FACTORS AFFECTING MARKET ACCESS OF HA CHAU BURMESE GRAPE FARMERS IN PHONG DIEN DISTRICT, CAN THO CITY, VIETNAM

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Abstract

The study's objective is to demonstrate affecting factors to the market access of Ha Chau Burmese grape farmers in Phong Dien District, Can Tho City. The authors collected the data from 149 Ha Chau Burmese grape growers. Research results show that farmers access the market mainly through traders, collectors, relatives, and neighbors. There are six affecting factors to the market access ability, including training, linkage, telephone, area, age, and distance. Among them, training and linkage are the two factors that put the most impact on market access of Ha Chau Burmese grape farmers. Therefore, some recommendations are proposed to improve the market access of Ha Chau Burmese grapes farmers in Phong Dien District, Can Tho City.

Keywords: market access, farmers, Ha Chau Burmese grapes, Phong Dien District

1. INTRODUCTION

Can Tho is a class-1 urban directly under the Central Government. It is favored by nature with river scenes, along with luxuriant and delicious fruit orchards all year round. Phong Dien District is far from the city center about 15km to the south. The district has the largest area of specialty fruit trees. In particular, Ha Chau Burmese grapes are a typical fruit that can only adapt and grow well in Phong Dien land. In 2006, the National Office of Intellectual Property recognized Ha Chau Burmese grapes as a specialty brand in Phong Dien District. As of 2022, Phong Dien District has about 400 ha of Ha Chau Burmese grape growing area. This type of Burmese grape has outstanding advantages in shape, color, and quality. The Burmese grape brand is increasingly popular with consumers. Burmese grapes are not only famous in the Southwest region but also exported to Cambodia, Thailand, China, etc. However, because of the unstable of the distribution system, the efficiency is not high. Besides, due to the increasingly competitive pressure of substitute products and market volatility, farmers' income is precarious. One of the reasons for the above problems is the ability to access the market of farmers (Nghi et al., 2018). Therefore, this study was conducted to determine factors affecting farmers' market access, thereby proposing recommendations to improve market access for Ha Chau Burmese grapes farmers in Phong Dien District, Can Tho City.

2. THEORETICAL FRAMEWORK AND RESEARCH MODEL

2.1 Theoretical framework

According to Kleih et al., (1999), farmers' market access is the fact that producers have enough resources to communicate with both input sellers for their production and approach buyers to

sell their products at a high price to make a profit. As presented by Cuong (2005), farmers' market access is the degree to which it is easy or difficult for a household to access the resources of inputs for production processes and outputs for agricultural products. Bly (2006) argued that market access is a process of finding, discovering, and evaluating market needs, thereby planning the business, selecting target markets, penetrating markets, and approaching customers to achieve production goals.

2.2 Research model

In recent years, both domestic and foreign authors have paid attention to research on the market access ability of farmers such as Van Schalkwyk et al. (2007), Yamano & Kijima (2011), Amaya & Alwang (2011), Kuma (2012), Nghi & Nam (2014), and Nghi (2021). Based on related researches and field studies, the model on factors affecting market access of Ha Chau Burmese grapes farmers in Phong Dien District, Can Tho City was proposed. It includes 10 influencing factors (distance, area, productivity, age, experience, education background, training, labor, linkage, and telephone). The proposed model is as below.
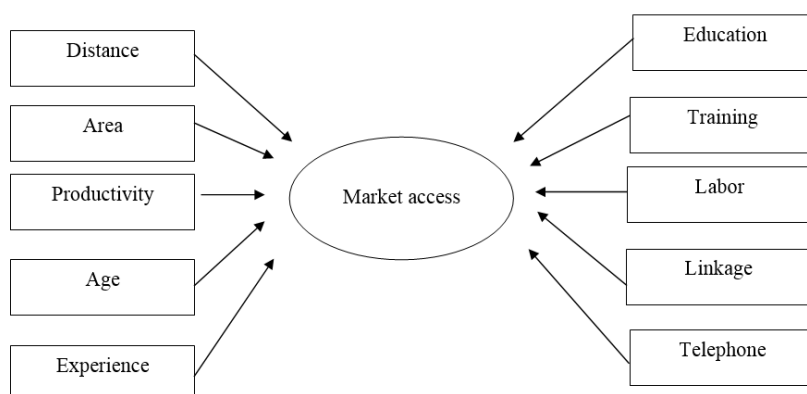
Fig 1: Proposed research model of factors affecting market access of Ha Chau Burmese grapes farmers in Phong Dien District, Can Tho City

