WHY FARMER CANNOT IMPROVE THEIR INCOME: THE BARRIERS TO ENHANCE FARMER ENTREPRENEURSHIP

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ABSTRACT

To be successful at market-oriented farming, the farmer needs more outstanding farm management and entrepreneurial skills. Being an entrepreneur is a way of life and a way of looking at the world. An entrepreneurial farmer makes farming decisions in a complex, competitive, and collaborative environment. This article aims to illustrate the weakness of a farmer in becoming a farmer-entrepreneur. This study employed an interview form to collect primary data from farmers, local collectors, wholesalers, and retailers, to analyze marketing channels and marketing margins. Gathering quantity and yield data forecast cabbage prices using Exponential smoothing adjusted for Trend and Seasonal Variation -Winter's Model to compare suitable time and produce in reality. According to the study results, the results show the farmer process still does not achieve Farmer Entrepreneurship characteristics that why they cannot improve household economics situation.

Keywords: Farmer-Entrepreneurship, Marketing Margin, Exponential Smoothing, Thailand

INTRODUCTION

Entrepreneurship gives farmers more adaptive capacity, more marketing power, and can manage risks and uncertainty in the product's price that promote sustainable farming careers (Dixon et al., 2014). Garner & de la O Campos (2014) introduces those markets, technologies, policies, institutions, and information flow that simultaneously place new pressures on and open new opportunities for the smallholder farming community.

Generally, farmers are often viewed as a low social class because of having to work, considered low-income earners because they work hard in the sun and suffer from poverty (Shucksmith, 2012; Shucksmith & Schafft, 2012). More the challenge, food chains have become increasingly global. Farmers tend to face more significant difficulties in joining global markets and value chains. Marketing is dominated by a handful of international actors who set the game's rules Garner & de la O Campos (2014) to stabilize their farming careers. Some farmers have adapted to focus on the development of entrepreneurship.

Many (although not all) of the policy and institutional frameworks adopted by developing countries during the period have followed the so-called "Washington Consensus," which emphasized the role of market forces in the economy as the primary mechanism for resource allocation (Chang, 2009). Farmers' adaptation coincides with the government's policy of supporting and promoting farmers. Despite government support, the field-level extension workers will rarely be responsible for designing, organizing, and training entrepreneurship development (Khan, 2012). Lead adaptability of farmers to become entrepreneurs is relatively slow and challenging to do is still a weakness in growth.

Entrepreneurship has been gaining more prominence as a potential tool for solving poverty in developing countries. Naminse & Zhuang (2018) examine the relationship between farmer entrepreneurship and rural poverty alleviation in China. The findings show that socio-cultural capability has the most significant influence on farmer entrepreneurship. While Kangogo, et al., (2021) also reveal that risk-taking is positively associated with adopting

practices that require a high intensity of skilled labor and financial resources. Lastly, we find proactiveness positively related to the adoption of finance-intensive practices but negatively associated with unskilled labor-intensive techniques. Umar, et al., (2020) find that entrepreneurship and technology adoption have a significant role in increasing the performance of lowland rice farming, where technology plays a role as an intervening variable.

Promoting entrepreneurship, importantly rural farmer entrepreneurship, is not so simple. Several problems constrain it. Some of the difficulties encountered by rural entrepreneurs are as follows: (1) financial problems —paucity of funds and lack of infrastructure facilities, (2) management problems —lack of knowledge of IT, legal formalities, raw material procurement, lack of technical knowledge, and poor-quality product, (3) limited infrastructure facility — communication facility, (4) human resources problems —low skill level of workers, and negative attitude, and (5) marketing problems —competition, middleman, and weak developed distribution channels (Kushalakshi & Raghurama, 2014; Baral, 2012; Saxena, 2012; Prasad & Naveena, 2021).

Farmers' marketing is one of the significant problems regularly mentioned. Rural entrepreneurs mainly depend on intermediaries for marketing their products. But they were disappointed by offering low prices to their goods (Kushalakshi & Raghurama, 2014); Storage facilities and poor means of transport are other marketing problems in rural areas. The traditional storage methods are not capable of protecting the crop from damage from various causes. The agricultural goods are not standardized and graded (Saxena, 2012). And if farmers continue to produce and trade indifferently, the result is still the same, less income from the sale of agricultural produce in traditional ways.

