MOVING VEGETABLES FROM FARM TO PLATE

The e-marketing environment

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Working Paper No.17

March 2022

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First Published: 2022
ISBN: 978-624-5973-19-4

National Library and Documentation Services Board
Cataloguing-In- Publication Data

Samarasinha, G. G. de. L. W.
Moving vegetables from farm to plate: the e-marketing environment / G. G. de. L.W. Samarasinha and W.H.A. Shantha. – Colombo : Hector Kobbekaduwa Agrarian Research and Training Institute, 2022. Viii,31 p. : ill ; 28 cm. - (Working paper ; No. 17)

ISBN: 978-624-5973-19-4

i. 658.872095493 DDC 23
ii. Samarasinha, G. G. de. L. W.
iii. Shantha, W. H. A. (co. author)
iv. Title
v. Series

1. Internet marketing-Sri Lanka
2. Online=Marketing-Sri Lanka
3. Electronic commerce-Sri Lanka
4. Vegetables-Sri Lanka-Marketing

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FOREWORD

This study on the potentials and constraints pertaining to e-marketing of vegetables comes at a time when the Government is actively pursuing a strategy of using electronic platforms to mitigate many obstacles, information-related and otherwise, that inhibit the development of the agriculture sector. The 'e-factor' as panacea for all ills is quite popular, but as has been recognised and affirmed in this study, there are many institutional, cultural and even habitual factors that stand in the way of effective implementation.

Many of the ills can be put down to teething problems, but clearly strategies, training and communication at all points of, say, a given value chain, constitute necessary preconditions to effectively operationalise the idea.

Covid-related restrictions gave a much-needed boost to e-marketing, but as has been pointed out, the easing of the same saw a quick return to 'old habits.' Nevertheless, it is an idea that is no longer foreign in multiple contexts, in and out of agriculture. A door, so to speak, has been opened.

It is not simply an issue of efficiencies related to distribution and marketing, though. Many issues that plague the sector can be addressed through e-platforms, provided of course that relevant infrastructure is in place coupled with far more extensive awareness creation about the potentials of such mechanisms.

This study, then, is a gaze on the ground realities which offer many insights into what needs to be addressed as Sri Lanka attempts to incorporate improved information and communication technology into the development of the agriculture sector. Obviously it calls for a wider sweep of current institutional arrangements, particularities of crops and relevant value chains, practices and cultures related to production and consumer behaviour. The authors have sketched a map under difficult conditions. It needs to be and can be detailed. In other words, it constitutes an important and useful point of reference for further and continued exploration of this emerging area of policy-formulation and implementation.

Malinda Seneviratne
Director/Chief Executive Officer

ACKNOWLEDGEMENTS

The authors would like to express their heartfelt gratitude to the farmers, traders, and consumers who took part in the survey for their invaluable assistance and cooperation rendered during data collection. We would also like to express our gratitude to Mr. Malinda Seneviratne, Director and Chief Executive Officer of Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI), for his unwavering support throughout the study. We are much thankful to Ms. Renuka Weerakkody, Research Fellow, and Ms. T.P. Munaweerage, Head, Environment Division of HARTI, for their assistance throughout the study.

We also owe a special thanks to Dr. E.A.C. Priyankara, Head of Rural Development Division of HARTI for his insightful comments and suggestions on the draft of this report. We are very much thankful to Mr. W.P. Kumarasiri Statistical Assistant of HARTI for his valuable contribution to the data collection and data analysis processes. The important services provided by Ms. Niluka Priyadarshani de Silva and Ms. Uthpala Ranasinghe of HARTI throughout the study and their contribution in typesetting the report are highly appreciated. We also wish to extend our thanks to Ms. Thamali Rajapaksha, Investigator at the Environment Division of HARTI for creating a beautiful drawing for the cover page of this report. We would like to extend our sincere thanks to Ms. Udeni Karunarathna, Graphic Designer of HARTI for attractively designing the cover page of the report.

Furthermore, we would like to thank Mr. C.U. Senanayake, Senior Information and Publication Officer, for proofreading the final report, as well as Dr. N.P.G. Samantha, Head, and Ms. Malathi Rambodagedara, Research Officer of the Information and Communication Division of HARTI for making arrangements to ensure timely publication of this report. We also appreciate the cheerful assistance provided by the HARTI printing staff.

G.G. de L.W. Samarasinha
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EXECUTIVE SUMMARY

The vegetable sub-sector is marked by diverse issues such as lower producer prices, higher consumer prices with higher seasonal price fluctuations, high wastage due to improper packaging, inadequate transportation and surplus production, with no options for value addition, etc. Among these the marketing of vegetables has its own inefficiencies due to the high degree of intermediary involvement.

E-marketing platforms have proved to be capable enough to cut through such inefficiencies in traditional vegetable production and marketing models by shortening the distance between vegetable fields and the consumer table. Sri Lanka – as one of the first countries to come forward with a national e-agriculture strategy to incorporate the advancement of information and communication technologies to achieve desired targets in the agriculture sector – has identified the need to create an e-market environment to provide solutions for the distribution and marketing of vegetables.

E-marketing is recognized as an efficient channel to deliver more benefits to producers as well as to consumers, primarily due to its shorter supply chain. The recent COVID-19 pandemic has also created an opportunity for this novel marketing platform to grow, as people consciously reduced their marketing time to avoid getting infected. However, it has been found that just after restrictions were relaxed, people have once again reverted to traditional vegetable-purchasing methods. The main reason for this is that people are more comfortable doing marketing physically, as they do not see it as a tiresome activity.

however, an assurance of receiving good quality products, including items of organic origin, at a reasonable price, seems to have retained the loyalty of those consumers using e-marketing. therefore, timely delivery, accurate product delivery and the availability of required products for a comparatively lower price, would help in persuading more consumers to purchase vegetable through e-marketing platforms.

