VIVEKANANDA
TECHNICAL CENTRE

Annual Report

2020-2021

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INTRODUCTION

It is our pleasure to present the 2020-2021 Annual Report of Vivekananda Technical Centre [VTC]. VTC is managed by Ramakrishna Mission, Fiji. It is registered under the Fiji Higher Education Commission (FHEC).

VTC specializes in providing training programme in Production of Horticulture which is registered under the Fiji Qualifications Framework. This report provides the management of VTC and other stakeholders with an overview of the operational and financial activities and performance for August 2020 to July 2021.

A BRIEF HISTORY OF VIVEKANANDA TECHNICAL CENTRE

Vivekananda Technical Centre [VTC] is run by the Board of Management of Ramakrishna Mission, Fiji which is a branch of the worldwide Ramakrishna Mission with its Headquarters at Belur Math, West Bengal, India.

The VTC started in 1981 at the Nawaicoba campus offering courses in Carpentry and Joinery, Agriculture and Automotive Engineering. Apart from the Ministry of Education's two-year vocational courses, VTC also offered Fiji National University [FNU] franchised courses in the early nineties. In 2013, VTC piloted and offered Certificate level IV Fiji National Qualification [FNQs] courses in Commercial Cookery, Automotive Mechanics, Automotive Electrical, and Cabinet Making & Joinery.

All the students who trained in the above courses from 2013 graduated with Fiji National Qualifications in November 2014. VTC also developed and delivered an "Advance Office Technology" programme in 2014.

Many other institutions were competing to deliver the same programs. So, the Ramakrishna Mission made the decision in 2016 to discontinue them and move to the much-needed Agriculture sector, focusing on training farmers.

Currently, VTC is fully focused in developing and delivering training programme in Agriculture to farmers on their farms.

OUR INSPIRATION

"Let every man and woman and child, without respect of caste or birth, weakness or strength, hear and learn that behind the strong and the weak, behind the high and the low, behind every one, there is that Infinite Soul, assuring the infinite possibility and the infinite capacity of all to become great and good.

Let us proclaim to every soul: Arise, awake, and stop not till the goal is reached. Arise, awake! Awake from this hypnotism of weakness. None is really weak; the soul is infinite, omnipotent and omniscient. Stand up, assert yourself, proclaim the God within you, do not deny Him! De-hypnotize yourselves. The way to do that is found in your own sacred books.

Teach yourselves, teach everyone his real nature, call upon the sleeping soul and see how it awakens. Power will come, glory will come, goodness will come, purity will come and everything that is excellent will come when this sleeping soul is roused to self-conscious activity." – Swami Vivekananda

Our Vision
Quality technical education in agriculture for better utilization of our resources.

Our Mission
Providing accessible training for a skilled, competent, productive agriculture workforce which will contribute to the development of the nation.

Our Goals
1. To continue running a quality technical education centre with a sound management, administration, proper training resources and relevant and up-to-date curriculum.
2. To provide quality technical education in agriculture to meet the needs of the nation in collaboration and partnership with the industries and Government.
3. To enhance the productivity of farmers engaged in farming.
4. To introduce new farming techniques, crops and technologies to the farmers and support them by connecting them to financing institutions, buyers, equipment suppliers etc.
5. To introduce agriculture training into high schools to attract students to take up farming as a career.

Director's Report for 2020-2021

I am pleased to present VTC's Annual Report for the year 2020-2021.

Agriculture plays a very important role in Fiji's economy. It not only offers employment and opportunities for sustaining livelihoods, but it also establishes a strong linkage between the agriculture sector and the rest of the economy.

Over the years, horticulture has come to be one of the most profitable agricultural enterprises in the nation's economic growth.

VTC is managed by the Ramakrishana Mission (RKM) based in Malolo, Fiji. Besides VTC, RKM also manages two other institutions namely Swami Vivekananda College (SVC) and Sarada Medical Centre (SMC) and an outreach mobile medical Services to the remote village in Fiji under SMC.

VTC provides courses in horticulture, as it is dedicated to developing the growth of the country's economy with the full support and guidance of FHEC.

VTC is committed to empower the farmers registered under it with technical knowledge and skills in agriculture and has done a lot of work during 2020-2021

Swami Vivekananda's message, *"Service to man is service to God"* is the source of our inspiration. And VTC has focused all its energy on Production in Horticulture.

It introduced a new program, Production in Agriculture (Spice Production) during this year. VTC started with 68 registered farmers in 2016 which has increased to 147 in 2020-2021. The increase indicates that our methods and techniques to impart knowledge and skills are working and are appreciated by the farmers. VTC does not advertise in any media to promote what it is doing. It is being advertised by word-of-mouth by the farmers who registered with VTC.

Our teaching method is hands-on, and competency-based. VTC does not reject any farmers if he/she is not good enough to produce crops. Instead, VTC's instructors patiently teach them till they reach the desired competency level. Our message is 'learning in your own farm'. Instructors visit farmers in different locations in a radius of 30km of VTC.

The covid-19 outbreak has had a devastating effect in the world. Fiji's socio-economy has also been badly affected. To protect Fijians, and to restrain the highly infectious covid-19 virus from spreading, all face-to-face training was stopped by the Government. On advice from FHEC, VTC too stopped its face-to-face training.

VTC deals with poor and uneducated farmers. Many of them do not have smart phone, and those that do, do not know how to use them other than making and receiving calls. Thus, it has been very challenging for the VTC's instructors to deliver technical knowledge to them without face-to-face interaction between April 2021– July 2021.

But the instructors of the VTC were ready for the challenge. They changed their training mode – talking to the farmers on the phone. All farmers and their farms, type of soil, crops, their employees are well known to the instructors. The instructors established a very cooperative relation with them. So, VTC's

instructors could continue delivering their knowledge through phone calls, video calls, creating VIBER groups, WHATSAPP groups with the farmers.