This study aims to investigate the ability of small field farmers whether have the potential to transform into entrepreneurs or not. Therefore, it focuses on studying the marketing channels, marketing margins and using the time series data collected to create econometric models for price forecasting and assist farmer entrepreneurs in planning their cultivation and distribution in the most appropriate marketing channels. Besides, this study suggests that policymakers should involve more rural farmers in the targeted poverty alleviation strategies of the government by equipping rural farmers with entrepreneurial skills. The study can serve as a sustainable, bottom-up approach to alleviating rural poverty in remote areas of the country.

LITERATURE REVIEW

The concept of marketing channel is alternative routes of product flows from producers to consumers. Their marketing channel begins at the farm's gate and finishes at the consumer's front door (Kohls & Uhi, 2002). Most producers do not sell their products directly to end consumers; instead, a network of intermediaries performs various roles. According to Eric & Kerin (2000), a trader channel is sometimes referred to as a distribution channel. The channel system generates utilities such as time, place, possession, and form. And they build a profit margin into each milestone in each channel.

The concept of marketing margin is the spread valued from farm-to-retail price, according to Gardner & Rausser (2001). It is a method of estimating the expenses of offering a package of marketing services. These are indicators of marketing effectiveness.

Among vegetable production, cabbage is the general plant that alleviates poverty and improves livelihoods in undeveloped, developing, and developed countries. Several studies on this plant have been conducted in Ghana, Malaysia, South Korea, Ethiopia, and Myanmar. Most of them used structured questionnaires and checklists to collect primary data from cabbage growers, traders (collectors, wholesalers, retailers), and consumers.

Marketers' significant determinants of returns are the marketing margin, the difference between what the producer receives, and the consumer pays (Mukaila et al., 2021); the marketing margin is the profit in the various market functionaries involved in transferring the commodity from the beginning point of production until it reaches the consumer. The absolute value of the marketing margin varies from channel to channel, market to market, and time to

time (Rashid et al., 2021). How much market margin will depend on the product characteristics, product services, consumer demand characteristics, structure characteristics, and market pricing.

The following table 1 shows the marketing channel and marketing margin in previous studies from different countries.

