



The plight of the onion industry in the onion capital of the Philippines: Basis for intervention strategies

 Arjhel Domingo

Nueva Ecija University of Science and Technology, Nueva Ecija, Philippines.

✉ arjheldomingoii@gmail.com

Article History

Received: 1 November 2022

Revised: 13 February 2023

Accepted: 3 March 2023

Published: 29 March 2023

Keywords

Nueva Ecija
Onion capital
Onion farmers
Onion production
Pest infestation
Storage facilities
Traders.

ABSTRACT

The study aimed to assess the plight of the onion industry in Bongabon, Nueva Ecija, dubbed the onion capital of the Philippines. The study employed a descriptive methodology. A total of 184 onion farmers from Bongabon, Nueva Ecija, served as respondents. The study revealed that most of the farmer respondents were “kasama” or tenants to the land owners. Farmers borrowed capital from trader-capitalists to finance their farm operations. Significant problems faced by onion farmers included the rising cost of farm inputs because they are imported, which could greatly affect net returns. Farm mechanization was limited, and a shortage of farm laborers was prevalent. Weather conditions and the severity of pest infestation influenced the volume of harvests. The difficulties were further aggravated by the farmers’ suspicion of price manipulation by big-time traders and unregulated importation directly competing with the price of local onions. Storing onions in cold storage facilities was the last recourse when the farmgate price was low. Based on the results of the study, intervention strategies are proposed that may be considered by concerned agencies when designing policies, programs, and projects to help the local farmers take advantage of the promising opportunities in onion growing and eventually improve the onion industry’s competitiveness in general.

Contribution/Originality: Onion production in the Philippines is concentrated in the province of Nueva Ecija. Aside from describing the problems encountered by onion farmers in the locality, this study offers intervention strategies that various concerned agencies and institutions could employ to improve the status of the onion industry in the province and the country in general.

DOI: 10.55493/5005.v13i1.4766

ISSN(P): 2304-1455/ ISSN(E): 2224-4433

How to cite: Domingo, A. (2023). The plight of the onion industry in the onion capital of the Philippines: Basis for intervention strategies. *Asian Journal of Agriculture and Rural Development*, 13(1), 66–74. 10.55493/5005.v13i1.4766

© 2023 Asian Economic and Social Society. All rights reserved.

1. INTRODUCTION

Agriculture plays a vital role in a nation’s economic development. Agricultural countries, including the Philippines, take advantage of their rich and abundant land resources to maximize the limitless opportunities found in farming. The governments of various developing countries give considerable attention to the agriculture sector as a source of food, income, and employment, particularly in rural areas (Rupasinghe, Ginigaddara, & Wickramasinghe, 2017; Sanyang, 2014).

Aside from rice production, the Philippines also engaged in growing onions. The onion (*Allium cepa L.*), from the *Amaryllidaceae* family, is one of the most important commercial spice crops and is grown in more than 175

countries worldwide (Baloch et al., 2014; Hossain et al., 2017). It is regarded as the third most indispensable horticultural spice with significant commercial value (Teshika et al., 2019). Beyond being used in households as a condiment, onions also have medicinal benefits as they contribute significantly to the nutritional value of the human diet (Randle, 2000; Shiferaw, 2020). Onions, as a high-value crop, have become one of the priority commodities in the Philippines. Red onion production has been a profitable venture in the Philippines in recent years (Del Carmen, Espigol, Nuevo, & Masilungan, 2016). Red onion production has an average cost of Php. 130,886 per hectare, and farmers can expect to make a profit of as much as Php. 103,957 under normal circumstances (Philippine Statistics Office-Bureau of Agricultural Statistics, 2014).

In the province of Nueva Ecija, at least 21,086 farmers have planted onions on a total of 11,502.84 hectares in 22 towns and cities (Galang, 2019). Each hectare produces about 10 to 15 tons of onions per harvest (Dizon, 2019). In 2013 alone, the province of Nueva Ecija produced 99.9% of the Central Luzon Region's total production, and 82% of the production was composed of red onion (Department of Agriculture Philippine Rural Development Project (DA-PRDP), 2014). Nueva Ecija's onion production is concentrated in the municipality of Bongabon, dubbed the onion basket of the Philippines (Galang, 2020). In 2019, at least 2,300 hectares of farmland were planted with onions in this municipality (Business Mirror, 2020). Indeed, this industry has become a source of livelihood for farm owners, workers, and traders (Abebe, 2018; Etana, Aga, & Fufa, 2019; Fabrice, Yann, & Kémal, 2018).

