

Original Article

Resiliency management of layer poultry farm business during COVID-19 pandemic in the Yogyakarta Special Province

Suci Paramitasari Syahlani ^{*1}, Ni Made Ari Kusuma Dewi¹, Galuh Adi Insani²

¹Department of Livestock Socio-Economics, Faculty of Animal Science, Universitas Gadjah Mada, Yogyakarta, 55281

²Department of Animal Breeding and Reproduction, Faculty of Animal Science, Universitas Gadjah Mada, Yogyakarta, 55281

*Correspondence: suci.syahlani@ugm.ac.id

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Abstrak

Tujuan: Tujuan dari penelitian ini yaitu untuk mengidentifikasi krisis pada kegiatan usaha peternakan ayam petelur pada masa pandemi COVID-19 dan menginvestigasi manajemen resiliensi bisnis yang dilakukan peternak dalam menghadapi krisis tersebut.

Metode: Penelitian dilakukan di Daerah Istimewa Yogyakarta pada bulan April-Oktober 2020 dengan pendekatan kualitatif melalui metode penelitian naratif. Responden dalam penelitian adalah 2 pengurus asosiasi peternak ayam petelur yaitu Pinsar Petelur Nasional (PPN), masing-masing Ketua PPN Indonesia dan Ketua PPN Daerah Istimewa Yogyakarta yang keduanya juga berprofesi sebagai peternak ayam petelur. Responden lain adalah 10 narasumber peternak yang dipilih secara *purposive* menggunakan *snow-ball sampling method*. Pengumpulan data dilakukan melalui *indepth interview* baik secara langsung berhadapan dengan peternak maupun melalui telepon. Data yang diperoleh dianalisis secara deskriptif dan analisis konten.

Hasil: Pelaku usaha peternakan ayam petelur di Daerah Istimewa Yogyakarta telah mengalami berbagai tantangan perubahan lingkungan bisnis yang menjadi sumber krisis bisnis yang disebabkan oleh penyakit, bencana alam, krisis moneter, hingga pandemi COVID-19. Dampak yang ditimbulkan pandemi COVID-19 pada industri peternakan ayam petelur di Daerah Istimewa Yogyakarta adalah gangguan serapan pasar, distribusi, penurunan harga telur dan kenaikan harga pakan. Peningkatan pengetahuan pelaku usaha melalui kesadaran diri pada perubahan lingkungan dan berbagai upaya untuk melakukan koordinasi dalam komunitas atau organisasi yaitu PPN untuk berkonsolidasi menyatukan energi merupakan manajemen adaptasi yang memungkinkan untuk diadopsi oleh peternak untuk bisa bertahan menghadapi berbagai permasalahan tersebut.

Kesimpulan: Pengalaman dan daya tahan merupakan kunci untuk mampu mengatasi risiko dalam menjalankan bisnis peternakan dan menjadi modal utama untuk melakukan berbagai strategi resiliensi dalam mengatasi dampak pandemi COVID-19. Keberadaan jejaring, komunitas, kelompok dan organisasi membantu meningkatkan kemampuan dan peluang peternak dalam memanfaatkan teknologi inovasi, komunikasi, serta melakukan negosiasi dengan lembaga yang berperan untuk menopang peternak ayam petelur dalam industri peternakan. Dukungan pemerintah dan kebijakan yang tepat juga dibutuhkan dalam upaya mendukung penciptaan iklim bisnis yang mendorong keberlangsungan usaha peternakan ayam petelur pada masa dan pasca pandemi COVID-19.

Kata Kunci: COVID-19; peternakan ayam petelur; resiliensi

Abstract

Objective: The objective of the research was to identify crises on layer poultry farms specifically in Yogyakarta Special Province during COVID-19 pandemic and investigate business resiliency management to be utilised by the farmers to deal with the situation.