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ABBREVIATIONS

DECs	Dedicated Economic Centers
DOA	Department of Agriculture
FAO	Food and Agriculture Organization of the United Nations
ICT	Information and Communication Technology
ITU	International Telecommunication Union
MMS	Multimedia Messaging Service
SMS	Short Message Service
TRCSL	Telecommunications Regulatory Commission of Sri Lanka

CHAPTER ONE

Introduction

1.1 Background

E- marketing (electronic marketing), a recent technological development, has become a trend and a fairly popular channel for marketing in the modern world. E- marketing is also known as digital marketing, online marketing, web marketing or internet marketing (Shija, 2019), and typically refers to any marketing operation that uses digital communication through connected electronic devices. Digital communication usually takes place via websites, e-mail, social media, also using short message services (SMS), multimedia messaging services (MMS), and apps, connecting producers, consumers, and the community that manages the specific digital platform. Among diverse products purchased through such methods, fresh food products such as vegetables and fruits are no exception.

The e- marketing of agricultural commodities provides an opportunity to reduce inefficiencies in the agricultural value chain by providing an alternative channel for the marketing of agricultural products to a larger collection of buyers, including wholesale traders, retailers, restaurants and consumers, as it has a longer reach to potential consumers compared to traditional marketing arrangements, regardless of geographic limitations. By using e-marketing, people such as consumers can also enjoy multiple benefits such as better-quality products, the ability to avoid traffic and crowds, time-saving specially for working individuals, the option of paying by card, or cash on delivery. It also facilitates the needs of consumers searching for products with certain specifications.

Starting with the farmer until the product reaches the final consumer, a large number of players such as input suppliers, farmers, marketing agents, transporters, wholesale and retail traders, are involved in the process. The marketing of vegetables plays a pivotal role in the whole process, as most of the problems of vegetable value chains are centered on marketing (Wickramasinghe, 2019). The present agricultural marketing system in Sri Lanka involves a number of intermediaries, from farmer to consumer, creating lengthy marketing channels. This has created additional costs in transporting, loading and unloading, packaging etc.

adding profit margins to the agricultural product for intermediaries, resulting in higher end-prices for consumers.

The efficient and sustainable functioning of the vegetable subsector has always been a major concern in agricultural policy initiatives, and of the development drives of successive governments, not only considering its importance to the food and nutrient security of the country, but also considering the large number of individuals engaged in various crop production systems associated with vegetables. As mentioned in Sri Lanka's e-Agriculture Strategy, one such effort to reduce inefficiencies in the agriculture supply chain was the development of an e-marketplace for agriculture. The e-agriculture strategy was created with the goal of utilizing the country's Information and Communication Technology (ICT) potential in order to achieve the country's agricultural development goals.

To achieve the envisaged objectives of those initiatives, the wider adoption of e-marketing channels by both producers/traders as well as consumers is critical. The recent Covid-19 pandemic has also created an environment favourable to promote the adoption of e-marketing platforms for vegetables. However, in scientific literature, there is no adequate information and evidence on the level of the continuous use of e-marketing services for vegetables. Further, issues relating to the operations and mechanisms involving e-marketing and its future potentials, have also not been sufficiently studied with special reference to the vegetable subsector. Therefore, this study was carried out to enable a better understanding of the present state of using e-marketing platforms for vegetables.

1.2 Objectives of the Study

The general objective of the study is to examine the current state of vegetable retail marketing using e-marketing platforms, in the country.

Specific Objectives

1. To study the current level of the application of e-marketing services in vegetable retailing.
2. To identify constraints associated with existing vegetable e-marketing systems.
3. To ascertain future potential for promoting e-marketing strategies towards an efficient vegetable marketing system.

1.3 Literature Review

1.3.1 Marketing of Vegetables in Sri Lanka

Total production of vegetables in Sri Lanka during 2019 was 1,250,494 MT utilizing 98,578.5 ha of land (DCS, 2020). According to Rupasena (1999), marketable vegetable production in the country exceeds 85 percent of total vegetable production. The higher number of players/actors involving in vegetable marketing have caused such value-chains to become unnecessarily lengthy and inefficient. As pointed out by previous research studies, lower producer prices, higher consumer prices, high wastage due to improper transportation, handling, and packaging, and surplus production with no options for value addition are some of the issues in the vegetable subsector (Champika, 2016; Priyankara, 2016; Vidanapathirana *et al.*, 2011; Wickramasinghe, 2019).

Promotion of direct marketing could be used to resolve most issues involving lengthy value chains, by shortening the length mainly by reducing the involvement of intermediaries (Priyankara, 2016). Well-established supermarket chains, which are a form of a direct marketing system, has benefited farmers, as they provide an assured market, and reduced price-risk due to the unavailability of intermediaries and illegal deductions (Vidanapathirana et al., 2011). For certain crops such as high-value easily perishable crops, the supply chains are very clear and short, because farmers and traders are linked well in the value chain, in order to minimize losses while satisfying consumers (Hathurusinghe, 2015).

1.3.2 Agriculture E - Commerce

E - commerce or E - marketing refers to 'the buying and selling of goods or services via the internet, and the transfer of money and data to complete the sales'. It's also known as electronic commerce or internet commerce (Bloomenthal, 2021). An e-market serves as a technological solution to conventional markets, which are greatly influenced by a large number of intermediaries, leaving farmers with a low return to costs, and causing higher prices for consumers as well. This staggering gap between the producer price and the consumer price is one of the main reasons for the high cost-of-living (Ellawala and Sachitra, 2021).

In agriculture e-commerce/e-marketing, the buying and selling of agricultural products and services are carried out electronically with the

use of computer systems linked together over inter-network protocols and standards. In addition to the changes that take place in the way agricultural products are sold, agricultural e-marketing transforms the way farmers interact with each other and customers, through communication channels. Agriculture e-marketing could also be described as a subject of the larger world of both Information Technology (IT) and Agriculture. Some of the benefits of agricultural e-marketing are: reduced administrative costs and cycle times, and improved relationships between both business partners and customers. Techniques of agricultural e-marketing also allow small farmers to have instant access to international markets, and they are likely to attract additional customers because of a higher level of customer services (Folorunso et al., 2006).

1.3.3 Development of the Internet in Sri Lanka

Use of the internet, a network of networks has developed over time as a very powerful broadcast medium, allowing for information dissemination, collaboration and interaction, between individuals and their computers without considering such factors as socio economic development, geographic location and political background or ideology. Internet initiatives in Sri Lanka date back to 1990 with the start of internet-based email services, used for academic and research purposes (Induruwa, 1999).