As in any other industry, the onion industry faces various constraints across various onion-producing countries. Problems are mainly connected to financial, managerial, and technical limitations in harvest and post-harvest activities and marketing systems (Gebru & Derbew, 2015). Common problems include a lack of storage facilities, inadequate market outlets, lack of access to quality seeds and pesticides, high cost of production inputs, poor farm-to-market roads, exploitation by local traders, and lack of sufficient capital (Baloch et al., 2014; Grema & Gashua, 2014; Sanyang, 2014). Other constraints that cause difficulties for onion farmers are insect and pest infestation, lack of sufficient irrigation water, limited supply of agricultural inputs, limited know-how and skill, low price of produce, and poor links with value chain actors (Diriba-Shiferaw, Birhanu-Mentafa, & Temesgen, 2017). Value chain actors include input suppliers, producers, rural collectors, brokers, retailers, wholesalers, processors, and consumers (Hailu, Zemedu, & Getnet, 2017). In addition, small-scale farmers are obliged to sell their produce to wholesalers at very low prices, which results in big losses on their side (Shrivastava, 2010). Every farmer's goal is to make more profit through sustained effort (Nurdiani, Hartono, & Jamhari, 2015). Thus, farmers should be involved in value creation and find ways to improve their farm-related activities in order to realize better profits (Knudson, Wysocki, Champagne, & Peterson, 2004; Santiago & Roxas, 2015). However, these will only be realized if the grey areas in their farm undertakings are addressed and resolved. The current study aims to fill a research gap in the agriculture sector as the majority of previous research has focused on the educational perspective and the enhancement of skills to achieve agricultural enterprise development (Amadi, 2012; Bahaman, Jeffrey, Hayrol, & Jegak, 2010). However, given the important role of agriculture, research endeavors should also focus on the needs of farmers (Corbett, 2005).

Onion farmers in the Philippines have shared common sentiments and struggles with onion cultivation. This motivated the researcher to initiate this academic endeavor, which is timely, significant, and relevant, to discuss the present situation of the onion farmers in Bongabon, Nueva Ecija, and to achieve clearer insight into their plight.

Indeed, this study should greatly help empower the local onion industry and boost the agricultural activities of the onion farmers. Assessing the plight of the farmers in the onion industry in Nueva Ecija is worthwhile as concerned agencies can use the results to design possible intervention measures to help the local farmers take advantage of the promising opportunities in onion growing and eventually improve the onion industry's competitiveness in general.

2. MATERIALS AND METHODS

This descriptive study was conducted in Bongabon, Nueva Ecija, which is the top onion-producing municipality in the Philippines. A total of 184 onion farmers were recruited as respondents. An appropriate sample size was drawn from a population of 350 onion farmers using Raosoft Statistical Software. The sample size from the municipality was identified using simple random techniques and was in proportion to the population. The study utilized survey questionnaires to gather data for this study. The instrument used was approved by a panel of experts in the fields of research, business, and agriculture. The instrument was then tested on onion farmers from other municipalities not covered in the study to verify the clarity of the items and directions used in the questionnaire.

Before the administration of the questionnaires, the researcher coordinated with the mayor and municipal agriculturist of Bongabon regarding the distribution of the instruments. The researcher was likewise endorsed to the barangay captains to gain access to the onion farmers. From the list of onion farmers identified by the barangay captains, the respondents were then chosen through a simple random sampling technique. The researcher personally administered the distribution of the questionnaire. Interviews with the onion farmers were conducted simultaneously. Percentage and ranking were the main statistical tools employed in this study.

3. RESULTS AND DISCUSSION

3.1. Nature of Land Ownership of Farmer-Respondents

Table 1 presents the ownership status of onion farmers' current land possession, which can be classified as tenanted, owned, or rented.

Table 1. Land ownership status.

Land ownership status	Frequency	Percentage
Tenanted	113	61.00%
Owned	49	27.00%
Rented	22	12.00%
Total	184	100%

Sixty-one percent (61%) of surveyed onion farmers did not currently own the land they were cultivating but worked as “kasama” or tenants to the landowners. In the “kasama” system, the land owner typically covers the costs of production inputs and labor from planting to harvesting. After deducting the expenses from the gross income, the landowner and the tenant share the remainder. At times, the landowner may decide to buy the portion of the produce due to the tenant. After this, the landowner has the option to either store or sell the onion produce.

Twenty-seven percent (27%) of the surveyed onion farmers fully owned the land they were tilling. They were both owners and cultivators simultaneously. Meanwhile, 12% of the respondents rented the land they cultivated. In the rental arrangement, farmers pay a sum of money to the landowner for the use of the land for a certain period. The rental amount varies depending on the negotiation agreed upon. A contract bounds the agreement.