Methods: The research was conducted on Yogyakarta Special Province in April-October 2020 with qualitative approach method and data collection was taken using in depth interview method. Research respondents were 2 layer farmers who were also chairman of farmers association, namely *Pinsar Petelur Nasional* and 10 farmers purposively selected using snow-ball sampling method. Data collection was taken by face to face indepth and telephone interview and subsequently data was analysed descriptively and by using content analysis.

Results: Layer poultry farmers of Yogyakarta Special Province had faced challenges on their business environment that was becoming business crisis source due to disease outbreaks, natural disasters, monetary crisis, to COVID-19 pandemic. Impacts caused by the pandemic on layer poultry industry of Yogyakarta Special Province affected market demand, distribution, egg price fluctuation and feed price, respectively. Learning through self-awareness on environmental changes and conducting community and organisation coordinations that was PPN and the adaptational management that adopted by farmers to overcome the impact of COVID-19 in business.

Conclusions: Experience and endurance levels were the keys to resolve risks throughout running a farming business is important asset in conducting resiliency management in mitigating impacts of COVID-19 pandemic. Presence of community, group, and organisation networks will be usefull for the growth of capacity and opportunity of farmers in utilising novel and communication technology to negotiate with relevant farming industry stakeholders to maintain the existence of layer farmers in industry during and after the pandemic. Government supports and appropriate policy are also needed in supporting a hospitable business climate for the continuity of layer poultry farms.

Keywords: COVID-19; layer poultry farm; resiliency

INTRODUCTION

Resiliency management and understanding is increasingly becoming crucial in businesses susceptible to environmental changes [1]. Resiliency is persistency, success, and capacity of a business entity with self-awareness, reflexivity, and continuous learning to survive [2]. Generally, views on business resiliency relates on the ability of said entity to compete and survive in long term period [3] and the attachment of the business with a dynamic process to continuously adjust despite pressures from environmental crises from both internal and external factors. Business management is the organisation and coordinations on activities aimed to anticipate events that may negatively affect company operations [3]. Therefore, it can be said that resiliency indicates capacity of a system to recover and function normally after facing issues. Resiliency is an important factor in business as there are always probability of

hindrances and issues emerging regardless of how well a business plan is prepared beforehand by individuals of companies.

Phenomenons that can potentially turn into an industrial crisis source can manifest from both natural cause such as climate change [5] and disaster such as floods, volcanic eruptions, earthquakes, and epidemic, as well as from anthropogenic factors such policy and regulations [5], and economic recessions. One of such external phenomenon that greatly impacted all industrial sectors is the COVID-19 pandemic. First reported case of the virus in the Yogyakarta Special Province took place in 15 March 2020 and the case kept to increase till late of December 2020. Efforts were made to suppress viral transmission during March 2020 by the government by limiting public interactions and diverting outdoor activities to online media from homes, which was still going as of late 2020. Policy on learning from home caused non- Yogyakarta Special Province native undergraduate students to

return to their hometowns. There are 127 universities in Yogyakarta Special Province and on 2019 there were 405.580 students [6] and majority are originated from outside Yogyakarta Special Province. The absence of this demographic group can certainly cause significant impact on the economy of Yogyakarta Special Province since the food demand decreased significantly. Other activities affecting economy are the closing down of shops and tourism sites during certain periods to prevent unnecessary crowdings of people on outdoor settings [7] from non-basic needs purposes.

Yogyakarta Special Province is also one of tourist destination province in Indonesia with rated and no-rated hotels of 2019 numbering at 1.817 with total room capacity of 35.717 [8]. On the other hand, on 2018, there were 2.009 restaurants and diners with up to 26.515.788 local and international tourists recorded visiting [6]. The decline of visitors both scholars and tourists eventually decreased demands for meat, milk, and egg produces essential for food industry considering the economy of Yogyakarta Special Province relies heavily on fulfilling consumption needs of the aforementioned demographic groups.

Yogyakarta Special Province, aside of being a city of scholars and tourism, is also a major region in terms of layer poultry industry that contributes 1,32% of total national production. Population of poultry in Yogyakarta Special Province are concentrated in Sleman, Bantul, Kulonprogo, and Gunung Kidul districts. The rise of poultry meat and egg demands that led by population, income growth, price and consumer preference [9] encourage farmers to expand the business increasing rate of production, which had been recorded at 1,500,000 tons of eggs in 2017 [10] to fulfill the ever increasing local market demands on Yogyakarta Special Province.

