

## Family Farm Resilience during the COVID-19 Pandemic in Indonesia: Case Studies on Organic and Conventional Farming

Rahmat Saleh<sup>1\*</sup>, Marya Yenita Sitohang<sup>1</sup>, Vanda Ningrum<sup>1</sup>, Ade Latifa<sup>1</sup>, Fitranita Ibnu<sup>1,2</sup>, Zainal Fatoni<sup>1,2</sup>

<sup>1</sup>Research Center for Population, The National Research and Innovation Agency (BRIN), Jl. Jenderal Gatot Subroto No. 10, Jakarta, 12710, Indonesia

<sup>2</sup>Doctoral Program of Population Science, The Graduate School of Gadjah Mada University, Jl. Teknika Utara, Yogyakarta, 55284, Indonesia

\*E-mail correspondence: [rahm033@brin.go.id](mailto:rahm033@brin.go.id)

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### ABSTRACT

The COVID-19 pandemic has brought additional stressors to Indonesian family farms, which are already subject to drought, flood, landslide, pest attack, and market price fluctuations. This study aims to analyse family farms' resilience to the stressors caused by the COVID-19 pandemic using Henry's family resilience model. Applying a qualitative approach, this study collected data using focus group discussions in two villages in East Java and a village in Center Java. The data was analysed using thematic analysis. We discovered that stressors related to the COVID-19 pandemic are lower demand on agricultural products and lower income among farmers. Organic and conventional farmers have different protection and vulnerability factors. Organic farmers are able to reach buyers directly using social media amid COVID-19 restrictions while conventional farmers still rely on sales through middlemen. The adaptive process of farming families is influenced by social psychological factors within the family such as meaning, emotion, control, and maintenance systems. This study suggests that family farmers have to be empowered in terms of their innovative production in current stressors and increase their access to the market as a priority for agricultural extension programmes.

**Keywords:** COVID-19, family farms, resiliency, stressors

## INTRODUCTION

In an agricultural country like Indonesia, the agriculture sector is still the basis for the livelihood of most families, despite various challenges in the sector. This makes family farmers more vulnerable to any stressors that occur. Many studies indicate that the stressors are mostly caused by climate change, which has resulted in drought, floods, and landslides (Alayón-Gamboa & Ku-Vera, 2011; Caldwell et al., 2009; Habiba et al., 2012; Joffre et al., 2011; Shahzad et al., 2019; Vibert, 2016). Another stressor comes from the social environment, which includes agricultural modernization policies that influence farming behavior (Habiba et al., 2012), lifestyle, and farmer perspectives (Larson & Dearnmont, 2002; Ningrum et al., 2017), as well as market competition (Alayón-Gamboa & Ku-Vera, 2011; Darnhofer et al., 2016; Joffre et al., 2011). Evidence linked market uncertainty to lower farmer income that shows farmers' failure to deal with the stressor (Dumas et al., 2016; Shahzad et al., 2019; Zapico et al., 2019). Industrialization and urbanization have also resulted in the loss of farmland and affect the farmers' livelihood (Joffre et al., 2011). According to Vibert (2016), farmers find it more difficult to achieve a decent life as a result of industrialization.

Changes in nature, policies, socio-cultural and economic conditions, which are considered stressors for the farming family, not only affect the farmer's business activities but also affect the life within the farming family to be able to carry out its functions properly. Various studies on family resilience explain how different stressors are faced by families and adaptation strategies that are carried out to withstand changes or shocks. The resilience of farm families in dealing with stressors involves both internal and external aspects of the farming family. The resilience process occurs with the interaction between reactions in the family system (internal aspects) and family interactions with the community/public (external aspects) in the face of a shock or stressor (Caldwell et al., 2009; Jacobi et al., 2015; Mccubbin, 1979; Shahzad et al., 2019). Resilience can also be said to be the ability to restore family functions as before in the face of crises and challenges (National Network for Family Resiliency, 1995).

