip (Agric.)	-	Technical Officer
Ms MAT Tharika Dip (Agric.)	-	Technical Officer
Mr J Gunasiri	-	Lab/Field Attendant
Mr PWD Kulatunga	-	Lab/Field Attendant

Achievements

Research

- Formulated a site-specific fertilizer recommendation model for sugarcane-growing soils under four soil categories based on soil Phosphorous and Potassium concentrations.
- Formulated a classification key for sugarcane-growing soils at *Sevanagala* based on Potassium buffering capacity.
- Identified the pattern of adsorption to concentration relationship of soil Phosphorous in sugarcane-growing soils at *Sevanagala*.
- Identified the soil micronutrients status (i.e. Fe, Mn, Zn and Cu) of sugarcane-growing soils at *Sevanagala*.
- Production of suitable combinations of Organo-mineral fertilizer pellets and establishment of a research trial to evaluate their performance on sugarcane cultivation.
- Production of different types of Organo-mineral fertilizer pellets and laboratory quality evaluation.
- Maintained the first ratoon crop of research trials under rain-fed and irrigated conditions to identify the suitability of compound fertilisers for sugarcane cultivation.
- Identification of a positive effect of soil micronutrient, Zn on improvement in cane quality of variety SL 96 128.
- Introduction of a soil microbial inoculum for *Sevanagala* compost preparation
- Maintained the plant crop of the research trial at *Sevanagala* under rain-fed and irrigated conditions to identify the effect of Urea and Sulphate of Ammonia fertilizers for sugarcane cultivation.

Services

Cane sample analysis:

- Analysis of 3649 cane samples for brix, pol, fibre (2003 samples for Crop Improvement, 987 samples for Crop and Resource Management, 352 samples for Processing Technology, 210 samples for Crop Protection, 97 samples for Economics and Biometry) and reducing sugar (87 samples for Crop Protection).

- Soil sample analysis (103) for N, P, K, pH, EC and OM (94 samples for Crop and Resource Management, 09 samples for NLDB)
- Soil sample analysis as outside services: 18 Soil samples were analysed for Lanka Sugar Company, *Sevanagala*
- Compost sample analysis for SLSI parameters (12 samples).
- Providing analytical services for soil and plant samples analysis of Crop and Resource Management and Processing Technology divisions.

Training Trainees

- Two students from the Technical College, Embilipitiya were trained for 6 months at the division.



CROP PROTECTION DIVISION

CROP PROTECTION DIVISION

Staff

Ms VKASM Wanasinghe BSc (Sp), MSc	-	Research Officer (On study leave from Nov. 1 st , 2020)
Ms ANWS Thushari BSc (Sp)	-	Research Officer -In-Charge (On study leave from Feb. 1 st , 2021)
Dr KMG Chanchala BSc (Agric.), MSc, PhD	-	Research Officer -In-Charge (from February 1 st , 2021)
Mr YAPK Dayasena BSc (Agric.), MSc	-	Research Officer
Mr ALC Kodagoda (Dip in Agric)	-	Technical Officer
Ms KP Harshani (Dip in Agric)	-	Technical Officer
Ms RKP Jeevanthi (Dip in Food Technology)	-	Technical Officer
Mr MR Premalal	-	Lab/Field Attendant
Mr JKU Madushanka	-	Lab/Field Attendant
Mr RGSL Premathilake	-	Lab/Field Attendant

Achievements

Research

- Efficacy of Chlorantraniliprole 0.4%G (w/w) was studied and with the results of plant crop stage it was identified that, Chlorantraniliprole 0.4% (w/w) as an effective chemical for controlling sugarcane moth borers.
- Incorporating two management strategies to integrated vector management (IVM)
 - Intercropping mustard with sugarcane can minimise the secondary transmission of the WLD with no significant differences among mustard integrated and control plots for brix, weight and water shoots, SB and INB populations, soil microbial populations and parasitoid populations
 - Secondary transmission of the WLD can manage by increasing spacing between two planting rows. Minimum vector populations recorded with 1.5 m and 2 m spacing compared to 1.37 m, with no significant differences among 3 spacing for yield, brix and water shoots, SB and INB populations
- Successful laboratory rearing protocols were developed for two predators
 - *Euborellia* spp (Earwig)
 - *Micarspis discolor* (Lady bird beetle)
- Most effective seed-cane treatment for controlling the primary transmission of major sugarcane diseases was identified. Treatment combinations with 36 and 48 hours cold soak treatment followed by 54 C for 50 min hot water treatment significantly reduce the disease incidence of leaf scald disease, white leaf disease and recorded good germination, yield parameters
- Screening of 102 varieties in SL 2013 series have been completed and identified 29 highly resistant, 18 resistant genotypes for smut disease and 60 highly resistant, 20 resistant genotypes for leaf scald disease.
- Finding of biochemical indices namely total phenolic contents in leaves and morphological namely hardness of the bud, Foliage Inclination Angle (FIA) and the number of scale leaves as candidate indirect markers for smut disease resistance in sugarcane. Use of these characters for identification of smut resistance in the varietal selection programs has a significant potential value for early identification of smut resistance in sugarcane.

Services

- Twenty-two varieties were released for the Sugarcane Germplasm imported from Vietnam

- Nine seed-cane varieties and twenty-two fuzz varieties were released to the Sugarcane Germplasm imported from PR China
- Twenty-nine varieties imported from PR China in 2020 are being quarantined and regular inspections are continuing
- Continuation of study on pathogenicity of unknown sugarcane disease reported in Hingurana area.
- Recommendation were provided to manage pest and diseases at the requirements
 - Pelwatta : Pokkah-boeng disease and termite
 - Hingurana : Unknown disease
 - Ethimale : Pokkah-boeng
 - Sevanagala: Shoot borer, mite and leaf scald disease

Training Trainees

- Training Ms WMPPL De Silva, a student of the National Apprentice and Industrial Training Authority, Rathnapura, for six months from 11th January 2021 on entomological and pathological researches.
- Training Ms VLPT Hemapala, a student of the Faculty of Agriculture, Rajarata University, Anuradhapura, for one month for 27th September 2021 on entomological and pathological researches.
- Training Ms LAPP Weerathna, a student of the Advance technological Institute, Naiwala, for six months for 11th October 2021 on entomological and pathological researches.



MECHANISATION TECHNOLOGY DIVISION

MECHANISATION TECHNOLOGY DIVISION

Staff

Mr KHD Abeyratne BSc (Agric.)	-	Research Officer-In-Charge
Dr KT Ariyawansa BSc (Agric.), MSc, PhD	-	Research Officer
Mr AS A Fernando NDT	-	Senior Technical Officer
Mr WM Anurapala	-	Technical Officer
Mr V Abeygunawardane	-	Welder
Mr G Ariyaratne	-	Fitter
Mr WA Premachandra	-	Blacksmith
Mr DML Weerasiri	-	Mechanic
Mr DM Weerasiri	-	Lab/Field Attendant

Achievements

- Established a platform for drone image analysis using open source software and conducted a preliminary investigation at SRI farm with RGB and Multispectral images.
- Developed a basic level computer program to collect data from a sensor or human control app and store that data in clouds then that data could be queried when necessary.
- Developed database of the sugarcane farming related machinery manufacturers and updated with Asia pacific region.
- Designing and fabrication of two-wheel tractor mounted fertilizer applicator.
- Development of a fertilizer metering mechanism to apply organic fertilizer pellets made by SRI.
- Fabricated equipment need for the production of bio char on a laboratory scale.
- Attended to upgrade the electric system, water circulating system and heating unit of existing hot-water treatment plant (HWP) at Lanka Sugar Company Limited (LSCL), Pelwatte.
- Attending to install of new automated HWP at Ethimale Plantation (Pvt) Ltd as a collaborative project.

Services

- Maintaining optimum voltage of electric fences located at SRI farm and at Kantale sugarcane nursery.
- Provision of machinery services required for research.
- Maintenance and repairing of vehicles and farm equipment of SRI.
- Upgrading and maintenance of the SRI website.



PROCESSING TECHNOLOGY DIVISION

PROCESSING TECHNOLOGY DIVISION

Staff

Ms SMTA Maralanda BSc (Agric), MSc	-	Research Officer-In-Charge
Ms MGGN Sewwandi BSc (Eng)	-	Research Officer
Ms MARI Perera Dip. (Agric)	-	Technical Officer
Mr WKDS Karunarathna Dip. (Agric)	-	Technical Officer

Achievements

Research

- Maintaining and harvesting a field trial at Uda Walawe with the variety SL 96 128 to evaluate the potential of using sugar factory and distillery wastes for the production of a carrier medium for phosphate-solubilizing microorganisms.
- Identified SL 07 5931, SL 07 3570 and SL 07 3530 varieties from SL 2007 series for quality jaggery production.
- Conducting preliminary studies to develop sugarcane jaggery incorporated chocolate and muffin.
- Conducting large mill test at Ethimale Plantation (Pvt) Ltd, sugar factory for analysing the variety performances of SL 96 128 variety at the factory level.
- Designing of semi-automated agitation system with 3 degrees of rotation and VFD speed controlling mechanism for Jaggery production unit at Sugarcane Research Institute, Uda Walawe.
- Designing of new Jaggery pan to increase production capacity and be suitable with proposed agitation system for Jaggery production unit at Sugarcane Research Institute, Uda Walawe.
- Analysed post-harvest deterioration of SL 96 128 and SL 98 2524 varieties based on months of February and July.