However, the advocacy to work and study from home during the earlier period of COVID-19 pandemic inevitably disrupted physical market activities and this case can inflict detrimental effects on layer poultry farmers and the demands for eggs due to its perishable nature. The decline of

demands is reflected on the egg price indicator on late April 2020 when it hits its lowest at IDR 15,000-16,000/kg. Other effects of the pandemic on economy [11] is the decline of rupiah-dollar exchange value, which on 20 March 2020 went down to IDR 16,000 which in turn caused increase in feed price thus production cost, considering that majority of poultry feed components such as corn, pollard, soy meal, and fish meal are imported. However, Indonesia with 250 million of population and during the crisis, Indonesian Government still has pressure to provide affordable source of protein [12] and poultry eggs are generally favoured by Indonesian due to their affordable prices and even one of the most recommended food source to be made available and utilised during crises such as pandemic [13]. Eggs are easily distributed since it does not require a specific room temperature compared to raw milk and meat, and the cooking process is relatively easy and fast. Egg also contains high levels of protein and source of iron and several other minerals and vitamins, therefore eggs are suitable at all ages.

COVID-19 pandemic with its rapid transmission is a form of global crisis that can inflict significant losses to production sectors such as agriculture, household, commerce, industries, trades, and tourism; as well as to social sectors such as property, education, healthcare, cultural events, and nutrition [14]. Thus far, agricultures, farms, fisheries and aquacultures, as well as forestries are facing risks such as climate changes, extreme weathers, market fluctuations, disease outbreaks, and long-term crises such as the ongoing COVID-19 pandemic. Natural disasters such as typhoons and floods are examples of causes that had forced Vietnamese agricultures to cease function and significantly decrease rice productions [15]. Research on the impacts of disasters on agribusiness previously conducted revolve in natural disasters [14], [15] and disease outbreaks. However, contemporary to a disaster, often times there are minimum attentions given to rural agricultures in the aftermath as in what took place in Haiti, Nepal, Pakistan, and Indonesia, despite agriculture remaining a major source

of livelihood in the rural regions of these countries [16].

The discussion above shows that it is necessary to conduct study on (1) identifying crises sourcing from COVID-19 pandemic that affects layer poultry businesses and (2) to investigate business resiliency strategy to resolve said crises. The benefit of this study was to inform the impact of COVID-19 pandemic and how it was carried out by farmers to overcome the impact. This information is important for the government to establish effective policies in order to support the sustainability of layer farmers that contribute to the national food security.

MATERIALS AND METHODS

Research design

The research was conducted with qualitative approach due to unique data and correlating to social phenomenon on business resiliency management of layer poultry farms. Qualitative design is selected to obtain information on the impacts of disasters on business climate based on the experiences of the farmers [17]. Data collection method selected for the research was narrative research method. It conducted to obtain and interpret a group of data relating to individual experiences [18], which in this case were business players in layer poultry industry and the roles of experiences in influencing farming strategies in facing COVID-19 pandemic. The research was conducted in Yogyakarta Special Province on April to October 2020 and concentrated in Sleman, Bantul, Gunung Kidul, and Kulon Progo districts which are known as layer poultry farm centres of the province.

Data collection and analysis methods

Data collection was conducted through interviews on research respondents that were determined purposively with snowball sampling method. Appointed respondents were two management of layer farmers association Pinsar Petelur Nasional (PPN) and also owners of poultry farmers. They were PPN Chairmans of Indonesia area and Chairman of Yogyakarta Province. These two respondents were expected to share

the personal views as farmers and also the association's strategy in dealing with the pandemic. Then, there were also 10 respondents of layer poultry farmers that were member of PPN. The twelve farmers comprising of eight small-scale farmers and four mediums to large-scale farmers were selected to give information regarding impacts of COVID-19 pandemic on business and subsequent reactions of the respondents to resolve the crisis. Data collection was taken with in-depth and telephone interviews to be recorded then converted into transcript form. Other data collected were references of daily egg price from PPN during 2019-2020 and egg price recorded by Indonesian Ministry of Trade. Data analysis begins with data reduction by using thematic content analysis to determine the various themes that appear in the data obtained and then presenting and verifying the data. Thematic content analysis is carried out to analyze the similarities or differences between research subjects on a particular theme.

