

Assessing the Performance of the Citrus Industry in Kasibu, Nueva Vizcaya, Philippines: The Case of Farmers and Traders of the Malabing Valley Agri-Trading Center

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Abstract

Citrus has been identified as one of the top high-value crops in the Philippines, with the Cagayan Valley as one of the major citrus-producing regions, to which Kasibu, Nueva Vizcaya, belongs. This paper presents the status, issues, and opportunities of key players in the citrus industry of the Malabing Valley of Kasibu, where citrus production is concentrated. The study framework, through surveys, key informant interviews, and secondary sources of information included a descriptive analysis of the socio-demographic profile and the farming and trading operations and practices of key players within the overall industry structure. SWOT and cost and return analyses were used to assess current industry performance, giving rise to identification of citrus industry problems and prospects from which recommendations were formulated and offered. Twenty-three (23) citrus farmers, 7 farmer-traders, and 4 traders were interviewed based on the referral method. The actual field survey was conducted from December 2010 to January 2011. Results uncovered that of the three citrus fruit crops grown in Kasibu, namely, calamondin oranges, mandarin (Satsuma and Ponkan), and pomelos, mandarin constitutes majority of total average production volume per harvesting season. Findings further revealed that citrus farming is profitable in Kasibu, and many are encouraged to establish citrus orchards because of low entry barriers and less competition among farmers. On the other hand, there is a high degree of competition among traders. Farmers have the greatest contributed value to the products, but traders benefit most from the value-adding process. Several recommendations were also put forward to further sustain and improve the performance of Kasibu citrus supply chain actors.

Keywords: citrus industry; Kasibu; Nueva Vizcaya; value addition

Acronyms:

SWOT	– Strengths, Weaknesses, Opportunities and Threats
LGU	– local government unit
GAP	– good agricultural practices
MVAT	– Malabing Valley Agri-Trading
MVMPC	– Malabing Valley Multi-Purpose Cooperative
OTOP	– One Town, One Product
DTI	– Department of Trade and Industry

Introduction

The Philippines is endowed with a hospitable climate and fertile soil, making the year-round cultivation of edible fruits possible. The islands have an abundance of fruit-producing flora, and among these fruits, citrus is considered one of the most highly adaptable fruit crop.

In the 1950s and '60s, the citrus industry in the country was booming. During this time, citrus fruits had high demand in the domestic market and area expansion for its cultivation was notably fast, and this made citrus fourth among national priority crops. But due to the leaf mottling or greening disease, the industry declined in the 1970s (Baniqued, 2000). Today, the citrus is still considered a high-value commercial crop, and the government had taken steps to enhance and improve the productivity of the industry in the country (Libunao and Libunao, 2003).

Citrus fruits grown in the country include different types of oranges, calamondin, mandarin, pomelo, lemon, and lime. Citrus supply from 2007 to 2010 exhibit a preferred trend towards importation of mandarin and orange due to cheaper prices given by Chinese exporters. Pomelo supply, on the other hand, relied on local production (Figure 1).

One of the leading producers of citrus in the country is Kasibu, a municipality nestled between mountain ranges in the province of Nueva Vizcaya, which is located 55 km from Solano, one of the commercial centers of Nueva Vizcaya (Figure 2). It is one of the leading producers of citrus in the country with approximately 1200 ha of land devoted to citrus production, primarily Satsuma mandarin (*Citrus reticulata blanco*), Ponkan mandarin (*Citrus reticulata*), pomelo (*Citrus maxima*), and orange such as the Hamlin, Perante, and Valencia varieties. About 500 farmers tend 400,000 citrus trees in the municipality (Ebreo, 2009; DA, 2000).