Services

- Conducting a training programme on sugarcane processing and by-products for students of Ruhuna, Sri Jayewardenepura and Wayamba Universities, and National Institute of Plantation Management.
- Conducting a training programme on jaggery manufacturing process for jaggery producers and investors
- Conducting microbial analysis of the bio fertiliser produced by the Crop Nutrition Division
- Producing 1948 kg of jaggery from the cane harvested at field trials.
- Producing different shape of jaggery, different flavoured jaggery, sugarcane juice beverage and sugarcane syrup for exhibition purpose



ECONOMICS BIOMETRY AND INFORMATION TECHNOLOGY DIVISION

ECONOMICS BIOMETRY AND INFORMATION TECHNOLOGY DIVISION

Staff

Mr KAD Kodituwakku BSc (Agric.), MAGR	-	Senior Research Officer and Head
Ms BDSK Ariyawansa BSc (Agric.), MPhil	-	Senior Research Officer
Mr KGSUR Bandara BSc, HNDIT, CCNA	-	Technical Officer

Achievements

Research

- Updating the costs and returns of sugarcane cultivation based on the prices of the year 2021. The average cost per hectare of cane cultivated was Rs. 411,903, Rs. 313,519, Rs. 227,809, Rs. 290,600 and Rs. 227,086 for Sevanagala irrigated and rain-fed sectors, Pelwatte, Hingurana and Ethimale respectively. The average net income from one hectare of sugarcane per year at Sevanagala was Rs 245,034 and 149,356 under irrigation and rain-fed respectively. At Pelwatte under rain-fed and Hingurana under irrigation, the net income were Rs 121,503/ha/year and 135,449/ha/year respectively and that at Ethimale under rain-fed was Rs. 108,914/ha/year.
- Estimating the commercial value of a tonne of sugarcane at Sevanagala, Pelwatte and Gal-Oya sugar industries during the year 2020 as Rs. 21,156, Rs. 19,184 and 23,330 respectively. Accordingly, the commercial value of sugarcane produced from one hectare of land in the irrigated sector Sevanagala, rain-fed sector Pelwatte and Gal-Oya 2020 were Rs. million 2.3, 1.05 million and 1.6 million respectively, and it was much higher than the income of competitive crops.
- Estimating the quantity and the value of sugar imports during year 2021 was 552,000 tonne and Rs. 51.4 billion respectively.
- Analyse the factors affecting quantity of sugar imports and retail price of sugar in Sri Lanka and found that the real sugar import tax and local sugar production quantity significantly affect the quantity of sugar importation and global market sugar price, exchange rate and real import tax significantly influence the local market real sugar price.
- Estimating the cost of installation of delta trap for insect collection using Indian and Netherland pheromones at Uda Walawe research farm as Rs. 117360/ha and Rs. 44400/ha for using Netherland and Indian pheromones respectively.

Services

- Re-designing the web site of SRI hosted under URL of www.sugarres.lk and updating it as and when required.
- Collect articles and send to referees for corrections to publish the fourth issue of the “Sugarcane Sri Lanka” journal.
- Providing the following biometry related services to other divisions of SRI:
 - i. Analysis of RYT and PYT data of the crop improvement program and
 - ii. Selection of varieties for RYT SL 2007 series established at Pelwatte.
 - iii. Data tabulation of Stage iii, RYT and PYT data of the crop improvement program, maturity testing data of CRM and data received from CP, CN, PT and TT divisions.
 - iv. Streamlined the varieties of 2009 series for further testing for jaggery production.
 - v. Data analysis of Compound fertilizer trial.

- vi. Evaluation of the large mill performance of variety SL 96 128 cultivated in Siyambalanduwa area.
- Designed the following research trials conducted by other divisions.
 - i. Designed the Organo-mineral fertilizer field trial conducted by CN Division and involved in laying out of the experiment in the field
 - ii. Designed the rain-fed and irrigated organic fertilizer trials conducted by CN Division and involved in land selection and laying out of the experiment in the field
 - iii. Designed the surveys to evaluate the foreign varieties at different sugar industry sites
 - iv. Designed the second trial of the post-harvest deterioration study – PT
 - v. Designed a student project on Chopper harvester evaluation – MT
- Provide necessary guidance and support for conducting, data analysis and report writing of following projects
 - i. Evaluation of recovery and sensory qualities of SL 2007 series varieties for the jaggery production.
 - ii. Factors affecting the quantity of sugar importation and price in the local market in Sri Lanka
 - iii. Selecting best pre-soaking period and temperature time combinations for hot water treatment of seed cane for LSD.
 - iv. Evaluation of the suitability of compound fertilisers for sugarcane cultivation in Sri Lanka
 - v. Selection of new set of standard varieties for smut screening trials
- Implementation of IT activities within the institute
- Preparing the INFORM database of SRI for the year 2019 for the Sri Lanka Council for Agricultural Research Policy.
- Training five students from National Apprentice and Industrial Training Authority (NAITA) on the use of computer software packages for a period of six months.



TECHNOLOGY TRANSFER AND DEVELOPMENT DIVISION

TECHNOLOGY TRANSFER AND DEVELOPMENT DIVISION

Staff

Dr MS Perera BSc (Agric.), MPhil, PhD	-	Principal Research Officer and Head (up to 31 st May 2021)
Mr DPW Pottawela BSc (Agric.), PG. Dip. (BA)	-	Technology Transfer Officer In-Charge (from 1 st June 2021)
Mr RAPA Ranatunga Dip. (Agric.)	-	Development Officer
Mr WGMS Weragoda BSc (Agric.), MSc	-	Development Officer
Mr MKPC Gunawardene BSc (Agric.), MSc	-	Development Officer
Mr AP Karunathilaka BSc (Agric.)	-	Development Officer
Mr ANMBR Prabath BSc (Agric.)	-	Development Officer
Mr BPGS Sandanayake Dip. (Agric.)	-	Senior Technical Officer
Mr G Somaweera	-	Management Assistant

Achievements

Technology Transfer / Development Activities

- Training a total of 195 farmers and 135 field officers on new sugarcane technologies by conducting 22 training programs/field demonstrations for farmers, and 2 training programs for field officers. A total of 56 visits were made to farmers' fields and 65 students of NIPM, Agriculture Schools, were also trained on sugarcane technologies and extension management.
- Establishing maintaining 87 field demonstration sites on SRI recommended varieties and intercropping with sugarcane in sugar mill areas.
- Three observational fields were established and being maintained on organic sugarcane farming at SRI research farm, Galoya, and Ethimale sugar companies in compliance with the revised research program of SRI on organic sugarcane farming. The observations are being obtained and awareness programs for agricultural staff of sugar companies and farmers have been planned to be conducted in 2022.
- Continuing SRI TTD eSMS service for transfer extension messages between researchers, extension officers and farmers in the sugarcane sector. Continuing the sharing of sugar industry information through the SRI FB page and updating SRI website. In addition, publishing two volumes of SRI Newsletter (*Puwath Hasuna* of SRI) and two annual reports for the years 2018 and 2019, and completing the report for 2020 were done.
- Initial steps have been made to establish "Uk Waga Gammana" in non-traditional sugarcane-growing areas in different parts of the country, i. e. Nagoda – Galle, Uva Paranagama – Badulla, Welioya – Mulathew, and Ruwanwella – Kegalle. These projects will be carryout under the purview of State Ministry. Based on the success of above programs, it is expected to expand the sugarcane cultivation in the areas where the cultivation and processing of sugarcane are possible.

In the training programs/demonstrations for farmers, field officers and students, and in the development programs, the prioritized technological aspects/subject areas and activities covered were;

Promotion of existing technologies on sugarcane farming systems, processing, and by-products utilisation

- Establishment and maintenance of approximately 4.5 ha of demonstration / multiplication plots of recommended sugarcane varieties at SRI's Research Farm. Harvest of these plots were provided to sugar companies and farmers for further multiplication
- Establishment of demonstration / multiplications plots of new varieties
 - 2 at Pelwatte - (SL 00 95, SL 00 603)
 - 1 at Ethimale (SL 00 354)
 - 2 at Siyambalanduwa (SL 00 95, SL 00 603)
 - 3 at Higurana (SL 00 603, SL 00 354, SL 92 1673)

Demonstration programs have been planned to conduct in next year

- Conducted 40 farmers / fields visits (10 – Pelwatte/Monaragala, 14 at Siyambalanduwa / Ethimale, 16 at Hingurana)
- Conducted farmers/field visits (16 Nos.) at Ethimale, Siyambalanduwa, Pelwatte, and Hingurana.
- Established 1ac multiplication /demonstration plot at Hingurana with the variety of SL 98 2524.
- Conducted two-day training program on four-wheel tractors operation and maintenance, and operation of farm implements for the mechanical staff and field officers of the Galoya Plantations (Pvt.) Ltd. 63 persons participated for the program



- Conducted two-day training program on four-wheel tractors operation and maintenance, and operation of farm implements for the mechanical staff and field officers of the Ethimale Plantations (Pvt.) Ltd. 72 persons participated for the program
- Required seeds (Mung bean, cowpea, groundnuts) were given to 66 selected farmers at Pelwatte, Ethimale, Siyambalanduwa, and Hingurana to establish demonstration/multiplication plots of intercropping with sugarcane. Using those intercropped sugarcane fields, 12 farmer demonstration programs were conducted (2- Pelwatte, 4 – Ethimale, 3- Hingurana, and 3- Sevanagala). Altogether, approximately, 195 farmers participated for these programs.

Promotion of new technologies on sugarcane farming systems, processing, and by-products utilisation

- Provided seedcane to Galoya Plantations (Pvt) Ltd. 4 tons of SL 00 603, 4 tons of SL 00 354 for further multiplication.
- The Ethimale Sugar Company was provided 20 tons of Seedcane (SL 00 95 – 5 t, SL 00 603 – 5 t, SL 00 652 – 5t, and SL 96 128 – 5t) to establish nurseries for further multiplication.
- Provided Ethimale Plantations Ltd, SL 00 354 (2 ton), SL 00 652 (1.5 ton), SL 00 603 (2 ton) to establish nurseries for further multiplication.
- Established an observational field to observe the effect of organic fertilizers in sugarcane cultivation at SRI research farm, and maintenance activities are being done. At the same time, two fields (1/2 ac, and 1.2 ac) with sun hemp were established at SRI research farm to obtain seeds for further production. About 200kg of sun hemp seed were produced. They are to be distributed among the farmers for further multiplication.
- Established an observational trial to observe the effect of organic fertilizers in sugarcane cultivation at nursery of Galoya Plantations (Ltd) and maintenance activities are being carried out by the company.
- Established an observational trial to observe the effect of organic fertilizers in sugarcane cultivation at nursery of Ethimale Plantations (Ltd) and maintenance activities are being carried out by the company.
- Conducted 2 officer and farmer evaluation programs on foreign varieties established by CI division at Lanka Sugar Company – Sevanagala. The collected information was handed over to EBIT division for analysis.

Development programs

I. Development of cottage-level sugar industry (Badulla district)

- Arrangements were done to establish Sugarcane Farmers' Society at Ketawala, Haliela in collaboration with Agrarian service Centre, Haliela.
- Completed the project proposal, and held a discussion with farmers at Ketawala, Haliela.

II. Sugarcane Nursery Development (Kantale)

- Maintained about 3 ha previously established multiplication nurseries (Continued)
- Established and maintaining of 1.8 ha of nursery of the variety SL 98 2524.
- Established 10.7 ha of nursery with new and old varieties – SL 71 30, SL 98 2524, Co 775, SL 00 95, SL 00 354, SL 00 603, SL 04 624, and SL 00 652).
- Established and maintaining 6.5 ha nurseries with SRI recommended sugarcane varieties.
- Renovated the water supplying canal (0.5 km).
- Altogether, approximately 22 ha of nurseries are being maintained.
- In additions, the above works, some adaptability trials established by CI division of SRI to find out the suitable varieties for the area are being maintained.