It can be understood that most onion farmers do not own the land they cultivate. If this situation continues to prevail, the onion farmers have little chance of acquiring land of their own. The onion farmers who own the land they till have more to gain than to lose. They reap all the fruits of their labor, especially when the harvest is plentiful. Onion farmers who rent the land for a fixed period may benefit more since the amount they pay as a rental is easily recovered in the early years when the harvest is good.

3.2. Financing of Farmer-Respondents

Financing plays a significant role in onion farming since a lack of money could hinder farmers from taking up farming. Table 2 presents the onion farmers’ sources of financing – whether they have fully financed their operation themselves or opted to borrow capital from other persons or institutions.

Table 2. Onion farmers’ sources of financing.

Source	Frequency	Percentage
Fully financed by the owner	21	11.00%
Borrowed capital	163	89.00%
Total	184	100%

Eleven percent (11%) of the onion farmer respondents used their own means of financing their farm needs, and 89% of the farmers borrowed capital from various sources to fund their farm operations, primarily from trader-capitalists and private persons engaged in lending. In addition, some respondents said they were accustomed to this system of borrowing in anticipation of being able to pay their obligations after the harvest.

It can be noted that most onion farmers are in a difficult financial situation as their financial needs depend on trader-capitalists and other private persons. If this practice continues, the onion farmers will never be freed from the bondage of borrowing. Table 3 presents the specific person or institution from whom the onion farmers borrow capital to finance their farm needs.

Table 3. Financing sources of the onion farmers.

Sources of financing	Frequency	Percentage
Trader-capitalists	109	67.00%
Banks and other financial institutions	11	7.00%
Informal lending (Private persons)	43	26.00%
Total	163	100%

Of the onion farmer respondents who borrowed capital, 67% obtained financing from trader-capitalists. Sometimes, Chinese financiers demand that a certain seed variety be planted to access funding, yet without the agreement that the onion produce be sold to them. Seven percent (7%) of the onion farmer respondents took out loans from banks and other financial institutions to meet their financial needs. This percentage is low because banks require collateral to make loans available. Twenty-six percent (26%) of the respondents obtained loans from private persons who also took part in lending activities. Onion farmers in the municipality are often tied to credit arrangements with trader-capitalists who advance farm inputs and capital. However, with such arrangements, the onion farmers lose bargaining power on the price of their produce, especially during harvest time. Worse, some onion farmers are charged 3%-5% interest per month on the borrowed capital. Moreover, for onion farmers to continue to avail themselves of financial loans from trader-capitalists, they must maintain satisfactory credit dealing with them.

The onion farmers are put in a bad light by their creditors when the harvest is not good due to pest infestation or some unforeseen calamity like typhoons or very low farmgate prices, which may cause a delay in the settlement of their obligation. As disclosed by some onion farmers, borrowing from either private persons or other financial sources entails paying interest. Banks may be a better choice, but they do not extend credit without any form of hard collateral, such as a lot and house via a real estate mortgage.

Two modes of paying off loans from creditors were identified by the onion farmers. Regarding loans from traders or private individuals engaged in lending, the farmers either pay them in cash or give them part of the harvest, equivalent to the amount owed by the farmers. About 58% of the onion farmers had this kind of settlement. According to some interviewed farmers, the trader-capitalists often opt to receive the harvest equivalent of the debt, especially when the farmgate price is very low. These trader-capitalists would then be in a better position because the price of onions tends to increase after a few months, which would mean higher profits for them. This is especially true when they can store the onions. The trader-capitalists will have already reserved cold storage warehouses during the planting season.

Concerning loans from banks or other financial institutions, the onion farmers pay their creditors in cash upon their loan maturity or pay their obligations through scheduled amortization. The former style is common with banks, while the latter is pervasive with informal lending entities. The amount to be paid is based on the outstanding balance, including the interest due.

3.3. Problems Encountered by Onion Farmers

The main problems encountered by onion farmers in Bongabon, Nueva Ecija, are presented in Table 4.

Table 4. Problems encountered by onion farmers in Bongabon, Nueva Ecija.