The citrus industry of the municipality has been a significant contributor to its economic growth and remains an important source of employment for twenty years now. To ensure the sustainability of the Kasibu citrus industry, determining the performance of key players in the Kasibu citrus

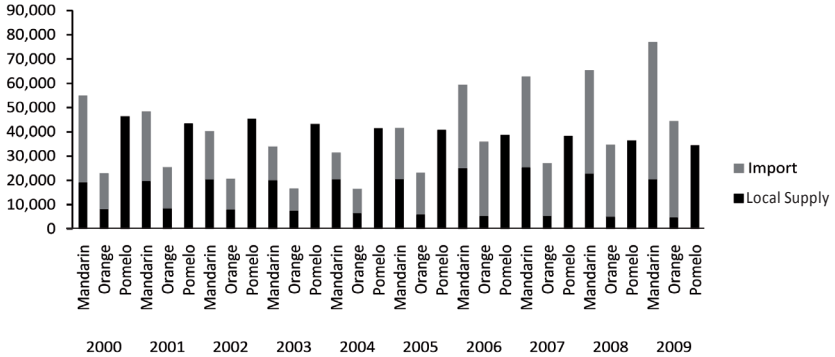


Figure 1. Gross supply (metric tons) of mandarin, orange, and pomelo in the Philippines

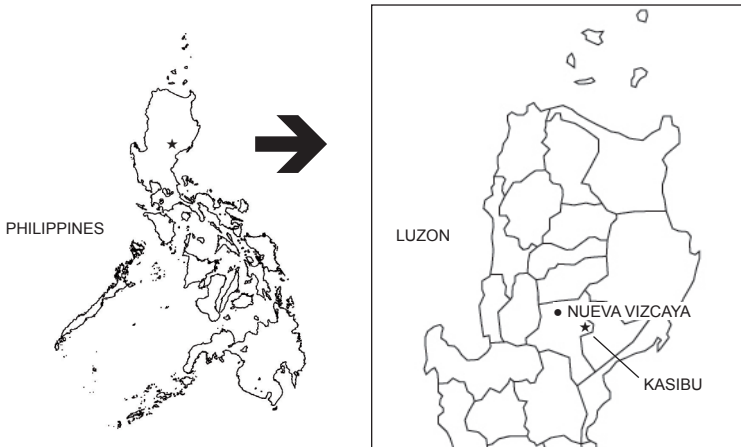


Figure 2. Map showing the location of Kasibu, Nueva Vizcaya, Philippines

value chain will provide insights on how this can be done. In a highly volatile, competitive environment, successful business entities do not just add value but reinvent themselves through interactive strategy, specifically by reconfiguring roles, relationships, and structures (Normann and Ramirez, 2000).

It is in this context that this study examines the performance of citrus farmers and traders of the Malabing Valley Agri-Trading Center in Kasibu, Nueva Vizcaya, Philippines.

Materials and Methods

Involving surveys, key informant interviews, and secondary sources of information, data gathering provided a descriptive basis of the socio-demographic profile, farming and trading practices of key players, and the overall industry structure including support institutions. SWOT and cost and return analyses were integrated and accorded the basis for identifying key success factors and the current state of the citrus industry in the locality. These in turn generated insights into the problems and prospects of the industry from which recommendations were formulated and offered as seen in the analytical framework of the study (Figure 3). Cost and return data was limited to the actual data provided by a farmer willing to share information based on the type of citrus fruit grown namely, Satsuma, Mandarin orange and pomelo. Other farmers provided similar percentage estimates based from their recollection but did not have hard data to support these estimates.