Currently VTC is running the following programmes:

Production in Horticulture for Certificate level 2

Production in Horticulture for Certificate level 3

Production in Horticulture for Certificate level 4

Certificate in Agriculture (Spice Production) level 2(new program)

VTC has started using the digital platform for the interested farmers where our instructors do not go (beyond 30km from VTC's location). We have uploaded study materials of Production in Horticulture of Cert.2, 3 and 4.

Not only does VTC educate the farmers with technical knowledge and skill, it supports them logistically too with different kinds of tools, like water pumps, power tillers spades, hoes, spray machines etc.

VTC has planted perennial spices like cinnamon, nutmeg, black pepper. VTC has developed a small spice-nursery with the help of an ITEC expert from India where vanilla, cinnamon, nutmeg, black pepper, cardamom, mango-ginger, turmeric, have been planted. VTC has also developed a demo Veg-nursery

A small height retaining wall has been erected on one side of the pathway approaching VTC. During the rainy season that portion would become muddy and slide away towards the drain. A part of the of the pathway got muddy. Now that problem is resolved. Apart from this, a well drainage system in front of the VTC building has been repaired and modified.

Two instructors have completed two units EDU561 and EDU650 in Graduate Certificate in Education from FNU, Lautoka.

Educational Tour: - Educational tours were conducted for the VTC staff at the Nadurulolou research centre in Suva, at the Nacocolevu Research Station in Sigatoka, and at the Mango Hill in Rakiraki. The VTC team also visited Jack's farm, together with VTC Director, the ITEC expert from India and the President of RKM.

Work with Australian Volunteer

An Australian Volunteer (Trainer) who had joined the VTC in November 2019 under the Australian Volunteer Program and was repatriated in March 2020 due to Covid-19 pandemic, resumed her classes via Zoom in June 2020, She completed her training of the local instructors in September 2020 as per prior agreement. Two other Australian Volunteers have been appointed to train the Local instructors – one for Horticulture and the other one for Fruit production and fruit nursery development. They will start their training classes from August 2021 and September 2021 respectively.

ITEC Experts from India

Classes on Spices Production and Processing to Agricultural Instructors of VTC

Theoretical classes on cultivation of different spice crops were conducted by the ITEC expert. The topics covered were the economic importance and uses, origin and distribution, soil and climatic requirements, varieties, propagation, crop establishment, inter-cultivation, shade requirement, harvesting and post-harvest technologies. In addition to this, live demonstrations and practical classes on different cultivation practices were taught to the instructors. Farmers and the general public were provided with information on spices when they visited VTC and sought help on spices cultivation and processing.

Maintenance of Spice Nursery and Field for Demonstrations

Spice crops such as black pepper, vanilla, cardamom, turmeric, mango ginger, mint, chillies, cinnamon and nutmeg were planted in the VTC for demonstration of cultivation practices. The black pepper started producing spike (flower) and few started developing, the flowering, pollination, maturity and harvest were explained to the instructors. Small cardamom also started flowering first time in Western region of Fiji. But it did not produce capsule as there was no pollination. As cardamom is a cross pollinated crop, insects were required for pollination particularly honey bees. Turmeric and mango ginger were harvested and the differences between them explained to the staff and others. Mango ginger (Amba Haldi) very good for pickle making, it is exported from Fiji to USA.

Dr. Kandiannan, the spice specialist from India visited Mango Hill Farm in Rakiraki. On his advice, the Farm started black paper plantation using its own coconut trees as its supporting base. The spice expert along with VTC's Agricultural instructors, visited M/S Bula Agro Nursery, Votuvalevu, Nadi and identified a Cinnamon plant which was not known to the farmers who were taught how to extract its bark.

Mr. Sharyind Kumar lost his job due to Covid-19, approached Vivekananda Technical Centre for help. He had some land for cultivation. The spice expert along with VTC team visited his place and suggested that he grow turmeric. He did and got good results and has become a registered farmer with VTC. He is now interested to grow ginger, cardamom and coriander etc. With the advice of VTC team, his son developed a new cage system for rearing Poultry using locally and readily available scrap material. Now they are fascinated with farming and want to continue farming and wish to learn more techniques.

VTC has provided services to different organizations and communities in Fiji through the Indian ITEC expert on Spice production and on other topics related to Agriculture. The expert was invited by the different organizations like FRIENDS in Tuvu, Lautoka, Nadi Chamber of Commerce and Industry, Nadi, Fiji Institute of Agriculture Science (FIAS), etc. Topics discussed included 'Home Garden for Food and Health Security', 'Horticulture for Nutritional Security', 'Production

Capacity and Export Potential of Fiji Grown Spices', 'Spices in Fiji- Perspectives and Prospective for Agriculture development in the Era of Climate Change', 'Spice Medicine', 'Spices in Human Health and Welfare' Etc.

A meeting was organized by Bula Agro farm, Votualevu where seventeen other organizations from Nadi, Labasa, Suva and Taveuni participated. They shared their knowledge on different topics like "Spices for crop diversification", "Value addition in Spices", "Scope of Spices Cultivation in Fiji", "Cinnamon air layering" "Organic Cultivation of Turmeric and Processing", "Tree Spices Cultivation", "Spices Production and Utilization", Freezing of fruits and vegetables, Food loss and waste, roasting of coffee, Processing of coffee in Lautoka etc. The meeting was addressed by the Indian expert provided by VTC.

Joining at Koronivia Research Station of Ministry of Agriculture, Government of Fiji and guiding the spices production aspects

We are sorry to say that Dr. Kandiannan, the ITEC expert in spice processing and production had to leave VTC suddenly to Join at **Korovinia Research Station of Ministry of Agriculture, Govt. of Fiji,** for guiding the spice production aspects. VTC had to release him so that his expertise could be used for greater good of Fiji. Nonetheless, it is a great loss for VTC as the expert was developing courses on Spice Production for Level 3 & 4 and the course was completely new in Fiji.