III. Sugarcane Nursery Development (Sevanagala, Pelwatte, Ethimale, and Hingurana)

- Provided seedcane to Galoya Plantations (Pvt.) Ltd. 4 tons of SL 00 603, 4 tons of SL 00 354 for multiplication purposes.
- The Ethimale Sugar Company was provided 20 tons of Seedcane (SL 00 95 – 5 t, SL 00 603 – 5 t, SL 00 652 – 5t, and SL 96 128 – 5t) for multiplication purposes.
- Provided seedcane of new sugarcane varieties to Ethimale Plantations Ltd. SL 00 354 (2 ton), SL 00 652 (1.5 ton), SL 00 603 (2 ton) to establish nurseries for further multiplication.

IV. Information and Promotion Centre (I&PC) – Colombo

- Recruited a Trainee Development Officer as Information Officer (IO). IO was allowed to undergo one-month familiarization period at SRI, Uda Walawe.

- Preliminary arrangements were made to register the Jaggery Production Unit of SRI in the Business Registration List at Divisional Secretariat – Embilipitiya.
- Preliminary works done to register an entrepreneur to distribute their products through I & PC – Colombo.
- I & PC was equipped with necessary infrastructure facilities.

Requested Programs by the Stakeholders, and other Programs

- Published SRI Newsletter Vol. 10-2 and Vol. 10-3
- Printed the annual reports of SRI for the years 2018, and 2019 and they were tabled in the Parliament of Sri Lanka.
- Completed the page making of SRI Annual Report 2020 and it has to be printed.
- On the request of Divisional Secretary, necessary instructions were given for initiation of a cottage-level sugar industry project which is proposed by Divisional Secretariat, Nagoda in Galle district. Further activities will be done in 2022.
- Technical instructions and required seedcane were provided to Ridiyagama, NLDB farm to establish a 2 ac sugarcane nursery.
- Conducted one-day training program on sugarcane cultivation and Jaggery/syrup production for 42 students of Agriculture School, Karapincha, Ratnapura at SRI, Uda Walawe.
- Conducted two-day training program on sugarcane cultivation and processing for 23 students who are following the National Diploma in Extension Management of NIPM at SRI, Uda Walawe.



- Updating SRI web site and Facebook page at will be continuing.
- Continued the e-SMS service of SRI to disseminate the sugarcane technologies and SRI information to staff of sugar companies.
- Continued the sharing of sugar industry information though the SRI Face Book page.

PUBLICATIONS AND AWARDS

Publications

- Perera, A.M.M.S., Attanayaka, D.P.S.T.G. and Wijesuriya, A. (2021). Genetic diversity within *Saccharum Officinarum* accessions collected in Sri Lanka. Wayamba University Research Congress - 2021, Wayamba University of Sri Lanka, Kuliyaipitiya.
- De Silva, A.L.C., Senarathna, H.A.K.N.N. and De Costa, W.A.J.M. (2021). Genotypic variation of the interactive effects of elevated temperature and CO₂ on leaf gas exchange and early growth of sugarcane. *Physiologia Plantarum*. 173(4), 2276-2290. <http://dx.doi.org/10.1111/ppl.13578>
- De Silva, A.L.C., De Costa, W.A.J.M. and Suriyagoda, L.D.B. (2021). Effects of elevated temperature and CO₂ on biomass and sucrose accumulation of selected sugarcane genotypes. pp. 14. In Proceeding of the 33rd annual congress of Postgraduate Institute of Agriculture, 17 November 2021. Postgraduate Institute of Agriculture University of Peradeniya. Sri Lanka.
- Wijayawardhana, L.M.J.R., Weerasinghe, K.D.N. and Navaratne, C.M. (2021). Tipping bucket device for measuring runoff in small catchments. *Hydrological Sciences Journal*, 1-9. <https://doi.org/10.1080/02626667.2021.1977307>
- Wijayawardhana, L.M.J.R., Weerasinghe, K.D.N. and Navaratne, C.M. (2021). Climate change projections and their consequences on agro-climate in sugarcane growing areas of Sevanagala, Sri Lanka. *Sri Lankan Journal of Agriculture and Ecosystems*, 3(1).
- Jayasekera, S.K., Madusanka, T.G.Y., Rupasinghe, C.P., Weerasinghe, H.A.S., Abayasekera, C.L., Seneweera S. and Ratnayake, R.R. (2021). Bagasse and vinasse, factory wastes from sugarcane industry as potential substrates for bioethanol production. *Journal of National Science Foundation, Sri Lanka* Vol. 49 (2): 169-182.
- Kulasekara, B.R., Weerasinghe H.A.S. and Ariyawansa, B.D.S.K. (2021). Production of organic fertilisers by using sugarcane industry by-products of Sri Lanka: A preliminary investigation. *Journal of Technology and Value Addition Uva wellassa University of Sri Lanka, Vol. 3(1)2021(76-89)*.
- Kulasekara, B.R. and Weerasinghe, H.A.S. (2021). A Preliminary Study: Effects of Sugarcane-byproduct, Vinasse on Chemical Properties of Soil and Initial Growth of Sugarcane Variety SL 83 06 and SL 96 128. *Eurosoil 2021 Geneva, virtual conference*.
- Weerasinghe, H.A.S., Gunarathne, G.P, Jayakody, A.N. and Dharmakeerthi, R.S. (2021). Micronutrient Status in Commercial Sugarcane-growing Alfisols at *Sevanagala*, Sri Lanka. Abstract in the proceedings of the Postgraduate Institute of Agriculture (PGIA) Annual Congress. 16th & 17th November 2021. PGIA, University of Peradeniya.
- Chanchala, K.M.G., Hemachandra, K.S., Nugaliyadde, L., Wanasinghe, V.K.A.S.M. and Witharama, W.R.G. (2021). Varietal Screen for Susceptible stage of *Saccharum* hybrids for *Deltocephalus menoni* (Hemiptera: Cicadellidae), vector of sugarcane White Leaf Disease. *Tropical Agricultural Research*, 33(1), pp.49-56. DOI:<http://doi.org/10.4038/tar.v33i1.8534>
- Chanchala, K.M.G., Wanasinghe, V. K.A.S.M., Kulasekara, B.R., Hemachandra, K.S., Nugaliyadde, L. and Witharama, W.R.G. (2021). Tri-trophic relationship among Sugarcane White Leaf Disease Phytoplasma (WLDP), *Deltocephalus menoni* (Homoptera: Cicadellidae) and sugarcane plant in secondary transmission of the disease. *Journal of Agricultural Sciences-Sri Lanka*, 16(03). <http://doi.org/10.4038/jas.v16i03.9470>

- Dayasena, Y.A.P.K., Panda, P., Thushari, A.N.W.S. and Rao G.P. (2021). Geographical Distribution and Identification of Phytoplasma Strain Associated with Sugarcane White Leaf Disease in Sri Lanka. *Sugar Tech* <https://doi.org/10.1007/s12355-021-00980-w>
- Thushari, A.N.W.S., Wijesuriya, A., Wijesuriya, B.W., Perera, A.M.M.S. and De Costa, D.M. (2021) Identification of Sugarcane Germplasm in Sri Lanka for Breeding of Varieties Resistant to Smut Disease (c.a. *Sporisoriumscitamineum*). *Sugar Tech* 23 (5): 1025–1036. <https://doi.org/10.1007/s12355-021-00986-4>
- Srimali, P.U.N.E. Manamgoda, D.S. Basnayake, B.M.V.S., Thushari A.N.W.S. and Salim, N. (2021) Molecular Characterization and Pathogenicity of Fusarium Species Associated with PokkahBoeng: An Emerging Disease of Sugarcane in Sri Lanka. *Sugar Tech* <https://doi.org/10.1007/s12355-021-01053-8>
- Thushari, A.N.W.S. and De Costa, D.M. (2021). Management of Sugarcane smut disease using Triazole Fungicides and Synthetic Elicitors. Proceedings of 33rd Annual congress of the Postgraduate Institute of Agriculture, University of Peradeniya. Pg: 20
- Thushari, A.N.W.S., Wijesuriya, A. Wijesuriya, B.W. and De Costa, D.M. (2021). Evaluation of Sugarcane Smut Resistance in *Saccharum officinarum* L. and Wild Sugarcane Accessions Available in Sri Lanka Proceedings of Peradeniya University International Research Sessions 2021, Sri Lanka, Vol. 23. 522 pp.
- Chanchala, K.M.G., Wanasinghe, V.K.A.S.M., Hemachandra, K.S., Nugaliyadde, L., and Witharama, W.R.G. (2021). Varietal Screen for Susceptible Stage of *Saccharum* Hybrids for *Deltocephalus menoni* (Hemiptera: Cicadellidae), Vector of Sugarcane White Leaf Disease Proceedings of 33rd Annual congress of the Postgraduate Institute of Agriculture, University of Peradeniya. 32 pp.
- Sewwandi, M.G.G.N., Ariyawansa, B.D.S.K, Kumara, B.S. and Maralanda, A. (2021). Optimizing pre liming ph for efficient juice clarification process in Sri Lankan sugar factories. International Journal of Engineering Applied Sciences and Technology, Vol. 6, Issue 1, ISSN No. 2455-2143, Pages 14-20.
- Abeyrathna, K.H.D., Ariyawansa, T., Alwis, P.L.A.G. and Hettiarachchi, N.K. (2021). Design, Development and testing of a direct driven two-wheel tractor operated two raw metering mechanism for sugarcane fertilizer applications. Rajarata University Journal, 6(1). <http://www.rjt.ac.lk/contents/?page=238>
- Abeyrathna, K.H.D., Alwis, P.L.A.G. and Hettiarachchi, N.K. (2021). Evaluation of the performance of power tiller mounted fertilizer applicator on variable application rate. Second National Symposium on Agro Technology and Rural Science (NSATRS), June 28, 2021, Institute for Agro Technology and Rural Science, University of Colombo, Weligatte, Hambantota, Sri Lanka. <https://nsatrs.iarsculture.com/Proceeding%20-%20NSATRS%202021.pdf>
- Ariyawansa, T., Kahandage, P.D. Piyathissa, S.D.S., Komoto, H., Ahamed, T. and Noguchi, R. (2020). “A Framework for Monitoring and Analysis Sri Lankan Sugarcane Cultivation and Supply System with Integrating A Time-Series Data Management System”, Conference on Japan Society of Agricultural Informatics, University of Tokyo, Tokyo, Japan.

