2020

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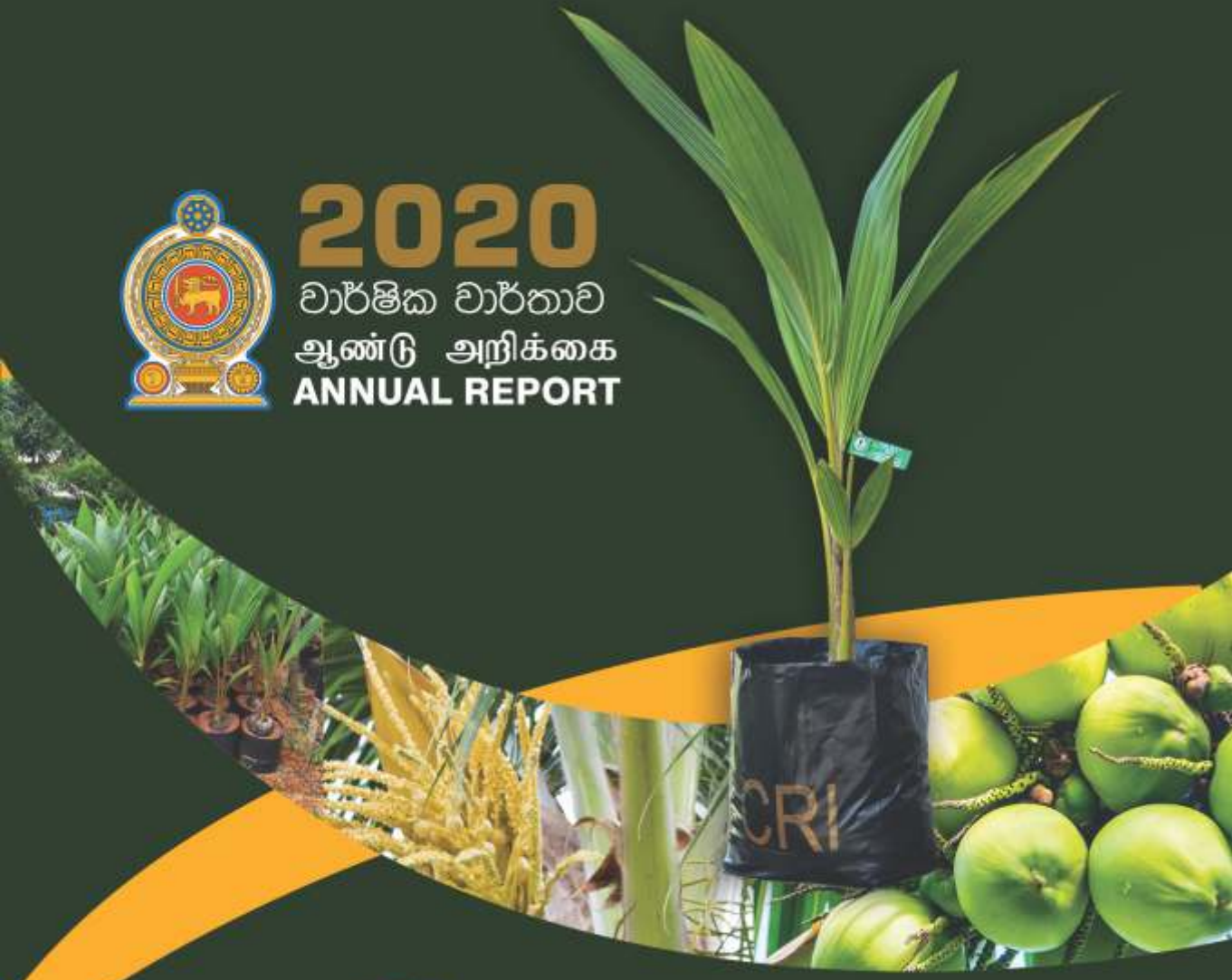
ஆண்டு அறிக்கை

ANNUAL REPORT



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தென்னை ஆராய்ச்சி நிறுவனம்

COCONUT RESEARCH INSTITUTE

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தென்னை, கித்துல் மற்றும் பனைச் செய்கை மேம்பாடு மற்றும் அவை சார்ந்த கைத்தொழில் பண்டங்கள் உற்பத்தி மற்றும் ஏற்றுமதி பல்வகைப்படுத்தல் இராஜாங்க அமைச்சு

STATE MINISTRY OF COCONUT, KITHUL AND PALMYRAH CULTIVATION PROMOTION AND RELATED INDUSTRIAL PRODUCT MANUFACTURING & EXPORT DIVERSIFICATION

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பெருந்தோட்ட அமைச்சு

Ministry of Plantation

TABLE OF CONTENTS

Our Vision

To be the centre of excellence in coconut research, technology development and technology transfer in the region

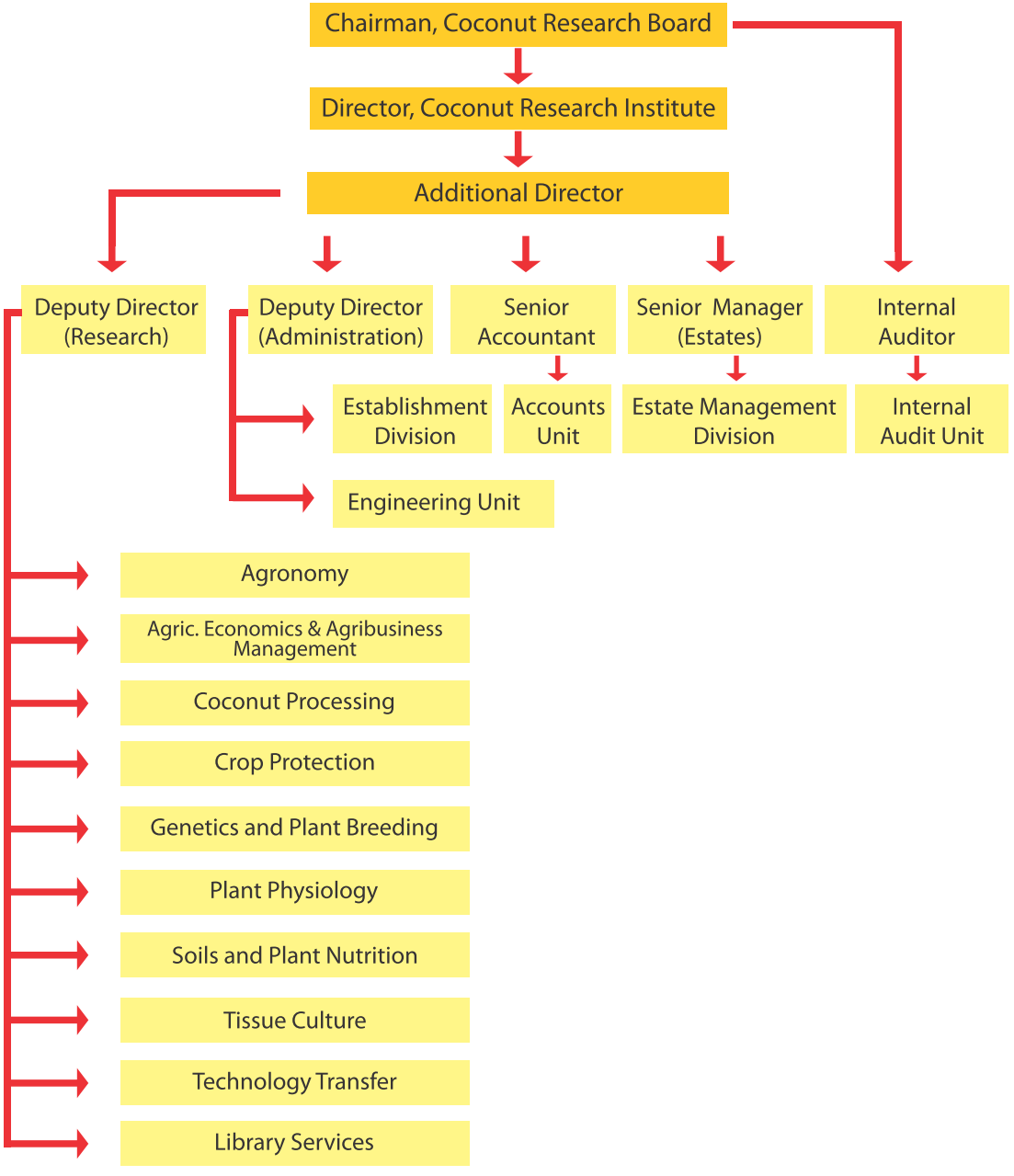
Our Mission

Generate knowledge and technology through excellence i n research towards increasing productivity and profitability of coconut

Our Mandate

1. Conduct and further scientific research on growth and cultivation of coconut palm, growing other crops and engage in animal husbandry in coconut plantations and prevent and cure of diseases and pests.
2. Conduct and further scientific research on processing and utilization of coconut products and value addition.
3. Establish and maintain institutes' seed gardens and experimental stations.
4. Train advisory and extension workers to assist the coconut industry.
5. Guide and advise coconut industry on all matters of technical nature.

ORGANOGRAMME OF THE INSTITUTE



STATE MINISTY OF COCONUT, KITHUL AND PALMYRAH CULTIVATION PROMOTION AND RELATED INDUSTRIAL PRODUCT MANUFACTURING & EXPORT DIVERSIFICATION

THE COCONUT RESEARCH INSTITUTE
ANNUAL REPORT – 2020

The Coconut Research Institute was founded in 1929 as the Coconut Research Scheme under the Coconut Research Ordinance No.24 of 1928. The scheme established its headquarters at Bandirippuwa Estate, Lunuwila with three Technical Divisions namely Genetics, Chemistry and Soil Chemistry. Following the enactment of the Coconut Research Act No.37 in 1950, it was renamed as the Coconut Research Institute of Ceylon. Under the Coconut Development Act, No.46 promulgated in 1971, the Coconut Research Board was set up in 1972 to function as the Board of Management of the Coconut Research Institute.

The Coconut Research Board (CRB)

The governing body of the Institute is the Coconut Research Board. In terms of the Coconut Development Act, the Board consists of 11 members, appointed by the Minister-in-charge. One member is appointed as the Chairman of the Board. The members hold office for three years and are eligible for reappointment. Nine meetings were held during the year.

The Members of the Board	Record of attendance
Mr. Jayantha Wickramasinghe, Chairman/CRB	9/9
Ms. Sureka Attanayake / Ministry Representative	8/9
Dr. W.M.W. Weerakoon, Director General / DOA	5/9
Dr. S.F.N. Silva, Representative from CGA	9/9
Mr. J.M.R.P. Jayasinghe / Treasury Representative	4/4
Mr. R.A.L. Udaya Kumara / Treasury Representative	4/4
Mr. Bandula Egodage	7/9
Mr. Prabath Wimal Kumara / Dir. Sec / CARP	7/8
Mr. Chitral Jayawarna	7/8
Dr. (Mrs) Sanathanie Ranasinghe Director/CRI	9/9

CRB: Coconut Research Board
DOA: Department of Agriculture
CARP: Council for Agricultural Research Policy
CRI: Coconut Research Institute
CGA: Coconut Growers' Association

The Audit and Management Committee

Altogether 03 meetings were held during the year to discuss the Audit & Management activities of the Institute.

The members of the Audit committee are;

	Name	Record of attendance
Chairman & Treasury Representator	Mr. J.M.R.P. Jayasinghe	01/01
	Mr. R.A.L. Udaya Kumara	02/02
Ministry Representative	Mrs. Sureka N Attanayake	03/03
Board member	Dr. S.F.N. Silva	03/03
Observer from AGD	Mr. L.P.J. Pushpakumara	01/01
	Mr. S.U.D. Manawasinghe	02/02
Director/CRI	Dr. (Mrs.) Sanathanie Ranasinghe	03/03
Internal Auditor	Mr P.W.A. Fernando	03/03
Convener, CRI/AC, Deputy Director (Research)	Dr. Lalith Perera,	02/03

AGD: Auditor General's Department

(Mr. J.M.R.P. Jayasinghe participated for 1 meeting. Instead of Mr. Jayasinghe, Mr. Udaya Kumara was appointed. Mr. Jayantha Pushpakumara retired. After that, Mr. S.U.D. Manawasinghe was appointed).

Chairman's Message

Coconut Research Institute has been in the forefront of coconut related research and development activities not only in Sri Lanka but also worldwide with significant achievements in the coconut sector. However, the year 2020 was one of the turbulent periods for the entire world due to the prevailed Covid-19 pandemic situation. Although almost all industries were in declining trend, coconut sector recorded an appreciable growth during the year, where Coconut Research Institute could make some noteworthy achievements during the year.

As a novel approach, a Business Incubation facility could be opened at the institute premises which provided / would provide an opportunity for many small and medium scale entrepreneurs to get hands-on experience on various coconut products developed by CRI. This would pave the way for emerging new entrepreneurs who can explore local and international markets with new coconut-based products with self-confidence. This is one of the great achievements by the CRI scientists which indicated that they were dedicated not only for generating novel research findings to the coconut sector, but also ready to disseminate the new products and technologies in novel approaches as well. Moreover, CRI could release a new coconut hybrid which is a cross between Sri Lankan Tall and Malayan Red Dwarf within this year. This hybrid named as CRISL 2020 would emerge as a more promising variety in the future, when CRI is ready to release it in commercial scale.

CRI could conduct substantial number of short- and long-term research projects even under the restricted conditions prevailed in the country along with financial constraints. The contribution of those activities is yet to come as new findings, innovations and technologies in the future. CRI also played a vital role in making policy recommendations and policy formulations in relation to export and import

functions of coconut related products during the year. Moreover, CRI contributed significantly for the fertilizer related issues during the year, as a national research institute dedicated for the plantation sector. The elite scientists in the institute contributed not only to the coconut sector but also for the entire scientific community as resource persons in various fora, locally and internationally.

I wish to take this opportunity to congratulate the scientists and the entire staff of the institute for their success achieved during the year. Moreover, it is my duty to appreciate the support, assistance and guidance provided by the Hon. Ministers and all the officials from the ministry.

I wish the CRI every success in future activities.

Mr. Jayantha Wickramasinghe

Chairman, Coconut Research Board

Director's Message

The Coconut Research Institute (CRI) continued to serve the coconut industry by research recommendations, development activities and services. Some of the noteworthy achievements were; a new coconut hybrid Sri Lankan Tall x Malayan Red Dwarf was released as CRISL2020, Annual National Coconut Production (ANCP) of 2020 was estimated as 2818 Mn nuts as against the forecast of 2708 Mn nuts, coconut yield for first 8 months of 2021 was forecast as 2386 Mn nuts (19% increase compared to 2020), nearly I.0 Mn (994,671) improved seed nuts were produced in the Genetic Resource Centres, a Business Incubation facility was declared open to provide training and hands-on experience on coconut product development for small and medium scale entrepreneurs, coconut oil standards for confectionery industry to replace palm oil with coconut oil were developed, interim recommendations to control yellow spotted locust and white fly were issued, Managing the Weligama Coconut Leaf Wilt Disease (WCLWD) in the Southern Province, specially the 'protective zone' was continued to prevent the spread of the disease to other areas, two bio- char production units were developed and established in CRI estates and basic requirements for efficient micro irrigation systems were published.

With respect to policy formulations, policy recommendations on export and import of coconut products and its substitutes, special commodity levy changes of coconut oil and palm oil and national fertilizer requirement for coconut were submitted to the ministry and formulae for estimating cost of production of coconut seedlings and a preliminary model for forecasting coconut price based on supply were developed.

In relation to ongoing research, screening and developing coconut cultivars tolerant to heat/drought stress, WCLWD and Aceria mite, improving vegetative propagation technology, using bio-char and Municipal Solid Waste (MSW) in coconut plantations,

identifying new mulching material, developing / improving the technology for value added coconut products, developing /upgrading machinery used for coir sector, studying the health benefits of coconut oil and sap products, evaluating the success of coconut replanting programs were continued satisfactorily.

Although the technology transfer activities were severely limited due to COVID 19 pandemic situation, Technology Park was maintained and International Coconut Day was celebrated on 2nd September. As services to the stake holders, predatory mites for Aceria mite, parasitoids for coconut caterpillar and aggregation pheromones for red weevil were produced and supplied to growers and analytical services for Fertilizer Recommendations and husk-based export products were provided.

In addition, 17 research papers in Science Citation Indexed Journals, 09 research papers in international journals, 21 research papers in national and international symposia, 04 book chapters, 03 policy documents and 09 other reports were published in 2020.

The CRI Estates produced 3.94 Mn nuts in 2020.

Finally, I take this opportunity to appreciate the dedicated services, cooperation and support extended by the staff of the CRI towards all these achievements made during 2020. I am grateful to the Hon. Minister, State Minister, Secretaries and the officials of the Plantation Ministry and the State Ministry, Chairman and the Board of Directors for their guidance and support extended to us during the year.

I wish CRI every success.

Dr. Sanathanie Ranasinghe

Director, Coconut Research Institute

RESEARCH **RECOMMENDATIONS**

Control of yellow spotted locust

Crop Protection Division

Interim recommendation on the use of Carbosulfan at the rate of 5ml per 1 liter of water to control the yellow spotted locust.

Control of whitefly

Crop Protection Division

Interim recommendation on spraying of following insecticides to control high populations of whiteflies in coconut.

a. Thiomethoxam 3g in 10 litres of water
b. Carbosulfan 20ml in 10 litres of water
c. Chlorantraniliprole+Thiomethoxam 2.5g in 10 litres of water

POLICY **PROPOSALS**

Policy Proposal 1: Importation of Copra for Coconut Oil Production

Agricultural Economics & Agribusiness Management Division

Impact of importation of copra on the safety/wellbeing of the coconut plantations in the country

1. ***Genetic base***

   Sri Lanka has a very narrow genetic base with significantly a low genetic diversity. Therefore, if Sri Lankan coconut population becomes susceptible to any accidental introduction of new pests or diseases through importation of copra, it would have irreversible and serious repercussions. Sri Lanka to date is fortunate to be free from lethal diseases of coconut that are present in many other coconut growing countries.

2. ***Quality issues***

   Coconut oil should be produced using the copra with quality of Milling Superior 1 and Milling Superior 2 to extract good quality coconut oil. If the deteriorated copra is imported to be used for oil production, good quality coconut oil cannot be produced. Bad quality copra contains aflatoxin and poly-aromatic hydrocarbons which are highly toxic to the consumers.

3. ***Impact of importation of copra on the local oil industry***

   If copra is imported under TIPE program and re-exported, it will have a minimal effect on the local oil industry. However, if copra is imported under tax concessions aiming to satisfy the local oil demand, it would have detrimental effects on the local coconut oil prices availing coconut oil from imported copra at the local market at a relatively cheaper price than the locally produced oil in local mills using domestically produced nuts.

   If copra is imported under normal tariff, even at a lower price at the importing country the price of oil produced from imported copra will be higher than that of oil produced from local copra due to added taxes. Therefore, if copra is imported under normal tariff, the oil prices from imported copra are not competitive in the local and international market.

Policy Recommendation

Even though importation of copra can fill the gap of coconut required for industry use, considering the negative impact on the local nut price and the coconut oil price, high risk of introduction of new pest and diseases, and foreign exchange cost, CRI recommends that importation of copra is not a suitable and viable option to develop the coconut industry.

RESEARCH AND DEVELOPMENT
HIGHLIGHTS

COCONUT VARIETAL IMPROVEMENT

Releasing of the new coconut cultivar CRISL2020 to the National Replanting Programme

Genetics and Plant Breeding Division

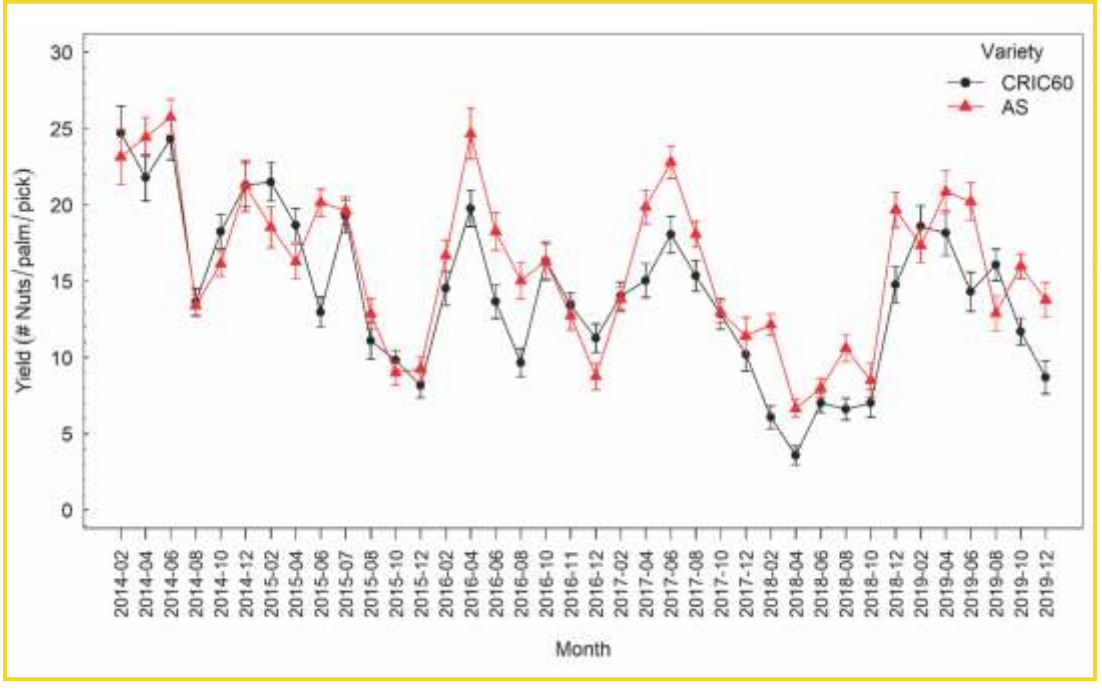
Genetics and Plant Breeding Division released a new coconut hybrid Sri Lankan Tall x Malayan Red Dwarf (T x MRD) as CRISL2020 to the National Replanting Programme on 2nd September 2020 during the ceremony held to commemorate the International Coconut Day. CRISL2020 is an early flowering (flowering 3 and half years after planting) and high yielding cultivar which is moderately tolerant to coconut mite infestations. This is an ideal cultivar for home gardens and recommended even for large scale planting under favorable soils (S1-S3) and high input management. It is planned to issue about 2500 certified seedlings for coconut growers in 2021 and seedling production will be increased in future. Further studies are in progress to evaluate the drought tolerance of CRISL2020.

Releasing of new coconut cultivar CRISL2020

Progeny selection and identification of drought tolerant Coconut genotypes

Genetics and Plant Breeding Division

Genetics and Plant Breeding Division started Ambakelle Special (AS) progeny selection experiment in early 1990s and AS paired crossed progeny was planted with CRIC 60 as the standard cultivar at the field number 11A of the Ambakelle Seed Garden in 1992. An experiment was conducted to evaluate the comparative performance of Ambakelle special (AS), a progeny of a within population selection with unselected CRIC60 to identify stable higher yielding palms for future breeding programs. Six-year yield data (2014-2019) from 110 palms in each group were evaluated. Results revealed variety, year and interaction have significant impact on annual yield. AS recorded significant higher mean annual yield (101 nuts/palm/year) compared to CRIC60 (90 nuts/palm/year). Due to low rainfall condition prevailed from July 2016, lower nut yields were recorded for both varieties in 2017 and 2018. However, AS maintained its superiority indicating a better adaptation than CRIC60 under low rainfall conditions. Using regression coefficient (bi) and mean annual yield 45 palms were selected as stable and higher yielding genotypes. Out of these 45 palms, thirty-three palms (73.3%) were from AS progeny further indicating the adaptability of AS to varying environmental conditions. Twenty palms (16 AS and 4 CRIC60) were further selected using variance of deviations from the regression (S2di) and mean kernel weight to be used in the future breeding programs for development of drought tolerant coconut cultivars.



Pickwise mean yield for AS and CRIC60 during six – year period

Screening of Coconut varieties/hybrids tolerant to Weligama Coconut Leaf Wilt Disease

Genetics and Plant Breeding Division

Genetics and Plant Breeding Division started an experiment in 2009 to screen the currently available coconut cultivars/hybrids for Weligama Coconut Leaf Wilt Disease (WCLWD) tolerance. In this study, 14 Varieties/hybrids produced outside the disease area were evaluated at two sites in the disease prevailing area; Wilegoda Estate, within the disease hotspot and Baduwatta, away from disease hotspot.

The highest disease incidence was observed at the Wilegoda estate which is located at the disease hot spot. At this site, only the Dwarf Green cultivar (DG) was free of the disease. However, other crosses made with Dwarf Green (Kapruwana, Dwarf Green x Rennell Island Tall and Dwarf Green x Tagnanan Tall) were susceptible to WCLWD. Baduwatta experiment was established in a disease free estate at that time, however from early 2018 the old stand started to show disease symptoms and after 10 years of planting Dwarf Green x Tagnanan Tall, CRIC65-yellow and CRIC60 show the disease symptoms.

Results of this experiment shows that even Green Dwarf x Sri Lankan Tall (CRIC65) hybrid produced at Ambakelle Seed Garden was suseptible to WCLWD. However, the tolerance might be achieved by producing Green Dwarf x Sri Lankan Tall hybrids using the WCLWD tolerent Green dwarf and Tall palms identified from Matara area as parents. We have developed this hybrid using parents from Matara and the comparative evaluations are in progress. In addition it is recommended to incoporate more Phytoplasma tolerent exotic germplasm from disease free countries to improve breeding programme for WCLWD tolerence.

WCLWD affected Kapruwana (GD x SR) young palm at Wilegoda estate, Weligama

Induction of somatic embryogenesis and plant regeneration in ovary derived callus

Tissue Culture Division

Experiments were conducted to evaluate possibility of overcoming the low rate of clonal shoot multiplication through application of higher levels of plant growth regulators at different developmental stages of coconut ovary culture protocol. The basal Y_3 culture medium composition was supplemented with 300 µM 2,4-D (2,4-Diclorophenoxyacetic acid) for the callus multiplication stage repeatedly for 3 multiplication cycles where 180 µM 2,4-D was added previously. At the somatic embryo maturation and shoot initiation stages 300 µM BAP (6-Benzylaminopurine) was added whereas the previous practice was to add 20 µM BAP. Callus multiplication and shoot development was improved at satisfactory levels.

Effect of media components like dicamba (a growth hormone), brassinosteroids, calcium ionophore and polyamines in reducing browning and enhancing somatic embryogenesis pathway of coconut was evaluated. Two different auxins (2,4-D and Dicamba) were tested alone and in combination with calcium ionophore A23187 and 22(S), 23(S)-homobrassinolide by adding into callus multiplication and somatic embryo initiation medium. The results revealed significantly greater number of embryogenic structures in 2,4-D containing media than in dicamba added media. Three polyamine types, namely spermine, putrescine and spermidine, were also tested in combination with two 2,4-D concentrations (600 and 300 µM) in callus multiplication and somatic embryo initiation medium. Irrespective of the treatments, embryogenic structures, embryogenic calli, non-embryogenic calli, and browned calli were observed in different frequencies. Furthermore, the results indicated that low 2,4-D level (300 µM) have significantly reduced browning of embryogenic callus.

Ovary culture clonal palms of CRIC 65, which were established at Bandirippuwa Estate in 2015, were reported to be flowering this year.

Flowering of field established ovary cultured clonal palms

Identification of new explants for vegetative propagation of coconut

Tissue Culture Division

Tender leaf tissues were cultured in different media combinations to test the potential of tender leaves as a new explant for vegetative propagation of coconut. In order to develop a method for multiplication of clonal plants derived from ovary culture, tender leaf sections from embryo cultured *in vitro* plants were used in these experiments. The results of initial experiments revealed that the basal area of the leaves responded well in tested culture conditions. Therefore, only the basal area of the leaves of the embryo derived *in vitro* plantlets were cultured in 4 different media compositions. Most of the explants were enlarged 2 -3 folds and gradually turned brown while a few explants formed globular structures resembling embryoids. Germination of these globular structures will be evaluated in further experiments.

In vitro shoot development from leaf explant

COCONUT PRODUCTION TECHNOLOGY

Present Status of Micro Irrigation Systems (MISs) in Coconut Plantations of Dry and Intermediate Zones of Coconut Triangle, Sri Lanka

Soils & Plant Nutrition Division

A technical survey was conducted to assess the present status of MISs in coconut plantations in order to identify the reasons for the system failures observed in MISs.

The survey data revealed that most of the farmers have installed the MISs without following the important designing steps including, determination of water source capacity, water quality testing and even without installing many essential components required for the smooth functioning of the MISs. Hence, the lack of knowledge in growers on installation and maintenance of MISs was identified as the main reason for the failures in MISs in coconut plantations. Therefore, awareness programs on these aspects are essential for increasing the adoption of MISs in coconut plantations in the dry and intermediate zones of Sri Lanka.

Figure 1: Head control units found in the MISs of coconut plantations

Application of Municipal Solid Waste (MSW) for Coconut Plantations

Soils & Plant Nutrition Division

Application of MSW compost into coconut plantations is currently being practiced by the coconut farmers without considering the nutrient composition and without a Recommendation given by the Coconut Research Institute (CRI). A Set of samples collected from 20 Municipal Councils in Sri Lanka was analyzed in order to identify the nutrient levels and risk factors associated with the MSW compost.

The organic carbon contents in the samples were at the acceptable level specified by the Sri Lanka Standard Institution Standards. The macro nutrient contents in samples varied largely (Table 1) and most of the samples had low content of macro nutrient.

Table 1: Nutrient observed in MSW compost samples

Nutrient	Mean (Range) (DB%)	SLSI Standard (DB%)
Nitrogen (as N)	2.39 (0.92-3.96)	Min. 1
Phosphorus (as P_2O_5)	0.39 (0.02-2.34)	Min. 0.5
Potassium (as K_2O)	0.63 (0.00-3.64)	Min. 1
Calcium (as CaO)	1.05 (0.04-5.42)	Min. 0.7
Magnesium (as MgO)	0.18 (0.00-0.77)	Min. 0.5
Organic Carbon	30.14 (13.98-39.25)	20
C/N Ratio	14 (6-36)	10-25

SLSI – Sri Lanka Standard Institution
DB – Dry Basis

In contrast, with its satisfactory OC content, MSW compost has the potential to be used as a soil conditioner for soil quality improvement. But, with the high C/N ratio presented in some samples, there is a possibility of short-term nitrogen immobilization in the soil. The results of the study revealed the importance of nutrient enrichment for MSW compost and correction of C/N ratio, if it is intended to be applied to the soils of coconut plantations. However, the CRI does not recommend application of MSW compost in to coconut plantations until the completion of the study on risk factors associated with MSW compost such as heavy metals, pathogens and micro plastics.

Figure 1: Production of compost with MSW

Assessment of potential nitrogen capturing ability of biochar as a soil conditioner

Soils & Plant Nutrition Division

The assessment of the Nitrogen fertilizer retention ability of biochar in soil was carried out and the results of the study shows that, 1% (w/w) application of biochar reduced the leaching of Ammonium ions (NH_4^+) significantly ($P<0.05$) than the control while the influence of biochar on Nitrate ions (NO_3^-) leaching was not significant. The results of the study revealed that biochar has the ability to improve the retention of cations. However, the results have to be confirmed with other cations (Potassium K^+), Magnesium (Mg^{2+}), Calcium (Ca^{2+}) and Sodium (Na^+) retention ability of the soil.

Figure 1: Semi in-situ Leaching column study

Designing an Economically feasible, environmental friendly Biochar Production Kiln – Prototype

Soils & Plant Nutrition Division

With the objective of further improving the low cost, small-scale biochar production method (closed retort method - Figure 2), a prototype of an environmental friendly, low-cost biochar-producing kiln has been designed and constructed (Figure 3). The aim of the new design is to minimize energy waste, reduce heat losses, minimize fuel material use, and increase the durability of the kiln while producing the same quality biochar produced under slow pyrolysis conditions (heating rate; 0.05°C/s, maximum pyrolysis temperature: 590°C and residence time: 3 hours) achieved previously in the closed retort method. Firebricks and fire clay were mainly used to construct the improved kiln. The new kiln is currently been tested for optimizing pyrolysis condition and characterization of biochar produced from two biomass types, namely sticks of Gliricidia sepium tree (prunings) and rice husk (Oryza sativa).

Figure 1: Low-cost Closed Retort method used to produce Biochar

Figure 2: Prototype of the improved kiln

Development of sustainable moisture conservation method by using bio-char for mature coconut plantation

Agronomy Division

Regular supply of moisture throughout the year is essential in both vegetative and reproductive phases for its potential growth and nut yield of coconut. Thus, this study was aimed at developing a sustainable soil moisture conservation method using biochar under coconut plantation in dry and intermediate zones of Sri Lanka. The experiment was established in 2015, in a thirty years old coconut stand in an estate at Rasnayakapura, Puttlam District representing the dry zone. Biochar was made using *Gliricidia* sticks inside a modified kiln under minimum supply of oxygen.

Soil Electrical Conductivity was significantly higher, 44% and 72% in 0–15cm and 15-30cm depths respectively of the pits treated with 15kg biochar compared to the coconut husk pit. Organic Carbon contents were significantly high in pits amended with 15kg biochar (0.55%) and coconut husks (0.53%) in both depths. The highest average nut yield, 83 and 69 nuts per palm per year were observed in the 15kg biochar

treatment in 2019 and 2020 respectively. The highest significant soil moisture content (4%) after 4 years of treatment application was observed in both depths of 15kg biochar treated pit and top soil (0-15cm) of 10kg biochar treated pit. Soil moisture contents of coconut husk and 5 kg biochar treatments were not significantly different.

CLIMATE CHANGE EFFECTS ON COCONUT PRODUCTION

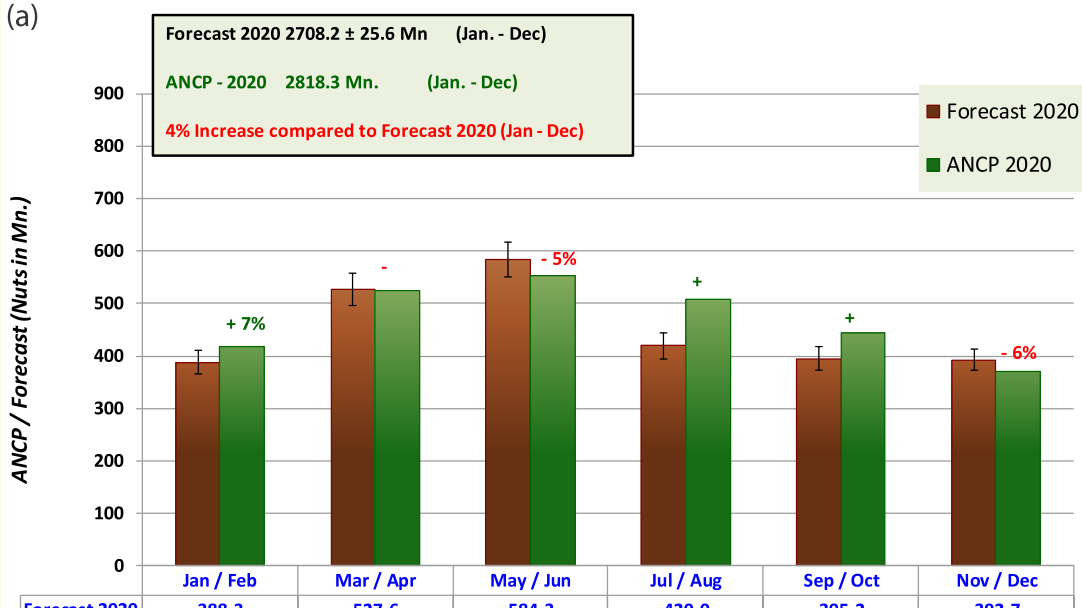
Effect of climatic conditions on yield variation of coconut

Plant Physiology Division

The Annual National Coconut Production (ANCP) for the year 2020 was estimated based on the yield data collected from more than 900 coconut plantations distributed in all coconut growing districts of the country. The ANCP was 2818.3 Mn nuts in 2020 and this was about 9% reduction in yield compared to that of 2019 (3106.4 Mn nuts) which was one of the highest yielding years in the recent past. The pattern of yield variation observed within the year was comparable with the general pattern with the peak in 3rd pick (May/June) (553.1 Mn. Nuts). The observed productions in all picks were lesser than relevant production figures in 2019.

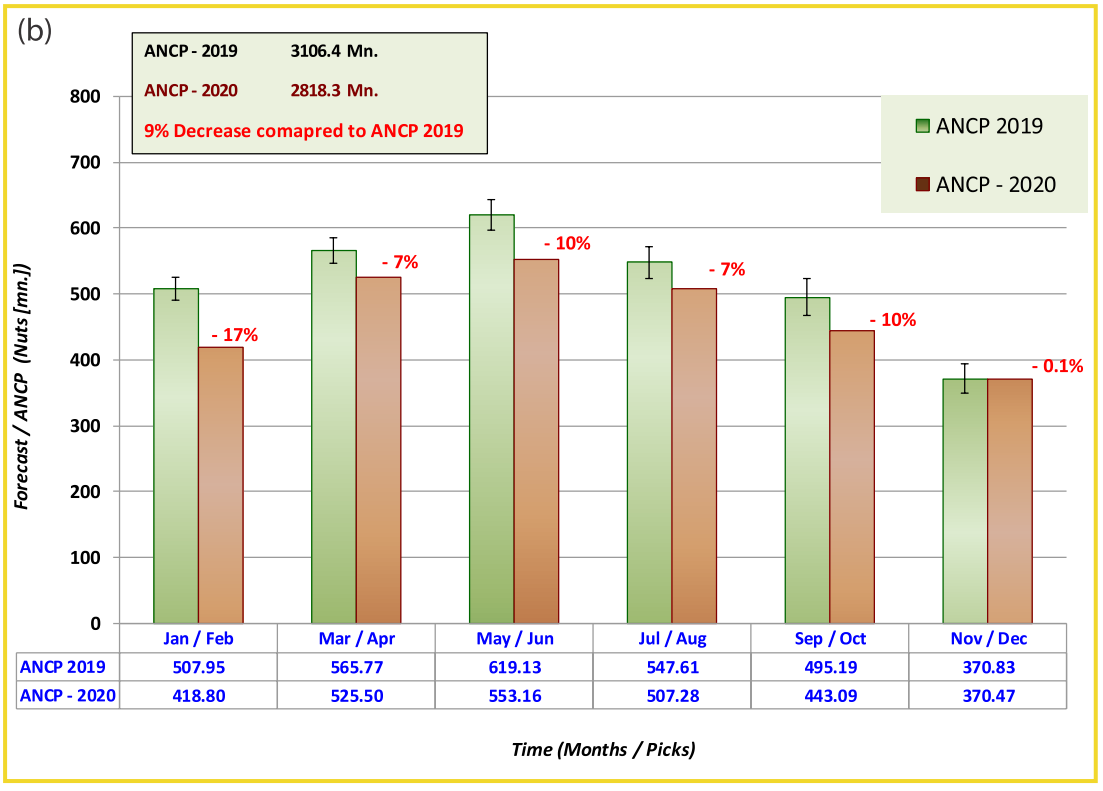
The ANCP 2020 showed 4% increase compared to the prediction for the year (2708.2 ± 25.6) thus the forecast was within the acceptable limits.

(a)



	Jan / Feb	Mar / Apr	May / Jun	Jul / Aug	Sep / Oct	Nov / Dec
Forecast 2020	388.3	527.6	584.3	420.0	395.2	392.7
ANCP 2020	418.80	525.50	553.16	507.28	443.09	370.47

Time (Months / Picks)

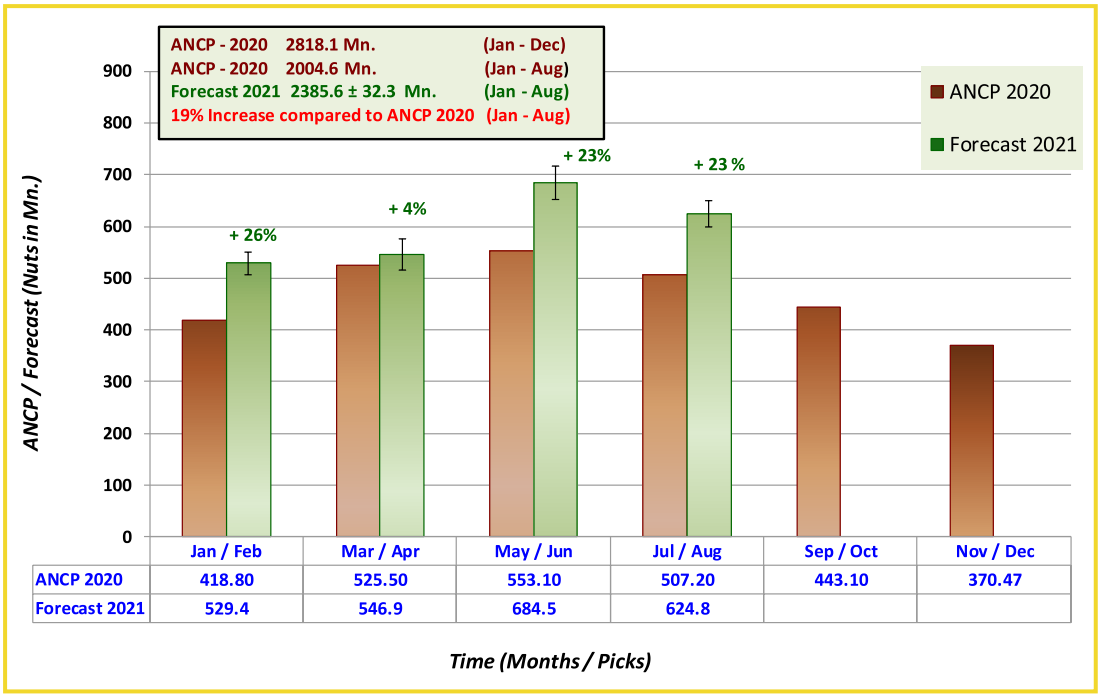


(a)Comparison of the actual Annual National Coconut Production (ANCP) on bimonthly basis for 2020 with the forecast and (b) its comparison with ANCP 2019

Forecast of coconut yield of 2021

Plant Physiology Division

The expected change in the yield per palm in 2021 compared to that of 2020 was predicted for the main coconut growing areas; Kurunegala, Kuliyapitiya, Gampaha and Puttalam CCB Regions based on the fruit set data and the rate of survival of set fruits. Accordingly, Kurunegala, Puttalam and Gampaha districts will show 17%, 5% and 26% yield increases respectively in 2021. The bi-monthly coconut yield predictions for 2021 (up to August) are 529.4 ± 22.9 for January/February (Pick 1), 546.9 ± 32.7 for March/April (Pick 2), 684.5 ± 38.0 for May/June (Pick 3) and 624.8 ± 35.4 for July/August (Pick 4) which amount to a total of 2385.6 ± 32.3 Mn nuts for the period from January – August 2021. Thus, about 19% increase in yield is expected in the first 8 months of 2021 compared to the national production for the same period in 2020.



The yield prediction for 2021 (Up to August) with bimonthly breakdowns compared to the bimonthly Annual National Coconut Production (ANCP) observed in 2020

A preliminary study on effects of antitranspirants on coconut seedlings under water stressed conditions after transplanting

Plant Physiology Division

The seedling mortality percentage is nearly 40% after transplanting in the field due to their less ability to tolerate adverse water stressed conditions. Foliar application of antitranspirants is one of the promising tools for regulating transpiration to maintain a favorable plant water status especially in seedling stage.