Table 1
THE MARKETING CHANNEL AND MARKETING MARGIN IN PREVIOUS STUDIES

Authors (Year)	Place	Result
Glover, et al., (2017)	Ghana	The proportion of marketing channels is not shown in this paper. Still, the results show that the constraints associated with the marketing channel of lettuce and cabbage trade in Ghana are suffering from interrelated problems: a lack of organized markets, the difficulties caused by poor roads, poor vehicle maintenance, chronic shortages of spare parts, the unpredictability of telephone, and inflation. Ignorance about supply and prices in other markets, exacerbated by obstacles to local pricing information, obstructs spatial arbitrage and increases risk.
Ravekar, et al., (2015)	India	Three types of marketing channels were observed including: Channel 1, Producer→Consumer 16.66% Channel 2, Producer→Retailer→Consumer 31.72% Channel 3, Producer→Commission agent cum Wholesaler→Retailer→Consumer 51.63% And marketing cost was maximum in Channel 3 as compared to other channels.
Bukul (2018)	Ethiopia	The market channels identified during the survey were: Channel 1, Producer→Consumer 6.31% Channel 2, Producer→Rural collector→Wholesaler→ Central retailer→Consumer 67.13% Channel 3, Producer→Wholesaler→Consumer 5.61% Channel 4, Producer→Wholesaler→Central retailer→ Consumer 19.12% Channel 5, Producer→Wholesaler→Processor→ Consumer 1.83%
Osondu, et al., (2014)	Nigeria	Channel comparison was made based on the volume of the vegetable product that passed through each channel. The channels are as follows: Channel 1, Producers→Local Assemblers→Wholesalers→ Retailers →Consumers 46% Channel 2, Producers→Wholesalers→Retailers→ Consumers 30% Channel 3, Producers→Local Assemblers →Retailers→ Consumers 7%
Shwe (2016)	Myanmar	Channel 1, Farmers→ Village collectors→ Other township wholesalers 50.96% Channel 2, Farmers→Village collectors→ Township wholesalers 1.04% Channel 3, Farmers→ Commission men→ Other township wholesalers 14.76% Channel 4, Farmers→ Commission men→ Township wholesalers 3.24% Channel 5, Farmers→ Township wholesalers→ Other township wholesalers 20.79% Channel 6, Farmers→ Township wholesalers→Retailers 0.21% Channel 7, Farmers→Retailers→ Consumers 9%
Meshram, et al., (2015)	Bhandara District	Channel 1, Producer→ Consumer. Channel 2, Produce→Retailer→Consumer. Channel 3, Producer→Wholesaler→Retailer→Consumer Channel 4, Producer→Village Trader→Retailer→Consumer
Hoq, et al., (2014)	Bangladesh	Channel 1, Farmer→Local Traders (Faria) → Bepari→Aratdar (urban)→Retailer (urban)→Consumer 39.60% Channel 2, Farmer→ Bepari→Aratdar (urban) →Retailer (urban) → Consumer 25.40% Channel 3, Farmer→ Local Traders (Faria) →Bepari→Retailer (rural) → Consumer 18.25% Channel 4, Farmer→ Local Traders (Faria) → Bepari→Aratdar (rural) → Aratdar (urban) → Retailer (urban) → Consumer 7.17%

		Channel 5, Farmer→ Bepari→ Aratdar (rural) → Aratdar (urban) → Retailer (urban) → Consumer 5.83% Channel 6, Farmer→ Retailer (rural) → Consumer 3.00% Channel 7, Farmer→Consumer 0.75%
Ravekar, et al., (2015)	Hingoli district of Marathwada region of Maharashtra state	Channel 1, Producer→Consume 8.38% Channel 2, Producer→Retailer→Consumer 26.42% Channel 3, Producer→Commission agent cum wholesaler→Retailer→Consumer 65.20%

RESEARCH METHODOLOGY

This research focuses on the small farms in Thailand —a developing country. And choose research area in the southern region, Pak Phanang River Basin, Nakhon Si Thammarat Province, a significant vegetable production location. Therefore, a source of food crops, particularly vegetables produced for consumption by people in the southern and surrounding areas. Thailand's southern region has the following advantages in the vegetable market: (1) the growing season differs from the other regions. As a result, market rivals are reduced, and perishable agricultural products may be produced and sold to consumers in other locations where there is a need. And (2) geographical characteristics of the area of southern Thailand near Malaysia and Singapore, which are countries with many volumes for vegetable imports. Farmers may extend their markets in the south region by exporting their products to various destinations in those countries.

The research design of this study is both quantitative and qualitative. This study focuses on quantitative analysis utilizing secondary data, namely monthly vegetable prices sold by farmers and wholesale cabbage prices, based on Thailand Commercial Office data from 2014 to 2018. The time-series data was examined using appropriate techniques so that it could be utilized as a database for forecasting vegetable prices in the future. Furthermore, in-depth interviews with local farmers using the purposive sampling method. The 16 farmers selected as samples were those who planted cabbage and marketed cabbage. The sample of collector collectors, wholesalers, and retailers were selected using the snowball sampling method. The determination of the sample of traders is based on information from previous marketing agencies that are members of the same marketing channel.

Research Instruments: (1) An in-depth interview form for farmers' response questions regarding the products they distribute focusing on the variables that influence farmers' decisions to plant and distribute; (2) An in-depth interview form was designed to elicit information from market stakeholders and marketing channels.

Data analysis: The data analysis methods used in this research are: (1) Marketing Channel Analysis, (2) Marketing Margin Analysis, and (3) Exponential smoothing Adjusted for Trend and Seasonal Variation: Winter's Model (Holt, 1957; Winters, 1960).