In which, the dependent variable is the "market access" (ACCESS) variable. This variable measures the accessibility to input and output markets of Ha Chau Burmese grapes farmers. The variable receives the value of 1 if the market access ability is good (constantly and completely updating market information and prices) and the value of 0 if the market access is not good. The independent variables in the model are explained in Table 1.

Table 1: Interpretation of independent variables in the research model

Variable name	Unit	Explanation	Expectation
Distance	Km	The distance calculated from the farmer's garden to the main road takes the value of the corresponding kilometers.	-
Area	m^2	The area gets the value of the corresponding m^2 of Ha Chau Burmese grapes growing land.	+

Productivity	Kg/1000m^2	Productivity takes the value of the total output that the household harvests in the study crop.	+
Age	Year	Age takes the corresponding value of the age of the direct labor, up to the time of the study.	+
Experience	Year	The experience takes the corresponding value of the number of years that the direct labor grows Burmese grapes, up to the study time.	+
Education	Year	Education takes the corresponding value of the schooling years of the direct labor, up to the study time.	+
Training	0/1	Training, if farmers participate in Ha Chau Burmese grapes growing techniques training, gets the value 1, value 0 otherwise.	+
Labor	%	Labor takes the value of the ratio of direct labor involved in growing Ha Chau Burmese grapes to the total number of household members.	+
Linkage	0/1	Linkage, if farmers participate in cooperatives or groups, gets the value 1, value 0 otherwise.	+
Telephone	People	The number of people in the phone contact is capable of providing information related to Ha Chau Burmese grapes production and consumption.	+

3. RESEARCH METHODOLOGY

To determine factors affecting the market access of Burmese grape farmers, the study applies the logit regression with the equation set up as follows:

$$ACCESS = \beta_0 + \beta_1 \text{ DISTANCE} + \beta_2 \text{ AREA} + \beta_3 \text{ PRODUCTIVITY}$$
$$+ \beta_4 \text{ AGE} + \beta_5 \text{EXPERIENCE} + \beta_6 \text{ EDUCATION} + \beta_7 \text{ TRAINING}$$
$$+ \beta_8 \text{ LABOR} + \beta_9 \text{ LINKAGE} + \beta_{10} \text{ TELEPHONE}$$

Research data were collected by stratified sampling and simple randomization by direct interviews with Ha Chau Burmese grapes farmers in Phong Dien District. According to Tho (2011), the sample size depends on many factors such as the data analysis method and the reliability. The study uses logit regression, so the minimum sample size must follow the formula $n \geq 50 + 8p$ (Green, 1991; Tabachinick & Fidell, 1996; Trong & Ngoc, 2008), where n is the required minimum sample size, and p is the number of independent variables. Therefore, with ten independent variables, the minimum sample size should be $n \geq 50+8*10 = 130$ observations. The official sample size obtained reaches 149 Burmese grape farmers. Hence, the data meets the statistical requirements, suitable for testing the research model.

4. RESEARCH RESULTS AND DISCUSSION

4.1 Characteristics of Ha Chau Burmese grapes farmers

Based on the statistical results in table 2, Ha Chau Burmese grape farmers have an average age of 54 years old, of which the lowest age is 30 years old and the oldest is up to 85 years old. Many farmers over the working age still participate in the production. This shows that Ha Chau Burmese grapes cultivation does not require much labor. The education level of Burmese grape farmers is low, the average number of schooling years is about seven years. This is one of the reasons for farmers' limited market access. However, the production experience of farmers is high. The average number of years involved in the production is 11. The standard deviation of 3,077.27 points out a large difference in the Ha Chau Burmese grape cultivation area among farmers. Accordingly, the largest area reaches 14,000m^2 and the lowest planting area is 500m^2. On average, each household has five members, of which 40% are directly involved in Ha Chau Burmese grape production, and the rest are mostly dependents.