The objective of the study was to investigate the potential antitranspirants to reduce transpiration and alleviate adverse effects of drought on coconut seedlings after transplanting. A preliminary trial was conducted with four antitranspirants; kaolin, $CaCO_3$, $MgCO_3$ and MOP. Two concentrations (3% w/v and 9% w/v) were tested. However, the results were not consistent or comparable between parameters. This may due to the insufficient concentration level to be effective or some mechanical errors. Therefore, another trial is being continued using three other concentrations (3% w/v, 5% w/v and 7% w/v) with the same four antitranspirants.

Figure 1 : Foliar application of antitranspirants

Optimizing Experimental Designs in Coconut Research

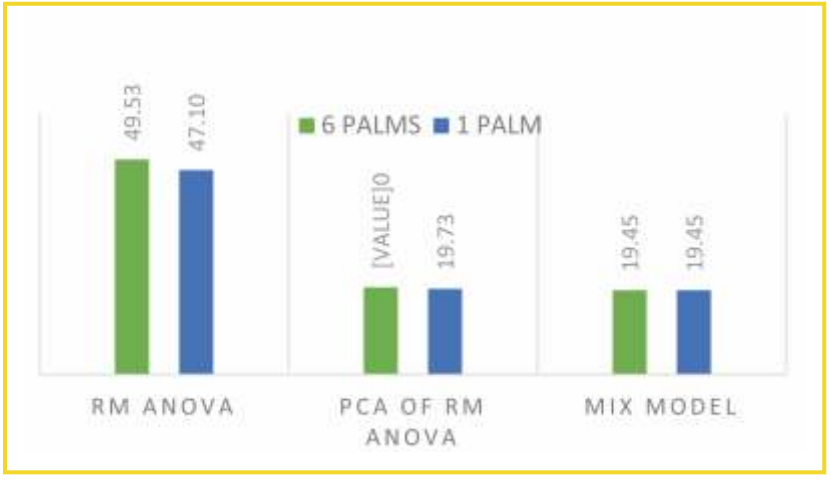
Plant Physiology division

Study of spatial and temporal variability of >500 untreated coconut palms over 20 years were studied to improve the experimental design of coconut research.

This research was conducted to improve analysis techniques of longitudinal (multiple year yield data from field experiments in coconut research) data. The analysis attempted to highlight the ways in which how the researcher handles unaccountable variability component in perennial crop research due to inconsistent temporal behavior of the experimental units to obtain the precise research output.

This document highlights the results of several analysis techniques on most frequently used experimental designs obtained from long term coconut fertilizer experiments. The example illustrates several appropriate types of analyses to meet the precise analysis output via evaluating the model residuals and by calculating the coefficient of variations. The statistical methods used were Repeated Measure Analysis of Variance (RMANOVA), Linear Mixed Model, and ANOVA with a Principal Component as the Dependent Variable using two plot sizes (6 palms/plot and single palm plot).

The results revealed that the ANOVA with a Principal Components as Dependent Variable method was the best analysis method for longitudinal data with long term fertilizer experiments in coconut research because of the lowest coefficient of variation produced by that method. Liner mixed model analysis was also resulted comparatively a better efficiency than the classical RMANOVA. The size of the plot did not reveal a significant difference in the output.



Comparison of model outputs
(model error as Coefficient of variation (%) for each method)

Crop Protection

Evaluation of Sri Lanka Tall and Sri Lanka Dwarf crossed with exotic varieties for Resistance/ Susceptibility to the damage by coconut mite

Crop Protection Division

This experiment was conducted to evaluate the new coconut hybrids which have pollen from accessions of South East Asian and Pacific origins for resistance/susceptibility to damage by the coconut mite. Crosses between the imported pollen of four coconut accessions [Malayan Red Dwarf (MRD), Tagnanan Tall (TAGT), Brazilian Green Dwarf (BGD) and Rennel Island Tall (RIT)] which have South East Asian and Pacific origins with Sri Lanka Tall (T), Sri Lanka Green Dwarf (DG) and San Ramon (SR) were evaluated.

Harvest data could be collected in 6 picks only due to COVID 19 lockdown. Results show that the cross between the Sri Lankan Tall x Brazilian Green Dwarf (T x BGD) has the lowest coconut mite incidence in the harvested fruits (Fig. 1).

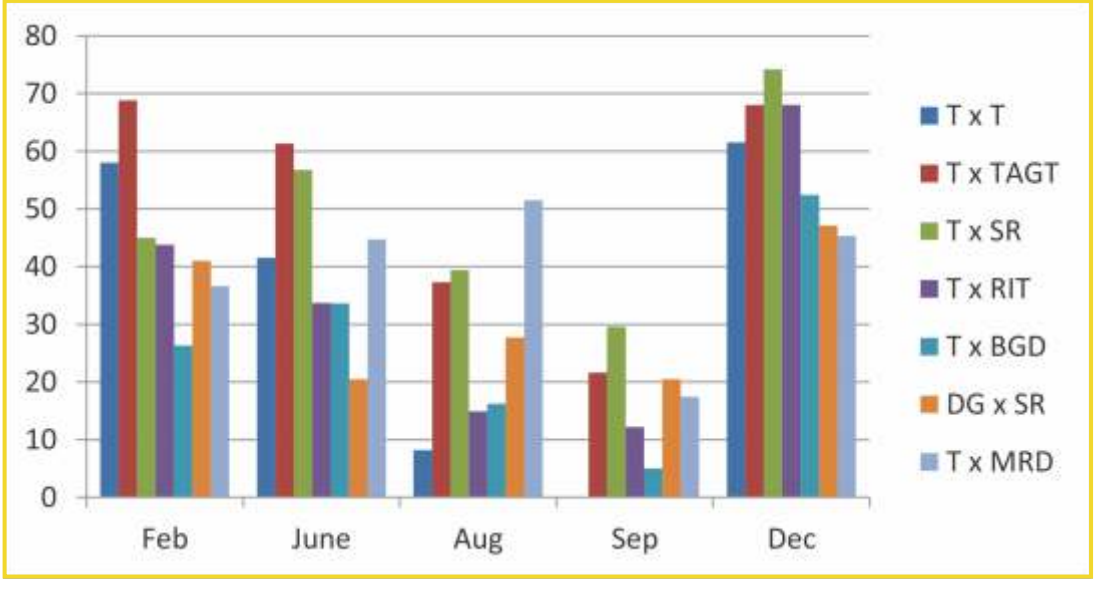


Fig. 1: Percentage of coconut mite infested fruits in the harvest in different crosses between local varieties with pollen from accessions with South East Asian and Pacific origins.

Molecular detection of fastidious prokaryotes associated with Weligama Coconut Leaf Wilt Disease (WCLWD) and Leaf Scorch Decline (LSD)

Crop Protection Division

Experiments were conducted for the molecular detection of fastidious prokaryotes associated with Weligama Coconut Leaf Wilt Disease (WCLWD) and Leaf Scorch Decline (LSD). Two rounds of coconut tissue sampling were completed and subjected to Polymerase Chain Reaction (PCR). A nested PCR protocol was fine-tuned for the accurate identification of phytoplasma from WCLWD symptomatic and asymptomatic apparently healthy coconut palms with consistency.

The DNA extraction efficiency of coconut bud leaf tissues was compared using the modified CTAB method and a commercial DNA extraction kit (DNeasy Plant Pro Kit-Qiagen). DNA quality and quantity were measured by a Nanodrop and results obtained were as follows.

Table 1
Comparison of quantity and quality of DNA extracted by the commercial kit

Sample No.	Commercial Kit		CTAB method	
	DNA quantity (ng/µl)	DNA quality (260/280)	DNA quantity (ng/µl)	DNA quality (260/280)
1	4.3	1.83	1280.40	1.79
2	2.1	1.54	596.50	1.76
3	2.9	2.09	487.70	1.67
4	4.1	2.23	801.00	1.79
5	4.9	1.88	1296.10	1.95

According to the results obtained, CTAB method yielded high quantity of good quality genomic DNA from coconut bud leaf tissues compared to the commercial kit. As genomic DNA may contain minute amount of pathogen DNA, CTAB method was selected for DNA extractions. Out of the tested coconut tissue samples, PCR positive results were obtained only for phytoplasma.

Association of Phytoplasma with Weligama Coconut Leaf Wilt Disease (WCLWD)

Association of phytoplasma with WCLWD was re-confirmed based on the results obtained from Polymerase Chain Reaction (PCR) and sequencing of PCR products. It was found that all the sequences were 99-100% matching with Sugarcane white leaf disease causing phytoplasma.

Table 2
Percent PCR positivity of different coconut tissue samples for phytoplasma in WCLWD affected area

Sample Type	Tissue Type	No. of Samples	No. of positive Samples	Percent PCR Positivity
WCLWD Symptomatic Coconut palm	Bud leaf	12	9	75%
	Young inflorescence	12	3	25%
	Root	12	5	41%
WCLWD Asymptomatic Coconut palms	Bud leaf	12	10	83%
	Young inflorescence	12	2	16%
	Root	12	3	25%

Population dynamics of black beetle, *Oryctes rhinoceros*

Crop Protection Division

Data collection in the experiment conducted to study the population fluctuation pattern of the black beetle, *Oryctes rhinoceros* was continued in 2020. The mean number of black beetles caught varied between 5 to 54 during the year with the highest populations in the wet zone (21 beetles per trap per month) followed by the dry zone (17.3 beetle per trap per month) and 12.8 beetles per trap per month in the intermediate zone. Except in the month of March, in all Agro-ecological zones nearly 60% of the trapped beetles in all agro-ecological zones were females which shows a sex ratio of 1:1.5

Outbreaks of pests in coconut plantations

Crop Protection Division

A yellow spotted locust (*Aularches miliaris*) outbreak (Plate 1) was reported from March 2020 from the coconut growing areas in Kurunegala, Kegalle and Gampaha districts. The coconut plantations in home gardens with other crops and adjacent to jungles were mostly infested. Only the nymphal stages were present in the field at an outbreak level and therefore only the coconut seedlings were infested. Outbreaks were mostly naturally controlled before the nymphs became adults which are the threatening stage for the adult coconut plants. Severe outbreaks in some locations were controlled by spraying Carbosulfan at the rate of 5ml liter of Water.

Plate 1: Yellow spotted locust on coconut frond in the Kegalle district

The outbreak of whiteflies that started in the latter part of 2019 was continued in Kegalle, Kurunegala, Gampaha, Ratnapura, Kandy and Matale districts. Severe outreaks in some plantations were reported from Kegalle, Kurunegala and Gampaha districts (Plate 2). Samples collected from the field showed that at least there are 3 species and very low natural biological control agents. Severe whitefly populations were observed in coconut, king coconut and other crops such as guava, green chillies, banana, Kithul, Indian almond, mango and jackfruit (Plate 3). In severe infestations, even the young fruits of coconut were infested by the whiteflies (Plate 4).

An interim recommendation of spraying Carbosulfan or Thiomethoxam or Thiomethoxam + Chlorantraniliprole was recommended.

Plate 2: Severe infestation of whitefly in coconut in Kegalle district

Plate 3: Banana infested by whitefly

Plate 4: Young coconut fruits infested by the whiteflies

Coconut Processing & Product Development

Development of coconut butter

Coconut Processing Research Division

Further improvements were carried out to the coconut butter spread developed previously. Dehydrated coconut, sugar, peanut, salt stabilizers (sodium Caseinate and sodium stearoly lactate) and vitamin E were the ingredients used. The results indicated that further improvements are necessary (Plate 1).

Study continued to improve quality of coconut butter spread with unique flavor, color and taste of coconut. Two levels (0.5% and 1%) of pectin and soya lecithin as stabilizers and emulsifiers were incorporated to avoid layer separation. Addition of soya lecithin reduced the layer separation of coconut butter spread compared to pectin. Further investigations are in progress to improve the product further.

Plate 1: Coconut butter spread

Spread cheese using Coconut Skim Milk

Coconut Processing Research Division

Studies on the production of spread cheese using coconut protein concentrated from defatted dehydrated coconut kernels as a byproduct from the virgin coconut oil production were further continued. Mixing of different ingredients such as coconut protein concentrated using citric acid, corn starch (CS), nutrition yeast (NY), salts was done in three factor factorial design. The hardness of the product was determined to select suitable product for further improvements. Commercial processed cheese was used as a control. The results of the statistical analysis revealed that, there is a significant interaction ($p<0.05$) among three different factors of corn starch, nutrition yeast and salts for the hardness of the product. Product with lower hardness was selected for further improvements and the samples with similar hardness were subjected to a sensory evaluation with 25 panelists.

Samples A and B (Table 1) had significantly higher overall acceptability and higher sum of ranks for taste compared to C and D. Therefore, coconut protein isolated using citric acid had potential application for production of coconut based cheese spread. Further, incorporation of salt 5%, corn starch 4-6%, nutrition yeast 2-2.5% with hardness 2.51-2.78N showed good acceptability. Further improvements will be done using lactic acid instead of citric acid.

Table 1:
Friedman ranking test for the sensory quality of cheese produced from coconut skim milk

Sample	Aroma	Taste	Appea-rance	Texture	Overall Acceptability
(A)Salt 5%, CS 4%, NY 2.5%, Hardness 2.78N	66.5^{a}	72^{a}	66^{a}	73^{a}	74^{a}
(B) Salt 5%, CS 6%, NY 2%, Hardness 2.51N	63.5^{a}	72^{a}	66.5^{a}	71^{a}	71.5^{a}
(C) Salt 5%, CS 6%, NY 2.5%, Hardness 2.82N	63.5^{a}	53^{b}	60^{a}	53.5^{b}	52^{b}
(D) Salt 7%, CS 6%, NY 2.5%, Hardness 2.92N	56.5^{a}	53^{b}	57.5^{a}	52.5^{b}	52.5^{b}

Different letters in Supercrip indicate significant difference among treatment at P<0.05

Biodegradable Packaging from coconut protein isolates

Coconut Processing Research Division

Preparation of biodegradable films from coconut protein concentrated from virgin coconut oil residues was continued. The strengths and weaknesses of coconut protein (CP) over the corn starch (CS) for edible film making were investigated. Swelling index, light transmission and opacity of film were evaluated to identify optimum pH, corn starch: coconut protein ratio and Poly Ethylene Glycol (PEG) level.

It was observed that the films with pure CS and CP produced satisfactory films and were homogeneous and flexible. Maximum swelling index of 483.96 ± 13.76% was observed for the film made from pure CP with pH 8.5 and 2.5% of PEG whereas minimum swelling index of 14.31 ± 4.47% was observed for the pure CS film without addition of PEG at pH 9.5. There were significant effect of two-way interactions (PEG*CS, PEG*pH and CS*pH) ($P<0.05$) on the swelling Index of biodegradable films.

All tested films had excellent barrier for light transmission at 0 - 200nm UV range. The light transmission of the films also increased with the wave length. The highest value of opacity (5.28 ± 0.21) was obtained for pure CP film under pH 9.5 with the addition of 2.5% of PEG and the lowest opacity (2.14 ± 0.16) was obtained for CS film under pH 8.5 without addition of PEG. Opacity of pure CP films was higher than that of CS films. Further, film with coconut protein show higher biodegradation compared to corn starch and pure polyethylene (Plate 2).

Type of film	Prior to the burial of the films	Films were thoroughly mixed with soils. After 03 days from soil mixing	After 07 days of soil mixing
CP film under 8.5 pH Without PEG		 *Partial degradation of material*	 *Complete degradation of material*
CS film under 8.5 pH Without PEG		 *Degradation is just started*	 *Partial degradation of material*
Pure Polyethy-lene		 *No considerable degradation*	 *No considerable degradation*

Plate 1: Bio degradation of different packaging films

Glycemic Index of coconut jaggery made from coconut sap collected by the traditional method

Coconut Processing Research Division

The Glycemic Index of a food can vary with the composition and processing methods. The study for determination of glycemic index of coconut jaggery made from the coconut sap was continued. Glycemic index of coconut jaggery made from coconut sap collected from a new method was determined in the previous year. Traditional method is to collect the coconut sap into pots with Hal bark to arrest fermentation. This is the traditional way of collecting sap for jaggery making. Ethical approval for the study was obtained from the Ethical Board of National Hospital, Sri Lanka. Jaggery was prepared using unfermented coconut sap collected from the traditional method. Primary data needed for the study such as total starch, resistant starch and digestible starch of jaggery were determined using in-vitro enzymatic digestion method. Total starch, resistant starch and digestible starch of jaggery were 83.43, 0.45 and 82.98% respectively.

Clinical study was completed using 40 human subjects screened as per the approval by the Ethical Clearance Board. The study is in progress.

Value addition to coir products: Coconut husk fibre as ingredients in Rubber boots manufacturing

Development of comfortable Gloves and Rubber Boots by incorporating coconut Husk Products

Coconut Processing Research Division

Rubber boots and gloves are used for body protection. However, in warm, tropical climates, wearing of these items is uncomfortable due to sweating. Natural rubber with coir composite is becoming popular due to light weight, water resistance and low thermal conductivity. Therefore, production of low sweating, light weight boots and gloves by mixing coir and natural rubber will facilitate the comfortable use of safety boots and gloves.

From previous experiments it was revealed that the addition of coir fibre to the rubber polymer matrix reduced the tensile strength and increased the water absorption which is increased with the increase of coir fibre content. This observation is a positive factor for the boot. Samples with coir:carbon black 20:30 shows moderate water absorption and tensile strength 13±1MPa which should further be improved.

Gloves are used as safety devices. Low tensile strength and sweating nature are the major defects related to gloves made from compounded rubber latex. The ability of coir pith for improvement of quality of the product was investigated by making composites of compounded rubber latex with coir pith. Preliminary experiment shows that the coir pith (diameter of 0 -0.5mm) has to be added in small amount for the consistency of coir–rubber composite layer. The effect of strength properties with addition of 2g and 4g of coir pith having 0-0.5mm diameter to the standard rubber glove making formula was studied.

The results showed that tensile strength of the product with 4g coir pith had a very low tensile strength (14.8±0.20MPa) compared to the standard product (26±1.02MPa) and the product with 2g coir pith (21.36±0.52MPa). Therefore, formula with 2g coir pith can be accepted to produce rubber gloves incorporated with coir pith.

The tensile strength can be improved using dispersing agents. Therefore, an experiment was conducted by incorporating the dispersion of coir pith in rubber latex.

Results showed that the addition of dispersol LR improved the tensile strength of the product with 2g coir pith from 21.36±0.52MPa to 22.19±0.03MPa. Further studies are carried out to improve the product.

Development of defatted Coconut testa flour added roti

Coconut Processing Research Division

Coconut testa is an underutilized by-product in desiccated coconut, coconut milk and virgin coconut oil industries. However, it has a great potential as a functional ingredient in the food processing industry. The dehydrated brown testa was expelled in cold press expeller to collect the paring/testa oil and defatted testa residue. The defatted testa was ground into fine flour. Proximate composition of the defatted brown testa flour (TF) showed that it contains 23.51% crude fiber, 32.80% carbohydrates and 16.97% fat.

Different proportions of TF (10%, 20% and 30%) were substituted for wheat flour to prepare *roti* with 60g of coconut meat, 30ml of water and 3.5g of salt and *Pittu* with 60g of coconut meat, 15ml of water and 2g of salt. All sensory attributes (taste, texture, appearance, smell, overall acceptance) of the *roti* samples varied significantly among treatments ($P<0.05$) of TF incorporation into the Wheat Flour (WF). There was no significant difference ($P>0.05$) between 10% and 20% TF incorporation for all sensory attributes in *roti*. The sensory attributes of taste and texture of *pittu* prepared with WF and TF were affected by the incorporation of TF ($P<0.05$). TF can successfully be incorporated in refined WF *roti* and *pittu* up to the level of 20% to enhance nutritional qualities with acceptable sensory attributes.

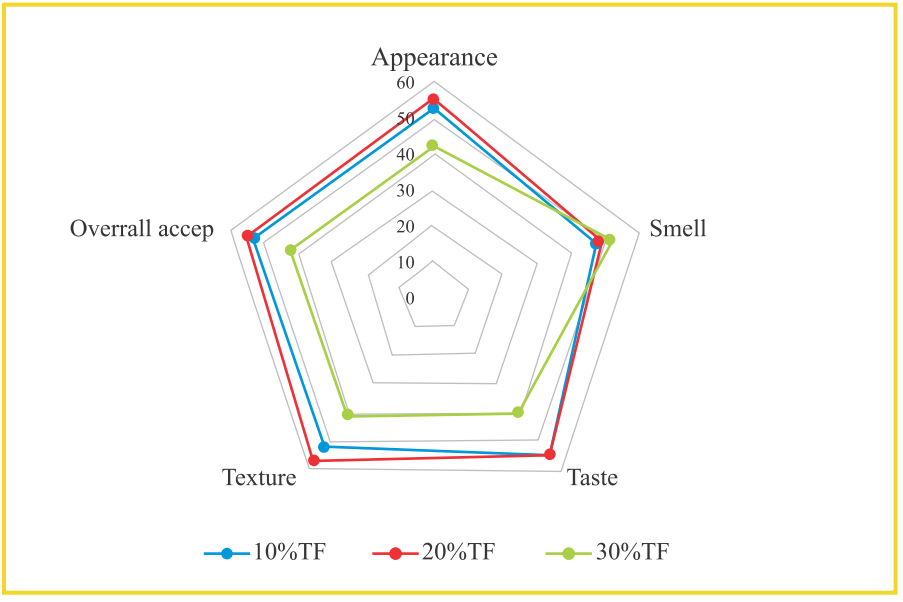


Figure: Sensory attributes for coconut testa flour incorporated pittu and roti

Anti-diabetic Effects of Coconut Testa Flour

Coconut Processing Research Division

The study to find out anti-diabetic effects of coconut testa flour was continued.

Diabetes type 2 can be better managed through partial inhibition of enzymes, α-amylase and α-glucosidase which are responsible for the breakdown of oligosaccharides and disaccharides into monosaccharides. The objective of this study was to evaluate the α-amylase and α-glucosidase enzyme inhibitory potential of partially defatted testa. Samples of Coconut Testa Flour (CTF) from five local cultivars were sequentially extracted with hexane, ethyl acetate and methanol. *In vitro* α–amylase assay of CTF crude extracts (presented as IC_{50}) showed a strong α-amylase inhibitory activities only among methanol extracts of all cultivars while weak inhibitory activities were observed among other two extracts. Coconut testa flour of Tall x Tall and San Ramon showed strong inhibition of α-amylase activity followed by Gon Thambili, Ran Thambili and the commercial cultivar.

The results of *in vitro* α–glucosidase assay of CTF crude extracts of hexane, ethyl acetate and methanol showed that all crude extracts of different cultivars have an inhibitory activity against α-glucosidase. Different cultivars showed differences in IC_{50} values in their crude extracts resulting in varied potential enzyme inhibitory effects. The inhibition of α-glucosidase activity was found to be much stronger than the inhibition for α-amylase activity in all extracts.

Development of machinery for the coconut industry

Bristle coir fibre Extracting Machine for coir industry

Coconut Processing Research Division

Ceylon drum (Petti Kuttama) is a traditional machine which is used for bristle coir fibre extraction in Sri Lanka. Although the Ceylon drum extractor produces best quality fibre, there are several drawbacks such the need for highly skilled labourers and safety issues. Therefore, workers are reluctant to use this machine. The Industrial Technology Institute (ITI) improved the feeding system mainly to address the safety issues. However, low output and inability to use for husks with different lengths etc in the improved extractor have not been addressed yet. Therefore, a project was conducted to develop the existing ITI coir extractor with the collaboration of the Coconut Research Institute, National Institute of Engineering Research and Development, Export Development Board and the Coconut Development Authority. The Memorandum of Understanding was signed with the parties collaborating in the project. Design and fabrication is in progress.

Design of new husk feeding system was completed. Separate motor was installed and coupled to existing husk feeding system to control forward and reverse movement of feeding husk. Areas for further improvement were identified after several running trials with modifications to the existing feeding mechanism.

Plate 1: Coir Extracting Machine in the development stage

Designing and Development of a dryer for Coir Pith Drying

Coconut Processing Research Division

A project was initiated to develop a dryer for coir pith drying. Coconut husk substrate industry needs a mechanical drying system to dry coir pith to address the issues in inefficient and unhygienic sundrying. International coconut substrate product buyers demand hygienically processed coir pith based products. Hence, upon a request of the Association of Coconut Husk-based Products Manufacturers, the Advisory Committee on Coconut and Coconut-based Products of the Export Development Board initiated a program to develop a dryer for coir pith drying. The committee identified that the development of a dryer for medium scale coir pith drying is a prime need to uplift the industry. Therefore, the National Engineering Research & Development Center (NERDC), Coconut Research Institute (CRI) and the Export Development Board signed a Memorandum of understanding to design and fabricate the dryer. Accordingly a dryer will be designed with the capacity of 1000kg per day and with the intension of reducing moisture of coir pith from 60 to 20%. The proposed dryer is a rotary dryer powered by diesel and electric and with concurrent material flow. The designed dryer length is 10m and cylinder diameter is 1m. The estimated research and development cost of the dryer is Rs. 6.75 million and 3.5 million is borne by the CRI and the balance Rs. 3.25 Million is borne by NERDC. In 2020, the detailed design was completed and the fabrication of the dryer was started which will be completed in 2021.

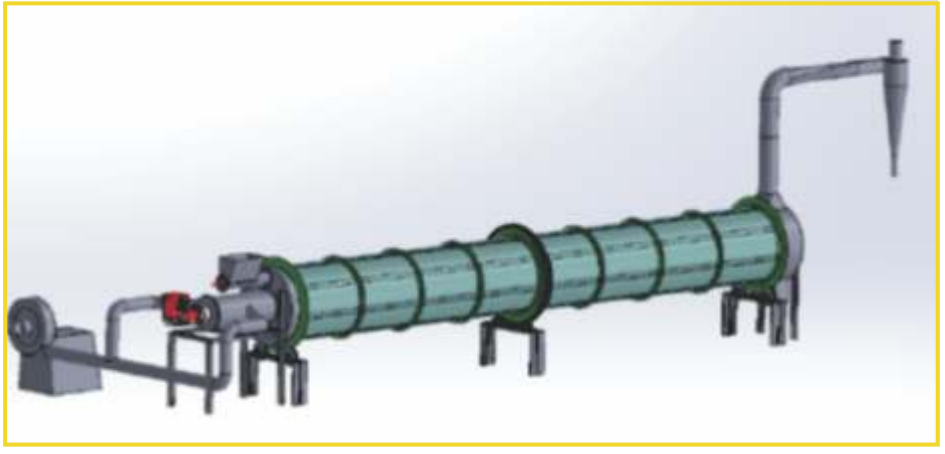


Plate 1: Fabrication of Coir Pith Drying is on progess

SOCIO-ECONOMICS

Overall Sector Performances of Kernel, Fiber and Other products

Agricultural Economics & Agribusiness Management Division

Coconut industry performance mainly depends on the annual national coconut production, nut use for coconut processing industries, exports of coconut based products and the use of nuts for local consumption. The estimated national coconut production in 2020 was 2818.3 million nuts which is about 9.3% lower than the production in 2019 (3106.4 million nuts). Nut yield in the first 5 picks in 2020 were comparatively lower than the corresponding picks in 2019 while the reductions were more conspicuous in the first 3 picks. There was a substantial button nut shedding in inflorescences opened or in the first 3 months after opening with the exposure to the temperature exceeding the critical temperature of 33°C. Moreover, rainfall across all coconut growing district has shown about 20% reduction in the first half of 2020. That might have also contributed to the reduction in the coconut yield in the country.

When consider the coconut processing industries, coconut oil production showed a negative growth in all the months while coconut oil exports showed approximately 28% growth compared to 2019. During the first half of the year, virgin coconut oil (VCO) industry has shown an 18% increase but the desiccated coconut (DC) production has decreased by 43% compared to the same period of the previous year. Meanwhile, the DC prices have shown an increasing trend over the period. According to the statistics, coconut oil prices have increased from 28 to 77% in the first half of 2020. These price increases were mainly because of the low nut production during the year, increase of demand for nut for the industry and the increase of prices of edible oil in the local market due to inappropriate special commodity levy adjustments. Especially farm gate nut prices were escalated due to the competition among the two major group of users; the processing industries such as coconut milk, milk powder, DC, coconut oil and VCO and domestic fresh nut consumers.

Edible oil importation was also reduced during the first half of the year but in the second half of the year, edible oil imports have been increased significantly recording 20% increase in the import quantity. At the same time, foreign exchange cost was also increased by 79% compared the previous year value. This is mainly due to the increase of special commodity levy and the suspension of oil imports of some edible oils in April and May, 2020. Government objective was to discourage the consumption of palm oil and promote local coconut oil and other edible oil production. But this policy negatively influenced the performance of the industry. At the same time copra exports was reduced in a significant amount showing negative growth during the whole year.

Modelling Coconut Prices to Develop a Price Forecasting Model

Agricultural Economics and Agribusiness Management Division and Plant Physiololgy Division

The global supply and demand for coconuts and coconut-based products have been increased tremendously over the past decades; hence, the industry has become one of the significant contributors to the economies of producer countries. However, similar to the other agricultural industries, coconut has confronted by fluctuation in prices and accords the importance of reliable price modelling and forecasting techniques to ease the burden on the value chain actors. Therefore, this study aims to review the main approaches used in modelling and forecasting coconut prices, with an assessment of the strengths and weaknesses of each approach and to develop a reliable model to forecast coconut prices. Through a comprehensive literature survey, the study identifies that the modelling techniques used in coconut price forecasting are mainly time series models dominated by univariate time series models.

Monthly data on farm gate prices of fresh coconut in Puttalam, Kurunegala, and Gampaha coconut cultivation regions (CCBR) in Sri Lanka from January 2009 to December 2019 was used in the analysis. Two types of time series models were fitted to the monthly farm gate prices of three major coconut growing areas separately and the best model was selected. ARIMA models were fitted to Puttalam and Gampaha district using AIC (Akaike Information Criterion) for model selection. None of the univariate time series model approaches was successful for Kurunegala data as the series showed a non-constant variance with the time.

Alternatively, Nonlinear Autoregressive neural network with exogenous inputs (NARX) models were used to fit every farm gate price series considering coconut production as an exogenous factor using normalized mean squared error (NMSE) for model evaluation. The results showed that the NARX model was the most appropriate model to forecast the monthly farm gate price of fresh coconut for three CCB regions because the lowest NMSE value was given by the NARX model. These models can be used to predict two-step ahead of coconut prices separately for these three major coconuts growing areas. The table 1 shows the comparison of ARIMA model and NARX network for coconut farm gate prices in three CCBRs.

Table 1:
Comparison of ARIMA model and NARX network for coconut farm gate prices in three CCBRs

Model	Puttalam	Gampaha	Kurunegala
ARIMA	0.1954 (1,1,5)	0.1842 (2,1,2)	NA
NARX	0.0540	0.1623	0.1591

Dynamics of Household Coconut and Edible Oil Consumption of Sri Lankan Consumers

Agricultural Economics & Agribusiness Management Division

During the last few decades, the food consumption patterns in Sri Lanka are being changed gradually. This was observable in the edible oil market fueled up by the trade liberalization of the edible market which allows various substitutes in the market. This was further driven not only the economic and demographic factors but also changes in lifestyles, which influence consumers' tastes and preferences. Therefore, this study aims at assessing the temporal shift in consumption of major edible oils and coconut in Sri Lanka and to ascertain the present pattern of consumption of edible oils and coconut by the households in rural, urban and estate sector.

Preliminary analysis of secondary data suggests that there has been a shift in the pattern of edible oil consumption of the Sri Lankans. Accordingly, the percentage share of coconut oil, which has long since been the major source of dietary fat, has eroded from 94 percent to 88 percent from 2006 to 2016. Further, the transitional probability estimated for the national aggregate data based on the Household Income and Expenditure Surveys indicated that the highest retention probability expenditure share lies within the group of other edible oils and category of vegetable oil is expected to gain in consumption expenditure from coconut oil.

Assess the impacts of release of predator mite to control *Aceria* mite

Agricultural Economics & Agribusiness Management Division

This study is being conducted to access the effectiveness of release of predator mite to control *Aceria* mite at farmer field conditions. The experiment was started with the collaboration of the Kurunegala Plantations Ltd who is already involved in breeding predator mite in their own laboratories. Release of predatory mites was continued for two years as recommended by the Coconut Research Institute and coconut production data in 2019 and 2020 were compared.

Average number of mite damaged nuts was 4.76 and 3.62 nuts per palm per month in 2019 and 2020 respectively. This reduction is significant ($P < 0.05$).

Average number of mite damage nuts that can be sold at full-price has decreased from 3.5 to 2.5 nuts per palm per month and this is a significant decline. However, number of mite damage nuts that can be sold at half-price did not show significant reduction. This experiment is extended to examine the residual effects of the release of predatory mites.

Evaluation of international organic fertilizer standards and related export regulations on the use of local organic fertilizer sources to organic coconut industry in Sri Lanka

Agricultural Economics & Agribusiness Management Division

The main objective of this study is to identify international and national standards of organic fertilizer and barriers to trade on organic coconut products. Several organic fertilizers are available but compost is the main concern of this study. National standards for two different composts namely a) compost made from raw materials of agricultural origin and b) compost made from municipal solid waste are issued by Sri Lanka Standards Institution. These standards were compared with standard of major export destinations of coconut-kernel products. Further, related export regulations were explored. In addition, a survey on commercial compost producers in the coconut triangle is completed. It revealed that some of the parameters namely amount of total nitrogen content, total phosphate content, C:N ratio and sand percentage are within the standard values while pH, electrical conductivity, organic carbon and total potassium content is lower than standard levels. Moisture percentage is higher than standard level.

Productivity improvement under climate uncertainty in home gardens in most vulnerable areas

Agricultural Economics & Agribusiness Management Division

This study comprised of three sections. The objectives of the first part of the study are a) to examine the long-term climate trends in rainfall and air temperature b) estimate trends of extreme climate events in four non-traditional coconut growing districts, namely Ratnapura, Jaffna, Hambantota and Matale to ascertain whether further expansion of coconut cultivation is feasible to such areas. This is done using secondary meteorological data obtained from the Plant Physiology Division of the Coconut Research Institute which is originally sourced from the Department of Meteorology for the period of 1961-2015.

The results revealed that there is a significant trend in daily rainfall in Rathnapura district but a significant ($P<0.05$) decrease in maximum temperature and an increase in minimum temperature during the period of 1961-2015. Daily rainfall in Hambantota is in a significant decreasing trend while daily maximum and minimum temperatures are in increasing trends. In Jaffna, maximum temperature showed an increasing trend while rainfall and minimum temperature showed no trends. Rainfall and maximum temperature showed no trends in Matale.

Evaluation of the success of coconut replanting programs of Sri Lanka

Agricultural Economics & Agribusiness Management Division

The Coconut Cultivation Board with the Coconut Research Institute annually produce coconut seedlings to support the national replanting program with the aim of making Sri Lankan coconut industry sustainable. However, there is no cross evaluation of the replanting program to understand how successful these seedlings are in the field level to cater the future coconut industry. Therefore, this study aims to evaluate current situation of the seedlings distributed in Sri Lanka since 2014 and thereby to understand the gaps in national replanting program. Further, the study will evaluate effectiveness of coconut replanting program, seedling mortality rate at the field level and root causes of the seedling mortality and thereby the gaps in technology dissemination.

In the survey conducted in Puttalam, Gampaha, Kuliyapitiya and Kurunegala Coconut Cultivation Board (CCB) regions with three new coconut hybrids Kapruwana, Kapsuwaya and Kapsetha issued during the period 2015-2017, it was found that the success rate of these three hybrids was ~90% in properly managed farmers' fields. The highest level of damage recorded was 30-50% which was due to black beetle and porcupine damages. A detailed analysis will be done with all the data collected.

Table 1:

Total number of seedlings issued by Gampaha, Kurunegala and Kuliyapitiya CCB regions under different subsidy programs (new planting (NP), Replanting (RP), Under Planting (UP) and Rehabilitation (RH)), and percentage of seedlings subsidized from 2014 – 2017

CCB Region	Year	Total Seedlings Issued	Seedlings issued under subsidy (NP/RP/UP/RH)	Percentage Seedlings issued under subsidy
Gampaha	2014	423,086	149,163	35.26%
	2015	196,447	136,250	69.36%
	2016	151,460	93,776	61.91%
	2017	199,823	128,823	64.47%
Kurunegala	2014	615,991	279,632	45.40%
	2015	301,911	194,289	64.35%
	2016	325,163	202,772	62.36%
	2017	467,088	281,199	60.20%
Kuliyapitiya	2014	427,992	225,656	52.72%
	2015	395,412	211,159	53.40%
	2016	196,823	151,570	77.01%
	2017	359,350	225,313	62.70%

DEVELOPMENTAL **RESEARCH**

Demonstrations of farming systems

Agronomy Division

01. Bio-energy Production

A bio-energy generation model was maintained in one hectare of coconut land which comprised of 150 coconut palms, 2500 trees of gliricidia and externally supplied paddy straw fed to six buffaloes at Ratmalagara Research Centre. In this system, gliricidia wood was used for gasification and buffalo dung was used to generate of bio-gas and the bio-gas effluent was applied to coconut palms. This model is being currently used to disseminate the knowledge among numerous stakeholders.

Gliricidia cultivation and bio-energy production unit at Ratmalagara Research Centre

02. Livestock Integration

The demonstration of goat and sheep farming systems under coconut with the objective of increasing profitability of small holder farmers through livestock integration under coconut was continued in Ratmalagara Reearch Centre. Both farming systems are very effective to control problematic weeds and to improve soil fertility level in coconut lands. More than 50 animals are reared with free grazing and CO-3 grass paddock systems. This model is also used to technology transfer activities to numerous stakeholders.

Goat and sheep farming demonstrations at Ratmalagara Research Center

03. Pasture and fodder demonstrations

To upgrade the knowledge and awareness of the local community, coconut growers, university, agriculture and school students on livestock management in coconut lands, two field pastures and fodder demonstrations containing fodder, pasture and cover crops were established in Ratmalagara and Bandirippuwa Research Centres.

Pasture and fodder grass demonstrations at Ratmalagara and Bandirippuwa Research Centers

04. Vermicompost production

A vermicompost production unit in Ratmalagara Research Centre was maintained with commonly available waste biomass, crop and animal residues to produce nutrient rich compost fertilizer within a short time. Processes were continued to multiply worms and to produce vermicompost for research and demonstration purpose. Worms were distributed among some coconut growers and this unit was also used as demonstration model for farmers, university, agriculture schools and school students.

Vermicomposting demonstration at Ratmalagara Research Center

05. Intercropping demonstrations

With the objective of knowledge dissemination and awareness of local community, coconut growers and university, agriculture and school students on inter cropping practice in coconut lands, more than twenty (20) intercropping models including export agricultural, fruit, timber, fodder and tuber crops were maintained at Makandura and Rathmalagara Research Centers.

Intercropping demonstrations at Makandura and Rathmalagara Research Centres

Distribution of hybrid coconut seedlings for wet zone home gardens (Kegalle and Rathnapura Districts)

Genetics and Plant Breeding Division

Main objective of this project is to provide high yielding hybrid seedlings to wet zone home gardens to increase the National coconut production. Under the Ministry funded project for increasing the high quality seed nut production for the National Replanting Programme, hand pollination of 1000 mother palms at Pallama Seed Garden was carried out in 2019 and the seedling production was continued in 2020. A collaborative project was carried out between the Coconut Research Institute and Coconut Cultivation Board to distribute these seedlings to high potential home gardens in the wet zone. Under this project 14,982 hybrid seedlings were distributed to 7491 households in Kegalle and Rathnapura districts.

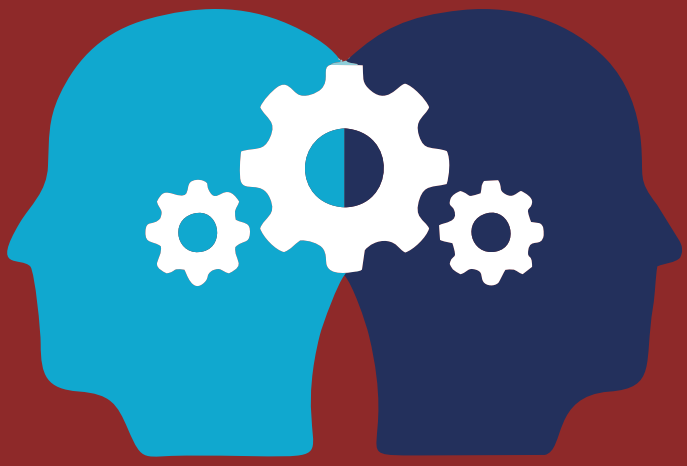
Distribution of hybrid seedlings to home gardens in Batuwatta CDO region, Kegalle

Upgrading of the Kiniyama Seed Garden

Genetics and Plant Breeding Division

Increasing the hybrid seed nut production capacity in Sri Lanka is the way forward to increase the yields and productivity of coconut lands. Therefore, Kiniyama Seed Garden was established by the Genetics and Plant Breeding Division, Coconut Research Institute in 2013 as a public-public partnership with Chilaw Plantations Ltd. to produce high yielding Kapruwana hybrid seed nuts.

In 2020, establishment of 2000m fence was completed. Renovation of an existing building as a pollen processing laboratory was initiated and construction work is in progress. 810 Green Dwarf seedlings were planted at the seed garden to fill the vacancies. Furthermore, 1000 Green Dwarf seed nuts were laid in the nursery for vacancy filling. Hand pollination programme was completed at Pallama Seed Garden to produce San Ramon seedlings to fill the vacancies at Kiniyama seed garden. These San Ramon seedlings will be used for vacancy filling during the Maha season 2021.



TECHNOLOGY **TRANSFER**

Certificate Course on Coconut Cultivation and Value Addition

Technology Transfer Division

The above educational programme is very popular among the coconut growers. But unfortunately due to the Covid pandemic situation in the country, the programme was not conducted in 2020.

Training of Trainer (ToT) Programmes

Technology Transfer Division

Twenty five training of trainer (ToT) programmes were planned to be conducted in 2020. But there were no requests from the farmer groups for ToT programmes due to the Covid pandemic situation in the country. Therefore, the programmes were not conducted during 2020.

The staff of the Coconut Processing Research Division conducted a training program on coconut processing technologies to the Industrial Development Board.

Research Extension Dialogues

Technology Transfer Division

Only one research extension dialogue was conducted via the Zoom technology to the Field and Extension officers of Kurunegala, Kuliyapitiya and Marawila Coconut Cultivation Board (CCB) Regions on 09th December to discuss the current issues in the sector. Further, it provided opportunity to introduce new recommendations to the CCB Field and Extension staff to solve the problems in the field. At the same time, it helped Coconut Research Institute to identify new research problems.

Research –Extension dialogue via the Zoom technology

Training Programme on Value Added Coconut Products

Technology Transfer Division

Although eight programmes were scheduled to be conducted with the Vidhtha Centers for the rural entrepreneurs, it was not conducted as scheduled due to the Covid pandemic situation in the country.

Distribute leaflets through Sunday newspapers

Technology Transfer Division

Dissemination of knowledge on coconut cultivation technologies to the growers was conducted by the Technology Transfer Division as a pilot project by distributing leaflets through Sunday newspapers from 2019. During 2020, 45,500 leaflets on different messages were distributed in Meerigama, Nelundeniya, Dambadeniya, Makandura, Negombo, Dankotuwa, Seeduwa, Kochchikade, Naththandiya, Marawila, Kakkapalliya, Nikaweratiya, Pallama, Kuliyapitiya, Hettipola, Bangadeniya, Andigama, Pasyala, Warakapola, Giriulla, Ganemulla, Gampaha and Gonawila areas.

School educational programmes

Technology Transfer Division

Due to the Covid pandemic situation in the country, school programmes were not conducted.