RESEARCH RESULTS

Marketing Channels

Cabbage production is categorized into two parts: cabbage head and cabbage chick. After farmers trim the heads of cabbage for sale, it will take another 15 days for the first cabbage chick to be harvested and another seven days for the next cabbage chick to be picked. Farmers can keep gathering the cabbage chicks for sale for around three months. Typically, they will get 44.44 % of their revenue from cabbage and 55.56 % from its chicks.

All cabbage and cabbage chicks offered by farmers are sold through middlemen rather than directly to customers. There are four types: (1) Local collectors (Merchant No. 1) (2) Retail local collectors (Merchant No. 2) purchase vegetables directly from farmers and deliver them to other well-known local collectors (Merchant No. 1) (3) Local business owners (Merchant No. 3)

(4) A major middleman at regional central market (Merchant No. 4) who does not buy directly from farmers. The portion of each channel are show in Figure 1. And all cabbages will be marketed at the central market before being distributed to retail and consumer marketplaces in the regional area.

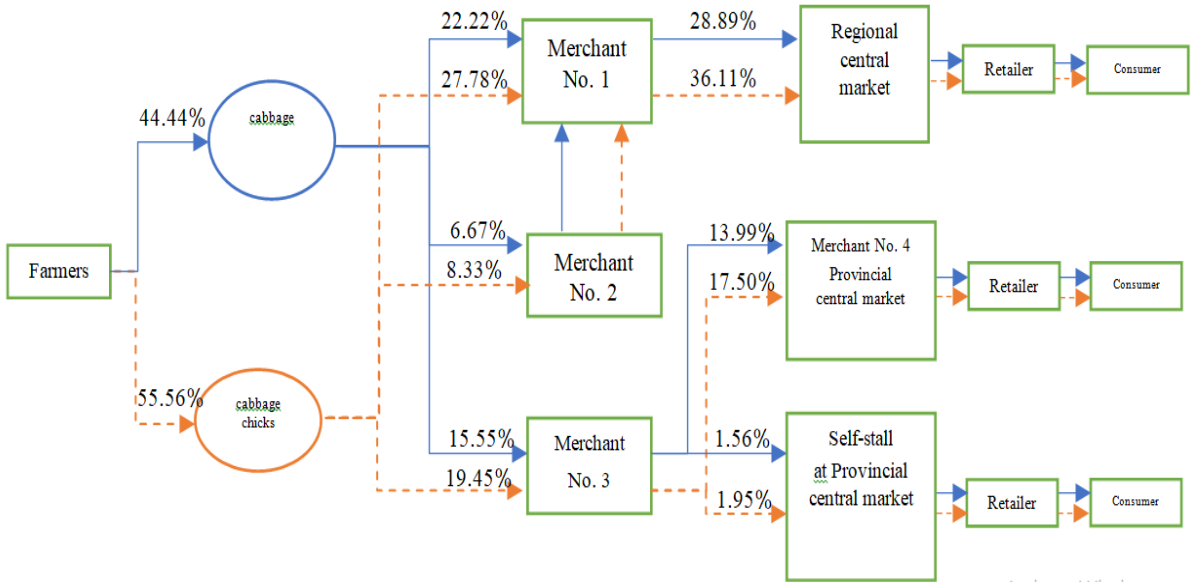

FIGURE 1
CABBAGE MARKETING CHANNEL

Marketing Margin

The marketing margin of cabbage is classified according to the product characteristics, namely cabbage head and cabbage chick, as Table 3. The first channel; Merchant No.1 bought from farmers for 13 baht/kg, it has a marketing cost of 0.37 baht/kg (weight loss 0.27 baht/kg, driver's wages 0.024 baht/kg, and packing/trimming fee 0.05 baht/kg.). It has a marketing margin equal to 5 baht/kg, yields 4.63 baht/kg at a wholesale price of 18 baht/kg, supplied to merchant No. 4, where merchant No. 4 has a marketing cost of 0.28 baht/kg (weight loss cost) with a marketing margin of 7.11 baht/kg and a return of 6.83 baht/kg at a retail price of 25.11 baht/kg.

