Current Politics and Economics of … ISSN: 2157-6270
Volume 30, Number 1

CONTRACT FARMING AND VEGETABLE VALUE CHAIN EFFICIENCY: A STUDY FROM QUANG NAM PROVINCE, VIETNAM*

Quoc Hieu Au[1] and Richard J. Culas[1,2,†]
[1]School of Agricultural and Wine Sciences
[2]Institute for Land Water and Society, Charles Sturt University, Orange, Australia

ABSTRACT

Contract farming can create new market opportunities and enhance income for smallholder farmers. This study identifies opportunity for contract farming for vegetable growers in relation to cucumber production in Quang Nam province, Vietnam. The study uses data collected from secondary sources and a survey conducted among selected contract and non-contract farmers in Binh Trieu commune in Thang Binh district, Quang Nam province, Vietnam. Benefit-cost analysis was employed to measure the profitability of cucumber production under contract and non-contract farming at farm level. Socioeconomic characters of the contract- and non-contracts farmers were then compared for their economic performance and to identify the constraints surrounding the promotion of contract farming. The results show that

* This is a reformatted version of a chapter previously published in: Horváth, Donát. *Opportunities and Challenges of Smallholders and Smallholding.* New York: Nova Science Publishers, 2021.
† Corresponding Author's E-mail: rculas@csu.edu.au

there are several benefits in contract farming. In terms of socio-economic characteristics, there are no differences between the contract and the non-contract farmers except their participation in farmers' organizations.

Large holding farmers and grower-based cooperatives are much more likely to be selected for contractual arrangement than other farmers. This implies that entrepreneurs tend to be interested in contracts with groups of farmers rather than with individual farmers. Acting collectively is likely to increase bargaining power of the contract farmers and reduce transaction costs. Vegetables can be purchased with higher prices which provides higher net return and profit cost ratio for the contract farmers than those of non-contract growers. Although there is a range of benefits in contract farming, an increase in input prices is one of the obstacles of contract farming and not all farmers can fulfil the requirements for production processes and output quality standards. Delays in payment and limited access to market information are also likely to reduce the participation in contractual agreements. It is recommended that farmers' organizations should be formed to enable a group of farmers to enter the value chain and deal effectively with contract farming situations. Market information should be delivered to farmers through local media and the contracts should be made in the form that farmers can easily understand and comply with them. This study also considers a dual supply chain structure in which farmers either operate independently or in partnership with others. Other actors in the value chain, such as middlemen, entrepreneurs as well as end consumers also have important roles to play.

Keywords: value chain, contract farming, smallholders, vegetables, Vietnam

1. INTRODUCTION

Quang Nam province is located in the south-central coastal region of Vietnam where natural conditions (e.g., sandy land, lack of water, frequent storms, etc.) are not favourable for vegetable production. For example, in 2009, the total area cultivated in vegetables in Quang Nam was 18,800 ha, concentrated in a few districts (Duy Xuyen, Thang Binh, Dai Loc, and Hoi An). Land devoted to vegetables is fragmented, the area of the average plot ranges from 0.2 to 0.4 ha. The vegetable sector makes only a modest contribution to the provincial GDP, but it remains a significant source of income for a large number of farm households, especially the poor. Gross

output of vegetables reached 202.9 billion VND in 2008, accounting for 7.8% of the total agricultural output in the province and 1.2% of the provincial GDP (GSO, 2008).

According to a report by PI (2010), the vegetable value chain in the province was inefficient because (i) farmers were exposed to exploitation of middlemen, (ii) market price was not assure, (iii) a lack of advanced production and postharvest technologies, (vi) inputs not available when needed, and (v) inadequate marketing information. Aside from the producers, the processors in the supply chain had difficulty in ensuring continuous supply of product given variation in quality and quantity from their suppliers. This has also resulted in serious losses for the vegetable producers when they could not sell their products. Furthermore, the consumers in the traditional channels were also affected by increased retail prices of vegetables. Therefore, contract farming emerges as one of the most promising mechanisms to address the constraints discussed above. However, in Quang Nam province, the concept of contract farming is still new.

Contract farming is an agreement between a farmer and a purchaser established in advance of the growing season for a specific quantity, quality, and date of delivery of an agricultural output at a price or price formula fixed in advance (Binswanger et al., 1993). The contract provides the farmer with the assured sale of the crop and at times provides technical assistance, credit, services, or inputs from the purchaser. In the context of agriculture, Eaton and Shepherd (2001) define contract farming as "an agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements, frequently at predetermined prices", while Roberts and Khiem (2005) further explain that the key feature of contract farming is that it provides a framework for establishing a relationship between farmers and processors. Contracts provide the basis for sharing value, risk, and decision making power between farmers and processors in a way that is mutually beneficial.