Various family resilience studies mention farming families on multiple scales. Tran et al. (2019) looked at families at the household scale, whereas Rodríguez et al. (2018) examined large-scale farming families under corporate social networks. The definition of farming family resilience also has a different focus according to the context of the farming family environment. In systems theory, efforts to achieve family resilience do not only emphasise farmers as individuals but also place them in the family unit.

Although it has been done in many countries, studies on the resilience of agricultural families in Indonesia are still relatively limited. Research related to resilience in the agricultural sector is more associated with food security (Aminah, 2015; Darwanto, 2005; Hernanda et al., 2017; Safitri et al., 2017). Most of these studies also did not focus specifically on family resilience. Meanwhile, the study by Puspitawati et al. (2019), which focuses on fishing families and farm labourers envisions family resilience as one of the factors affecting the quality of marriage. Family resilience in this study was measured using 30 questions related to legality and structure, physical strength, economic resilience, socio-psychological resilience, socio-cultural resilience, and gender equality. Also, the various types of families in Indonesia, which are very different from the context of families in the west that see the family as a nuclear family, are a challenge that has not been explored in many studies. Therefore, family resilience studies, with various types and characteristics of families in Indonesia, which are carried out in the context of agricultural families in Indonesia, are essential to do.

The novelty of this study can also be seen as it uses the *Family Resilience Model* (FRM) approach developed by Henry et al. (2015). The concept of FRM in this study is not only able to capture stressors originating from agriculture, but also the interaction processes among family members and farming families with their social lives such as meaning, emotion, control, and maintenance system. The FRM approach assumes that in an ecosystem that encompasses family interaction patterns, the process of resilience in the family takes place through the mobilisation of strength and access to new resources as a form of protection against the negative impacts of risk or other vulnerabilities so that the family can adapt positively and produce family resilience Henry et al. (2018).

Studies on the resilience of farming families with the FRM concept in Indonesian context are still rare. In addition, agricultural programs from the government (Ministry of Agriculture) for farm families tend to focus on economic aspects, particularly how to increase agricultural yields through various ways (intensification, extensification, diversification, mechanisation/modernisation, and rehabilitation). Indeed, in order to ensure the well-being of farming families, it is essential to consider not only the

economic aspects but also their resilience when facing various stressors both internal and external. Therefore, the authors elaborate this aspect to fill the gap.

Understanding this FRM concept comprehensively, this study contributes to create agriculture extensions programs focusing on family resilience. According to Davis et al. (2014) and Hakim et al. (2023), agriculture extensions, as a part of long-term program focusing on behavioral changing, have direct impact on building family resilience. Specifically, Henry's model highlighted the five core elements of family resilience: significant risk, protection, vulnerability, adaptation, the situational meaning of the family, followed by the notion of ecosystem and family. Interventions programs based on these elements are essentials to build capacity and to promote adaptation in facing unpredictable stressors such as pandemic COVID-19.

The risks faced by the family arise through the pressures faced by the family at certain times, in which the family feels the demands faced are more significant than the family's social, psychological, or material ability. In the FRM approach, family resilience appears when there is an interaction between the variables of family risk, family protection, and family vulnerability in a positive way, so that the family is able to make adjustments or adaptations, both in the short and long term. Furthermore, these variables will interact with family situational meaning, family adaptive system (FAS), and ecosystem (Henry et al., 2015).

In 2020, the COVID-19 pandemic was a global phenomenon that impacted not only the health but also the livelihood of farming families. Farmers are facing an unprecedented number of stressors. Based on FRM concept, this study posits that farming families can also make various adaptations to problems that arise in the family when there is pressure that interferes with family income sources, especially those from agriculture. The FRM approach is considered to be more comprehensive to analyse farming family resilience. It does so by considering various aspects, not only the economic aspects, but also social, psychological, and cultural aspects of the farming family.