Awards

- Mr ALC De Silva Senior Research Officer was awarded the place of second runner-up in the competition of writing the magazine article to the magazine of “*PGIA essence*” published by the Postgraduate Institute of Agriculture, University of Peradeniya.

ADMINISTRATION AND FINANCE DIVISION

ADMINISTRATION AND FINANCE DIVISION

Staff

Dr MS Perera BSc (Agric), MPhil, PhD	-	Director/Chief Executive Officer
Ms ANP Perera MBA, BBA, CIMA Ad Dip MA, MIPC, CBA	-	Deputy Director (Administration)

Administration Section

Mr PKN Priyadarshana BSc (Admin), CBA	-	Assistant Director (Administration)
Dr C Eritawala PhD (Moscow)	-	Administrative Officer
Mr KRN Nandasena	-	Development Officer
Ms JKH Jayasekara	-	Development Officer
Ms TMK Senadeera	-	Snr. Management Assistant (Clerical & Typing)
Ms MMIMK Manikkadawara	-	Management Assistant (Clerical & Typing)
Ms MAR Samarasekara	-	Management Assistant (Clerical & Typing)
Ms OU Subasinghe	-	Management Assistant (Clerical & Typing)
Mr WA Sameera Madhushanka	-	Management Assistant (Clerical & Typing)
Ms AK Rathnayake	-	Telephone Operator/Receptionist
Mr JPP Karunathilaka	-	Driver
Mr TPK Jayarathna	-	Driver
Mr HSA Susantha Kumara	-	Driver
Mr GWMPs Manawadu	-	Driver
Mr AM Wijayarathna Banda	-	Driver
Mr WMAK Priyashantha	-	Driver
Mr KD Manjula Abeysiri	-	Driver
Mr HMASK Herath	-	Driver

Maintenance Unit

Mr GSK Dahanayake BSc	-	Works Superintendent
Ms DHS Wijesinghe	-	Inspector of Works
Mr G Gamage	-	Electrician
Mr DWS Chinthana	-	Carpenter
Mr RP Kulathunga	-	Carpenter
Mr DH Dharmadasa	-	Water Pump Operator
Mr HP Chandrawansa	-	Water Pump Operator
Mr KH Weeraratne	-	Water Pump Operator

Accounts Section

Ms DMJN Dissanayake BCom, MBS	-	Accountant
Mr IB Kodagoda BCom	-	Accounting Officer
Mr WCJ Wanigarathna	-	Development Officer
Mr GMS Nandadeva	-	Senior Management Assistant (Accounts)
Ms AK Amarakoon	-	Senior Management Assistant (Accounts)
Ms TS Weerasinghe	-	Management Assistant (Accounts)

Procurement Unit

Mr AGUS De Silva Dip. Accountancy	-	Procurement Officer (from 01.02.2021)
Mr BBAR Beruwala	-	Development Officer
Mr T Ranjith Peiris	-	Management Assistant (Accounts)

Store

Mr RGS Niroshana	-	Store Keeper
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Internal Audit Unit

Mr IJ Paranagama	-	Internal Auditor (from 01.02.2021)
Mr DMP Nickson	-	Senior Management Assistant (Accounts)

Summary of the activities carried out during the year 2021

- Filling of vacancy; Internal Auditor, Procurement Officer
- Preparation of budget, annual accounts and progress reports.
- Carrying out day-to-day administration, personnel management, maintenance and welfare activities and staff training according to the requirements of the research and development activities of the Institute.

STAFF STRENGTHENING AND MOTIVATION**Staff turnover during the year 2021****Recruitments**

Dr MS Perera	-	Director/Chief Executive Officer	01.09.2021
Mr IJ Paranagama	-	Internal Auditor	01.02.2021
Mr AGUS De Silva	-	Procurement Officer	01.02.2021

Retirements

Mr GD Sumanadasa	-	General Worker	10.01.2021
Mr SL Peiris	-	Driver	08.01.2021
Ms M Padmawathie	-	General Worker	09.02.2021
Mr HAU S Premarathna	-	Driver	04.02.2021
Mr Sunil Sellahewa	-	Worker	19.03.2021
Mr W Nandisena	-	Worker	12.04.2021
Mr K Hemachandra	-	General Worker	21.04.2021
Ms TADMG Jayathilake	-	Senr. Management Assistant (Clerical & Typing)	08.09.2021
Mr K Hettiarachchi	-	General Worker	13.09.2021
Mr P Jayarathna	-	General Worker	15.10.2021
Mr W Wirisena	-	Worker	04.11.2021

Resignations

Mr AJMCM Siriwardena	-	Research Officer	01.05.2021
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Vacation of Post

M. KM Aruna Chaminda	-	Worker	20.04.2021
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Deaths

Mr S Ruwanpathirana	-	General Worker	01.02.2021
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Staff Training

Training Programs/Workshops/Seminars Attended (Local)

- i. Ms. ANP Perera (Deputy Director-Admin) participated an online workshop of Special training program on Procurement Procedure conducted by NIPM on 02.01.2021.
- ii. Mr. WAS Madhusnaka (Management Assistant) participated a training program of Office systems and efficiency development conducted by NIPM on 05.01.2021
- iii. Mr. HAS Weerasingher, Mr. BR Kulasekara, Mr. UWLM Kumarasiri Research Officers and Mr. AP Karunathilaka and Mr. MANBR Prabath Development Officers participated the workshop on Applied Soil Conservation Methods in Plantation Industry conducted by NIPM via zoom online on 27 January 2021.
- iv. Ms. MGGN Sewwandi (Research Officer) participated a short course on Applied Statistics and Research Methods conducted by Institute of Mathematics and Management held on 07.03.2021.
- v. Ms. DMJN Dissanayake (Accountant), Ms. BDSK Ariyawansa (Senior Research Officer) , Mr. IB Kodagoda (Accounting Officer), Mr. WCJ Wanigarathne (Development Officer) and Ms. HPY Samanthie(Development Officer) participated a training program of Provisions and Accounting Systems of the Establishments Code required for Public Officers (in connection with Financial Regulations) conducted by NIPM via zoom online on 24.11.2021
- vi. Mr. ALC De Silva (Act. Deputy Director-R & TT), Ms. AP Perera (Deputy Director (Admin.)), Ms. BDSK Ariyawansa (Senior Research Officer), Ms. DMN Dissanayake (Accountant) and Ms. HAS Weerasinghe (Research Officer) participated a training program via zoom online in Minimize weakness and delays caused by Technical Evaluation Committees and Procurement Committees conducted by NIPM via zoom on line on 02.11.2021, 09.11.2021 and 14.12.2021.
- vii. Mr ALC De Silva, Senior Research Officer, Crop and Resource management and Dr KT Ariyawansa Research Officer, Mechanization Technology participated to the online seminar on Agricultural Technology Innovation and Management for “the Belt and Road” Countries sponsored by the Ministry of Commerce and organized by the Foreign Economic Cooperation Centre of Ministry of Agriculture and Rural Affairs in Beijing, the People’s Republic of China from 10th to 23rd November 2021.
- viii. Mr. BR Kulasekera, Research Officer, Crop Nutrition received a scholarship for following online short course of advanced soil health with case study at Cornell University, USA.

Long-Term Training (Foreign)

- i. Mr. KT Ariyawansa (Research Officer in Mechanization Technology Division), completed his postgraduate studies leading to PhD. at the University of Tshukuba, Japan.

Long-Term Training (Local)

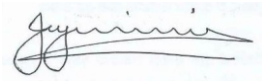
- i. Mr. AP Karunathilaka (Development Officer) continued MSc Degree programme in Development Communication and Extension at the Postgraduate Institute of Agriculture, University of Peradeniya.

- ii. Mr. LMJR Wijayardhana (Research Officer) continued his postgraduate studies at University of Ruhuna.
- iii. Ms. ANW Sumedha Thushari (Research Officer) continued her postgraduate studies on Molecular and Applied Microbiology at University of Peradeniya.
- iv. Ms.VKASM Wanasinghe, Research Officer continued her postgraduate training on Plant Protection at University of Peradeniya.
- v. Ms. Nirosha Dissanayake (Accountant) continued CIMA.
- vi. Mr. PKN Priyadarshana (Assistant Director-Admin) continued Master of Business Management Degree.
- vii. Mr. WAS Madhushanka (Management Assistant) started a Human Resource Diploma course conducted by Chartered Institute of Personnel Management from 25.07.2021

Audit and Management Committee Report

The audit activities of the year 2021 have been carried out according to the internal audit plan and 04 audit and management committee meetings have been held during this year, one per quarter. In those audit and management committee meetings, the deficiencies pointed out by the National Audit Office in the form of audit queries, as well as the audit queries by the internal audit department, the deficiencies pointed out in the reports and the necessary guidance to correct the relevant deficiencies and the expected goals of the institution. Moving towards, performing and giving guidance, forwarding the reports of the audit and management committee meetings to the governing body, where by further discussing the matters, obtaining the necessary advice for the formal maintenance of the administrative, accounting and other departments of the organization. By giving, it has been possible to carry out the work of the institution in a formal manner.

In addition to this, in accordance with the established internal control system of the institution, the financial regulations, the institution code and the circulars issued by the government from time to time, to maintain the activities of the institution and to provide the necessary information for the board of governors to make decisions and fulfill the tasks of the corporate audit and management committee during the relevant period.