Problems	Frequency (N=184)	Percentage	Rank
Input provision			
a. Hoarding of seeds by unscrupulous traders	25	13.50%	2
b. High cost of seeds, fertilizers, pesticides, insecticides & herbicides	162	88.00%	1
Production			
a. Lack of support from the government in terms of farm machinery and equipment	152	82.60%	3
b. Lack of technological know-how on proper fertilizer management & application	144	78.20%	4
c. Lack of farm laborers	160	86.90%	2
d. Pest infestation	162	88.00%	1
Processing			
a. Lack of access to storage and post-harvest facilities	174	94.50%	1
b. High cost of storage fees	172	93.40%	2
c. Lack of technology to process onions	143	77.70%	3
Marketing			
a. Poor farm-to-market roads	57	30.90%	3
b. Price manipulation by unscrupulous traders	65	35.30%	1
c. Unregulated onion importation, including smuggling	62	33.70%	2

3.3.1. Input Provision

The farmer respondents considered the high cost of farm inputs, fertilizers, pesticides, insecticides, and herbicides, and the high cost of seeds to be their top problems. Fertilizer and pesticide expenses comprise a significant percentage of the total production costs. The rise in the price of fertilizer and other chemical inputs over the years, coupled with low yields, contributes to high production costs and the erosion of profit margins. The same is true with regard to the price of onion seeds, which has continued to escalate because they are sourced from abroad. The price is also susceptible to manipulation by big-time traders and suppliers. This has become a perennial problem experienced by onion farmers, as any increase in cost in any phase of production shrinks the net cash flows. The low productivity of onion cultivation can be attributed to the poor quality of seeds and fertilizers, lack of improved onion cultivars, inappropriate agronomic practices, and the little attention given to crop production (Etana et al., 2019; Kahsay, Fasigaw, & Alemat, 2016). In addition, improper nutrient management can also cause low productivity. This can be mitigated through the efficient use of renewable resources, such as organic manure and biofertilizers (Jayathilake, Reddy, Srihari, & Reddy, 2006).

Onions are susceptible to weather conditions, and the whole crop can be wiped out. In cases like these, onion farmers have to re-invest and repeat the planting process. Some farmers disclosed that if they do not repeat the process, they may lose as much as half a million pesos; their losses would be more significant as they would not be able to recoup their investment in the first crop.

3.3.2. Production

The greatest difficulty in terms of production is pest infestation, which was experienced in previous years and has, to date, not been addressed. Onions are a high-value crop, yet very susceptible to armyworm infestation (Alberto, Biagtan, Isip, & Tagaca, 2019). In 2016, it was reported that 389 hectares of onion farms were destroyed by armyworms, while 358 hectares were damaged (Galang, 2016). The municipality of Sto. Domingo in Nueva Ecija suffered the worst damage when worms attacked 346.30 hectares of farms. Bongabon town lost 98 hectares of farms. Moreover, 139 hectares of farms were damaged in Palayan City, 96 hectares in Laur town, 47 hectares in Quezon town, 34 hectares in Talavera town, 25 hectares in Cuyapo town, 10 hectares in the Science City of Muñoz, and 6.8 hectares in

Aliaga town (Galang, 2016). Farmers also disclosed that there was a lack of government support in providing them with farm machinery and equipment. The shortage of farm laborers is another challenge. Sometimes, the high demand for farm laborers during the planting and harvesting season caused farmers to experience delays in their farm activities. Note that timing is essential in onion production, and labor costs represent a large proportion of the overall production costs. According to some interviewed farmers, they also lacked technological know-how on proper fertilizer management. Farmers also claimed they were not getting the optimum benefit from fertilizer use. In many cases, the amount of fertilizer applied was based on standard specifications (e.g., 1 bag of fertilizer per can of seeds) rather than the results of soil analysis. The unstable supply of onions in the market in recent years can be attributed to various factors, such as the occurrence of natural calamities, lack of farming motivation, less systematic commodity flow, and production to postproduction constraints (Calica & Cabanayan, 2018).

3.3.3. Processing

In terms of processing, most farmers cannot afford high storage fees. Improvised onion hangers may be the best alternative, even when used for short periods, to cope with the low market price, especially if there is an abundant harvest.

Storage is one of the most important aspects of the post-harvest handling of onions. Proper storage conditions extend the period of availability of fresh onions by arresting metabolic breakdown and decay (Sharma & Shukla, 2016). Proper preharvest and post-harvest conditions are also important factors for the stability of onion bulbs as they may also affect their marketability and quality (Petropoulos, Ntatsi, & Ferreira, 2017).

The onion farmers added that there is little technology available to process onions for value-adding when the price is too low, especially during crop abundance. As disclosed by the respondents, the lack of technology to process onions is another challenge in the industry. In the absence of processors in the province that can transform onions into other product forms, onions in the province are sold in their raw form. According to the respondents, a less expensive technology should be introduced to help them add value by processing those onion bulbs so that they can offset their losses when the price of onions is low during the harvest season.