The research question in this article is how farm families can build their family's resilience to the stressors caused by the COVID-19 pandemic. This research focuses on organic and conventional farming families during the first wave of the COVID-19 pandemic in Indonesia. Because it was unknown whether the shocks in 2020 at that time would be long-term or not. This study aims to analyse family farms' resilience to the stressors caused by the COVID-19 pandemic using a family resilience model by Henry et al. (2015).

## METHODS

The study was conducted between January to December 2020. This research used a qualitative approach, by applying phenomenology paradigm to elucidate the social phenomena that emerge through the interpretation of social interactions and actions, both individual and collective (Ritzer & Stepnisky, 2019). In the context of this study, the phenomenological paradigm was used to understand the resilience of the farming family during the COVID-19 pandemic. According to Creswell (1998), a qualitative approach in this study is utilized to build social reality and the interaction processes that occur in it to see how resilience is built up in farmer families in East Java and Central Java Province. The research was conducted in three villages, two villages in Trawas Regency (East Java Province) which are *Penanggungan* Village and *Claket* Village, and one village in Kebumen Regency (Central Java Province) which is *Kretek* Village. The two locations represent the diversity of family farming conditions. The three villages are agricultural villages with the superior commodity of rice.

There are significant differences between the three villages in terms of agricultural cultivation activities. Agriculture in *Claket* Village is carried out with organic cultivation for a small portion of vegetable crops, and the rest is implemented by conventional methods that use synthetic chemical fertilisers and pesticides. Meanwhile, most of the agriculture in *Penanggungan* Village is carried out with organic cultivation, and the *Brenjonk* farmer groups have even succeeded in building organic farming in the village. In addition to agricultural cultivation, this village also develops organic agriculture educational tourism facilities for tourists. The organic farming program in *Penanggungan* Village has succeeded in increasing the income of farmer families in the village. Unlike the two villages in Trawas Regency, most of the agriculture in *Kretek* Village (Kebumen Regency) uses conventional methods, only a small proportion of coconut plants do not use fertilisers and chemical drugs. The characteristics of the three research locations can be seen in Table 1 below.

**Table 1.** The characteristics of the three research villages

Characteristic	<i>Penanggungan Village</i>	<i>Claket Village</i>	<i>Kretek Village</i>
1. Types of agriculture	Rice, vegetables	Rice, vegetables, fruits	Rice, coconuts
2. The majority of the source of family life	Farmers	Farmers	Farmers
3. Average land status	Rent	Rent	Rent
4. The average area of land under management	0.5 hectares	0.5 hectares	0.5 hectares
5. Water resources	Groundwater	Groundwater	Irrigation
6. Type of cultivation	Organic	Organic dan Conventional	Conventional rice and organic coconut
7. Sales	Through groups	Through groups and middlemen	Through middlemen

**Source:** Processed by Researchers (2021)

The data were collected through a narrative review, scoping review, and focus group discussion (FGD). Narrative review was used to search for complete issues related to a particular topic (Collins & Fauser, 2005). On the other hand, scoping reviews were used to identify research gaps in existing literature: this type of scoping study takes the dissemination process one step further by drawing conclusions from existing literature regarding the overall state of research activities (Arksey & O'Malley, 2005). The narrative and scoping review in this study were carried out on articles in journals or books with relevant topics. The reviews provided not only the family farms' resilience but also helped to refine the analysis of this study. FGDs were held three times: in April 2020 with seven informants, May 2020 with seven informants, and September 2020 with five informants. Thus, the total number of informants participating in the three FGDs was 19. Due to the COVID-19 pandemic, the FGD was conducted online using the zoom application. Purposive technique was used to conduct FGDs with key and supporting informants. The points of discussion in the FGDs were directed at obtaining input on the characteristics of families whose life was on agriculture in the Indonesian context; problems from inside and outside agriculture; as well as the process of adapting the family to stressors that destroyed the family structure quickly for example, the occurrence of a disaster or difficulties faced at the stage of the family life cycle (economic and social pressures that can become pile up stressors (pressure that accumulates)); as well as social support owned by farming families as a protection factor.