Contract farming is emerging as an important form of vertical coordination in improving the efficiency of the agrifood supply chain. Firstly, contracts are an important mechanism in which to coordinate

production, distribution, and retail arrangements between different actors in the value chain. Parties to a contract agree on the terms and arrangements specified; both parties share the benefits, costs and risks of coordination. Simmons et al., (2005) mentioned that this type of arrangement will help to ensure a reliable supply for buyers. Morrison et al., (2006) observed that within the last 30 years, contract farming has become an increasingly important form of self-organization in global agrifood sector, facilitating linkages between the various actors along value chain. Such systems are becoming organized into tightly aligned chains and networks, where the coordination of production, processing and distribution activities is closely managed (Silva Dias, 2010).

Further, contract farming helps to bring small-scale farmer to market. The establishment of modern supply chain management requires high quality produce from producers, but many small farmers are not able to meet this strict quality standards required, and are excluded from these arrangements. Evidence shows that in Thailand the number of farmers selling their vegetables to top super markets has fallen from 250 in 2001 to 60 in 2003 (Reardon et al., 2003). In this situation, the contract farming system emerges as a possible mechanism for a supply chain governance strategy to link the smallholders to high value markets. As a result, as Birthal et al., (2008) have noted, vertical coordination of the food supply chain through contractual arrangement is one of the few alternatives that can facilitate small farms' diversification by improving their access to markets and reducing price risks and transaction costs.

In addition to this, contracts in vertical linkage create income for farmers, contributing to poverty reduction. Wang et al., (2010) state that contractual arrangements between farmers or farmer groups and buyers, and more generally vertical integration in the chain, have proved to be an efficient ways to bring additional incomes to farmers. It is more and more widely acknowledged that access to high value chains through contracts have a positive impact on farmers' incomes and poverty alleviation (World Bank, 2008). Moreover, linkages models through contractual arrangements will help the parties to reduce production cost, overcome the limitations of operating individually, create more added value and generate more

employment which can contribute to increase in product competitiveness, profit for companies, and an improved livelihood for farmers.

Contract farming can be a tool for creating new market opportunities to increase incomes for smallholder farmers. However, the critics argue that it is likely to pass the risks to small scale farmers, thus favouring large scale farmers at the expense of those smallholder farmers (World Bank, 2008). A study by Mwambi et al., (2016) found, using a case study of smallholder avocado farmers in Kandara district in Kenya, that participation in contract farming is not sufficient to improve household, farm and avocado income. Further, contract farming also emerges as one of the potential mechanisms to reduce constraints in the traditional supply chain. For example, a study conducted by Ravikumar et al., (2013) in Tamil Nadu state in India reports the obstacles that non-contract farmers faced in the Marigold (flower) value chain such as exploitation of middlemen, lack of assured market price, lack of advanced production and postharvest technologies, and timely availability of raw materials for processors, etc.

The purpose of this study is to identify the opportunities of contract farming for cucumber growers and the constraints surrounding the promotion of cucumber contract farming practices from farmers' perspectives using a case study example in Quang Nam province in Vietnam. The study uses data collected from secondary sources and a household survey of contract and non-contract farmers in Binh Trieu commune in Thang Binh district, Quang Nam province, Vietnam. Benefit-cost analysis was employed to measure the profitability of cucumber production under contract and non-contract farming at farm level. Socioeconomic characters of the contract and non-contracts farmers were also compared for their economic performance to identify the constraints surrounding the promotion of contract farming.

The rest of the chapter is structured as follows. Section 2 provides an overview of contract farming system in Vietnam. Section 3 details the data and methodology. Results and discussion are presented in Section 4. Section 5 details the recommendations to improve the contract farming model (or system) in Vietnam, followed by a conclusion in Section 6.

2. CONTRACT FARMING SYSTEM IN VIETNAM

As the case in other developing countries, the Vietnamese Government strongly supports the concept of contract farming. This support includes Decision 80/2002/Ttg, which regulates the mechanisms and policies for promoting the consumption of agricultural products through signed contracts between enterprises and farmers, and which promotes cooperation between the 'four houses' of state, farmers, research and enterprises (Roberts and Khiem, 2005). Accordingly, enterprises involved in all sectors are encouraged to sign contracts with producers on sales of farm produce in order to link production with processing and consumption. Tuan (2012) points out that contract farming seems to have gained more attention from researchers and practitioners since around 2002, after the issuance of Decision 80. Examples of contract farming across a wide range of agricultural products in Vietnam have been well documented, particularly for staple foods (rice), industrial crops (e.g., cassava, sugarcane, fruit), forestry products (e.g., timbers, herbs), livestock (poultry, milk), and fishery products (shrimp, shell, fish). According to UNCTAD (2004), in Vietnam, over 90% of cotton and fresh milk, more than 40% of rice and tea and 70% of sugarcane comes from contract farming. Wandschneider (2007) indicates that as the agriculture sector in Vietnam modernizes and commercializes, value chains for agricultural products will become increasingly important, and as a part of this process, contracts will also become a more important and common feature of the agriculture sector.