Workshop

A Workshop on Grant Management System (GMS) training was organized by FHEC in Suva on 21st August 2020. It was attended by the Director, Admin Officer and Finance Officer

An upskilling Workshop on Development of Assessment tools and Assessor Training from 13-15 Nov. 2019 was conducted by the Ministry of Education, Heritage and Arts, Fiji at the Nadi Muslim College and was attended by two instructors from VTC.

Farmer's workshop

A farmer's day workshop was organized on October, 14, 2021 and the theme of the workshop was 'Financial Management and Marketing'. 29 farmers attended the event following the protocols issued by the Health Ministry to cater for 50% capacity only. External stakeholders were invited and were introduced to trainees for direct engagement these include Ministry of Agriculture, Agricultural marketing Authority of Fiji and Fiji Development Bank.

On 21st January 2021, VTC organized a 'Farmer Day Workshop' on "***Spice Production***", as part of an accredited course Certificate in Agriculture (Spice Production) - Level 2. 33 registered farmers enrolled for this course. The workshop was opened by Swami Bhadreshananda, President of Ramakrishna Mission who highlighted the commercial importance of spices and the scope of spices cultivation in Fiji. Swami Shrivasananda, the Director of VTC, welcomed the participants and spoken on the VTC mandates, Mr Divikash Anal Nair, Principal of VTC, explained the current programs undertaken by VTC.

Farmer day workshop (21/01/2021)

Mr. Vinit Vishaal Singh, Agricultural Instructor, VTC spoke on the "Importance of Major Spices, their economic value and uses", Mr Ravneel Kumar, Agricultural Instructor, VTC talked about "Spices suitable for cultivation in Fiji".

As an ITEC Expert on Spices Production & Processing, Dr. Kandiannan made a detailed presentation on spices including history, number of spices introduced in Fiji, and locations where they are cultivated, their uses other than culinary use, challenges and opportunities under the broad topic " Spices Production ", In addition, he also presented an exclusive topic on 'Turmeric Production'. Videos on 'Turmeric and Ginger Transplanting' and 'Cinnamon Harvest and Processing' were also shown to the participants.

The registered farmers, staff and students from the Agriculture Faculty of Swami Vivekananda College (SVC) lead by Ms. Jotika Rao, Head of the Faculty; two Students from Agricultural College of Fiji National University (FNU) and VTC Staff, (altogether around 70) participated in the workshop. All the farmers were provided with turmeric seeds, cinnamon saplings, plant pots and hand tools for weeding. Everyone received a participation certificate.

Meetings

An Asian/Australian Volunteers Program Collaboration Workshop was held virtually through Zoom on 4th April 2021. This collaborative workshop was to help develop resources to support remote volunteers as they build a relationship with their partner organization. A meeting was conducted by Australian Volunteers Program (AVP), Fiji on the topics of 'Remote volunteering for phase 3'. The VTC Director attended the meeting. The AVP in-country manager and deputy regional Director paid a courtesy visit to VTC and met the VTC Admins to discuss future volunteering streams where VTC can get the volunteers.

Graduation

114 student farmers have completed their graduation this year. 33 farmers in Certificate in Agriculture (spice production) Level 2 could not complete their graduation since the program on spice is completely new to Fiji, and it was taking a long time for the farmers to understand the subject matter even though they knew about spice for cooking. Spices do not yield fruits as fast as vegetables. Secondly, VTC's instructors did not get much time to train the farmers since there was no face-to-face training. But they will be graduating soon when training resumes.

Attachments:

Training Agricultural Graduate students of Fiji National University on spices production

Two agricultural students, Ms.Salaseini Nakacia, and Mr.Aisake Atani from College of Agriculture, Fisheries & Forestry of Fiji National University (FNU), Nausori were sent as attachments to VTC for acquiring knowledge on agricultural activities. The attachment was for eight weeks as a part of industrial training to fulfil their course credits.

During this period, they were trained on various propagation techniques, nursery practices, crop production practices such as planting, weeding,

manuring, earthing up etc. In addition, they were trained to identify the spices crop and their cultivation practices. They were also provided an opportunity to visit farmers' fields to learn farming techniques and interacted with farmers. They expressed full satisfaction and thanked the VTC team for the help and support during the training period.

Visitors

FHEC members regularly visited VTC to monitor and review the progress of the courses. Some dignitaries' visits were cancelled due to COVID-19 pandemic. Thanks I would like to extend my sincere thanks to FHEC, the President, Management and Admin and Accounts Officers of Fiji RKM for their continuing support. I thank the Principal and Instructors of VTC, ITEC Experts, for their active involvement in the seamless functioning of VTC.

I thank all the farmers who have supported VTC by participating in the Certificate Level Courses. I also extend my thanks to 'Tech World, Fiji' for its continuing support to VTC in IT matters. And finally, our sincere gratitude to everyone else who have supported VTC in any way.

PRINCIPAL'S REPORT

Staffing

The following VTC Provider Qualifications, registered on the Fiji Qualifications framework were offered in 2020-2021:

- Certificate in Production Horticulture (Level 2)
- Certificate in Production Horticulture (Level 4)
- Certificate in Production Horticulture (Level 3)
- Certificate in Agriculture (Spice Production) (Level 2)

COURSES:

VTC staff members in 2021:

- Director of the campus
- Administration Officer
- Head of Campus (Principal)
- 2 Agriculture instructors
- Finance Officer
- Handyman / Nursery hand

Activities & Achievements of the Agriculture Programs 2020 – 2021

A total of 147 Farmers joined the course in 2020, with 114 farmers were enrolled in Certificate in Production Horticulture (Level 2, 3, 4), and 33 farmers enrolled in the Certificate in Agriculture (Spice Production) (Level 2).