1.3.4 Status of Computer and Digital Literacy in Sri Lanka

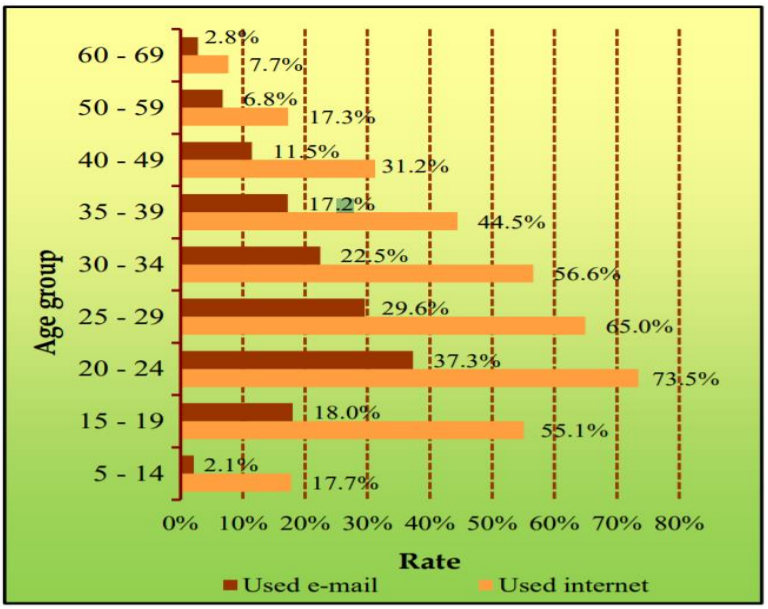
A person between 5 to 69 years old and able to use a computer on their own is defined as a computer-literate person. A digital-literate person is defined as a person between ages 5 to 69, able to use a computer, laptop, tablet or smartphone on their own (DCS, 2020). Computer literacy and digital literacy rates in the country are 32 and 49.5 percent, respectively. The urban sector shows the highest computer literacy and digital literacy rates (Table 1.1).

Table 1.1: Computer Literacy Rate and Digital Literacy Rate by Gender, Sector and Age Group

Gender, Sector, Age Group	Computer Literacy	Digital Literacy
Sri Lanka	32.0	49.5
By Sex		
Male	33.9	53.0
Female	30.4	46.2
Sector		
Urban	43.5	65.0
Rural	30.7	47.6
Estate	12.1	23.1
By Age Group (years)		
5-9	14.0	30.8
10-14	45.0	59.6
15-19	67.6	82.2
20-24	63.6	83.7
25-29	51.0	76.0
30-34	41.7	68.5
35-39	31.1	57.8
40-49	22.0	44.0
50-59	13.5	25.2
60-69	6.3	12.5

Source: DCS, 2020

By January 2021, there were 10.90 million internet users in Sri Lanka. Between 2020 and 2021, the number of internet users in Sri Lanka increased by 800 thousand (+7.9%), with internet penetration in Sri Lanka at 50.8% in January 2021 (Digital:2021). The highest internet and email usage could be observed among persons in the age group 20-24, compared to persons in other age groups. Among the persons between the ages 40 to 49, the rate of using internet was about 31.2 percent (Figure 1.1).



Source: DCS,2020

Figure 1.1: Percentage Distribution of the Internet and E mail-using Household Population (aged 5- 69 years) by Age Groups

1.3.5 Social Media Statistics for Sri Lanka

Use of social media in marketing different agricultural products are rapidly increasing. Various social media tools such as Facebook, WhatsApp, Instagram etc. are now widely being used in agriculture e-marketing activity. Social media users in Sri Lanka have been reported as 7.90 million in January 2021. The number of social-media users in Sri Lanka increased by 1.5 million (+23%) between 2020 and 2021. The number of social-media users in Sri Lanka was equivalent to 36.8% of the total population in January 2021 (Digital, 2021).

1.3.6 E- agriculture Strategy of Sri Lanka

As many stakeholders realized the potential of advanced ICT to address certain challenges in the agriculture sector of the country, Sri Lanka took steps to introduce a comprehensive e-agriculture strategy in mid - 2016. The Food and Agriculture Organization (FAO) of the United Nations and the International Telecommunication Union (ITU) in collaboration with the Department of Agriculture (DoA) and the Telecommunications Regulatory Commission of Sri Lanka (TRCSL) and other stakeholders, partnered in developing the National E - agriculture Strategy. It is expected that

National E- agriculture Strategies will enhance the rational use of financial and human resources, and address the challenges in the agricultural sector holistically in a more efficient manner, while generating new revenue streams, to improve the livelihoods of the rural community (DOA, 2016).

1.3.7 E- marketing Experiences from Other Countries

According to Asadihkoob and Ebrahimi (2014), the most important barriers for e-commerce development in Iran's agriculture are low level of rural literacy, not having a computer as a business tool among farmers, a lack of information technology (IT) knowledge among the general public, and a lack of trust in electronic transactions.

The main challenges for e-commerce in agriculture in Nepal have been reported as the computer's unpopularity as a business tool among farmers, and low levels of rural literacy (Saban and Timalsina, 2016). They have also identified the absence of a culture of using computers for marketing purposes, complexities in online transactions, and a lack of serious support and investment by the government in e-commerce, as factors hindering higher adoption. According to a study conducted in the city of Beijing, China, the frequency of consumers using e-commerce to purchase vegetables is not as high as expected levels (Li et al., 2020).

Farmer's perception and awareness of the use of e-commerce was reported to act as constraints to its use in agricultural practices in India (Gopinath et al, 2016). Constraints identified were unavailability and unreliability of infrastructure, high cost of implementation, lack of trust in payment systems, and lack of awareness about the benefits of e-commerce.

Investigating the adoption of e-commerce in Thailand, Lilavanichakul (2019) identified logistics as a challenge for agricultural e-commerce due to longer delivery time, as well as complexities in handling fresh produce. Lack of trust in digital payment as well as the importance of quality control and reliability were considered other limitations in the adoption of e-commerce for agriculture.