Educational Programme for universities and higher educational institutions

Technology Transfer Division

Four practical training programs were conducted for students from universities and higher educational institutions.

Universities	Agricultural/Schools / Institutes
Uva Wellassa University	Sri Lanka school of agriculture, Labuduwa
Open University	National Institute of Plantation Management

Exhibitions and crop clinics

Technology Transfer Division

CRI has not received any invitation to participate in exhibitions and crop clinics due to the Covid pandemic situation in the country.

Technology dissemination through mass media

Technology Transfer Division

Newspaper articles

During 2020, one newspaper article was published in Divaina News Paper. The article covered scientific application of fertilizer to increase the yield.

Printing and Publications

Technology Transfer Division

During the year, Technology Transfer Division has published following printing materials.

1. Advisory Circular A (Sinhala)
2. Advisory Circular B (Sinhala)
3. Advisory Circular A (Tamil)
4. Coconut Research Institute Annual Report 2018
5. Leaflets on Red Weevil Gel Pheromone
6. Leaflets on Red Weevil Detector

During the year, the printing unit of the division achieved a progress in the number of printing jobs completed. The unit undertook 52 printing jobs and binding jobs of other divisions which cost for Rs. 567,141.00. This includes booklets, leaflets, official forms, circulars, various kinds of forms, datasheets, letters, survey questionnaires, certificates, folders and handouts.

Coconut Technology Park (CTP)

Technology Transfer Division

Though the Coconut Technology Park (CTP) at Bandirippuwa estate which is maintained by the Technology Transfer Division is very popular among the coconut growers, school children and the general public, the CTP and the crop clinics were closed for public due to the Covid pandemic situation.

Trainings conducted in the incubation facility

Coconut Processing Research Division

Five trainings on king coconut water bottling, Nata de coco production, coconut milk processing, virgin coconut oil production and coconut ice cream production were conducted in the incubation facility.

Technology Transfer Activities for Weligama Coconut Wilt Disease

Crop Protection Division

01. Mr. P.H.P.R. De Silva, Research Officer of the Crop Protection Division made following presentations in different forums.
    a. A presentation on "Weligama Coconut Wilt Disease and strategic plan for coconut in Matara district for next five years" in a meeting held at the District Secretariat, Matara on 07.01.2020.
    b. A presentation on "Current status of the Weligama Coconut Leaf Wilt Disease management programme in the Southern province" to the Chairman/Coconut Research Board, Coconut Cultivation Board officers, Coconut Development Authority officers and representatives from the Coconut Growers' Association of Southern province in a meeting held at the Coconut Cultivation Board office, Matara on 24.01.2020.
    c. A presentation on "Epidemic coconut diseases of the Southern province and their management" to the Coconut Research Board at the board meeting held at the Coconut Research Institute on 13.03.2020.
    d. A presentation on "Epidemic coconut diseases of the Southern province and their management" to the Coconut Development Officers at the Coconut Cultivation Board (CCB), Galle in a meeting held at the CCB office, Labuduwa on 06.07.2020.

e. A presentation on "Epidemic coconut diseases of the Southern province and their management" to the Coconut Growers' Association of the Southern province in a meeting held at CCB office, Matara on 08.08.2020.

f. A presentation on "Epidemic coconut diseases of the Southern province and their management" to the Agricultural committee of divisional secretariat, Bope-Poddala in a meeting held at divisional secretariat office, Labuduwa on 02.10.2020.

02. Mr. P. H. P. R. de Silva conducted training programs to the newly recruited Field Inspectors of the Weligama Coconut Leaf Wilt disease palm removal program.

CONTRIBUTION TO NATIONAL DEVELOPMENT THROUGH

SERVICES TO STAKEHOLDERS

Improved coconut seed production and seedling certification

Genetics and Plant Breeding Division

During the year 2020 a total of 884,078 CRIC60 and 74,863 CRIC65 seed nuts were produced from the three Genetic Resource Centers; Ambakelle, Maduruoya and Pallama. Furthermore, 23,221 of CRISL98, 6,305 of Kapruwana, 2,241 of Kapsetha and 3,963 of Kapsuwaya hybrid seed nuts were also produced by hand pollination. Through the Coconut seedling certification programme, a total of 714,068 seedlings, including CRIC60 (401,040), CRIC65 (99,450), Moorock Tall (76,608), CRISL98 (32,178), Kapruwana (6,990), Kapsuwaya (9,771), Kapsetha (4,045) and Plus Palm (83,986) seedlings were certified by the staff of the Seed and Seedling Certification Unit.

CRI certified coconut seedlings

Issuing of Dikiri Coconut Seedlings

Tissue Culture Division

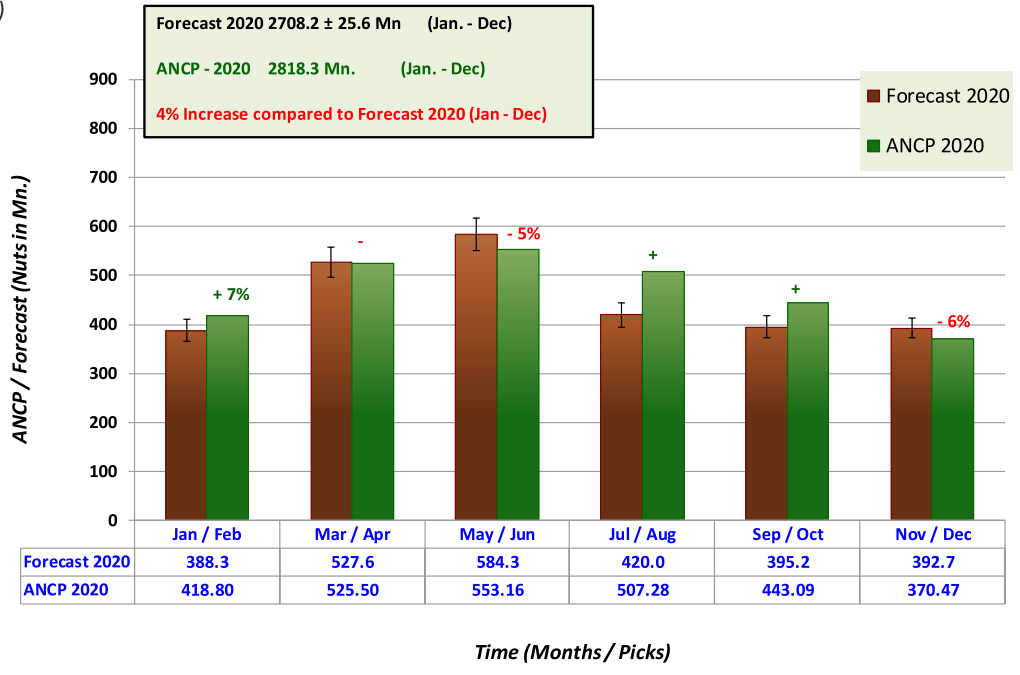
More than 200 dikiri plants were acclimatized during the year and 20 plants were sold to growers. Sixty plants were ready to plant in a new field at Makandura Research Center.

Estimation of National Yield of 2020 and Prediction of National Yield of 2020

Plant Physiology and Agricultural Economics and Agribusiness Management Division

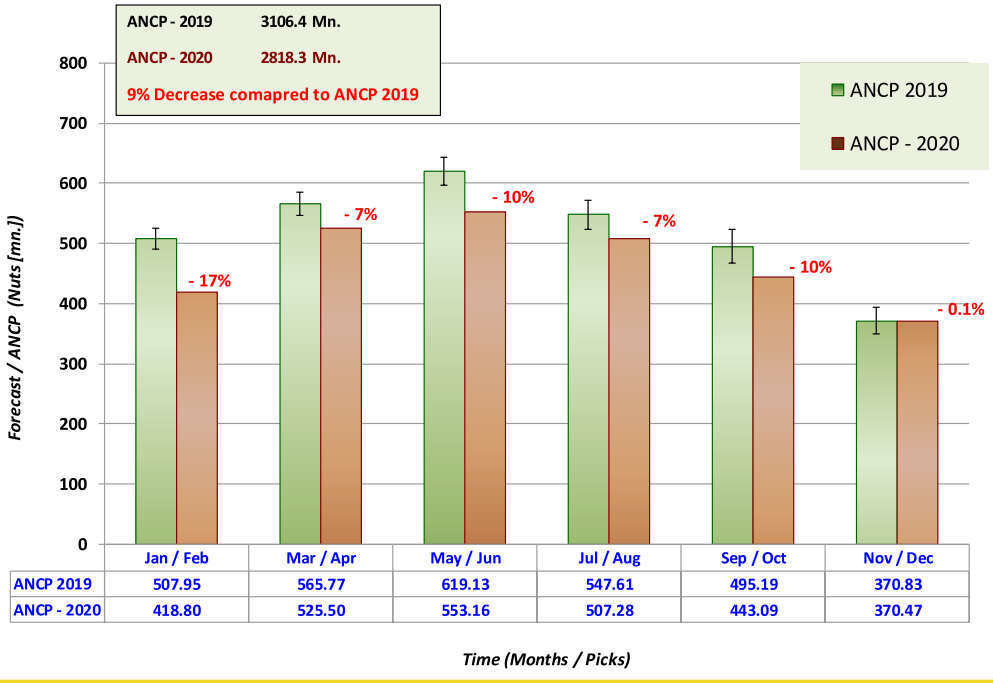
The estimated national coconut production in 2020 was 2818.3 Mn nuts. It is about 9% reduction compared to the production in 2019 (3106.4 Mn. Nuts). The predicted coconut production for 2020 was 2708.2 ± 25.6 Mn nuts which ranged from 2,682.6 to a maximum of 2,733.8 Mn nuts. Two issues of a brochure with the above information and the district-wise climatic parameters were printed and circulated among relevant officials, growers and entrepreneurs. In addition, bi-monthly updates of National Coconut Production and the forecast for the remaining months were provided to all stakeholders through e-mails on request.

a)



	Jan / Feb	Mar / Apr	May / Jun	Jul / Aug	Sep / Oct	Nov / Dec
Forecast 2020	388.3	527.6	584.3	420.0	395.2	392.7
ANCP 2020	418.80	525.50	553.16	507.28	443.09	370.47

b)



	Jan / Feb	Mar / Apr	May / Jun	Jul / Aug	Sep / Oct	Nov / Dec
ANCP 2019	507.95	565.77	619.13	547.61	495.19	370.83
ANCP - 2020	418.80	525.50	553.16	507.28	443.09	370.47

Comparison of the actual Annual National Coconut Production (ANCP) on bimonthly basis for 2020 with the forecast and (b) its comparison with ANCP 2019

Supply of Meteorological data

Plant Physiology Division

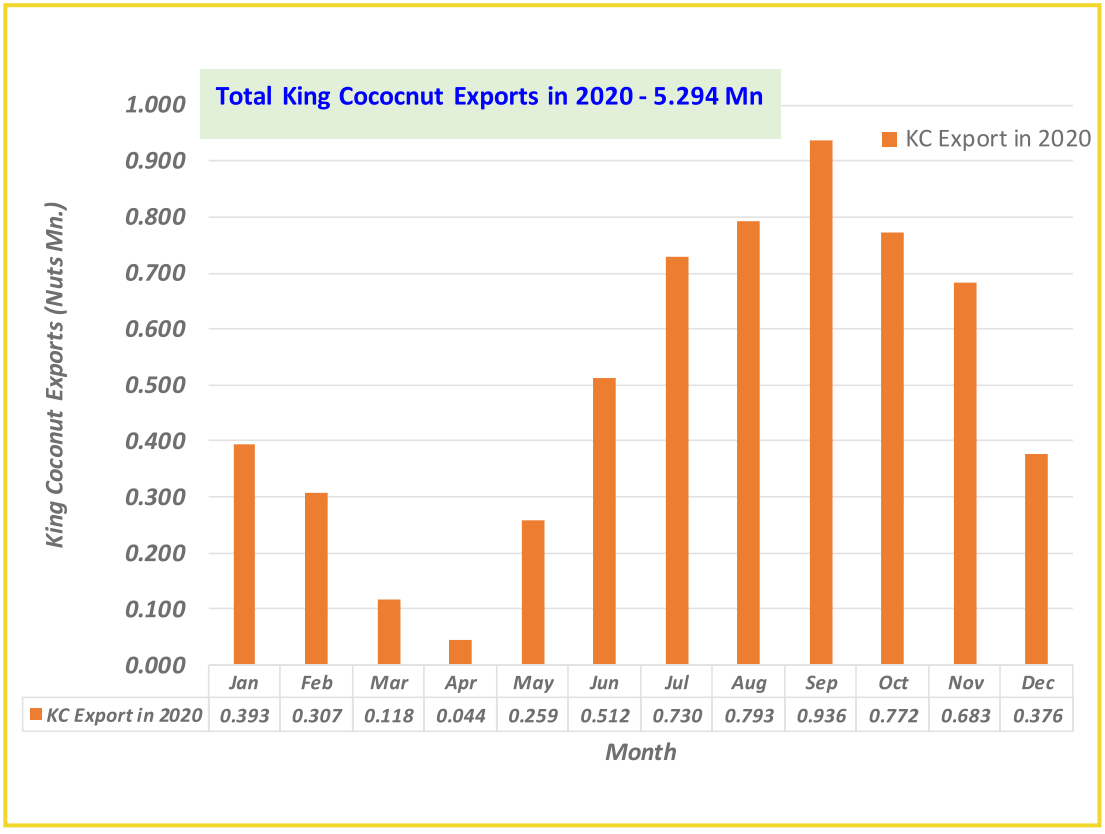
Daily data of rainfall, air and soil temperature, relative humidity, wind velocity and sunshine hours of five research stations of the Coconut Research Institute, namely; Bandirippuwa Estate, Ratmalagara Estate, Isolated Seed Garden, Maduru Oya Seed Garden and Middeniya Research Centre were provided to the national database at the Department of Meteorology. Monthly rainfall and temperature data were provided to growers, industry personnel, scientists, students and Divisional Secretariats of Wennappuwa, Mahawewa, Madampe and Dankotuwa on their request.

Data recording at Agro-meteorological Station at Bandirippuwa Estate

Supply of the protocol for the improvement of shelf life of king coconut for export markets

Plant Physiology Division

The protocol developed for the improvement of shelf-life of king coconut was disseminated to 14 exporters during the year. The export of king coconut to more than 25 countries in the world has shown a steady growth in previous years of which the export volume has exceeded level of 6 Mn. However, number of king coconuts exported during 2020 was slightly declined to 5.294 Mn. due to the Corvid – 19 pandemic situation with significant reductions in March – May period. However, exports were improved from June onwards.



Export of king coconuts in 2020 using the protocol developed by the Coconut Research Institute

Contribution to national development through services to stakeholders

Coconut Processing Research Division

Coconut Processing Research Division extended its services to stakeholders by analyzing samples (92 virgin coconut oil samples, 54 white coconut oil samples, 8 desiccated coconut samples, 04 coconut flour and 07 poonac samples). The technologies for copra production, white coconut oil, coconut milk, coconut water, coconut flour, coconut ice cream and Nata de coco were interested by the stakeholders. The incubation facility was open for visitors to get information on various products. Among the visitors, 14 for white coconut oil and copra production, 12 for virgin coconut oil, 14 for coconut water beverage, 8 for coconut ice cream, 6 for nata de coco and another 15 visitors for miscellaneous purposes got trained and familiarized.

"Kapruka" SMS Service

Technology Transfer Division

The *"Kapruka"* SMS Service was started in 2015 as a pilot project and gradually expanded its popularity among the coconut growers. As a result of the project, now the coconut growers have been able to receive messages on farm-gate price of a coconut and the prices of desiccated coconut, copra and coconut oil bi-weekly. The yield prediction for the following month is also communicated via this service. Our records reveal that during the year, 75,895 messages have been sent to the growers.

Provision of advisory services to growers

Technology Transfer Division

During the year, the division made 8 field inspections and submitted reports with necessary recommendations. The other general requests were referred to the respective Coconut Cultivation Board regional managers for necessary action.The number of telephone calls and letters received from coconut growers requesting technical advice and information were nearly 820 and they were provided with required advisory assistance by the staff of the division.

Production of predatory mites for the control of coconut mite

Crop Protection Division

Production of predatory mites for the control of coconut mite was continued. 12,751 predator mite sachets were produced in the Coconut Research Institute predator mite laboratories and 7,505 sachets were sold to the growers.

Crop Protection Division also provided technical guidance to the predator mite laboratories maintained by the Coconut Cultivation Board. During the year, visits were made to the laboratories at the Daisy Valley Estate, Gampaha, Kegalle, Batticaloa, Ampara, Mulativu and Palai and necessary recommendations were given on technical issues.

Maintenance of protective zone for the prevention of spreading of Weligama Coconut Leaf Wilt Disease in the country

Crop Protection Division

The palm removal program of the Weligama Coconut Leaf Wilt Disease (WCLWD) was continued. The Coconut Research Institute involved in the palm marking and removal program in the protective zone. A total of 10,507 lands in the Southern province were inspected in the protective zone management program covering 13,294.48 ac. Eight hundred and ninety-five (895) disease affected palms were identified and four hundred and fifty-one (451) were removed.

Breeding of parasitoids to control the coconut caterpillar

Crop Protection Division

Crop Protection Division continued the breeding of parasitoids in the insectary for the management of coconut caterpillar outbreaks. A total of 676,305 parasitoids were released to coconut caterpillar infested estates.

Synthesis and sale of pheromones for the management of red palm weevil

Crop Protection Division

Laboratory of the Crop Protection Division synthesized red palm weevil aggregation pheromones and sold 499 pheromone vials and 382 improved gel pheromone sachets to the growers and the Coconut Cultivation Board.

Coordination of importation of Monocrotophos 60 SL

Crop Protection Division

Coconut Research Institute imported 2000 liters of Monocrotophos 60% SL and handed over to the Coconut Cultivation Board for the management of red palm weevil infestations.

Test reports and fertilizer recommendations

Soils & Plant Nutrition Division

Analytical services	No of Samples analyzed
Soil	46
Leaf	08
Water	12
Coir Products	1065
Organic Manure	18
Inorganic Fertilizer	67

Supply of information to other institutions and stakeholders

Agricultural Economics & Agribusiness Management Division

1. Provided information to update research database of the Council for Agricultural Research Policy
2. Provided coconut statistics to Central Bank of Sri Lanka, Sri Lanka Treasury, Department of Census and Statistics and many other institutes and stakeholders
3. Provided valuation reports to value coconut trees removed for different purposes
4. Provided statistics and information on coconut for the Budget speech and the library of the Sri Lanka Parliament
5. Served as a Centre for Coconut Based Socio-Economic Statistics
6. Issued the policy recommendations to the industry
7. Provided data to update "National Science and Technology Status Report 2020" of the National Science and Technology Commission
8. Filled the survey questionnaire on "Survey of Research and Experimental Development (R & D)" in Sri Lanka of the National Science and Technology Commission.
9. Updated and maintained INFORM data base of the Sri Lanka Council for Agricultural Research Policy

Library Services

The library was open only for a limited number of days due to the Covid 19 pandemic. Regardless, the information requests were catered through online means as much as possible. Additionally, photocopying facilities were provided on request.

Engineering Services

Following major renovations and maintenance works were conducted by the Engineering Unit during the year 2020.

Repairs under Capital Expenditure

1. Repairing of Ho/Gr.02/14 Quarters
2. Repairing of Ho/Gr.03/05 Quarters
3. Repairing of Ho/Gr.03/03 Quarters
4. Construction of proposed two storied laboratory – (Common Lab – Stage 1)

In addition, routine maintenance works of the buildings, quarters, vehicles, electricity lines, air conditioners & telephone etc. were completed under recurrent expenditure.

NATIONAL **COLLABORATIONS**

Memoranda of understanding

Coconut Processing Research Division

1. Memorandum of understanding between the Coconut Research Institute and the University of Kelaniya to carry out the research on "Randomized control trial of virgin coconut oil in the treatment of Alzheimer's Dementia" was extended from 2019 to 2020.

2. Memorandum of understanding between the Coconut Research Institute and the University of Peradeniya to carry out the research on "Feasibility study of virgin coconut oil in ameliorating Type 2 diabetes in human" was extended from 2019 to 2020.

3. Memorandum of understanding between the Coconut Research Institute and the Kothalawala Defense Academy to carry out the research on "Determination of the efficacy of adjunctive extra virgin coconut oil / coconut products use in people with mild cognitive impairment and mild to severe Alzheimers disease; community based randomized, double blind, placebo controlled, pragmatic" was extended from 2019 to 2020.

4. Memorandum of understanding among Coconut Research Institute, National Engineering Research Development Center, Export Development Board, Coconut Development Authority, Fibre Millers Association and Exporters Association of Coconut Based Substrate was signed to carry out research for the development of dryer and coconut husk fibre extraction machines for the Industry in 2020.

5. Memorandum of understanding between Coconut Research Institute and National Institute of Fundamental studies to carry out research on " Antioxidative and anti diabetic activity of partially defatted coconut paring of indigenous coconut cultivar of Sri Lanka" was continued.

ESTATE MANAGEMENT **ACTIVITIES**

Estate Management Division

(Seed Garden/ Research Centers)

Estate Management Division (EMD) of Coconut Research Institute (CRI) is the managing division of four Genetics Resource Centers and seven Research Centers belong to the institute. Total extent of all CRI estates is 3,148 ac, out of which 1,980 ac. are Coconut Genetic Resource Centers and 1,168 acres are Research Centers.

The Estate Management Division was maintained satisfactorily as a self-financed division without depending on treasury funds.

The primary objective of the division is to maintain the Genetic Resource Centers to provide high quality seed nuts to coconut nurseries in the main coconut growing areas of the country. Further, the division provides facilities for the research divisions to carry out research under various conditions, i.e., under different soil types, different agro-ecological conditions, with different coconut cultivars and growing stages etc. Moreover, facilities such as labor, land, materials, protection for research fields are provided by the EMD.

Further, dissemination of new technologies through demonstrations are conducted successfully by maintaining demonstration blocks in different estates for scientists, plantation managers, coconut growers, University, diploma and school students, and for other interested personals.

Name of the CGRC/ RC	Main Objective	Extent/ ac.	Remarks
Makandura RC	Research Centre	145	
Rathmalagara RC	Research Centre	251.1	
Walpita RC	Research Centre	40	
Poththukulama RC	Research Centre	194	
Bandirippuwa RC	Research Centre	360.16	
Middeniya RC	Research Centre	75.55	
Thabbowa RC	Research Centre	6.96	
Ambakelle CGRC	Seed Garden	347.8	Forest area 828 ac
Maduruoya CGRC	Seed Garden	205.1	
Pallama CGRC	Seed Garden	623	
Weligama CGRC	Seed Garden	17.02	

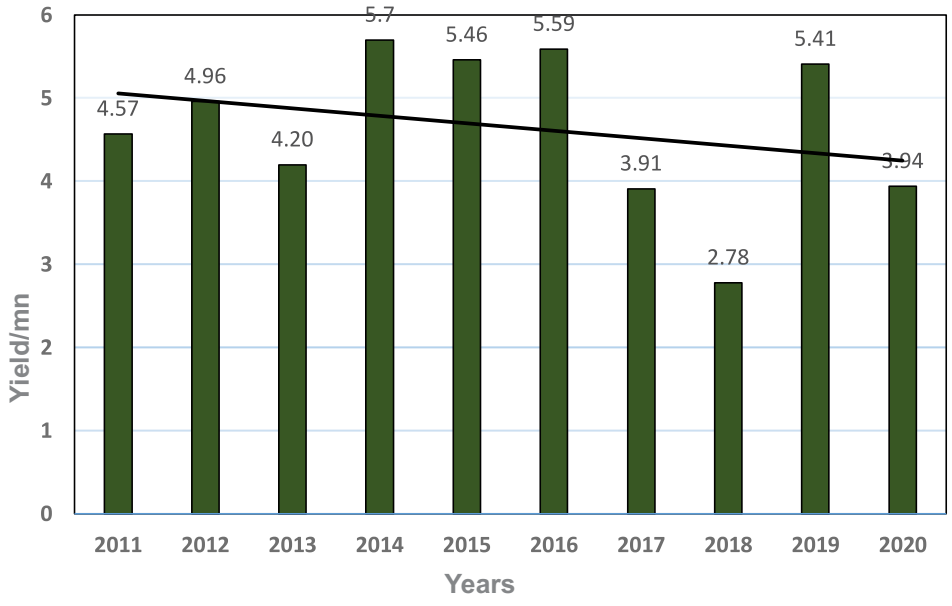
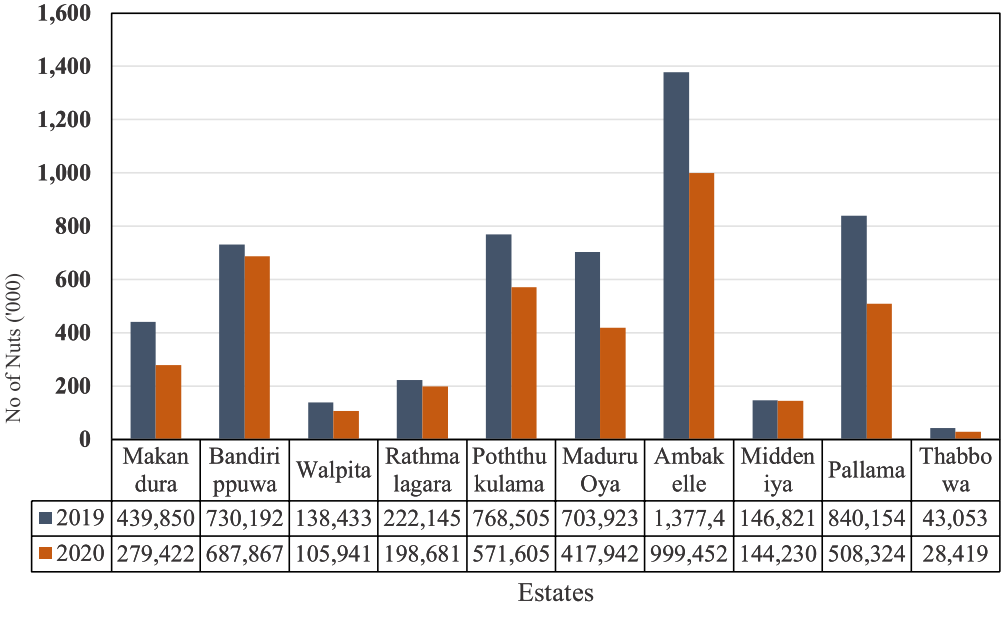


Figure 1 : Variation in coconut production in CRI Estates from 2011 to 2020



	Makandura	Bandiripuwa	Walpita	Rathmalagara	Poththukulama	Maduru Oya	Ambakelle	Middeniya	Pallama	Thabbowa
2019	439,850	730,192	138,433	222,145	768,505	703,923	1,377,4	146,821	840,154	43,053
2020	279,422	687,867	105,941	198,681	571,605	417,942	999,452	144,230	508,324	28,419

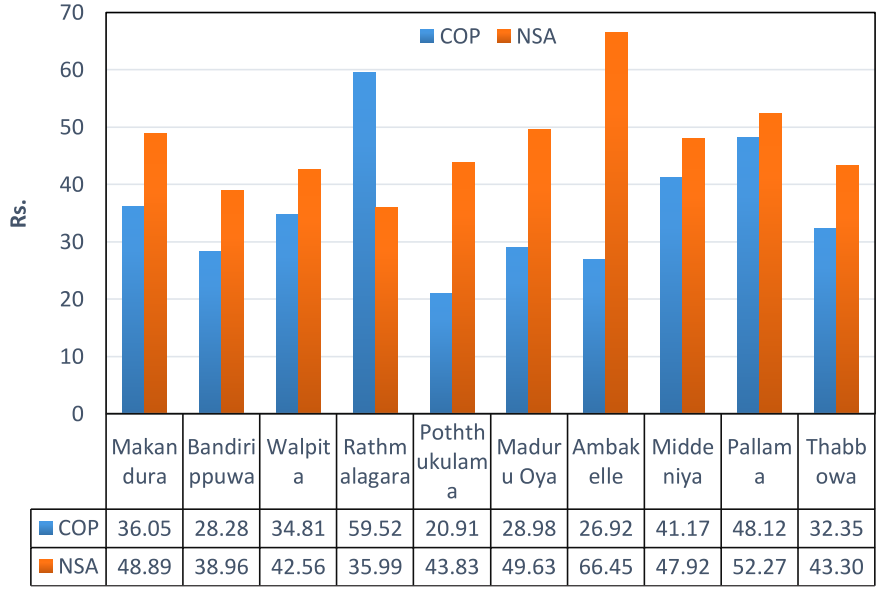
Figure 2 : Total production in CRI Estates in 2019 and 2020

The total coconut yield of all CRI Estates in 2020 was nearly 3.94 million nuts. Majority of these nuts were sold through the auction conducted by the Coconut Development Authority.

The cost of production (COP) and net sale average (NSA) of different estates are given in the Figure 3.

The average COP of all Estates was Rs.38.12 per nut while the NSA was Rs. 51.22. Net profit of the all estates was Rs. 72 million in the year 2020.

COP and NSA of the CRI estates



	Makandura	Bandiriippuwa	Walpita	Rathmalagara	Poththukulama	Madura Oya	Ambakelle	Middeniya	Pallama	Thabbowa
COP	36.05	28.28	34.81	59.52	20.91	28.98	26.92	41.17	48.12	32.35
NSA	48.89	38.96	42.56	35.99	43.83	49.63	66.45	47.92	52.27	43.30

Figure 3 : COP and NSA of the CRI estates

Ambakelle, Maduruoya and Pallama seed gardens are managed by the EMD to produce different types of quality coconut seeds to the plantation sector which is one of the major objectives of the EMD.

At Ambakelle Genetics Resource Center and Pallama Genetics Resource Center, special blocks are maintained to produce CRIC 65 (DXT) seeds to cater the home garden development program. During 2020, 0.9 and 0.15 million seed nuts of CRIC 60 and CRIC65 respectively were issued to the coconut nurseries. 6,305 , 3,963, 2,241 and 2,008 seed nuts of Kapruwana, Kapsuwaya, Kapsetha and TXMRD (CRISL 2020) respecitively, which were produced by hand pollination, were issued to the CRI coconut nurseries in 2020.

The variety CRISL98 (TXSR) was produced only in pallama Genetics Resource Center and 23,221 seed nuts were issued to the Coconut Nurseries in 2020.

The Plus Palm seed nuts were produced only in walpita Research Center and 19,065 seed nuts were issued to the coconut nurseries in 2020.

During the year, 190,767 seedlings were issued from the nurseries maintained by the Coconut Research Institute.

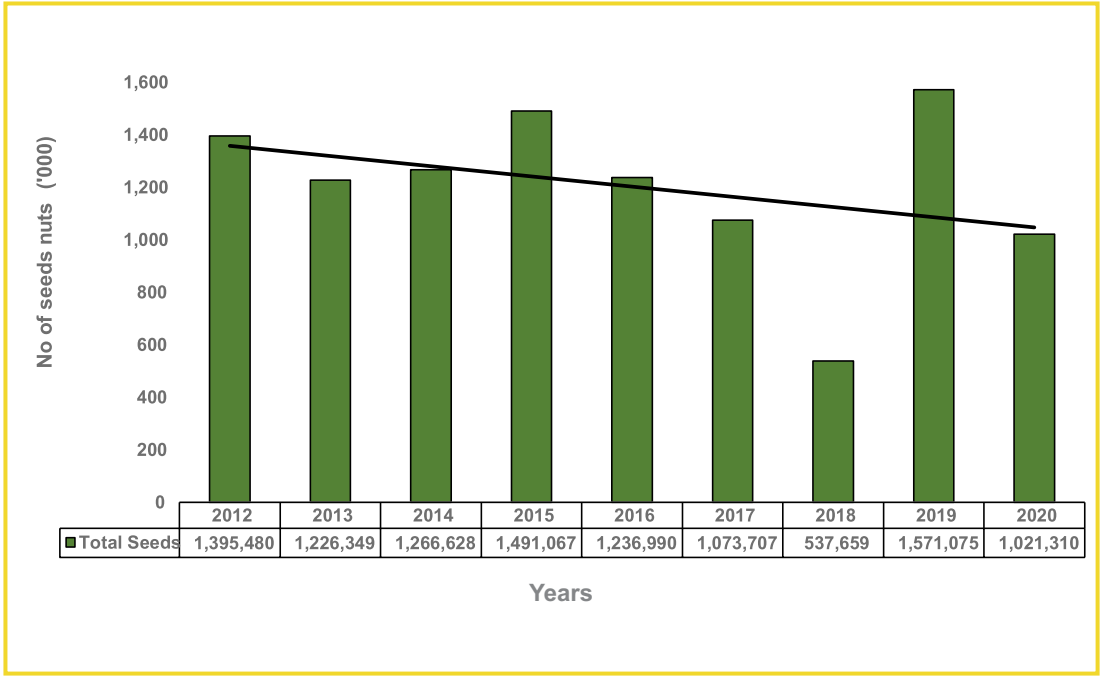


Figure 4 : Total seed production in all CRI estates from 2012 to 2020

Summary of annual census of all estates

Well Bearing Palms	Bearing Palms	Partial Bearing Palms	Young Palms	Seedlings	Unproductive Senile Palms	Dud Palms	Weak Palms	Vacancies
9,260	56,763	4,245	3,403	12,641	5,456	5,579	2,542	27,144

As per the census, total palm population of the estates is 99,889 except the palm vacancies. In these census categories, Unproductive Senile, Dud and Weak Palms which is about 13.59 % are not beneficial to the estates. Palms which are contributing to the yield (Well bearing, Bearing and partial bearing palms) covers about 70.35 % of the total.

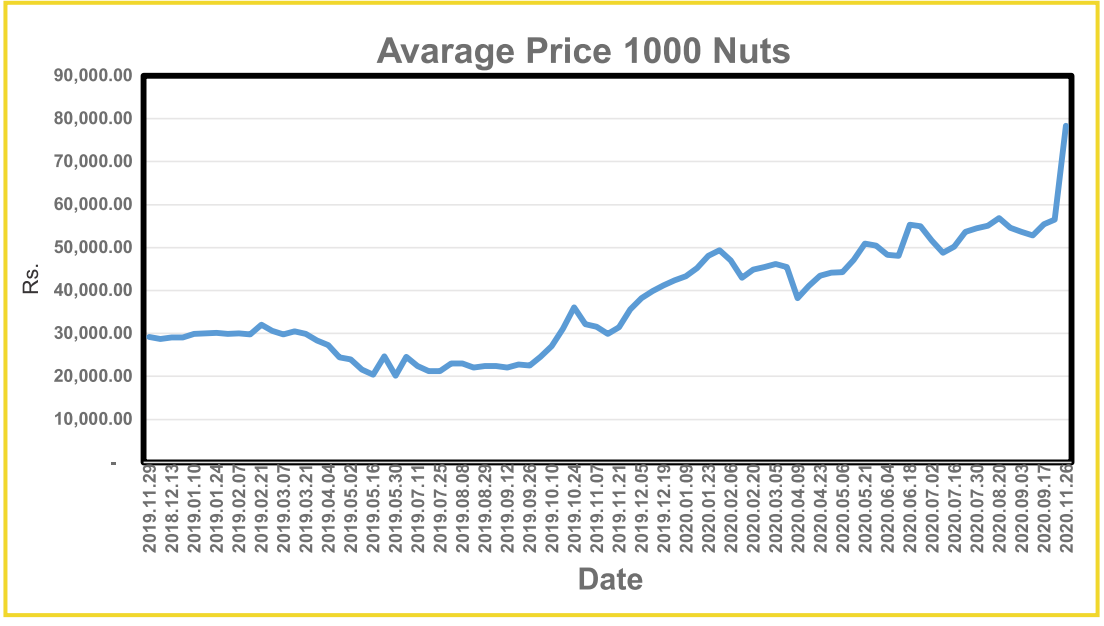


Figure 5 : Average auction price fluctuation per 1000 nuts for the last two years Auctions were not held from October – December 2020.

Coconut Genetic Resource Centre Ambakelle (CGRC Ambakelle)

Agro Ecological Zone	IL1b
Extent/ac	1175.8

Annual Coconut census of the estate

Description	Well Bearing Palms	Bearing Palms	Partial Bearing Palms	Young Palms	Seedlings	Unproductive Senile Palms	Dud Palms	Weak Palms	Vacancies
No. of Palms	5,630	7,393	675	1,586	3,810	528	540	250	1,810
%	25.33	33.27	3.03	7.14	17.14	2.38	2.43	1.13	8.15
%	58.60		10.17		17.14	14.09			

Coconut production in 2020

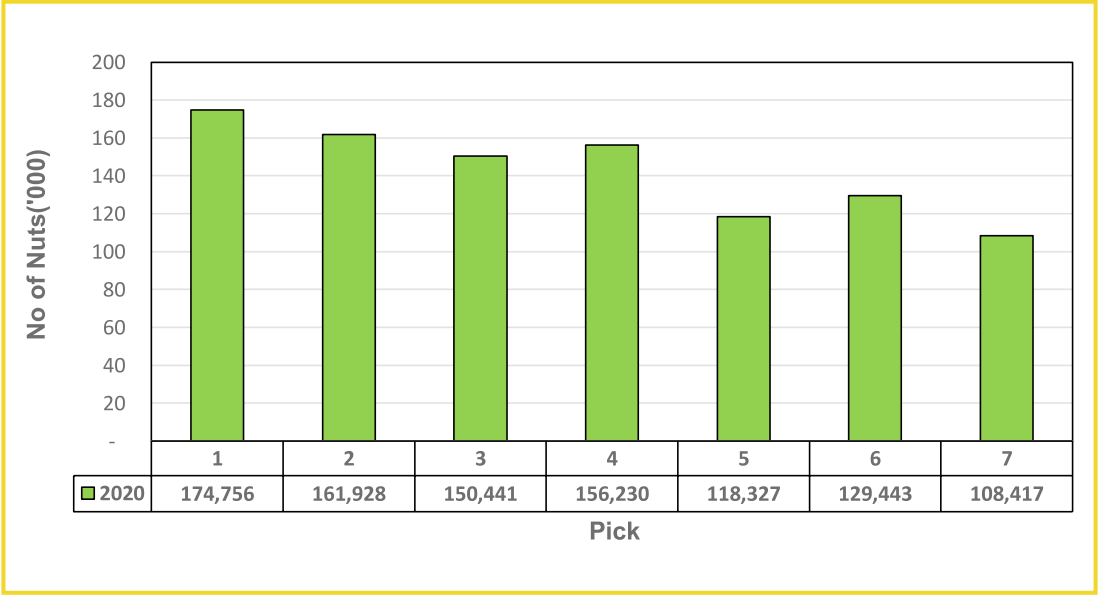


Figure 6 : Coconut production in Ambakelle Genetic Resource Centre in 2020

Variation in coconut production in previous years

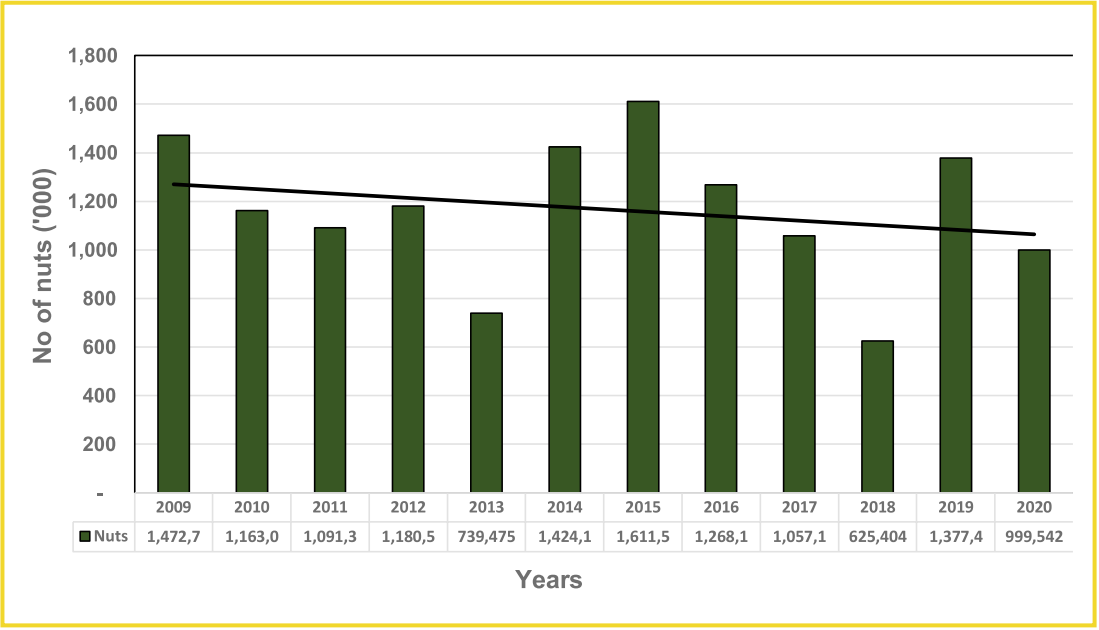


Figure 7: Variation in coconut production in previous years

The total coconut production during the year 2020 was 0.99 million, which is a 27.4% decrease compared to 2019. The total number of seed nuts issued was 0.71 million.

Rainfall during the year was 1292.9 mm. General maintenance was satisfactory during the year.

Annual application of fertilizer was made by covering all the palms of the estate using the advantage of both Yala and Maha rains.

Over 2000 dwarf palms were fertilized with organic manure and weeding, mulching and other cultural practices were duly attended.

The buffalo herd of 56 was maintained as an extensive system for grazing and thereby controlling grassy weeds at a low cost.