RESULT

Research respondent profiles

All research respondents were layer farmers who had performed in this industry for 20 to 25 years. The farmers who also serve as PPN chairmans had the same length time experience with the other farmers. Other professions undertaken by the respondents prior to farming range from egg vendors, farm pen construction workers, poultry feed traders, to private company employees. The experience that gained from those has formed farmers to become tough and tenacious in running the business. Farming was not the only business conducted by 50% of the respondents, as they also run plantations and orchards, trade poultry such as eggs, meat, and chicks, while in the case of the other 50%, farming was their only source of livelihood. Education background of these farmers vary, from those who went into the business as soon after finishing elementary school to those who went to finish bachelor degree. Education background of the two of PPN chairmans were bachelor and master degree. 71.43% of all the farmers have

previously learned poultry farming by themselves and only 28.57% undertake formal education on the subject of animal science. Then, 79.57% of them started farms as new businesses while 21.43 % continued their pre-existing family business.

Experiences of farmers in facing crisis

The chairman of Indonesia PPN described that layer poultry farmers in Yogyakarta Special Province had experienced various changes in business environment that resulted business crisis in many times. One of the first case ever faced by the farmers was the New Castle Disease outbreak of 1988, which resulted in immense mortality and morbidity as well as significant decrease in farm productions. Other crisis they have also faced is the Avian Influenza outbreak of 2006 which besides disrupting farm productions also cause mass fears as well as severe economic losses [19].

Other crisis that have been fallen farmers of Yogyakarta Special Province were natural disasters. A notable case was the 2006 earthquake of Yogyakarta Special Province which not only caused vast damages on residences but also farm infrastructures and equipment. Only few years later, Mt. Merapi eruption of 2010 affected farmers situated in proximity to the volcano. Volcanic ashes

damaged farm structures and during the peak of the eruption killed farm animals directly and indirectly as people were forced to take refuge away of the volcano while leaving their farms behind, resulting in over 50% decrease of production. Other, similar disaster faced by the farmers was the 2014 eruption of Mt. Kelud that caused wide-spread ashfall throughout Java. As a result, eggs were stalled in production centre and distributions were halted, culminating in a drop of price.

Aside of outbreaks and disasters, the chairmans of PPN described that few years ago poultry farmers have also experienced another hardship that was the 1998 monetary crisis of Indonesia which caused feed price to bloat therefore this was resulting in multitude of bankruptcy. Other rise in feed price can take place more often than desired especially when there were concurrent corn and soy harvest issues as well as competing with other industries that similarly used these products. Farmers also face hurdles in the form of integrated poultry business from upstream to downstream under the same company, especially those conducted by feed companies [20].

Farmers with diverse background and scale of farming have been making efforts to persistently adapting on the ever-changing environment to face ongoing and possible