However, contract farming in the vegetable sector in Vietnam is still limited. According to a survey of vegetable farmers by IFRI (2001), there were about 16% of vegetable and fruit growers distributing vegetables via contracts. Most of them sell their products by themselves. There are several reasons why contract farming in the vegetable sector has not been promoted. Firstly, most of the linkages are conducted through verbal contracts; written contracts are also used but are not popular. In general, the linkages are often small, simple, quite loose, unstable and scattered. Breaching of contracts is still quite common, especially when the market

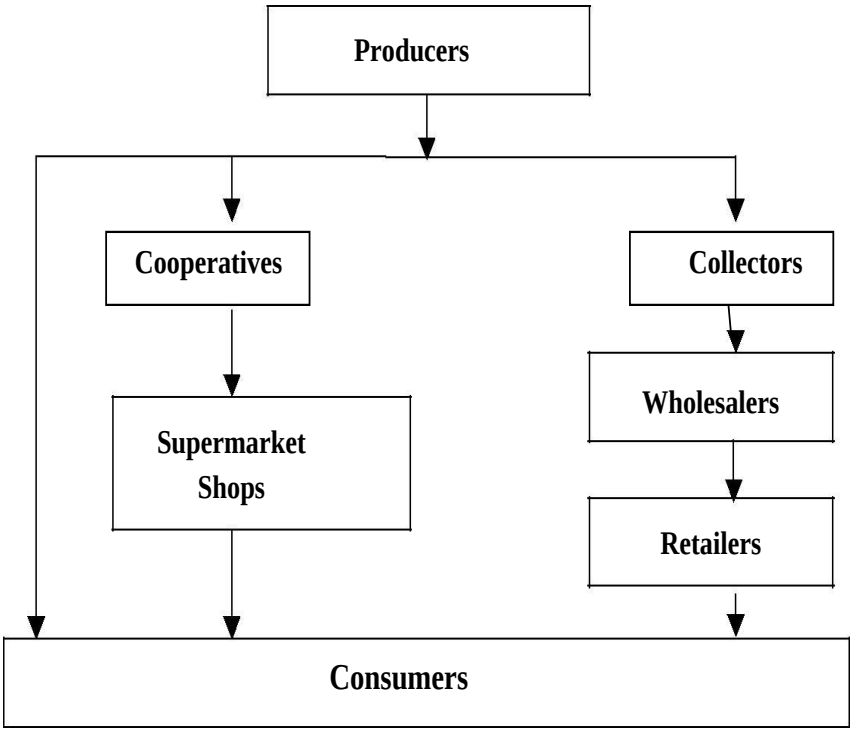
experiences price fluctuation, or changes in input materials. This may result in serious loss of income for vegetable producers when they were unable to sell their products. Furthermore, a study conducted in association with FAO (2010) showed that strict standards expected of contractors prevent vegetable growers from entering contractual arrangements. For example, supermarket vegetables may be required to be sourced from certified safe agricultural zones or else meet VietGAP standards. In addition, supermarkets have their own specific requirements for each vegetable product.

The value chain in Quang Nam province is quite simple compared to that of Vietnam nationally. A survey conducted by PI (2010) as shown in Figure 1 indicated that there were seven actors involving directly in the value chain - growers, cooperatives, supermarkets, collectors, wholesalers, retailers and consumers. In Quang Nam province, vegetable holdings are smaller than the national average, ranging from 0.1 to 0.2 ha per household. The proportion of farmers experienced in growing vegetables is between 10 and 15 years of experience in the field. Like other vegetables producers in Vietnam, farmers in the province have established a long standing and traditional relationship with collectors and wholesalers PI (2010).

The collectors are villagers and even vegetable producers. At harvest time, producers may sell their own products or engage in marketing activities to increase their family incomes. They can collect vegetables from producers who often live in the same village or commune to sell in the local market or directly to the final consumers. The research revealed that about 70% of farmers sell vegetables to collectors who operate on a small scale. These collectors handle between 0.4 and 1 million VND/day, which is equivalent to 600 - 800kg/day (during the main season) and 300 - 600kg/day (during the off season). The remaining 30% sell directly to wholesalers (PI, 2010).

On average wholesaler buys between 1,000 and 2,000 kg per day during the summer-autumn crop (off-season), and between 3,000 and 5,000 kg per day during the winter-spring crop (main season). The working capital required for the wholesale business ranges between 3 and 6 million

VND a day. PI (2010) found that 75% of products from wholesalers and 25% from farmers and traders are sold to retailers in Quang Nam and Da Nang (neighbouring city), who then carry vegetables to market by motorcycle or bicycle, depending on the volume of produce and distance to the retail markets.



(Source: Prosperity Initiative's (PI) study in Quang Nam, 2010)

Figure 1. Structure of vegetable marketing system in Quang Nam province.