Rainfall information

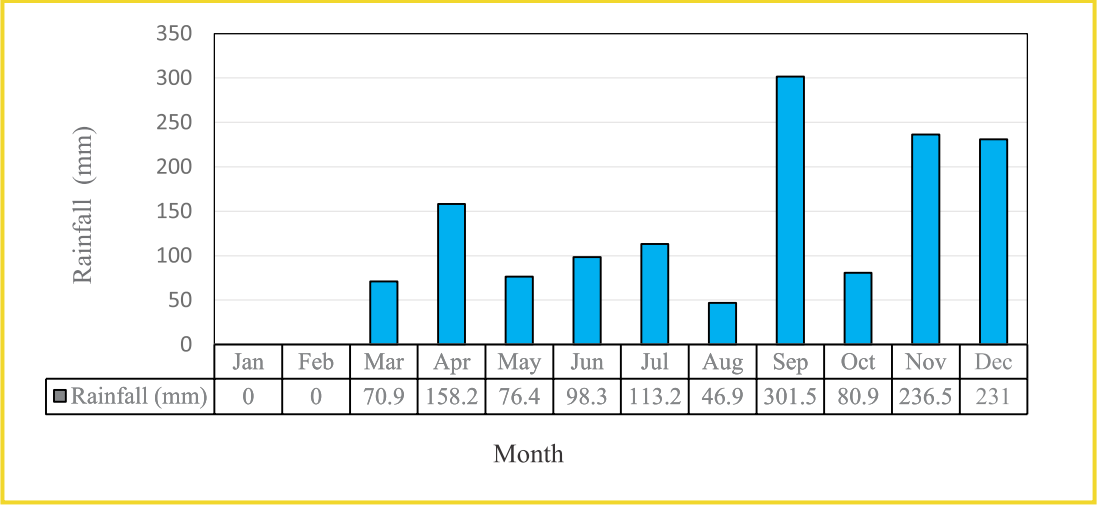


Figure 8 : Monthly rainfall in 2020

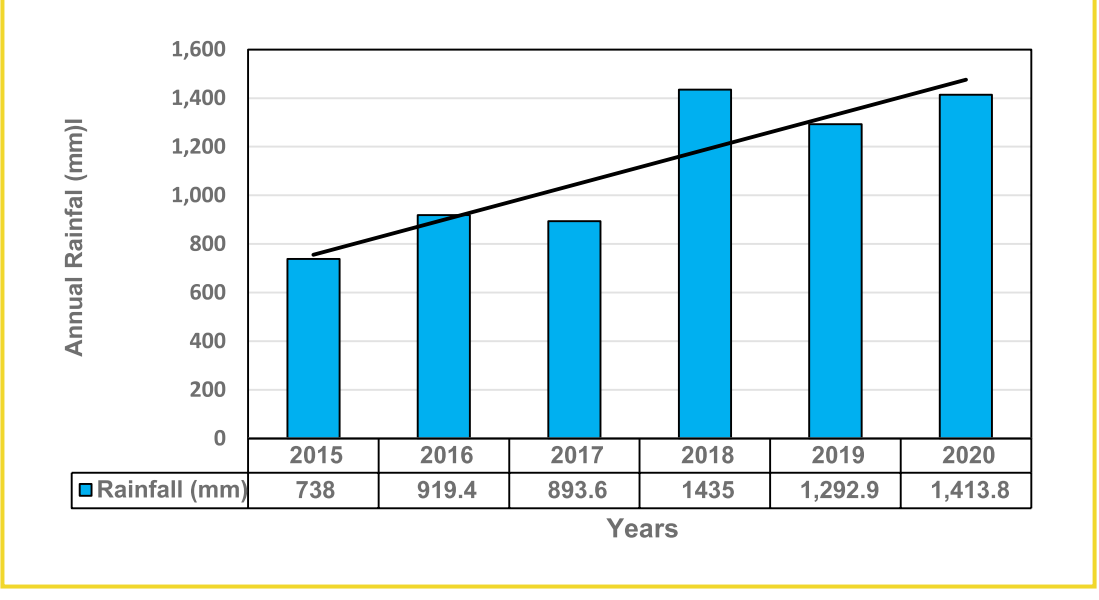


Figure 9 : Variation in annual rainfall in comparison to the previous years

Seed nuts of CRIC60 and CRIC65 are being produced in mass scale by control environment method and Kapruwana, seed nuts are also produced by hand pollination technology. Seed production in 2020 is as follows.

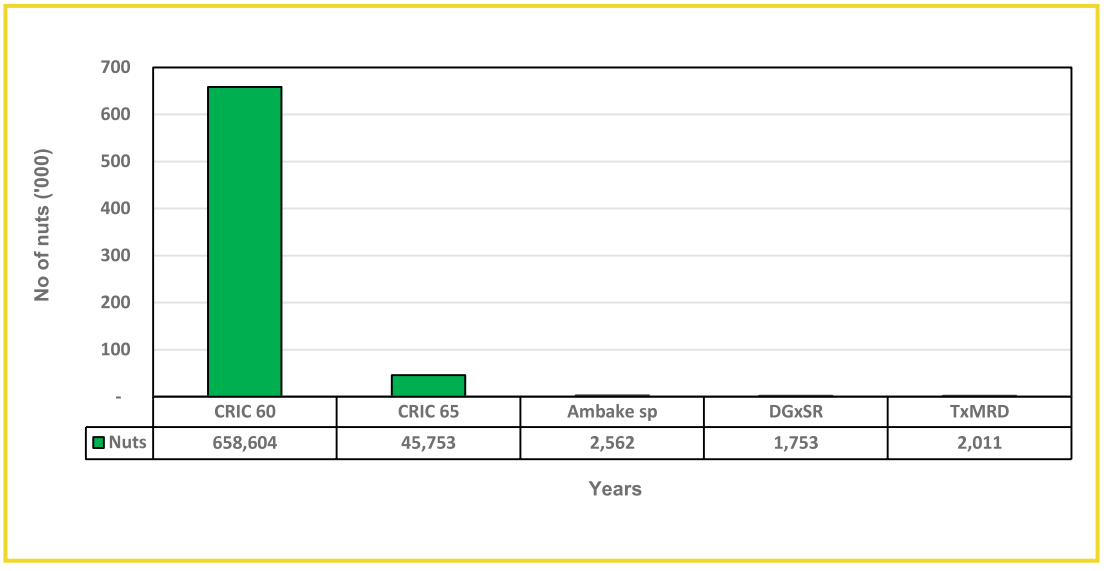


Figure 10 : Seed nut production of different varieties in 2020

	COP/Nut (Rs)	NSA/ Nut (Rs)
2019	25.85	49.38
2020	27.27	66.45

Coconut Genetic Resource Centre Pallama (CGRC Pallama)

Agro Ecological Zone	IL1b
Extent/ac	623

Annual Coconut census of the estate

Description	Well Bearing Palms	Bearing Palms	Partial Bearing Palms	Young Palms	Seedlings	Unproductive Senile Palms	Dud Palms	Weak Palms	Vacancies
No. of Palms	988	8,414	817	631	1,326	942	2,073	1,087	8,684
%	3.96	33.70	3.27	2.53	5.32	3.78	8.30	4.35	34.79
%	37.66		5.8		5.32	51.22			

Figure 11 : Coconut production in 2020

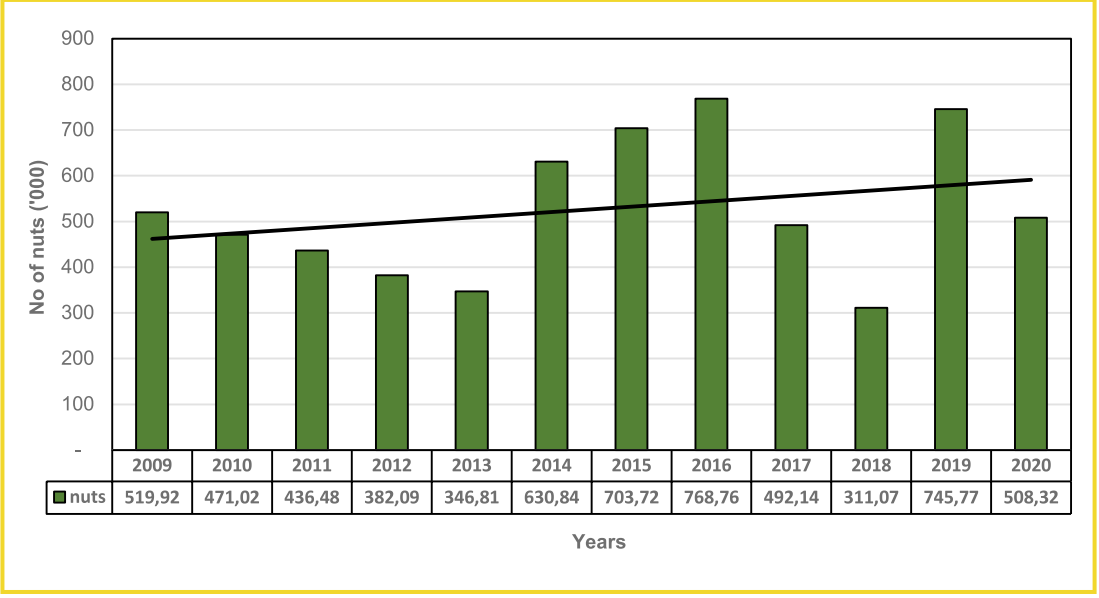


Figure 12 : Variation in coconut production in previous years

A part of the estate was still in the developing stage as a seed garden for the mass production of seed nuts.

CRI has initiated a special project in 2017 to increase the production of hybrid coconut seeds using 1000 mother palms with the objective to supply hybrid coconut seedlings especially to Northern and Eastern Province and wet Zone Home gardens. Funds were released from the national Budget of 2017, and this project was planned to continue till the end of 2019. Under this project, hose irrigation system was installed in field no.01, 02 and 03. Two tube wells were also established in this area.

The total production of nuts during the year 2020 was 508,324 which is a 31.84 % decrease compared to the previous year. The total number of seed nuts issued was 64,346 (23,221 of TSR, 29,110 of TxDY, 4,552 of SRxDG (Kapruwana), 2,241 of SRxDB (Kapsetha), 3,963 of Tx DB (Kapsuwaya) and 1,259 of SRxSR.

Rainfall during the year was 1246.4 mm. General maintenance was satisfactorily done during the year. Annual application of fertilizer was attended by covering all the palms of the estate making advantage of both Yala and Maha rains.

Rainfall information

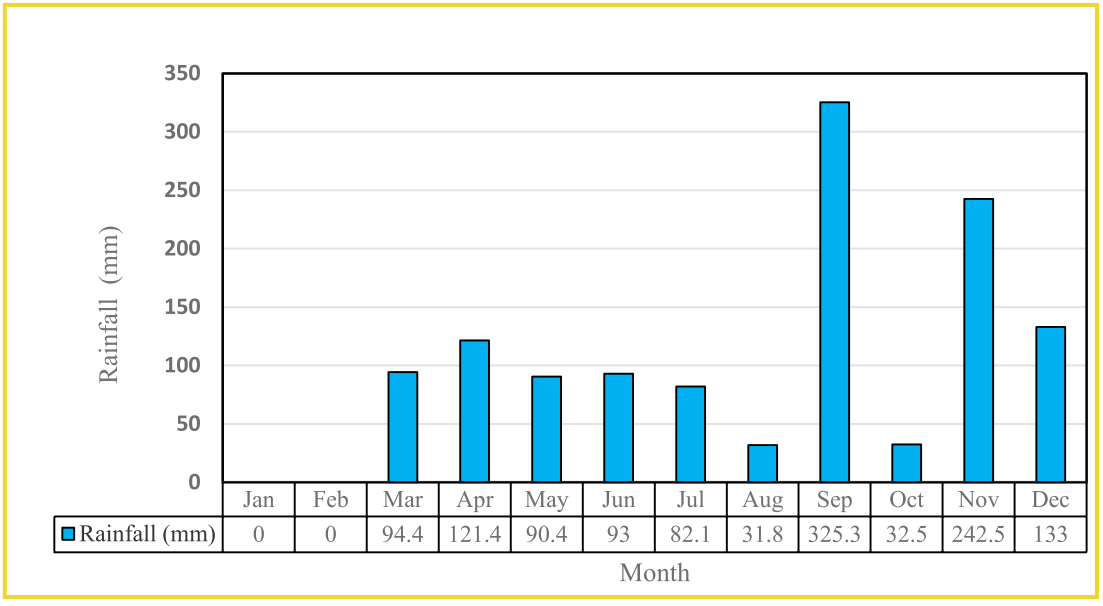


Figure 13: Monthly rainfall (mm) in 2020

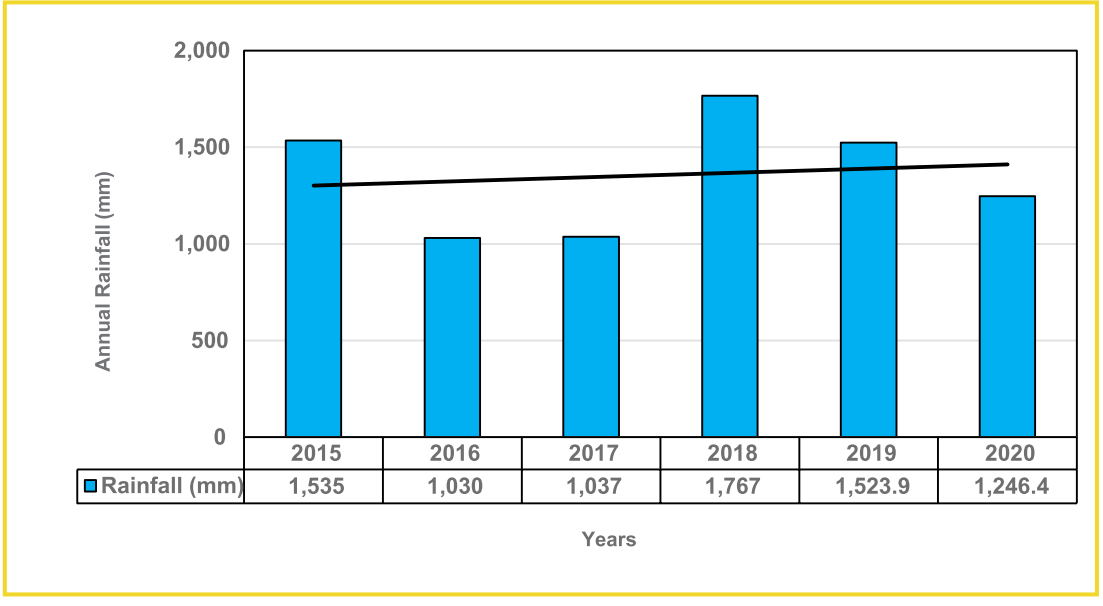


Figure 14 : Variation in annual rainfall (mm) in previous years

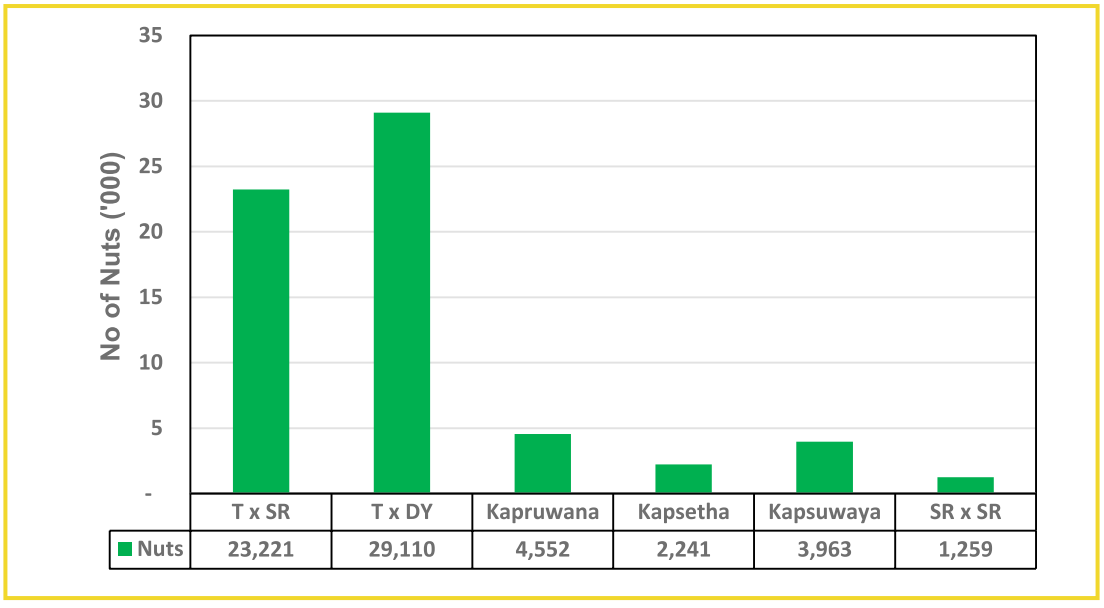


Figure 15 : Seed nut production of different varieties in 2020

	COP/Nut(Rs)	NSA/ Nut (Rs)
2019	28.54	38.25
2020	48.12	52.27

Coconut Genetic Resources Centre Maduruoya (CGRC Maduruoya)

Agro Ecological Zone	DL2b
Extent/ac	205.1

Annual census of the estate

Description	Well Bearing Palms	Bearing Palms	Partial Bearing Palms	Young Palms	Seedlings	Unproductive Senile Palms	Dud Palms	Weak Palms	Vacancies
No. of Palms	1886	5660	606	20	-	-	159	-	2549
%	17.33	52.02	5.56	0.18	-	-	1.46	-	23.43
%	69.35		5.76		-	24.89			

Maduruoya seed garden was maintained to supply seed nuts to Coconut Cultivation Board nurseries and registered private nurseries.

The total yield of coconut during the year 2020 was 417,942 nuts, which is a 40.63% decrease in the yield compared to 2019. A total of 226,492 nuts were issued as seed nuts.

The performance of the seed garden was not affected by drought because of the flood irrigation system using normal and concreate truffe irrigation cannel structures.

The center maintained 87 buffalos for breeding purpose and milk production. Rainfall during the year 2020 was 1507.1 mm. Weeding, mulching and other cultural practices were duly attended.

Annual application of fertilizer was attended by covering 100% palms of the estate making advantage of Maha rains.

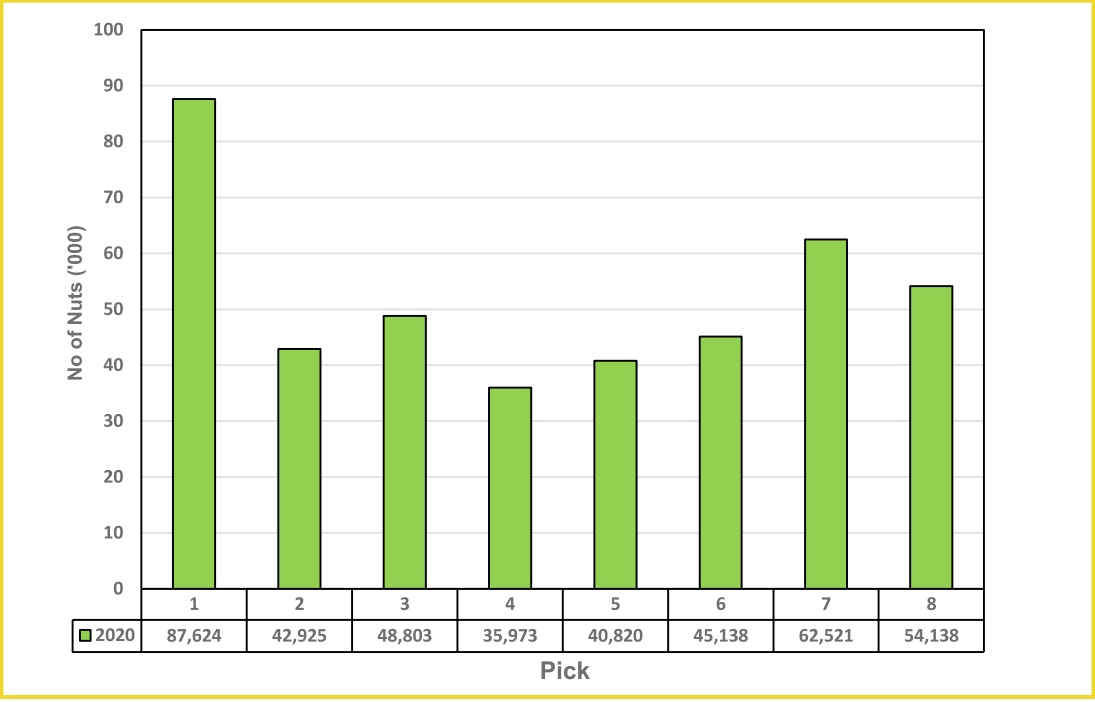


Figure 16 : Coconut production in 2020

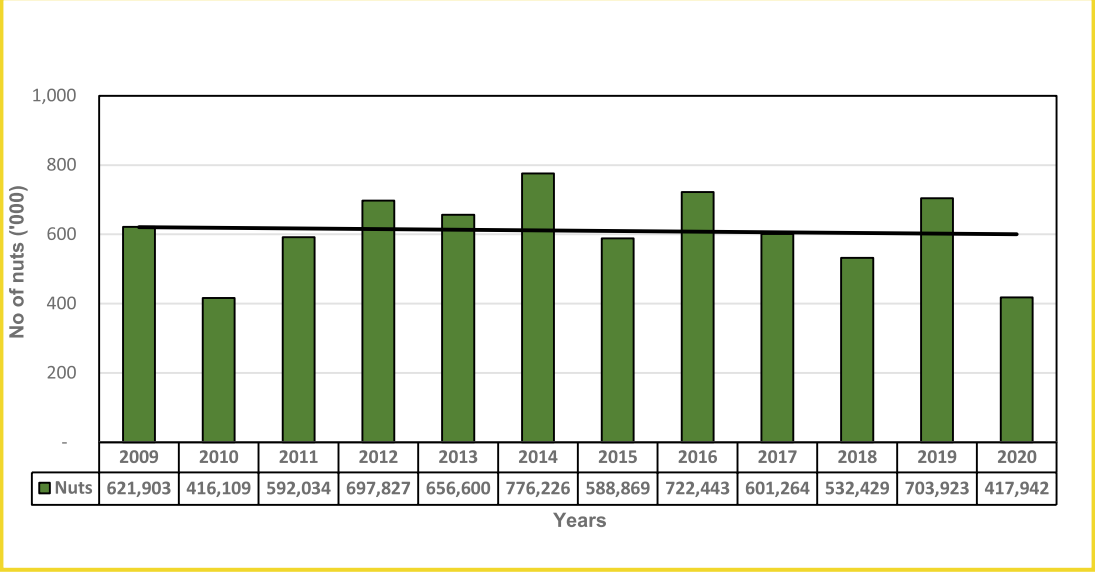


Figure 17 : Variation in coconut production in previous years

Rainfall information

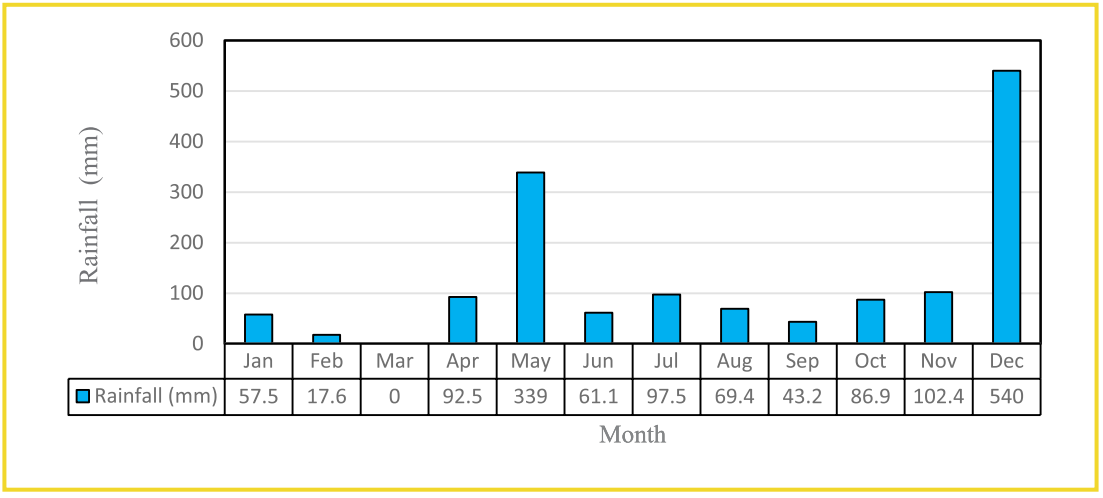


Figure 18: Monthly rainfall (mm) in 2020

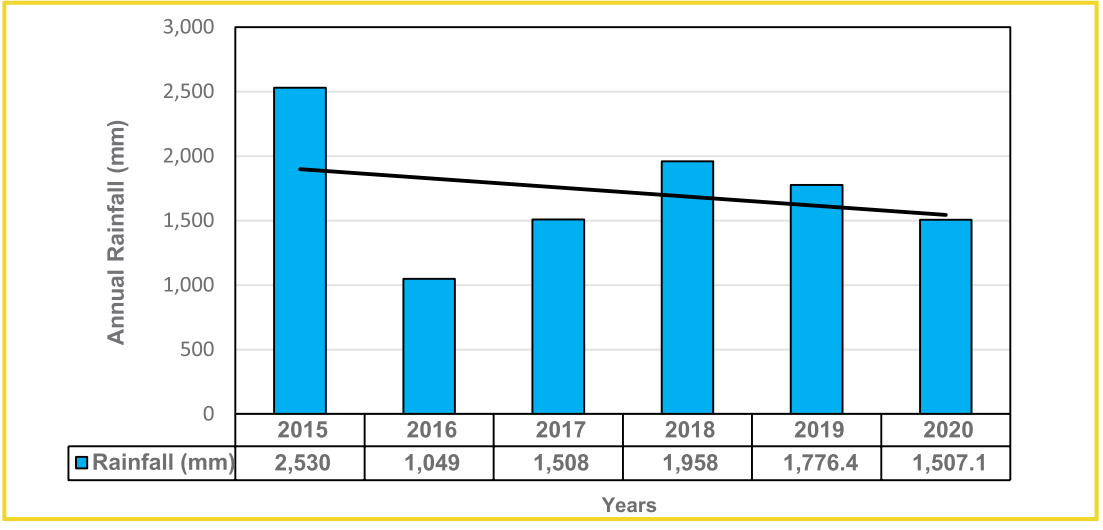


Figure 19 : Variation in annual rainfall (mm) in previous years

	COP/Nut(Rs)	NSA/ Nut (Rs)
2019	18.34	36.76
2020	28.98	49.63

Weligama Seed Garden

Agro Ecological Zone	WL2a
Extent/ac	17.02

Annual census of the estate

Description	Well Bearing Palms	Bearing Palms	Partial Bearing Palms	Young Palms	Seedlings	Unproductive Senile Palms	Dud Palms	Weak Palms	Vacancies
No. of Palms	02	37	19	-	316	-	31	-	15
%	0.48	8.80	4.52	-	75.25	-	7.38	-	3.57
%	9.28		4.52		75.25	10.95			

This estate was previously managed by the Coconut Cultivation Board as a coconut nursery which was acquired by the Coconut Research Institute on lease basis at the end 2016. Several development activities were initiated with the funding of Weligama coconutleaf wilt disease (WCLWD) project in 2017.

Total extent of this seed garden is 17.2 ac and the most of the areas were covered with cinnamon plantation at the time of acquiring. Ground preparation, fencing and renovation of OIC's quarters were completed in 2017. The main objective of the establishment of this Seed Garden was to produce WCLWD resistant/ tolerant coconut seeds to the growers. As an initial step about 300 DG Mother Palms were planted in early 2019.

Makandura Research Centre

Agro Ecological Zone	IL1a
Extent/ac	145

Annual census of the estate

Description	Well Bearing Palms	Bearing Palms	Partial Bearing Palms	Young Palms	Seedlings	Unproductive Senile Palms	Dud Palms	Weak Palms	Vacancies
No. of Palms	238	4065	1530	291	554	-	-	171	1795
%	2.75	47.04	17.71	3.37	6.42	-	-	1.98	20.73
%	49.79		21.08		6.42	22.71			

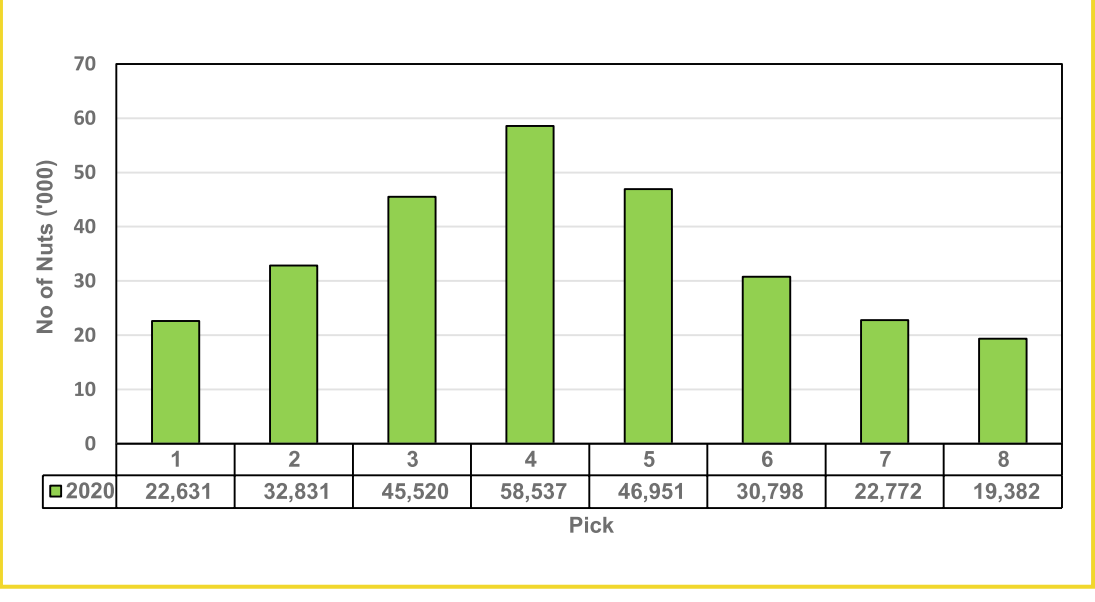


Figure 20: Coconut production in 2020

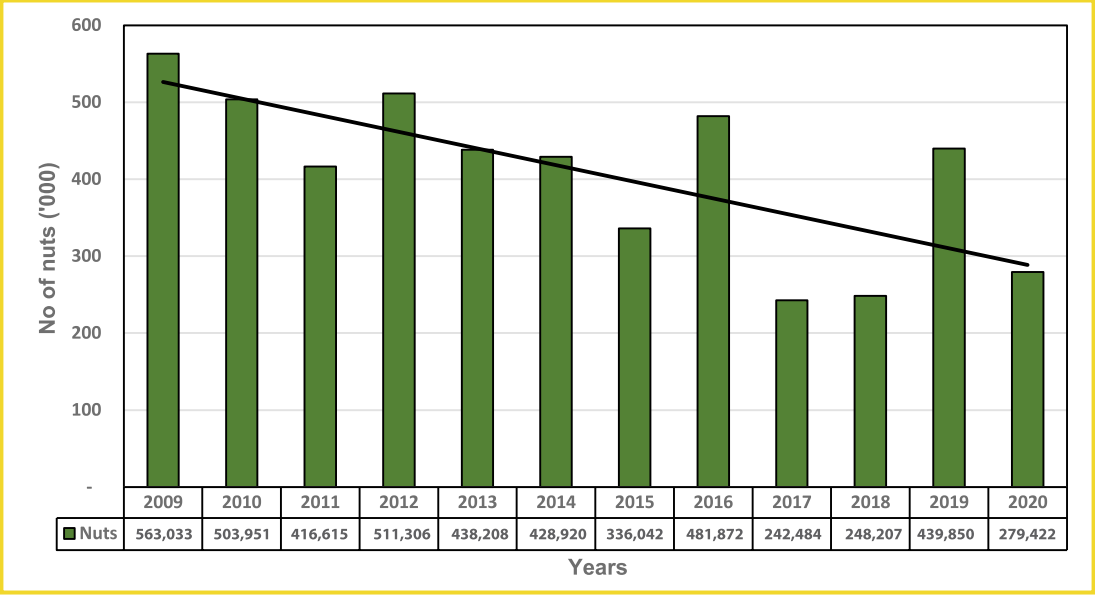


Figure 21 : Variation in coconut production in previous years

The total yield was 279,422 nuts, which is a 36.47 % decrease than 2019. This center maintained 03 cattle and 03 goats for breeding purposes and milk production.

Rainfall during the year was 1669.3 mm. General maintenance was satisfactorily done during the year.

Rainfall information

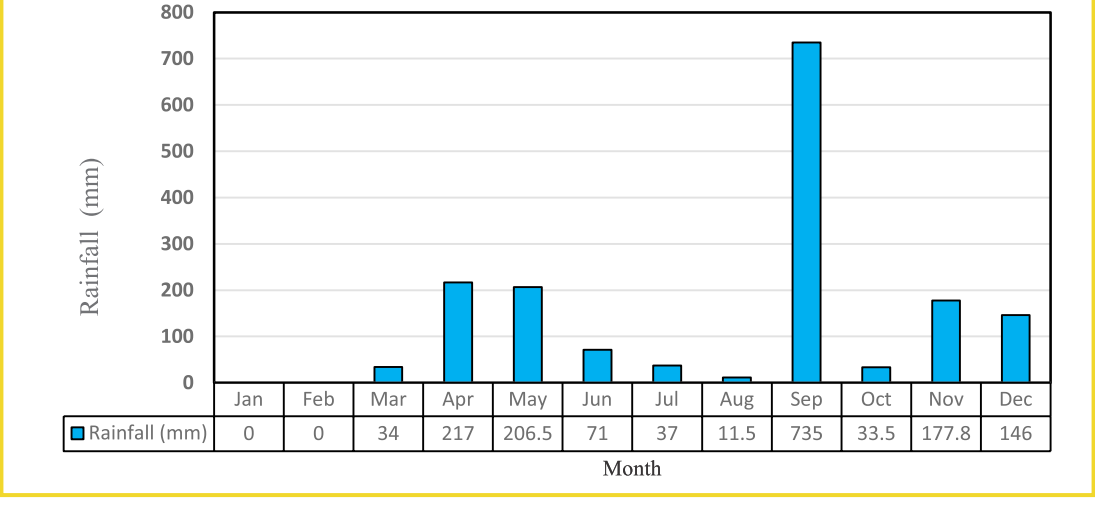


Figure 22 : Monthly rainfall (mm) in 2020

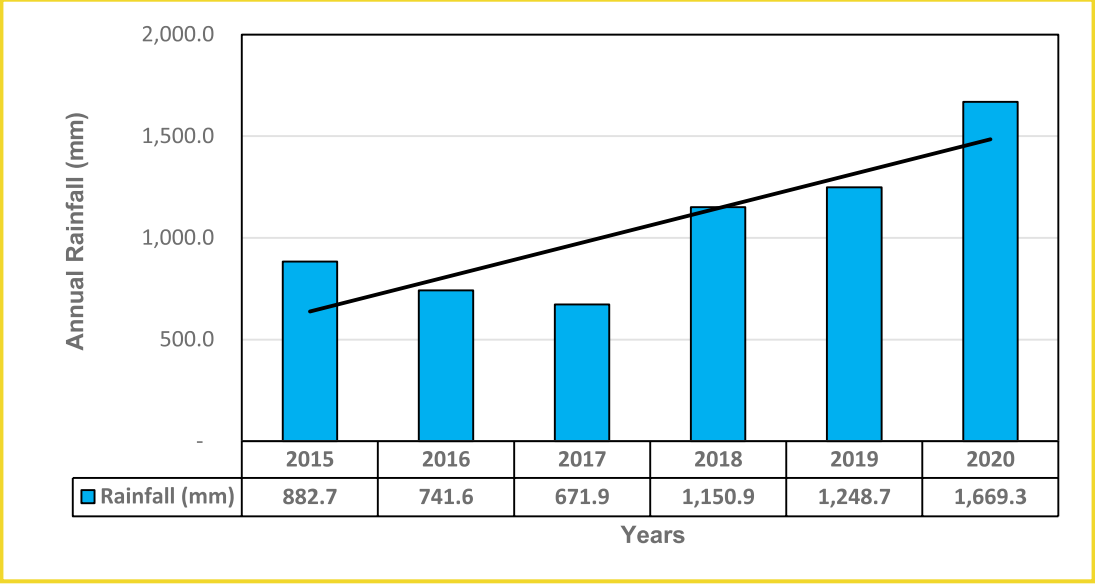


Figure 23 : Variation in annual rainfall (mm) in previous years

	COP/Nut(Rs)	NSA/ Nut (Rs)
2019	24.11	26.40
2020	35.86	49.72

Bandirippuwa Research Centre

Agro Ecological Zone	IL1a
Extent/ac	360.16

Annual census of the estate

Description	Well Bearing Palms	Bearing Palms	Partial Bearing Palms	Young Palms	Seedlings	Unproductive Senile Palms	Dud Palms	Weak Palms	Vacancies
No. of Palms	3932	5898	503	187	876	93	1,476	692	310
%	28.15	42.22	3.60	1.34	6.27	0.67	10.57	4.95	2.22
%	70.37		4.94		6.27	18.42			

Figure 24: Coconut production in 2020

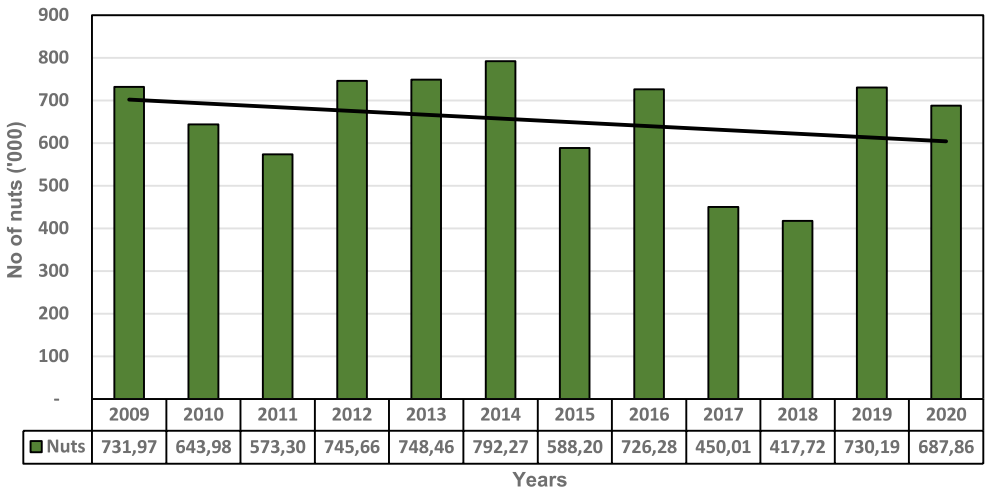


Figure 25 : Variation in coconut production in previous years

The total yield of coconut during the year was 687,867 nuts, which is a 5.8 % decrease compared to the 2019. Rainfall during the year was 1624 mm. Application of fertilizer was made by covering 50.2 % of the total palms of the estate making advantage of both Yala and Maha rains.

Weeding, mulching and other cultural practices were duly attended.

The road system was renovated during the year. Livestock consisting of 74 cattle and 37 buffalos were maintained successfully to production of milk. Technology Park was successfully maintained in field No.07 adjoining Kuliyapitiya road.

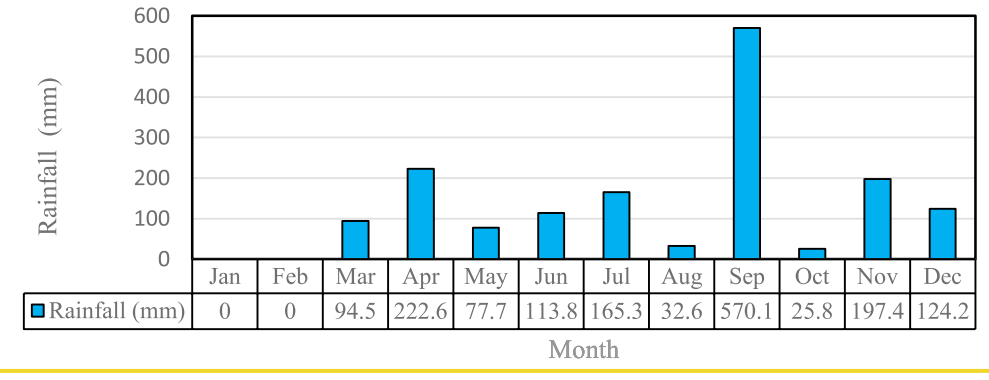


Figure 26 : Monthly rainfall (mm) in 2020

Annual census of the estate

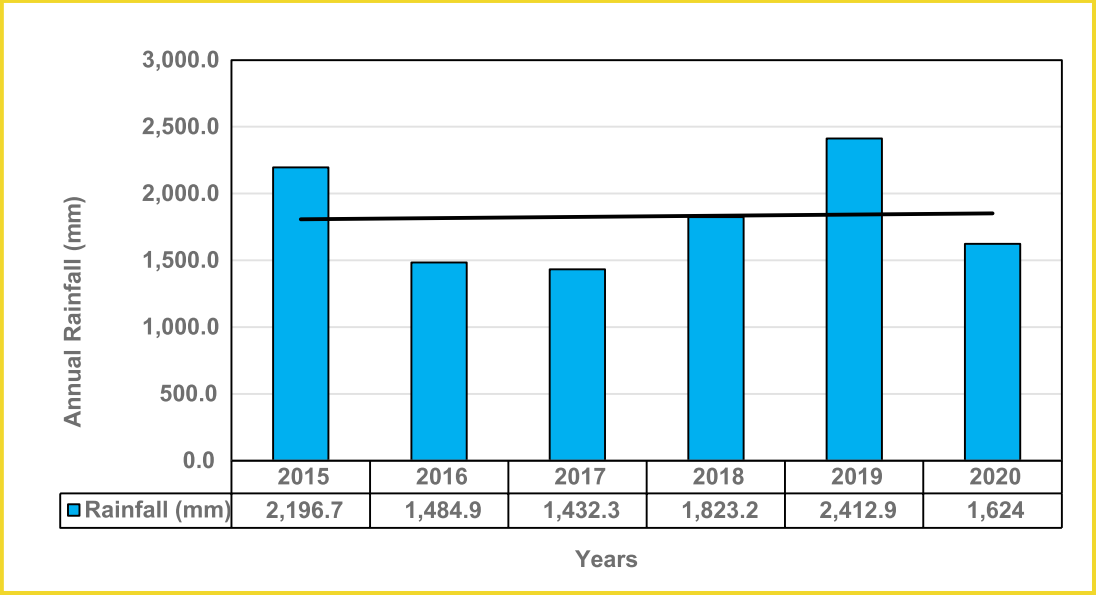


Figure 27 : Variation in annual rainfall (mm) in previous years

	COP/Nut(Rs)	NSA/ Nut (Rs)
2019	26.42	24.91
2020	28.24	48.96

Rathmalagara Research Centre (RRC)

Agro Ecological Zone	IL1a
Extent/ac	251.1

Annual census of the estate

Description	Well Bearing Palms	Bearing Palms	Partial Bearing Palms	Young Palms	Seedlings	Unproductive Senile Palms	Dud Palms	Weak Palms	Vacancies
No. of Palms	2600	6068	19	130	1,604	1,814	149	188	2980
%	16.72	39.02	0.12	0.84	10.31	11.66	0.96	1.21	19.16
%	55.74		0.96		10.31	32.99			

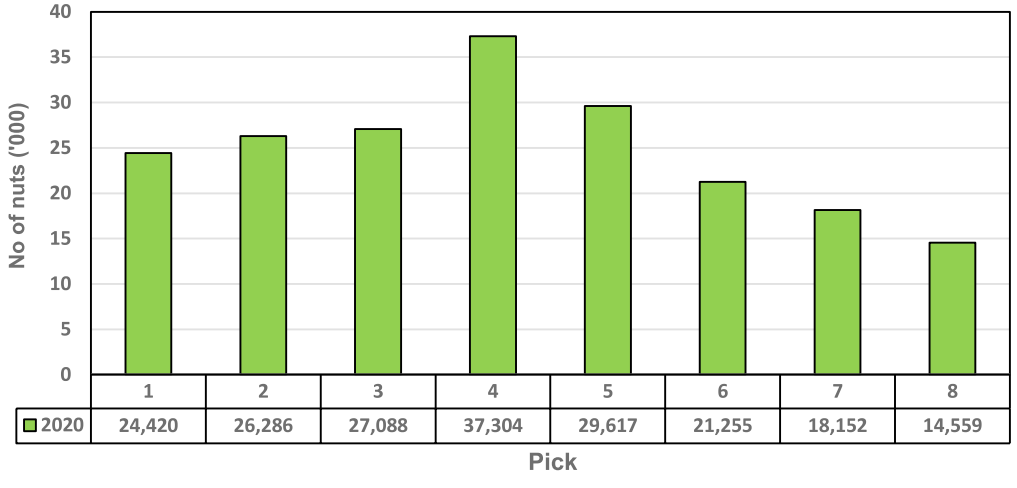


Figure 28 : Coconut production in 2020

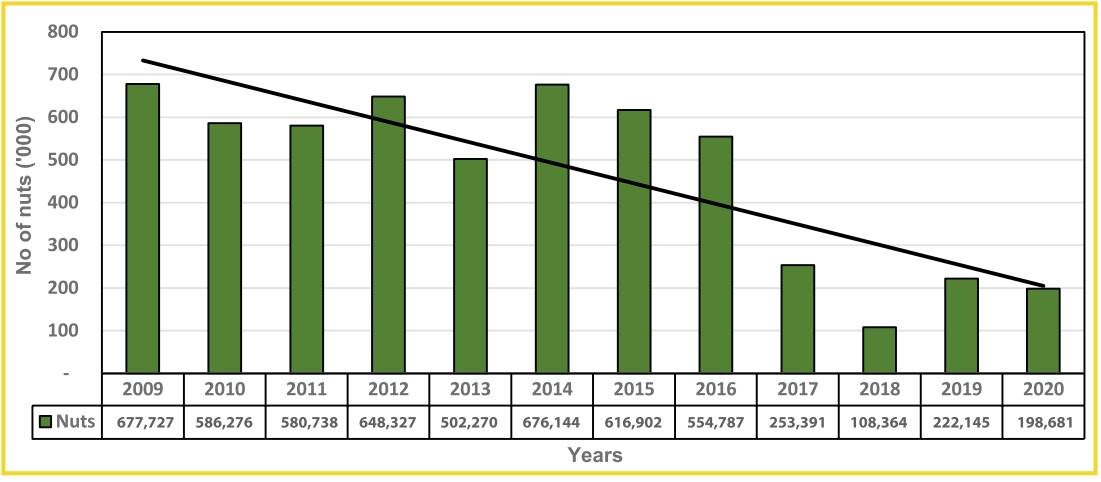


Figure 29 : Variation in coconut production in previous years.