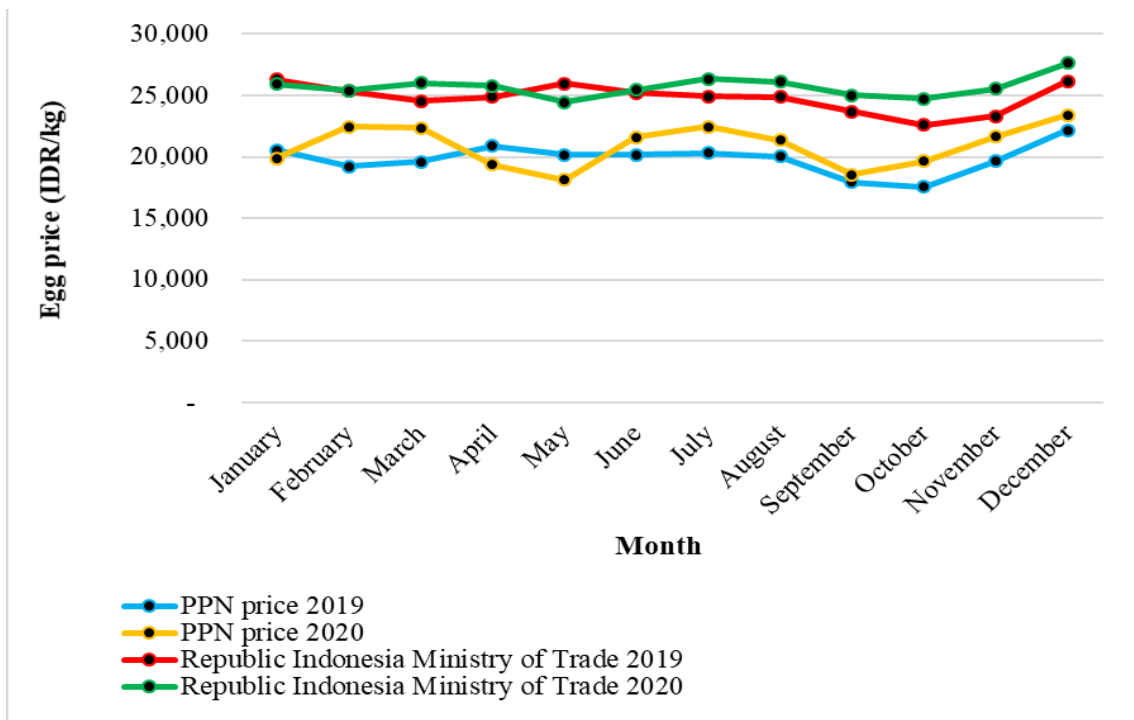


Figure 1. Chicken egg price fluctuations of 2019-2020

crises. The capacity to adapt is the ability of socio-ecological system to resolve novel situations without losing future opportunities and choices [21]. Outbreak issues can be mitigated with the implementation of biosecurity measures such as isolation, traffic control, and sanitation maintenance. Biosecurity practices may turn into a hurdle of its own as since 2020 has been decreed by the Ministry of Agriculture as mandatory for farmers to receive Veterinary Control Number as per *Peraturan Menteri Pertanian (Permentan) Nomor 11 Tahun 2020*. Until now, biosecurity measures are mostly accessible to moderate and large scale, but not small-scale farmers due to farm locations are often not isolated from local residences and lack of fund. Distinctions in practices favoured in the production performances of moderate and large-scale farmers in comparison with small-scale farmers. Moderate and large-scale farmers are often employing computerised daily recording system with accuracy in time, which can provide clear information. Furthermore, farmers have made efforts to mitigate production hindrances by investing relevant equipment such as wind blowers to improve air circulation and reduce concentrations of ammonia. Several empirical studies showed similar results that the utilisation of production factors to maintain favourable egg production in small scale farms remained underperformed compared with those of large scale ones [22], [23].

A way to rapidly adjust to the changing market can be done by adopting innovations using online applications [24]. Social media had been utilised to promote and sell products directly to consumer. Direct sales were undertaken due to the early stages of the pandemic as it can alter the chain of production, distribution, and marketing of products as an effort made by farmers to survive at the initial phase of the crisis despite the difficulties they are facing.

An alternative strategy that was utilised by farmers of Yogyakarta Special Province, especially after the entrances of business conglomerates in poultry industry, was the founding of *Pinsar Petelur Nasional (PPN)* association in 2014 that unites individual and

communal farmer groups. The vision of PPN is to form independent and prosperous local layer poultry farmers in providing animal-based protein for the people of Indonesia. Poultry farmers of Yogyakarta Special Province subsequently joined PPN as with others from all over Indonesia. This strategy is taken to increase adaptability due to institutional factors and networks that operates as a unit in assessing hardships and generating flexibility in resolving problems and balancing powers between involved parties [25].