Table 2: Characteristics of Ha Chau Burmese grapes farmers

Characteristics	Unit	Min	Max	Mean	Standard deviation
Age	Year	30	85	53.05	11.46
Education	Year	0	16	6.72	3.28
Experience	Year	4	30	10.71	4.34
Growing area	m^2	500	14,000	5,036.24	3,077.27
Number of family members	People	1	10	4.58	1.47
Number of Burmese grape growers	People	1	5	1.70	0.77

4.2 Market information resources

According to the result in table 3, farmers have access to various sources of market information, of which the most common is relatives and neighbors (accounting for 92.6%) and traders (92.6%). Relatives and neighbors are farmers' daily contacts to exchange experiences and knowledge, so farmers can access information from this source easily. Besides, traders and collectors are also the main sources because they purchase the products. Therefore, these are two important sources of information for farmers to access input and output markets. Besides, many farmers access information from television and radio (accounting for 56.4%). However, farmers said that access to market information through the mass media is only a reference for the market price fluctuations. It is because the purchase price at the garden is always lower than the price forecast from the above resource.

Table 3: Ha Chau Burmese grape farmers' access to market information sources

Sources	Frequency	%
Relatives, neighbors	138	92.6
Traders, collectors	138	92.6
Television, radio	84	56.4
Fruit bowl	47	31.5
Pesticide agent	39	26.2
Magazine	15	10.1
Agricultural extension officer	5	3.4
Internet	3	2.0

4.3 Level of understanding and commitment with suppliers and consumer

In this study, a 5-level Likert scale (with 1 being completely unknown, and 5 being well known) was used to assess the knowledge level of farmers about input suppliers and consumers statue. Based on the result in table 4, the level of farmers' understanding of input and output elements is relatively high. However, their relationships are unsustainable, mostly through words or informal paper. Contracts accounted for a low proportion. Especially, farmers said that they know well about the suppliers that provide them with seeds, fertilizers, and pesticides. The rate of guarantee or commitment between farmers and these agents reaches 18.7%, 55.7%, and 55.7%, respectively. Most of these agents live in the same area and have a long-term cooperative relationship, so the guarantee level stops at the verbal commitment. The level of farmers' understanding of machinery suppliers and the purchasing traders is on average, while the rate of assurance and commitment is high (71.2% and 85.2%). Normally, the machines and equipment for Ha Chau Burmese grapes production have a long time use and fewer repeat purchases. This affects the level of understanding of these subjects. Although machines and equipment are high-value products, farmers only require a warranty paper and highly appreciate the brand reputation.

Table 4: Level of understanding and commitment with suppliers and consumers

	Level of understanding		Level of commitment	
	Mean	Level	Frequency	%
Seed	4.08/5.00	Well known	28	18.70
Fertilizer	3.45/5.00	Well known	83	55.7
Pesticide	3.46/5.00	Well known	83	55.7
Machine	2.54/5.00	Medium	106	71.2
Trader	3.28/5.00	Medium	127	85.2

4.4 Factors affecting market access

With a high level of significance (sig. = 0.000) and the percentage correct of the model reaches 97.32%. It shows that the model of "factors affecting the market access of Ha Chau Burmese grape farmers" is suitable.

Table 5: Factors affecting market access

Factor	Coefficient β	Level of significance
Constant	0.113	0.983
Age	0.304	0.036
Education	0.477	0.172
Labor	-3,489	0.396
Experience	0.839	0.118
Linkage	12.316	0.028
Training	12.345	0.026
Area	0.001	0.047
Distance	-1.976	0.015
Telephone	0.833	0.029
Productivity	0.001	0.232
Number of observations (N)		149
Significance level (sig.)		0.000
Log-likelihood		-10.269
Percentage correct		97.320

According to table 5, 10 variables included in the model are affected by 6 factors, including training, linkage, telephone, area, age, and distance. All these factors are significant at the 5 % level. Most factors have positive impacts on the market access ability of Ha Chau Burmese grapes farmers, except for the distance factor. Training and linkage are the two factors that have the greatest influence on the market access of Ha Chau Burmese grape farmers. The fact shows that if farmers join association organizations (cooperatives, groups), it helps farmers access market information favorably through meetings and programs exchanging experiences. In addition to this, training programs keep farmers update on market information and access the market conveniently. Besides, the research has proved that the farmers with Ha Chau Burmese grape gardens which are far away from the main road have difficulties in accessing input and output markets. This barrier needs a solution to improve market access for Ha Chau Burmese grape farmers in the future.