With the yield reduction pattern observed from 2014 onwards, conspicuous reductions were observed in 2017 and 2018 of which the lowest production for past ten years was recorded in 2018. This would be the combined effect of the inclement weather, over-aged plantation and the marginally suitable soils exist in the major part of the estate.

Rathmalagara Research Center gave an annual crop of 198,681 nuts in the year 2020, and it is a 10.56% decrease compared to 2019.

The main reason for the yield drops in the last 05 years was the low rainfall received.

Rainfall during the year 2020 was 1141.5 mm. Livestock consisting of 13 cattle, 26 goats and 49 sheep were maintained successfully. Application of fertilizer was completed. Weeding, mulching and other cultural practices were duly attended.

Rainfall Informatiom

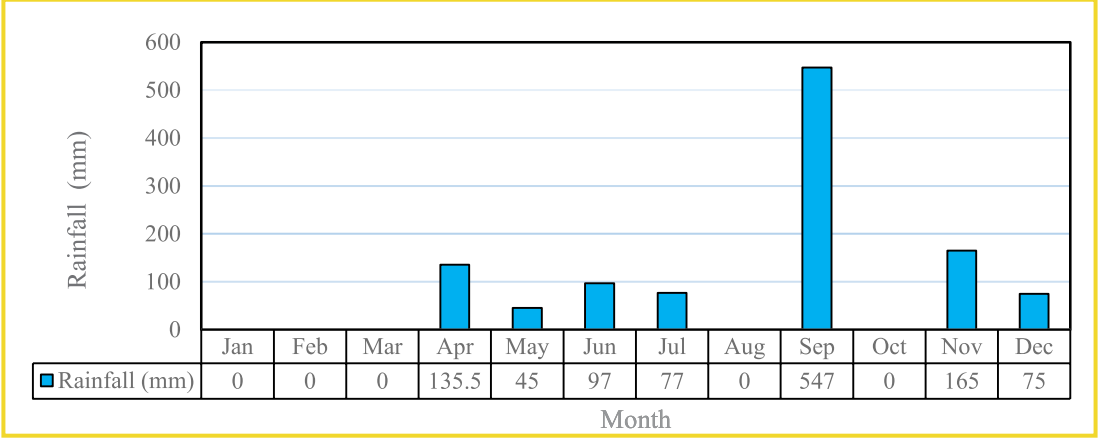


Figure 30: Monthly rainfall (mm) in 2020

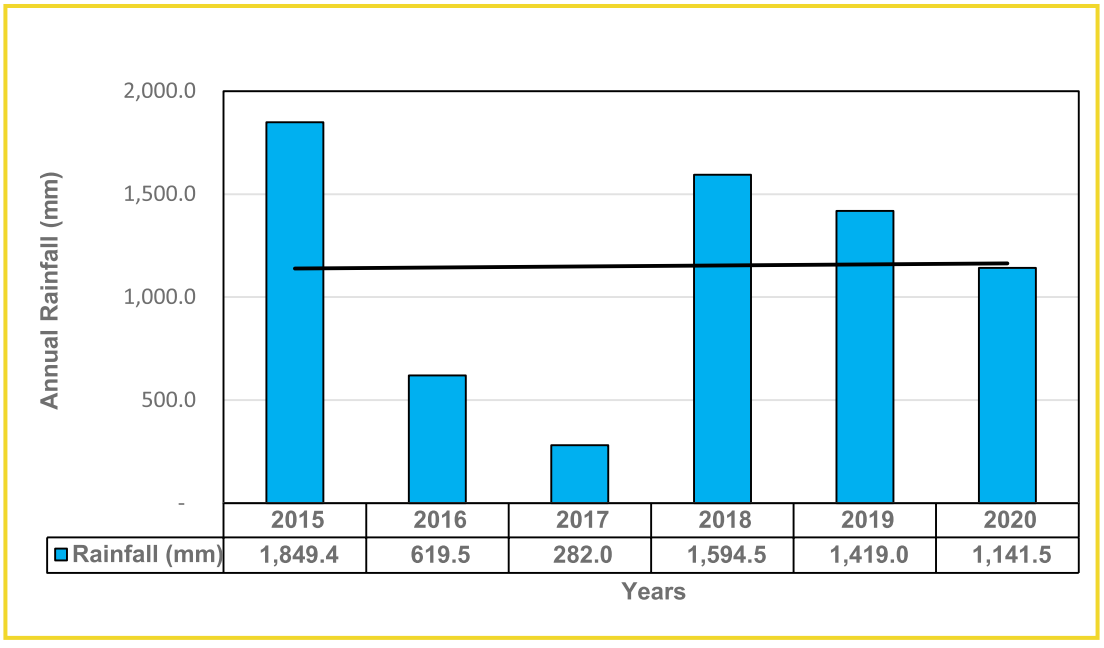


Figure 31: Variation in annual rainfall (mm) in previous years

	COP/Nut(Rs)	NSA/ Nut (Rs)
2019	64.66	27.41
2020	59.52	42.99

Poththukulama Research Centre

Agro Ecological Zone	IL1b
Extent/ac	194

Annual census of the estate

Description	Well Bearing Palms	Bearing Palms	Partial Bearing Palms	Young Palms	Seedlings	Unproductive Senile Palms	Dud Palms	Weak Palms	Vacancies
No. of Palms	3482	5221	236	242	339	-	603	330	1963
%	28.04	42.05	1.90	1.95	2.73	-	4.86	2.66	15.81
%	70.09		3.85		2.73	23.33			

Figure 32 : Coconut production in 2020

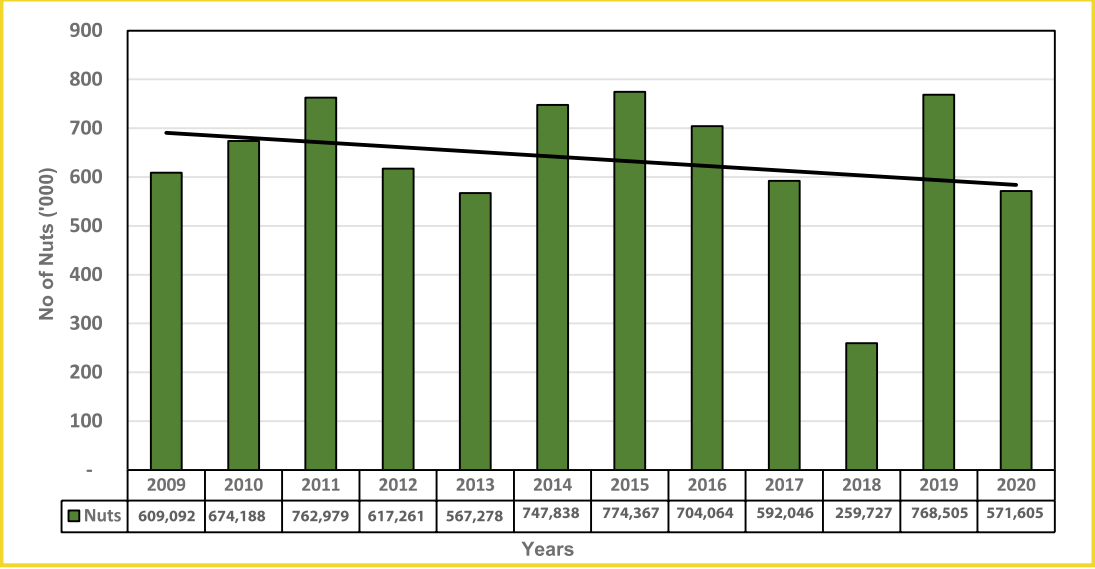


Figure 33 : Variation in coconut production in previous years

The coconut production at Poththukulama Research Center was 571,605 nuts and it was a 25.62% decrease compared to the 2019.

Rainfall during the year was 1212.8 mm. This estate is used only for research activities and a collection of dwarf varieties is maintained in a separate block.

Routine activities were continued successfully. All the palms of the estate have been fertilized and mulched. 48 cattle and 14 buffalos were maintained during the year. Weeding, mulching and other cultural practices were duly attended.

Rainfall information

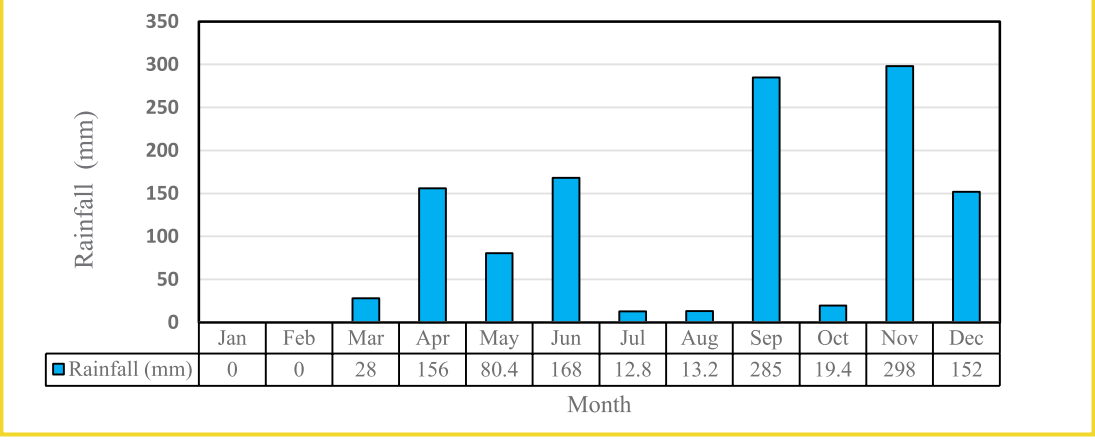


Figure 34 : Monthly rainfall (mm) in 2020

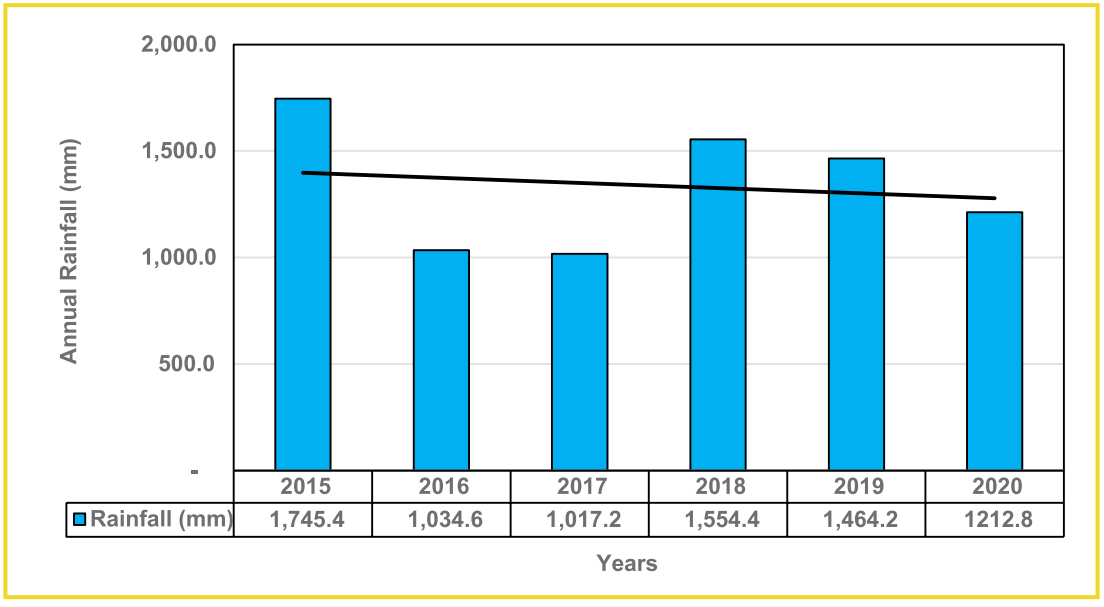


Figure 35 : Variation in annual rainfall (mm) in previous years

	COP/Nut(Rs)	NSA/ Nut (Rs)
2019	17.58	26.12
2020	21.18	47.04

Walpita Research Centre

Agro Ecological Zone	WL3
Extent/ac	40

Annual census of the estate

Description	Well Bearing Palms	Bearing Palms	Partial Bearing Palms	Young Palms	Seedlings	Unproductive Senile Palms	Dud Palms	Weak Palms	Vacancies
No. of Palms	824	725	197	-	583	-	48	-	183
%	32.19	28.32	7.70	-	22.78	-	1.86	-	7.15
%	60.51		7.70		22.78	90.1			

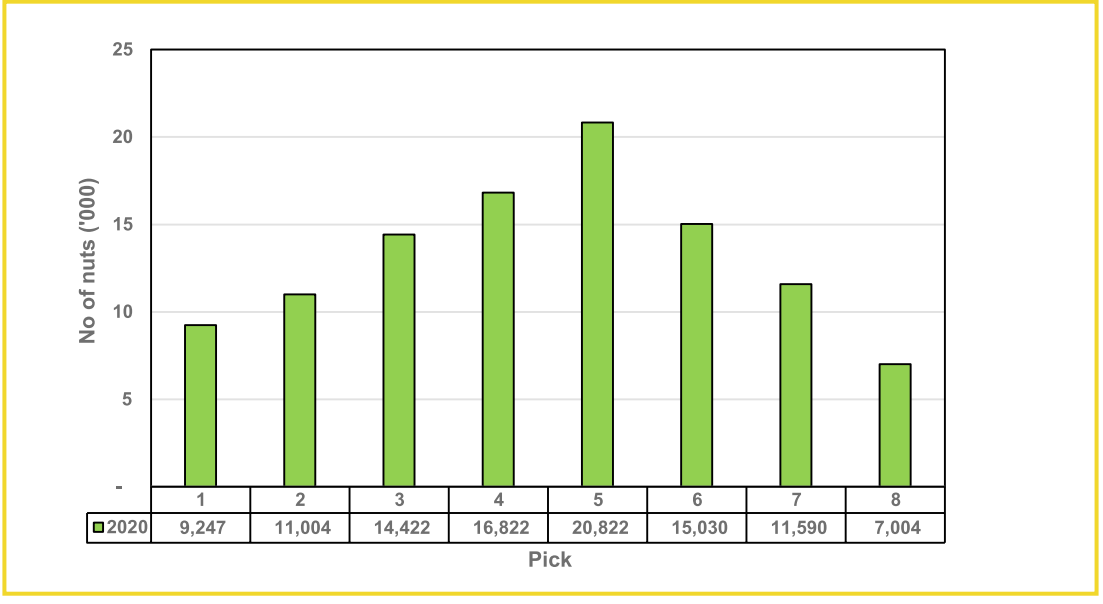


Figure 36 : Coconut production in 2020

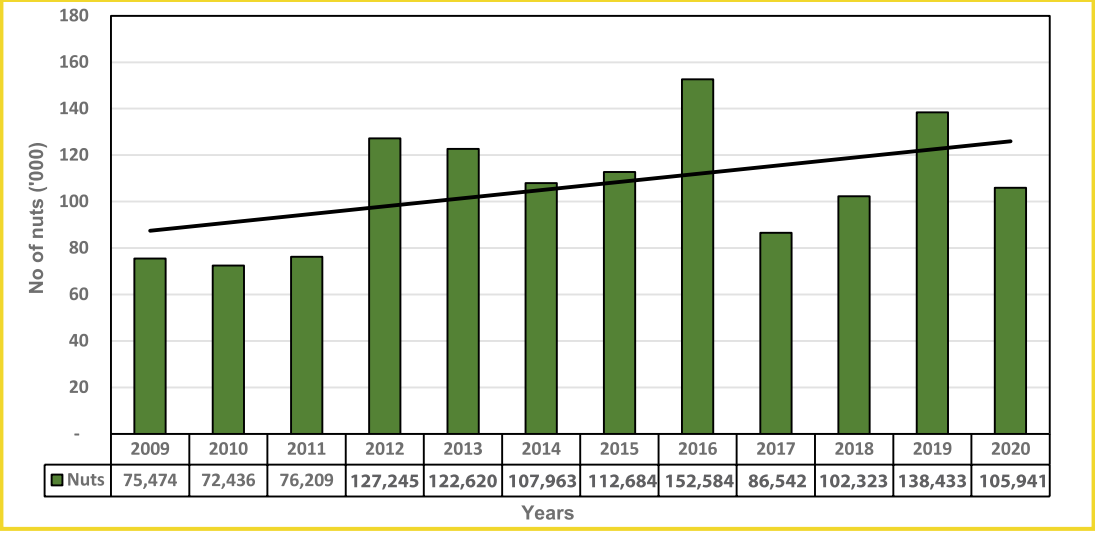


Figure 37 : Variation in coconut production in previous years

This research station was maintained specially for the demonstration purpose of coconut varieties and intercrops.

The estate gave an annual crop of 105,941 nuts in 2020 and it is a 23.47 % decrease compared to 2019. Rainfall during the year was 1247.9 mm.

Out of the above nut production 19,065 seed nuts were issued which were separately collected from Plus Palms. Weeding, mulching and other cultural practices were duly attended. The field road system was renovated and established a rain -water harvesting pond.

Rainfall information

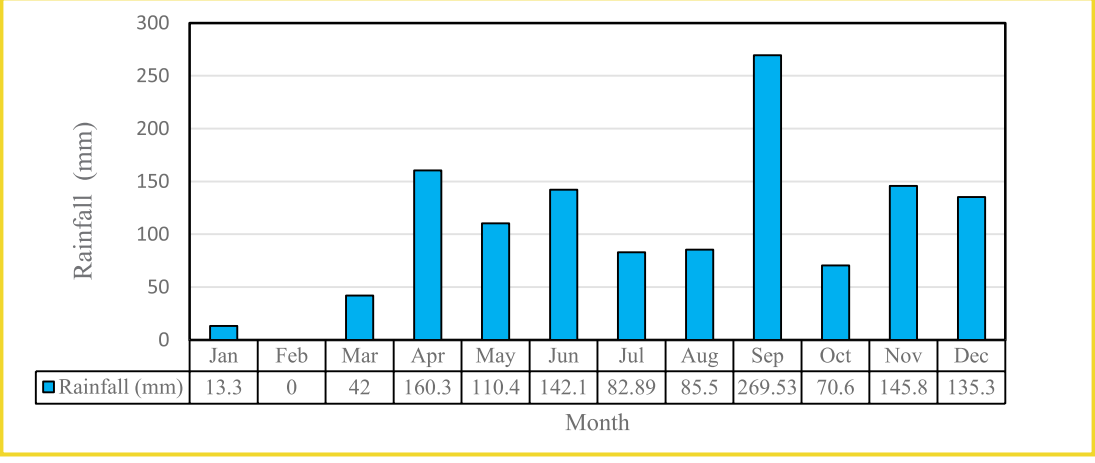


Figure 38 : Monthly rainfall (mm) in 2020

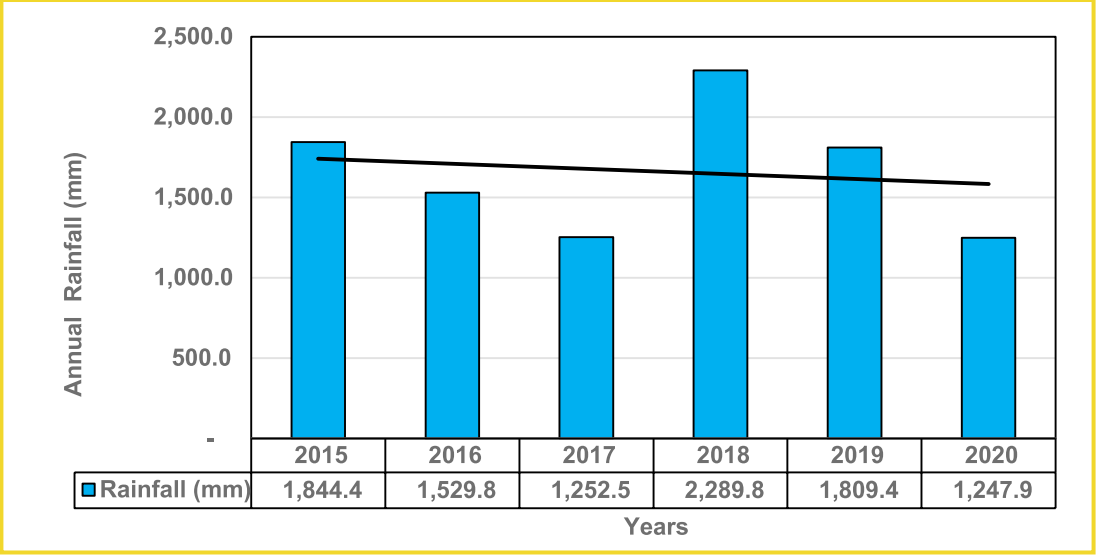


Figure 39 : Variation in annual rainfall (mm) in previous years

	COP/Nut(Rs)	NSA/ Nut (Rs)
2019	23.09	30.93
2020	34.81	42.56

Middeniya Research Centre

Agro Ecological Zone	IL1b
Extent/ac	75.55

Annual census of the estate

Description	Well Bearing Palms	Bearing Palms	Partial Bearing Palms	Young Palms	Seedlings	Unproductive Senile Palms	Dud Palms	Weak Palms	Vacancies
No. of Palms	1026	1541	187	-	471	-	-	36	259
%	29.15	43.78	5.31	-	13.38	-	-	1.02	7.36
%	72.93		5.31		13.38	8.38			

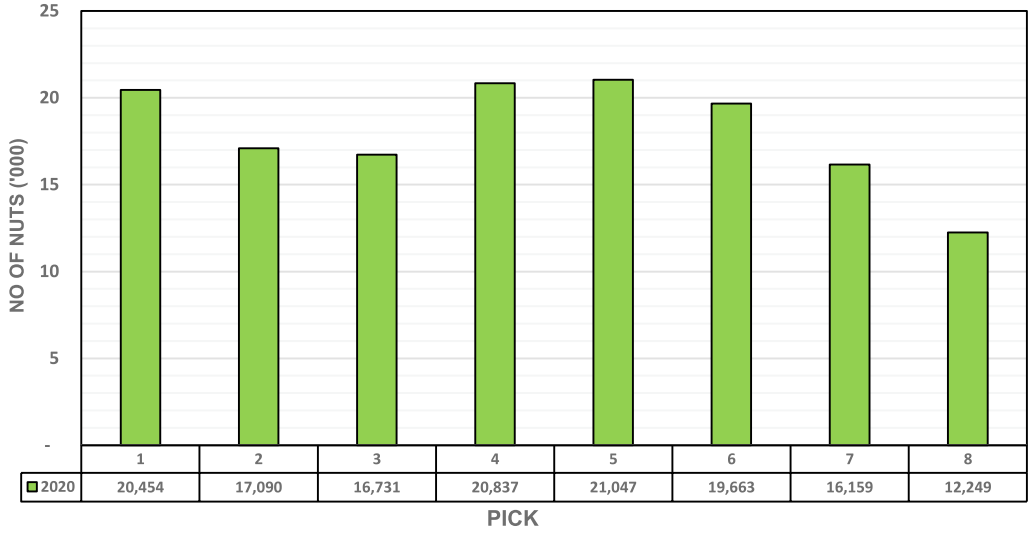


Figure 40 : Coconut production in 2020

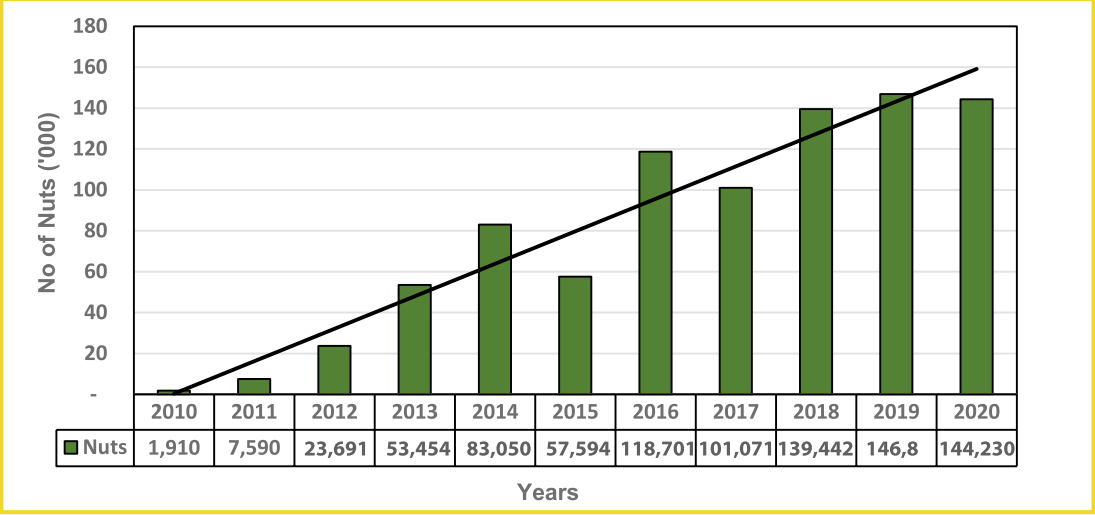


Figure 41 : Variation in coconut production in previous years

The research center is still in the developing stage with the establishment of new varieties. A total of 3,225 coconut seedlings of different cultivars were established and 80% of them now came to bearing state.

Middeniya Reseach Center is important to conduct various demonstrations and extension programs to the public in southern part of Sri Lanka and disseminate new technologies. The estate gave an annual crop of 144,230 nuts in 2020 and it is 1.76% decrease compared to 2019.

Rainfall during the year was 733.8 mm. General maintenance was satisfactorily done during the year. Annual application of fertilizer was attended by covering all the palms.

Rainfall information

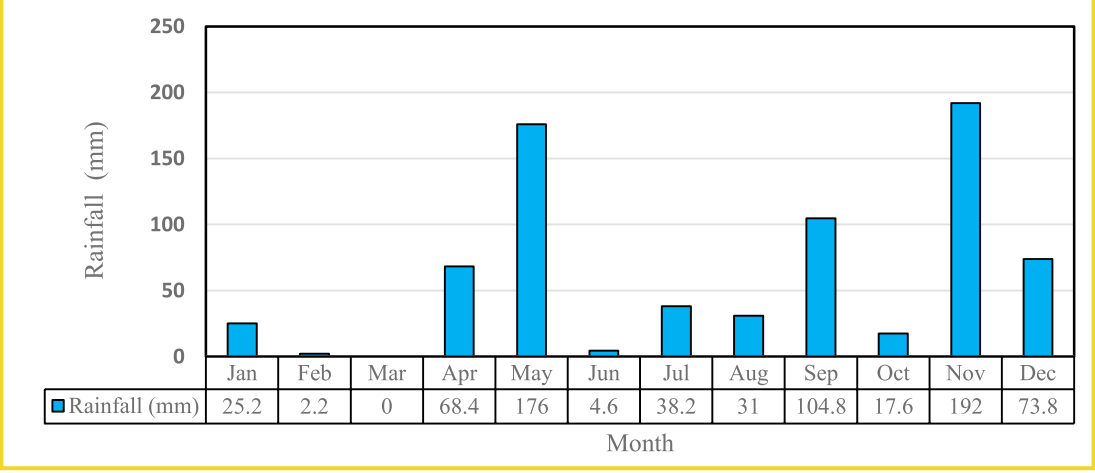


Figure 42 : Monthly rainfall (mm) in 2020

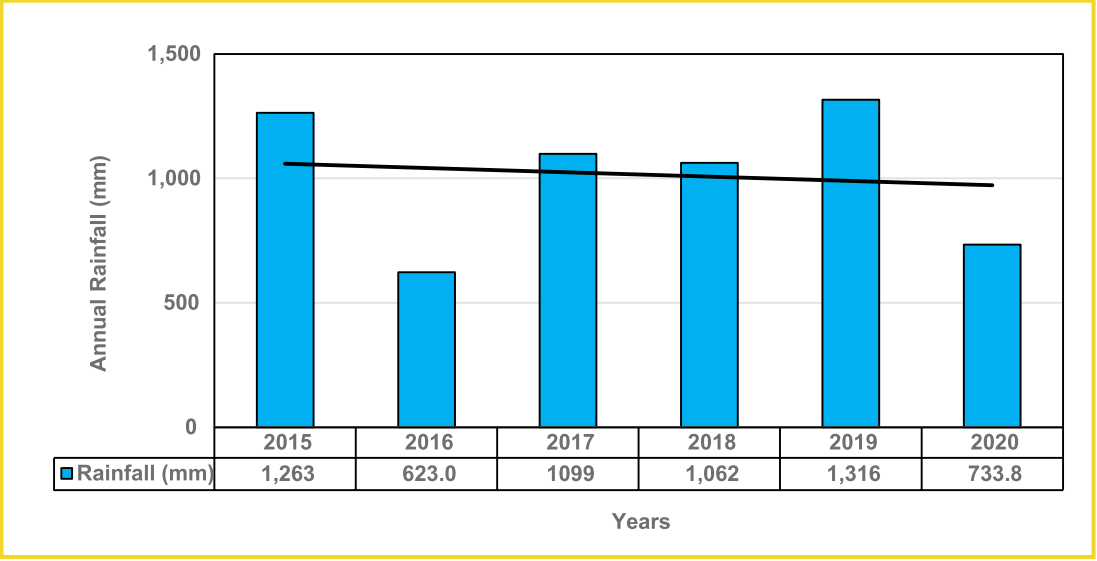


Figure 43 : Variation in annual rainfall (mm) in previous years

	COP/Nut(Rs)	NSA/ Nut (Rs)
2019	37.54	24.90
2020	41.17	47.92

Thabbowa Research Centre

Agro Ecological Zone	IL1a
Extent/ac	6.96

Annual census of the estate

Description	Well Bearing Palms	Bearing Palms	Partial Bearing Palms	Young Palms	Seedlings	Unproductive Senile Palms	Dud Palms	Weak Palms	Vacancies
No. of Palms	95	301	16	16	-	4	17	-	-
%	21.16	67.04	3.56	3.56	-	0.89	3.79	-	-
%	88.20		7.12		-	4.68			

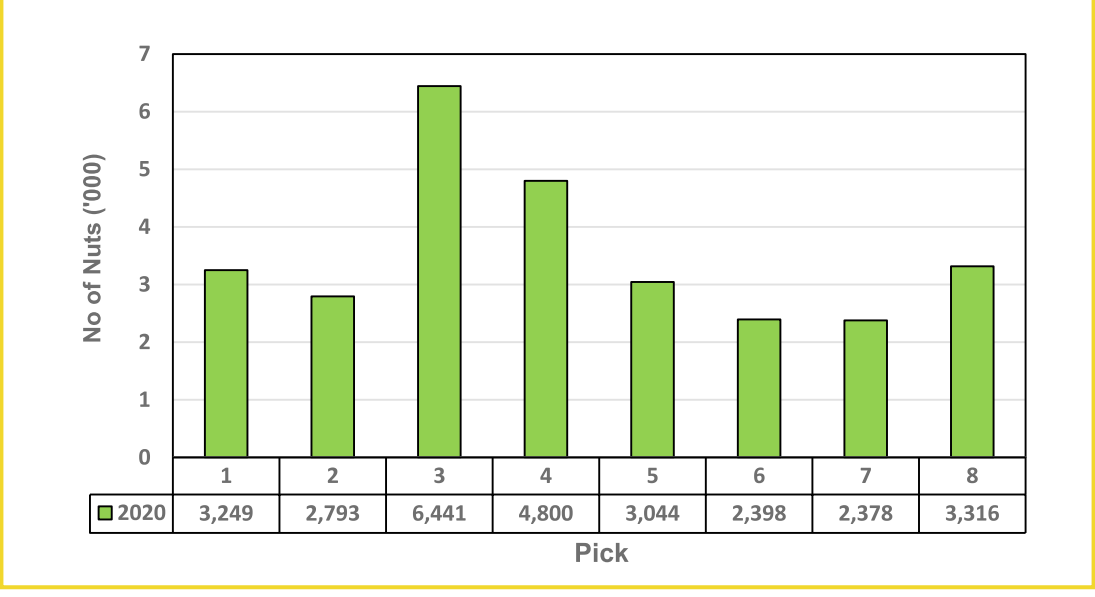


Figure 44 : Coconut production in 2020

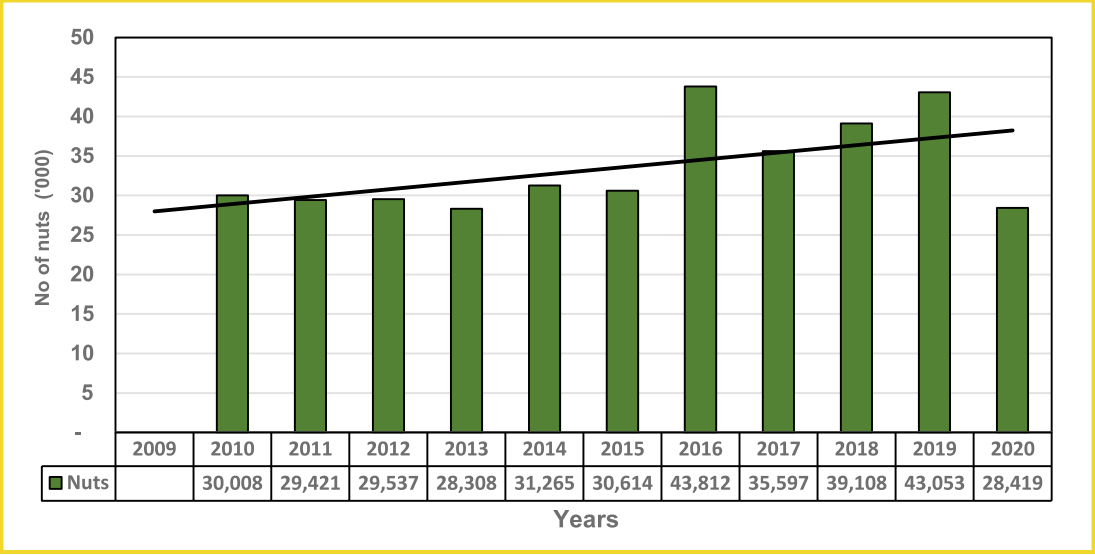


Figure 45 : Variation in coconut production in previous years

This research center was maintained specially for the demonstration purpose of intercrops. Thabbowa Research Center gave an annal crop of 28,419 nuts in the year and it is a 34% decrease compared to 2019.

Rainfall during the year was 1,624 mm. Weeding, mulching and other cultural practices was satisfactorily done during the year. Annual application of fertilizer was attended by covering all the palms.

Rainfall information

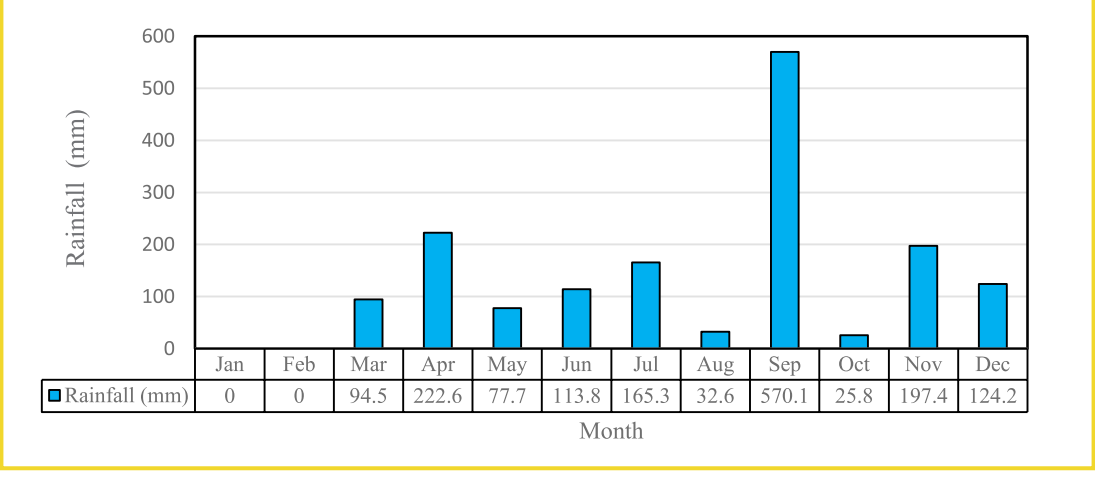


Figure 46 : Monthly rainfall (mm) in 2020

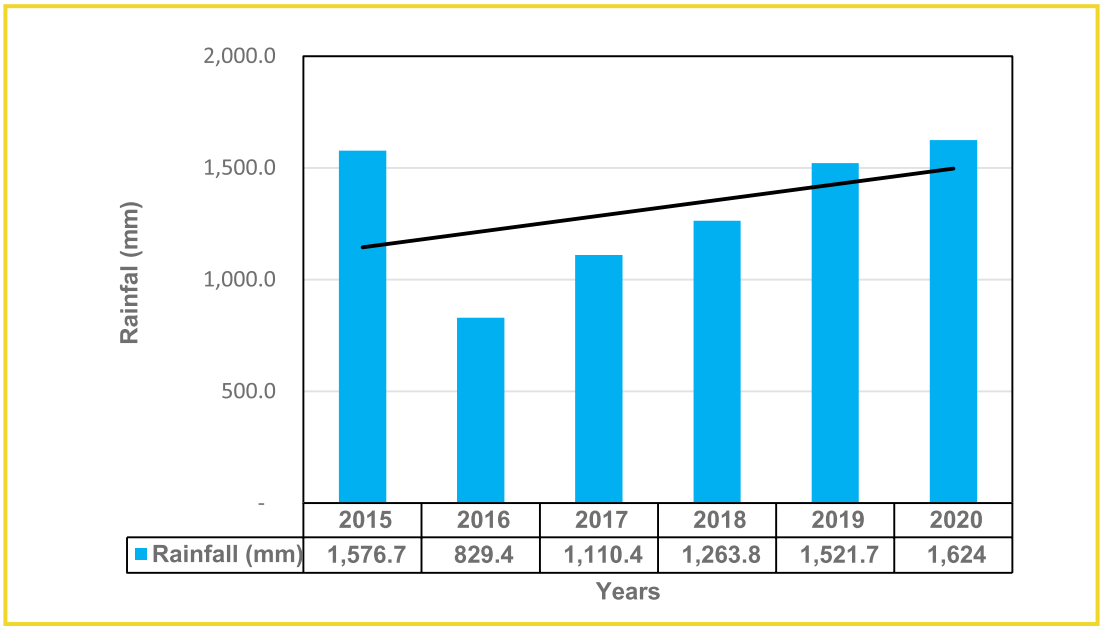


Figure 47 : Variation in annual rainfall (mm) in previous years

	COP/Nut(Rs)	NSA/ Nut (Rs)
2019	39.02	40.63
2020	29.40	43.30

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E.G.P.S. Somarathne, HND (Agri. Produc. Tech.)

Lab & Filed Attendant

Mrs. S.A. Sumanawathie

Driver

H.M.D.N. Herath

WALPITA RESEARCH CENTRE

Officer - in - Charge
T.M.N. Menaka
Dip. (Plantation Management)

THABBOWA DEMONSTRATION FARM

C.S. Wellappili
B.Sc. (Agric)

* Study Leave

** No pay Leave

RECRUITMENTS, RETIREMENTS, RESIGNATIONS, PROMOTIONS & TRANSFERS

01. **ESTABLISHMENT UNIT**

The unit continued to assist research divisions in routine administrative matters and related affairs.

2. **CADRE**

The staff position of the Coconut Research Institute at the end of December 2020 is given in Table 1.

Table 1. Staff Cadre as at 31.12.2020.

Salary Code	Approved	Existing	Vacancies
HM 2-3	1	1	0
HM 2-1	1	1	0
HM 1-3	19	9	10
HM 1-1	1	0	1
MM 1-2	7	5	2
AR 2	14	6	8
AR 1	26	20	6
JM 1-2	15	12	3
MA 4	28	17	11
MA 3	5	4	1
MA 2-2	59	43	16
MA 1-2	85	55	30
PL 3	39	26	13
PL 2	53	34	19
PL 1	38	36	2
	391	**269**	122

3. **WELFARE**

Welfare facilities to the employees from the Board were continued. Financial assistance provided to the employees is given below:

3.1. Financial Aid

Distress Loans: Granted to 36 employees, amounting to Rs.8,590,000.00

Transport Loans: Granted to 12 employees, amounting to Rs. 600,000.00

3.2. Other facilities to employees

Financial assistance was also granted to Day Care Centre (Rs. 12,000.00), Death Donation Society (Rs. 50,000.00), Art Circle (Rs. 15,000.00) and the Recreation Club (Rs. 30,000.00) during the year 2020.

STAFF MATTERS

4. APPOINTMENTS

Following appointments were made during the year 2020, and the details are given in Table2.