Impacts of COVID-19 on layer poultry business in Yogyakarta Special Province

Aside of COVID-19 risks, farmers are also concerned with the risk of decreasing demands, distributions, and price. Compared with normal conditions, sales early in the pandemic were noted to suffer a decrease of over 50%.

Yes, markets were deserted. All farmers complained. As an example, I used to sell 10 crates of eggs but after the pandemic, selling only 5 crates were made difficult. 5 or even 3 crates were not sold out. For sure, demand has declined (egg) stock is piling up, that's the situation" (NU, respondent 3, personal communications)

The magnitude of sale/demand decrease is a multiplier effect from the absence of non-Yogyakarta Special Province undergraduate students as they returned home to continue study through online media as well as the decline and halt of tourism activities. Then, tourism, which has been known as the economical backbone of Yogyakarta Special Province, had also taken its toll due to the number of holiday cancellations during the pandemic [26]. Transportation industry were also faced with difficulty due to limited road accesses from a province to another due to Large Scale Social Restrictions undertaken by the government to limit COVID-19 transmissions. This particular issue was reflected in the disruption of egg distribution to Jakarta, Bogor, Depok, Tangerang and Bekasi regions as well as other produces mainly produced in East Java, were marketed to Yogyakarta Special

Province, resulting in bloated amount of egg supply despite its price plummeting. Moreover, productions of large-scale farmers of Yogyakarta Special Province, which were normally marketed to fulfill demands of other cities in Central Java Province such as Purworejo, Kebumen, and Gombong, instead sold to local markets and consequently adding up supplies and increasing price competitions. On March 2020, egg price was recorded at IDR 22,368/kg, however the decrease of demands and distribution disruptions forced it down to IDR 18,148/kg on May 2020 and even there were instances of farmers selling eggs beneath referenced price and their own break even point.

DISCUSSION

Business resiliency strategy during COVID-19 pandemic

Various challenges have been faced by farmers since 1988 who eventually maintained operations and becoming independent layer poultry farmers. This shows that there was adaptational behaviour internalisation process in running learning business to coexist with uncertainty [21]. Multitude strategies were taken by farmers, indicating that individual and group business behaviours within an association promote collective, fair, effective, and legitimate actions in achieving harmony with potentially long-term environmental changes [27].

Knowledge can turn into an important factor in being resilient as the core asset of resiliency is the presence of self-awareness [2], which in this case is market demands. Farmers understood that farming business is perpetually needed, as a source of food is one of the basic needs of humans.

"I believe food at all time is needed by humans. Never there are humans who don't require food source." (YU, respondent 1, personal communication)

This belief made farmers perceiving the need of totality in conducting business by willingly going through hardships and remaining optimistic during this period,

as well as always in the search to find ways to resolve issues. The aforementioned belief is being fundamental considering the research respondents were all farmers who had been working in the industry from 20 to over 30 years and thus have faced and survived hardships of varying types and degrees. This is a testament that resiliency is a process closely tied to farmers in their efforts to continually adapt to changes [28] despite they are facing rigidity and poverty trap present in this cycle [1] that may come from limited knowledge and business scale. Based on that belief, during the pandemic, farmers attempted to adopt various business resiliency management as the following. Self-awareness-based actions were undertaken to mitigate impacts of COVID-19 pandemic by farmers by mandating health protocols such as frequent hand-washes, physical distancing, the wearing of sufficiently filtered masks, limiting inter-city travels, and thorough disinfections of equipment and transports to prevent transmissions of the virus to the owner and their employees. The acts of isolation and disinfection are nothing novel to poultry farmers as previous outbreaks of New Castle Disease and Avian Influenza required them to do similar or same measures. Due to it, enforcing biosecurity measures in farming environments is deemed as rather easy. These measures are especially critical as a single vector of the virus can cause mass chain reaction effects within the entire egg production sector.