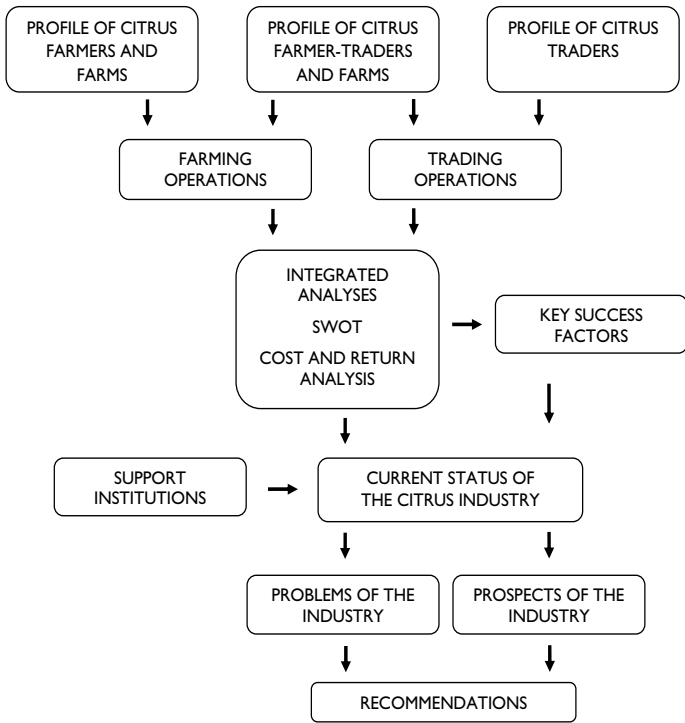


Figure 3. Analytical framework of the study

In the absence of a formal list of key industry players, 23 citrus farmers, 7 farmer-traders, and 4 traders were interviewed based on the referral method, which included the pioneer and major producer in the area. The actual field survey was conducted from December 2010 to January 2011 with the focus on the Malabing Valley of Kasibu since this is where citrus production is highly concentrated.

Results and Discussion

Profile of Key Players

The key players in the citrus industry in Kasibu, Nueva Vizcaya include the farmers, traders, and farmer-traders. Out of the 23 farmers interviewed, 11 were from Barangay Malabing (47.8%), 4 from Barangay Papaya (17.4%), 3 from Barangay Wangal (13.04%), 3 from Barangay Tadjji (13.04%), and 2 from Barangay Binogawan (8.7%). All of the farmer-respondents are male, 91.3% are married and 65.2% are at least 40 years old. Nineteen out of the 23 farmers (83%) did not finish college. These farmers rely only on citrus farming as their primary means of livelihood. Other sources of livelihood include rice and vegetable farming and trucking services (Table 1).

According to the Malabing Valley Multi-Purpose Cooperative (MVMPC), the average citrus farm size is 2 ha. Most of the farmers (69%) have farm sizes of 3 ha or less, with 7 farmers (30.43%) having been in citrus farming for 6 to 10 years. All farmers own their farms and are sole proprietors, cultivating primarily Satsuma mandarin (95.65%). A few farmers also cultivate other fruits such as rambutan (21.74%) and durian (43.48%) (Table 2).

With trading operations in Solano and Bambang, Nueva Vizcaya, the citrus traders mostly buy the farmers' citrus harvests in Solano, particularly at the Malabing Valley Agri-Trading (MVAT) Center. This center is adjacent to and regulated by MVMPC. All four traders interviewed are female and married. Although three of the traders (75%) are college graduates, they decided to venture into citrus trading because they shared during the interview that citrus trading is a lucrative source of income.

There were 7 farmer-traders interviewed, including the pioneer and major producer in the local industry. They produce citrus and, at the same time, buy citrus from other farmers. The combined volume is then sold to wholesalers. Five farmer-traders (71.4%) handle trading at MVAT while 2 (28.6%) do business in their respective homes located at Barangays Malabing and San Luis, Nueva Vizcaya. Citrus farming and trading are their major sources of income, which is supplemented by other sources such as trading other fruits like rambutan, lanzones, mangosteen, and durian.

Table 1. Profile of the citrus farmers in Kasibu, Nueva Vizcaya, Philippines

Profile	Frequency (n = 23)	Percentage (%)	Profile	Frequency (n = 23)	Percentage (%)
Sex			Educational attainment		
Male	23	100.00	Elementary		
Female	0	0.00	Graduate	4	17.39
			Undergraduate	0	0.00
Civil status			High school		
Single	0	0.00	Graduate	5	21.74
Married	21	91.30	Undergraduate	5	21.74
Widowed	2	8.70	College		
			Graduate	4	17.39
Age			Undergraduate		
<30	0	0.00		5	21.74
31-35	5	21.74	Main source of income		
36-40	3	13.04	Citrus farming	23	100.00
41-45	2	8.70	Others	0	0.00
46-50	3	13.04	Other sources of income		
51-55	4	17.39	Farming and selling of rice	6	26.09
56-60	4	17.39	Vegetable planting	1	4.35
61-65	2	8.70	Trucking of produced crops	1	4.35
>66	0	0.00	Practicing of profession	2	8.70
Household size					
1-3	9	39.13			
4-6	13	56.52			
7-10	1	4.35			
>10	0	0.00			
Number of dependents					
0-3	19	82.61			
4-6	4	17.39			
7-10	0	0.00			
>10	0	0.00			

Table 2. Farm/business profile of citrus farms in Kasibu, Nueva Vizcaya, Philippines