Total No. of appointments: 01

Name	Designation	Division / Unit	Date
Dr. A.A.F.L.K. Perera	Additional Director	Establishment Unit	21.08.2020

5. RESIGNATIONS, RETIREMENTS & DEATHS

Retirements

No. of retirements: 04

Name	Designation	Division / Unit	Date
Mrs. I.N. Jayawardena	Senior Management Assistant (Clerical)	Establishment Unit	15.01.2020
Mr. R.P. Newil	General Worker (Office Attendant)	Internal Audit Unit	03.12.2020
Mr. G.R.A. Dharmasena	Experimental Officer	Coconut Processing Research	21.12.2020
Mr. R.M.S.G. Rathnayake	Senior Motor Mechanic	Engineering Unit	24.12.2020

Resignations

No. of resignations: 11

Name	Designation	Division / Unit	Date
Mrs. H.M.L.J. Herath	Technical Officer	Plant Physiology Division	14.01.2020
Mr. B.U.C. Samarakoon	Estates Superintendent	Estate Management	07.02.2020
Mr. M.T.M. Farzan	Experimental Officer (Tamil)	Technology Transfer Division	01.03.2020
Mrs. T.S. Baddegama	Technical Officer	Genetic Plant Breeding Division	15.07.2020
Mrs. W.N.M. Fernando	Lab/ Field Assistant	Soil Plant Nutrition Division	01.08.2020
Dr. H.N.D.A. Perera	Senior Research Officer	Tissue Culture Division	15.08.2020

Name	Designation	Division / Unit	Date
Mr. W.L. Thushara	Field Supervisor	Estate Management Division	01.09.2020
Mr. H.M.C. Bandara	Lab/ Field Attendant	Estate Management Division	01.09.2020
Mrs. S.I.C. Sirimali	Technological Officer (Civil)	Engineering Unit	01.10.2020
Mrs. P.P.D.T.N. Dayanisious	Management Assistant (Clerical)	Engineering Unit	19.11.2020
Mr. W.A.P. Hewarathne	Carpenter	Engineering Unit	19.11.2020

Deaths
No. of Deaths: 01

Name	Designation	Division / Unit	Date
Mr. W.W.A.P.R. Fernando	Senior Field Supervisor	Estate Management Division	25.02.2020

6. PROMOTIONS

6.1 PROMOTIONS IN-NON EXECUTIVE GRADES

6.1.1 Grade II to I

No. of Promotions: 08

Name	Designation	Salary Code	Effective Date
Mr. K.K.A. Mendis	Guest House Keeper	PL 2	01.02.2017
Mrs. S.A. Sumanawathie	Lab/ Field Attendant	PL 2	01.01.2017
Mr. W.M.R. Sisira	Lab/ Field Attendant	PL 2	01.02.2017
Mr. J.K.J. Perera	General Worker (Office Attendant)	PL 1	01.01.2015
Mr. R.K.S. Wimalasiri	General Worker (Office Attendant)	PL 1	01.01.2015
Mr. R.P. Newil	General Worker (Office Attendant)	PL 1	01.01.2016
Mr. D.W. Newil	General Worker (Vehicle Attendant)	PL 1	01.01.2019
Mr. S.M.U.D. Singhabahu	General Worker (Watcher)	PL 1	05.10.2014

6.1.1 Grade III to II

No. of Promotions: 24

Name	Designation	Salary Code	Effective Date
Mr. A.A. Fernando	Technical Officer	MA 2-2	01.02.2015
Mr. A.P.C. Pradeep	Technical Officer	MA 2-2	02.03.2019
Mr. S.P. Manoj	Technical Officer	MA 2-2	02.03.2019
Mrs. T.M.S.G. Weerasinghe	Technical Officer	MA 2-2	02.03.2019
Mr. J.A.A. Gunasekara	Technical Officer	MA 2-2	02.03.2019
Mr. W.M.S. Lowe	Management Assistant (Clerical)	MA 1-2	02.03.2019
Mrs. D.T.D. Dhanapala	Management Assistant (Clerical)	MA 1-2	02.03.2019
Mr. J.A.S. Indika	Management Assistant (Clerical)	MA 1-2	02.03.2019
Mr. P.D. Kathriarachchi	Management Assistant (Clerical)	MA 1-2	02.03.2019
Mr. P.C.P.K. Fernando	Management Assistant (Procurement)	MA 1-2	02.03.2019
Mr. S.S. de Seram	Management Assistant (Auditing)	MA 1-2	26.11.2019
Mr. C.M.S.F. Leslipulle	Tinker	PL- 3	01.06.2019
Mr. T.A.S.R.P. Thenuwara	Lab/ Field Attendant	PL- 2	01.06.2019
Mr. R.K.M.S.N. Rajapaksa	Lab/ Field Attendant	PL- 2	01.06.2019
Mr. H.M.G.Jayawardena	Lab/ Field Attendant	PL- 2	01.06.2019
Mr. R.S. Nalin Kumara	Lab/ Field Attendant	PL- 2	01.06.2019
Mr. H.J.M.P. Nilanga	Lab/ Field Attendant	PL- 2	01.06.2019
Mr. H.M.S. Nayanakumara	Lab/ Field Attendant	PL 2	01.06.2019
Mrs. W.G. Mallika Menike	General Worker (Office Attendant)	PL- 1	01.06.2019
Mrs. D.M.R. Chandani	General Worker (Office Attendant)	PL- 1	01.06.2019
Mrs. P.M. Kamalawathie	General Worker (Office Attendant)	PL- 1	01.06.2019
Mr. J.A.R. Malintha	General Worker (Office Attendant)	PL- 1	01.06.2019

Mr. W.A.T. Arunasiri	General Worker (Office Attendant)	PL 1	01.06.2019
Mr. M.A.G. Ananda	General Worker (Office Attendant)	PL 1	01.06.2019

6.2 PROMOTIONS IN EXECUTIVE GRADES

Promotions in Executive grades were not made during the year 2020.

7. TRANSFERS

No. of transfers: 19

Name & Designation	Place of Transfer (From/ To)	Effective Date
Mr. M.A.L. Tharaka/ Estates Superintendent	From Maduruoya Genetic Resource Centre To Pallama Genetic Resource Centre	12.02.2020
Mr. K.M.V.C.P. Kumarasinghe/ General Worker (Office Attendant)	From Accounts Division To Estate Management Division	02.03.2020
Mr. M.A.G. Ananda/ General Worker (Office Attendant)	From Estate Management Division To Accounts Division	02.03.2020
Mr. D.W.K. Madhusanka/ General Worker (Office Attendant)	From Office of the Director To Office of the Deputy Director (Research)	02.03.2020
Mrs. H.A.T. Thilakumari/ General Worker (Office Attendant)	From Establishment Unit To Library	02.03.2020
Mrs. R.D. Shiroma/ General Worker (Office Attendant)	From Library To Office of the Chairman	02.03.2020
Mr. A.A.C. Dhammika/ General Worker (Office Attendant)	From Agronomy Division To Coconut Processing Research Division	02.03.2020
Mrs. T.S. Abeyrathna/ Lab/ Field Attendant	From Crop Protection Division To Plant physiology Division	02.03.2020
Mr. R.D.A. Lenard/ Lab/ Field Attendant	From Plant Physiology Division To Genetics & Plant Breeding Division	02.03.2020
Mrs. A.M.J.N. Arthanayaka/ Lab/ Field Attendant	From Plant physiology Division To Crop Protection Division	02.03.2020
Mr. T.A.S.R.P. Thenuwara/ Lab/ Field Attendant	From Genetics & Plant Breeding Division To Soils & Plant Nutrition Division	02.03.2020

Name & Designation	Place of Transfer (From/ To)	Effective Date
Mr. S.A.K. Sanjeewa/ General Worker (Office Attendant)	From Coconut Processing Research Division To Agronomy Division	02.03.2020
Mr. W.N.M. Fernando/ Lab/ Field Assistant	From Coconut Processing Research Division To Soils & Plant Nutrition Division	02.03.2020
Mr. H.M.S. Nayanakumara/ Lab/ Field Attendant	From Soils & Plant Nutrition Division To Plant Physiology Division	02.03.2020
Mrs. B.M.A.U. Amarathunga/ Lab/ Field Assistant	From Soils & Plant Nutrition Division To Coconut Processing Research Division	02.03.2020
Mr. P.V.N.W. Kumara/ (Office General Worker Attendant)	From Establishment Unit To Estate Management Division	
Mr. D.K.S. Senerath/ General Worker (Office Attendant)	From Office of the Deputy Director (Research) To Office of the Director	02.03.2020
Mr. W.A.T. Arunasiri/ General Worker (Office Attendant)	From Estate Management Division To Office of the Deputy Director (Admin)	02.03.2020
Mr. C.S. Wellappili/ Assistant Estates Superintendent	From Pallama Genetic Resource Centre To Thabbowa Research Centre	02.09.2020

8. LOCALT RAININGS (More than 7 days)

Local trainings (More than 7 days) were not offered during the year 2020.

9. OVERSEAS VISITS

Overseas visits were not made during the year 2020.

10. OVERSEAS TRAININGS

Overseas trainings were not offered during the year 2020.

11. TRANSPORT ACIVITIES

Vehicles of the Coconut Research Institute as at 31.12.2020.

Buses	-	03
Lorries	-	02
Vans	-	05
Cars	-	02
Cabs	-	16
Jeeps	-	01
Motor bicycles	-	65
Three Wheelers	-	03
Tractors	-	28
Tractor Trailer/ Bowser	-	43
Hand Tractors	-	08
		176

12. DEBTORS DUE TO VIOLATION OF BONDS

Name	Designation	Bond Value (Rs.)
Dr. K.B.Dasanayaka	Senior Research Officer	2,039,715.00
Dr. H.P.S.Jayasundara	Research Officer	2,078,905.33
Dr. M.G.F.S.Jayasundara	Research Officer	3,345,424.66
Mrs. P.G.P.Hewawitharanage	Research Officer	1,059,170.00
Mr. N.A.K. De Silva	Research Officer	3,204,297.60
Dr. J.M.M.A. Jayasundera	Senior Research Officer	847,880.00
Mr. B.H.C. Mendis	Research Officer	1,014,780.00
Dr. S.C. Somasiri	Senior Research Officer	11,907,933.05
Dr. H.M.I.K. Herath	Senior Research Officer	3,090,747.03

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அலுவலர் சாதனைகள்
STAFF ACHIEVEMENTS

Postgraduate Studies Undertaken

1. Mr. Anjana Atapattu, (Research Officer, Agronomy Division) continued the PhD studies at CAS Key Laboratory of Tropical Forest Ecology, Xishuangbanna Tropical Botanical Garden attached to the University of Chinese Academy of Sciences.

2. Mrs. S. S. Udumann (Research Officer, Agronomy Division) continued the studies leading to MPhil degree, Postgraduate Institute of Agriculture, University of Peradeniya.

3. Ms. D. K. R. P. L. Dissanayake, (Research Officer, Agronomy Division) continued the studies leading to MPhil degree, Postgraduate Institute of Agriculture, University of Peradeniya.

4. Ms. K.V.N.N. Jayalath (Senior Research Officer, Agricultural Economics and Agribusiness Management Division) continued postgraduate studies leading to a PhD at the Postgraduate Institute of Agriculture, University of Peradeniya.

5. Ms. M.K.F. Nadheesha (Senior Research Officer, Soils & Plant Nutrition Division) continued studies leading to PhD degree at the Postgraduate Institute of Science, University of Peradeniya.

6. Mrs. G.S. Nirukshan (Research Officer, Soils & Plant Nutrition Division) continued studies leading to PhD degree in Applied Biological Sciences at Department of Soil Management, Doctoral School of (Bioscience) Engineering, and University of Ghent, Belgium.

7. Ms. D.M.P.D.Dissanayake (Research Officer, Soils & Plant Nutrition Division) continued studies leading to PhD degree at the at Division of Environmental Sciences and Ecological Engineering, Korea University, Seoul, Korea.

8. Ms. B.H.R. Fernando, Research Officer, Soils & Plant Nutrition Division continued studies leading to M.Sc. degree in Integrated Water Resources Management at Department of Agricultural Engineering, Postgraduate Institute of Agriculture, University of Peradeniya.

9. Mrs. N.I. Suwandaratne (Research Officer, Crop Protection Division) continued the study leading to PhD degree at the University of Auckland, New Zealand.

10. Mr. P.H.P.R. De Silva (Research Officer, Crop Protection Division) continued the post graduate studies for PhD at the University of Kelaniya.

11. Ms. T. H. Chandrathilake (Research Officer, Plant Physiology Division) continued the postgraduate study leading to MSc. degree at the Postgraduate Institute of Agriculture, University of Peradeniya.

12. Mr. K. M. R. T. Wijekoon (Technology Transfer Officer, Technology Transfer Division) continued the postgraduate studies leading to PhD at the University Putra Malaysia.

13. Ms. W. G. R.Subhathma (Technology Transfer Officer, Technology Transfer Division) continued the postgraduate studies leading to MPhil at the Wayamba University until February 2020.

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கல்விசார் மற்றும் தொழில்சார் சாதனைகள்

ACADEMIC AND PROFESSIONAL ACHIEVEMENTS

Supervision of Undergraduate Students

1. Mrs. Dilani Hewapathirana supervised the research "Improvments to the coconut butter spread" conducted by S. A. T. K. K. Subasinghe, undergraduate student from the Faculty of Science, Horizon Campus, Malabe.

2. Dr.(Ms.) Chandi Yalegama supervised the research on "Concentration of pectin from tender coconut kernel" conducted by Ms. Asini Athukorala, Department of Chemistry, Faculty of Science, Eastern University of Sri lanka.

3. Dr. (Ms.) Chandi Yalegama and Ms. H. P. D. T. Hewapathirana supervised the research on "Substitution of coconut oil for palm oil in preparation of soft dough cookies" by Kasun Chandrasiri, Department of Food Science and Technology, Faculty of Applied Sciences, Sabaragamuwa University of Sri Lanka.

4. Dr. (Ms.) Chandi Yalegama and Ms. Meththa Lakdusinghe supervised the research on "Substitution of coconut oil for palm oil in preparation of Muffins" by Chathuranga Ganegoda, Department of Food Science and Technology, Faculty of Applied Sciences, Sabaragamuwa University of Sri Lanka.

5. Ms. Dilani Hewa Pathirana supervised the research on "Development of value added chocolate from desiccated coconut paste" by Ms. E.M.A.G.D. Edirisinghe of Faculty of Technology, University of Jafna.

6. Ms. M. K. F. Nadheesha supervised the research on "Review on Superabsorbent Polymers and its moisture and nutrient retention ability in Agriculture" by Ms. W. M. S. M Wijethunga, University of Rajarata.

7. Dr. V. Vidhanaarachchi supervised the research on "Effect of heat pretreatment on induction of microspore embryogenesis in *Cocos nucifera* L." by N. K. L. S. Piyathissa of Wayamba University of Sri Lanka.

8. Miss. S. P. N. C. Jayarathne supervised the research on "Viability of heat pre-treated microspores in *Cocos nucifera* L. for androgenesis induction" by H. G. M. R. Suraweera of Wayamba University of Sri Lanka.

9. Dr. K. P. Waidyarathne served as the External Supervisor of Ms. D. H. N. Perera for a B.Sc. undergraduate project – Department of Statistics, University of Kelaniya, Sri Lanka.

10. Dr. K. P. Waidyarathne served as the External Supervisor of Ms. K. M. U. Gunarathne for a B.Sc. undergraduate project – Department of Statistics, University of Kelaniya, Sri Lanka.

11. Dr. K. P. Waidyarathne served as the Supervisor of Ms. D. H. N. Perera for six months industrial training on use of statistics in coconut research – Department of Statistics, University of Kelaniya, Sri Lanka.

12. Dr. K. P. Waidyarathne served as the Supervisor of Ms. K. M. U. Gunarathne for six months industrial training on use of statistics in coconut research – Department of Statistics, University of Kelaniya, Sri Lanka.

13. Dr. M. D. P. Kumarathunga supervised the study on "Determination of effect of home thermal environment on cardinal temperatures for pollen germination and pollen tube growth of coconut (*Cocos nucifera*)" by Ms. S. R. P. M. Somathilaka, Department of Crop Science, Faculty of Agriculture.

Supervision of Diploma Students

1. Ms. Yashoda Jayakody, student from National Apprentice and Industrial Training Authority underwent 6 months internship training at Coconut Processing Research Division and Technology Transfer Division from 2020.10.06.

2. Mr. Udara Maduranga, Student from National Apprentice and Industrial Training Authority underwent 6 months internship training at Coconut Processing Research Division from 2020.10.06.

3. Mr. N.M Tharindu Supun National Apprentice and Industrial Training Authority underwent 6 months intern-ship training at Coconut Processing Research Division from 2020.10.06.

4. Ms. T.M.D.M. Thennakoon, student from University of Sri Jayawardenepura underwent 6 months internship training at Coconut Processing Research Division from 15th July 2020.

5. Ms. D. N.S. Arachchi, Student from National Apprenticeship and Industrial Training underwent 6 months training at Coconut Processing Research from 01st October, 2019 to 01st April, 2020.

6. Ms M.K.F. Nadheesha and Ms B. H. R. Fernando supervised the industrial training programme of Mr. S.A.M.K.N. Arthanayaka, Higher National Diploma student for six months period.

Served as Referees

1. Dr. Chandi Yalegama served as a reviewer of the proceedings of symposim organized by the National Plantation Crop Research Institute.
2. Dr. N. S. Aratchige served as a reviewer of the proceedings of the symposium organized by the National Plantation Crop Research Institute.
3. Dr. I. M. S. K. Idirisinghe served as a peer reviewer of the International Coconut Community CORD Journal.
4. Dr. I. M. S. K. Idirisinghe served as an evaluator for the SLCARP to evaluate the research proposals for funding and for evaluation of project progress reports and presentations.
5. Dr. Dushan Kumarathunge served as a reviewer for the journals; Plant & Soil, AoB Plants and Tree Physiology.

Served as Visiting Lecturers

1. Dr. H. N. D. A. Perera served as a visiting lecturer of the undergraduate program at the Technology Faculty, Rajarata University delivering lectures on plant tissue culture, plant cell culture.
2. Dr. K. P. Waidyarathne served as a visiting lecturer for the B.Sc under graduate course on "use of modern applications for commercial agriculture" in the Department of Plant Sciences, University of Colombo.
3. Dr. K. P. Waidyarathne served as a visiting lecturer in the B.Sc under graduate course of Statistics in the Department of Biosystems Technology, South-Eastern University of Sri Lanka.

Served as a Resource Person

1. Dr. K. P. Waidyarathne delivered a Guest Speech on "Applications of Experimental Design in Research Fields" organized by the Department of Statistics & Computer Science, University of Kelaniya, Sri Lanka on the 30th December 2020.
2. Mr. S. A. S. T. Raveendra participated as a resource person for the workshop on "Synergies among SDG, SCP and climate actions in the Livestock sector" organized by the SLYCAN Trust.

3. Mrs. D. K. R. P. L. Dissanayake Participated as a resource person in a Farmer Awareness Program on "Biochar Production and Use in Agriculture - Ehetuwewa Cascade" organized by Sri Lanka Redcross Society - Kurunegala conducted at Ehetuwewa, Kurunegala District on 15th September 2020.

4. Dr. I. M. S. K. Idirisinghe served as a resource person at the Research-Extension Dialogue and conducted a presentation on "How to achieve 4000 million coconut production by 2025" on 09th December, 2020.

5. Ms. M. K. F. Nadheesha served as a resource person and delivered a lecture and conducted field demonstration at the training programme to officers of Chilaw Plantation.

6. Dr. A. D. Nainanayake served as a resource person for the organizing committee and the editorial committee of the National Institute of Plantation Management (NIPM) in its 2nd Symposium on Plantation Management.

Presentations Made by the Staff

1. Mingkai Jiang, D. Kumarathunge, Jinyan Yang, Martin Gerard De Kauwe, Benjamin Smith, Anthony Walker, Sönke Zaehle, Craig VM Barton, Kristine Crous, David Ellsworth, David Tissue, Belinda Medlyn (2020). How does photosynthetic response to elevated CO_2 compared at the leaf and canopy scales? A case study with *Eucalyptus saligna* saplings grown in whole-tree chambers. Fall Meeting of the American Geophysical Union, Virtual.

2. Alistair Rogers, D. Kumarathunge, Danica L Lombardozzi, Shawn Serbin, Belinda Medlyn, Anthony P Walker (2020). Triose phosphate limitation of photosynthesis: an unnecessary complexity in terrestrial biosphere models. Meeting of the American Geophysical Union, Virtual.

Served in Committees / Meetings / Workshops

1. Mr. S. A. S. T. Raveendra served as an organizing committee member for the "National Coconut Day Celebration Program - 2020" held on 2nd of September in CRI premises.

2. Dr. Chandi Yalegama served as a member of the judging panel at the annual symposium organized by the Plantation Management Department of Wayamba University of Sri Lanka.

3. Dr. Chandi Yalegama participated in a series of Stakeholder meetings on Food safety control system conducted by the Ministry of health, nutrition and indigenous medicine, 2019 – 2020.

4. Dr. Chandi Yalegama and Ms. Dilani Hewa Pathirana participated in a series of Consultative workshops of Technical working group on Food Based dietary guideline for Sri Lanka conducted by the Ministry of Health and indigenous medicine.

5. Dr. Chandi Yalegama served as a member in working group of Sri Lanka Standard Institute on drafting standards for treacle (DSLS 722) and jaggary (DSLS521) in 2019 - 2020.

6. Ms. J. A. K. M. Fernando served as a member of the committee on Agricultural Mechanization of SLCARP in 2019 -2020.

7. Dr. Chandi Yalegama represented a task committee on "development of a mechanism for regulating and monitoring of manufacturing coconut products for import and export" organized by the Coconut Development Authority.

8. Dr. Chandi Yalegama represented several meetings conducted by the Coconut Development Authority for preparing standards/regulations for importation of dehydrated coconut kernels.

9. Ms. K. V. N. N. Jayalath served as a coordinator for the INFORM data base management 2020, by the Council for Agricultural Research Policy.

10. Ms. K. V. N. N. Jayalath served as the lesion officer for data collection for National Science Foundation.

11. Ms. K. V. N. N. Jayalath served as the lesion officer for data collection for National Science and Technology Commission.

12. Dr. I. M. S. K. Idirisinghe served as a Committee Member of National Committee on Socio Economics and Policy Analysis, Sri Lanka Council for Agricultural Research Policy.

13. Dr. I. M. S. K. Idirisinghe served as a Member of Advisory Committee on Coconut Fiber and Substrate of Export Development Board.

14. Dr. I. M. S. K. Idirisinghe served as a Member of Advisory Committee on Coconut Fiber and Substrate of the Ministry of Industries.

15. Dr. I. M. S. K. Idirisinghe served as a Member of the Estate Committee, Coconut Research Institute, Lunuwila.

16. Dr. I M S K. Idirisinghe represented the the Coconut Research Institute at the Fertilizer Advisory Committee of the National Fertilizer Secretariat.

17. Dr. I. M. S. K. Idirisinghe served as a Member of Career Guidance Advisory Board, Wayamba University of Sri Lanka.

18. Dr. I M S K .Idirisinghe served as the Chairman of CRI local coconut auction.

19. Dr. C. S. Herath served as a Member of the Estate Committee, Coconut Research Institute, Lunuwila.

20. Ms. M. K. F. Nadheesha served as a member of the Coconut Fertilizer Advisory committee meeting of the Ministry of Plantations.

21. Dr. H.T.R. Wijesekara served as a member of the Plant Protection Committee of the SLCARP.

22. Dr. H.T.R. Wijesekara served as a member of the Pesticide Sub-Committee of the Department of Agriculture.

23. Dr. H.T.R. Wijesekara served as a member of the steering committee on Management of Weligama coconut leaf wilt disease.

24. Mr. P.H.P.R. De Silva served as a member of Weligama Coconut Leaf Wilt Disease management steering committee.

25. Dr. K. P. Waidyarathne represented the Coconut Research Institute in the Monsoon Forums conducted by the Department of Meteorology, Sri Lanka.

26. Dr. K. P. Waidyarathne served as the Session evaluator of the technical session of the 9th YSF Research Symposium 2020, held on 13th November 2020.

27. Dr. K. P. Waidyarathne served as a member of the reviewing panel in the 9th YSF Research Symposium 2020, held on 13th November 2020.

28. Dr. K. P. Waidyarathne served as an examiner at the Agribusiness Management Technical Sessions of the AGRESS of the Faculty of Agriculture and Plantation Management, Wayamba University of Sri Lanka held in January 2021.

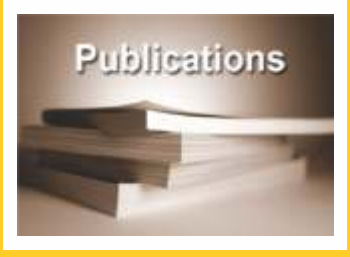
29. Dr. K.P. Waidyarathne served as a member of the reviewing panel in Postgraduate Research Congress of the Postgraduate Institute of Agriculture, University of Peradeniya, Sri Lanka.

30. Dr. K.P. Waidyarathne served as a member of the judging panel for the technical sessions in Agriculture Research Symposium of the faculty of Agriculture and plantation Management, Wayamba University of Sri Lanka

31. Mr. S.A.S.T. Raveendra conducted a work-shop on Coconut Based Agroforestry Systems for undergraduate students of the University of Sri Jaywardenapura on 3rd of January 2020.

Salient Achievements During 2020

The business incubation center was cere-monially opened on 02nd September marking the International Coconut day.



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உள்நாட்டு மற்றும் வெளிநாட்டு பதிப்புக்கள்

LOCAL & INTERNATIONAL PUBLICATIONS

Science Citation Indexed Journals

1. Xia, Y. F., Zhang, M., Tsang, D. C. W., Geng, N., Lu, D., Zhu, L., Igalavithana, A. D., **Dissanayake, P. D.**, Rinkebe, J., Kim, K. H., & Ok, Y. S. (2020). Recent advances in control technologies for nutrient pollution from agricultural runoff: current practices and prospects. *Applied Biological Chemistry, 63*(8), 1-13.

2. **Dissanayake,P. D.**, Choi, S. W., Igalavithana, A. D., Yang, X., Tsang, D. C. W., Wang, C. H., Kua, H. W., Lee, K. B., & Ok, Y. S. (2020). Sustainable gasification biochar as a high efficiency adsorbent for CO_2 capture: A facile method to designer biochar fabrication. *Renewable and Sustainable Energy Reviews*, *124*, 109785.

3. Igalavithana,A. D., Choi, S. W., **Dissanayake, P. D.**, Shang, J., Wang, C. H., Yang, X., Kim, S., Tsang, D. C. W., Lee, K. B., & Ok, Y. S. (2020). Gasification biochar from feedstock mixtures of food waste and wood waste for effective CO_2 adsorption. *Journal of Hazardous Materials*, *391*, 121147.

4. Igalavithana, A. D., Choi, S. W., Shang, J., Hanif, A., **Dissanayake, P. D.**, Tsang, D. C. W., Lee, K. B., & Ok, Y. S. (2020). Carbon dioxide capture in biochar produced from pine sawdust and paper mill sludge: Effect of pyrolysis temperature and steam activation. *Science of the Total Environment, 739*, 139845.

5. Zhang, M., Shen, J., Tsang, Y. F., Zhong, Y., Ding, T., **Dissanayake, P. D.**, Yang, Y., & Ok, Y. S. (2020). Sorption of pharmaceuticals and personnel care products (PPCPs) from water and wastewater by carbonaceous materials. *Critical Reviews in Environmental Science & Technology, 52(5), 727-766*

6. Zhao, W., Chen, C., Yang, X., Qian, X., Liu, C., Zhou, D., Sun, T., Zhang, M., Wei, G., **Dissanayake, P. D.**, & Ok, Y. S. (2020). Recent advances in photocatalytic hydrogen evolution with high performance catalysts without precious metals. *Renewable and Sustainable Energy Reviews, 132*, 110040.

7. Gupta, S., Palansooriya, K. N., **Dissanayake, P. D**., Ok, Y. S., Wei, H. W. (2020). Carbonaceous inserts from lignocellulosic and non-lignocellulosic sources in cement mortar; Preparation conditions and its effect on hydration kinetics and physical properties. *Cement and Concrete composites*. 264,120214

8. Sabri, M. F., **Wijekoon, R**., & Rahim, H. A. (2020). The influence of money attitude, financial practices, self-efficacy and emotion coping on employees' financial well-being. *Management Science Letters*, *10*(2020), 889-900.

9. Zendehdel, M., Sabri, M. F., & **Wijekoon, R**. (2020). Consumer attitudes towards online shopping: An empirical study among Malaysian college students. *Journal of Theoretical and Applied Information Technology, 98*(9), 1490-1512.

10. Yusoff, I. S. M., Sabri, M. F., **Wijekoon, R**., & Majid, A. Z. A. (2020). The impact of an economic challenge on health through driving posture among elderly taxi drivers in Malaysia. *Journal of Critical Reviews*, *7*(12), 3823-3830.

11. Fei, C. K., Sabri, M. F., Mohamed, N. A., **Wijekoon, R**., & Majid A. Z. A. (2020). Determinants of financial vulnerability among young employees in Malaysia. *Journal of Critical Reviews*, *7*(15), 3097-3107.

12. Sabri, M. F., Reza, T. S., & **Wijekoon, R**. (2020). Financial management, savings and investment behavior and financial well-being of working women in the public sector. *Majalah Ilmiah Bijak*, *17*(2), 135-153.

13. Sabri, M. F., Mokhtar, N., Ho, C. S. F., Anthony, M., & **Wijekoon, R**. (2020). Effects of gender and income on Malaysian's financial capability. *Malaysian Journal of Consumer and Family Economics*, *24*, 124-152.

14. Ali, E. M., Sabri, M. F., Nor, N. M., Rani, P. A. M., Yousuf, R., & **Wijekoon, R**. (2020). Determinants of pet owner's loyalty using modified SERVQUAL. *Management Science Letters*, *11*(2021), 1245-1252.

15. **Kumarathunge, D. P**., Drake, J. E., Tjoelker, M. G., López, R., Pfautsch, S., Vårhammar, A., & Medlyn, B. E. (2020). The temperature optima for tree seedling photosynthesis and growth depend on water inputs. *Global change biology*, *26*(4), 2544-2560.

16. Kattge, J., & **Kumarathunge, D.P**., et al. 2020. TRY plant trait database - evolution towards enhanced coverage and open access. *Global Change Biology*, *26*, 199-188

17. Fernando, W. H. H., **Waidyarathne, K. P**., & Jayasundara, D. D. M. (2020). Proper data analysis techniques to reduce experimental error in longitudinal data. *International Journal of Sciences:* Basic and Applied Research, *54*(4), 273-288.

International Refereed Journals

1. Xu, X., Han, J., Abeysinghe, K. S., & **Atapattu, A. J.**, et al. (2020). Dietary exposure assessment of total mercury and methylmercury in commercial rice in Sri Lanka. *Chemosphere*, *239*, 124749.

2. Liu, L., Han. J., Xu, X., Xu, Z., Abeysinghe, K. S., & **Atapattu, A. J.**, et al. (2020) Dietary exposure assessment of cadmium, arsenic, and lead in market rice from Sri Lanka. *Environmental Science and Pollution Research, 27*, 42704–42712.

3. **Atapattu, A. J.**, Xia, S., Cao, M., Zhang, W., Mishra, S., & Yang, X. (2020). Can dominant canopy species leaf litter determine soil nutrient heterogeneity? A case study in a tropical rainforest in Southwest China. *Journal of Soil Science and Plant Nutrition*, *20*(4), 2479–2489.

4. **Hewa Pathirana, H. P. D. T.**, **Lakdusinghe, W. M. K.**, **Yalegama, L. L. W. C.**, Chandrapeli, C. A. T. D., Madusanka, J. A. D. (2020). Evaluation of nutritional composition of defatted coconut flour incorporated biscuits. *CORD*, 33- 39.

5. Marikkar, J. M. N., Nagaraja, R., Somawathie, K. M. S., **Hewapathirana, H. P. T. D.**, **Yalegama, L. L. W. C.**, Littardi, P., & Chiavaro, E. (2020). Effect of coconut testa flour on cookie characteristics. *Italian Journal of Food Science*, *32*(1), 459-471.

6. Senarathne, S. H. S., & **Udumann, S. S.** (2020). Propagation and possible allelopathic effects of *Vernonia zeylanica* on selected bioassay species. *CORD*, *36*, 41-44.

7. Perera, P. I. P., Motha, K. F. & **Vidhanaarchchi, V. R. M.** (2020). Morphological and histological analysis of anther-derived embryos of coconut (*Cocos nucifera* L.). *Plant Cell, Tissue and Organ Culture*, *140*(3), 685-689.

8. Sabri, M. F., Rahim, H. A., **Wijekoon, R.**, Zakaria, N. F., Magli, A. S., & Reza, T. S. (2020). The mediating effect of money attitude on association between financial literacy, financial behaviour, and financial vulnerability. *International Journal of Academic Research in Business and Social Sciences*, *10*(15), 340-358.

9. Abeysekera, M.G.D., & **Waidyarathne, K. P.** (2020). The coconut industry: A review of price forecasting modelling in major coconut producing countries. *CORD*, *36*, 6-22

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1. **Meegahakumbura, M. K., Dissanayaka, H. D. M. A. C.**, Perera, S. A. C. N., **Samarasinghe, C. R. K., Weerasinghe, P. R., Vidanaarachchi, V.**, & **Perera, L.** (2020). Exchange and utilization of global genetic resources in the national coconut breeding programme in Sri Lanka: A historic overview. *COCOS*, *23*, 37-46.

2. Hettiarachchi, H. D. B. K., **Vidhanaarachchi, V. R. M., Jayarathna, S. P. N. C.** & Perera, D. (2020). Effect of exogenous polyamines on coconut (*Cocos nucifera* L.) embryogenic callus multiplication. *COCOS*, *23*, 47-56.

3. **Yalegama, L. L. W. C.,** Samaranayake, H. A. E., Perera, T. H. B. L. & Jayaweera, C. (2020). Changes in quality characteristics of coconut oil during deep frying. *COCOS*, *23*(1), 1-10.

Proceedings of / Presentations at Symposia and Conferences

1. **Dissanayake, P. D.**, Yeom, K. M., Roh, S. W., Sarkar, B., Rinklebe, J., Noh, J. H., & Ok, Y. S. (2020). Biochar mediated changes in soil contaminated with metal halide perovskite solar cell waste. *2nd Engineering Sustainable Development Conference*. 15-17 December 2020. Online Conference (pp. 51).

2. Palansooriya, K. N., Li, J., Ashiq, A., **Dissanayake, P. D.**, Suvarna, M., Lanyu, L., Wang, X., & Ok, Y. S. (2020). Machine learning-based prediction of immobilization efficiency of potentially toxic elements in biochar amended soils. *2nd Engineering Sustainable Development Conference*. 15-17 December 2020. Online Conference (pp. 48).

3. **Dissanayake, P. D.**, Yeom, K. M., Jo, H. C., Lee, J. Y., Noh, J. H., & Ok, Y. S. (2020). Effect of biochar on immobilization of Pb in perovskite solar cell contaminated soils. *20th International Conference on Heavy Metals in the Environment*. 25-29 October, FKI Tower, Korea (pp. 265).

4. Cho, Y., Igalavithana, A. D., **Dissanayake, P. D.**, Masek, O., Sang, M. K., & Ok, Y. S. (2020). Immobilization of Pb in contaminated soils with standard biochars. *4th International Conference on Bioresource, Energy, Environment and Materials Technology*. 6-9 September 2020, Songdo Convensia, Incheon, Korea (pp. 366).

5. **Dissanayake, P. D.,** Kim, S., & Ok, Y. S. (2020). Effect of plastic mulch wastes on soil quality and crop productivity in agro-environments. *Sustainable Waste Management Workshop*. 7-9 January 2020, National University of Singapore, Singapore (pp. 9).

6. Chathurangi, P. A. D. P., **Hewa pathirana, H. P. D. T.**, Wijesinghe, W. A. J. P., **Yalegama, L. L. W. C.**, & Dharmarathna, T. T. D. (2020). Evaluation of defatted coconut testa flour formulation for selected Sri Lankan traditional foods. *International Research Conference Uva Wellassa University* (pp. 56).

7. Mudalige, I. U. K, Wijesinghe, R. A. N. K., Fernando, N. F. K., Mendis, B. J., Jayathissa, R., **Yalegama, L. L. W. C.**, Jayasinghe, M. P. G. K., Edirisooriya, E. A. A. N. E., Ranganatha, U. I. H., Mandulee, R. A. L., & Kathriarachchi, S. T. (2020). Ketogenic diet in prevention of cognitive decline in Alzheimer's disease. *2nd International conference on Gerontology and Geriatrics Medicine 2020*. 05-06 December, 2020, Online Conference.

8. Mudalige I. U. K, Wijesinghe, R. A. N. K., Fernando, N. F. K., Mendis, B. J., Jayathissa, R., **Yalegama, L. L. W. C.**, Jayasinghe, M. P. G. K., Edirisooriya, E. A. A. N. E., Ranganatha, U. I. H., Mandulee, R. A. L., & Kathriarachchi, S. T. (2020). Sleep disorders in elderly. *2nd International conference on Gerontology and Geriatrics Medicine 2020*. 05-06 December, 2020, Online Conference.

9. Gunarathne, R. M. U., Marrikkar, J. M. N., Jayarathne, L., **Yalegama, L. L. W. C.**, & Mendis, B. E. P. (2020). Determination of coconut testa flour and its lipids components of selected Sri Lankan coconut cultivars by FTIR spectroscopy. *1st International conference on Frontiers in Chemical Technology*. 20-22 July, 2020. Institute of Chemistry Ceylon, Adamantane House, Rajagiriya, Sri Lanka.

10. **Nadheesha, M. K. F.**, Mohotti, A. J., & Priyantha, N. (2020). Sorption isotherm analysis of sandy texture soil: Madampe coconut growing soil. *Proceedings of Thirty Second Annual Congress of the Postgraduate Institute of Agriculture (PGIA)*, 19-20 November 2020. Peradeniya, Sri Lanka (pp. 42).

11. Wijethunga., W. K. A. M, **Nadheesha, M. K. F.**, Duminda, D. M. S., & Rathnayaka., R. A. A. S. (2020). Superabsorbent polymers to retain moisture and nutrients in agricultural soils. A review. *Proceedings of twelfth Annual Research Symposium of Faculty of Agriculture*, Rajarata (pp. 41).

12. **Ranasinghe, C. S.**, & **Idrisinghe I. M. S. K.** (2020). Status of coconut sector development in Sri Lanka, Country Paper, *56th APCC Session*, Ministerial Meeting, 24-26 November, Manila, Philippines.

13. **Fernando, B. H. R., Ranasinghe, C. S.**, **Nirukshan, G. S.**, **Jayalath, K. V. N. N.**, Pathmarajah, S., Mowjood, M. I. M. (2020). Present status of micro irrigation systems in coconut plantations of dry and intermediate zones of Sri Lanka. *Proceedings of Thirty Second Annual Congress of the Postgraduate Institute of Agriculture (PGIA)*, 19-20 November 2020. Peradeniya, Sri Lanka (pp. 41).

14. Balasooriya, S., Perera, D., **Vidhanaarachchi, V.R. M.**, **Gunathilake, T.,** & **Jayarathna, N.** (2020). Improving coconut (*Cocos nucifera*) micropropagation through enhanced somatic embryogenesis. International Journal of Bio technology and Bioengineering Vol:14, No:11, *Proceedings of International Conference on Advances in Biotechnology,* November 19-20, 2020, London, United Kingdom.

15. Piyathissa, N. K. L. S., Perera, P. I. P., & **Vidhaanarachchi, V. R. M.** (2020). Effect of heat pretreatment on induction of microspore embryogenesis in *Cocos nucifera* L. *Proceedings of 19th Agricultural Research Symposium of Wayamba University of Sri Lanka* (pp. 340-344).

16. Suraweera, H. G. M. R., Perera, P. I. P., & **S.P.N.C. Jayarathne** (2020). Viability of heat pre-treated microspores in *Cocos nucifera* L. for androgenesis induction. *Proceedings of 19th Agricultural Research Symposium* (pp. 405-409).

17. Sabri, M. F., & **Wijekoon, R.** (2020). Understanding pro-environmental behaviour (PEB) in the workplace. *The Future of Green marketing & Consumer*, International e-seminar and Book Review, University of Bogor, Bogor City, Indonesia.

18. Fernando, W. H. H., **Waidyarathne, K. P.**, & Jayasundara, D. D. M. (2020). Reduction of experimental error in coconut research by choosing proper data analysis techniques. *International Conference on Applied and Pure Sciences – 2020*, Faculty of Science,

International Books

1. **Wijekoon, R.**, & Arambewela, L. (2020). *Quality standards and monographs of Sri Lankan medicinal plants: Handbook of medicinal plants* (1st edition, pp. 1-420). Moldova: LAP LAMBERT Academic Publishing. ISBN-10: 6202917911.

International Book Chapters

1. Sabri, M. F., & **Wijekoon, R.** (2020). Understanding pro-environmental behaviour (PEB) in the workplace: A systematic review. *In*: Sumarwan, U., Tjiptono, F., Premananto, G. C. & Sabri, M. F. (Eds.), *Green consumer and marketing* (1st edition, pp. 1-49), PT Penerbit IPB Press, Bogor City, Indonesia.

Local Book Chapters

1. **Waidyarathne, K. P.**, & Perera, S. A. C. N. (2020). Extreme weather events and crop yields: A Case study with coconut. In book: *Adapting to Climate Change: A Sri Lankan Perspective*, The Institute of Biology, Sri Lanka.
2. Weerasinghe, K. W. L. K., Geekiyanage, N, **Kumarathunge, D.** (2020). Response of crops to heat stress in a warming world: Adaptation measures under Sri Lankan context. In Adapting to Climate Change: A Sri Lankan perspective. The Institute of Biology Sri Lanka. Colombo.

Policy Documents

1. **Idirisinghe, I. M. S. K., Ranasinghe, C. S., Perera, A. A. F. K.,** Samarawickrama, S. & The Ministry. (2020). *Policy on importation of coconut products and tariff revisions*, 26 November, 2020.
2. **Idirisinghe, I. M. S. K., Ranasinghe, C. S., Perera, A. A. F. K.** (2020). *Importation of copra for coconut oil production & quality assurance of imported coconut oil at the Sri Lanka Customs, An analysis and views of the Coconut Research Institute*, 25 September, 2020.
3. **Idirisinghe, I. M. S. K., Jayalath**., K. V. N. N., Ranasinghe, C. S., Perera, A. A. F. K., Samarawickrama, S. (2020). *An analysis of possible consequences of the recently imposed special commodity levy on edible oil*, 10 July, 2020.

Newsletter / Newspaper Article

1. Fernando, B. H. R. & **Nadheesha, M. K. F.** (2020). Establishment and maintenance of micro irrigation systems in coconut plantations. *Coconut Technology Update*, Coconut Research Institute of Sri Lanka.
2. **Lakmini, D., & Nirukshan G. S.,** (2020). Biochar- Black is the new green; A promising future for coconut plantations. *Technology Update*, Coconut Research Institute.
3. **Perera, D., & Jayarathna, N.** (2020). Deviating from the norm: dikiri coconut, *Coconut Technology Update*, Coconut Research Institute, Sri Lanka, 3-4.

Other Reports

1. **Raveendra, S. A. S. T.** (2020). A proposal on "Technical assistance for the technology adaptation program to minimize the impacts of climate change on coconut lands in Puttlam District" to the Ministry of Environment and the Climate Technology Center and Network (CTCN).

2. **Raveendra S. A. S. T.** (2020). A technical report on "Productivity improvement and intercropping" for Nagansole Estate, Randeniya Estate and Girtland Estate of Coconut Cultivation Board.

3. **Raveendra, S. A. S. T.** (2020). A technical report on "Removal of the timber trees in coconut lands" for Kurunegala Plantation Limited (KPL).

4. **Raveendra, S. A. S. T.** (2020). A recommendation report on the "Cultivation of cassava under coconut" to VIA Agri. (Pvt.) Limited and Starch Via Plantation (Pvt.) Limited.

5. **Raveendra, S. A. S. T.** (2020). A technical report with the Coconut Cultivation Board and the Wayamba University on "Impacts of removal of the rock based natural ecosystem in the Bopitiya CCB model garden on the productivity of coconut plantation".

6. **Jayalath, K. V. N. N.** (2020). A technical report on "Estimation of leasing value for coconut lands" to the Department of Agriculture.

STATEMENT OF FINANCIAL **PERFORMANCE**

Significant Accounting Policies

1. General

1.1. The Coconut Research Institute was founded in 1929 as the Coconut Research Scheme under the Coconut Research Ordinance No. 24 of 1928. The scheme established its headquarters at Band-irippuwa Estate, Lunuwila with three technical divisions namely Genetics, Chemistry and Soil Chemistry. Following the enactment of the Coconut Research Act No. 37 in 1950, it was renamed as the Coconut Research Institute of Ceylon. The Coconut Development Act No. 46 promulgated in 1971, the Coconut Research Board was set up in 1972 to function as the Board of Management of Coconut Research Institute.

1.2. The government body of the institute is the Coconut Research Board. In terms of Coconut Development Act, the board consists of 11 board members, appointed by the Minister - in – charge. One member is appointed as the Chairman of the Board. The members hold office for three years and are eligible for reappointment.

