Research article

Vegetable Farming Practices in Cambodia: Case study of Small-scale Vegetable Farmers in Kandal, Kampong Chhnang and Battambang Provinces

THIRA PINN*
Royal University of Agriculture, Phnom Penh, Cambodia
Email: pinnthira@rua.edu.kh

SYDEN REACH
Royal University of Agriculture, Phnom Penh, Cambodia

BORARIN BUNTONG
Royal University of Agriculture, Phnom Penh, Cambodia

ANTONIO ACEDO JR.
Mekong Institute, Thailand

Received 31 January 2020 Accepted 25 March 2020 (*Corresponding Author)

Abstract Cambodia shifted from an agrarian-based to a service- and production-based economy through its fast-economic growth. However, agriculture is still a backbone of the Cambodian economy because 80 percent of the population lives in rural areas, and around 37 percent of the total workforce remains directly engaged in the agricultural sector. Even though the Royal Government of Cambodia (RGC) considered the enhancement of the agricultural sector as a high priority in its national development agenda for 2014 to 2018, Cambodia remains a net vegetable importer. Approximately USD 200 million of vegetable products are imported informally from Thailand and Vietnam each year. Several research studies have been conducted to identify farmers' constraints. However, challenges faced by small-scale vegetable farmers have yet to be clearly characterized. This research aimed to identify the farming practices and challenges of small-scale vegetable farmers in Cambodia. There were 40 households, selected by homogeneous purposive sampling method, surveyed from the Kandal, Kampong Chhnang and Battambang Provinces. The results of the study are divided into three parts, with the first component focused on farming practices. There were 12 types of vegetables that were identified as being grown in the studied areas. However, only 5 types of vegetables were commonly grown by farmers. Chinese mustard (55%) was the most popular vegetable being grown in the areas, followed by green mustard (50%), pak choi (45%), leafy mustard (37.5%) and Chinese kale (27.5%). Due to small production size, almost all interviewed farmers harvested their products by sickle, knife, and/or scissors, and manual harvest is still in practice by some farmers. Post-harvest activities such as grading, sorting and cleaning products after harvesting and before selling are not commonly practiced by farmers. Second, the majority of vegetable products are sold to collectors; a small quantity of remaining products is sold to retailers, farmers' groups/cooperatives and direct consumers in the areas. Third, the study revealed three main challenges faced by farmers. Insect pests and disease infestation (87.5%) was the most prominent issue of vegetable farmers, followed by climate change (e.g. flooding, drought) (77.5%). Low selling price and considerable fluctuation in prices were equally problematic (both 57.5%). Other notable issues included post-harvest losses especially in peak seasons of oversupply (45%), lack of power in the market chain (42.5%), and lack of pest control information (40%), while lack of information about market prices (37.5%) and poor market information systems (37.5%) were the minor issues in vegetable production.

Keywords vegetable farming, marketing, post-harvest, value chain

INTRODUCTION

Cambodia has experienced rapid agricultural growth, among the fastest in the world. The annual growth of agricultural gross production was 8.7 percent from 2004 to 2012. However, the contribution of this sector in the Cambodian economy has been decreasing and is being replaced by manufacturing and services (World Bank, 2015). Even though the Royal Government of Cambodia (RGC) considered the enhancement of the agricultural sector as a high priority in its national development agenda (National Strategic Development Plan, 2014), the development of the Cambodian agricultural sector has been slow. Cambodia is a net agricultural importer. Their imported commodities include vegetables (about USD 200 million of vegetable products was informally imported annually), agricultural inputs and finished products primarily from Thailand and Vietnam (USAID, 2019). Several issue which have been hampered the small-scale vegetable production are lack of agricultural techniques, unreliable supply and demand, and competition with informal imported vegetables. Even though there have been various research studies conducted in the vegetable sector, the practices and challenges of small-scale vegetable farmers have remained ambiguous.

OBJECTIVE

This research aimed to identify the farming practices and challenges of small-scale vegetable farmers in Cambodia.

METHODOLOGY

Mixed methods, quantitative and qualitative, were used to conduct this study. The total sample was 40 households, selected by homogeneous purposive sampling method, from the Kandal, Kampong Chhnang and Battambang provinces. The selection of study location based on two reasons. First, these provinces are among Cambodian vegetable production's zones. Second, characteristic of smallholders in these provinces represents the farmers in all location in the country. Ensuring accuracy in sample selection, researchers reviewed literature, screened names in the list of vegetable farmers provided by the local authority, and then discussed and finalized the selected sample with the local authority. The collected data was analyzed by using descriptive statistics.