Profile	Frequency (n = 23)	Percentage (%)	Profile	Frequency (n = 23)	Percentage (%)
Land area			Noncitrus fruits cultivated		
<1 ha	7	30.43	Rambutan	5	21.74
1–3 ha	9	39.13	Durian	3	13.04
4–6 ha	5	21.74	Lanzones	0	0.00
7–9 ha	1	4.35	Mangosteen	0	0.00
>9 ha	1	4.35			
			Method of farming		
Number of years in citrus farming			Monocropping	13	56.52
0–5	4	17.39	Intercropping	0	0.00
6–10	7	30.43	Mixed cropping	10	43.48
11–15	4	17.39	Integrated farming	0	0.00
16–20	4	17.39			
21–25	4	17.39	Business ownership		
>25	0	0.00	Sole proprietorship	23	100.00
Tenure status of the farm			Partnership	0	0.00
Owner	23	100.00	Corporation	0	0.00
Part-owner	0	0.00	Cooperative	0	0.00
Tenant	0	0.00			
Citrus fruits cultivated*					
Oranges	2	8.70			
Mandarin					
Satsuma	22	95.65			
Ponkan	10	43.48			
Pomelo	11	47.83			

* Number of times cited

All of the key Kasibu citrus value chain players are members of MVMPC, the major institution that supports the citrus industry of Kasibu through loans for input acquisition and marketing support. Farmers are also members of Saint Patrick Cooperative, Philippine Association for the Advancement of the Fruit Industry, Green Gold Multi-Purpose Cooperative, and Alay Kapwa. These organizations provide services such as access to credit for procurement of inputs and sharing of industry information such as prices, linking with institutional buyers, and production technology.

General Structure of the Industry

Production. The inputs of farmers include seedlings, fertilizers, pesticides, tools, and equipment. Seedlings are acquired from accredited nursery operators rather than produced by the farmers to ensure better seedling quality. Fertilizer requirements are bought and often loaned by farmers from MVMPC. Three citrus fruits cultivated in Kasibu, namely, different orange varieties (i.e., Hamlin, Perante, and Valencia), mandarin (i.e., Ponkan and Satsuma varieties), and pomelo. Among these, the most cultivated fruit is Satsuma mandarin and the least is orange. Production of these fruits basically undergoes the same processes ranging from procurement, pricking, transplanting of seedlings, cultural practices (i.e., irrigation, fertilization, windbreak establishment), control of pest and diseases, and harvesting. Normally, the lifespan of a citrus tree is twenty years; hence, farmers do not plant annually and the normal annual cycle of farm processes in farms will not include seedling preparation. Furthermore, different schedules of farm activities are observed because of the varying seasons of the said fruits. Satsuma are harvested in July, orange varieties in August, and Ponkan and pomelo in October.

Marketing. After harvesting, citrus fruits are washed, waxed, graded, and sorted. The fruits are packed in wooden or plastic crates, loaded in large jeeps, and immediately transported to buyers, i.e., traders and farmer-traders, in Solano, specifically at the MVAT Center. There are farmer-traders, however, who sell their produce outside the MVAT Center (Figure 4). In case of one farmer-trader, rejected fruits are processed into organic fertilizers and wines, but these processed products are not sold commercially and do not add significantly to the income of the farmers. Majority of the farmers sell their produce to the traders at the MVAT Center. Since the center has the capacity to purchase citrus fruits and absorb all their supply, farmers do not need to compete with one another in order to sell their produce. The assurance that farmers will have buyers is the primary reason for the low intensity of rivalry among them. However, there is high degree of competition among the traders,