3. MATERIAL AND METHODS

Thang Binh is an Eastern district of Quang Nam province that has 21 communes and a town with an area of 38,475 hectares (see Figure 2).

The district is divided into two sub-regions, including the West with hills and mountains and the East with coastal sand dunes of 10-12m. The total agricultural area is 16.202 hectares, accounting for 42.11% of the natural area. The population of Thang Binh district is nearly 200,000 people of whom 86.5% live in rural areas and of whom 86.3% are employed in agricultural industries. The area is annually affected by rainy weather causing erosion runoff and landslides due to poor soils. Annual rainfall is unevenly distributed. The district is known as one of the largest vegetable production areas in Quang Nam province (QSO, 2010). The total vegetable cultivation area in Thang Binh district is 482.4 ha, in which Binh Trieu commune accounts for nearly 30% with 140 ha.

According to the report by Agriculture Division of the district (PI, 2010), cucumber was found to be dominant crop in the district occupying 65% of the productive area. The cucumber crop was followed by celery (23%) and lettuce (12%). Thus, cucumber was selected for this study. The survey was conducted over a half month period (from 14 June, 2014 to end of June, 2014) in two hamlets (Hung My and Phuoc Am) of Binh Trieu commune, Thang Binh district, Quang Nam province, Vietnam. 20 cucumber growers were selected for the survey (10 famers per hamlet). Two groups of households were purposively chosen to ensure participation of cucumber farmers involved in contracts and of others not using contract. The survey employed a structured questionnaire of 20 questions administered through face to face interview.

The information collected include household demographics, farm size, costs of fertilizer, chemical and seed; labour costs as well as cucumber yield, farm gate prices and constraints on contract farming practice. Ten cucumber growers with contracts were randomly selected from the list provided by My Hung cooperative. 10 cucumber growers without contracts, living in the same locality as the chosen non-contracted farmers, were also randomly selected from the list prepared by hamlet leaders. The sequence of activities for data collection at household level is presented graphically in Figure 3:

Figure 2. Study area.

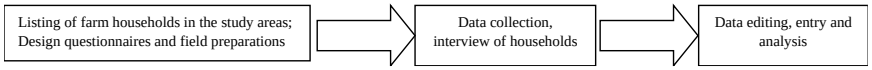


Figure 3. Sequence of activities in the household survey.

Benefit-cost analysis was employed in order to measure the profitability of cucumber production under contract and non-contract farming at farm level. The costs and returns obtained were calculated for individual growers in order to arrive at the benefit-cost ratio for one cucumber crop season per Sao (1 sao = 360m2). Benefit-cost ratio is displayed by the following formula:

BCR = AGR/ATC

Where,
BCR = Benefit-cost ratio
AGR = Average gross return
ATC = Average total cost

The income of a cucumber farmer household is recognized as gross return or net return from cucumber production. The economic returns of

cucumber cultivation are measured by profit or profit cost ratio as shown in the following formulas:

ANR = AGR – ATC

PCR = ANR/ATC

Where,
ANR = Average net return
PCR = Profit cost ratio

PCR expresses economic performance on cucumber production of a farmer household. When PCR > 0, the production of a farmer household is economically efficient; when PCR < 0, the production of a farmer household is economically inefficient and when PCR = 0, the production of a farmer household is at the breakeven point. Descriptive statistics measures, including mean and percentage was calculated using Microsoft Excel to help interpret the collected data on household characteristics, profitability of cucumber production and farmers' statements on constraints of contract farming.

4. RESULTS AND DISCUSSIONS

Table 1 shows the socio-economic characteristics of contract and non-contract cucumber households, collated from responses to the survey conducted in this study. The results indicated that the household head's average age is relatively high (over 50 years old) and there was no remarkable difference in age between the two groups. The household head's education level was low in both groups – 6.10 years of schooling for contract farmers and 5.80 years of schooling for non-contract group. Therefore, it is likely that the cucumber growers have a low level of education and have reached middle age, characteristics that could make them less likely to adopt advanced technologies in their farming. However,

both groups have rich experiences in cucumber farming spanning 12+ years. Household size of contract and non-contract farmers is medium-sized, standing at 4.80 members and 4.70 members, respectively, of whom nearly two members per household were involved in cucumber farming.

Table 1. Socio-economic characteristics of cucumber growing households

Variables	**Contract farmer (n = 10)**	**Non-contract farmer (n = 10)**
Age of household head	50.80	50.60
Education of household head in years of schooling	6.10	5.80
Household head's experience in cucumber farming (year)	12.20	12.50
Household size (person)	4.80	4.70
Number of family labor (person)	1.90	1.80
Total land area (sao = 360m2)	5.6	4.9
Cucumber land area (sao = 360m2)	1.5	1.2
Households participating in farmer organizations (%)	31.8	20
Distance to the commune people's committee (km)	2.88	3.70

Source: Survey

Regarding production scale, the land holdings of contract and independent farmers is 5.6 sao and 4.9 sao, respectively (Table 1) which is smaller than the average land size of the North and South Vietnam's rural households with 6.9 sao and 13 sao, respectively. Land area used for cucumber cultivation for contract and independent farmers is 1.5 sao and 1.2 sao, respectively. The result reveals that contract farmers own more land than the others.