Regular Cluster group training and field visits were carried out daily providing farmers with the necessary skill-sets as designated by the respective programs. Farmers were able to develop significantly during this time and have become more confident as a result of undertaking these courses.
One new instructor was recruited in 2020/2021 period. In order to build capacity for the instructors in VTC, educational tours to various places of interest were organized in every quarter. Some of the places VTC visited during 2020/2021 period include:


Site Visit to Jacks Farm. (14/08/2020)

- **Jack's of Fiji Farm:**
  To better understand the concept of Aquaponics

- **Mango hill in Rakiraki:**

The farm belongs to Mr. John Caldeira who also is the president of Fiji Beekeeper's Association. The instructors were able to develop a
deeper understanding of the complexities of bee farming. His farm has a variety of exotic fruit trees, exotic trees, fruit trees, sheep and bee hives. Some of the innovative techniques employed by Mr. Caldeira included the creation of a natural forest through a mango orchard and development of a solar-powered air drier.

- **Naduruloulou Research Station:**

Together with the Director, and the Spice Scientist from India, providing valuable insight to instructors about the type of research and field practices carried out for crops acclimatized to higher altitudes which will be of benefit to farmers living in the hilly regions north and south of the technical centre. Additionally, seedlings were purchased from the Station and were distributed to the farmers during the workshop.

- **Nacocolevu Reserch Station:**
  Together with the Director, Instructors, ITEC Expert and Support Staff, this was done to provide valuable insights about the Horticultural and Fruit research at the Station.

A new Variety of pigeon pea (Jagriti) was released by VTC farmer Mr. Kishore Verma in conjunction with the Ministry of Agriculture. This was only made possible by training provided by VTC to successfully encourage farmers to produce their own seeds to sustain themselves. Mr. Verma now sells the seeds to interested farmers and also to the Ministry of Agriculture.

Two students from Fiji National University joined VTC in December to undertake their 8 weeks of Industrial attachment.

Farmers are now benefiting from incentives provided by VTC, improving overall work efficiency. Some of the tools provided include forks, spades, knives, pruning shears, mechanical hoes, motor operated sprayer, power tiller, and water pumps with hose. Fruit trees and perennial trees were also distributed to enable farmers to sustain themselves and to encourage them to grow the needful trees rather than buying from markets.

A Trainers manual on Spice Production (Level 2) was designed for instructors to refer to while delivering the course. This manual was created with the guidance of the ITEC Spice expert. More planting materials are being made in fruits, perennial plants, citrus and horticultural crops for support to farmers.

Agriculture Training

Instructors learning the stages of Turmeric processing (15/09/2020)

Cleaning Planting Turmeric Material for distribution for farmers. (14/08/2020)

Turmeric being dried (21/07/21)

Educational Field tour at Mr. John Calderia done by Instructors (27/10/2020)

Instructors getting trained by ITEC Expert. (18/11/2020)

An Instructor Inspecting farmers field for pest infestation. (13/01/2020)

Participants of VTC Farmers workshop (14/04/2021)

Educational tour to Nacocolevu Research Station (24/03/2021)

Educational tour to Sigatoka Research Station (24/03/2021)

ITEC expert on Spices inspecting black pepper

Field Inspection at Spice farmers' field. The father-son duo have established a nursery for raising turmeric seedlings prior to field establishment based on Teaching and training provided by VTC instructors and further research.

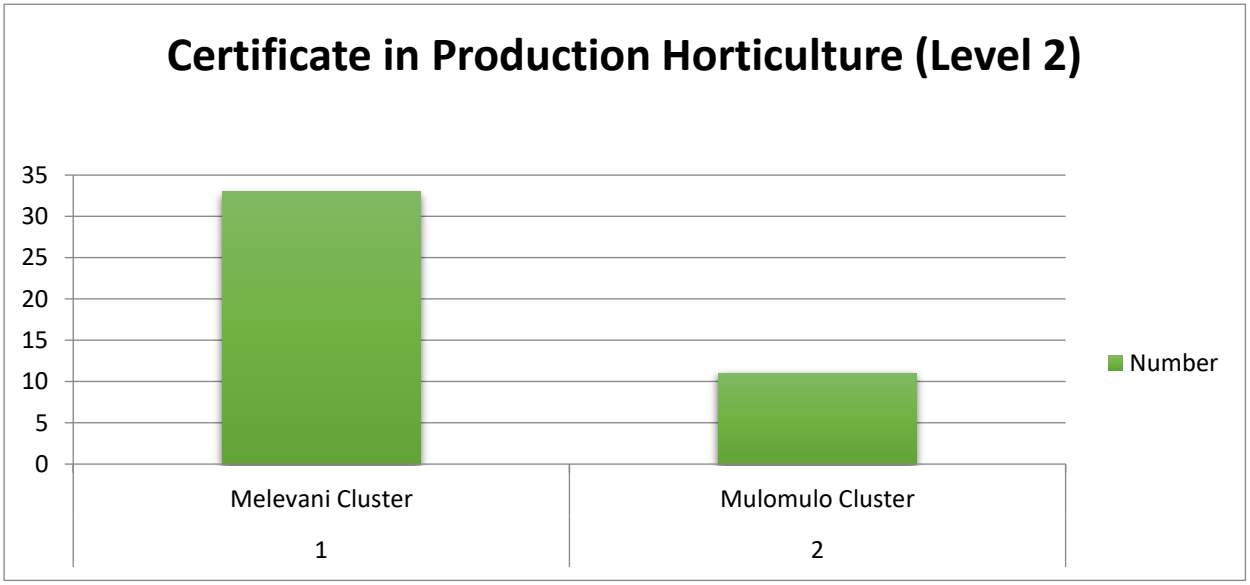
Management and Staffs of VTC at Spice Trial Plots (14/01/2021)

There are 114 farmers undertaking certificate levels 2, 3 and 4 and 33 farmers in certificate in agriculture (spice production) (level 2) as follows:

2020 -2021 DISTRIBUTION OF FARMER CLUSTERS

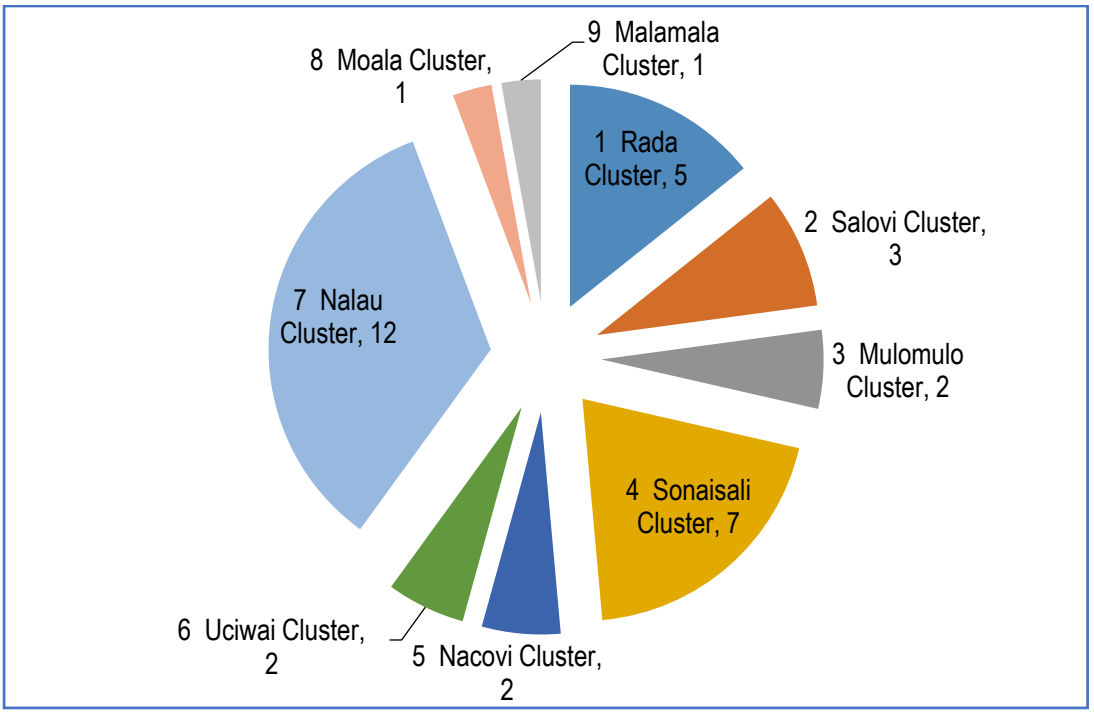
Certificate in Production Horticulture (Level 2)

SN	Cluster name	Number
1	Melevani Cluster	33
2	Mulomulo Cluster	11
	TOTAL	44



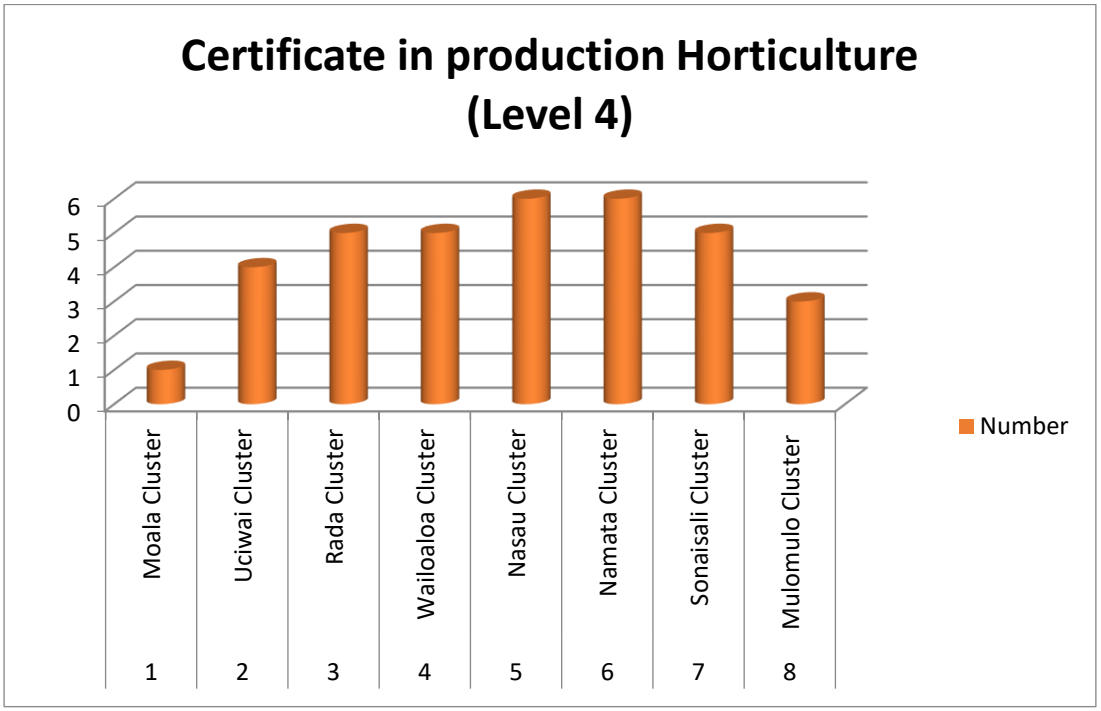
Certificate in Production Horticulture (Level 3)

SN	Cluster name	Number
1	Rada Cluster	5
2	Salovi Cluster	3
3	Mulomulo Cluster	2
4	Sonaisali Cluster	7
5	Nacovi Cluster	2
6	Uciwai Cluster	2
7	Nalau Cluster	12
8	Moala Cluster	1
9	Malamala Cluster	1
	TOTAL	35