3.3.4. Marketing

The interviews with the respondents revealed that manipulation by big-time traders was the main problem they encountered in marketing. This is coupled with unregulated onion importation, including smuggling, and poor farm-to-market roads, which ranked second and third. According to the farmers, big-time traders dictate the price of onion bulbs in the market, which leads to the low farmgate price of their produce. Alleged entry of smuggled onions also hurts onion farmers. Imported onions have displaced local produce from the market, which could cause poor farmers to become even poorer (Gascon, 2014). If the supply of smuggled onions continues to overpower local farmers' onion produce, they may be discouraged from continuing onion production. The influx of imported onions in the local market greatly affects the market competitiveness of locally produced onion bulbs in the Philippines (Del Carmen et al., 2016). Due to the oversupply of imported onions, local onion farmers have sold their produce at lower prices than their cost of production just to recover the amount they invested (Dizon, 2019). In the past, farmers have often been forced to sell their produce right after harvest at a low price due to the lack of storage facilities in the province (Flora, 2019).

Traders, including cooperatives, usually collect the farmers' produce from their farms. When farms are not accessible by trucks, farmers must bring their onions to the nearest accessible road by cart using carabao or manual hauling. Farmers thus shoulder the additional cost of bringing their produce to the nearest road. If no buyers are available for their onions, the farmers hire hauling vehicles to bring their onion produce to their houses. Farmers sell their onion produce right after the harvest, especially if the farmgate price is attractive and sufficient to recover their expenses in the entire production process. The farmgate price per kilo of onion produce fluctuates yearly for farmers. Farms located in areas with bad roads get lower prices due to higher transportation costs and depreciation.

3.4. Proposed Intervention Strategies for the Onion Industry in Nueva Ecija

Based on the identified problems, intervention strategies can be proposed for each of the four aspects of the onion industry.

3.4.1. Input Provision

Table 5 presents the intervention strategies that could solve the problems associated with the high cost of farm inputs, such as the cost of seeds and fertilizers, and issues involving traders' unscrupulous activities.

Table 5. Intervention strategies for the onion industry in terms of input provision.

Problems	Intervention strategies	Responsible group/Unit
1. High cost of seed 2. Fertilizer, pesticide, insecticide, and herbicide	Government to subsidize the farm inputs needed by onion farmers	<ul style="list-style-type: none"> • Department of Agriculture • Local government unit through municipal agriculturist office or office of the provincial agriculturist
3. Hoarding of seeds by unscrupulous traders	Create a group to monitor prices of agricultural farm inputs	

Intervention Strategies:

- a. The government should subsidize the farm inputs needed by onion farmers. Government subsidies may be of great help to farmers to lessen the financial burden associated with buying certified onion seeds and other farm inputs. The local government unit could allocate part of its annual budget to realize this intervention.
- b. Create a group to monitor the prices of agricultural farm inputs. As onion farmers struggle to buy expensive onion seeds, the Department of Agriculture and provincial and municipal local government units must ensure that farm inputs are priced correctly. They should impose sanctions or heavier penalties on those who hoard onion seeds.

3.4.2. Production

Table 6 presents the proposed intervention strategies to address the challenges of onion production.

Table 6. Intervention strategies for the onion industry in terms of production.

Problems	Intervention strategies	Responsible group/Unit
1. Lack of support from government in terms of farm machinery and equipment	Government to subsidize farm machinery	<ul style="list-style-type: none"> • Department of Agriculture • Local government unit
2. Lack of technological know-how on proper fertilizer management & application	Relevant government agencies to help with soil analysis	<ul style="list-style-type: none"> • Department of Agriculture • Local government unit • State universities and colleges • Department of Science and Technology
3. Lack of farm laborers	Mechanization of some production steps	<ul style="list-style-type: none"> • Department of Agriculture • Local government unit • Philippine center for postharvest development and mechanization (PhilMec)
4. Pest infestation	Intensive research and development to identify interventions for pest infestation, but should be environment-friendly	<ul style="list-style-type: none"> • Department of Agriculture • Local government unit • Department of Science and Technology • State universities and colleges

Intervention strategies:

- a. The Department of Agriculture, in particular, should subsidize farm machinery. The government may allocate a portion of its annual budget to subsidize the farm machinery needed by farmers. They should also offer loans at an affordable rate and longer payment periods via a conduit financial institution, but also guaranteed by them.
- b. Relevant government agencies to help in soil analysis. The Department of Agriculture, the Department of Science and Technology, and local government units should spearhead training for farmers in soil analysis. These agencies may enlist agricultural schools or state universities and colleges for this undertaking.
- c. Mechanization of some production steps. Mechanized planting technologies could compensate for the unavailability or lack of farm laborers.
- d. Intensive research and development to identify interventions for pest infestation. As pest infestation has become a huge problem in recent years, there should be continuous research to develop ways to stop or lessen the effects of pest infestation; however, these should be environmentally friendly and avoid the heavy use of chemicals.