Cooperative-sector firms from Israel have come up with an end-to-end solution that includes a trading arena, warehouse, and logistic services. The founders expect to reduce agricultural commodity prices by double-digit percentages for such customers as hospitality, catering, retail, food

factories, hospitals, nursing homes, shelters, and any entity that requires produce in substantial quality and quantity, while allowing farmers to get a proper price for their work, through a fair and transparent trading process. (Israel Agricultural Technology Hub, 2020).

1.3.8 Benefits and Difficulties Experienced by Participants in E - market Platforms

Agricultural e-market platforms allow farmers and buyers to sell and buy fruits and vegetables, with an elaborate and transparent price system without dealing with external parties (Li, et al., 2020). Fruits and vegetables are highly perishable in nature, and therefore, this type of efficient digital market would most benefit these types of crops by connecting buyers and sellers in less time than traditional methods. Further, mass producers benefit more compared to small-scale farmers, as this platform is most beneficial when large quantities are purchased and sold on par with the transportation costs concerned (Ellawala and Sachitra, 2021).

However fresh food e-commerce also faces issues such as low-quality products, payment security, and inadequate logistics services (Wenji, 2021). Unlike physical marketing, customers can make more easily make one payment for the whole lot of vegetables.

1.3.9 Factors Affecting a Farmer's Decision to Participate in E - marketing

Awareness about the availability of an e- market place in Sri Lanka, significantly higher prices for their produce, trustworthiness regarding the e-market place, free from the burden of transporting produce to customers, dissatisfied with the traditional method of selling, and frequent use of internet with sufficient signal coverage, have been identified as positive factors for adopting e-marketing by the farmers (Ellawala and Sachtra, 2021).

1.3.10 Factors Affecting Consumer Decisions for Participation in Vegetable E-marketing

Previous studies undertaken to identify factors shaping consumers' decisions to go for online marketing of vegetables, have found eight variables – namely, level of education, online shopping experience, usefulness perception, availability perception, vegetable quality

perception, logistic service quality perception, the perception of circumstances, and the nearest vegetable market distance – have a significant and positive impact on consumer willingness to adopt vegetable e-commerce. It has also been found that a more positive reputation and emotion towards online fruits and vegetables, the higher the likelihood of repurchases (Li, et al., 2020).

Furthermore, Shih (2004) found the quality of information available on vegetable e-marketing websites has a certain impact on the behavior of consumer online shopping, as the quality of the information from many websites is generally low. The information displayed on websites is mostly inconsistent with the real information of available products as websites are not updated in a timely manner.

1.3.11 Consumer Choice of Vegetable-Buying Channels

It has been mostly observed that though consumers usually use multiple channels to purchase vegetables, local physical markets are still the most popular choice (Slamet and Nakayasu, 2015; Khan and Aditi, 2020). Choosing the local market as a popular choice is mainly attributed to the greater importance given by the consumers to the quality of the vegetables available at local markets. This is related to the consumer perception that vegetables sold at local markets are fresher, since storage options are limited. The variety of the items available is also very important to consumers, as local markets often source native vegetables appealing to local cuisine. Consumers also consider price as an important factor in choosing local markets, as such places allow customers to bargain with sellers.

1.3.12 E - vegetable Marketing Platforms Available in Sri Lanka

There are a number of web-based and social media-based (Facebook, Instagram, etc.) vegetable marketing firms operating in the country. In addition, there are few software applications (apps) that are involved in vegetable e-marketing (Figure 1.2). The *Govipola* is one such app designed and operated to facilitate vegetable e-marketing. *VegeFruit, SupiriPola, and SaruPola* are some of such e-marketing platforms designated for the fruit and vegetable marketing sector of Sri Lanka.

Govipola App*:* An Online Agricultural Marketing and Trading Platform

The *Govipola* is a cloud-based mobile app designed to facilitate direct selling platforms for fruit and vegetable farmers. It was launched under the 'Technical Assistance to the Modernization of Agriculture Program(TAMAP) in Sri Lanka' funded by the European Union, and it has been welcomed by agriculture and agri-business experts as a move that will transform the agri-business sector of the country. This move was aimed at cutting out intermediaries and restricting food inflation in Sri Lanka. The application runs on Microsoft Azure, a collection of cloud-based services for building reliable, scalable and maintainable applications. *Govipola* began as an online want-board, a place where people post their text-based buy-and-sell offers, similar to the way newspaper advertisements work.

The app has been further developed, and it now offers an order-matching platform allowing suppliers to easily connect with interested buyers. Interaction with a potential trading partner may happen via the app or a direct call, using the ***call-to-action*** button embedded in the system. With this simple approach the app links the farmer directly to an exporter, trader or a consumer. The ***order-matching*** feature allows the user to directly match their listing with a corresponding order, without the need to perform a lengthy search, and read through all the posts placed in the marketplace. The online app supported buyers as well and has helped strengthen the agricultural marketing network. It provides services in all three languages.

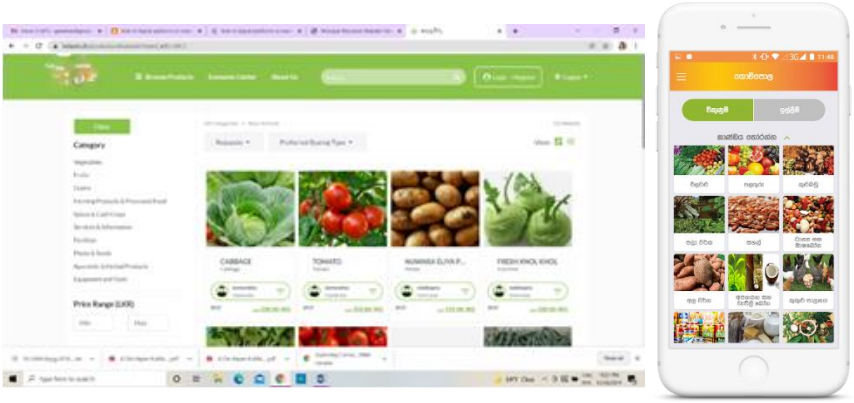


Figure 1.2: Different e- marketing Platforms Operating in Sri Lanka

CHAPTER TWO

Methodology

2.1 Research Methods

A qualitative research approach was used in this study, capable of describing people's experiences and internal feelings, with a flexible method of research that provides an in-depth overview of a phenomenon through data collection while presenting genuine information.