As can be seen from Table 1, contract farmers are more likely to join organizations such as farmers clubs, groups, farmers' associations and cooperatives. The result indicates that the percentage of contract and non-contract farmers entering farmers' organization is 38.1% and 20%, respectively. The notable association between membership of farmers' organizations and contract growing is not surprising: growers who join farmers' organizations are more likely to become aware of big orders available from firms, and to meet entrepreneurs who prefer to organize

farmers into groups to reduce transaction costs (Key and Runsten, 1999). Acting collectively, smallholders may be in a better position to reduce transaction costs of accessing inputs and outputs, obtain necessary market information, secure access to new technologies, and tap into high value markets, allowing them to compete with larger farmers and agribusinesses (Stockbridge et al., 2003). The findings also show that contract farmers lived in more favourable location characterized by closer distance to the commune people's committee, which suggests that contract firms tend to select farmers living in areas with good infrastructure to reduce the transportation costs.

Table 2 shows comparative profitability of cucumber production per sao under contract and independent farming structures. It was found that the total production costs for contract farmers were 11.5% higher than non-contract farmers. The increase in the total production cost under the contract scheme is the consequence of the remarkable increase in cost for labour (21.5%), seed (16.7%), pesticides (7.1%), frames (6.6%) and fertilizers (4.5%). It seems that while non-contract farmers simply follow their traditional practice, contract farmers have to follow more sophisticated approaches such as the Vietnamese GAP guidelines, covering choice of seeds and fertilizer and cultivating and harvesting processes.

Adopting new production technologies on the advice of entrepreneurs can increase risks because the growers don't have breadth of understanding of what they are being asked to do (Rehber, 1998). In fact, contract growers must apply certain fertilizers and pesticides with low level of toxic residue; or organic fertilizers and bio-pesticides under the direction and guidance of the entrepreneurs' staff to meet high quality standards of cucumber products or the entrepreneurs may take their monopoly to advance much more inputs, which may result in higher costs. Labour costs under contractual agreements are 21.5% higher than for independent growers because contract growers are likely to regularly need more labourers for various tasks like preparing compost. They must also maintain records of pesticide and soil treatments, water sources, harvest dates, processing and transport. Conventional cucumber farming practice is simpler and therefore cheaper.

Table 2. Profitability of cucumber crop cultivation per SAO for contract and non-contract growers

Variables	Contract farmer (n = 10)	Non-contract farmer (n = 10)	% increase (+) or % decrease (-)
Total cost of production (1.000 VND/sao)	2829.6	2538.2	11.5
Seed cost	140.6	120.5	16.7
Fertilizer cost	587.8	562.5	4.5
Frames cost	960.6	900.8	6.6
Pesticides cost	140.2	130.9	7.1
Labor cost	1000.4	823.5	21.5
Average yield (kg per sao)	700	650	7.7
Average price at farm gate (VND/kg)	8	7.4	8.1
Gross return (VND/sao)	5600	4810	16.4
Net return (VND/sao)	2770.4	2271.8	21.9
Benefit cost ratio (gross return/total cost)	1.98	1.90	4.4

Note: Unit: 1 Sao = 360 m2. Source: Survey.

Survey analysis shows that although contract growers incurred much higher production costs, they also obtained much higher economic returns than the non-contract growers (Table 2). In fact, the contract farmers sold their cucumber products at 8.1% higher prices than independent farmers, which brought about added returns for contract farmers in terms of gross return (16.4%) and net return (21.9%). Furthermore, cucumber profitability for dependent growers was also increased by 4.4% compared with that for non-contract ones. Farmers participating in contract farming schemes are more likely to get higher revenue than non-contract farmers with the same cultivated area and the same kind of plant (Miyata et al., 2009), thus, they often get higher net revenue than non-contract farmers (Senthinathan et al., 2010).

Table 3 reports this study's findings that contract farmers' production efficiency is much higher than the others in terms of net return and profit cost ratio. Profit cost ratio of the contract growers was 9.4% higher than that of non-contract growers, which represents superior economic performance under contract arrangements. Farmers reaping improved

returns have the capacity to expand their cultivation areas and further increase production and profitability. Consequently, food and nutritional security will be enhanced in Vietnam.

Although there is a range of benefits in contract farming, it is likely that the following several concerns surrounding the promotion of contract farming need to be taken in account. In the study, respondent households were also asked to indicate major problems in engaging in contract farming. From the responses as shown in Table 4, 70% indicated that high technique requirements is the most significant concern, while 60% indicated increasing input costs. Delay in payment, understanding and complying with the contract and lack of market information were less frequently raised concerns (40%, 30% and 20%, respectively).