The data analysis technique in this study began with the coding process, which is to organise the data into categories based on themes, concepts, or a particular similarity/comparison. According to Miles Huberman (1994) in Neuman (2014), "*codings are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study. Codes usually are attached to "chunks" of varying size—words, phrases, sentences or whole paragraphs, connected*" (Neuman, 2014). The name or label given in this coding process is based on the research objectives used in the research. In the coding process, Strauss (1987) in Neuman (2014) divides it into three stages, namely open coding, axial coding, and selective coding. In the coding process of data, this study used NVivo 12 software to help researchers categorise the FGD transcripts. The entire research process has passed the ethical review by the Indonesian Institute of Sciences/LIPI (currently: National Research and Innovation Agency/BRIN) (Number: 59/Klirens/VI/2021).

## RESULTS AND DISCUSSION

### Family Farming Stressors due to the COVID-19 Pandemic and its Vulnerability

Both conventional and organic farmers had to fulfil their needs despite the reduced income from their additional jobs. The COVID-19 pandemic affected family members of farmers who have jobs other than non-agriculture, for example, as factory workers. The reduction in factory operating hours resulted in a decrease in working time from 6 days to 3 days within one week, and there were even family members who had terminated their employment. Some said that they had not received their salary after being laid off. The decline in farmer family income has resulted in family difficulties in fulfilling other increasing

social needs in this pandemic era, such as the high cost of internet for school children because children learn from home using an online system. In contrast, the family is still obliged to pay school fees.

*"I have a child. My child has a husband, but her husband is unemployed. Right now there is COVID before COVID he was unemployed. They have two children now. So everyone in the house becomes my burden, including my child, with my grandchildren. So two children, then-husband and a child. Me. So four, including me, my husband. So six. Yes, each family has its family card but still in one house"* (Mrs. Si, Kretek Village Farmers' FGD, September 2020).

The impact of COVID-19 restrictions are different between the organic and conventional farmers. Lockdown policies or other similar situations cause minimal human mobility, as well as restrictions on the market operating hours, supermarkets, restaurants, and hotels, causing the demand for agricultural products to decrease, making it difficult for farmers to sell their crops on the market, as experienced by farmers with conventional cultivation in *Kretek* and *Claket* villages. As a result, the selling price of agriculture drops, market absorption decreases, and income from the resulting agriculture also decreases. The conventional farmers experience more negative impacts of the restrictions during the pandemic compared to the organic farmers. On the other hand, the organic farmers sell their products online and still obtain sufficient income during the lockdown period. The prices of organic vegetables also decrease less than vegetable products from the conventional farmers.

*"So these middlemen sell them to the market. Starting from the market, so the main markets, later from the main markets to small markets. So when implementing these Large-scale Social Restrictions (PSBB), many of the markets are closed. So the middlemen also do not carry out purchasing activities from farmers. Now, this is where the phenomenon will be if the farmers keep planting, there will only be an accumulation of goods in the village, for example. Well, but with a lot of demand, there's a shortage of supply in the city."* (Ms. M, Claket Village Farmers' FGD, May 2020).

The ability of farmers, particularly the conventional one, to access the market is quite low. Most conventional farmers are very dependent on the middleman in selling their agricultural products. The existence of a middleman who buys products from farmers to be sold back to larger agents cannot be separated from rural agricultural activities (Megasari, 2019). In general, the middleman has multiple roles, namely as a collector, buyer, broker, trader, marketing, and also as a creditor. Middleman has the power to set the crop price, which is often based on the land area (slash system) not based on the amount of weight of the harvest so that prices at the farmer level with collectors differ greatly.

### **Family Farming Protection: job diversification, food barn, and “kelompok tani/koptan” (farmer cooperatives)**

This study has found several protective factors in the farming family that can be used to help farmer families deal with COVID-19 stressors. The protection includes job diversification within the agricultural family, the existence of a food barn, and participation in farmer cooperatives. Some farmer families do not only depend on their family's income from agriculture but also from other sectors. In a farming family, sometimes there are other family members who work outside of agriculture or even family members who work as farmers also have other jobs than agriculture. This condition is conducive when the income obtained from agriculture is insufficient.

