

STUDY ON THE CURRENT SITUATION OF SUPPLY CHAIN FOR MANGO PRODUCTION IN CAM LAM DISTRICT - KHANH HOA PROVINCE

Nguyen Tan Hung¹, Ho Huy Cuong¹, Do Thi Ngoc¹,
Pham Vu Bao^{*1}, Tran Quoc Dat¹, Nguyen Thi Hang Ni¹, Nguyen Phi Hung²

Abstract

To stabilize and improve the income of local mango producers, a study on current status of mango distribution was carried out in Khanh Hoa province from 2014 - 2015. Results showed that 3 different supply chains have been available in mango production in the location, including (1) from the producers → retailers → consumers (7.5 - 7.7%); (2) from the producers → Business owner → whole sale markets → retailers → consumers (92.3 - 92.5%); (3) from the producers → business owner → export to China (47.3%). In case of Cam Lam district, mango producers bring their products directly to the collecting places (producers → business owner), they can benefit much better since it has reduced the intermediate steps. As a matter of fact, the income distribution between producers and collectors was not transparent; ununiformed and unsafe products are still big problems. Because of that, the establishment of mango production cooperatives in which farmers have to produce high quality and safe products should be accordingly recommended.

Keywords: Cam Lam mango, mango status, value chain of mango

INTRODUCTION

Mango is considered as the main crop of Khanh Hoa province with 6,042 - 6,467 ha under cultivation in 2012 - 2016 period that produces 40,899 - 41,582 tons/year and earns 400 - 450 billion VND. Cam Lam is mostly concentrated location of mango production accounting for approximately 50% of the total area and production in whole province (from 2012 - 2016, mango area varied from 2,830 - 3,120 ha with the fluctuated production from 22,952 - 24,828 tons/year) (Khanh Hoa Statistical Yearbook, 2017). It is especially mentioned that in recent years, mango cultivation in Cam Lam district has been gradually shifted from small-scale production with many cultivars to large scale one focusing on the three main cultivars as Canh Nong, Cat Hoa Loc and Australia mango (R2E2). Though lots of advantages in mango production have been achieved, the unsustainable income of mango producers in Cam Lam district is also regarded as a main issue that must be accordingly solved to find out appropriate solution for successful improvement the situation.

OBJECTIVES AND METHODS

Objectives

The aims of the survey was to assess the strengths and weaknesses of the current status of mango distribution in order to find out solutions for improvement of mango production in Khanh Hoa province.

Methods

Methods used: Data and information concerned were collected by relevant persons and agencies in combination with the review conducted from 64 retailers and business owner, and 31 farmers.

Survey content: Production chains of mango inside and outside of province; Mango sorting levels in production and harvesting for the three cultivars; Method and capacity of mango growers in product collecting, sorting and preserving; Price fluctuations in the mango crop and between sorting levels; Main difficulties faced to local producers in terms of production and consumption.

Data and information collected were then analyzed with the support of Excel program in collaboration with SWOT method (Humphrey, Albert, 2005).

Time and place of the study

The study was implemented in 2014 - 2015 period in Cam Lam district Khanh Hoa province.

RESULTS AND DISCUSSION

Current status of mango value chain in Cam Lam

Though lots of mango cultivars have been available in the location studied (Canh Nong, Cat Bo Trang, Cat Bo Vang, Cat Hoa Loc, Cat Chu, R2E2, Taiwan, Thailand etc.), main demand was concentrated on three leading cultivars, says, Canh Nong, Cat Hoa Loc and Australian mango (81.3%, 82.8% and 85.9%, respectively) (Table 1).

¹ Agricultural Science Institute for Southern Coastal Central of Vietnam; ² University of Da Nang

^{*} Corresponding author: Pham Vu Bao. Email: vubaoqn@gmail.com

Table 1. The percentage of wholesalers and retailers participation in mango collection and distribution in Cam Lam

TT	Cultivars	The participation percentage of wholesalers and retailers (%)
1	Canh Nong	81.3
2	Cat Hoa Loc	82.8
3	Australian	85.9

Although the collection and distribution among the three cultivars were not much different, the targeted

markets, in the other hand, was markedly various from cultivar to cultivar: For Canh Nong cultivar, only 7% of production was used in local market and the rest (approximately 92.7%) was transported to outsides (Hanoi mainly), for Cat Hoa Loc (Figure 2) the percentage of local consumption was the same (7.5%) but outside market was targeted in Ho Chi Minh city. For the Australian mango (R2E2), though EMU exports company (Vietnam) has been collecting, preliminary processing and preserving this cultivar to export to Singapore, Indonesia, United Arab Emirates, etc. the quantity was still limited because of its low competitiveness (Hai Dang and Hong Dang, 2017).