Firstly, the entrepreneurs often require high technique and strict quality standards for inputs and outputs which farmers hardly meet due to their low level of education and farming skills. For this reason, not all contracted farmers can successfully meet the conditions of their contracts. Farmers may not fully adopt the measures introduced by the entrepreneur involved in their scheme; or they might adopt a new technique but not implement it according to recommendation because their old ways can be hard to give up. In these situations productivity and quality of products are lower than planned (Minot, 1986).

Secondly, some contract growers stated that prices of inputs supplied by entrepreneurs are relatively high, which could be due to purchase of higher quality inputs to meet output quality standards, or because entrepreneurs sometimes may take advantage of their monopoly to raise prices on the inputs they supply to their farmers.

Thirdly, the entrepreneurs regularly gave payment later one week after cucumber delivery compared to cash payment at product delivery by middlemen. This finding is consistent with Tru et al., (2012) who pointed out that more than 60% of vegetable producers in Luc Nam district, Bac Giang province, Vietnam faced delays in payment. It could be concluded that contract arrangement mechanism by the entrepreneurs has not created much more convenience for the farmers than by middlemen's such as cash payment mechanism and cucumber collection at farm gate. In fact, farm

gate sales tend to result in lower revenue for farmers since the prices are relatively low and variable. However, smallholder farmers tend to prefer farm gate sales because they receive immediate payments and do not incur transaction costs such as transportation costs and tax payments (Shiferaw et al., 2006). Thus, resolving such mentioned constraints like these seems to be a promising way forward towards a more effective cucumber supply chain in future.

Table 3. Economic performance of cucumber growers per single crop

Variables	**Contract farmer (n = 10)**	**Non-contract farmer (n = 10)**	**% increase (+) or % decrease (-)**
Total cucumber land area (sao)	1.5	1.2	
Total cost of production (1.000 VND/sao)	5376.24	3045.84	
Average yield (kg)	1330	780	
Average price at farm gate (VND/kg)	8	7.4	
Gross return (VND/sao)	10640	5772	
Net return (VND/sao)	5263.76	2726.16	
Profit cost ratio (net return/total cost)	0.98	0.90	9.4

Source: Survey

Table 4. Responses of sampled households on major problems (%)

Main problems	**(1)**	**(2)**	**(3)**
High technique requirements	70	20	10
Price increase of inputs	60	30	10
Delay in payment	40	50	10
Understanding and complying with contract	30	50	20
Lack of market information	20	60	20

Note: (1): very difficult; (2): difficult; (3): not difficult. Source: Survey.

Fourthly, surveyed contract farmers displayed a limited understanding of their contracts and low level compliance. The main reason for this concern is probably that most of the farmers, with their low level of

education, had difficulty understanding the contents of their contract and how to follow modern production techniques and meet the strict quality standards of inputs and outputs set by their entrepreneurs. Such outcomes can place farmers in breach of their contracts.

Finally, the lack of market information is also one of the difficult problems for farmers when they participate in such linkages, because often they just know how to supply their produce to processing companies, but not the price of that produce after being processed, or where it is delivered, etc. Sometimes this affects the trust of member farmers towards the processing companies.

5. RECOMMENDATIONS TO IMPROVE THE CONTRACT FARMING MODEL

In order to address the above mentioned issues of contract farming, it is recommended that farmers 'groups should be formed. This enables a group of farmers to enter the value chain and deal effectively with contract farming situations. In fact, it is quite impossible for a company to sign contracts with thousands of farmers. Therefore, signing the contract through a cooperative or association shall be a better choice for the farmers. Roberts and Khiem (2005) point out that a farmers' group can represent the interests of its members, coordinate logistics, and often enter into contracts on behalf of group members. There are several formal and informal groups in existence in the agricultural sector in Vietnam, including farmer groups, farmer "clubs", and community groups based around a representative farmer.

However, the organization which has the highest legal entity and the power to sign contracts is a social enterprise known as a co-operative. Nhân et al., (2013) explain that farmers in the same group can share the same goal of establishing a common technical procedure to produce similar quality products. Acting collectively, smallholders may be in a better position to reduce transaction costs of accessing inputs and outputs, obtain

the necessary market information, secure access to new technologies, and tap into high value markets, allowing them to compete with larger farmers and agribusinesses (Stockbridge et al., 2003).

Sivramkrishna and Jyotishi (2008) state that farmer organizations strengthen farmers' bargaining power, raise the price of produce, control monophony exploitation and increase social welfare. Finally, the cooperatives or associations may have some kinds of risk prevention funds to secure the income of the farmers in a case of market fluctuation or when the farmers have a bad harvest. In order to improve the operational efficiency of farmers groups, it is necessary to empower these groups and improve their skills (Tuan, 2012). He argues that agricultural technical knowledge provides short term gains for farmers, but in the long run, activities such as technical support in setting up farmer groups, building up skills in negotiation, helping farmers to understand the impact of contract farming, analysis of the market and financial management are crucial to empower farmers.