Three target populations were selected for the present study; vegetable producers including companies and individual farmers, bulk/retail buyers of vegetables, and individuals/companies operating e-marketplaces for vegetable marketing. Accordingly, three e-marketing channels through which vegetables flow from producers to end consumers (retail customers) were considered in the study (Figure 2.1).

Figure 2.1: The Different Vegetable E-marketing Channels Observed

2.2 Sample Selection

2.2.1 Sellers Who Use E - marketing

Purposive sampling and more specifically the criterion sampling approach was used for the selection of a sample of vegetable sellers who use e-

marketing platforms. By searching various digital platforms such as SMS, MMS marketing, websites involved in vegetable marketing, social media platforms such as Facebook, Instagram, etc., 45 e-marketing enterprises that fit the required criteria for the sample, were identified. A given e-marketing enterprise had to be in active business at any point over the past 5-year period to be selected as a respondent to the study. In the data collection process, the focal points of those e-marketing enterprises were contacted over the phone.

2.2.2 Farmers and Consumers

A snowball-sampling method was adopted in this study to select farmers and consumers. Accordingly, fifteen farmers and forty customers were identified for the primary data collection through a questionnaire survey. The identification of such vegetable producers and farmers were done through information received from previously selected e-marketing enterprises and related websites. Of the farmers identified, only 12 respondents were included in the data analysis, as the rest were not operating a business through e-marketing at the time of data collection. The respondent consumers were randomly selected from the community.

Table 2.1: Description of Respondents

Type of Respondent	Number of Respondents
Farmers/Suppliers	
Individuals	12
Companies	9
Traders	
Individuals	36
Companies	9
Buyers	
Retail customers	40

2.3 Data Collection

Primary data collection was carried out using separate semi-structured questionnaires for each group of respondents (vegetable producers, buyers and e-marketing traders). The interviews were done via a combination of methods such as face-to-face interviews by physically visiting respondents, over the phone and with online data collection methods. Primary data collection was undertaken during August-

November 2021. In addition to the primary data and information collected, published and unpublished reports were also used as sources for secondary data.

2.4 Data Analysis

Thematic analysis, a method of analysing qualitative data, was used for analysing data in this study. Thematic analysis is reported as an appropriate approach in scientific studies when it is necessary to find out something about people's views, opinions, knowledge, experiences or values, from a set of qualitative data – for example, interview transcripts, social media profiles, or survey responses. Inductive reasoning was also used for this study in order to derive general conclusions from specific observations.

CHAPTER THREE

Results and Discussion

3.1 Current Status of Vegetable E - marketing in Sri Lanka

Functional status

Of the 45 vegetable businesses interviewed, only 12 were functioning by the time data collection was carried out during August-November 2021. Functional status could be attributed to the purpose of initiating the business. The e-marketing enterprises involved in selling fully organically produced vegetables targeting consumers in search of chemical-free vegetables, and supermarkets targeting habitual online customers were observed continuing the digital marketing of vegetables. All these 45 agencies (including those defunct at the time of survey) had been providing services to the main cities and suburbs of those cities, with no presence in rural areas.

Sustainability in business

The enterprises that have started vegetable e-marketing for over 5 years or more, and are still continuing at a profitable level are mostly supermarkets and organic food producers. Among the responding enterprises, there were four businesses with less than two years of experience in vegetable e-marketing. These enterprises were initiated during the Covid-19 pandemic, without any previous experience in any kind of vegetable marketing. However, these businesses are still functioning well though it is too early to comment on their sustainability as a profitable business.

Maintaining quality standards of the products purchased from farmers

In order to deliver good quality vegetables to customers, traders are keen to purchase (from farmers / producers) fresh, good quality vegetables, free from physical, pest and disease damage.

Vegetable suppliers

Organic food vendors were either producing all their products from their farms or from farms registered with them as practicing accepted organic agricultural practices, and maintaining certified standards. Supermarkets

also have their registered suppliers though they purchase vegetables from other farmers as well, when regular suppliers are short of goods. This increases the traceability of the produce to some extent, which may be considered a positive factor in terms of food safety.

Almost all individual-level vegetable e-marketing initiatives have started digital marketing in the environment created by the quarantine curfew. Most of such individual e-marketing enterprises involved in non-organic vegetable marketing obtain their supplies from Dedicated Economic Centers (DEC) and other wholesale vendors. There were few very localized traders delivering fresh vegetable items, with identified retail vegetable sellers within their own service area. They have opted to purchase such fresh vegetable items from local retailers. However, these arrangements do not allow for producer information, and may only serve as a home delivery service.

Price determination for the vegetables

When e-marketing entrepreneurs are trading farm products (vegetables) from registered farms, farmers/producers are given a slightly higher price compared to market price. On other occasions, where e-marketing enterprises are trading vegetables from other sources, mostly from dedicated economic centers, there are no differences in purchasing price.

Handling of complaints/ Returns

The main reasons for the return of products (vegetables) are delays in sending/delivering the orders, and the unacceptable quality of the vegetables received by the customers. On some occasions, customers were not willing to accept the items traders were sending/delivering in place of the ordered items that were unavailable in their stocks. For example, if the trader sends / delivers a bundle of *Mukunuwenna* in place of *Gotukola*, the consumers mostly tend to return the items, and log a complaint with verbal and/or written criticism.

On such occasions, there are different ways to handle the situation. If the issue/concern is with the quality or quantity of the items delivered, the trader (e-marketing firm) will resend the items in good quality and correct quantity. In some other instances, if the customer is not happy with the items delivered, and when the customer is a regular customer, the trader or the delivery agent may offer a credit balance with the consent of the customer.

Receiving payments for the vegetables

When orders are made via online platforms, traders are most often offering online payments as well as the facility of payments at the time of receiving goods. In telephone-operated vegetable-trading arrangements, the payments are always made after receiving the goods.

In transactions between farmers/producers and traders, the payments are mostly made at the time of purchase, and the cash payment method is prominent, while online transactions are also done very occasionally.

Storage facilities

The majority of the e-marketing enterprises studied do not have cold storage facilities to hold on to items for a longer time. To make the maintenance of cold storage meaningful, arrangements for cold-chain, especially in the delivery process, from cold storage to customer should also be in place. Because such arrangements are too costly, the majority of e-marketing enterprises are not willing to make such investments.