Another form of protection found in this study is a food barn or 'food storage'. It aims to reserve the rice harvest to be stored in the barn. If members of the farmer group need food, they can borrow the rice from the barn. The return will be later calculated by adding the amount according to the loan plus 0.5 times from what was borrowed; for example, one sack of rice, must be returned one and a half times.

Farmers also build Farmers' Cooperative (*Koptan*) as a form of networking among farmers with the government. It helps farmer families when facing crisis conditions by providing financial assistance, marketing their agricultural products, and facilitating transportation for agricultural product mobilisation. Farmers who join Farmers' Cooperative are more exposed to government and private programs, such as technical assistance from the government and loan funds from banks. These benefits will help farmers who are members of the cooperative when facing crisis conditions caused by COVID-19 pandemic. Moreover, farmers' cooperatives can also be developed by the local champion as this study found in *Claket* village. The local champion develops the organic farmers group and continues to educate and empower organic farmers to produce and sell their agricultural products.

## Family Farming Adaptive Strategies

To be able to adapt to emerging stressors, various strategies have been implemented by farming families in three agricultural villages. The strategies were implemented to overcome stressors that befall family members and interfere with family farming. The strategy carried out by the families depends on the protection it has. Most farmers are facing difficulties selling their crops and it has reduced their income during the COVID-19 pandemic. However, organic farmer groups can find solutions in selling crops in the middle of the closed market operating hours during the COVID-19 pandemic. They apply organic cultivation that has reduced production costs and can find a market share that directly targets the consumer.

**Table 2.** Farmers' family strategies in facing stressor based on their protection

Stressor	Protection	Strategy	Informant Transcript
<b>Farmers' family income decreases</b>	Strong family ties within rural families	Large families help farmers to pay for farmers' forests at the bank	<i>"For example, yesterday it was because he could not sell his crops, so there was indeed arrears in ... so he took a loan from the bank. So because he took a loan from the bank, in March he didn't pay it, in April he didn't pay it, so the bank finally came... They came to his house. Well, there is help. So his extended family then began to do... helping to pay in instalments. So what animals do they have there, have... what do they have, that is the term. They help to sell then help..."</i> (Mrs. F, Penanggungan Village Farmers' FGD, September 2020).
<b>Lockdown policy due to COVID-19</b>	Organic farmer groups	Switching cultivation from conventional to organic	<i>"For me, for the better resilience of conventional farmers, they switched to organic because yesterday, when it was the conventional pandemic, we saw a lot of vegetables that didn't sell well. Alhamdulillah, we continue to sell organic, so in my opinion, for food security, conventional farmers switch to organic."</i> (Mr. C, Penanggungan Village Farmer's FGD, September 2020).
		Changing the distribution channels directly to the end consumer	<i>"Well, in the world of organic agriculture, the average sales process is carried out, the process for distributing organic products is not so extreme. But directly from upstream to downstream. From there, I feel like here when it comes to organic matter; they come straight from the garden. Today's harvest night has been sent to Surabaya, Sidoarjo and Mojokerto, Malang. So, tomorrow morning we will spread it early in the morning, already to the household. So I didn't experience it, I didn't experience the impact of COVID. The impact of COVID on me is the impact of positive COVID.... increasing demand, rising consumers too."</i> (Mrs. F, Penanggungan Village Farmer's FGD, September 2020).

Source: Processed by Researchers (2021)

## Family Farm Adaptive System during the COVID-19 Pandemic

**Meaning System.** This study found that the adaptations made by farming families, including awareness of a problem and the ability to make positive perceptions (optimistic views) of a problem, show family as motivation and cognitive skills. Awareness of a problem becomes the starting point for farmer families in adapting to short-term and long-term difficulties. Being aware of a problem is the first step to being open. Self-openness, accompanied by an optimistic outlook, makes it easier to identify solution options. It has an impact on the continued functioning of the family. Both for farmer families in

conventional and organic farming systems, the family is a source of motivation to do their best, especially for the farmer's children.