5. CONCLUSION

In general, the market access of Ha Chau Burmese grape farmers in the district is limited. The main sources that farmers access to market information are relatives/ neighbors and traders. The research results have identified factors affecting the market access of Ha Chau Burmese grape farmers, including training, linkage, telephone, area, age, and distance. From the results above, some recommendations are proposed to improve the market access of Ha Chau Burmese grapes farmers. Firstly, the local agricultural authority should organize training programs to improve farming techniques and market access for Ha Chau Burmese grape farmers. Technical training programs not only help improve farming techniques, productivity, and product quality but also help farmers be more proactive in finding markets and enhance their ability to respond to market risks. Secondly, farmers need to strengthen linkages with members in the Ha Chau

Burmese grapes supply chain, especially production linkages by cross-linking. By participating in cooperatives or groups, farmers can share experiences, production techniques, and capital sources. Also, it helps them access more sources of market information and avoid price squeezing. In addition to this, the vertical linkage helps farmers receive commercial commitments in input materials and ensure stable outputs.Thirdly, farmers need to actively learn and improve their ability to access market information from various sources such as the internet, telephone, and media. Farmers should study and apply information technology in the production and consumption process. Thanks to the internet, farmers can update news from the market, price fluctuations, and experiences. Also, strengthening the information connection with suppliers and consumption partners through phone contact makes a significant contribution to improving the market access of Ha Chau Burmese grape farmers.

References

- Amaya, N., & Alwang, J. R. (2011). Access to information and farmer's market choice: The case of potato in highland Bolivia. Journal of Agriculture, Food Systems, and Community Development, 1(4), 35–53.

- Bly, R. W. (2006). The perfect guide to the market approach. Hanoi: Labor Publishing House.

- Cuong, T. H. (2005). Market Access and Agricultural Productivity in Vietnam. Verlag Grauer. Beiren, Stuttgart. Germany.

- Kleih, U., Odwongo, W., & Ndyashangaki, C. (1999). Community Access to Marketing Opportunities: Options for Remote Areas. Natural Resources Institute, University of Greenwich, Chatham Maritime, UK.

- Kuma, B. (2012). Market access and value chain analysis of the dairy industry in Ethiopia: The case of Wolaita Zone (Doctoral dissertation, Haramaya University).

- Green, S. B. (1991). How many subjects does it take to do a regression analysis. Multivariate behavioral research, 26(3), 499-510.

- Nghi, N. Q, & Nam, M. V. (2014). Market accessibility of pineapples growing households at Tan Phuoc District in Tien Giang Province. Can Tho University Journal of Science, 35, 24-31.

- Nghi, N. Q. (2021). Factors Influencing market access of green pomelo farmers in Ben Tre Province. World Journal of Advanced Research and Reviews, 12(1), 256-260.

- Nghi, N. Q., Can, T. T. D., Thuyen, N. T. K., & Ranh, N. V. (2018). Analysis of the value chain of Ha Chau Burmese grapes in Phong Dien District, Can Tho City. Can Tho University Journal of Science, 54(4), 220-228.

- Tabachnick, B. G., & Fidell, L. S. (1996). Using Multivariate Statistics (3rd ed.). New York: Harper Collins.

- Tho, N. D. (2011). Methods of scientific research in business. Hanoi: Publisher Socialist Labor.

- Trong, H., & Ngoc, C. N. M. (2008). Data analysis with SPSS. Hanoi: Statistical Publishing House.

- Van Schalkwyk, H. D., Kotze, N. A., & Fourie, P. (2007). Linking rural economies with markets–an institutional approach. In 16th International Farm Management Association Congress A Vibrant Rural Economy – The Challenge For Balance (p. 229).

- Yamano, T., & Kijima, Y. (2011). Market Access, Soil Fertility, and Income in East Africa. In Emerging development of agriculture in East Africa (pp. 187-202). Springer, Dordrecht.