Indika Paranagama

Internal auditor

31 December 2022

AUDITED FINANCIAL STATEMENTS

STATEMENT OF FINANCIAL POSITION

	Note	2021	2020(Restated)
ASSETS			
Non - current assets			
Property, Plant and Equipment (Schedule 01)	1	257,837,467.93	253,479,818.66
Investment	2	68,065,031.85	69,287,606.38
	-	325,902,499.78	322,767,425.04
Current assets			
Consumables stock	-	30,999,884.73	26,186,950.59
Fixed Assets stock	-	4,378,198.14	-
Livestock	-	-	-
Advance payment for opening Letters of Credit	-	-	-
Work in progress	-	-	-
Trade and other receivables	3	44,321,244.37	43,908,188.96
Prepayments & other deposits	4	863,975.00	909,505.00
Cash and cash equivalents	5	55,492,087.35	65,559,860.72
	-	136,055,389.59	136,564,505.27
Total assets	-	<u>461,957,889.37</u>	<u>459,331,930.31</u>
LIABILITIES			
Current liabilities			
Payable	6	21,800,032.72	1,884,218.00
Short term Loan	-	-	3,000,000.00
Accrued expenses	7	16,831,420.09	55,666,402.94
Suspense	-	-	-
Creditor control acc.	-	-	-
	-	38,631,452.81	60,550,620.94
Non - current liabilities			
Differed income	-	-	-
Provision for medical (Schedule 08)	-	14,415,972.79	12,900,096.89
Provision for audit fee	-	1,000,000.00	1,000,000.00
Provision for gratuity (Schedule 09)	8	80,137,895.00	81,579,772.50
Provision for Doubtful Debts	-	614,902.98	289,819.69
Provision for contingent liability	-	-	-
Advance Receipts	8.1	-	1,405,761.03
	-	96,168,770.77	97,175,450.11
Total liabilities	-	<u>134,800,223.58</u>	<u>157,726,071.05</u>
Total Net Assets	-	<u>327,157,665.79</u>	<u>301,605,859.26</u>
Share capital Account (Accumulated Fund)	-	166,428,273.69	204,212,819.90
Surplus / (Deficit) for the period	-	25,400,282.79	-37,936,069.95
Reserve -Retain Earnings	-	-	-
Revaluation reserve	-	135,329,109.31	135,329,109.31
Total Net Assets/Equity	-	<u>327,157,665.79</u>	<u>301,605,859.26</u>

The governing body of the entity is responsible for the preparation and presentation of its financial statements and which should also contain a statement of responsibility. The accounting policies on pages 2 to 6 and notes on the pages 15 to 17 from an integral part of these financial statements. The Board of Governors is responsible for preparation and presentation of these financial statements. These financial statements were approved by the Board of Governors and signed on their behalf:


Dr.M.S. Perera
Director/ CEO


Ms. D.M.J.N. Dissanayake
Accountant

On behalf of the Board of Governors of Sugarcane Research Institute:


Dr. Nimal Kumarasinghe
Chairman of the Board


Mr. R.C. Watawala
Member of the Board


Ms. H.A. Bogodagedara
Member of the Board

STATEMENT OF FINANCIAL PERFORMANCE

	Budget	Note	2021	2020(Restated)
Operating Revenue				
Cess on sugar imports				
Treasury Fund				
Capital	80,000,000	-	55,800,000.00	39,370,043.27
Recurrent	285,000,000	-	269,900,000.00	233,600,000.00
Treasury Grant for Ministry Project		-	-	-
Cess on local sugar production (Additional Note 1.2)		-	8,672,280.00	5,488,080.00
Other income		9	11,848,436.48	11,623,521.71
		-	<u>346,220,716.48</u>	<u>290,081,644.98</u>
Operating Expenses				
Personnel emoluments	203,000,000	10	199,768,677.59	196,877,133.74
Travelling & subsistence		-	1,293,932.17	1,757,219.00
	2,850,000			
Foreign visits		-	-	338,628.00
	500,000			
Supplies and consumables		11	5,843,812.10	3,933,831.91
	4,396,500			
Maintenance		12	15,647,986.66	21,293,540.29
	17,853,535			
Contractual services		13	40,120,112.76	37,548,153.01
	36,752,250			
Research & development		14	12,459,540.43	11,335,235.39
	14,238,215			
Depreciation and amortization expenses		-	42,822,340.57	52,302,851.76
Other operating expenses	5,409,500	15	2,492,838.12	2,588,111.83
Doubtful Debts		-	325,083.29	-
Total operating expenses		-	<u>320,774,323.69</u>	<u>327,974,704.93</u>
Surplus / (Deficit) from operating activities		-	25,446,392.79	-37,893,059.95
Finance cost		-	46,110.00	43,010.00
Total non-operating revenue (expenses)		-	<u>25,400,282.79</u>	<u>-37,936,069.95</u>
Net surplus / (Deficit) before extraordinary items		-	-	-
Net surplus / (Deficit) for the period		-	<u>25,400,282.79</u>	<u>-37,936,069.95</u>

The governing body of the entity is responsible for the preparation and presentation of its financial statements and which should also contain a statement of responsibility. The accounting policies on pages 2 to 6 and notes on the pages 18 to 20 from an integral part of these financial statements. The Board of Governors is responsible for preparation and presentation of these financial statements. These financial statements were approved by the Board of Governors and signed on their behalf:


Dr.M.S. Perera
Director/ CEO


Ms. D.M.J.N. Dissanayake
Accountant

On behalf of the Board of Governors of Sugarcane Research Institute:


Dr. Nimal Kumarasinghe
Chairman of the Board


Mr. R.C. Watawala
Member of the Board


Ms. H.A. Bogodagedara
Member of the Board

STATEMENT OF CHANGES IN EQUITY IN NET ASSETS FOR THE YEAR ENDED 31st DECEMBER 2021

Description	Accumulated Fund	Revaluation Reserve	Retained Earnings / (Translation Reserve)	Total (Rs.)
Balance as at 1st January 2021		135,329,109.31	166,276,749.95	301,605,859.26
Prior-Year adjustment (Additional Note 1.1)			151,523.74	151,523.74
Surplus/(Deficit) for the Period			25,400,282.79	25,400,282.79
Balance as at 31st December 2021		135,329,109.31	191,828,556.48	327,157,665.79

**STATEMENT OF CHANGES IN EQUITY IN NET ASSETS FOR THE YEAR ENDED 31st DECEMBER 2020
(RE-STATEd)**

Description	Accumulated Fund	Revaluation Reserve	Retained Earnings / (Translation Reserve)	Total (Rs.)
Balance as at 1st January 2020		135,329,109.31	191,707,281.57	327,036,390.88
Prior-Year adjustment (Additional Note 1.1)			12,505,538.33	12,505,538.33
Surplus/(Deficit) for the Period			(37,936,069.95)	(37,936,069.95)
Balance as at 31st December 2020		135,329,109.31	166,276,749.95	301,605,859.26

CASH FLOW STATEMENT

CASH FLOW FROM OPERATING ACTIVITIES	Rs.
Surplus/(Deficit)	25,400,282.79
Depreciation	42,822,340.57
Prior year adjustment	151,523.74
Increase in doubtful debts	325,083.29
Increase in payables	19,915,814.72
Decrease in borrowings	(3,000,000.00)
Decrease in accrued expenses	(38,834,982.85)
Increase in provisions of Medical	1,515,875.90
Decrease in provisions of Gratuity	(1,441,877.50)
Decrease in advance receipt	(1,405,761.03)
Gains/Losses in PPP	-
Gains/Losses on sale of Investment	-
Increase in other current assets	(9,191,132.28)
Increase in investment due to revaluation	-
Increase in receivables	(413,055.41)
Decrease in prepayments and other deposits	45,530.00
Net cash flows from operating activities	35,889,641.94
CASH FLOW FROM INVESTING ACTIVITIES	
Purchase of plant and equipment	(47,179,989.87)
Proceed from sale of plant and equipment	-
Proceeds from sale of investments	1,222,574.53
Purchase of foreign currency securities	-
Net cash flows from investing activities	(45,957,415.34)

CASH FLOW FROM FINANCEING ACTIVITIES

Proceeds from borrowings	-
Repayment from borrowings	-
Net cash flows from financing activities	-
Net increase/ decrease in cash and cash equivalents	(10,067,773.40)
Cash and cash equivalents at beginning of period	65,559,860.75
Cash and cash equivalents at the end of period	55,492,087.35

Additional Notes**1.1 Prior-year adjustment – 2021**

	Rs.
Writing - off of outstanding loan recovery balance	(102,038.81)
Removal of Medical Balance of retired employees-2021	339,433.59
Fixed Assets opening Balance adjustment journal-268	201,178.84
Fixed Assets opening Balance adjustment journal-269	(287,049.88)
Total	151,523.74

The retrospective restatement is impracticable for the above-mentioned adjustments due to difficulty in the determination of specific period of these adjustments.

1.2 Cess on local sugar production has been added to 2021 final accounts on **accrual basis**. The receivable amounts of the local Cess amount from the local sugar production as at 31.12.2021.

Description

	Total	Pelwatte	Sevanagala	Gal Oya
Balance as at 01.01.2021	7,378,715	5,361,405	-	2,017,310
Amount to be received on the production in 2021	7,064,010	3,041,310	1,779,805	2,242,895
	14,442,725	8,402,715	1,779,805	4,260,205
Cash received in 2021	7,378,715	*5,361,405	-	2,017,310
Balance as at 31.12.2021	7,064,010	3,041,310	1,779,805	2,242,895

* The due amount from the Lanka Sugar Company (Pvt) ltd- Pelwatte is Rs. 5,361,405 as at 01.01.2021. The SRI had been taken a short-term loan facility Rs.3, 000,000 from the Lanka Sugar Company (Pvt) ltd- Pelwatte in the year 2020 and Lanka Sugar Company (Pvt) ltd- Pelwatte has been settled that amount from the receivable balance of the local cess amount in the year 2021.

1.3 The receipt of the loan to Kantale sugar industries Ltd Rs: 1,000,000.00 is doubtful. It has been conveyed to the line ministry for further actions.

1.4 Fixed deposit stated at their cost value and Treasury bills are stating at their net realizable value. Investment has identified in the investment category in the statement of financial position.

1.4. Revaluation of assets

The revaluation of vehicles, land and buildings stated at the 01.01.2021 has been assessed by the Department of Valuation in the November 2021; the report has not been received to the Institute at the date of 31st December 2021. It has planned to conduct a revaluation of the other assets categories of the institute within the year 2022.