Another recommendation is that payment delays should be avoided. These need to be addressed by the companies in the interest of sustaining long-term synergistic relationships between the firm and farmers. The government should provide the framework for companies to enter into contracts with smallholders as well as enforce it. For instance, in Zimbabwe, companies wishing to contract farmers to produce certain crops were required to sign a Memorandum of Understanding (MOU) with various departments within the Ministry of Agriculture. The MOU usually specified that contracting agribusinesses would provide farmers with extension services, farming inputs including seed, chemicals, tillage, harvesting, curing and marketing resources to a specified value. The model agreement also addressed pricing, grower selection, contract documents and security of land tenure for the duration of the scheme.

Further, contracts should be made in appropriate forms. Nhân et al., (2013) state that the form of contracts should be suited to the needs of both parties. In the case of a contract between a cooperative and a farm household, it is in the interests of both parties to ensure that the contract is as simple as possible. A number of cases in Vietnam have shown that a

farming contract becomes very effective if it has a set of clearly defined points for renegotiation of conditions. This allows flexibility in the contracting relationship, and can reduce incentives for breaking contracts. Contracts should include favourable conditions to attract both sides to participate in the contract, particularly conditions regarding price and payment terms. In Vietnam, farmers generally prefer to be paid in cash so cash payments will encourage them to participate in contract farming. In many cases, a contract specifying the contract price at the prevailing market price plus a percentage markup is sufficient to provide incentives for suppliers. Above all, contracts should be fair and spread the risk and benefits between both parties.

Finally, farmers can grow vegetables, but they may not have direct access to the markets. Hence, information related to markets, prices, volume of products and categories of products should be supplied by the Department of Agriculture and Rural Development (DARD) and broadcast monthly by Quang Nam Television and local media in Thang Binh district. Timely information can assist farmers in making decisions on producing and distributing vegetables and ensure a mutual benefit in linkages. Furthermore, it is recommended that linkages events should be organized at the district level to create the bridge between vegetables farmers and buyers to exchange market information and negotiate contracts.

CONCLUSION

Contract farming delivers several advantages to cucumber farmers in comparison with non-contract cucumber growers in Quang Nam province, Vietnam. In terms of socio-economic characteristics of contract and non-contract households, these were not significantly different except the variable of participation in farmers' organizations. In fact, growers joining in cooperatives and large farmers' group are much more likely to be selected for contractual schemes than other farmers. This implies that entrepreneurs prefer entering contracts with groups of farmers rather than individual farmers; and that small farmers will be marginalized in the

contract scheme. Furthermore, group schemes may be able to sell at more attractive prices, sell more, and achieve higher net return and profit cost ratio than those of independent growers. However, the findings show that there are still a number of concerns that contract farmers are facing. An increase in input prices is one of the obstacles of contract farming schemes. In addition to this, not all farmers can meet the strict production process and output quality standards requirements, given their limited education and exposure to advanced ways of thinking. Finally, delays in payment and limited access to market information are likely to reduce the participation of famers in contractual agreements.

Therefore, such constraints experienced by cucumber farmers operating in partnership with entrepreneurs need to be resolved if the potential benefits of entering dependent relationships with others are to be fully realised in the Vietnamese cucumber industry. Other actors in the value chain, such as middlemen, entrepreneurs as well as end consumers also perform important roles, but a detailed consideration of their roles fell outside the scope of this research. Thus, further research should be conducted to cover all relevant actors among the vegetables value chain to measure the benefits and costs from their own perspective as well as to explore the constraints of participating in contractual arrangements. Such research can also highlights the characteristics of different vegetable varieties and different farming methods in terms of their productivity potential in the context of independent and dependent modes of farmer organisation.

REFERENCES

Binswanger, H. P., Deininger, K. W. & Feder, G. (1993). *Power, distortions, revolt, and reform in agricultural land relations*, (Vol. *1164*): World Bank Publications.

Birthal, P. S., Jha, A. K., Tiongco, M. M. & Narrod, C. (2008). Improving farm-to-market linkages through contract farming: a case study of

smallholder dairying in India: International Food Policy Research Institute, Washington D.C.

Eaton, C. & Shepherd, A. (2001). *Contract farming: partnerships for growth: Food and Agricultural Organisation of the United Nations*, Rome.

FAO. (2010). *FAOSTAT data.* Food and Agriculture Organization of the United Nations, Rome. http://www.fao.org.

GSO. (2008). General Statistic Office of Quang Nam province. *Statistic Yearbook 2008.*

GSO. (2010): General Statistic Office of Quang Nam province. *Statistic Yearbook 2010.*

IFPRI. (2001). *Fruits and Vegetables in Vietnam: Adding value from farmer to consumer.* International Food Policy Reseach Institute, Washington D.C.