For Merchant No.2 and Merchant No.3 the results show in Table 3.

Table 3
CABBAGE MARKETING MARGINS

Items	Channels							
	Merchant No. 1		Merchant No. 2		Merchant No. 3			
					Merchant No. 4		Sold at own stall	
	Baht/kg.	%	Baht/kg.	%	Baht/kg.	%	Baht/kg.	%
Price received by farmers	13.00	51.77	13.00	51.77	13.00	51.77	13.00	51.77
Marketing Margin	5.00	19.91	5.00	19.91	5.00	19.91	12.11	48.23
Marketing costs	0.37	1.47	1.39	5.54	0.27	1.08	1.27	5.06
Return Sales	4.63	18.44	3.61	14.38	4.73	18.84	10.84	43.17
Wholesale Price	18.00	71.68	18.00	71.68	18.00	71.68	25.11	100.00
Sell to merchant No. 4								
Marketing Margin	7.11	28.32	7.11	28.32	7.11	28.32		
Marketing Costs	0.28	1.12	0.28	1.12	0.28	1.12		
Return Sale	6.83	27.20	6.83	27.20	6.83	27.20		
Retail price	25.11	100.00	25.11	100.00	25.11	100.00		

Table 4
VALUE OF MARKETING MARGIN CABBAGE

Channel	Export Quantity (kg.)	Total marketing costs (Baht/kg.)	Total Marketing margin (Baht/kg.)	Total Return (Baht/kg.)	Total cost of marketing (Baht)	Total cost of marketing margin (Baht)	Total return (Baht)
Merchant No.1	13,759.20	0.65	12.11	11.46	8,943.48	166,623.91	157,680.43
Merchant No.3	11,010.11	0.55	12.11	11.56	6,055.56	133,332.45	127,276.89
Merchant No. 3*	4,795.20	1.27	12.11	10.84	6,089.90	58,069.87	51,979.97

Note**:** * The channel that merchant No. 3 sold at own stall at regional central market

Cabbage price forecasting result using Exponential Smoothing Adjusted for Trend and Seasonal Variation: Winter's Model

Forecast model of the wholesale price of cabbage

$$\hat{Y}_{t+p} = (12.24392 + 0.01632\ p)\hat{S}_{t-12+p}$$

When $\hat{Y}_{t+p}$ substitutes the forecast value at time $t+p$ where $p = 1$ represents January 2018 and $\hat{S}_{t-12+p}$ substitutes the seasonal index. The details are shown in Figure 2.