1.3. Principal Activities and Nature of Operations.

- Conduct further scientific research on growth and cultivation of coconut palm, growing other crops, engages in animal husbandry in coconut plantation and prevent & cure of pests and diseases.
- Conduct further scientific research on coconut processing, utilization of coconut products and value addition.
- Establish and maintain pilot plants for processing of coconut products and fabricate coconut processing equipment.
- Establish and maintain institutes' seed gardens and experimental stations.
- Train advisory and extension workers to assist the coconut industry.
- Guide and advise coconut industry on all matters of technical nature.
- Establish and maintain institutes' seed gardens and experimental stations.
- Train advisory and extension workers to assist the coconut industry.

General Policies

1.4. Statement of Compliance

Statement of financial position, Statement of financial performances, Statement of changes in net assets/ equity, Cash flow statement, Approved budget column in the financial statement and Notes, comprising a summary of significant accounting policies and other explanatory notes have been prepared in accordance with the Institute of Chartered Accountants of Sri Lanka .

1.5. Basis of Preparation

The financial statements presented in Sri Lanka rupees have been prepared on a historical cost basis.

1.6. Changes in Accounting policies and adoption of new Public Sector Accounting Standards during the year.

The accounting policies adopted are consistent with those of the previous financial years.

The Coconut Research Institute has adopted the following new SLPSAS that are effective in the current year and the accounting policies of the Institute have been revised where relavant to reflect the changes in the provisions of these SLPSAS.

The adoption of the new standards has resulted in changes to the method of presentation and additional disclosures being made in the Financial Statement.

SLPSAS - 01
Presentation of Financial Statements

SLPSAS - 02 Cash Flow Statements

SLPSAS - 03
Accounting Policies, Changes in Accounting Estimates & Errors

SLPSAS - 04 Borrowing Cost

SLPSAS - 05
Effects of Changes in Foreign Exchange Rates

SLPSAS - 06
Events after the Reporting Data

SLPSAS - 07
Properties, Plant & Equipment

SLPSAS - 08
Provisions, Contingent Liabilities and Contingent Assets

SLPSAS - 09 Inventories

SLPSAS - 10
Revenue from Exchange Transactions

SLPSAS - 11
Revenue from Non-Exchange Transactions (Taxes and Transfers)

SLPSAS - 12 Leases

SLPSAS - 13 Investment Properties

SLPSAS - 14 Related Party Disclosures

SLPSAS - 15
Presentation of Budget Information in Financial Statements

SLPSAS - 16 Construction Contracts

SLPSAS - 17 Segment Reporting

SLPSAS - 18 Agriculture

SLPSAS - 19 Employee Benefits

SLPSAS - 20 Intangible Assets

1.7. Comparative Information

The Accounting Policies applied by the Institute are, unless otherwise stated, consistent with those used in the previous year. Previous year figures and phrases have been rearranged wherever necessary to conform to the current year pre-sentation.

1.8. Event after the Balance Sheet Date.

All material post financial position events have been considered and appropriate adjustments or disclosures have been made in the respective notes to the Financial Statements.

1.9. Foreign Currency Translation.

The Financial Statements are prepared in Sri Lanka rupees which is the institute functional and presentation currency.

1.10. Tax

The Board is not liable to Tax in the current year under the provisions of the Inland Revenue Act.

1.11. Infrastructure Plant & Equipment

Infrastructure Plant & Equipment are stated at cost or fair value less accumulated depreciation.

The carrying values of Infrastructure Plant & Equipment are reviewed for impairment when events or changes in circumstances indicate that the carrying value may not be recoverable.

The provision for depreciation is calculated by suing a straight- line method on the cost or valuation of all Infrastructure, Plant & Equipment, other than freehold land, in order to write off such amounts over the estimated useful economic life of such assets.

The estimated useful lives of assets are as follows:

Assets	Years.
Buildings	25
Machinery & Laboratory Equipment	10
Field equipments	10
Vehicles	05
Office & Computer Equipment	05
Other Equipment	05
Furniture, fittings & Fixtures	20

No depreciation is charged on Lands and on leased lands. On the other assets full depreciation is charged as straight line method spread for its useful life. (From the date of purchase to the date of dispose)

The Thabbowa Land was Valued on 20th February 2018 & the valuation report was received on 13th September 2018.The Value of this Property has been included in the Financial Statements of 2018.

Lease assets

Leased assets or other assets not owned by the Board are not recorded as Board's assets. Expenditure made in developing owned and leased lands is charged to Improvements to Estates account. Lands owned by the Board are shown at cost/valuation under Estate account.

Coconut Cultivation Board decided to allocate land owned as Weligama for the seed garden as an operational lease which was leased to Coconut Research Institute for the period of 20 (Twenty) years commencing from 20th December 2016, the payment of Rs.1, 000,000.00 (One Million Rupees) as an initial payment and the annual rent of Rs.25,000.00 (Twenty Five Thousand) during the first year and thereafter.

An extent of 75 acres from the Middeniya farm has been temporary released for 30 years by the Assistant Divisional Secretary of Katuwana to the Ministry of Plantation Industries on October 7, 2004 and it was Vested to Coconut Research Institute on October 11, 2004 by the Ministry of Plantation Industries for stabilizing of sub Coconut Research Centre in Southern Province.

1.12. Improvements to Estates

Expenditure in developing properties, maintaining young plantation and replanting for research purposes is charged to Improvements to Estate account which is amortized annually, @ 5%.

1.13. Biological Assets

All biological assets are valued at the lower of cost and net realizable value. Net realizable value is the price at which live stocks can be sold in the ordinary course of business less the estimated cost of completion and the estimated cost necessary to make the sale. These stocks are valued based on the National Livestock Development Board rates which is the authorized institute of the livestock.

1.14. Working-in-Progress

An account where the expenditure on capital work is recorded. The expenditure here is on assets which are completed and ready for use. The total expenditure in this account is transferred to the appropriate asset account if not disputed. Expenses on major repairs which accrue are shown under Repair in progress account until the repair is fully completed and then transfer to the relevant account.

1.15. Inventories

Inventories are valued at the lower of cost and net realizable value. Net realizable value is the price at which stocks can be sold in the ordinary course of business less the estimated cost of completion and the estimated cost necessary to make the sale.

The cost incurred in bringing inventories to its present location and condition is accounted for as follows:

- Nuts - Subsequent realised value
- Copra - Net sales average
- Fertilizer - First in first out
- Publications - Subsequent realised value
- Chemical & Glassware - First in first out
- Seedling Product - Subsequent realised value
- General Store Stock - First in first out
- Other stocks - Subsequent realised value

1.16. Trade and other Receivable

Trade and other receivable are stated at the amounts they are estimated to realized, net of provisions for bad doubtful receivables.

Debtors are stated at amounts they are estimated to realise. Provision is made in the accounts for all known Bad & Doubtful debtors. Provision has been made in full for irrecoverable debtors over five years.

1.17. Cash and Cash Equivalent

Cash and Cash Equivalents in the cash Flow Statement comprise, cash at bank, cash in hand and short term deposits.

1.18. Books and Periodicals.

The stocks of books & periodicals have not been verified.

1.19. Liabilities and Provisions

Gratuity is a defined benefit plan. The institute is liable to pay gratuity in terms of the relevant statues. In order to meet this liability, a provision is calculated based on Actuarial Valuation method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using the yield on Government Bonds at the reporting date and has maturity dates approximating to the terms of the Institute's obligations. The resulting difference between brought forward provision at the beginning of a period and the carried forward provision at the end of the period is dealt within the statement of financial performances.

The Institute recognizes actuarial gains and losses that arise in calculating the Company's obligation in respect of a plan in other comprehensive income. The present value of the defined benefit obligation depends on a number of factors that are determined on an actuarial basis using a number of assumptions. Key assumptions used in determining the defined retirement benefit obligations are given in Note 20. Any changes in these assumptions will impact the carrying amount of defined benefit obligations. Provision has been made for retirement gratuities from the first year of service for all employees, in conformity with LKAS 19 - 'Employee Benefits'. However, under the Payment of Gratuity Act No. 12 of 1983, the liability to an employee arises only on completion of 5 years of continued service.

1.20. Provisions, Contingent Assets and Contingent Liabilities.

Provisions are made for all obligations existing as at the balance sheet date when it is probable that such an obligation will result in an outflow of resources and a reliable estimate can be made of the quantum of the outflow. All contingent liabilities are disclosed as a note to the financial statement unless the outflow of resources is remote.

Contingent assets are disclosed, where inflow of economic benefit is probable.

Statement of Financial Performance

1.21. Revenue Recognition.

i) The total recurrent grant received from the Treasury for the year is recognized as income and for that year.

ii) The second high income received from the Genetic Resource Center and Research Center (Estates) for the year is recognized as income and for that year.

iii) Other Income

Long term projects funded by external sources are shown separately under the name of the project until the project is over. Other income is recognized on an accrued basis.

1.22. Expenditure Recognition.

Expenditure is recognized in the statement of financial performance on the basis of a direct association between the cost incurred and the earning of specific items of income.

All expenditure incurred in the running of the business and in maintaining the property, plant and equipment in a state of efficiency has been charged to the Statement of financial performance for the purpose of presentation of the statement of financial performance, the "function of expenses" method has been adopted, on the basis that it presents fairly the elements of the institutional performance.

1.23. Intangible Assets (Research & Development Cost).

Cost of product development, processes, production of new or substantially improved materials for research development are capitalized which is written off against the profit and loss account as amortisation of research & development cost during the period.

Research & Development Expenditure in the previous year's shown under division wise. From the year 2007 it's indicated under the following trust areas.

Crop Production
Crop Protection
Crop Improvement
Crop Processing
Technology Transfer
Socio Economic Studies in Coconut

The previous practice was total Research and Development expenditure disclose as assets of the Balance Sheet and the presently these expenses during the year under review have been charged against the Statement of Financial Performance.

COCONUT RESEARCH INSTITUTE

STATEMENT OF FINANCIAL POSITION

AS AT 31 ST DECEMBER 2020

	NOTES	2020 APPROVED BUDGET Rs.	2020 ACTUAL Rs.	2019 ACTUAL Rs.
NON CURRENT ASSETS				
INFRASTRUCTURE PLANT & EQUIPMENT	10	38,772,000	2,156,036,948	2,186,413,509
INTANGIBLE ASSETS	11		1,312,596	-
BIOLOGICAL ASSETS	12		31,869,680	7,667,067
OTHER NON FINANCIAL ASSETS	13		3,159,059	3,159,059
OTHER NON CURRENT ASSETS	14		59,998,102	60,208,731
		38,772,000	**2,252,376,385**	**2,257,448,366**
CURRENT ASSETS				
CASH & CASH EQUIVALANTS	15		125,396,992	24,723,869
RECIEVABLES	16		52,125,533	50,367,228
INVENTORIES	17		86,993,175	125,687,030
PREPAYMENTS	18		490,529	
OTHER CURRENT ASSETS	19		20,950,219	26,075,419
		-	**285,956,449**	**226,853,546**
TOTAL ASSETS		**38,772,000**	**2,538,332,834**	**2,484,301,911**
LIABILITIES				
CURRENT LIABILITIES				
PAYABLES	20		60,208,877	87,851,146
EMPLOYEE BENEFITS	22		166,538,058	157,280,087
		-	**226,746,935**	**245,131,233**
NON CURRENT LIABILITIES				
CAPITAL CONTRIBUTED BY DONOR FUNDED PROJECTS	21		173,256,556	160,760,699
		-	**173,256,556**	**160,760,699**
TOTAL LIABILITIES		-	**400,003,491**	**405,891,932**
NET ASSETS		**38,772,000**	**2,138,329,342**	**2,078,409,980**
NET ASSETS/EQUITY				
CAPITAL CONTRIBUTED BY THE OTHER GOVERNMENT ENTITIES		38,772,000	377,665,499	371,737,655
RESERVES			1,689,612,303	1,689,612,303
ACCUMULATED SURPLUS/(DEFECIT)			71,051,540	17,060,022
		38,772,000	**2,138,329,342**	**2,078,409,980**
TOTAL NET ASSETS/EQUITY		**38,772,000**	**2,138,329,342**	**2,078,409,980**

The Accounting Policies on pages 07 to 14 and Notes on pages 15 to 28 from an integral part of these Financial Statements. The Coconut Research Board of Directors is responsible for the preparation and presentation of these Financial Statements. These Financial Statements were approved by the Board of Directors and signed on their behalf.

CHAIRMAN
COCONUT RESEARCH BOARD

CHAIRMAN
COCONUT RESEARCH INSTITUTE

DIRECTOR
COCONUT RESEARCH INSTITUTE

SENIOR ACCOUNTANT
COCONUT RESEARCH INSTITUTE

DIRECTOR
COCONUT RESEARCH BOARD

Dr. (Mrs.) Sanathanie Ranasinghe
Director
Coconut Research Institute

COCONUT RESEARCH INSTITUTE

STATEMENT OF FINANCIAL PERFORMANCE

FOR THE YEAR ENDED 31ST DECEMBER 2020

	NOTES	2020 APPROVED BUDGET Rs.	2020 ACTUAL Rs.	2019 ACTUAL Rs.
OPERATING REVENUE				
TRANSFERS FROM TREASURY & OTHER ENTITIES	03	298,500,000	257,500,000	241,060,000
GENETIC & RESEARCH CENTER REVENUE	04	264,505,643	281,482,871	222,069,970
OTHER REVENUE	05	7,000,000	68,373,169	138,517,470
TOTAL REVENUE		**570,005,643**	**607,356,040**	**601,647,440**
OPERATING EXPENCES				
WAGES SALARIES AND EMPLOYEES' BENEFITS	06	229,394,000	214,399,742	207,527,748
SUPPLIES & CONSUMABLES USED	07	53,833,000	61,074,571	59,185,313
DEPRECIATION & AMORTISATION EXPENCES	10		22,489,324	25,538,401
GENETIC & RESEARCH CENTER EXPENSES	04	226,505,643	223,835,622	183,259,086
RESEARCH & DEVELOPMENT EXPENCES WRITE OFF	08	-	36,788,703	37,410,236
OTHER EXPENSES	09	7,273,000	29,128,457	49,035,097
TOTAL EXPENSES		**517,005,643**	**587,716,418**	**561,955,882**
SURPLUS /(DEFICET) FOR THE PERIOD		**53,000,000**	**19,639,622**	**39,691,558**
OTHER COMPREHENSIVE INCOME/EXP:				
ACTURIAL GAIN/LOSS			22,535,623	
NET SURPLUS /(DEFICET) FOR THE PERIOD			**42,175,245**	

The Accounting Policies on pages 07 to 14 and Notes on pages 15 to 28 from an integral part of these Financial Statements. The Coconut Research Board of Directors is responsible for the preparation and presentation of these Financial Statements. These Financial Statements were approved by the Board of Directors and signed on their behalf.

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DIRECTOR
COCONUT RESEARCH INSTITUTE

SENIOR ACCOUNTANT
COCONUT RESEARCH INSTITUTE

DIRECTOR
COCONUT RESEARCH BOARD
Surena R. Attanayake
Director (Development)

Dr. (Mrs.) Sanathanie Ranasinghe
Director
Coconut Research Institute

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COCONUT RESEARCH INSTITUTE

CASH FLOW STATEMENT

FOR THE YEAR ENDED 31ST DECEMBER

	2020 Rs.	2019 Rs.
CASH FLOW FROM OPERATING ACTIVITIES		
SURPLUS/(DEFICIT)	**42,175,245**	**39,691,558**
NON-CASH MOVEMENTS		
DEPRECIATION & AMORTIZATION	49,947,015	49,439,924
ASSETS & RESEARCH EXPENCE WRITE OFF		
FIXED DEPOSIT INTEREST	(6,177,000)	(5,956,580)
PROVISION FOR DOUBTFUL DEBTS	-	(101,250)
INCREASE/(DECREASE) IN PAYABLES	(27,642,269)	39,853,539
INCREASE IN PROVISIONS RELATING TO EMPLOYEE COSTS		24,994,104
EMPLOYEE GRATUITY PAYMENT	9,257,971	(16,242,253)
(GAINS)/LOSSES ON SALE OF PROPERTY, PLANT & EQUIPEMENT	4,186,945	8,178,841
INCREASE IN OTHER CURRENT ASSETS	6,309,374	38,928,923
DECREASE IN BIOLOGICAL ASSETS	(24,202,613)	(51,353,415)
DECREASE IN INVENTORIES	38,693,855	(3,319,345)
DECREASE IN RECEIVABLES	4,418,695	
DECREASE IN PREPAYMENTS	(490,529)	
PRIOR YEAR PROFIT ADJUSTMENT	11,816,274	5,997,147
NET CASH FLOW FROM OPERATING ACTIVITIES	**108,292,961**	**130,111,194**
CASH FLOW FROM INVESTING ACTIVITIES		
PURCHASE OF PLANT & EQUIPEMENT TREASURY FUND	(23,692,185)	(163,533,125)
PURCHASE OF INTANGIBLE ASSETS	(1,377,809)	-
PURCHASE OF LIBRARY BOOKS & PERIODICALS	-	
PURCHASE / SALE OF BIOLOGICAL ASSETS		(773,951)
PROCEEDS FROM SALE OF PLANT & EQUIPEMENT		701,775
ISSUED LOANS	(8,787,255)	(7,786,300)
SETTLEMENTS OF LOANS	7,813,710	8,457,888
INTEREST ON INVESTMENT	-	537,500
INVESTMENT IN FIXED DEPOSIT	-	
NET CASH FLOW FROM INVESTING ACTIVITES	**(26,043,539)**	**(162,396,213)**
CASH FLOW FROM THE FINANCING ACTIVITIES		
TREASURY CAPITAL GRANT	70,000,000	43,725,000
DONOR FUNDED PROJECTS CAPITAL GRANT	12,495,858	51,439,616
RESEARCH & DEVELOPMENT AND ASSETS WRITE OFF	(64,072,156)	(135,725,816)
NET CASH FLOWS FROM THE FINANCING ACTIVITES	**18,423,702**	**(40,561,200)**
NET INCREASE / (DECREASE) IN CASH & CASH EQUIVALENTS	**100,673,123**	**(72,846,219)**
CASH & CASH EQUIVALENTS AT BEGINNING OF PERIOD	**24,723,869**	**97,570,088**
CASH & CASH EQUIVALENTS AT END OF PERIOD	**125,396,992**	**24,723,869**
BANK OF CEYLON - DANKOTUWA - A/C NO 3002507	6,843,859	1,910,796
BANK OF CEYLON - DANKOTUWA - A/C NO 3002942	22,924,800	2,815,857
BANK OF CEYLON - DANKOTUWA - A/C NO 3002556	24,463,048	7,425,493
BANK OF CEYLON - DANKOTUWA - A/C NO 3003088	61,992,056	1,610,491
BANK OF CEYLON - DANKOTUWA - A/C NO 3001528	1,195,204	1,195,204
BANK OF CEYLON - DANKOTUWA - A/C NO 75852571	7,995,059	9,283,061
BANK OF CEYLON - DANKOTUWA - A/C NO 84044222	477,967	477,967
	125,391,992	**24,718,869**
NSB - NEGOMBO		-
BOC - NEGOMBO	5,000	5,000
CASH IN TRANSIT	-	
	125,396,992	**24,723,869**

COCONUT RESEARCH INSTITUTE

STATEMENT OF CHANGES IN EQUITY/NET ASSETS

AS AT 31 ST DECEMBER 2020

NOTE	CONTRIBUTED BY THE GOVERNMENT	REVALUATION/ CAPITAL RESERVES	ACCUMULATED SURPLUS/DEFICIT	TOTAL EQUITY
BALANCE AS AT 01.01.2020	371,737,655	1,689,613,305	17,060,022	2,116,034,423
CAPITAL GRANT-TREASURY	70,000,000			70,000,000
SURPLUS/DEFICIT FOR THE YEAR			42,175,345	42,175,345
ASSETS WRITE OFF FOR THE CURRENT YEAR	(26,713,453)			(26,713,453)
R & D WRITE OFF FOR THE CURRENT YEAR	(36,788,703)			(36,788,703)
PRIOR YEAR RED WEWIL DETECTOR STOCK ADJUSTMENT	(570,000)		1,995,000	1,425,000
PRIOR YEAR RETENTION ADJUSTMENT			2,062,573	2,062,573
CAPITALIZING THE CONSTRUCTION OF FENCE & PURCHASING OF MESH ROLL AT KINIYAVA S.G			2,935,648	2,935,648
UPGRADE OF SALARY PACKAGE IS IDENTIFYING AS A INTANGIBLE ASSET			1,046,809	1,046,809
POLY BAGS OPENING STOCK ADJUSTMENT			2,466,533	2,466,533
SALES OF RED WEWIL EQUIPMENTS IN 2019 ADJUST TO THE STOCK ACCOUNT			(285,000)	(285,000)
ADJUSTMENT OF RECEIPT			295,997	
PRIOR YEAR EPF OVER EXPENDITURE ADJUSTMENT			227,047	227,047
ADJUSTMENT OF ROPE OPENING STOCK			309,200	309,200
PRIOR YEAR GRATUITY OVER PROVISION ADJUSTMENT			774,206	774,206
AMORTISATION FOR 2019 OF SALARY PACKAGE UPGRADE			(8,739)	(8,739)
BALANCE AS AT 12-31-2020	**377,665,499**	**1,689,612,303**	**71,051,540**	**2,174,643,075**

Figures in brackets indicate deductions

The Accounting Policies and Notes as Set out on the pages 7 to 28 from an integral part of these Financial Statements.

Notes to the Financial Statements (Contd.)

Note 24

COCONUT RESEARCH CENTRES & RESEARCH CENTRE ESTATES INCOME & EXPENDITURE

	BANDIRIPPUWA RC	RATHMALAGARA RC	AMBAKELLE GRC	POTTUKULAMA RC	WALPITA RC	MAKANDURA GRC	MADULKOTUWA GRC	MIDDENIYA RC	PALLAMA RC	THABBOWA RC	ESTATE MANAGEMENT DIVISION	TECHNOLOGY PARK	TOTAL 2020	BUDGET 2021	TOTAL 2019
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
REVENUE															
SALES OF COCONUT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-		[illegible]	[illegible]	[illegible]
SALE OF COPRA	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]
SALES OF SEEDLING	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]
SALE OF SUNDRIES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]
SALE OF ANIMALS PRODUCT OF ANIMALS	[illegible]	-	-	[illegible]		-	[illegible]	-	-	-	-	-	[illegible]	[illegible]	[illegible]
FD INTEREST INCOME		-	-	-	-	-				-	[illegible]	-	[illegible]		[illegible]
TOTAL REVENUE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
STOCK VARIANCES															
STOCK AS AT 01.01.2020	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]	[illegible]		[illegible]
STOCK AS AT 31.12.2020	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]	[illegible]	-	[illegible]
ESTATE REVENUE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
OVERHEAD CHARGES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
STAFF SALARIES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]	[illegible]	[illegible]
UPKEEP	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]
CULTIVATION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]
COST OF SPREADING	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-		[illegible]	[illegible]	[illegible]
HARVESTING	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]
DEPRECIATION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]		[illegible]
TOTAL COST OF PRODUCTION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CURRENT EXPENDITURE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]
ANIMAL HUSBANDRY	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	[illegible]					-	[illegible]	[illegible]	[illegible]
AMORTIZATION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	[illegible]		[illegible]
TOTAL EXPENDITURE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SURPLUS/(DEFICIT)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
OTHER COMPREHENSIVE INCOME/EXPENSE															
ACTUARIAL GAINS/LOSS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]		
NET SURPLUS/(DEFICIT)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

Page [illegible]

Notes to the Financial Statements

As at 31 December

		2020 BUDGET Rs.	2020 ACTUAL Rs.	2019 ACTUAL Rs.
Note 03	**TRANSFERS FROM TREASURY & OTHER ENTITIES**			
	RECURRENT GRANT	290,500,000	252,500,000	241,060,000
	ESTATE PROFIT TRANSFER	8,000,000	5,000,000	-
		298,500,000	**257,500,000**	**241,060,000**
Note 05	**OTHER REVENUE**			
	INTEREST ON LOAN & INVESTMENT		871,281	1,016,482
	INCOME FROM MOTOR VEHICLES		435,498	737,151
	SUNDRY INCOME	7,000,000	3,275,696	598,637
	SALES OF PHEROMONE		70,235	137,860
	INCOME PROJECTS		118,819	301,522
	RESEARCH & DEVELOPMENT WRITE OFF		36,788,703	37,410,236
	ASSETS & AMORTISATION WRITE OFF		26,713,453	36,048,575
	PROJECTS EXPENSES WRITE-OFF		99,485	62,267,005
		7,000,000	**68,373,169**	**138,517,470**
Note 06	**WAGES SALARIES AND EMPLOYEES' BENEFITS**			
	SALARIES ALLOWENCES & OVER TIME	185,181,000	160,620,995	159,106,084
	BOARDS CONTRIBUTION TO ETF/EPF	28,439,000	25,547,460	25,003,828
	BOARDS CONTRIBUTION TO MEDICAL AID	11,226,000	9,296,990	8,555,494
	COCONUT ALLOWANCES	1,297,000	2,120,228	1,831,213
	CURRENT SERVICE COST-EST	3,251,000	8,884,384	13,031,128
	INTEREST COST-EST		7,929,684	
		229,394,000	**214,399,742**	**207,527,748**
Note 07	**SUPPLIES AND CONSUMABLES USED**			
	SUPPLIERS AND CONSUMABLES	10,100,000	11,050,988	9,697,219
	CONTRACTUAL SERVICES	19,905,000	9,238,161	14,013,293
	MAINTENANCE	23,828,000	40,785,421	35,474,801
		53,833,000	**61,074,571**	**59,185,313**

Notes to the Financial Statements (Contd...)

Note 08

RESEARCH & DEVELOPMENT EXPENCES WRITE OFF

Description (Thrust Area)	CODE	WRITE OFF YEAR 2020	WRITE OFF YEAR 2019 Rs.
(1) Crop Protection			
1.1Crop Protection Division			
Major Pests	257	-	-
Diseases	259	370,255.68	181,348
Protection services	260	1,768,756.31	2,806,866
Waligama Leaf Wilt Disease	287		1,200
Plesisps Beetle	290	77,975.00	168,013
		2,216,986.99	3,157,427
(2) Crop Production			
2.1 Agronomy Division			
Soil Moisture Conservation	261	1,021,540.94	307,843.44
Low Yielding Palms	262		-
Farming System	263	465,334.47	735,308.47
Bio-energy Production	264	88,176.71	3,232.58
Inter Cropping	265	719,597.48	405,366.31
Poverty Alleviation Studies	267	1,547,785.56	2,148,073.70
Animal Husbandry	268	217,195.86	201,262.61
Coconut Planting Systems	270	534,108.94	641,213.09
Organic Farming	271		-
		4,593,739.96	4,442,290
2.2 Soil & Plant Nutrition Div.			
Low cost Material	272	6,025.00	66,778
Fertilizer Mixture	273	978,227.00	22,153
D.F.R.	274	2,726,147.19	917,913
Micronutrients	275		209,126
Irrigation	277	221,717.06	112,936
Nutrient Mapping	278		847,513
Organic Manure	279	676,544.57	167,256
Land suitability assesment	288	5,220.36	230,548
		4,613,881.18	2,574,223
(3) Crop Improvement-GPBD			
Dev. New co. Cultivars	281	2,178,387.59	2,373,217
Conse. Eva. Co. Germplasm	282	1,333,184.90	1,567,838
		3,511,572.49	3,941,055

Notes to the Financial Statements (Contd...)

(4) Coconut Processing-CPRD			
Improv.Kernal Based Product	225	433,444.64	447,159
Sap Based Product	226	737,740.26	991,334
Project on Cocunut Oil	255	3,280,283.82	1,864,125
		4,451,468.72	3,302,618
(5) Agriculture Economics			
Socio Economy Studies	286	398,475.38	621,555
		398,475.38	621,555
Total			18,039,168
(6) Development & Services Related to Crop Production			
Drought Study - Middeniya (gpd)	400		6,000
Phosphate Sources - Middeniya (gpd)	401	1,488,837.51	1,823,506
Monthly Harvesting Impact(gpd)	402	1,050,008.24	1,507,630
Devlopment & Maintenance of Middeniya R.C (MF)	403	47,449.77	66,686
Assessment & Improv. Of soil Quality Dep.Co.Land	404	-	24,860
Yield Improv.Co. Land by Rain Water Harve. Tech.	407	982,050.00	2,143,696
Consumer survey Nut Consumption & coco. Oil	408	55,225.00	440,805
Production of Dihaploids (HCD)	409	66,562.56	818,392
A Morcular Approach to Investigate Genotyple Specifically	446	17,999.70	
Mass Production of genetically improved Planting material	447	171,100.73	
		3,879,233.51	6,831,577.46
(7) Development & Services Actvities Related to Genetical Improvement of Coconut (Gph)			
Construction of a Coconut Genome map	411	21,263.83	53,786
Estab. P.S.G. for mass Production of CRISL98	414	51,260.18	44,944
Upgrading ISG to Increase the Produ. Of CRIC 65	415	419,956.31	71,130
Function of the Seed Production Unit	417	3,450,024.95	2,528,101
		3,942,505.27	2,697,962
(8) Development & Services Relatel to Crop Protection			
Coconut Mite Research & Development (Cpd)	418	671,645.44	252,642
Extension Programs for Mite Management	419	324,909.00	602,996
Impact of mite damage on yeild at spatial & temp.scale	420	105,080.50	874,796
Manag. Of black beetal using pherom. & Oryctes(Cpd)	433	-	
		1,101,634.94	1,730,435
(9) Development & Services Relatel to Coconut processing & Value Addition (cprd)			
Vergine oil - value addition	422		2,250.00
Dev.& Impro. Cu. coir retting thro. Intrudu.Cons. Micro	423	225,706.69	975,587.22
Dev.& Impro. Coconut fibre based Products	424	761,982.11	634,883.13
Pet Resistance of Coconut Varieties	427	6,557.50	
Oil Palm Research & Development	428	1,500.00	
Manag. Of black beetal using pherom. & Oryctes(Cpd)	433		16,865.00
		995,746.30	1,627,385

Notes to the Financial Statements (Contd...)

(11) Agricultural Economics			
Mechanization & the demand of machinery co. Indus.	438	47,534.00	66,359
		47,534.00	66,359
(12) Transfer of Technology			
Electronic print media & Techn. transfer Prog (ext)	441	3,137,762.41	1,778,751
Development of field models & exhibits (ext)	442	3,820,216.36	1,811,907
Impro. Farm practies in mini coco. Triangle Hambanthota (ext)	444	87,947.00	2,826,692
		7,035,925.77	6,417,350
Total		**36,788,702.51**	**37,410,236.02**
GRAND TOTAL		**36,788,702.51**	**37,410,236.02**

NOTE 09 OTHER EXPENSES	**2020 BUDGET Rs.**	**2020 ACTUAL Rs.**	**2019 ACTUAL Rs.**
TRAVELLING	1,681,000	896,185	1,706,059
EXPENSES- PROJECTS		14,965,257	33,626,643
EXPENSES- CESS		3,536,734	3,616,189
BOARD MEMBERS FEES	700,000	448,823	760,901
WELFARE	2,958,000	3,170,283	5,797,239
OTHER OPERATING EXPENSES	1,934,000	941,081	854,896
EXPENSES OF C.P.M COURSE		983,150	2,673,169
ASSET DISPOSAL LOSS		4,186,945	
	7,273,000	**29,128,457**	**49,035,097**

Notes to the Financial Statements (Contd...)

As at 31 December

Notes to the Financial Statements (Contd...)

Note 10 - INFRASTRUCTURE PLANT & EQUIPMENT

	MATURED LAND Rs.	BUILDINGS Rs.	IMPROVEMENT TO ESTATES Rs.	FIELD, AUDIO, WATER & LABORATORY EQUIPMENTS Rs.	VEHICLES Rs.	OFFICE, ENGINEERING, NETWORK, COMPUTER EQUIPMENT Rs.	OFFICE & HOUSEHOLD FURNITURE Rs.	TOTAL 2020 Rs.	TOTAL 2019 Rs.
COST									
AS AT 01-01-2020	1,539,783,874	294,285,642	162,319,512	337,119,509	92,761,152	73,289,142	29,282,430	2,528,849,259	2,486,522,638
ADDITIONS	-	10,237,470	17,773,868	5,634,421	-	568,591	239,730	34,453,250	87,920,917
DISPOSALS	-	2,047,485	4,543,520	5,260,880	1,627,445	2,533,469	583,595	16,596,214	24,594,384
AS AT 31-12-2020	1,539,783,874	302,473,627	176,549,260	337,493,049	91,133,707	71,324,244	28,046,505	2,547,704,266	2,529,849,230
ACCUMULATED DEPRECIATION									
AS AT 01-01-2020	-	106,705,032	50,864,121	142,216,826	84,102,910	59,739,366	17,416,243	461,110,397	417,184,241
ADDITIONS	-	12,272,151	8,218,141	19,853,945	2,370,356	6,036,459	1,126,739	49,881,801	49,439,924
DISPOSALS	-	191,099	425,929	5,205,727	2,712,135	2,556,317	493,583	11,518,769	15,513,769
AS AT 31-12-2020	-	118,786,085	58,656,332	156,961,044	83,461,371	53,179,417	18,429,480	489,473,429	451,110,396
CARRYING VALUE	-	183,687,542	117,892,928	180,532,005	7,672,336	18,144,827	10,617,025	2,156,036,948	2,186,443,509
WORKING PROGRESS								97,806,110	107,674,675
AS AT 31 DECEMBER 2020	1,539,783,874	183,687,542	117,892,928	180,532,005	7,672,336	18,144,827	10,617,025	2,156,036,948	2,186,443,509
AS AT 31 DECEMBER 2019	1,539,783,874	187,579,610	112,455,391	194,805,683	8,658,243	23,583,877	11,876,156		

AMORTIZATION - ESTATE IMPROVEMENT	8,218,141	
ASSETS DEPRECIATION - ESTATES	6,825,348	
ASSETS DEPRECIATION - OPEN PROJECTS	3,535,734	
ASSETS DEPRECIATION - DONOR PROJECTS	8,869,934	27,448,951.77
INTANGIBLE ASSET AMORTISATION - HO	59,473	
ASSETS DEPRECIATION - HEAD OFFICE	22,432,850	22,489,324
		49,938,275.98

Notes to the Financial Statements (Contd...)

As at 31 December

		2020 ACTUAL Rs.	2019 ACTUAL Rs.
Note 11	**INTANGIBLE ASSETS**		
	Cost		
	Balance as at 01.01.2020	-	
	(-) Addition during the year	1,377,809	
	(-) Dispose During the year	-	
		1,377,809	
	Accumulated Amortisation		
	Balance as at 01.01.2020	-	
	( ) Addition during the year	65,214	
	(-) Dispose During the year	-	
		65,214	
	Currying value	**1,312,596**	
Note 12	**BIOLOGICAL ASSETS**		
	LIVE STOCK	31,869,680	7,667,067
		31,869,680	**7,667,067**
Note 13	**OTHER NON FINCIAL ASSETS**		
	LIBRARY BOOKS & PERIODICALS	3,159,059	3,159,059
		3,159,059	**3,159,059**
Note 14	**OTHER NON CURRENT ASSETS**		
	DISTRESS & FRIDGE LOAN	16,238,852	16,323,981
	TRANSPORT LOAN	1,159,250	1,284,750
	ESTATE FUND INVESTMENTS	42,600,000	42,600,000
		59,998,102	**60,208,731**
Note 15	**CASH & CASH EQUIVALANTS**		
	BANK OF CEYLON - DANKOTUWA - A/C NO 3002507	6,343,859	1,910,796
	BANK OF CEYLON - DANKOTUWA - A/C NO 3003942	22,924,800	2,815,857
	BANK OF CEYLON - DANKOTUWA - A/C NO 3002556	24,463,048	7,425,493
	BANK OF CEYLON - DANKOTUWA - A/C NO 3003088	61,992,056	1,610,491
	BANK OF CEYLON - DANKOTUWA - A/C NO 000001528	1,195,204	1,195,204
	BANK OF CEYLON - DANKOTUWA - A/C NO 82721768	7,995,059	9,283,061
	BANK OF CEYLON - DANKOTUWA - A/C NO 84044222	477,967	477,967
		125,391,992	**24,718,869**
	SAVINGS DEPOSITS		
	BOC - NEGOMBO	5,000	5,000
		5,000	**5,000**
		125,396,992	**24,723,869**

Notes to the Financial Statements (Contd..)

		2020 ACTUAL Rs.	2019 ACTUAL Rs.
Note 16	**RECIEVABLES**		
	SALES LEDGER CONTROL ACCOUNT	31,435,060	35,853,755
	LESS - BAD & DOUBTFUL DEBTS PROVISION FOR THE YEAR	(433,487)	(433,487)
		31,001,574	**35,420,268**
	POST MASTER GENERAL	31,620	31,620
	INTEREST RECIEVABLE ON FD	21,092,340	14,915,340
		52,125,533	**50,367,228**
Note 17	**INVENTORIES**		
	COCONUT	26,909,705	34,343,795
	COPRA	230,647	185,393
	GENERAL STORES/ESTATE	4,839,733	4,503,083
	FERTILIZER	2,088,376	7,187,176
	CHEMICAL & GLASSWARE	20,032,630	20,237,812
	SEEDLING STOCKS	23,676,908	52,926,258
	STOCK OF PUBLICATIONS	4,150,724	4,880,515
	RED WEWIL EQUIPMENTS	-	1,425,000
	POLY BAGS	3,628,454	-
	ROPES	1,436,000	-
		86,993,175	**125,687,030**
Note 18	**PREPAYMENTS**		
	INSURANCE	490,529	-
		490,529	-
Note 19	**OTHER CURRENT ASSETS**		
	ADVANCE TO LOCAL SUPPLIERS	9,056,006	11,876,719
	ADVANCE TO STAFF	139,400	139,400
	MOBILIZATION ADVANCE & PURCHASE AD:(OVERSEAS)	2,387,890	5,387,816
	SECURITY DEPOSIT RECIEVABLE	245,650	245,650
	DISTRESS LOAN	6,835,354	5,601,180
	TRANSPORT LOAN	662,923	712,923
	WAGES ADVANCE	-	8,230
	FESTIVAL ADVANCE	723,800	531,300
	SPECIAL ADVANCE	84,000	139,800
	SPECIAL SALARY ADVANCE	102,900	152,500
	FESTIVAL ADVANCES TO LABOURERS	460,716	428,340
	SPECIAL SALARY ADVANCES TO LABOURERS	97,800	748,811
	PETTY CASH -ISG	102,750	102,750
	PETTY CASH -MID	50,000	-
	PETTY CASH -SPND	1,030	-
		20,950,219	**26,075,419**

Notes to the Financial Statements (Contd...)

		2020 ACTUAL	2019 ACTUAL
		Rs.	Rs.
Note 20	PAYABLES		
	ACCRUED EXPENSES	46,647,223	69,522,787
	EXPENCE CREDITORS	2,180,031	4,447,438
	UCLAIMED WAGES	36,921	17,827
	UNPAID SALARIES	200	200
	PROVISION FOR AUDIT FEES	800,000	1,200,000
	PROVIDENT FUND (LABOURER)	550,647	712,948
	SECURITY DEPOSITS	998,399	821,496
	RETENTION	7,187,069	9,695,480
	SECURITY DEPOSIT STAFF	49,000	49,000
	TENDER DEPOSIT PAYABLE	1,248,350	853,050
	SUNDRY PAYABLES	497,586	497,586
	WITH HOLDING TAX PAYABLE	-	33,335
	UNPAID SUPPLIERS	13,250	-
		60,208,877	87,851,146
Note 21	NON CURRENT LIABILITIES		
	CONTRIBUTED CAPITAL - PROJECTS	173,256,556	160,760,699
		173,256,556	160,760,699

NOTES TO THE FINANCIAL STATEMENTS - 2020

As at 31st December	2020 Rs. Cts.	2019 Rs. Cts.

NOTE 22 - EMPLOYEE BENEFITS

The amounts recognized in the Statement of Financial Position are determined as follows:

Present value of obligation	166,538,058	157,280,087
Liability in the statement of financial position	**166,538,058**	**157,280,087**

The valuation method used by the management to value the benefit is the "Projected Unit Credit Method",under acturial valuatrion the method recommended by the LKAS 19 / Employee Benefits.

The movement in the defined benefit obligation over the year is as follows:

	Rs. Cts.	Rs. Cts.
Balance at the beginning of the year	**157,280,087**	**148,528,236**
Over/Under Provision	(774,206)	
Current service cost	14,539,077	24,994,104
Interest cost	11,009,606	
Actuarial loss /(gain)	7,864,904	
	189,919,468	173,522,340
Payments made during the year	(7,651,601)	(16,242,253)
Balance as at the end of the year	**166,538,058**	**157,280,087**

The amounts recognized in the statement comprehensive income are as follows:

	Rs. Cts.	Rs. Cts.
Current service cost	14,539,077	24,994,104
Interest cost	11,009,606	-
Total Included in the staff cost (Note 07)	**25,548,683**	**24,994,104**
Actuarial loss /(gain)	7,864,904	
Total included in statement comprehensive income	**25,548,683**	**24,994,104**

The key assumptions used by the Management

Rate of Interest %(5 year corporate bond rate)	7% p.a	7% p.a
Expected Salary Increment %	10	7
Staff Turnover Factor %	15	15
Retirement age	60	60

Notes to the Financial Statements (Contd..)

DISCLOSURES

01) Actions have been taken to filled 09 cases against third parties by the CRI and 09 Cases against CRI.

Cases Filed Against Third Parties by the CRI

The following cases are regarding the violation of the bond by the officers of the CRI.