Delivery time

On most occasions, orders are delivered to customers within a 24-hour period. For regular customers, those who have trust in the particular vegetable e-marketing enterprise/s, for quality and the pricing of the items, arrangements have been made to deliver vegetable items once a week.

3.2 Perceptions of Key Players Involved in Vegetable E - marketing

3.2.1 Consumer Perceptions of Vegetable E - marketing

Of the two types of customers, retail customers and wholesale/bulk purchasing customers, the present study only considers retail customers.

Purpose of moving into online purchasing of vegetables

Among respondent consumers, basically two kinds of customers could be identified; customers who opted for online purchasing recently due to the restrictions of the Covid-19 pandemic, and customers who have been purchasing vegetables using online platforms for more than three years. Seventy-five percent of respondent consumers belong to the first category, with less than 2-years' experience in online vegetable

purchasing. The main motive for them to get involved in vegetable e-marketing was to reduce their marketing/shopping time, and to avoid crowded places like markets to prevent them getting exposed to the virus.

According to the respondent traders involved in vegetable e-marketing, the early months of the Covid-19 situation – where the government imposed a strict quarantine curfew for around 3 months followed by a somewhat-relaxed state of quarantine curfew, which compelled consumers to change their usual ways of purchasing their daily essentials – motivated both entrepreneurs and consumers to get involved with online channels for vegetable marketing. However, with the relaxation of travel restrictions, conventional retail outlets restarted business as usual and most consumers were seen moving away from online marketing. Of 30 respondent customers, 27 expressed they preferred to do marketing physically if the pandemic situation was not so bad. However, there were three customers (10 percent) who have moved to online vegetable marketing to purchase organic products in the pandemic situation, and wished to continue with new modes of vegetable marketing. Advantages such as saving time, and receiving good quality organic vegetables, have prompted them to continue with online vegetable purchase.

Consumers using digital methods for vegetable purchasing for more than three years, accounted for 25 percent. They purchase vegetables using web-based or app-based marketing channels and most such consumers are buying fully organically grown vegetables, while a few others are Sri Lankans residing in foreign countries delivering provisions to their families here in Sri Lanka. Respondents who are unable to leave home for marketing due to various practical constraints have also been involved in online vegetable-purchasing.

Customer satisfaction

Customers are generally satisfied with the vegetables they receive as there is no special wastage reported, and are most often in the right quantity. Though some respondent consumers have some bitter experiences of receiving poor-quality products, the majority receive favourable responses from traders in most such cases. The most common complaint from consumers was the delay in receiving their orders, especially during the lockdown period. Prices of vegetables are comparatively high for organic products, while for other non-organic vegetables customers, prices are generally reasonable in comparison to market prices.

3.2.2 Trader Perceptions of Vegetable E-marketing

Most of the businesses commenced during the initial Covid-19 pandemic, and stopped due to such reasons as difficulties in obtaining curfew passes unavailability of business registration, reopening of the usual vegetable selling outlets, lorries that began to sell vegetables by visiting houses (mobile vegetable sellers), and difficulties in finding workers and a sufficient supply of vegetables. Therefore, the majority of enterprises involved in e-marketing of ordinary vegetables (non-organic) came to an end, while only a few of businesses engaged in trading fully organic vegetables are still in operation.

3.2.3 Farmer Perceptions of Vegetable E-marketing

Most respondent farmers have got involved in supplying vegetables to traders selling products using e-marketing channels, after such traders visited their farms. Some other farmers have been introduced to those traders by related parties.

The price factor seems to be the most important motive to sell vegetables to traders running e-marketing business. Farmers are satisfied with this arrangement due to the fact that they can sell their vegetables from the farm itself, for comparatively higher prices. Farmers are also satisfied, as they receive payment for their produce in a timely manner by cash.

However, farmers cannot sell their whole produce (Figure 3.1) to the traders concerned, owing to quality and quantity limitations. Traders expect good quality vegetables that are fresh, and free from pests, disease and physical damage. Farmers are compelled to sell rest of their vegetable products to Dedicated Economic Centers (DEC)s, other wholesale traders or to farm-gate collectors. Almost all respondent farmers are smallholder farmers that cultivate 1 to 2 acres of land.

Farmers generally do not use e-marketing to purchase agricultural inputs. Farmers ensure that vegetables (produce) reach traders within half a day of harvesting. Business between farmers and traders also do not involve written agreements, and they take place through ongoing verbal agreement.

Famers are very keen and enthusiastic of the arrangements of supplying vegetable products to traders involved in e-marketing, and are of the view

that if this method of vegetable marketing could be promoted with the help of the public, and private sector assistance, they could benefit from selling more vegetables to those traders.

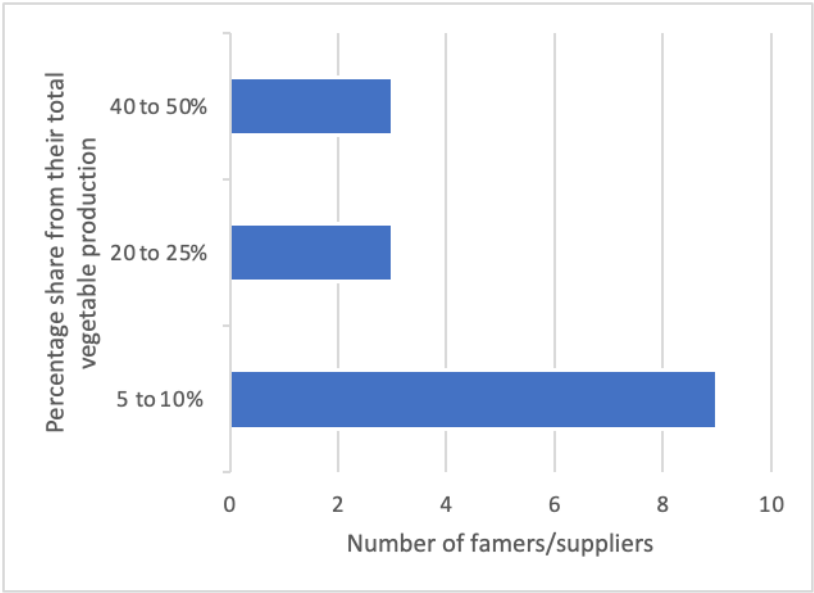


Figure 3.1: Share of Vegetables Sold for E-marketing Businesses

3.3 Opportunities and Constraints Identified for Developing E-marketing of Vegetables

Though e-marketing has been chosen as an emergency alternative to reduce marketing time during the pandemic, consumers have not adopted it as a usual channel for vegetable marketing. The main reasons for consumers to continue with e-marketing were to obtain organic vegetables from a farm they could trust for their good quality.