Key, N. & Runsten, D. (1999). Contract farming, smallholders, and rural development in Latin America: the organization of agro processing firms and the scale of out grower production. *World Development. 27*(2), 381-401.

Minot, N. (1986). *Contract farming and its effect on small farmers in less developed countries: Michigan State University, Department of Agricultural, Food, and Resource Economics.*

Miyata, S., Minot, N. & Hu, D. (2009). Impact of contract farming on income: linking small farmers, packers, and supermarkets in China. *World Development., 37*(11), 1781-1790.

Morrison, P. S., Murray, W. E. & Ngidang, D. (2006). Promoting indigenous entrepreneurship through small-scale contract farming: The poultry sector in Sarawak, Malaysia. *Singapore Journal of Tropical Geography., 27*(2), 191-206.

Mwambi, M. M., Oduol, J., Mshenga, P. & Saidi, M. (2016). Does contract farming improve smallholder income? The case of avacado famers in Kenya, *Journal of Agribusiness in Developing and Emerging Economies., 6*(1), 2-20.

Nhân, T. Q., Takeuchi, I. & Hoàng, Đ. V. (2013). Rice contract farming - The pontential key to improve rice growers' income: A farm level

study in An Giang province. *Journal of Science and Development*., *11*(7), 1062-1072.

PI (Prosperity Initiative). (2010). *Vegetable Value Chain Analysis Report 2010.* Prosperity Initiative, Quang Nam Province, Vietnam.

Ravikumar, R., Jawaharlaln, M., Palanichamy, V. & Sureshkumar, D. (2013). Improving the Supply Chain of Marigold Through Contract Farming: An emperial Evidence from TamilNadu. *Journal of Management*., *1*(1), 44-53.

Reardon, T., Timmer, C. P., Barrett, C. B. & Berdegué, J. (2003). The rise of supermarkets in Africa, Asia, and Latin America. *American Journal of Agricultural Economics.*, *85*(5), 1140-1146.

Rehber, E. (1998). *Vertical integration in agriculture and contract farming: Food Marketing Policy Center, University of Connecticut.*

Robert, M. & Khiem, N. T. (2005). Contract and rice quality in value chain supply in An Giang province, Vietnam. In: *Linking farmers to market through contract farming. Proceedings of an MP4/An Giang university workshop, ADB.*

Senthinathan, S., Govindaraj, S. & Chandrasekaran, M. (2010). Economic analysis of production and marketing of cotton under contract and non-contract farming: A case study in Tamil Nadu. *Madras Agricultural Journal*., *97*, (10-12), 411-414.

Shiferaw, B., Obare, G. & Muricho, G. (2006). Rural institutions and producer organizations in imperfect markets: Experiences from producer marketing groups in semi-arid eastern Kenya. *Journal of SAT Agricultural Research.*, *2*(1), 1-41.

Silva Dias, J. (2010). World importance, marketing and trading of vegetables. *Paper presented at the XXVIII International Horticultural Congress on Science and Horticulture for People (IHC2010).*

Simmons, P., Winters, P. & Patrick, I. (2005). An analysis of contract farming in East Java, Bali, and Lombok, Indonesia. *Agricultural Economics*, *33*(s3), 513-525.

Sivramkrishna, S. & Jyotishi, A. (2008). Monopsonistic exploitation in contract farming: articulating a strategy for grower cooperation. *Journal of International Development.*, *20*(3), 280-296.

Stockbridge, M., Dorward, A. & Kydd, J. (2003). *Farmer organizations for market access: A briefing paper*. Wye Campus, Kent, England: Imperial College, London.

Tru, N. A., Do Thi My Hanh, D. T., Hoa, K., Van Phuong, N. & Cuong, T. H. (2012). Linkages in production and distribution of exported vegetables: perspectives of farmers and firms in Luc Nam District, Bac Giang Province, Vietnam. *Journal of ISSAAS (International Society for Southeast Asian Agricultural Sciences)., 18*(1), 113-130.

Tuan, N. P. (2012). Contract farming and its impact on income and livelihoods for small-scale farmers: Case study in Vietnam. *Journal of Agribusiness and Rural Development.*, *4*(26), 147-166.

UNCTAD. (2004). *The Least Developed Countries Report 2004*, UNCTAD/LDC/2004, Geneva.

Wandschneider, T. (2007). Linking small farmers to high-value and growing markets in Vietnam: The experience of SADU project. *People and Agro-Ecosystems Research For Development Challenge, 90*.

Wang, H., Moustier, P. & Thi Tan Loc, N. (2010). *Economic impact of farmers-driven vertical integration: the case of safe vegetable chains in Northern Vietnam.* file:///D:/Users/rculas/Desktop/Nova%20chapters%202020/Hui/document_563053.pdf.

World Bank. (2008). *World Development Report 2008*. World Bank, Washington, D.C.