3.4.3. Processing

Table 7 presents the proposed intervention strategies to address the problems in processing onion produce, including the need for post-harvest facilities and technology.

Table 7. Intervention strategies for the onion industry in terms of processing.

Problems	Intervention strategies	Responsible group/Unit
1. Lack of access to storage and post-harvest facilities	Establish more cold storage facilities and onion hangers	<ul style="list-style-type: none"> • Department of Agriculture • Local government unit
2. High cost of storage fees		
3. Lack of technology to process onions	Access to government-sponsored services such as their product development program	<ul style="list-style-type: none"> • Department of Agriculture • Local government unit • Department of Science and Technology • Department of Trade and Industry • State universities and colleges

Intervention strategies:

- a. Establish more cold storage facilities and onion hangers. As the demand for onion storage increases, this opens investment opportunities in the province, be it in cold storage or onion hangers (air drying facilities). The availability of post-harvest and storage facilities in close proximity to onion production areas will also reduce the hauling and transport costs of farmers and cooperatives.
- b. Access to government-sponsored services, such as their product development program. As onion farmers can sometimes not get rid of their harvest, reject onion bulbs, or experience low farmgate prices, they should find ways to transform the onions into more marketable forms, including powder, chips, and pickles, among others. The Department of Trade and Industry could support them in marketing their products and the Department of Science and Technology could support other uses. State universities and colleges could spearhead training for onion farmers on onion product development as part of their outreach services.

3.4.4. Marketing

Table 8 presents the proposed intervention strategies to address the problems faced by onion farmers in marketing their onion produce.

Table 8. Intervention strategies for the onion industry in terms of marketing.

Problems	Intervention strategies	Responsible group/Unit
1. Poor farm-to-market roads	Improve roads	<ul style="list-style-type: none"> • Department of Agriculture • Local government unit • Department of Public Works and Highways
2. Price manipulation by unscrupulous traders	Government to enact laws subsidizing onion prices	<ul style="list-style-type: none"> • Department of Agriculture
3. Unregulated onion importation, including smuggling	Heavier penalties for erring cooperatives and their cohorts	<ul style="list-style-type: none"> • Bureau of Customs • Department of Justice

Intervention Strategies:

1. Improve roads. The improvement of road conditions would reduce transportation and labor costs and, consequently, the overall transaction cost. Shorter travel times and good road conditions would minimize the risk of product deterioration. The overall reduction of transaction costs would improve price competitiveness and create better profit margins that would help farmers cope with onion price fluctuations.
2. Heavier penalties for erring cooperatives and their cohorts. The government should continuously protect the interests of the local onion growers against unscrupulous businesspeople. The Department of Agriculture should be vigilant to detect bogus import permits. The Department of Justice and the Bureau of Customs should hasten the resolution of malpractice cases against onion cooperatives to deter further instances of this wrongdoing.

4. CONCLUSION

Local onion farmers are devoted, determined, and courageous risk-takers despite most of them being tenants to landowners and having to borrow capital to finance their production and post-production needs. Problems arising in the areas of input provision, production, processing, and marketing hinder local farmers' opportunities to make more profit and produce onions as competitively as imported ones. High prices of farm inputs, pest infestation, lack of access to storage and post-harvest facilities, and price manipulation by unscrupulous traders were the top problems faced by farmers in the onion industry. To support the onion farmers, the Philippines' Department of Agriculture and other relevant agencies should develop a unified and strategic production and marketing blueprint for the onion industry. This would include technical and financial support for farmers and the provision of marketing facilities. The government should also consider imposing heavier penalties on erring government officials and unscrupulous businesspeople involved in unfair trade practices. The onion cold storage facilities should also be regulated, and oversight of the affairs of onion stakeholders should be increased to deter any business misconduct. Finally, the government should extend support to onion growers by subsidizing the farm inputs they use. Meanwhile, farmers are encouraged to engage in crop diversification rather than relying solely on onion production.

Funding: This study received no specific financial support.

Competing Interests: The author declares that there are no conflicts of interests regarding the publication of this paper.

Views and opinions expressed in this study are those of the author views; the Asian Journal of Agriculture and Rural Development shall not be responsible or answerable for any loss, damage, or liability, etc. caused in relation to/arising out of the use of the content.