The study also found that the quality of vegetables significantly affects consumer purchase intentions. There are more risks in online vegetable marketing than traditional purchase channels, such as not getting the desired product, and therefore customers may be more cautious about the quality of vegetables in online shopping. The perceived gap between the actual quality and its expectations, is an important factor in consumers continuing to buy vegetables online.

Consumer vegetable-buying behaviour also affects their use of e-marketing for vegetables. Except for a very few, all others buy vegetables

weekly, or a few times within a week. Further they do buy vegetables while marketing for other items they need regularly, so they most often do not do marketing only for vegetables. Therefore, such consumers do not find any significant advantage in vegetable e-marketing.

CHAPTER FOUR

Summary of the Findings and Conclusions

4.1 Summary of the Findings

Summary of the Findings

1. In the country, the popularity and use of online vegetable purchase is still in its infancy.

   Only a few respondents were identified as regular customers using e-marketing platforms for vegetable purchase within the sample consisting of respondents with various age categories, income levels, and social classes, who were capable of using electronic devices.

2. E-marketing appears to be successful for products that are not available locally.

   Consumers who are accustomed in purchasing fully organic vegetables from a reliable producer/trader tend to continue e-marketing.

3. Consumer perceptions of the difference between expected and delivered items (quality and quantity of the vegetables) appear to be negatively affecting vegetable e-marketing.

4. Consumers those who are in the view that they would be able to buy a wider variety of higher-quality vegetables if they visit a vegetable stall themselves which would better satisfy them, are discouraged to use e-marketing for vegetables.

5. Consumers prefer physical vegetable marketing and see no reason to switch to e-marketing because physical marketing allows them to buy other food and non-food home goods while marketing for vegetables.

6. Except for super market chains that offer online services through their super grade branches, traders active in non-organic vegetable e-marketing have not been successful in sustaining their operation.

7. Smallholder farmers are eager to provide their products for e-marketing platforms as it will provide an opportunity for them to earn a better price for their vegetables without incurring any additional costs.

4.2 Conclusions

In order to retain and succeed in online vegetable marketing, it is critical for entrepreneurs and marketers who use e-marketing platforms to meet consumer expectations such as timely delivery, accurate product delivery, and the ability to supply a wide range of products. Further, following factors should also be considered:

1. Providing high-quality goods
2. Increasing the range of vegetables accessible
3. Keeping information on product availability and costs up to date on a regular basis
4. Offering lower prices.
   Because online marketplaces have lower operating expenses, online traders should be able to compete with traditional vegetable stands by giving a better price.

4.3 Limitations of the Study

One possible limitation of this study are probable biases when adopting web-based/telephone surveys. However, they are generally accepted methods of data collection in market research to expedite data collection while reducing costs, especially when face-to-face interviews are not possible in such situations as the Covid-19 pandemic. The multiple methods of data collection used in this study might have reduced potential bias.

4.4 Future Research

The present study only considered the general perceptions of stakeholders, and the main influential factors for such stakeholders (producers/farmers, traders and consumers) to continue or discontinue vegetable e-marketing. However, to suggest recommendations for policy making and up scaling it is vital to get a deeper understanding of consumers as well as producers' choices in adopting vegetable e-

marketing a more comprehensive study is suggested, covering a larger sample of farmers, traders and consumers under normal circumstance,

REFERENCES

Asadihkoob,H and Ebrahimi,M.S. (2014). Challenges and Strategies of E-Commerce in Iran's Agriculture. Available on line at: https://www.researchgate.net/publication/328281741_Challenges_and_Strategies_of_E-Commerce_in_Iran's_Agriculture (Accessed on: 18/10/2021)

Ayuya, OI., Adongo, S., Wanjohi, L., and Rajendran S. (2021). Role of digital platforms in maintaining the value chains of vegetable, root and tuber crops functional in the face of Covid-19. Research Report. Lima, Peru: International Potato Centre, pp.17 93. Available on line at: https://doi.org/10.4160/9789290606246 (Accessed on 16/08/2021)

B Li, Z Yin, J Ding, S Xu, B Zhang, Y Ma (2020). Key influencing factors of consumers' vegetable e-commerce adoption willingness, behavior, and willingness-behavior consistency in Beijing, China. British Food Journal. Available on line at: https://www.emerald.com/insight/ 0007-070X.htm (Accessed on 12/009/2021)

Bloomenthal, A. (2021). Electronic Commerce. Available on https://www.investopedia.com/terms/e/ecommerce.asp. Accessed on 2021.11.04.

Champika, P.A.J. (2016). An Analysis of farmer Decision Making and its effects on Price Volatility: Midcountry Vegetable Sector in Sri Lanka. Research Report No: 194 Hector Kobbekaduwa Agrarian Research Institute.