*"Must be optimistic. Yes, no matter how hard my life is, I still try. It means that in the future there must be more. I don't know what kind of method, I have to do it later". (Mr. K, Kretek Village Farmer's FGD, September 2020).*

*"Yes, thank God, since I had this second child, my enthusiasm was higher. More enthusiasm to farm even more actively so that in the future, the future of the children will also come from agriculture itself." (Mr. K, Penanggungan Village Farmers FGD, September 2020).*

**Emotion System.** The findings show that the emotional system in the adaptation process of the farming family, namely when family members support each other emotionally, often runs less optimally. When experiencing a problem, most farmers reveal that communication between family members is not going well. For example, a farmer who is the head of the family becomes more sensitive (easily provoked by emotions) and prefers to be "quiet" with his partner. However, some farmers also realize the importance of good communication and giving emotional support to each other when facing a stressor. If communication within the family is not smooth, this condition can affect the smoothness of the farmer family's sustenance.

**Control System.** Ideally, a good control component in a family adaptation system is the division of roles in the family and clear decision making (Henry et al., 2015). Based on the research results, the more visible component of the control system is the division of roles, while the decision making when there is a problem in the farming family is not clearly seen. In every condition, whether a problem occurs or not, members of the farmer's family play an active role in agricultural activities with a relatively clear division of roles, for example, the father works hard such as hoeing, the mother weeds the plants and the child fertilizes them with manure. Apart from farming activities, this division of roles is also applied to internal family affairs. In this case, the father plays the role of earning a living, the mother is in charge of domestic household affairs, while the activities of educating children are carried out by both of them. However, this role is quite dynamic, especially concerning economic activity. Father, mother, and children (especially those with families), strive to meet basic needs in the family.

**Maintenance System.** Another process in the family adaptation system is the fulfilment of basic needs. Farmers' income, which is still uncertain and far from sufficient, must be able to meet family needs with prices for necessities in the form of food, health and education that continue to increase. This action is done in several ways, namely substitution, marketing strategies, and family financial management.

*"So to increase our income. We usually go around selling. But during a pandemic like this, I usually do it online. So we educate some of our customers. What are the uses of mint leaves? So, in the end, there is also a lot. So, for example, those who need mint leaves for their daily drinks, we also add ginger there. we are educated that mint leaves can also cure at least prevent COVID-19 like that". (Mr. H, Penanggungan Village Farmer's FGD, September 2020).*

*For me, rice is also involved. Got a little of it. It means if rice is for debt, already for debt, the term is, for other needs of school children or what, we take it first. If you need sugar, it can cover it, in my opinion. Little by little, I can cover it for daily activities from sugar farmers". (Mr. T, Kretek Village Farmer's FGD, September 2020).*

## Discussion

This study aims to analyse family farming resilience during COVID-19 pandemic using the *Family Resilience Model* (FRM) from Henry et al. (2015). We found that lockdown policies in Indonesia as strategies to prevent the transmission of COVID-19 have restricted conventional farmers' access to the markets and decreased their income. Organic farmers have their own way to approach their consumers, directly via social media, so they were not negatively affected by the COVID-19 restrictions. Instead, they increased their sales during the pandemic. Decrease of farming sales among family farms due to disruption on the supply chains was also found in other countries, such as in North Carolina. Using the resilience thinking framework, Brune et al. (2021) found that diversification of income sources became one of the resilient factors among farmers along with modifying crops and trying to communicate with their customers. However, within the Indonesian context, this study found that communicating directly with customers (market) only can apply to the organic family farms since conventional family farms could not approach their customers directly because they usually sell their crops through middlemen.

While Durant et al. (2023) analysed that the use of non-direct-to-consumer market channels leads to lower resilience during COVID-19 pandemic.