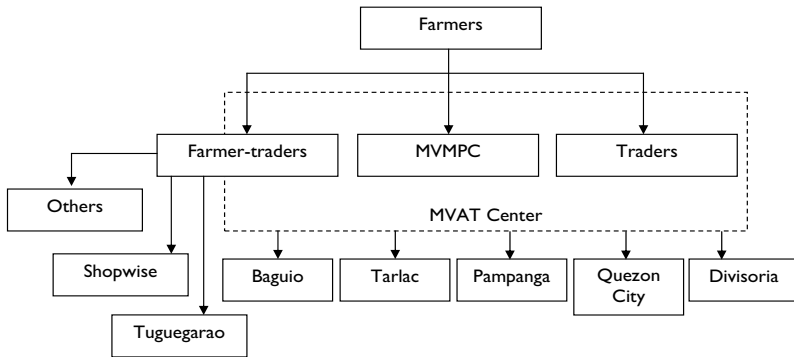


Figure 4. Product flow from farmers to wholesalers/traders

particularly those that are located in the MVAT Center. They compete among themselves to satisfy the large volume requirements (as inferred from Figure 6) of the wholesalers coming from Divisoria, Baguio, Tarlac, Pampanga, and Quezon City. They compete by setting a competitive price upon buying, which will attract the farmers to sell their fruits solely to them.

Since pricing is regulated by MVMPC, farmers are price takers. The cooperative usually sets a range of prices that the traders can quote when buying the citrus fruits. Prices were based on the average cost of production of farmers as well as the prevailing market price in the market. This is very important, especially during peak months when oversupply of fruits occurs. Some farmers also sell their produce to the cooperative itself to settle their unpaid input loans. In some instances, farmer-traders buy citrus fruits from other farmers to fulfill the volume requirements of their respective buyers.

The bulk of the produce bought by traders, farmer-traders, and MVMPC are sold to wholesalers mostly located outside Nueva Vizcaya, such as Baguio, Tarlac, Pampanga, Divisoria, Quezon City, and Cagayan (Figure 4). It is worthwhile to point out that the major farmer-trader in Kasibu is able to penetrate eight grocery stores of Shopwise by actively networking to establish connections with such large retailers and supermarket chains, maintaining the good quality of his produce, consistently meeting the institutional buyer's demand volume by expanding his production capacity, and investing in R&D activities by going abroad and attending citrus farming seminars on how to meet supermarket chains' stringent quality standards.

Majority of the wholesalers buy citrus fruits from traders at the MVAT, a trading post established by MVMPC in 2000 (Figure 4). It was known that the traders at the MVAT can provide large volumes of citrus to these wholesalers that traders outside the MVAT cannot provide alone. There is one

trader who passes on the fruits to middlemen who then transacts with the wholesalers; and as in many cases, the mode of payment is cash. After-sales service is hardly practiced.

Buying is generally done on cash basis. Pricing is based on the quality and size of the fruit. Quality and sizes of citrus fruits are primarily based on external appearance and eyeball estimates. There are no sorts of machine and equipment used in sorting and grading due to lack of funds.

Key players, particularly the farmers, rarely practice intensive promotion since they are assured that they can sell their produce through MVMPC. Also, the local government unit (LGU) of Kasibu holds a citrus festival every August and the Department of Trade and Industry (DTI) Region II exhibits citrus products at trade fairs and similar events.

Human resources. Farm workers can be classified as family member, permanent, or contractual workers. Majority of the farms surveyed have permanent workers compensated a minimum of PhP 2000 per month. Some farms, however, employ family members as workers and do not have permanent workers. But during harvesting season, additional workers are usually hired on a contractual basis to account for the increased workload. Farms covering 3 ha or less would need at least three contractual workers, while farms of 10 ha or more would need ten contractual workers. Contractual workers are paid on a daily basis ranging from PhP 150 to PhP 300 per head per day. Permanent and contractual workers mostly come from Malabing Valley while some hail from neighboring areas such as Ifugao, Isabel, Quirino, Quezon (Nueva Vizcaya), La Union, and Kalinga. Traders, particularly those who are from the MVAT Center, and farmer-traders do not hire workers in their trading or market operations even during peak months as they can handle the bulk of fruits they are buying and selling.

Finance. Most of the farmers and farmer-traders interviewed have a current capital below PhP 100,000. Generally, the farmers have a farm size of less than 1 ha, and their operations are relatively small. But the major producer-trader in the industry has a current capital of PhP 10 million and a farm size of 16 ha. Capital used by these citrus industry players is sourced from personal savings or from loans from cooperatives like MVMPC or private and government-owned banks. Farm inputs such as fertilizer, pesticide, labor, and transportation constitute most of the total production cost of farmers. On the other hand, all traders have a current capital of at least PhP 100,000, the amount needed to buy in bulk citrus fruits from farmers. Most of the interviewed players plan to expand or increase their capacity in the future because they believe the industry is promising and demand for citrus products is expected to increase through time.