REFERENCES

- Abebe, A. (2018). Review on onion value chain analysis in Ethiopia. *Nutrition and Food Science International Journal*, 6(5), 555698. <https://doi.org/10.19080/nfsij.2018.06.555698>

- Alberto, R., Biagtan, A., Isip, M., & Tagaca, R. (2019). Hot spot area analysis of onion armyworm outbreak in Nueva Ecija using geographic information system. *Spatial Information Research*, 27(6), 673-680. <https://doi.org/10.1007/s41324-019-00266-0>
- Amadi, U. P. (2012). Agricultural entrepreneurship development for youth empowerment in Nigeria: Constraints and Initiatives for Improvement. *Journal of Educational and Social Research*, 2(10), 107-1114.
- Bahaman, A., Jeffrey, L., Hayrol, A., & Jegak, U. (2010). Acceptance, attitude and knowledge towards agriculture economic activity between rural and urban youth: the case of contract farming. *Journal of Applied Sciences*, 10(19), 2310-2315. <https://doi.org/10.3923/jas.2010.2310.2315>
- Baloch, R. A., Baloch, S. U., Baloch, S. K., Baloch, H. N., Ahmed, S., Badini, W. B., . . . Baloch, J. (2014). Economic analysis of onion (*Allium cepa* L.) production and marketing in district Awaran, Balochistan. *Economic Analysis*, 5(24), 192-206.
- Business Mirror. (2020). *Nueva Ecija farmers, LGU execs buck government's onion import plan*. Business Mirror. Retrieved from <https://businessmirror.com.ph/2020/01/11/nueva-ecija-farmers-lgu-execs-buck-governments-onion-import-plan/>
- Calica, G. B., & Cabanayan, Z. L. L. (2018). Assessment of the postharvest systems and losses of bulb onions in Nueva Ecija, Philippines. *Asian Journal of Postharvest and Mechanization*, 1(1), 81.
- Corbett, A. C. (2005). Experiential learning within the process of opportunity identification and exploitation. *Entrepreneurship theory and practice*, 29(4), 473-491.
- Del Carmen, D. R., Espigol, A. M. D., Nuevo, P. A., & Masilungan, G. D. (2016). Morphological and physico-chemical characteristics of "Red Creole" *Allium cepa* L. in three production areas in the Philippines. *Philippine Journal of Crop Science (PJCS)*, 41(3), 13-19.
- Department of Agriculture Philippine Rural Development Project (DA-PRDP). (2014). *Value chain analysis and competitiveness strategy: Bulb Onion (Luzon A Cluster)*. Retrieved from <https://dokumen.tips/documents/philippine-rural-development-project-prdp-i-plan-drive-vca-clusterwide.html>
- Diriba-Shiferaw, G., Birhanu-Mentafa, H., & Temesgen, M. (2017). Opportunities, constraints and strategic interventions in onion value chain: The case of Ambo and Toke Kutaye Districts, West Shoa Zone, Oromia Regional State, Ethiopia. *Journal of Postharvest Technology*, 5(4), 38-50.
- Dizon, R. (2019). *Onion farmers in Nueva Ecija suffer from 'bad timing'*. Manila Standard. Retrieved from <https://manilastandard.net/lgu/luzon/292362/onion-farmers-in-nueva-ecija-suffer-from-bad-timing-.html>
- Etana, M. B., Aga, M. C., & Fufa, B. O. (2019). Major onion (*Allium cepa* L.) production challenges in Ethiopia: A review. *Journal of Biology, Agriculture and Healthcare*, 9(7), 42-47.
- Fabrice, D., Yann, M., & Kémal, B. (2018). Onion (*Allium Cepa*) production in urban and peri-urban areas: Financial performance and importance of this activity for market gardeners in Southern Benin. *Current Investigations in Agriculture and Current Research*, 3(2), 1-13.
- Flora, I. O. (2019). *DA sees higher onion, Bt corn production*. Sun Star. Retrieved from <https://www.sunstar.com.ph/article/1822208/Pampanga/Local-News/DA-sees-higher-onion-Bt-corn-production>
- Galang, A. (2016). *Army worms attack onion farms in Ecija*. Philippine Daily Inquirer. Retrieved from <http://newsinfo.inquirer.net/776585/army-worms-attack-onion-farms-in-ecija>
- Galang, M. (2019). *Nueva Ecija onion farmers seek gov't help amid low prices*. Philippine News Agency. Retrieved from <https://www.pna.gov.ph/articles/1065234>
- Galang, M. (2020). *No over importation of onion, N. Ecija farmers told*. Philippine News Agency. Retrieved from <https://www.pna.gov.ph/articles/1094596>
- Gascon, M. (2014). *Imports force Nueva Vizcaya, Ecija onion growers to sell low*. Philippine Daily Inquirer. Retrieved from <https://www.inquirer.net/help-philippines/articles/588372>