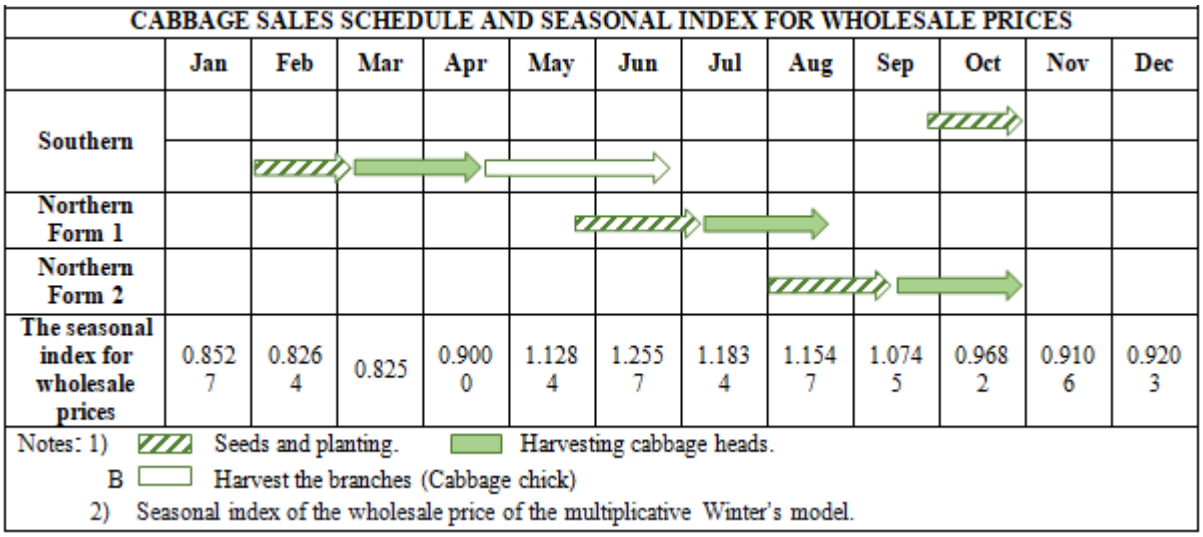

FIGURE 2
CABBAGE SALES SCHEDULE AND SEASONAL INDEX FOR WHOLESALE PRICES

For southern cultivation in Thailand, cabbage seeds are planted around December for a month. It is planted in January for approximately one month and twenty days, and cabbage heads are harvested from late February to mid-April. After cutting the head of cabbage, the first cabbage chick is harvested 15 days later, and the second cabbage chick is collected seven days later. The harvesting season lasts roughly three months, finishing in mid-July. The planting season for cabbage differs from that of the northern region of Thailand.

When combined with the seasonal wholesale price index for cabbage, it is evident that cabbage has high costs from May to September. According to Figure 2, there is a seasonal index of cabbage prices higher than other months from May to September every year since it has a

seasonal index of more than one part. According to the southern region's sales/harvest timeline, farmers should arrange their planting so that they can harvest in April. This is the period of the year when the harvest in the south has the highest price.

The Barriers to Enhance Farmer Entrepreneurship

The interviews underline that the farmers' difficulties and obstacles summarized:

1) Production and management problems: farmers still use traditional cultivation methods, no innovation in cultivation; farmers still must cultivate seasonally, depending on the weather, habituation and following with community leader Inclement weather or inability to anticipate future weather conditions such as severe rains, floods, droughts, inadequate water for cultivation, and product damage from insect pests. Since certain insects and pests are resistant to pesticides, they need to use more significant amounts of chemicals —unable to develop products to premium markets with higher prices, such as organic products, chemical-free vegetables, etc. Furthermore, the farmers have no data collection; they cannot access the information for forecasting the cultivation period and the appropriate harvest time to get the appropriate price. All above are traps that prevent farmers from planning production to raise farm income. Furthermore, labor in the agricultural sector tends to decrease because most workers have the experience of getting low income from farms and turning to other occupations with more stable and fixed incomes. At present, the area is mostly older workers, and the young people will change careers elsewhere. This problem is a crisis of the economic structure in the area and the unsustainability of agricultural occupation. Move to production management (Production consists of input of production)
2) Marketing problems: farmers always face uncontrollable and lower prices —as agriculture products in the perfectly competitive market. Farmers are hesitant to improve their production such as organic-farm, improve quality to be the high-value product —lack of technical knowledge and cannot be competitive. So, the status of farmers are only price takers from the middleman —all farmers sell through middlemen, not directly to consumers.
3) Financial management: farmers lack to record the cash inflow – cash outflow of the farm; they have no information to analyze the farm's finances; this makes farmers unable to plan financially, such as providing funds for production activities and marketing activities. They lack marketing production upgrades, including plans to expand farm size to reach economies of scale. Moreover, farmers usually buy seeds, fertilizers and pesticides from agricultural equipment stores in the form of credit with interest lead to high production cost.

DISCUSSION AND CONCLUSION

The research shows the results of farm management and entrepreneurial skills for smallholder farmers in developing countries for cultivating maximized profit goals; this research focuses on entrepreneurship in the production, management, and marketing dimension. The empirical results reveal that local collectors primarily controlled cabbages' marketing systems and plans in rural areas in the market dimension. The supply chain clearly shows relatively short and straightforward. Just a few stakeholders are involved in the marketing network: upstream, middle, and downstream levels. Our findings support conclusions that wholesalers involved in the marketing channel have significant roles in subsequently collected and distributed yields to customers or exporters. The results are consistent with the cabbage market in many developing countries, such as India, Ethiopia, Nigeria, and Myanmar (Ravekar et al., 2015; Bukul, 2018; Osondu et al., 2014; Shwe,2016), which farmers have restrictions on creating added value for their products. All cabbages are sold to the markets in their original and unprocessed state. Hence, marketing efforts and expenditures are so small in comparison to other plants.