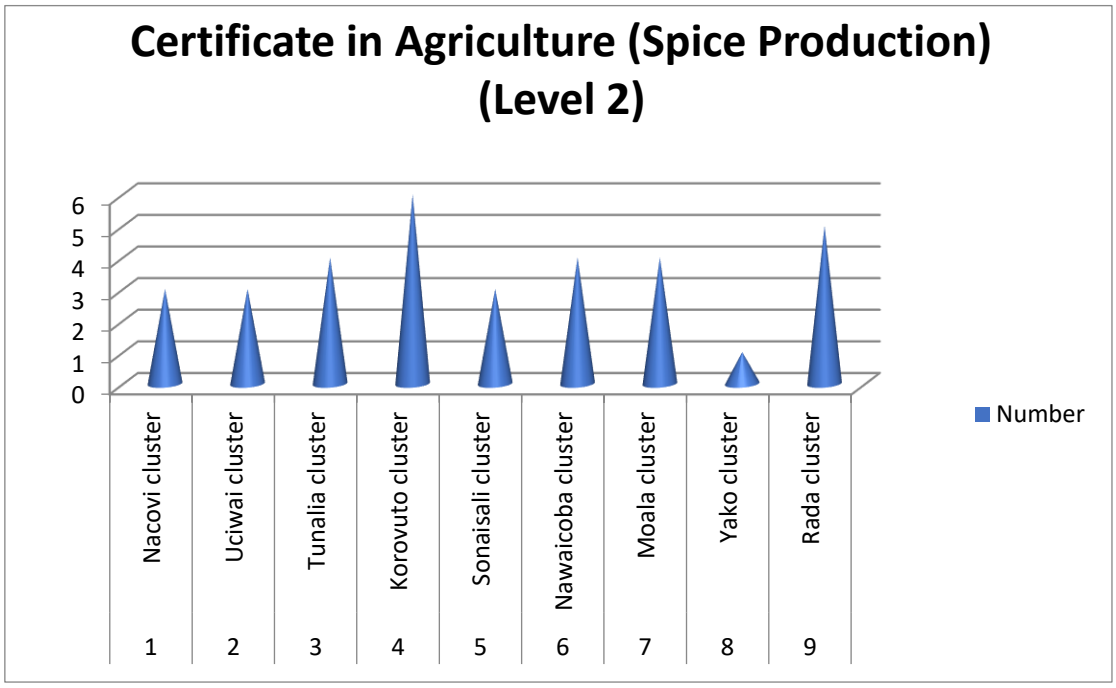
Certificate in production Horticulture (Level 4)

SN	Cluster name	Number
1	Moala Cluster	1
2	Uciwai Cluster	4
3	Rada Cluster	5
4	Wailoaloa Cluster	5
5	Nasau Cluster	6
6	Namata Cluster	6
7	Sonaisali Cluster	5
8	Mulomulo Cluster	3
	TOTAL	35



Certificate in Agriculture (Spice Production) (Level 2)

SN	Cluster name	Number
1	Nacovi cluster	3
2	Uciwai cluster	3
3	Tunalia cluster	4
4	Korovuto cluster	6
5	Sonaisali cluster	3
6	Nawaicoba cluster	4
7	Moala cluster	4
8	Yako cluster	1
9	Rada cluster	5
	TOTAL	33



DETAILS OF ACTIVITIES FOR 2020 - 2021

CERTIFICATE IN PRODUCTION HORTICULTURE (LEVEL 2)

1. 44 farmers enrolled in Certificate Level 2.
2. 62 training visits were made to train the farmers on 3 different modules which focused on Nursery Production, Husbandry Practices and Introduction to Farm Tools & Machinery Operation.
3. Besides the above-mentioned visits, 144 assessment visits were made for field observation and assessment of implementation of knowledge and skill sets that were passed on to the farmer. Total number of farm visits made for the level 2 course was 206.

CERTIFICATE PRODUCTION HORTICULTURE (LEVEL 3)

1. 35 farmers were enrolled in Certificate Level 3.
2. 110 training visits were made covering the module on Safe use of agro-chemicals, Nursery Production, Seed Production and Field Production.
3. Besides the above-mentioned visits, 239 assessment visits were made for field observation and assessment of implementation of knowledge and skill sets that were passed on to the farmer. Total number of farm visits made for level 3 course was 349.

CERTIFICATE PRODUCTION HORTICULTURE (LEVEL 4)

1. 35 farmers were enrolled in Certificate Level 4
2. 155 training visits and 290 assessment visits were made, So altogether 445 trainiing visits took place.

Technology innovations

VTC has worked with TechWorld, an IT company to develop an online platform for interested farmers who are situated outside of Nadi zone. There are two online platforms which can assist farmers:

1. E-Learning platform – this is an educational platform where Certificate in Production Horticulture Level 2, 3 & 4

courses are delivered online with online assessment strategies. This is especially made for those who are out of Nadi zone.

2. Framers HUB - this is a Social Networking system which links farmer to farmer for easier communication and interchange of information which can benefit all farmers, as well as this network links farmers to a digital market and greater exposure of farmers' products, with better income.

WORKSHOPS

During 2020/2021 the following workshops were conducted: -

1. Farmer day workshop was organized with the theme of Agribusiness and Micro-nursery. A total of 49 farmers attended the event keeping in mind the protocols issued by the health ministry to cater for 50% capacity only.
2. Farmer day workshop was organized with the theme of Spice Production. A total of 29 farmers attended the event keeping in mind the protocols issued by the Health Ministry to cater for 50% capacity only.
3. Farmer day workshop was organized with the theme of Financial Management and Marketing. A total of 29 farmers attended the event keeping in mind the protocols issued by the Health Ministry to cater for 50% capacity only. External stakeholder was invited and were introduced to trainees for direct engagement these include Ministry of Agriculture, Agricultural marketing Authority and Fiji Development Bank

External Workshops

1. The Principal attended a one-day workshop on Rice Farming in Nawaicoba, Nadi organized by the Ministry of Agriculture.
2. Two staff attended a workshop conducted by FHEC in partnership with APTC and SPC on the theme internal Quality Assurance of HEI's. This was done to identify gaps in HEI's operation and how this can be addressed. After the workshop a report was prepared and submitted to the Director for necessary actions. As a result, an institutional policy was drafted and sent to the Director for approval. This policy will then be presented to FHEC during the next workshop.
3. Three Academic staff attended an assessor's workshop that was conducted by FHEC, the main purpose was to refine and formally certify the trainers to be assessors.