SWOT (Strengths, Weaknesses, Opportunities, and Threats) Analysis

Strength and weaknesses. One of the strengths of the farmers is their well-recognized technical knowledge and skills in citrus production, which were enhanced or reinforced by seminar and training provided by the provincial DA and other agencies as well as the guidance given by the pioneer of the industry. Also, the farmers have a readily accessible market for their produce. Their affiliations to the MVMPC enable them to access inputs through loan programs and protect them from price abuse, which offsets their weakness of being price takers. Generally, the farmers are unable to penetrate the large stores in urban areas because they cannot compete with large farms located outside Nueva Vizcaya (those that were also located in Cagayan Valley like Quirino and Isabela) because of stringent requirements; hence, their produce can only reach small stores and sidewalk retailers. Another weakness is that they have inadequate facilities for postharvest activities like warehouses and packing facilities.

For traders, their strengths include their ability to dictate the price of the produce and a ready source of supply. Also, traders have wide networks of wholesalers (gained mostly through referrals) and experience cost advantage when it comes to transportation since the wholesalers pick up the produce.

The common strength of both players (farmers and traders) is their good and well-established relationship with each other.

Opportunities and Threats. In the country, imports of citrus fruits, specifically mandarin and orange, exceeds exports. This implies that there is a high demand and supply gap since the country needs to import citrus fruits to satisfy the existing demand in the market.

Another opportunity for the citrus industry in Kasibu is the intensification of the DTI's One Town, One Product (OTOP) Program, a priority of the government under the Anti-Poverty Programs and Projects (APP) to promote entrepreneurship and create jobs by supporting micro, small and medium enterprises (MSMEs) and identify and promote specific products or services of cities or municipalities to gain competitive advantage (DTI, 2008). Through the sponsorship of more trade fairs and exhibits to showcase its major product, the citrus industry in Kasibu is provided an avenue to connect with domestic and foreign markets. During trade fairs and exhibits, the citrus fruits from Kasibu are showcased and sold to public.

Investment opportunities include options relative to processing ventures for such products as citrus wine and juices. Although some farmers are able to do these, they do so only occasionally and on a trial basis. As early as the 1970s, Sanchez (1979) has already noted the market for wine in the country was wide open and predicted that consumption of wine at typical Filipino homes will

increase. Today, the Philippine wine market is continuing to expand, but the demand is supplied through importation (Singian, 2009). Furthermore, feed stocks and feed additives may be derived from citrus peelings.

One of the major threats in the industry is the conversion of farms into mining areas. The Malabing Valley has been known to have soil teeming with gold and other important metals and minerals. Thus, many mining companies are buying land that is mostly devoted to citrus orchard farming to extract gold. This is intensified by the alleged increasing support of Kasibu's local government to mining. This does not only adversely affect the production of citrus in the area but also the stability of land and watersheds abounding in the area as well as the health of the community.

Pest and diseases still remain as threat to citrus farming which if not arrested or minimized, can cause a decline in productivity.

Finally, funding for research and development relative to citrus production technologies or for citrus product development in the country is hardly available as limited research funds are prioritized for other preferred commodities.

Cost and Return Analysis

Venturing into citrus orchard farming is very profitable (Table 3). Satsuma yields a net profit margin of 42.44% while orange and pomelo show net profit margins of 37.72% and 12.86%, respectively. Such computations were based on the general scenario of the citrus industry existing in Kasibu, which include the following: (1) lands are obtained through inheritance, (2) farms are in existence for 10 years, more or less, and (3) family labor is not compensated. Since the fruits vary in harvest seasons, it is better for the farmer to cultivate more than one type of fruit to ensure continuous profit.