- Gebbru, H., & Derbew, B. (2015). Extent, causes and reduction strategies of postharvest losses of fresh fruits and vegetables—A review. *Journal of Biology, Agriculture and Healthcare*, 5(5), 49-64.
- Grema, I. J., & Gashua, A. G. (2014). Economic analysis of onion production along River Komadugu Area of Yobe State, Nigeria. *IOSR Journal of Agriculture and Veterinary Science*, 7(10), 5-11. <https://doi.org/10.9790/2380-071010511>
- Hailu, A., Zemedu, L., & Getnet, K. (2017). Value chain analysis of onion: the case of Ejere district, West Shoa zone, Oromia national regional state of Ethiopia. *African Journal of Agricultural Economics and Rural Development*, 5(1), 512-524.
- Hossain, M. M., Ahmed, M., Haq, M. E., Shefat-Al-Maruf, M., Nur-e-Nabi, M., Majumder, S., & Matin, M. A. (2017). Quality seed of onion: Effect of micro and macronutrients. *Annual Research & Review in Biology*, 20(6), 1-11. <https://doi.org/10.9734/arrb/2017/38172>
- Jayathilake, P. K. S., Reddy, I. P., Srihari, D., & Reddy, K. R. (2006). Productivity and soil fertility status as influenced by integrated use of n-fixing biofertilizers, organic manures and inorganic fertilizers in onion. *Journal of Agricultural Sciences—Sri Lanka*, 2(1), 40-58. <https://doi.org/10.4038/jas.v2i1.8112>
- Kahsay, Y., Fasigaw, B., & Alemat, E. (2016). Enhancing onion production and productivity through introduction of seed production techniques in central zone of Tigray region, Ethiopia. *Academia Journal of Agricultural Research*, 4(4), 188-192.
- Knudson, W., Wysocki, A., Champagne, J., & Peterson, H. C. (2004). Entrepreneurship and innovation in the agri-food system. *American Journal of Agricultural Economics*, 86(5), 1330-1336. <https://doi.org/10.1111/j.0002-9092.2004.00685.x>
- Nurdiani, U., Hartono, S., & Jamhari. (2015). Farmers entrepreneurship and performance of red onion farming in Bantul District. *Agricultural Science*, 18(2), 98-108. <https://doi.org/10.22146/ipas.9091>
- Petropoulos, S., Ntatsi, G., & Ferreira, I. (2017). Long-term storage of onion and the factors that affect its quality: A critical review. *Food Reviews International*, 33(1), 62-83. <https://doi.org/10.1080/87559129.2015.1137312>
- Philippine Statistics Office-Bureau of Agricultural Statistics. (2014). *2013 cost and returns of onion production*. Retrieved from <https://psa.gov.ph/sites/default/files/2013%20CRS%20Onion%20Report.pdf>
- Randle, W. M. (2000). Increasing nitrogen concentration in hydroponic solutions affects onion flavor and bulb quality. *Journal of the American Society for Horticultural Science*, 125(2), 254-259. <https://doi.org/10.21273/jashs.125.2.254>
- Rupasinghe, R. D. C., Ginigaddara, G. A. S., & Wickramasinghe, Y. M. (2017). Farming systems and utilization of environmental resources in rural communities in the dry zone of Sri Lanka case study in "Ritigala", Anuradhapura District. *Journal of Agricultural Sciences – Sri Lanka*, 12(2), 76-83.
- Santiago, A., & Roxas, F. (2015). Reviving farming interest in the Philippines through agricultural entrepreneurship education. *Journal of Agriculture, Food Systems, and Community Development*, 5(4), 15-27.

- Sanyang, S. E. (2014). Market oriented study on onion production through value chain approach in agricultural regions of the Gambia. *World Journal of Agricultural Sciences*, 10(6), 279-293.
- Sharma, S., & Shukla, R. (2016). Economics of storage of onion in Sikar District of Rajasthan. *International Journal of Research in Applied, Natural and Social Sciences*, 4(12), 133-138.
- Shiferaw, A. (2020). Onion (*Allium cepa*) varieties evaluation at Miyo District of Borana Lowland. *Acta Scientific Agriculture*, 4(3), 1-3.
- Shrivastava, U. (2010). A study of small agripreneurs and their business management. *International Journal of Management Prudence*, 1(2), 104-108.
- Teshika, J. D., Zakariyyah, A. M., Zaynab, T., Zengin, G., Rengasamy, K. R., Pandian, S. K., & Fawzi, M. M. (2019). Traditional and modern uses of onion bulb (*Allium cepa* L.): A systematic review. *Critical reviews in Food Science and Nutrition*, 59(sup1), S39-S70. <https://doi.org/10.1080/10408398.2018.1499074>