Graduation

A total of 114 farmers graduated in Levels 2, 3, and 4 of Production Horticulture. Graduation ceremonies were not organized due to the effects of the Pandemic.

Innovation and Assistance

1. **Consultation** – New World supermarket representatives from the Buying Division visited the farmers and had face to face consultations with them, focusing on the quality of vegetables they require, the packaging details and the delivery point.
2. **Making new products (Value addition)** - the instructors were trained by an expert from ITEC India to make several products. This includes products such as Moringa Leaves powder, Citrus jam, curry leaf powder, Cinnamon powder, Cinnamon leaf powder, Cassava Starch, Cassava Flour, Turmeric powder, mango powder.
3. **Beekeeping** – honey production is another area where VTC is working to make more hives that can be used as a training area for farmers who wish to take beekeeping as their profession. This is an area where VTC will be looking in the near future.
4. **Soil Testing** – Soil test was another assistance given to farmers which allows farmers to know their farm and soil better. VTC educates farmers on how to collect soil samples and tests the soil for 9 different components of the soil such as Soil pH, organic carbon, nitrate, ammonia, phosphate, potassium. Magnesium, calcium and Sulphur.

VTC Head of Campus (Principal)

A BRIEF WRITE UP ON EXPERIENCE AND SPICES

Dr. K Kandiannan Ph.D
Principal Scientist, ICAR &
ITEC Expert, Govt. of India

(worked at VTC from 12 Feb 2019 to 14 Apr 2021)

VTC is serving to the farmers of this region. It offers Certificate Level Courses and is recognized by FHEC. The Certificate Courses are Level II, III and IV in Agriculture and Horticulture related subjects. The farmers are taught both theory and practical by the Principal and Agricultural Instructors at different clusters and on-farm. The Farmers Workshops are organized frequently to provide farmers the latest knowledge in the subjects. Experts from the relevant fields are also invited based on the needs.

I have had an opportunity to work with this organization from 12 Feb 2019 to 14 Apr 2021. The President, RKM, Director and Staffs of VTC were very cordial and cooperative. During this period, I have visited farmers' fields and served as a resource person for various organizations. A demonstration plot of spices and spice nursery has been initiated. Black pepper, cardamom, vanilla, true turmeric, mango ginger, black turmeric were introduced in the spice garden of VTC. I have actively participated in all the programmes of VTC during my service. We have proposed a Certificate in Agriculture (Spice Production) (Level 2) and it was accredited by FHEC for a period of five years (28-05-2020 to 27-05-2025). 32 farmers were registered from nine clusters - Nacovi Cluster (5), Uciwai Cluster (3), Tunalia Cluster (3), Korovuto Cluster (5), Sonaisali Cluster (3), Nawaicoba Cluster (4), Moala Cluster (3), Yako Cluster (1) and Rada Cluster (5).

Spices are ubiquitous and no meal is complete without them. Everyone in the world uses spice in daily life. Spices impart aroma and flavor to the food, it is also used to color the food and function as a preservative. There are several other uses of spices - mainly medicinal, cosmetic, aroma therapy, etc.

Spice trade is one of the oldest in the world. Spices produced in the Asia - Pacific Region were transported to European markets through sailing ships with the help of trade winds and camel caravan mainly by the Arabs. The journey took a long time to reach the western consumers. Spices were considered as a Royal Commodity; they were used as a currency. One can find the rich history of spice and spice trade in the internet and other sources.

FIJI is one of the important countries in South Pacific region. Berthold Seemann, Ph. D., F.L.S., F.R.G.S surveyed the Fiji Islands and wrote a report "A Mission to Viti – VITI : An Account of Government Mission to the Vitian or Fijian Islands in the years 1860-61" published by Cambridge – Macmillon & Co., London, 1862.

He wrote about spices like Turmeric (*Curcuma longa* Linn.) (Cago), wild ginger (*Zingiber zerumbet* Roscoe)(Beta), bird's eye pepper (*Capsicum frutescens* Linn., *Amomum* sp.,(Cevuga), Nutmeg *(Myristica castanecefolia* A. Gray (Male), Cinnamon (*Cinnamomum* sp.) (Macou) and Tamarind (*Tamarindus indica* Linn.).

Many spices were introduced to Fiji - black pepper and vanilla during 1880's; ginger introduced before 1890, cardamom, nutmeg and clove during 1930's and some became naturalized.

Albert Charles Smith's (an American botanist) books - on Flora Vitiensis Nova – A New Flora of Fiji - Five Volumes (Smith 1979, 1981, 1985, 1988 and 1991) have documented the list of plants present in the Fiji. We could see around 40 kinds of spice plants as per the list of 109 plants notified as spice by ISO. But there is s no large scale organized cultivation for most of these crops.

Dr. Ronald Gatty, who is considered the "Father of Spice Industry" in Fiji s started the first spice company in Fiji more than 25 years ago. He brought new and fragrant spices from many distant tropical lands, such as Sri Lanka, India and Guatemala. He set up the Fiji Spice Gardens at his home in Wainadoi. Now many companies in Fiji deal in spices trading

17 types of spices and spices products are exported from Fiji. On an average, (8 years average 2013 – 2020) 3233.75 tonnes of produce to the value of around 20.0 million FJD was exported. – mostly ginger, turmeric, ginger preserve, mixture of spices. Cardamom, nutmeg, mace, cloves, vanilla are also exported but not on a regular basis. Fiji also imports 1671.5 tonnes spices and spice products of different kinds to value of 7.2 million FJD. There is a good scope for spices cultivation in an organized scientific way

Food Processing Opportunities In Fiji

Dr. Devendra Dhingra
Principal Scientist(Processing Engineering),ICAR &
ITEC Expert, Govt. of India

(worked with VTC from 12th Feb 2019 to 30th June, 2020)

The total production of primary crops, making up of cereals, sugar crops, vegetables, oil crops, fruits and roots and tubers, in the world is approx. 9.1 billion tonnes in 2018. Cereals, sugar crops, vegetables, fruits and roots and tubers comprise of 33 %, 24 %, 12 %, 9 % and 11 %, respectively of the total primary crops in 2018. (FAO, 2020).