1.5 Income analysis from General Treasury

Rs.Mn

Source	Approved	Received	To be received
Recurrent	285.00	269.9	15.10
Capital	80.00	55.80	24.20
Total	365.00	299.18	50.82

Sugarcane Research Institute

Udawalawe

NOTES TO STATEMENT OF FINANCIAL POSITION

	Note	2021	2020
02 Investment			
2401 - Gratuity Investment A/C		62,910,331.85	64,344,611.85
2520 - Scholarship Fund A/C		500,000.00	500,000.00
2521 - Treasury Bill Deposit A/C		4,654,700.00	4,442,994.53
		-----	-----
Investment	-	68,065,031.85	69,287,606.38
		=====	=====
03 Trade and other receivables			
2540 - Staff Loan:Book Loan (Schedule 05)		1,750.00	6,750.00
2542 - Advance:Local Purchase Advance		4,171,492.39	398,750.00
2544 - Advance:Special Advance		656,433.33	242,383.33
2546 - Advance:Travelling Advance			2,000.00
2572 - Receivable:Amendment Charges		191,961.00	191,961.00
2573 - Receivable:Fixed Deposit Interest		1,184,943.32	1,809,727.10
2574-01 - Receivable:Staff Loan - Housing Loan			6,022.22
2575 - Receivable:Treasury Bill Interest Recei.		25,398.90	10,893.57
2576 - Sundry Debtors : Lanka Sugar company (pvt) -		6,013,854.65	3,124,402.50
2578 - Staff Loan:Distress Loan (Schedule 03)		20,133,034.46	21,585,611.54
2579 - Staff Loan:Festival Advance (Schedule 04)		10,000.00	7,500.00
2580 - Staff Loan:Housing Loan (Schedule 02)		4,572,264.31	5,446,719.77
2581 - Staff Loan:Motor Cycle Loan (Schedule 06)		1,075,907.01	2,218,897.93
2585 - Sundry Debtors:Galoya Plantation (Pvt) Ltd		2,242,895.00	2,017,310.00
2586 - Sundry Debtors:Kanthale Suagr Indusrty (Pvt)L		1,000,000.00	1,000,000.00
2587 - Sundry Debtors : Lanka Sugar company (pvt) -		3,041,310.00	5,361,405.00
2588 - Sundry Debtors:M.G.Sugars Lanka (Pvt) Ltd			477,855.00
		-----	-----
Trade and other receivables	-	44,321,244.37	43,908,188.96
		=====	=====
04 Premaiments and Other Deposits			
2558 - Deposit : A.G.Perera			45,530.00
2560 - Deposit:C.B.Ellepola		2,500.00	2,500.00
2561 - Deposit:Ceylon Oxygen Ltd		144,000.00	144,000.00
2562 - Deposit:Electricity Board		350,100.00	350,100.00
2563 - Deposit:Embilipitiya M.P.C.S.Ltd		155,000.00	155,000.00
2564 - Deposit:For Gas Cylinder		118,375.00	118,375.00
2565 - Deposit:Kanthale Multi-Purpose Co-Operation		90,000.00	90,000.00
2566 - Deposit:M.T.N.Net Work		2,500.00	2,500.00
2568 - Deposit:Softlogic Information		1,500.00	1,500.00
		-----	-----
Prepayments and Other Deposits	-	863,975.00	909,505.00
		=====	=====

05 Cash and cash equivalents

2643 - Bank of Ceylon A/C -Kantale		100,000.00
2644 - Bank of Ceylon A/C -Kilinochchi		100,000.00
2502 - People's Bank-Savings A/C- Battaramulla		646,739.87
2503 - Peoples Bank-Savings A/C-Udawalawe	14,431,271.49	9,195,845.50
2505 - Petty Cash Control A/C-Colombo	20,000.00	
2506 - Petty Cash Control A/C-Deniyaya		2,000.00
2511 - Bank Of Ceylon - Baththaramulla	1,410,797.45	646,068.27
2514 - Peoples Bank - Baththaramulla	1,605,511.66	1,915,142.85
2515 - Peoples Bank - Udawalawe	37,275,029.78	51,901,592.72
2516 - People's Bank-Loan A/C - Udawalawe	699,476.97	1,052,471.51
2517 - Petty Cash Control A/C-Procurement (Udawalawe	25,000.00	
2518 - Petty Cash Control A/C - Kantale	25,000.00	

Cash and cash equivalents

- **55,492,087.35** **65,559,860.72**

06 Payable

2651 - Bid Bond	111,900.00	175,000.00
2652 - Tender Deposit (refundable)		10,000.00
2653 - Contractual Bond	25,000.00	
2600-06 - Creditor: Sarathchandra Pharmacy & Groce		5,783.00
2600-15 - Creditor: Sarathchandra Home Centre	26,850.00	
2600-23 - Creditor:D.G.A.Motors & Hydraulic Center		1,200.00
2600-24 - Creditor:Microtech Biological (Pvt) Ltd		75,600.00
2600-25 - Creditor:Plantchem (Pvt) Ltd		85,937.50
2600-26 - Creditor:Sampath Motors		85,000.00
2600-27 - Creditor:Sakunagee advertising & Engineers		152,720.00
2600-28 - Creditor: Genius Associates(PVT)Ltd	107,350.00	
2600-29 - Creditor: GIS Solution(Private)Limited	493,200.00	
2600-30 - Creditor: Grae Lanka Agro	402,500.00	
2600-31 - Creditor: Indrajith Construction	1,825,364.92	
2600-32 - Creditor: John Piper International(PVT)Ltd	2,966,052.00	
2600-33 - Creditor: Metropolitan Technologies(PVT)L	1,692,400.00	
2600-34 - Creditor: Microchip Solution	19,762.20	
2600-35 - Creditor: Nandha atrac Motors(PVT)Ltd	344,050.00	
2600-36 - Creditor: Ningbo Marketing Company	444,960.00	
2600-37 - Creditor: Royal Ceramics Lanka PLC	758,410.44	
2600-38 - Creditor: S & D Associate	109,425.60	
2600-39 - Creditor: Scientific Instruments(PVT)Ltd	278,208.00	
2600-40 - Creditor: Scion Electronics	75,900.00	
2600-41 - Creditor: Singer Plus	1,188,995.50	
2600-42 - Creditor: Singer Sri Lanka PLC	13,999.00	
2600-43 - Creditor: SMS Holdings(PVT)Ltd	824,567.69	
2600-44 - Creditor: Steel Tec Industry	560,952.00	
2600-45 - Creditor: Techninovators(PVT)Ltd	145,800.00	
2600-46 - Creditor: Tudawe Trading Co.(PVT)Ltd	24,900.00	
2600-47 - Creditor: W.A.Construction	2,997,175.00	
2602 - Creditor:Analytical Instrument (Pvt) Ltd	951,048.00	

2605 - Creditor:Avon Pharmo Chem(Pvt)Ltd	86,175.00	
2606 - Creditor:Bhoomi Tech (Pvt) Ltd	285,768.00	
2609 - Creditor:D.R.Industries(Pvt) Ltd	573,303.75	
2614 - Creditor:Libra Agency	1,045,656.00	
2619 - Retention (Schedule 09)	1,336,570.59	1,292,977.50
2623 - Creditor:State Timber Ceylon	506,136.53	
2625 - Creditor:U.G.Stores	139,720.00	
2629 - Creditor:Wickrama Hardware Stores	1,437,932.50	
	-----	-----
Payable	- 21,800,032.72	1,884,218.00
	=====	=====
07 Accrued Expenses		
2632 - Accrued Account	16,831,445.09	29,456,421.21
2632-1 - General Treasury Fund (Accrued Account)		26,209,956.73
2638-1 - Stamp Duty A/C	-25.00	25.00
	-----	-----
Accrued Expenses	- 16,831,420.09	55,666,402.94
	=====	=====
08 Provision For Gratuity		
2634 - Provision for Gratuity (Schedule 09)	80,137,895.00	81,579,772.50
	-----	-----
Provision For Gratuity	- 80,137,895.00	81,579,772.50
	=====	=====
8.1 Advance Receipts		
2901 - PPP- Innovative Pesticide Marketing Fund		304,175.00
2902 - CIC Agri. Businesses (Project YARA) Fund		457,186.03
2903 - ZEBA Project Fund		644,400.00
	-----	-----
Advance Receipts	- -	1,405,761.03
	=====	=====

Sugarcane Research Institute
Udawalawe
NOTES TO STATEMENT OF FINANCIAL PERFORMANCE

	Note	2021	2020
09 Other income			
0100 - Other Sources	-	-	-
0101 - Fixed Deposit Interest Income	-	3,604,817.89	5,472,677.38
0102 - Treasury Bill Interest Income	-	226,412.31	170,210.48
0103 - Saving Account Interest Income	-	342,351.28	218,547.36
0104 - Staff Loans Interest Income	-	1,186,441.75	1,218,075.63
0105 - PHD Bond	-	-	250,000.00
0106 - Fine Income	-	25,466.87	6,106.15
0107 - Transport Income	-	91,677.15	138,132.50
0121 - Sale of Jaggery Income		224,490.00	327,680.00
0122 - Sale of seed cane & factory cane Income		2,415,653.50	2,644,633.50
0123 - Sale of Sugarcane Income			95,557.50
0108 - Sundry Income		2,289,248.23	882,637.57
0110 - Over Provision bad debtors			199,247.08
0111 - Differed income			16.56
0112 - Gratuity Over Provision Income		1,441,877.50	
Total Other income	-	11,848,436.48	11,623,521.71
10 Personnel emoluments			
1001 - Salaries ,Wages and Holiday Payments EPF/ET		127,777,002.39	128,420,584.47
1002 - Staff Overtime Expenses		12,649,648.49	11,453,346.09
1004 - Other Allowances (Personnel) Expenses		664,750.00	1,108,250.00
1006 - Contribution to Employees Provident fund & c		39,908,438.51	34,449,209.26
1501 - Welfare Programs Expenses		18,768,838.20	21,445,743.92
Total Personnel emoluments	-	199,768,677.59	196,877,133.74
11 Supplies and consumables			
1201 - Stationery and Office Requisites Expenses		1,452,523.76	1,025,011.35
1204 - Medical Supplies Expenses		22,949.86	22,315.39
1207 - Other Expenses (Supplies)		2,746,219.78	1,495,313.37
1703 - Printing, Translation & Media publicity,	-	1,622,118.70	1,391,191.80
Total Supplies and consumables	-	5,843,812.10	3,933,831.91
12 Maintenance			
1301 - Vehicles Maintenances Expenses		3,023,482.01	7,256,571.57
1302 - Plant, Machinery & Equipment (Maintenance)		5,013,062.08	3,430,264.21
1303 - Buildings and Structures Expenses		26,856.12	3,147,772.65
1202 - Fuel and Lubricants Expenses		6,565,972.92	6,662,813.95