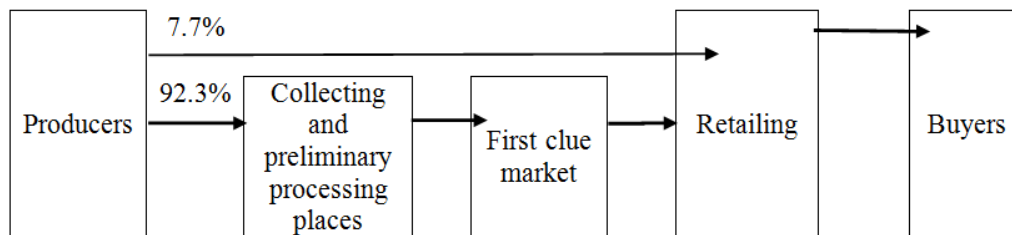


Figure 1. The distribution chain of Canh Nong mango in Cam Lam

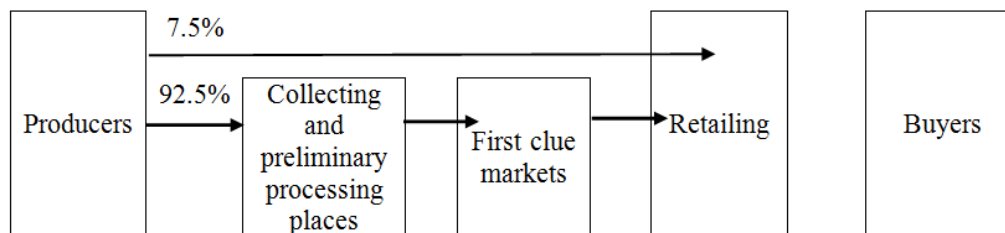


Figure 2. The distribution chain of Cat Hoa Loc mango in Cam Lam

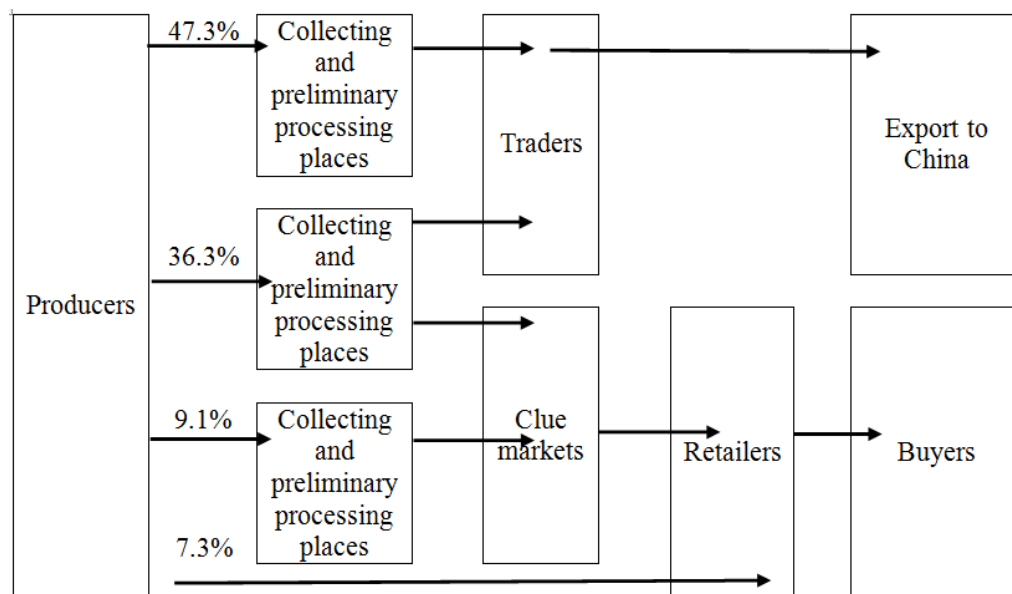


Figure 3. The distribution chain of the Australian mango in Cam Lam

From the above mentioned results, the strengths and weaknesses of mango distribution chains in Cam Lam could be summarized and recommended as flows:

- The production of 3 mango cultivars Canh Nong, Cat Hoa Loc and Australian (R2E2) that have been highly appreciated by traders and consumers should be prioritized, and
- Traditional consumption markets (northern area for Canh Nong, southern area for Cat Hoa Loc should be accordingly strengthened and developed whereas outside markets firstly China will be targeted for Australian cultivar.