RESULTS AND DISCUSSION

Table 1 Household demographics

Items	N	Minimum	Maximum	Mean	Std. Deviation
Family members	40	2	9	4.85	1.545
Children ≤ 15 years old (male)	18	1	3	1.56	0.784
Children ≤ 15 years old (female)	14	1	2	1.21	0.426
Adults 16 – 60 years old (male)	36	1	4	1.67	0.956
Adults 16 – 60 years old (female)	39	1	5	1.77	0.931
Elderly >60 years (male)	9	1	1	1.00	0.000
Elderly >60 years (female)	11	1	1	1.00	0.000
Valid N (listwise)	0				

*Source: Authors, *multiple answers will not add up with 100*

To understand the current practices and various challenges faced by small-scale vegetable farmers in Cambodia, 40 smallholder vegetable farmers were interviewed in 18 villages in 5 districts of Kandal, Kampong Chhnang and Battambang provinces. The household demographics are shown in Table 1. The gender and age distribution as well as the family size between the villages surveyed were similar.

Of the respondents, 67.5% were male, 32.5% were female, and the average age of respondents was 47.30 years old. Ninety-five percent of respondents were able to read and write Cambodian language, while 5% were illiterate. The majority of interviewed household (95%) were nuclear families[1], while 5% were jointly family[2]. The average family size was 4.85 members.

Table 2 Household land use

Distribution of household land in hectares	Kandal	Kampong Chhnang	Battambang
Main dwelling land	0.007	0.005	0.008
Other dwelling land	0.074	0.136	0.070
Agricultural land	0.611	1.569	3.204
Total owned cultivable area in 2018	0.884	1.569	3.170
Total rented cultivable area in 2018	0.051	-	0.600
Own areas under vegetable farming	0.308	0.199	0.293
Rented areas under vegetable farming	0.017	-	-
Total owned land	1.884	3.478	6.745

Source: *Authors*

The household land distribution is shown in Table 2. The household land size and agricultural land size differed between provinces. Farmers in Battambang province owned on average 6.745 hectares, which was greater than Kampong Chhnang (3.478 hectares) and Kandal (1.884 hectares) provinces. Similarly, farmers in Battambang had the most agricultural land (3.204 hectares), followed by 1.569 hectares in Kampong Chhnang province and 0.611 hectare in Kandal province. In contrast, the average area under vegetable cultivation in Kandal province was 0.325 hectare, which was higher than Battambang province (0.293 hectare) and Kampong Chhnang province (0.199 hectare).

Table 3 Types of vegetables grown in the studied areas

No	Name of Vegetable	Frequency	Percent
1	Pak choi	18	45.00
2	Leafy mustard	15	37.50
3	Chinese mustard	22	55.00
4	Cabbage	2	5.00
5	Chinese cabbage	1	2.50
6	Green mustard	20	50.00
7	Lettuce	10	25.00
8	Spring onion	1	2.50
9	Crown daisy / Chrysanthemum green	0	-
10	Chinese Kale	11	27.50
11	Gallic chives	0	-
12	Culantro	4	10.00

**multiple answers will not add up with 100; ** N=40.*
Source: Authors

There were 12 types of vegetable identified as being grown in the studied areas (Table 3). However, only 5 types of vegetable were commonly grown by farmers. Chinese mustard (55%) was the most popular vegetable being grown in the areas, followed by green mustard (50%), pak choi (45%) and leafy mustard (37.5%). Chinese kale and lettuce were grown by 27.5% and 25% of farmers,

[1] ''A nuclear family, elementary family or conjugal family is a family group consisting of two parents and their children (one or more). It is in contrast to a single-parent family, the larger extended family, and a family with more than two parents. Nuclear families typically center on a married couple; the nuclear family may have any number of children'' (Wikipedia '' Nuclear family'' accessed by January 22, 2020: https://en.m.wikipedia.org/wiki/Nuclear_family).

[2] ''A joint family or undivided family is an extended family arrangement prevalent throughout the Indian subcontinent, particularly in India, consisting of many generations living in the same household, all bound by the common relationship'' (Wikipedia '' Hinu Joint Family'' accessed by January 22, 2020: https://en.wikipedia.org/wiki/Hindu_joint_family).