The marketing margin represents the difference between what the producer receives and the consumer pays, reflecting market efficiency. According to the research findings, wholesalers gain a significant share of the market compared to other stakeholders in the chain, demonstrating the market power of wholesalers affecting smallholders. Thus, the local vegetable market, benefit-sharing among involved actors on the chain is still unbalanced. Additionally, there are no economies of scale in both production and marketing, being smallholders. As a result, the average cost per unit is high in all activities and cannot be upgraded from farmers to entrepreneurs.

Moreover, in the management dimension, farmers still lack knowledge, production planning, and record-keeping —especially the selling price of the product. Farmers always face uncontrollable and lower selling prices —partly because traditional farming relies on weather conditions. If farmers have recorded past sales prices and analyzed them; They know the trend in selling prices. And may plan to plant and harvest crops at reasonable prices. Besides this, farmers still lack knowledge of cultivation that does not depend on weather conditions, such as off-season cultivation that allows farmers to sell their products at higher prices.

The challenge is for farmers to be able to raise an entrepreneur or not. Rural farmers faced one significant limitation was the middleman (Kushalakshi & Raghurama, 2014; Saxena, 2012). This study found that farmers still sell their products to familiar local collectors because of their closeness and trust; even the price they accept is not high. It reduces farmers' chances of earning more. If farmers form a group of local farmers or Co-ops to collect their produce, then sell them directly to consumers or buyers of the markets in the province. May help reduce various costs and improve the management of farmers' groups. Recording data and analyzing it is an essential aspect that farmers need to do to enhance their entrepreneurship. Government agencies should provide knowledge support such as knowledge and technology of off-season planting, organic agriculture, chemical-free agriculture, etc.

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REFERENCES

Abdulai, J., Nimoh, F., Darko-Koomson, S., & Kassoh, K. (2017). Performance of vegetable production and marketing in peri-urban kumasi, Ghana. *Journal of Agricultural Science Archives, 9*(3). doi:10.5539/jas.v9n3p202

Baral, S.K. (2012, September). Redefining rural marketing: An approach towards micro entrepreneurship with special reference to Shakti. *Asian Journal of Multidimensional Research, 1*(4), 161-171.

Bukul, B.B. (2018). Factors affecting smallholder farmers potato production in Shashemene District, West Arsi Zone, Oromia national regional. *Food Science and Quality Management, 76*(1), 66-72.

Chang, H. (2009). Rethinking public policy in agriculture: Lessons from distant and recent history. *Policy Assistance Series-Food and Agriculture Organization of the United Nations*(7).

Dixon, J.L., Stringer, L.C., & Challinor, A.J. (2014). Farming system evolution and adaptive capacity: Insights for adaptation support. *Resources, 3*(1), 182-214.

Eric, N., & Kerin, B. (2000). *Marketing (6th edition).* New York, NY.

FAO. (2014). Retrieved from http://www.fao.org/3/y1860e/y1860e11.html

Gardner, B.L., & Rausser, G.C. (2001). *Handbook of agricultural economics: Marketing, distribution and consumers (338.17498 G171h,1B).* ELSEVIER,.

Garner, E., & de la O Campos, A.P. (2014). *Identifying the family farm. An informal discussion of the concepts and definitions.* Retrieved from http://www.fao.org/3/i4306e/i4306e.pdf

Glover, M.K., Obubuafo, J., Agyeman-Duah, M.O., Doku, G.D., & Glover, E.K. (2017). Constraints associated with the marketing channel of lettuce and cabbage trade in Ghana. *Journal of Agriculture and Sustainability, 10*(2).

Holt, C.E. (1957). Forecasting trends and seasonal by exponentially weighted averages (ONR Memorandum No. 52). *Carnegie Institute of Technology, Pittsburgh USA*, 10.