Consulting the results conducted from the studies on mango value chains in Tien Giang (Trinh Duc Tri

et al., 2015) and Binh Dinh (Luong Ngoc Trung Lap *et al.*, 2015), with the conclusion that local collecting places must go through the small traders before transferring to collecting places (producers → small traders → business owner), meanwhile, we propose that, in case of Cam Lam, the producers had better to bring their products directly to the collecting places (producers → business owner) to minimize intermediate costs.

It is also obvious that, the current status of mango distribution chains in Cam Lam also reveals the weakness that the Australian mango (R2E2) was mainly petty exported to China where the risks are easily occurred.

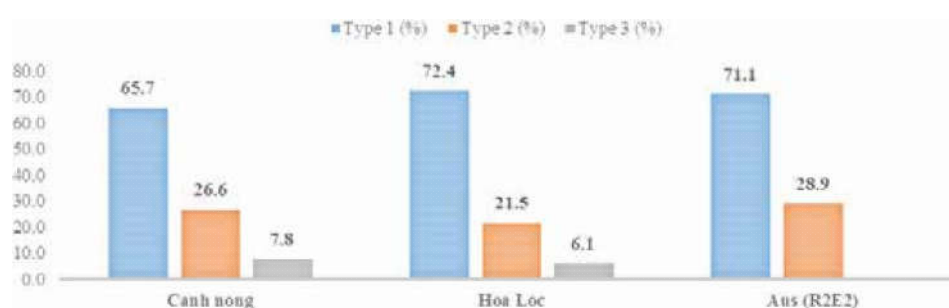


Figure 4. Percentage of grading the mango fruits in Cam Lam

Current status of grading, collection, preservation and price of mango in Cam Lam

Apart from value chain, our studies had also dealt with sorting, collection, processing and purchase prices of mango in Cam Lam district. Results showed that: the the percentage of traders who buy unlimited quantity of Canh Nong, Cat Hoa Loc and Australian cultivars (R2E2) were 61.5%, 67.9 5 and 72.7%, respectively whereas 38.5%, 32.1% and 27.3%, respectively for limited buyer ones was observed; As calculated, 92.3%, 92.5% and 92.7% of Canh Nong, Cat Hoa Loc

and Australian (R2E2) mango growers, respectively took their products to collecting places. The sorting/grading of mango (type 1, type 2 or type 3) in the transaction was decided by traders depending on their purposes; 100% traders implemented primary processing and preservation with simple and hand made techniques (cutting, using paper towel or cloth to clean stains or pus on mango fruit, put in plastic baskets with newspapers, adding calcium carbide (CaC_2) (Table 2).

Table 2. The quantity and method of collecting, grading and preliminarily processing of mango in collecting places in Cam Lam

Criteria	Methods	Percentage (%)		
		Canh Nong	Cat Hoa Loc	Australian (R2E2)
Collecting capability	- Unlimited quantity	61.5	67.9	72.7
	- Limited quantity under markets	38.5	32.1	27.3
Collecting methods	- Producers bring their mango to collecting places	92.3	92.5	92.7
	- Traders buy mango at farmers' gardens	7.7	7.5	7.3
Grading methods	- Under the issued criteria	0.0	0.0	0.0
	- Proposed by traders	100.0	100.0	100.0
Primary processing and preservation methods	- Under the recommended protocols	0.0	0.0	0.0
	- Raw processing	100.0	100.0	100.0

The above mentioned results prove that the collecting capability and methods are considered as the strengths in mango production and value chains in Cam Lam. Most of sellers demanded unlimited quantity of three mango cultivars and mango producers transfer their products to collecting places right after harvesting resulting in better benefit gained.