We also highlight that family farms who used conventional farming are more likely struggling to sell their crops during COVID-19 restrictions and it has reduced their income. They adapted by diversifying their income sources from outside farming sectors. They do any job outside the agriculture sector, such as construction workers, couriers, etc. However, another study in other Indonesia's areas mentioned that some conventional farmers that suffered from the sales drop due to many markets and restaurants closed during COVID-19 pandemic attempted to use social media to reach their consumers (Izzah & Jazilah, 2022). According to Durant et al. (2023), the use of online marketing made farmers more resilient to the negative effect of COVID-19 restrictions. We found that in the Indonesian context, the use of online sales and marketing is more common among organic family farms compared to traditional/conventional since they already use the direct consumer channel even before the COVID-19 pandemic. Family farms using conventional methods tended to store their crops in the community food barn.

While some findings from this study are quite similar with other studies, another finding from this study has added more information on how family farms in Indonesia adapt to the COVID-19 restrictions. This study is using a family resilience model that elaborates the roles of family and how each family member influences each other while adapting to the stressors from COVID-19 pandemic. The interaction process among family members within the family to establish mutually supportive conditions, good communication, awareness to fulfil roles within the family, and social security guarantees for basic needs can strengthen the family adaptation process. Moreover, we found that resilient farming families during COVID-19 pandemic are those with not only internal protective systems and adaptability but also social support through a group 'farmer cooperatives' as an ecosystem. In this context, each farming family within the group supports one another to ensure the smooth functioning of their families amidst various stressors caused by the pandemic. This study captures not only the resilient factors but also dynamics adaptation processes within the family farms during the pandemic.

This study has several limitations. Due to the COVID-19 restrictions, the data was collected virtually. The online data collection was quite new at that time, both for the researcher and study's participants. During the data collection, researchers faced difficulties in engaging with the participants' stories and showing sympathy. It may affect the data collected even though online discussion was the only choice we had during the COVID-19 pandemic. Therefore, the family farms may have other strategies to adapt with the COVID-19 restrictions and those strategies may not be captured in this study.

## CONCLUSION

During the COVID-19 pandemic, Indonesian farming families have faced various stressors, mainly affecting their income and access to markets. The pandemic has also affected family members of farmers who work outside agriculture, causing job losses and reduced working hours. Both organic and conventional farming families have had the formidable task of responding to these stressors, each with varying degrees of impact. Using the *Family Resilience Model* (FRM) approach, this study shows that organic farming families have adapted to the impact of the pandemic by finding solutions in selling crops and increasing their sales. Organic farming families are often more resilient as they can reach consumers directly through direct consumer channels (loyal consumers). Meanwhile, conventional farming families tend to face difficulties in selling their farm produce. Lockdown policies have restricted conventional farmers' access to markets, resulting in a decrease in their income and increased their expenditure.

Despite these various stressors, both organic and conventional farming families have protective factors that help them during the COVID-19 pandemic. These factors include job diversification from outside the farming sector, the existence of food barns, and support from farmer cooperatives. They have also implemented various strategies to adapt to the pandemic's impact, such as raising awareness of the problem, maintaining positive perceptions, fostering good communication, and providing emotional support between family members.

This study contributes to the existing literature on family resilience during the COVID-19 pandemic by emphasising the roles of family and the dynamics of adaptation processes within family farms. However, the study was conducted amidst the pandemic, and the data was collected virtually, which may have affected the data interpretation. Therefore, to strengthen further research, it is recommended to conduct field research and direct observation. Additionally, this study recommends that policy makers empower



family farmers by enhancing their production skills and improving their access to the market as a priority for agricultural extension programmes.

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## ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Research Ethics Committee of Indonesian Institute of Sciences (LIPI) Number: 59/Klirens/VI/2021. The participants provided their written informed consent to participate in this study.

## CONFLICTS OF INTEREST

The authors declare no conflict of interest.

## AUTHOR STATEMENT

All authors contributed equally to this work.

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