1504 - License, Fitness and Insurance Expenses	-	1,018,613.53	796,117.91
		-----	-----
Total Maintenance	-	15,647,986.66	21,293,540.29
		=====	=====
13 Contractual services			
1402 - Postal & Communication Expenses		3,335,221.49	3,116,210.64
1403 - Electricity & Water Expenses		6,388,080.51	6,458,433.60
1404 - Rents and Local Taxes Expenses		414,806.00	697,612.03
1405 - Security Charges (Expenses)		21,671,483.48	12,585,273.06
1407 - Legal Fee and Charges (Expenses)		5,000.00	15,500.00
1410 - Other Expenses (Services)		169,142.86	25,000.00
1203 - Diets & Uniforms (Accommodation food and l		100,060.00	220,880.90
1502 - Retirement Benefits - Gratuity Expenses		6,826,090.00	13,265,044.50
1505 - Workman and Death Compensation Expenses		969,075.92	851,677.12
1509 - Other Expenses (Transfers)	-	241,152.50	312,521.16
		-----	-----
Total Contractual services	-	40,120,112.76	37,548,153.01
		=====	=====
14 Research & development			
1205 - Research Materials Expenses		10,771,520.68	9,315,323.29
1702 - Irrigation and Land preparation Expenses		299,495.00	180,655.00
1704 - Harvesting Expenses		683,977.70	870,127.00
1706 - Other Expenses (Miscellaneous Expenses)		301,776.40	439,088.38
1503 - Sugar Sector Development Activities Expenses		402,770.65	530,041.72
1507 - Symposium Expenses	-	-	-
		-----	-----
Total Research & development	-	12,459,540.43	11,335,235.39
		=====	=====
15 Other operating expenses			
1401 - Transport Expenses		84,600.00	48,965.80
1701 - Scholarships Expenses		267,750.00	304,000.00
1406 - Accounts, Audit and board of survey Expenses		1,328,638.00	1,396,680.00
1408 - Board of Governor's Expenses		444,493.87	478,309.50
1506 - Staff Training and Development & Resource pe	-	366,856.25	359,956.53
1510 - Stamp Duty Expenses		500.00	200.00
		-----	-----
Total Other operating expenses	-	2,492,838.12	2,588,111.83
		=====	=====

Schedule 01- Property, Plant and Equipment

Description	Cost (Rs.)		Depreciation (Rs.)		Depreciation for the year	Balance as at 31.12.2021	N.D.V * (Rs.) 31.12.2021
	Balance as at 01.01.2021	Addition / Removal	Balance As at 31.12.2021	Balance as at 01.01.2021			
Office equipment	19,142,065.81	6,560,283.30	25,702,349.11	10,339,987.18	3,149,511.45	13,489,498.63	12,212,850.48
Furniture fittings	14,448,294.68	7,397,099.01	21,845,393.69	11,463,133.08	2,979,420.33	14,442,553.41	7,402,840.28
Computer equipment	12,417,995.80	3,463,070.00	15,881,065.80	8,811,767.82	1,609,764.85	10,421,532.67	5,459,533.13
Laboratory equipment	119,899,082.73	(3,996,797.40)	115,902,285.33	68,053,949.27	16,103,665.46	84,157,614.73	31,744,670.60
Agricultural equipment	27,144,112.95	607,500.00	27,751,612.95	16,838,076.40	4,001,379.88	20,839,456.28	6,912,156.67
Field equipment	21,377,015.46	(1,719,118.00)	19,657,897.46	9,884,041.57	1,682,814.55	11,566,856.12	8,091,041.34
Workshop equipment	16,217,186.09	1,013,744.93	17,230,931.02	10,246,219.16	2,449,106.96	12,695,326.12	4,535,604.90
Other equipment	8,573,281.70	(1,551,852.00)	7,021,429.70	5,501,367.98	1,053,214.46	6,554,582.44	466,847.26
Bicycle	96,700.00	-	96,700.00	79,245.00	14,505.00	93,750.00	2,950.00
Motor vehicles	118,873,548.00	2,500,000.00	121,373,548.00	118,467,345.53	472,928.77	118,940,274.30	2,433,273.70
Computer software	2,377,763.92	-	2,377,763.92	751,549.98	237,776.39	989,326.37	1,388,437.55
Lands - Hantana	65,000.00	-	65,000.00	-	-	-	65,000.00
Buildings	99,480,583.20	15,538,811.78	115,019,394.98	11,574,292.89	4,974,029.15	16,548,322.04	98,471,072.94
Library books	128,620.66	-	128,620.66	73,956.88	12,862.07	86,818.95	41,801.71
Infrastructure development	81,627,225.18	13,772,480.65	95,399,705.83	12,708,957.21	4,081,361.25	16,790,318.46	78,609,387.37
TOTAL	541,868,476.18	43,585,222.27	585,453,698.45	284,793,889.95	42,822,340.57	327,616,230.52	257,837,467.93

AUDITOR GENERAL'S REPORT

Chairman,

Sugarcane Research Institute.

Auditor General's report in terms of Section 12 of the National Audit Act No. 19 of 2018 on the financial statements and other regulatory requirements of the Sugarcane Research Institute for the year ending 31 December 2021

1. Financial Statement

1.1 Audited opinion

Sugarcane Research Institute's statement of financial position as at 31 December 2021 and statement of financial performance for the year ended from that date, statement of change in net assets and cash flow statement for the year ended from that date and notes to the financial statements, consisting of a summary of significant accounting policies. The financial statements for the year ended 31 December 2021 were audited under my direction in accordance with the provisions of the National Audit Act No. 19 of 2018 and the Finance Act No. 38 of 1971 read in conjunction with Article 154(1) of the Constitution of the Democratic Socialist Republic of Sri Lanka. In accordance with Article 154(6) of the Constitution, my report will be tabled in Parliament in due course.

I am of the opinion that it reflects a true and fair situation in accordance with Sri Lanka Public Sector Accounting Standards, the entity's financial position as at 31 December 2021 and its financial performance and cash flows for the year then ended, excluding the effect of the matters described in the Basis for the qualified opinion section of my report.

1.2 Basis for Qualified Opinion

- (a) About 57 vehicles owned by the company which had been fully depreciated from the year 2019 but were already in use at a cost of Rs 118,873,548 and disclosure in the financial statements was not made in accordance with paragraph 7(92) (b) of Sri Lanka Public Sector Accounting Standards. Also, the assessment of the useful life of these assets had not been reviewed and adjusted in the financial statements in accordance with Sri Lanka Public Sector Accounting Standard No. 03.
- (b) Although the stock of consumer goods as on 31st December 2021 had been physically verified, the book balance of Rs 30,999,885 was included in the financial statements without adjusting the physical stock values in the financial statements. Also, out of the stocks released from the main warehouse, as of December 31, 2021, 240 types of chemicals and consumer goods worth Rs 1,619,565 were held in 05 research divisions, and 127 types of unrecognized vehicle repair spare parts stocks in the Mechanization Technology Division remained at the end of the reviewed year. Inventory balances have not been reconciled in the financial statements.
- (c) According to the published reports (press release) of sugarcane research, Atemale Sugar Private Company produced 10,917,000 kg of sugar during the year, but according to section 18 of the Sugarcane Research Institute Act No. 75 of 1981, Cess tax of Rs 1,091,700 to be charged at the rate of 0.10 was not recognized and accounted for as income and cess tax of Rs 1,611,660 paid in the year 2021 by the Sevanagala division of Ceylon Sugar Private Company in relation to the year 2020 was shown in the financial statements as income of the year under review. Due to this, the cess tax income stated in the financial statements of the reviewed year was Rs 519,960 higher and the cess tax income receivable was Rs 1,091,700 low in the financial statements.
- (d) Although the amount due to the company from Sevanagala Division of Ceylon Sugar Company was included in the financial statements as Rs. 6,013,855, the balance proved to be due from the said company was only Rs. 4,005,209. The reason for this difference was that the receivables for the given seed sugarcane had not been properly accounted for, but the balances had not been corrected and reconciled in the financial statements.
- (e) As on December 31, 2021, Rs 3,041,310 as cess due from the Palwatta Division was shown in the financial statements, but the amount confirmed as payable by that division was only Rs 1,194,310. The difference of Rs 1,847,000 was set off against the cess tax that was reported as the money incurred for the repair work of a vehicle belonging to the company which was given for the use of Ceylon Sugar Company between 2013-2015. Thus, the cess tax due above had led to controversy, but no necessary adjustments or necessary disclosures had been made in the financial statements.

I conducted my audit in accordance with Sri Lanka Auditing Standards (SLA). My responsibilities under these auditing standards are further described in the Auditor's Responsibilities for the Audit of Financial Statements section of this report. I believe that the

audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

1.3 Other information included in the 2021 Annual Report of the Sugarcane Research Institute

Other information means the information included in the 2021 Annual Report of the Sugarcane Research Institute obtained by me prior to the date of this audit report but not included in the financial statements and my audit report thereon. Management is responsible for this other information.

My opinion on the financial statements does not cover other information and I do not express any kind of assurance or opinion thereon.

In connection with my audit of the financial statements, my responsibility is to read the other information identified above when available and, in doing so, consider whether the other information is materially inconsistent with the financial statements or with my knowledge obtained during the audit or otherwise.

Based on other information obtained by me and work performed by me prior to the date of this audit report, If I conclude that this other information is materially misstated, I am required to report that fact. I have nothing to report in this regard.

1.4 Management's and Controlling Parties' Responsibility for Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Sri Lanka Public Sector Accounting Standards and for determining the internal controls necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, it is the responsibility of management to determine the going concern of the Sugarcane Research Institute and to account on the going concern basis unless management intends to liquidate the Sugarcane Research Institute or, in the absence of any other alternative, to cease operations. Disclosure is also the responsibility of management.

Controlling parties are responsible for the entity's financial reporting process.

In terms of sub-section 16(1) of the National Audit Act No. 19 of 2018, the Sugarcane Research Institute shall maintain proper books and records of its income, expenditure, assets and liabilities in order to prepare annual and periodic financial statements.

1.5 Auditor's responsibility in relation to the audit of financial statements

My objective is to provide reasonable assurance that the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue the audit report that includes my opinion. Reasonable assurance is a high level of assurance, but when conducting an audit in accordance with Sri

Lanka Auditing Standards. It may not always be assurance that material misstatements will be detected. The effect of fraud and error, individually or collectively, can result in material misstatements, the materiality of which depends on the effect on the economic decisions made by users on the basis of these financial statements.

I exercised professional judgment and professional skepticism in the audit as part of the audit in accordance with Sri Lanka Auditing Standards. I further,

- In providing a basis for the audit opinion expressed, appropriate audit procedures were designed and performed on a timely basis to identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error. The effect of fraud is stronger than the effect of material misstatements due to misrepresentation because they are caused by negligence, falsification, fabrication, intentional omission, misrepresentation or circumvention of internal controls.
- Obtained an understanding of internal control in order to design appropriate audit procedures as appropriate, although not with a view to expressing an opinion on the effectiveness of internal control.
- Evaluated the appropriateness of accounting policies used and reasonableness of accounting estimates and related disclosures made by management.
- The applicability of using the going concern basis for accounting was determined based on the audit evidence obtained regarding whether there is a quantitative uncertainty about the continuity of the Sugarcane Research Institute due to events or circumstances. If I conclude that there is sufficient uncertainty, my audit report should focus on the related disclosures in the financial statements, and if those disclosures are inadequate, I should modify my opinion. However, the continuance may terminate upon future events or circumstances.
- Evaluated the overall presentation of the financial statements, including the appropriate and fair inclusion and disclosure of the underlying transactions and events for the structure and content of the financial statements.