DCS, (2020). Computer Literacy Statistics. Available on line at: http://www.statistics.gov.lk/PressReleases/ComputerLiteracystatistics-2020-Firstsixmonths#:~:text=Definition%20for%20Computer%20literacy%3A%20A,as%20a%20computer%20literate%20person. (Accessed on: 11/10/2021)

DCS, (2020). Economic Statistics of Sri Lanka 2020. Available on line at: http://www.statistics.gov.lk/Publication/Economic-Statistic-2020 (Accessed on: 11/10/2021)

Department of Agriculture. Sri Lanka e-agriculture strategy (2016). Available on line at: http://web2.doa.gov.lk/ICC/images/publication/Sri_Lanka_e_agri_strategy_-June2016.pdf (Accessed on: 11/10/2021)

Digital 2021: Sri Lanka. Available on line at: https://datareportal.com/reports/digital-2021-sri-lanka (Accessed on 19/01/2022)

Ellawala, N.H. and Sachitra, K. M. V. (2021). E-Marketplace in the Agricultural Sector in Sri Lanka: Challenges in Adoption. Asian Journal of Agricultural Extension, Economics & Sociology, 39(6): pp.44-58, 2021; Article no. AJAEES.69781 Available online at: DOI: 10.9734/AJAEES/2021/v39i630592(Accessed on 12/08/2021)

Folorunso,O., Sharma,S.K., Longe, H.O.D and Lasaki,K. (2006). An Agent-based Model for Agriculture E-commerce Systems. Information Technology Journal, 5: 230-234. Available online at: https://scialert.net/abstract/?doi=itj.2006.230.234 (Accessed on 24/08/2021)

Gopinath, R. Kalpana, R. and Shibu, N.S. (2016). A study on Adoption of ICT in Farming Practices with Special reference to e-commerce in agriculture.IOSR Journal of Humanities and Social Science. Volume 21, Issue: 6:pp 98-101. Available on line at: http://14.139.186.108/jspui/bitstream/123456789/31867/1/Article_8.pdf (Accessed on: 18/10/2021)

Hathurusinghe, C.P. (2015). Value Chain of High Value Highly Perishable Vegetables, Research Report No.181, Hector Kobbekaduwa Agrarian Research and Training Institute.

Induruwa, A. Growth of Internet Services in Sri Lanka (2019). Available on line at: https://www.researchgate.net/publication/330356435_Growth_of_Internet_Services_in_Sri_Lanka (Accessed on: 11/10/2021)

Israel Agricultural Technology Hub, 2020. Available on line at: https://www.israelagri.com/ (Accessed on: 18/10/2021)

Khana, R.H. and Aditi, F.N. (2020). Purchasing Vegetables from Different Channels: A Comparative Study on Factors Affecting the Choice of Channel. International Journal of Managerial Studies and Research (IJMSR), Volume 8, Issue 7, pp.16-24. Available online at: http://dx.doi.org/10.20431/2349-0349 (Accessed on 06/12/2021)

Li, B., Yin, Z., Ding, J., Xu, S., Zhang, B., Ma, Y. and Zhang, L. (2020), "Key influencing factors of consumers' vegetable e-commerce adoption willingness, behavior, and willingness-behavior consistency in Beijing, China", *British Food Journal*, Vol. 122 No. 12, pp. 3741-3756. Available online at: https://doi.org/10.1108/BFJ-11-2019-0834 (Accessed on: 18/10/2021)

Lilavanichakul, A. (2019). Development of Agriculture E-commerce in Thailand. Available on line at: https://ap.fftc.org.tw/system/files/journal_article/Development%20of%20Agricultural%20e-commerce%20in%20Thailand.pdf (Accessed on: 18/10/2021)

Priyankara, E.A.C. (2016). Present Status of Vegetable Direct Marketing in Selected Districts in Sri Lanka. Research Report No: 191. Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI), Colombo 7. Available online at: http://www.harti.gov.lk/images/download/reasearch_report/new1/191.pdf (Accessed on 11/10/2021)

Rupasena,L.P.(1999).Production and Marketing of Vegetables. Research Report No: 12 Hector Kobbekaduwa Agrarian Research Institute.

Saban,K.K.C. and Timalsina,A.K.(2016). Challenges for Adopting E-Commerce in Agriculture in Nepalese Context — a Case Study of Kathmandu Valley. Available on line at: https://www.researchgate.net/publication/319852327_Challenges_for_Adopting_E-Commerce_in_Agriculture_in_Nepalese_Context_-_a_Case_Study_of_Kathmandu_Valley (Accessed on: 18/10/2021)

Shih, H. (2004). An empirical study on predicting user acceptance of e-shopping on the Web. Information & Management. Volume 41, Issue 6. Available on line at: https://www.sciencedirect.com/science/article/abs/pii/S037872060300079X?via%3Dihub (Accessed on: 18/10/2021)

Shija,D.(2019). The effects of e- marketing on sales of Agricultural products in rural areas (A case study of Arumeru- District).Available on line at : www.researchgate.net/publication/338096258_The_Effects_of_E-Marketing_on_sales_of_Agricultural_Products_in_Rural_Areas_A_case_study_of_Arumeru-District (Accessed on: 11/10/2021)

Slamet,A.S., and Nakayasu,A.(2015). Consumers' Choice for Vegetable Market Channels in Indonesia, ICoA Conference Proceedings, Available on line at: DOI http://dx.doi.org/10.18502/kls.v3i3.386 (Accessed on 04/09/2021)

Sri Lanka E-Agriculture Strategy. Available online at: Http://web2.doa.gov.lk/ICC/images/publication/Sri_Lanka_e_agri_strategy_-June2016.pdf (Accessed on 12/08/2021)

Vidanapathirana, R.P., Priyadarshana, D. and Rambukwella, R. (2011). Marketing of vegetables through Super Markets: Implication of Procurement Practices for Farmers. Research Report No: 142 Hector Kobbekaduwa Agrarian Research Institute.

Wei, Y., Wang, C., Zhu, S., Xue, H. and Chen, F. (2018). Online Purchase Intention of Fruits: Antecedents in an Integrated Model Based on Technology Acceptance Model and Perceived Risk Theory. Available on line at: https://doi.org/10.3389/fpsyg.2018.01521 (Accessed on 10/10/2021)

Wenji,W. (2021) Study on inventions of fresh food in commercial aspects using e-commerce over internet, Acta Agriculturae Scandinavica, Section B — Soil & Plant Science, Volume 71:Issue 4, 303-310, DOI: 10.1080/09064710.2021.1880625 Available on line at: https://www.tandfonline.com/doi/full/10.1080/09064710.2021.1880625 (Accessed on: 18/10/2021)

Wholesale market for the first digital fruits and vegetables. Available online at: https://www.israelagri.com/?CategoryID=453&ArticleID=1828 (Accessed on 27/12/2021)

Wickramasinghe, W.A.R. (2019). Potentials of Farmer Interactive Action to Remedy Vegetable Marketing Problems: Relevant to Selected Locations. Research Report No: 220 Hector Kobbekaduwa Agrarian Research Institute.