Hoq, M.S., Matin, M.A., Hossain, T.M., & Hossain, S. (2014). Cabbage (Brassica oleracea) and cauliflower (Brassica oleracea) marketing in selected areas of Bangladesh. *Bangladesh Journal of Agricultural Research, 39*(1), 127-141.

Kangogo, D., Dentoni, D., & Bijman, J. (2021). Adoption of climate-smart agriculture among smallholder farmers: Does farmer entrepreneurship matter? *Land Use Policy, 109*, 105666.

Khan, D. (2012). Entrepreneurship in farming, food and agriculture organization of the united nations Rome 2012. *Farm management extension guide*.

Kohls, R.L., & Uhi, J.N. (2002). *Marketing of Agricultural (9th edition).* Prentice Hall of India.

Kushalakshi, & Raghurama, D.A. (2014, August). Rural entrepreneurship: A catalyst for rural development. *International Journal of Science and Research (IJSR), 3*(8), 51-54.

Meshram, R., Shende, N., & Kathale, S. (2015, November). Cost benefit analysis and marketing of cabbage vegetable in Bhandara district. *Periodic Research, 4*(2), 10-16.

Mukaila, R., Obetta, A.E., Awoyelu, F.E., Chiemela, C.J., & Ugwu, A.O. (2021). Marketing analysis of vegetables: The case of carrot and cucumber marketing in enugu state, Nigeria. *Turkish Journal of Agriculture - Food Science and Technology, 9*(2), 346-351.

Mukololo, M. (2009). Small-Scale producers and traders market supply chain for fresh vegetables: A case study of Lusaka. Retrieved from http://dspace.unza.zm/handle/123456789/4603

Naminse, E.Y., & Zhuang, J. (2018). Does farmer entrepreneurship alleviate rural poverty in China? Evidence from Guangxi Province. *PloS one, 13*(3), e0194912.

Osondu, C.K., Nwadike, F.C., Ijioma, J.C., Udah, S.C., & Ugboaja, C.I. (2014). Marketing performance of salad vegetables: The case of cabbage marketing in Abia State, Nigeria. *International Journal of Agricultural Science, Research and Technology in Extension and Education Systems, 4*(3), 151-162.

Prasad, B.V., & Naveena, L. (2021, Febraruy). A study on problems and challenges of rural entrepreneurs in India. *Journal of Management, 8*(S1), 13-20.

Rashid, I., Peer, Q.J., Saraf, S.A., Kuberivi, S.S., & Farooq, F. (2021). Marketing and trading system of cabbage crop in district Budgam of Jammu and Kashmir stat. *Eco. Env. & Cons*, S254-S258.

Ravekar, S.F., Tayade, P.M., & Jakate, M.M. (2015). Economics and marketing of cauliflower and cabbage in Hingoli District of Marathwada region of Maharashtra state. *International Research Journal of Agricultural Economics and Statistics, 6*(2), 403-409.

Saxena, S. (2012). Problems faced by rural entrepreneurs and remedies to solve it. *IOSR Journal of Business and Management, 3*(1), 23-29.

Shucksmith, M. (2012). Class, power and inequality in rural areas: Beyond social exclusion? *Sociologia ruralis, 52*(4), 377-397.

Shucksmith, M., & Schafft, K. (2012). Rural poverty and social exclusion in the United States and the United Kingdom. *In Rural Transformations and Rural Policies in the US and UK*, 120-136.

Shwe, Y. W. (2016). *Assessment on Cabbage and Cauliflower Supply Chain Management in Kalaw Township, Southern Shan State.* Nay Pyi Taw,Myanmar.

Umar, M.F., Nugroho, I., Darmadji, D., & Suwarta, S. (2020). The study of entrepreneurship and innovation adoption by farmer in improving lowland rice farming. *Journal of Socioeconomics and Development, 3*(1), 16-28.

Winters, P.R. (1960). Forecasting sales by exponentially weighted moving averages. *Management Science 6*, 324-342.