I inform controlled parties about significant audit findings, key internal control weaknesses and other matters identified during my audit.

2. Report on other legal and regulatory requirements

2.1 The National Audit Act No. 19 of 2018 includes special provisions regarding the following requirements.

2.1.1 In accordance with the requirements of Section 12 (a) of the National Audit Act No. 19 of 2018, I have obtained all the information and explanations necessary for the audit except the effect of the matters described in the Basis for Qualified Opinion section of this report,

and as appears from my examination. The firm had maintained proper financial records.

- 2.1.2 According to the requirement mentioned in Section 6(1) (c) (iii) of the National Audit Act No. 19 of 2018, the financial statements of the institution are consistent with the previous year.
- 2.1.3 Pursuant to the requirement mentioned in Section 6(1) (d) (iv) of the National Audit Act No. 19 of 2018, 1.2 (a), (b) and (c) of this report except for the observations made in the previous year's recommendations are included in the presented financial statements.
- 2.2 On the basis of the proceedings followed and the evidence obtained and confined to the material facts, nothing has come to my notice to the extent of making the following statements.
 - 2.2.1 According to the requirement mentioned in Section 12(d) of the National Audit Act No. 19 of 2018, any member of the governing body of the institution has a relationship, directly or otherwise, out of the ordinary course of business in relation to any contract with which the institution is involved.
 - 2.2.2 That the National Audit Act No. 19 of 2018 has not acted in accordance with any relevant written law or other general or special directives issued by the governing body of the institution in accordance with the requirement mentioned in section 12 (e)
 - 2.2.3 According to the requirement mentioned in Section 12 (g) of the National Audit Act No. 19 of 2018, except for the following observations, the powers, duties and functions of the institution have not been acted upon

According to Section 1(1) of the Sugarcane Research Institute Act No. 75 of 1981, the purpose of establishing the Sugarcane Research Institute was to conduct research on the growing and cultivation of sugarcane. Although progress has been reported that 04 new improved varieties were released for commercial cultivation during the year under review for the development of high quality sugarcane varieties. It was not mentioned about the identified and improved new sugarcane varieties and it was observed that the large mill test (Large - mill test) for the release of new varieties was not done at the end of the year.

- 2.2.4 According to the requirement mentioned in Section 12 (h) of the National Audit Act No. 19 of 2018, apart from the following observations, the resources of the institution have not been procured and used in accordance with the relevant rules in a timely manner, efficiently and effectively.

- (a) In 2011, 400 acres of land and 13 buildings from the land owned by Kantale Sugar Factory were given to the Sugarcane Research Institute for the purpose of providing necessary seed sugar, selection of sugarcane varieties suitable for the area, and providing facilities for research activities. Although the company had engaged a staff of 27 and had spent 120 million rupees in recurrent and capital over a period of 10 years till 2021, the cost had been wasted as the Kantale sugar factory had not been started.
- (b) In December 2021, the Technical Evaluation Committee recommended and approved the procurement committee to purchase a multi-washer with 17 horse power engine capacity with one year warranty period for shredding raw materials in compost production, but later changed that decision to an 8 horse power engine capacity without warranty period for the engine. A machine was purchased for Rs 575,000. The fact that the purchased machine was not certified to be in proper condition, and the machine was reported to be faulty and was idle without being used, did not prove that it was a modern machine in proper condition. It is observed in the audit that this is a transaction that penalizes the controversy.

2.3 Other Matters

- (a) The institution had failed to recover the outstanding loan amount of Rs.1,000,000 given to Kantale Sugar Company for more than 5 years.
- (b) Although the Director General of the National Budget Department informed in 2017 that the National Insurance Trust Fund should take the necessary measures to replace the medical aid insurance scheme run by the institute using treasury funds, but the director of the institute did not pay attention to it. The scheme was maintained on the approval of the Board and the benefit awarded in the year under review was Rs 18,768,838 and the amount payable at the end of the year was Rs 14,415,972. The return offered during the year was observed to be 7 percent as a percentage of Treasury Recurring Provision.
- (c) In the year under review, the actual income was Rs 20,520,716, without making estimates for cess and other incomes, and only estimated the treasury provision without making estimates, an income variation of Rs 18,779,284 or 16.39 percent was observed and the difference between the estimated expenses and the actual expenses of 06 expenditure heads was 12.35 percent. A variation in the range of 100 percent was observed. For this reason, it was observed that the budget document has not been used as an effective management control tool.

(d) Deputy Director (Research and Technology Transfer) post which is the main post contributing to the research work of the only institute established for the development of advanced commercial sugarcane varieties in local sugarcane cultivation and conducting research for the same despite the emphasis on sugarcane research from the year 2020. Officer position and 02 Chief Research Officer positions have been vacant since the creation of the position and the remaining 03 Chief Research Officer positions have been vacant between the years 2013 and 2021 and it has been observed that it has hindered the achievement of the objectives and tasks of the Institute.

(e) According to the December 2021 newsletter of Sugarcane Research Institute, the sugarcane variety SL 96 128 introduced by the institute in 2012 is the most popular variety in all sugar factories and its spread is 50 percent. Nevertheless, according to the notes of the meetings held with the sugar industrialists and the letters exchanged, it was observed that the sugar absorption capacity of this variety is low and there is a need to introduce an alternative variety. It was observed that the percentage of sugar extraction has gradually decreased annually and has decreased to 7.2 percent sugar in 2019 and 6.8 percent in 2020.

(f) The Sugarcane Research Act No. 75 of 1981 empowered the Institute to cultivate sugarcane commercially, carry out development activities related to the domestic sugar industry, regulate the domestic sugar industry and determine the commercial adoption of introduced varieties of sugarcane etc. Due to non-existence, the sugar industry was not properly established in the country even after 37 years of establishment. According to the December 2021 newsletter issued by the institute, in the year 2020, domestic sugar production is 61,000 metric tons and sugar import is 683,000 metric tons, and 91.8 percent of the total sugar supply has been imported, and 51 billion rupees have been spent on it. It was also observed that 13 percent of the expenditure on food items.

W.P.C. Wickremarathna
Auditor General

SUGARCANE RESEARCH INSTITUTE													
ANALYSIS OF FINANCIAL TRENDS (2012 -2021)													
Rs.													
FINANCIAL POSITION													
DESCRIPTION	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021			
ASSETS	328,948,138.44	311,179,618.41	310,195,099.91	486,400,124.78	568,403,182.03	511,556,304.02	467,380,271.12	428,937,695.76	459,331,930.31	461,957,889.37			
Non current assets	94,315,344.49	104,385,759.44	99,626,631.89	263,576,057.92	255,143,450.98	267,629,949.92	259,789,157.15	258,116,964.06	322,767,425.04	325,902,499.78			
Current assets	234,632,793.95	206,793,858.97	210,568,468.02	222,824,066.86	313,259,731.05	243,926,354.10	207,591,113.97	170,820,731.70	136,564,505.27	136,055,389.59			
LIABILITIES AND EQUITY	328,948,138.44	311,179,618.41	310,195,099.91	486,400,124.78	568,403,182.03	511,556,304.02	467,380,271.12	428,937,695.76	459,331,930.31	461,957,889.37			
Liabilities	52,378,575.26	63,485,188.86	65,938,532.17	75,918,537.61	65,810,532.38	88,652,259.16	91,161,402.48	101,901,304.88	157,726,071.05	134,800,223.58			
Current liabilities	15,278,191.93	23,767,588.78	15,941,012.87	9,019,359.99	11,031,001.23	24,369,380.45	13,990,091.86	17,045,732.61	60,550,620.94	38,631,452.81			
Non-current liabilities	37,100,383.33	39,717,600.08	49,997,519.30	66,899,177.62	54,779,531.15	64,282,878.71	77,171,310.62	84,855,572.27	97,175,450.11	96,168,770.77			
Net Assets / Net Equity	276,569,563.18	247,694,429.55	244,256,567.74	410,481,587.17	502,592,644.03	422,904,044.86	376,218,859.51	327,036,390.88	301,605,859.26	327,157,665.79			
FINANCIAL PERFORMANCE													
DESCRIPTION	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021			
OPERATING REVENUE	165,677,745.33	164,234,191.56	234,193,878.46	355,768,941.80	389,475,697.14	259,992,891.63	326,780,551.75	306,757,905.88	290,081,644.98	346,220,716.48			
Treasury income	-	-	122,800,000.00	339,084,240.74	365,000,000.00	232,830,000.00	295,394,000.00	268,257,000.00	272,970,043.27	325,700,000.00			
Cess income	139,328,373.55	138,295,452.50	91,820,414.50	3,238,130.00	1,437,670.00	4,484,550.00	3,418,795.00	20,232,185.00	5,488,080.00	8,672,280.00			
Other institutional income	26,349,371.78	25,938,739.06	19,573,463.96	13,446,571.06	23,038,027.14	22,678,341.63	27,967,756.75	18,268,720.88	11,623,521.71	11,848,436.48			
OPERATING EXPENSES	173,549,029.00	192,907,048.71	227,363,256.95	299,278,835.49	301,161,414.14	339,395,302.99	401,937,149.08	348,342,003.92	327,974,704.93	320,774,323.69			
Personal emoluments	92,096,869.77	102,919,673.65	116,445,339.86	159,202,581.59	179,594,282.69	179,771,941.65	203,866,397.85	195,808,529.77	196,877,133.74	199,768,677.59			
Other operating expenses	81,452,159.23	89,987,375.06	110,917,917.09	140,076,253.90	121,567,131.45	159,516,997.22	198,006,749.23	152,533,474.15	131,097,571.19	121,005,646.10			
Finance cost	29,131.70	202,276.48	49,785.33	51,832.49	115,492.84	106,364.12	64,002.00	46,767.06	43,010.00	46,110.00			
Net surplus/deficit	(7,900,416.27)	(28,875,133.63)	6,780,836.18	56,438,273.82	88,198,790.16	(79,402,411.36)	(75,156,597.33)	(41,630,865.10)	(37,936,069.95)	25,400,282.79			