In the other hands, the method of sorting, processing and preservation were the weaknesses in the mango value chain in Cam Lam presented by quite low percentage of local growers applied these practices with proper technologies that resulted in low quality fruits, the ratio of grade 1, 2 and 3 were 65.7%, 26.6% and 7.8% respectively for Canh Nong cultivar, 72.4%, 21.5% and 6.1%, respectively for Cat Hoa Loc and 71.1%, 28.9% and 0%, respectively for Australian

one (Figure 5). And, what is more, the regulations in mango sorting of mango (grade 1: fruit weight ≥ 0.3 kg for Canh Nong, ≥ 0.4 kg for Cat Hoa Loc; ≥ 0.6 kg for Australian cultivars with sufficiently physiological ripe without pest and pus latex) was not strictly followed and mainly decided by traders that impact to product quality.. As a result, in practice the quantity of fruit of type 1 of the business owner or first markets were higher than that of the producers. This has shown that there was no transparency in the distribution of mango income between producers and business owners. Similarly, due to pre-processing methods, raw processing preservation and manual labor have also increased the cost of price due to the rotten rot causing losses and labor increased.

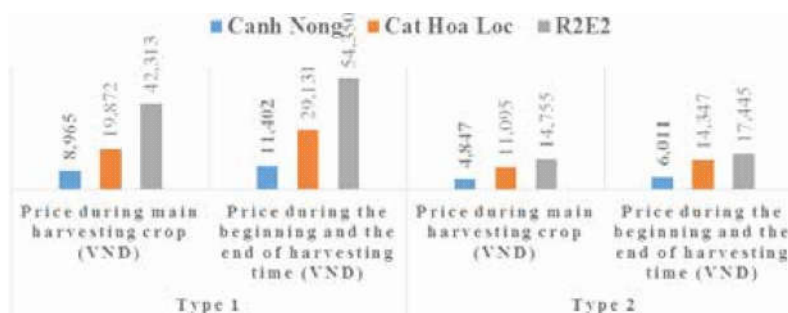


Figure 5. The purchase price of mango type 1 and 2 in Cam Lam

It is also mentioned that, the price of Canh Nong, Cat Hoa Loc and Australian (R2E2) mango varied from time to time of harvesting and from grade to grade of the products. For Canh Nong cultivar, at the beginning and ending harvest, the prices of grade 1 and 2 were VND 11,402/kg and VND 6,011/kg respectively whereas VND 8,965/kg and VND 4,847/kg were the prices at mid season (equivalent to 21.4% and 19.4% decrease). The same situation was also recorded in cases of Cat Hoa Loc and Australian (R2F2) cultivars. For fruit grades, the fluctuable prices between grade 1 and grade 2 at the same time of Canh Nong, Cat Hoa Loc and Australian (R2F2) cultivars were from 45.9 - 47.3%; from 44.2 - 50.8% and from 65.1 - 67.9%, respectively/ Especially, the prices of Cat Hoa Loc and Australian (R2E2) were 121.7 - 155.5% and 190.2 - 376.7% respectively compared to that of Canh Nong at the same time and same grades (Figure 5). It is also considered as the advantages of these cultivars in Cam Lam mango production.

Difficulties of collectors and producers in mango value chain in Cat Lam

In short, following difficulties should be taken into account for mango production in Cam Lam district::

- * 53.1% for the market;
- * 32.8% for transportation;
- * 23.4% for capital;
- * 56.3% for payment; and
- * 0.9% for primary processing and storing.

Of the above mentioned issues, difficulties in finding market related to the price should be paid great attention to. Producers and collectors mostly had no information on transportation cost and price exported to China informally as well. Because of that, they could not control the selling price, the transaction with traders and wholesale markets. Negotiation of selling prices was mainly conducted by using the phone so there were potential risks, price competition among collectors in the beginning or the end of the harvest, selling price competition among collectors. In addition, the quantity of goods is not stable, so they did not take the initiative in signing long-term contracts. In addition, the difficulties in transportation cost and capital etc. presented in Table 3 are also considered as big problems that need to be appropriate solved.

Table 3. Difficulties in the mango consumption chain in Cat Lam

Evaluation Criteria	Percentage of collectors meeting difficulties (%)	Difficulties in collection and distribution activates
- Difficulties in the market	53.1	- The price and the demand are not stable. - Lack of information on wholesale price - Have to have prices of buying and selling to be completed with the others collectors. - The volume of goods is not stable.
- Difficulties in transportation	32.8	- High transportation costs. - Not being active in transportation.
- Difficulties in capital	23.4	- Insufficient capital for business . - Difficult to approach the capital support policies.
- Difficulties in payments	56.3	- Traders do not pay. - Traders hoard goods to take advantage of capital. - The landlords do not repay the pre-received loan when the high price or loss of crops
- Difficulties in preliminary processing and storing	10.9	- Short storage time and highly rotting rate of post-storage.