	Name	Bond Value	Present Situation
a)	Mr.B.H.C.Mendis	1,014,780.00	All the documents related to this case have been submited to the Department of Attorney General(File No.C/245/15/CRI).This case was called on 2019.11.07.The Court stated that summon was returned due to the wrong domestic number of given address.Finally this address was sent to the Election Commission for the confirmation of domestic number.
b)	Dr.(Mr).K.B.Dasanayake	2,039,715.00	As per the case report issued on 2017.10.10 under the case no 2625/M, Ms.Shyamali Fonseka(attorney at law) is taking an action to issue summons for the 3rd defendant of this case and Correcting defects of the HEG form of set of summon documents which to be sent to the UK via the Ministry of Justice.The next trial will be held on the month of February.
c)	Mrs.M.G.F.S.Jayasundara	3,345,424.66	It is stated that there is a problem with foreign address of this depfendant.But a new address was revealed through the internet & informed it to the lawyer on 2017.10.20.Further,summons of the 2nd & 3rd defendant have been returned due to unavailability.Divisional secretary also has informed that the defendant was not available in this address(Case No.1917/M).we have already informed to the lawyer through the letter dated on 2018.02.08 for taking necessary action to find the addresses of above defendant through the commission of election .An actions have not been taken yet.The Final Case report has been sent to the attorney general's department. further, We have also sent a letter on 21.12.2020 to the Attorney General for seeking legal advice.
d)	Dr.(Mr).N.A.K.De Silva	3,204,297.60	Already Started to collect the evidence.Written Lectures was held on 13.11.2019.Attorney General was already informed about the order.Next hearing date is 19.01.2021
e)	Dr.(Mrs).J.M.M.A.Jayasundara	847,880.00	The Court is taking action to issue summons. Next hearing date is 21.01.2021

f)	Mr.H.P.S.Jayasundara	2,078,905.33	Department of attorney General has requested from the CRI to inform about the present Address of this defendant by the letter no:C/184/99/CRB(RW) dated on 30.01.2019, and correct address has been already informed by the CRI.and also, Letter of Reminder was sent back on 20.11.2019.We have also sent a letter on 21.12.2020 to the Attorney General for seeking legal advice.
g)	Mrs.P.G.P.Hewawitharana	1,059,170.00	She has been informed to pay off the total bond value of Rs.2,993,945.18. But she has already paid the sum Rs.1,934,775.18.The balance amount is Rs.1,059,170.00.She has requested to discuss with the department of attorney general to pay off this balance amount throuth her lawyer.But,the Board has decided to continue the case .In the meantime,She has informed us that she will come to discuss about the settlement of this balance on February 2020.since then no action has been taken so for by her & legal action resumed.
h)	Dr.(Ms).C.S Somasiri	11,907,933.05	All the documents have been already submitted to the department of attorney general the case is proceeding.The case is proceeding.
i)	Dr(Mrs.).H.M.I.K.Herath	3,090,747.03	The Case is been heard. The case was called on 17.12.2020 and postponed till 04.03.2021.

ases Filed against the Institution

	Name	Court	Reason & Present situation
a)	A.S.Nanayakkara (former Assistant Director)	Supreme Court	Getting the appropriate compensation for the abolition of the post and the violation of fundamental rights. The case is been examined.Next trial date is 19.02.2021
b)	Krishna Kumar (Checkroll labour at ISG)	High court -Chilaw	Re-employment of gratuity with post pay and obtaining compensation for dismissal.The case is been examined.Next trial date is 03.01.2021
c)	Department of Forest Conservation	Magistrate Court-Chilaw	Cutting Down 172 teak trees at Rathmalagara Research Centre.A total of 112 trees were identified as belonging to the Coconut Research Institute and were released. The trial is still underway to establish the ownership of 60 trees. The case is been examined.Next trial date is 02.02.2021
d)	Sarath Pushpakumara (Labour of pallama R.C)	Labour Tribunal Chilaw	Prosecution of institution for preliminary investigation in to suspension for illegal logging.The case is been examined
e)	Weerasinghe (Labour of ISG)	Labour tribunal Chilaw	A lawsuit has been filed against the decision of a preliminary investigation in to the transfer & suspension due to coconut theft.The case is been examined.

f)	Chaminda Lakshman (Labour of ISG	Labour tribunal Chilaw	A lawsuit has been filed against the decision of a preliminary investigation in to the transfer & suspension due to coconut theft.The case is been examined.
g)	Elpitiya Plantation Industries Kegalle Plantation Industries	court of Appeal	Violation of Fundamental Rights in Prohibition of Palm oil Cultivation.The case is been examined.
h)	Malwatte Plantation Industries Namunukula Plantation Industries Horana Plantation Industries Agalawatte Plantation Industries Watawala Plantation Industries	court of Appeal	Violation of Fundamental Rights in Prohibition of Palm oil Cultivation.The case is been examined.
i)	Lalan Rubber (pvt) Ltd	court of Appeal	Violation of Fundamental Rights in Prohibition of Palm oil Cultivation.The case is been examined.

02) An extent of 75 acres from the Middeniya farm has been temporary released for 30 years by the Assistant Divisional Secretary of Karuwana to the Ministry of Plantation Industries on October 7,2004 and it was Vested to Coconut Research Institute on October 11,2004 by the Ministry of Plantation Industries for stabilizing of sub Coconut Research Centre in Southern Province.

03) The following Funds have been credited to the Capital Current Account (Ac No.3002556) of the Coconut Research Institute in 2018, which have been allocated for the following specified tasks of the CRI but not Utilized. Remaining balance of this fund as at 31.12.2019 is Rs.7,362,408.41 Because the fund was utilized for the payment of construction of New laboratary complex.

Rs.10,000,000.00	Sold amount of the Land of Makandura Seed Garden to the wayamba University.
Rs. 9,522,210.00	Returned amount from the Ceylon Electricity Board of the Payment for the Supply of 3 Phase Electricity to the Poonarin Seed Garden.
Rs. 4,110,400.00	Returned amount from the Sl. Army of the payment for the Clearance the Land of Poonarin Seed Garden.

04) Unsettled Advance amount of Ambakelle Seed Garden is Rs. 102,750.00.

05) Unsettled Advance amount of Middeniya R.C is Rs. 50,000.00

Continue....

05). Committed liabilities for the year 2020 are as Follws (Only Purchase Order issued)

CAPITAL

Company name	Item/Service	Amount (Rs)	P/O No:
Enex Agencies	Chair	41,666.40	357
Enex Agencies	Steel Rack	45,252.00	387
Hemsons International	Accessories for PH Meter	11,032.20	402
Microtech Bioliogical	Micro Centrifuge	1,238,473.80	484
D Logic Computers	Hard Drive	54,000.00	485
Camera Zone	Sandisk 64 GB	54,000.00	486
D.R.Industries	Refrigerators	205,980.00	491
D.R.Industries	Washing Machine	45,810.00	493
Alpha Industries	Cash Safe	150,633.00	494
Metropolitan Office	Photocopiers	484,596.00	513
DR Industries	Sofa set 01	79,087.50	517
LI-COR,Ins, Microtech Bioliogical	PPS	1,767,462.00	510,511
Samal Construction	Pantry Cupboard	235,900.00	
Shabash Associates	Building	8,785,965.75	
State Engineering Corporation	Consultancy Services	389,478.83	
KAP Siriwardhana	RW Detectors	975,000.00	
Vijitha Yapa Book Shop	Library Book	127,635.00	
Sarasavi Book Shop	Library Book	28,600.00	
MN Chandrasiri	Hera Ropes	600,000.00	341
MN Chandrasiri	Hera Ropes	140,000.00	
		15,460,572.48	

ESTATE

Company name	Item/Service	Amount (Rs)	P/O No:
D.R.Industries	TV Stand	7,717.50	487
D.R.Industries	Refrigerator	79,990.00	491
D.R.Industries	Refrigerator	79,990.00	491
Softlogic Retail	Television	27,990.00	492
Softlogic Retail	Television	27,990.00	492
DR Industries	Sofa Set	79,087.50	517
DR Industries	Sofa Set	79,087.50	517
DR Industries	Two Door Cupboard	33,615.00	517
Alpha Industries	Computer Table	8,599.50	518
Sun Super	Computer Chair	6,500.00	519
Sun Super	Visitor Chair	32,000.00	519
Sun Super	Book Rack	30,700.00	519
		493,267.00	

CHEMICAL

Company name	Item/Service	Amount (Rs)	P/O No:
Pointe Scientific Instrument	Micro pipette	78,675.00	267
Avon Pharmo Chem	Glassware	12,371.40	268
Avon Pharmo Chem	Micro pipette	122,000.00	377
Avon Pharmo Chem	Micro pipette Stands	24,000.00	414
R S Global Traders	Gloves	35,250.00	417
Bhoomi-Tech (Pvt)Ltd	Hotplate Magnetic Stirrer	179,280.00	512
		451,576.40	

ජාතික විගණන කාර්යාලය
தேசிய கணக்காய்வு அலுவலகம்
NATIONAL AUDIT OFFICE

මගේ අංකය / எனது இல. / My No. } PLA/D/CRI/01/20/18

ඔබේ අංකය / உமது இல. / Your No. }

දිනය / திகதி / Date } 2021 ජූලි 30 දින

(ගිණුම් අංකය)
08 OCT 2021

SENT/RECEIVED
04 AUG 2021
CHAIRMAN

පොල් පර්යේෂණ මණ්ඩලය

පොල් පර්යේෂණ මණ්ඩලයේ 2020 දෙසැම්බර් 31 දිනෙන් අවසන් වර්ෂය සඳහා වූ මූල්‍ය ප්‍රකාශනසහ වෙනත් නෛතික නියාමන අවශ්‍යතා පිළිබඳව 2018 අංක 19 දරන ජාතික විගණන පනතේ 12 වන වගන්තිය ප්‍රකාරව විගණකාධිපති වාර්තාව

යථෝක්ත වාර්තාව මේ සමඟ එවා ඇත.

ඩබ්ලිව්. පී. සී. වික්‍රමරත්න
විගණකාධිපති

පිටපත් : - 1. ලේකම් - මුදල් අමාත්‍යාංශය
2. ලේකම් - පොල් ,කිතුල්,තල් හා රබර් වගා ප්‍රවර්ධනය ආශ්‍රිත කාර්මික භාණ්ඩ නිෂ්පාදන හා අපනයන විවිධාංගීකරණ රාජ්‍ය අමාත්‍යාංශය

අංක 306/72, පොල්දූව පාර, බත්තරමුල්ල, ශ්‍රී ලංකාව | இல. 306/72, பொல்துவ வீதி, பத்தரமுல்லை, இலங்கை. | No. 306/72, Polduwa Road, Battaramulla, Sri Lanka.
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ජාතික විගණන කාර්යාලය
தேசிய கணக்காய்வு அலுவலகம்
NATIONAL AUDIT OFFICE

මගේ අංකය எனது இல. My No. PLA/D/CRI/01/20/18 ඔබේ අංකය உமது இல. Your No.

දිනය திகதி Date 2021 ජූලි 30 දින

සභාපති

පොල් පර්යේෂණ මණ්ඩලය

පොල් පර්යේෂණ මණ්ඩලයේ 2020 දෙසැම්බර් 31 දිනෙන් අවසන් වර්ෂය සඳහා වූ මූල්‍ය ප්‍රකාශන සහ වෙනත් නෛතික නියාමන අවශ්‍යතා පිළිබඳව 2018 අංක 19 දරන ජාතික විගණන පනතේ 12 වන වගන්තිය ප්‍රකාරව විගණකාධිපති වාර්තාව

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1. මූල්‍ය ප්‍රකාශන

1.1 නත්වාගණනය කළ මතය

පොල් පර්යේෂණ **මණ්ඩලයේ** 2020 දෙසැම්බර් 31 දිනට මූල්‍ය තත්ත්ව ප්‍රකාශනය සහ එදිනෙන් අවසන් වර්ෂය සඳහා වූ මූල්‍ය කාර්යසාධන ප්‍රකාශනය, ශුද්ධ වත්කම් වෙනස්වීමේ ප්‍රකාශනය සහ එදිනෙන් අවසන් වර්ෂය සඳහා මුදල් ප්‍රවාහ ප්‍රකාශනය සහ මූල්‍ය ප්‍රකාශනවලට අදාළ සටහන්, සාරාංශගත වැදගත් ගිණුම්කරණ ප්‍රතිපත්තිවලින් සමන්විත 2020 දෙසැම්බර් 31 දිනෙන් අවසන් වර්ෂය සඳහා වූ මූල්‍ය ප්‍රකාශන ශ්‍රී ලංකා ප්‍රජාතාන්ත්‍රික සමාජවාදී ජනරජයේ ආණ්ඩුක්‍රම ව්‍යවස්ථාවේ 154(1) ව්‍යවස්ථාව සමඟ සංයෝජිතව කියවිය යුතු 2018 අංක 19 දරන ජාතික විගණන පනතේ සහ 1971 අංක 38 දරන මුදල් පනතේ විධිවිධාන ප්‍රකාර මාගේ විධානය යටතේ විගණනය කරන ලදී. ආණ්ඩුක්‍රම ව්‍යවස්ථාවේ 154(6) ව්‍යවස්ථාව ප්‍රකාරව මාගේ වාර්තාව යථා කාලයේදී පාර්ලිමේන්තුවේ සභාගත කරනු ලැබේ.

මාගේ වාර්තාවේ නත්වාගණනය කළ මතය සඳහා පදනම කොටසේ විස්තර කර ඇති කරුණුවලින් වන බලපෑම හැර, මණ්ඩලයේ 2020දෙසැම්බර් 31 දිනට මූල්‍ය තත්ත්වය සහ එදිනෙන් අවසන් වර්ෂය සඳහා එහි මූල්‍ය ක්‍රියාකාරිත්වය හා මුදල් ප්‍රවාහ ශ්‍රී ලංකා රාජ්‍ය අංගයේ ගිණුම්කරණ ප්‍රමිතිවලට අනුකූලව සත්‍ය හා සාධාරණ තත්ත්වයක් පිළිඹිබු කරන බව මා දරන්නා වූ මතය වේ.

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1.2 නත්ත්වාගණනය කළ මතය සඳහා පදනම

(අ) ශ්‍රී ලංකා රාජ්‍ය අංශ ගිණුම්කරණ ප්‍රමිති අංක 01 හි 76 ඡේදය ප්‍රකාරව මාස 12 ක් ඇතුළත උපලබ්ධි වේ යැයි අපේක්ෂා කරන දැ ජංගම වත්කම් ලෙසත් ඉතිරිය ජංගම නොවන ලෙසත් වර්ගීකරණය කළ යුතු නමුත් වසර 05 ක කාලයකට 2017 මැයි 16 දින ස්වයංක්‍රියව අලුත් කිරීමේ පදනමින් ස්ථාවර තැන්පතුවල ආයෝජනය කරන ලද රු. 42,600,000 ක ආයෝජන වෙනුවෙන් සමාලෝචිත වර්ෂයට අදාළව ලැබිය යුතු සමුච්චිත පොළිය වූ රු.21,092,340 ක් ආයෝජන වටිනාකමට එකතු කර දැක්වීම වෙනුවට සමාලෝචිත වර්ෂයේ ජංගම වත්කම් යටතේ දක්වා තිබුණි.

(ආ) ශ්‍රී ලංකා රාජ්‍ය අංශ ගිණුම්කරණ ප්‍රමිති අංක 15 හි 29 ඡේදය ප්‍රකාරව ඉදිකරමින් පවතින ගොඩනැගිලි 02 ක කෙරීගෙන යන වැඩ සඳහා මුදලින් ගෙවා ඇති රු. 351,832 ක් වෙනුවට ප්‍රදානය කළ මුළු කොන්ත්‍රාත් වටිනාකම වූ රු. 4,678,772 ක් ගිණුම්ගත කර තිබීම හේතුවෙන් වර්ෂය තුළ කෙරීගෙන යන වැඩ ගිණුමේ හා ගෙවිය යුතු වියදම් ගිණුමේ ශේෂයන් රු. 4,326,940 ක් බැගින් වැඩියෙන් මූල්‍ය ප්‍රකාශනවල දැක්වුණි.

(ඇ) සමාලෝචිත වර්ෂයේදී අපහරණය කර තිබුණු පිරිවැය රු. 10,007,409 ක් වූ වාහන සහ උපකරණ වෙනුවෙන් ලැබිය යුතු මුදල් රු. 2,579,026 ක් හා අපහරණ ලාභය රු. 2,305,859 ක් මූල්‍ය ප්‍රකාශනවල ගලපා නොතිබුණි.

(ඈ) මණ්ඩලය විසින් ප්‍රාග්ධනීත කර පරිහරණය කළ පොල් සංවර්ධන මණ්ඩලයට අයත් දුන්කන්නාවත්ත පර්යේෂණ මධ්‍යස්ථානයේ ගොඩනැගිලි පෙර වර්ෂයේදී නැවත භාර දී තිබූ අතර එම වත්කම් පොත්වලින් ඉවත් කිරීමේදී පැන නැඟී රු. 3,913,777 ක ශුද්ධ හර ශේෂය සමුච්චිත අතිරික්තයට ගැලපීම වෙනුවට සමාලෝචිත වර්ෂයේ අතිරික්තයට ගලපා තිබීම හේතුවෙන් එම වටිනාකමින් අතිරික්තය අඩුවෙන් මූල්‍ය ප්‍රකාශනවල දැක්වුණි.

(ඉ) වැලිගම කොළ මැලවීමේ රෝගය පාලනය කිරීමට දෙමුහුන් බීජ පොල් ලබා ගැනීමේ පැළ තවානක් ස්ථාපිත කිරීම සඳහා පොල් වගා කිරීමේ මණ්ඩලයෙන් 2016 වර්ෂයේදී වසර 10 ක කාලයකට බදුගත් වැලිගම ඉඩම සඳහා ගිවිසුම් ප්‍රකාරව ගෙවිය යුතු නමුත් ගෙවා නොතිබූ රු. 1,000,000 ක මුලික ගෙවීම හා රු. 25,000 ක් බැගින් වන වාර්ෂික ගාස්තු ගිණුම්ගත කර නොතිබුණි. මේ හේතුවෙන් සමාලෝචිත වර්ෂය අවසානයට ජංගම වගකීම් රු. 1,075,000 ක් අඩුවෙන් මූල්‍ය ප්‍රකාශනවල දැක්වුණි.

(ඊ) විවිධ ව්‍යාපෘති සඳහා රේඛීය අමාත්‍යාංශයෙන් ලැබෙන ප්‍රතිපාදන ගිණුම්ගත කරනු ලබන ආකාරය පිළිබඳ නිවැරදි ගිණුම් ප්‍රතිපත්තියක් සකස් කර ගැනීමකින් තොරව ව්‍යාපෘති 31 ක් සඳහා රජයේ ප්‍රාග්ධන ප්‍රදාන ලෙස ලැබී තිබුණු රු. 173,256,556 ක් ප්‍රාග්ධන ප්‍රදාන ගිණුමට බැර කර එම මුදල් උපයෝගී කරගෙන අවසන් කර තිබුණු ව්‍යාපෘති 27 ක වියදම් රු.111,427,751 ක් මණ්ඩලයේ වියදම් ලෙස සටහන් කර තිබුණ ද, මෙකී වියදමට අදාළ ප්‍රාග්ධන ලැබීම් ප්‍රමාණය මූල්‍ය කාර්යසාධන ප්‍රකාශයෙහි ආදායමක් ලෙස හඳුනාගෙන නොතිබුණි. මෙම නිසා රජයේ ප්‍රාග්ධන දායකත්වය හා සමුච්චිත අතිරික්තය පිළිවෙලින් රු.111,427,751 ක් බැගින් වැඩියෙන් හා අඩුවෙන් මූල්‍ය ප්‍රකාශනවල දැක්වුණි.

(උ) 2020 දෙසැම්බර් 31 දිනට පුස්ථකාල පොත් කොග සත්‍යාපනය කිරීමේදී පොත් 289 ක ඌනතාවයක් නිරීක්ෂණය වී තිබුණු අතරතවත් පොත් 190 ක් ගිණුම්ගතවී නොතිබුණි. එසේම පොත් 31 ක් විවිධ හේතුවෙන් සත්‍යාපනය කළ නොහැකි වී තිබුණි. මෙම නිසා මූල්‍ය ප්‍රකාශනවල දක්වා තිබුණු රු. 3,159,059 ක පොත් අගයෙහි නිවැරදිකාවය පිළිබඳ විගණනයේදී ප්‍රශ්නකාරී විය.

ශ්‍රී ලංකා විගණන ප්‍රමිතිවලට (ශ්‍රී.ලං.වි.ප්‍ර.) අනුකූලව මා විගණනය සිදු කරනු ලදී. මෙම විගණන ප්‍රමිති යටතේ වූ මාගේ වගකීම්, මෙම වාර්තාවේ මූල්‍ය ප්‍රකාශන විගණනය සම්බන්ධයෙන් විගණකගේ වගකීම යන කොටසේ තවදුරටත් විස්තර කොට ඇත. මාගේ නත්ත්වාගණනය කළ මතය සඳහා පදනමක් සැපයීම උදෙසා මා විසින් ලබාගෙන ඇති විගණන සාක්ෂි ප්‍රමාණවත් සහ උචිත බව මාගේ විශ්වාසයයි.

පොල් පර්යේෂණ මණ්ඩලයේ 2020 වාර්ෂික වාර්තාවේ ඇතුළත් අනෙකුත් තොරතුරු

මෙම විගණන වාර්තාවේ දිනට පසුව මට ලබා දීමට බලාපොරොත්තු වන පොල් පර්යේෂණ මණ්ඩලයේ 2020 වාර්ෂික වාර්තාවේ ඇතුළත් කර ඇති නමුත් මූල්‍ය ප්‍රකාශන සහ ඒ පිළිබඳව වූ මගේ විගණන වාර්තාවේ ඇතුළත් නොවන තොරතුරු, අනෙකුත් තොරතුරු යන්නෙන් අදහස් වේ. මෙම අනෙකුත් තොරතුරු සඳහා කළමනාකරණය වගකිව යුතුය.

මූල්‍ය ප්‍රකාශන සම්බන්ධයෙන් වූ මගේ මතයෙන් අනෙකුත් තොරතුරු ආවරණය නොකරන අතර මම ඒ පිළිබඳ කිසිදු ආකාරයක සහතිකවීමක් හෝ මතයක් ප්‍රකාශ නොකරමි.

මූල්‍ය ප්‍රකාශන පිළිබඳ මගේ විගණනයට අදාළව, මගේ වගකීම වන්නේ ඉහත හඳුනාගත් අනෙකුත් තොරතුරු ලබා ගත හැකි වූ විට කියවීම සහ එසේ කිරීමේදී අනෙකුත් තොරතුරු මූල්‍ය ප්‍රකාශන සමඟ හෝ විගණනයේදී හෝ වෙනත් ආකාරයකින් ලබාගත් මගේ දැනුම අනුව ප්‍රමාණාත්මක වශයෙන් නොගැලපෙනවාද යන්න සලකා බැලීමයි.

පොල් පර්යේෂණ මණ්ඩලයේ 2020 වාර්ෂික වාර්තාව කියවන විට, එහි ප්‍රමාණාත්මක වරදවා දැක්වීම් ඇති බව මම නිගමනය කළහොත්, නිවැරදි කිරීම් සඳහා පාලනය කරන පාර්ශවයන් වෙත එම කරුණු සන්නිවේදනය කළ යුතුය. තව දුරටත් නිවැරදි නොකළ වරදවා දැක්වීම් තිබේ නම්, ඒවා ආණ්ඩුක්‍රම ව්‍යවස්ථාවේ 154 (6) ව්‍යවස්ථාව ප්‍රකාරව මා විසින් යථා කාලයේදී පාර්ලිමේන්තුවේ සභාගත කරනු ලබන වාර්තාවට ඇතුළත් කරනු ඇත.

1.4 මූල්‍ය ප්‍රකාශන පිළිබඳ කළමනාකරණයේ සහ පාලනය කරන පාර්ශවයන්ගේ වගකීම්

මෙම මූල්‍ය ප්‍රකාශන ශ්‍රී ලංකා රාජ්‍ය අංශයේ ගිණුම්කරණ ප්‍රමිතිවලටඅනුකූලව පිළියෙල කිරීම හා සාධාරණ ලෙස ඉදිරිපත් කිරීම සහ වංචා හෝ වැරදි හේතුවෙන් ඇතිවිය හැකි ප්‍රමාණාත්මක සාවද්‍ය ප්‍රකාශයන්ගෙන් තොරව මූල්‍ය ප්‍රකාශන පිළියෙල කිරීමට හැකිවනු පිණිස අවශ්‍ය වන අභ්‍යන්තර පාලනයන් තීරණය කිරීම කළමනාකරණයේ වගකීම වේ.

මූල්‍ය ප්‍රකාශන පිළියෙල කිරීමේදී, පොල් පර්යේෂණ මණ්ඩලය අඛණ්ඩව පවත්වාගෙන යාමේ හැකියාව තීරණය කිරීම කළමනාකරණයේ වගකීමක් වන අතර, කළමනාකාරිත්වය පොල් පර්යේෂණ මණ්ඩලය ඇවර කිරීමට අදහස් කරන්නේ නම් හෝචෙනත් විකල්පයක් නොමැති විටදී මෙහෙයුම් නැවැත්වීමට කටයුතු කරන්නේ නම් හැර අඛණ්ඩ පැවැත්මේ පදනම් මත ගිණුම් කැබීම් හා ආයතනයේඅඛණ්ඩ පැවැත්මට අදාළ කරුණු අනාවරණය කිරීම ද කළමනාකරණයේ වගකීමකි.

මණ්ඩලයේ මූල්‍ය වාර්තාකරණ ක්‍රියාවලිය සම්බන්ධව පරීක්ෂා කිරීමේ වගකීම,පාලනය කරන පාර්ශවයන් විසින් දරනු ලබයි.

2018 අංක 19 දරන ජාතික විගණන පනතේ 16 (1) උප වගන්තිය ප්‍රකාරව, පොල් පර්යේෂණ මණ්ඩලයේ වාර්ෂික සහ කාලීන මූල්‍ය ප්‍රකාශන පිළියෙල කිරීමට හැකිවන පරිදි ස්වකීය ආදායම්, වියදම්, වත්කම් හා බැරකම් පිළිබඳ නිසි පරිදි පොත්පත් හා වාර්තා පවත්වාගෙන යා යුතුය.

1.5 මූල්‍ය ප්‍රකාශන විගණනය සම්බන්ධයෙන් විගණකගේ වගකීම්

සමස්තයක් ලෙස මූල්‍ය ප්‍රකාශන, වංචා සහ වැරදි නිසා ඇතිවන ප්‍රමාණාත්මක සාවද්‍ය ප්‍රකාශනයන්ගෙන් තොර බවට සාධාරණ තහවුරුවක් ලබාදීම සහ මාගේ මතය ඇතුළත් විගණන වාර්තාව නිකුත් කිරීම මාගේ අරමුණ වේ. සාධාරණ සහතිකවීම උසස් මට්ටමේ සහතිකවීමක් වන නමුත්, ශ්‍රී ලංකා විගණන ප්‍රමිති ප්‍රකාරව විගණනය සිදු කිරීමේදී එය සෑමවිටම ප්‍රමාණාත්මක සාවද්‍යප්‍රකාශනයන් අනාවරණය කරගන්නා බවට වන තහවුරු කිරීමක් නොවනු ඇත. වංචා සහ වැරදි තනි හෝ සාමූහික ලෙස බලපෑම් නිසා ප්‍රමාණාත්මක සාවද්‍ය ප්‍රකාශනයන් ඇතිවිය හැකි අතර, එහි ප්‍රමාණාත්මකභාවයමෙම මූල්‍ය ප්‍රකාශන පදනම් කරගනිමින් පරිශීලකයන් විසින් ගනු ලබන ආර්ථික තීරණ කෙරෙහි වන බලපෑම් මත රඳා පවතී.

ශ්‍රී ලංකා විගණන ප්‍රමිති ප්‍රකාරව විගණනයේ කොටසක් ලෙස මා විසින් විගණනයේදී වෘත්තීය විනිශ්චය සහ වෘත්තීය සැකමුසුබවින් යුතුව ක්‍රියාකරන ලදී. මා විසින් තවදුරටත්,

- ප්‍රකාශ කරනලද විගණන මතයට පදනමක් සපයා ගැනීමේදී වංචා හෝ වැරදි හේතුවෙන් මූල්‍ය ප්‍රකාශනවල ඇති විය හැකි ප්‍රමාණාත්මක සාවද්‍ය ප්‍රකාශනයන් ඇතිවීමේ අවදානම් හඳුනා ගැනීම හා තක්සේරු කිරීම සඳහා අවශ්‍යතාවෝචිතව උචිත විගණන පරිපාටි සැලැසුම් කර ක්‍රියාත්මක කරනලදී. වරදවා දැක්වීම හේතුවෙන් සිදුවන ප්‍රමාණාත්මක සාවද්‍ය ප්‍රකාශයන්ගෙන් සිදුවන බලපෑමට වඩා වංචාවකින් සිදුවන්නාවූ බලපෑම් ප්‍රබලවන්නේ ඒවා දුස්සන්ධානයෙන්, ව්‍යාජ ලේඛන සැකසීමෙන්, වේතනාන්විත මඟහැරීමෙන්, වරදවා දැක්වීමෙන් හෝ අභ්‍යන්තර පාලනයන් මඟහැරීමෙන් වැනි හේතු නිසාවනබැවිනි.

- අභ්‍යන්තර පාලනයේ සඵලදායිත්වය පිළිබඳව මතයක් ප්‍රකාශකිරීමේ අදහසින් නොවූවද, අවස්ථානෝචිතව උචිත විගණන පරිපාටි සැලසුම් කිරීම පිණිස අභ්‍යන්තර පාලනය පිළිබඳව අවබෝධයක් ලබාගන්නා ලදී.

- භාවිතා කරන ලද ගිණුම්කරණ ප්‍රතිපත්තිවල උචිතභාවය, ගිණුම්කරණ ඇස්තමේන්තුවල සාධාරණත්වය සහ කළමනාකරණය විසින් කරන ලද සම්බන්ධිත හෙළිදරව් කිරීම් අගයන ලදී.

- සිද්ධීන් හෝ තත්ත්වයන් හේතුවෙන්පොල් පරිශේෂණ මණ්ඩලයේ අඛණ්ඩ පැවැත්ම පිළිබඳ ප්‍රමාණාත්මක අවිනිශ්චිතතාවයක් තිබෙද යන්න සම්බන්ධයෙන් ලබාගත් විගණන සාක්ෂි මත පදනම්ව ගිණුම්කරණය සඳහා ආයතනයේ අඛණ්ඩ පැවැත්ම පිළිබඳ පදනම් යොදා ගැනීමේ අදාළත්වය තීරණය කරන ලදී. ප්‍රමාණවත් අවිනිශ්චිතතාවයක් ඇති බවට මා නිගමනය කරන්නේ නම් මූල්‍ය ප්‍රකාශනවල ඒ සම්බන්ධයෙන් වූ හෙළිදරව්කිරීම්වලට මාගේ විගණන වාර්තාවේ අවධානය යොමු කළ යුතු අතර, එම හෙළිදරවිකිරීම් ප්‍රමාණවත් නොවන්නේ නම් මාගේ මතය විකරණය කළ යුතුය. කෙසේ වුවද, අනාගත සිද්ධීන් හෝ තත්ත්වයන් මත අඛණ්ඩ පැවැත්ම අවසන් වීමට හැකිය.

- මූල්‍ය ප්‍රකාශනවල ව්‍යුහය හා අන්තර්ගතය සඳහා පාදකවූ ගනුදෙනු හා සිද්ධීන් උචිත හා සාධාරණව ඇතුළත්වී ඇති බව සහ හෙළිදරව් කිරීම් ඇතුළත් මූල්‍ය ප්‍රකාශනවල සමස්ත ඉදිරිපත් කිරීම අගයන ලදී.

මාගේ විගණනය තුළ දී හඳුනාගත් වැදගත් විගණන සොයාගැනීම්, ප්‍රධාන අභ්‍යන්තර පාලන දුර්වලතා හා අනෙකුත් කරුණු පිළිබඳව පාලනය කරනු ලබන පාර්ශ්වයන් දැනුවත් කරමි.

2. වෙනත් නෛතික හා නියාමන අවශ්‍යතා පිළිබඳ වාර්තාව

2.1 2018 අංක 19 දරන ජාතික විගණන පනතේ පහත සඳහන් අවශ්‍යතාවයන් සම්බන්ධයෙන් විශේෂ ප්‍රතිපාදන ඇතුළත් වේ.

2.1.1 2018 අංක 19 දරණ ජාතික විගණන පනතේ 12 (අ) වගන්තියේ සඳහන් අවශ්‍යතාවන් අනුව, විගණනය සඳහා අවශ්‍ය සියලු තොරතුරු සහ පැහැදිලි කිරීම් මා විසින් ලබාගන්නා ලද අතර, මාගේ පරීක්ෂණයෙන් පෙනී යන ආකාරයට නිසි මූල්‍ය වාර්තා මණ්ඩලය පවත්වාගෙන ගොස් තිබුණි.

2.1.2 2018 අංක 19 දරණ ජාතික විගණන පනතේ6 (1) (ඇ) (iii) වගන්තියේ සඳහන් අවශ්‍යතාවය අනුව මණ්ඩලයේ මූල්‍ය ප්‍රකාශන ඉකුත් වර්ෂය සමඟ අනුරූප වේ.

2.1.3 2018 අංක 19 දරණ ජාතික විගණන පනතේ 6 (1) (ඇ) (iv) වගන්තියේ සඳහන් අවශ්‍යතාවය අනුව මෙම වාර්තාවේ 1.2(ඉ)(ඊ), 2.2.2(අ)(ii) හා 2.3(ආ)(ඇ) යන ඡේදවල දැක්වෙන නිරීක්ෂණයන් හැර ඉකුත් වර්ෂයේදී මා විසින් සිදුකරන ලද නිර්දේශයන් ඉදිරිපත් කරන ලද මූල්‍ය ප්‍රකාශනවල ඇතුළත්ව ඇත.

2.2 අනුගමනය කරන ලද ක්‍රියාමාර්ග සහ ලබා ගන්නා ලද සාක්ෂි මත හා ප්‍රමාණාත්මක කරුණුවලට සීමා කිරීම් තුළ, පහත සඳහන් ප්‍රකාශ කිරීමට තරම් කිසිවක් මාගේ අවධානයට ලක් නොවිය.

2.2.1 2018 අංක 19 දරන (ඇ) වගන්තියේ සඳහන් අවශ්‍යතාවය අනුව මණ්ඩලයේ පාලක මණ්ඩලයේ යම් සාමාජිකයෙකුට මණ්ඩලය සම්බන්ධවී යම් ගිවිසුමක් සම්බන්ධයෙන් සෘජුව හෝ අන්‍යාකාරයකින් සාමාන්‍ය ව්‍යාපාරික තත්වයෙන් බැහැරව සම්බන්ධයක් ඇති බව.

2.2.2 2018 අංක 19 දරණ ජාතික විගණන පනතේ12 (ඊ) වගන්තියේ සඳහන් අවශ්‍යතාවය අනුව **පහත සඳහන් නිරීක්ෂණ** හැරයම් අදාළ ලිඛිත නීතියකට හෝ මණ්ඩලයේ පාලක මණ්ඩලය විසින් නිකුත් කරන ලද වෙනත් පොදු හෝ විශේෂ විධානවලට අනුකූල නොවන ලෙස ක්‍රියා කර ඇති බව.

නීති, රීති,විධිවිධානයට යොමුව	නිරීක්ෂණය
(අ) ශ්‍රී ලංකා ප්‍රජාතාන්ත්‍රික සමාජවාදී ජනරජයේ මුදල් රෙගුලාසි සංග්‍රහය	
(i)මු. රෙ. 571	මහා භාණ්ඩාගාරයෙන් ලැබූ සෙස් අරමුදලින් ආයතනය විසින් ක්‍රියාත්මක කළ සෙස් ව්‍යාපෘතිය අවසාන වී සමාලෝචිත වර්ෂය වන විට වසර 13 ක් ගත වී තිබූ නමුත් රු. 424,352 ක රඳවාගත් මුදල් ආපසු ගෙවීමටහෝ ආදායමට ගැනීමට කටයුතු කර නොතිබුණි.
(ii) මු. රෙ. 371	අත්තිකාරම් ලබාගත් කාර්ය අවසන් වූ විගාම එම අත්තිකාරම් පියවිය යුතු වුවද, විවිධ පරීක්ෂණ ව්‍යාපෘති සහ භාණ්ඩ හා සේවා මිලදී ගැනීම් සඳහා 2018– 2019 වර්ෂ අතර කාලය තුළ පාර්ශව 3 කට ලබාදී තිබූ රු. 939,558 ක අත්තිකාරම් මුදල් නිරවුල් කර ගැනීමට කටයුතු කර නොතිබුණි.
(ආ) 2003 ජූනි 06 දිනැති අංක පීරිඩී/ 12 දරන රාජ්‍ය ව්‍යාපාර වක්‍රලේඛයේ 6.51 හා 6.5.3 ඡේදය	ගිණුම් වර්ෂය අවසන් වී දින 60 ක් ඇතුළත මූල්‍ය ප්‍රකාශන සමඟ කෙටුම්පත් වාර්ෂික වාර්තාව විගණකාධිපති වෙත ඉදිරිපත් කළ යුතු වුවද, සමාලෝචිත වර්ෂයේ කෙටුම්පත් වාර්ෂික වාර්තාව මූල්‍ය ප්‍රකාශන සමඟ ඉදිරිපත් කර නොතිබුණි. තවද, 2019 වර්ෂයන්හි වාර්ෂික වාර්තාව පාර්ලිමේන්තුවේ සභාගත කර ප්‍රසිද්ධ කිරීමටද කටයුතු කර නොතිබුණි.

2.2.3 2018 අංක 19 දරන ජාතික විගණන පනතේ12 (උ) වගන්තියේ සඳහන් අවශ්‍යතාවය අනුව ආයතනයේ බලතල, කර්තව්‍ය සහ කාර්යයන්ට අනුකූල නොවන ලෙස කටයුතු කර ඇති බව.

2.2.4 2018 අංක 19 දරන ජාතික විගණන පනතේ12 (ඌ) වගන්තියේ සඳහන් අවශ්‍යතාවය අනුව ආයතනයේ සමිපත් සකසුරුවම් ලෙස, කාර්යක්ෂම ලෙස සහ ඵලදායී ලෙස කාලසීමාවන් තුළ අදාළ නීතිරීතිවලට අනුකූලව ප්‍රසම්පාදනය කර භාවිතා කර නොමැති බව

2.3 වෙනත් කරුණු

(අ) වසරකට "කප්රුවන" දෙමුහුන් පොල් පැල 250,000 ක් ජාතික පොල් රෝපණයට ලබාදීම අරමුණු කරගෙන රු. 25,814,945 ක රජයේ වියදම් හා රු. 40,375,217 ක හලාවත වැව්ලි සමාගමේ වියදම් මත එම සමාගමට අයත් හලාවත කිනියම වත්තේ 2013 වසරේදී අක්කර 160 ක බීජ පොල් උයනක් ස්ථාපිත කර තිබූ නමුත්, ශක්‍යතා අධ්‍යනයක් සිදුකර දිගුකාලීන සැලැස්මක් සකස් කර නොතිබීම, පැල 4,818 ක පුරප්පාඩුව පැවතීම, අත් පරාගණන කටයුතු හා වගාව නිසි පරිදි නඩත්තු නොවීම, රු. 17,501,925 ක වියදමකින් ස්ථාපිත කරන ලද නල ජල පද්ධතිය මඟින් අවශ්‍ය ජල සැපයුම් නොතිබීම යනාදී කරුණු හේතුවෙන් මෙම උයන පිහිටුවීමෙන් අපේක්ෂිත අරමුණු ඉටුවන බවට නිරීක්ෂණය නොවිය.

(ආ) කොළ මැලවීමේ රෝගයට ප්‍රතිරෝධිතාවයක් පෙන්නුම් කරන දෙමුහුන් බීජ නිෂ්පාදනය කිරීම සඳහා රු. 11,729,698 ක වියදමකින් 2016 වර්ෂයේදී මාතර වැලිගම ප්‍රදේශයේ ස්ථාපනය කරනු ලැබූ අක්කර 05 ක පොල් උයන නිසි අධීක්ෂණයකින් තොරව පවත්වාගෙන යාම, බද්දට ගෙන තිබූ පොල් ගස් 50 ක අත් පරාගණන කටයුතු සිදු නොවීම හා පර්යේෂණ කටයුතු අතර මඟ නතර වීම, රෝගී ගස් ඉවත් කර පවත්වාගෙන යනු ලබන ආරක්ෂණ කලාපයේ සිවිවන අදියරේදී 294 ක් වූ ග්‍රාම නිලධාරී වසම්වලින් වසම් 249 ක් පරීක්ෂා කර නොතිබීම යනාදී කරුණු අනුවදකුණු පළාතේ පැතිර යන පොල් කොළ මැලවීමේ රෝගය පාලනය කිරීම කාර්යක්ෂමව හා ඵලදායීව සිදුවන බවට නිරීක්ෂණය නොවිය.

(ඇ) වර්ෂ 1992 – 2014 කාල පරතරය තුළ ශිෂ්‍යත්ව ලබා විදෙස්ගතව නැවත සේවයට නොපැමිණි නිලධාරීන් 09 දෙනෙකුගෙන් ගිවිසුම් ප්‍රකාරව මණ්ඩලයට අයවිය යුතු රු.28,588,859 ක මුදලක් නිලධාරීන්ගෙන් සහ ඇපකරුවන්ගෙන් අයකර ගැනීම් සඳහා නඩු පවරා තිබුණි.

(ඈ) මණ්ඩලය සතු ජාන සම්පත් මධ්‍යස්ථාන (වතු) 10 හි සමාලෝචිත වර්ෂයේ ගෙඩි 3,941,973 ක් වූ පොල් ඵලදාව 2019 වර්ෂයේ ගෙඩි 5,410,551 ක් වූ ඵලදාව සමඟ සැසඳීමේදී සියයට 27 කින් ද, ගෙඩි 5,079,249 ක් වූ ඇස්තමේන්තුගත පොල් ඵලදාව සමඟ සැසඳීමේදී සියයට 22 කින් ද අඩුවී තිබුණි. එම අඩුවීම් ජාන සම්පත් මධ්‍යස්ථාන අතර සියයට 2 ක සිට 40 ක් දක්වා පරාසයක විය.

(ඉ) මණ්ඩලය සතු ජාන සම්පත් මධ්‍යාස්ථානවල පොල් ඵලදාව නිසි කලට ලබා ගැනීමට ක්‍රියා නොකිරීම හේතුවෙන් වැටුනු පොල් ප්‍රමාණය සැලකිය යුතු මට්ටමක පැවති අතර 2018, 2019 හා 2020 වර්ෂයන්හි එම ප්‍රමාණය පිළිවෙලින් ගෙඩි 564,659 ක්, 1,043,374 ක් හා 885,811 ක් වශයෙන් විය.

(ඊ) පර්යේෂණ මධ්‍යාස්ථාන/ ජාන සම්පත් මධ්‍යාස්ථාන 10 හි අඩි 6 කවයට පොහොර යෙදිය යුතු ගස් ගණන 72,844 ක් වුවද, පොහොර යොදා තිබූ ගස් ගණන 56,918 ක් පමණ විය. පොහොර දැමීම නිසි පරිදි සිදු නොවීම පොල් ඵලදාව අඩුවීම කෙරෙහි බලපාන එක් හේතුවක් බවට නිරීක්ෂණය විය.

(උ) පොල් පර්යේෂණ මණ්ඩලය මඟින් පොල් වගාකිරීමේ මණ්ඩලයට දෙමුහුන් බීජ පොල් ලබාදීම 2014 සිට 2017 වර්ෂයන්හි පිළිවෙලින් ගෙඩි 73,082 ක්, 46,367 ක් 37,234 ක් හා 44,730 ක් විය. එසේ වුවද, 2018, 2019 හා 2020 අතර කාලයේදී ගෙඩි 26,763 ක්, 36,631 ක් හා 39,375 ක් වශයෙන් එය අඩු වී තිබුණි.

(ඌ) පොල් පර්යේෂණ මණ්ඩලයේ 391 ක් වූ ස්ථිර අනුමත කාර්ය මණ්ඩලයෙන් 2020 දෙසැම්බර් 31 දිනට තනතුරු 125 ක් හෙවත්සියයට 32 ක් පුරප්පාඩු වී පැවතුණි. ඒ අතර ජ්‍යේෂ්ඨ හා මධ්‍යම අධ්‍යයන හා පර්යේෂණ කාර්ය මණ්ඩලයේ අනුමත තනතුරු 69 කින් 42 ක පුරප්පාඩුව ද විය.

(එ) 2016 වර්ෂයේදී පොල් පර්යේෂණ ආයතනයේ පවත්වාගෙන යමින් තිබූ ෆාම් ඔයිල් ව්‍යාපෘතිය හා ඒ හා සම්බන්ධ පර්යේෂණ කටයුතු 2016 සැප්තැම්බර් 14 දින අධ්‍යක්ෂ මණ්ඩල තීරණයක් මත නතර කර තිබුණි. එහෙත් එම ව්‍යාපෘතිය වෙනුවෙන් ලබාගෙන තිබූ රු. 229,546 ක් වටිනා රසායනාගාර ද්‍රව්‍ය වෙනත් කාර්යයක් සඳහා යොදා ගැනීමට හෝ අපහරණය කිරීමට කටයුතු කර නොතිබුණි.

ඩබ්ලිව්. ජී. ඒ. වික්‍රමරත්න

විගණකාධිපති

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