It can be seen that for orange fruit, the farmers gain the most while the traders gain the least (Figures 5). For Ponkan, the top gainers as well as the player that contributes most in the chain are also the farmers. The retailers gain the least. According to the citrus farmers, the farming practices for Ponkan

Table 3. Cost-return analysis of citrus fruits per hectare

	Satsuma		Orange		Pomelo	
	Amount	% to total	Amount	% to total	Amount	% to total
Sales (PhP)	1,164,000	100.00	793,125	100.00	337,500	100.00
Operating expenses (PhP)	669,980	57.56	397,025	62.28	294,110	87.14
Net operating income (PhP)	494,020	42.44	299,144	37.72	43,390	12.86

	Orange	Ponkan	Satsuma	Pomelo
Farmers' average price per kg (PhP)	22.50	22.50	15.00	9.00
Less: Total cost per kg (PhP)	14.02	9.67	8.65	7.85
Value added (PhP)	8.48	12.83	6.35	1.15



	Orange	Ponkan	Satsuma	Pomelo
Traders' average price per kg (PhP)	25.00	32.50	30.00	13.50
Less: Total cost per kg (PhP)	22.50	22.50	15.00	9.00
Value added (PhP)	2.50	10.00	15.00	4.50



	Orange	Ponkan	Satsuma	Pomelo
Wholesalers' average price per kg (PhP)	30.00	37.00	35.00	25.00
Less: Total cost/kg (PhP)	25.00	32.50	30.00	13.50
Value added (PhP)	5.00	4.50	5.00	11.50



	Orange	Ponkan	Satsuma	Pomelo
Retailers' average price per kg (PhP)	35.00	40.00	45.00	40.00
Less: Total cost per kg (PhP)	30.00	37.00	35.00	25.00
Value added (PhP)	5.00	3.00	10.00	15.00



Consumers

Figure 5. Value addition among citrus fruits produced in Kasibu, Nueva Vizcaya, Philippines

are more complicated than Satsuma. Satsuma, on the other hand, gives the greatest gain to the traders. The traders gain as much as PhP 15.00 in the chain. The farmers usually prioritize the production of Satsuma because according to them, they gain more for this citrus fruit variety. However, the MVMPC, the cooperative that stabilizes the prices of citrus fruits, has to work out the value addition in this type of citrus fruit since the farmers gain less than the traders and the retailers. This might be because of the low price that is pegged on the fruit during times when there is an oversupply. Finally, for pomelo, the retailers gain the most and the farmers gain the least in the chain.

Conclusions and Recommendations

The citrus industry of Kasibu is a major economic driver of the municipality. It is a promising industry, and there are still areas in the chain that are open for improvement. Such measures to address the gaps between issues and opportunities or prospects are essential to boost performance among the key players of the citrus value chain in Kasibu. While Satsuma provides the highest value addition for traders, this citrus variety is only second to Ponkan in the case of highest value addition for farmers. Further downstream, wholesalers and retailers gain the highest value from pomelo. Each player of the citrus value chain of Kasibu can further improve his or her performance by utilizing supply chain management strategies that benefit the entire chain and not just a few players relative to production capacity, variety mix, expansion of market reach and active information exchange and alliance-building.

There should be a balance between mining activities and citrus farming in the area in such a way that community welfare is not sacrificed. This entails strict monitoring on the part of local government and adherence to contract arrangements on the part of mining companies. In case community welfare is adversely affected by the mining activities, the LGU together with the Kasibu value chain stakeholders must take a hard stand to halt its deleterious effects.

In terms of improving the quality of yield, the establishment of disease-indexing laboratories is recommended in order to determine different viruses afflicting citrus fruits produced in the municipality. Kasibu's LGU can fund this and charge a fee for its use by key industry players. Moreover, prioritizing research and development must be done through funding of citrus production technology and product development projects such as further value addition possibilities of this commodity. This can be a joint partnership between the government and the private sector. Improvements in production can further boost profitability through lower production and operating costs and greater productivity.

Observance of good agricultural practices (GAP) is also recommended although this does not suggest that the farmers in the industry have poor agricultural practices. This is to increase the chances of passing quality standards set by market stakeholders and as well as to obtain necessary certifications in the future. In turn, this will allow the produce of Kasibu citrus farmers to widen its market reach so these could penetrate grocery stores in urban areas and possibly even the export market.

Kasibu's LGU must strengthen its programs towards the industry's development as it has recognized citrus as its flagship commodity. Specifically, financial or subsidy programs on farm inputs could be extended either directly to the farmers or to the MVMPC which extends loans to farmer-members to allow flexibility. In terms of infrastructure development, the establishment of more nurseries and common post-harvest facilities should be prioritized.

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