The decrease of egg demands early in the pandemic was resolved in by involving associations that was PPN that continually did heavily in promoting the consumption of eggs. Contents used in the promotion campaigns include the benefits of eggs as ideal source of food that can maintain health and immunity in facing COVID-19 pandemic. These campaigns were conducted by using various social media platforms such as Whatssapp, Facebook and Instagram. Farmers realized that social media marketing is an obligation to be implemented included for commodities product such as eggs. Social and traditional media need to be considered as part of a system that complement each other to work wether to

promote new product, to communicate, or to interact with the customer [29]. Concurrent with the campaign, PPN as the association that should protect the existency of layer business, also actively maintained communications with the government and asserting their readiness as commodity supplier that is needed by Indonesians including fulfilling supplies for social safety net such as *Program Keluarga Harapan* (PKH) and *Bantuan Pangan Non-Tunai* (BPNT) that government provided to poorer households via e-Warong. Government is the important element for the industry to cope the crisis situations by creating congenial environment for reviving the sector and ensuring the livelihood of the associated stakeholders through the effective governance and effective policy [30]. The strategy is undertaken as a unit by managing diversity of elements within the association and combining knowledge of its members to promote formation and growth of opportunities to adapt in socio-ecological environment [21]. The strategy shows desirable success as since BPNT was conducted, egg price managed to increase and achieved average price of over IDR 20,000 in June-August 2020 as parts of the production was integrated for BPNT.

"If government holds PKH, the price will risen be" (SU, respondent 9, personal communication)

"PKH helped farmers to sell their supplies that had been stuck for 3-4 days, the stock can be sold gradually and the price too slowly went back up." (CA, respondent 2, personal communication)

Farmers also do direct marketing to friends, communities that known and add customized services to serve according to the number of eggs needed by customers and deliver to the certain location. This strategy worked for small scale farmers eventhough it created additional works for farmers, however it helps to keep the sales during social restriction.

"I sold (eggs) to my friends. I offered them to meet up and I brought the eggs with me. It was good the egg production

continues to run out, not bad." (YI, respondent 12, personal communication)

Other strategy that can be taken was increasing communications intensity between farmers both in the form of online coordination meeting or through social media interactions. During COVID-19 pandemic, PPN had subscribed Zoom platform as a medium of communication between members and with the external parties. PPN also develop some national and local areas communication groups by using Whatsapp platform. These were important to carry out internal consolidation to overcome many issues that may be exaggerated during this situation. For example, the overstock of eggs since naturally farmers concern that the product will not be sold. This strategy has helped to maintain the flow of market, price, and supply information, which during the initial stage of the pandemic were greatly disrupted due to limited mobilities of farmers. The strategy can also reduce opportunities of third-person parties to gain unreasonable profit by pressurising farmers to lower their price to achieve sale with minimum price for consumers.

"Yes, I received words on the price on XFarm through Whatsapp, for reference, I can sell them with the same price or about IDR 200 cheaper" (MI, respondent 8, personal communication)

CONCLUSION

The beginning of COVID-19 pandemic in 2020 caused crisis on the layer poultry farm industry as a result of multiplier effect caused by the halting of tourism industry and the absence of undergraduate students from other cities, both major source of economy of the province. Issues taking place in layer industry were demand and distribution disturbances, which caused egg price to plummet. Experiences of individual farmers in forming resiliency despite presence of pressures is becoming a key asset in running a business and alleviating impacts of COVID-19 impacts. Individual capacity in creating opportunities to adapt has been

growing thanks to involvement of institutions and networks to utilise information technology in maintaining communications and negotiations with other parties related to farm industry. Resilient and tough farmers are now becoming important asset for Indonesia to generate independency of source of food, therefore government are advised to issue policies that can promote formation of supportive business climate that can maintain farm industries in Indonesia both during and after COVID-19 pandemic.

CONFLICT OF INTEREST

The authors declare no conflict of interest with any financial organization regarding the material discussed in the manuscript.

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