Strengths and weaknesses in mango consumption chain in Cam Lam

Strengths	Weaknesses
- Areas of commercial mango production have been established with 3 main cultivars: Canh Nong, Hoa Loc, Uc (R2E2) and classification of mango Type 1 in production makes up the high rate. - The market has the demand and has established the traditional consumption market of mango, Canh Nong, Cat Hoa Loc and Uc (R2E2). - Limited the intermediary of traders in the chain of movement from producers to consumers. - Although not yet being close and sustainable, the link between producers and owners has been formed.	- The consumption market of Australian mango (R2E2) is not sustainable. - The prices of collection and consumption are unstable. - The source of goods is not stable. - The price of mango Canh Nong is too low. - There is no transparency in the distribution of mango income between producers and collectors. - Low competitiveness due to higher post-harvest costs (short storage time, high postharvest losses, high transporting costs, lack of market information). - There is no strong and sustainable link between producers and collectors between collectors.

Solutions to improve the efficiency of mango production in Cam Lam

With the assessments resulted from study on the current status of mango production in Cam Lam district, following considerations should be taken into account for improvement the situation:

- To train local growers technologies needed for improving the yield and quality of mango cultivars traditional developed.
- To establish mango production Cooperative/s to be in charge of following tasks:

+ Recommendations on mango varieties including newly introduced ones to be properly cultivated in different locations in Cam Lam district with suitable

cultivation techniques applied.

+ Establishment of the linkage linkages among producers, collectors and traders to accordingly form the effective chains for sustainable production of mango in whole district.

+ Providing information related to mango commercial situation inside and outside of the province and policies concerned as well.

+ Contribution in combining mango production related companies in the province and finding new markets including export ones

+ Consultation on specific equipment used for mango preservation and transportation to keep product quality stable with high price.

- Negotiation with local governors in improving the infrastructural condition and policies concerning to improvement mango production in Cam Lam district

CONCLUSIONS

- Mango is one of major agricultural products in Khanh Hoa with 40,899 - 41,582 tons per year in which Canh Nong, Cat Hoa Loc targeted for local consumption and, R2E2 for export to China were regarded as three leading cultivars .

- In 3 mango value chains available, including (1) from the producers → retailers → buyers (7.5 - 7.7%); (2) from the producers → Business owner → clue markets → retailers → buyers (92.3 - 92.5%); (3) from the producers → business owner → export by petty trades to China (47.3%), the third one (producers → business owner) should be recommended because of intermediate cost reduction.

- The price of mango is much different from time to time of the harvest (21.4 - 31.8% difference) and from grade to grade of the product

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LIGHT TRAPS: AN EFFECTIVE METHOD FOR CONTROLLING THE SUGARCANE GIANT BORER *Phragmataecia castaneae* IN VIETNAM

Cao Anh Duong¹, Duong Cong Thong¹, Do Duc Hanh¹, Do Van Tuong¹

Abstract

The sugarcane giant borer *Phragmataecia castaneae* is one of three important sugarcane borers in Vietnam, beside the internode borer *Chilo sacchariphagus* and the big pink borer *Sesamia* sp. Some studies on light attractive levels of some sugarcane borers species, monitoring and controlling the sugarcane giant borers by light traps were carried out in Vietnam from 2010-2014. The results proved and indicated that light trap was an effective method for controlling the sugarcane giant borer in Vietnam. This method is a safe pest control for environment and human, so it could be recommended for applying to other similar sugarcane planting regions.

Keywords: Sugarcane giant borer *Phragmataecia castaneae*, sugarcane borer, sugarcane, light traps, light attractive, monitoring

INTRODUCTION

Sugarcane is an important agro-industrial crop in Vietnam, occupying 268,300 hectare area. It is grown in different agro-climatic regions, spreading from the North to the South. The average cane yield in Vietnam is about 64.8 tons per hectare while the sugar recovery (CCS) is around 9.62 percent (MARD,

2017). However, there is potential of increasing the average cane yield to 100 tons per hectare and sugar recovery to 11.0 percent, if new technologies are transferred to the farmers, especially on varieties and pests management. There are the most important factors limiting sugarcane production in Vietnam (MARD, 2017).

¹ Sugarcane Research Institute (SRI)

* Corresponding author: Cao Anh Duong. Email: caoanhduong73@gmail.com