Apart from the primary crops, the world also produces milk, meat, eggs, fish etc., for human consumption. A considerable portion of the food produced is lost due to inadequate processing and storage facilities. As per estimates by FAO, globally post-harvest losses were around 13.6 % during the year 2016.

Farm produce, after harvest and animals after slaughter, have a limited shelf life. The shelf-life depends on their chemical and biological composition; the environment in which they are kept and the way they are handled. The various steps involved in the movement of the food from production to consumption may include, aggregation, curing, pre-cooling, cleaning / washing, drying, sorting, grading, processing (*conversion of raw commodities into finished products, e.g., wheat flour, milled rice, biscuits, bread, canned vegetables/fruits/meat/fish, sauce, chips, fries, jams, pickles, juices etc.*), packaging, storage, loading, transportation, cold storage, display, marketing etc. It is important to perform these operations with proper training, equipment and skills to minimize the post-harvest losses at each step and make consumer acceptable products.

Post-harvest food processing is thus essential to enhance the shelf-life and make products which are palatable and have demand in the market. Food processing also offers ways and means to produce nutritionally rich and healthy products by combining various ingredients. As a classical example, Yaqona is liked by the people of the Pacific and it undergoes processing steps, namely cleaning/washing, drying, cutting, grinding, packaging, and labelling, storage and marketing.

Each food commodity is unique and needs proper attention to minimize its loss and utilize it fully for human consumption. The developments in science and technology and availability of machines and equipment have helped us in improving our traditional methods and processes of food processing.

Fiji produces a variety of fruits, vegetables and root crops, in addition to rice, coconut, breadfruit, coffee, cocoa, honey, corn, peanuts, spices, fish, meat, milk, eggs etc. Farm produce exports from Fiji are mostly fresh.

On the other hand, a lot of processed products are imported by Fiji, which indicates that opportunities for food processing in Fiji exist and it can also help in reducing the import bill. Some suggested products are indicated in the table which will help in understanding the potential of food processing in Fiji. Apart from these opportunities also exist for processing of milk, meat, fish etc.

Table Some suggested processed products from locally grown farm produce

Commodity	**Suggested product/s**
Vegetables	Dried vegetables in the form of slices, coarse powder in case of leafy vegetables, soup powders, dried beans. *Frozen Bora* beans, long beans, okra, Frozen leaves (raw/cooked) Fresh cut vegetables for local market.
Fruits	Dried jackfruit pieces/ chunks, bread fruit flour, raw mango powder, dried pineapple/paw paw slices slices, avocado powder/slices, plantain chips, soft dried fruits. Frozen fruit pulp (mango, pineapple, guava, sour soup, orange, lemon etc.), fruit blocks, jackfruit pieces etc. Pickles, jams, chutneys Fresh cut fruits for local market (e.g., pineapple slices, watermelon slices etc.)
Roots/tubers	Dried dalo leaves, Dalo chips, cassava flour, cassava chips . Frozen Cassava, dalo (ready to eat). Cassava starch.
Spices and seasonings	Ginger powder, turmeric powder, Chilli powder, Moringa leaves powder, and other dried products from medicinal plants.
Coconut	Grated Coconut powder, Coconut oil, Virgin Coconut Oil
Coffee/Cocoa	Roasted coffee beans, Chocolates

The products suggested in the Table do not need high technology and huge capital investment. They can be prepared on small scale for local market and can also be exported to other Pacific countries. The processing steps involve preparation, drying, freezing, cooking, frying, and packaging.

Some entrepreneurs in Fiji are already into processing and value addition activities. Based on the experiences of the author, it was observed that training of the manpower on the concepts of food processing; operation and maintenance of the food processing and packaging equipment is required in Fiji to boost these activities. The launch of new Certificate Course in Food Processing by Vivekananda Technical Centre, Ramakrishna Mission, Fiji is a step in this direction.

APPENDIX 1: VTC ORGANISATIONAL STRUCTURE AND RESPONSIBILITIES

Entity	Members	Responsibilities	
Ramakrishna Mission Board of Management	1. Swami Bhadreshananda 2. Swami Shrivasananda 3. Swami Guruvarananda 4. Dilip Khatri 5. Umakant Patel 6. Vinod Patel 7. Harish Ratanji 8. Arvind Raniga. 9. Sat Narain 10. Anil Pillay 11. Nitin Hiralal 12. Dharmesh Motiram 13. Jitesh Pala 14. Prakash Pala 15. Hitesh Shivlal 16. Ajoy Raniga 17. Krupesh Patel	Management of all the institutions of Ramakrishna Mission 1. Swami Vivekananda College 2. Vivekananda Technical Centre 3. Sarada Medical Centre 4. Ramakrishna Mission Ashrama 5. Ramakrishna Mission Relief Services Responsible for overall management, funding, development, and coordination with theGovernment and Donor Agencies.	
Vivekananda Technical Centre Committee	Swami Bhadreshananda Swami Shrivasananda Mukesh Chand Farnaz Divikash Nair	President Director Admin Officer Finance Officer Finance Officer Principal	Committee works with the VTC admin and stakeholders to ensure that all aspects of VTC runs smoothly and accountably as per the policies established. Looks after accounts, maintenance of infrastructure-. Monitors the activities of the VTC and reports to the Board of Management.
VTC Admin	Director, Principal and HODs, Admin Officer	Day to day administration of the Centre incoordination with the VTC Committee	
VTC Academic Committee	VTC Admin and other teaching staff	Conducting admissions, classes, examinations, implementing policies, collection of fees, student matters, promotion of coursesetc	

Appendix 2: 2020 Financial Statement

This Attached Separately