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Motivation and Obstacle of Cattle Farmer's on Adoption Innovation During Covid-19 Pandemic in Agam Regency, West Sumatera

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Abstract. The research conducted to investigate the motivation and the constraint of cattle farmers on adoption innovation during Covid-19 pandemic. It conducted in Beef Cattle Development Central in Agam Regency, West Sumatera according to Regional Working Plan 2016. The research used survey method and observation with ninety-six cattle farmers in four districts (Ampek Angkek District, Baso District, Canduang District, and Tilatang Kamang District) as the respondents, determined by Slovin's Formula. The result showed that motivation variable (profit, freedom of choice, wishful thinking, and independency indicators) was significantly affected by farmers. In contrast, obstacle variable (cost, time availability, the complexity of innovation, and suitability of innovation on what farmers need) was non-significant effect to farmers. It means the farmers still in high motivated to adopt an innovation during Covid-19 pandemic and the obstacle to adopting the innovation was in low level because the farmers still have the desire to level up their wealthiness even in Covid-19 pandemic.

1. Introduction

Agam Regency is one of the beef cattle development centre in West Sumatera. The cattle population in Agam Regency as much 32,327 head with 12,337 of farmers households [1]. Especially in East Agam (Ampek Angkek District, Baso District, Canduang District, Tilatang Kamang District) has high potential because it bypasses to another province (Riau Province and South Sumatera). It is the reason why the Agam Regency's Government determined East Agam to be a central of beef cattle development [2].

In this Covid-19 pandemic moment, Agam Regency is one of the area with a high number of positive patients. It decided Agam Regency is the red zone. This circumstance would be affected by the farmers in running their business, especially with the farm that used innovations in it. Farmers have to deal with Covid-19 protocols which are they must stay at home, to keep physical distancing, using a mask when they go outside and other Covid-19 protocols.

Pembatasan Sosial Berskala Besar (PSBB) or Large-scale Social Restriction applied in order to reduce the number of Covid-19 patients in West Sumatera. This condition makes farmers in difficult situation because it could be a threat to their business continuity. The farmer would be worried about motivation to run their business such as profit, the freedom to doing their business, the farmers wishes, and independency on their business. The farmers also have to face the constraint that occurs during Covid-19 pandemics such as time availability, farming cost, the availability of raw material, complexity of innovation, and suitability of innovation on what farmers need). If the motivation of farmers at a low level, meanwhile the constraint to running their business are high, it would affect the cattle development in Agam Regency itself.

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2. Material and Methods

2.1 Experimental design

The research conducted in Agam Regency on beef cattle development central, East Agam (Ampek Angkek District, Baso District, Canduang District, Tilatang Kamang District). It used a survey method, observation and personal interview to collect data. The respondent was ninety-six cattle farmers that determined by Slovin's Formula [3].

The research used a questionnaire with Licker Scale as a unit of research parameters. The data measured in each then analysed with descriptive quantitative and presented it in the table. Then, the data compared with the range scale that determined with the formula below [4]:

$$\text{Range Scale} = \frac{\text{Maximum Scale Score} - \text{Minimum Scale Score}}{\text{Total of Categories}}$$

Based on the formula above, the categories determined:

Table 1. The motivation and constraint range score that determined base on the range scale formula.

Scale Score	Motivation Variable	Constraint Variable
226 – 290	Significant Affect	Significant Constraint
161 – 225	Non-Significant Affect	Non-significant Constraint
96 – 160	Insignificant Affect	Insignificant Constraint

3. Result and discussions

3.1 Farmers motivation to adopt innovation

The result of farmers motivation to adopt innovation during Covid-19 pandemic showed in Table 2.

Table 2. Farmers motivation to adopt innovation during Covid-19 Pandemic

No	Motivation	Total Score	Result
1	Profit	259	Significant
2	Freedom to doing their business	268	Significant
3	Farmers wishes	286	Significant
4	Independency on their business	268	Significant
Average		270.25	Significant

Profit was significantly affected to adopt innovation during Covid-19 pandemic in Agam Regency, West Sumatera. It showed in Table 2 with a total score of 259 points. The farmers will adopt an innovation if it profits them, and if there is no profit, farmers tend to ignore it. Crouch and Chamala [5] stated that profit is the most important for farmers to adopt an innovation.

Freedom to doing their business was also significantly affecting the farmers to adopt innovations with a total score of 268 points. The farmers had the purpose of becoming an entrepreneur that has the freedom to doing their business and make their decision to adopt the innovation despite in Covid-19 Pandemic. Dawson and Henley [6] said freedom of choice or freedom to doing their business is a common thing to stimulus the people to keep doing their business.

Farmers wishes showed a significant effect to adopt an innovation during Covid-19 pandemic with a total score of 286 points. The farmers believe that their wealthiness will increase when they adopt innovations. Basrowi [7] said the people motivated to run the business they have a desire to get profit, freedom to doing anything with their business and to fulfil personal wishes.

Independency on business showed significant affect the farmers to adopt the innovation during Covid-19 pandemic with a total score of 268 points. It showed the farmers could not running their business by themselves. They need some help from Extention officer to get new knowledge. Anwar [8] stated that Extention officers exist to improve farmer to manage their business efficiently and

effectively. The farmers need to be independent to run their business. This era, the farmers are trying to find new information from media such as the internet, television, newspaper, et cetera. It related to Saleh [9] that stated the society nowadays changed the pattern of exchanging information from interpersonal communication to media communication.

3.2 Farmers constraint

The result of the constrain of farmers to adopt innovation during Covid-19 pandemic showed in Table 3.

Table 3. The constrain to adopt innovation during Covid-19 Pandemic

No	Constraint	Total Score	Result
1	Time availability	116	Insignificant
2	Cost	148	Insignificant
3	The availability of raw material	173	Non-significant
4	Complexity of innovation	108	Insignificant
5	Suitability of innovation on what farmers need	146	Insignificant
	Average	138.2	Insignificant

The constraint for farmers in adopting innovation during the Covid-19 pandemic in time availability indicator was in the low category with a total score of 116 points. It means time availability insignificant to constrain the farmer to adopt the innovations. The farmers can still adopt innovations despite the Covid-19 pandemic, because almost all farmers in this area have used a smartphone to get information from online media such as YouTube, Facebook, Instagram, or information from extension officer directly with chatting applications. Time availability during Covid-19 would be a constraint when farmers did not know how to use the smartphone device because it makes the farmers would depend on the Extension officers.

The result showed that the cost indicator was in a low category, with a total score of 148. It means cost insignificant to constrain the farmer in adopting the innovation during Covid-19 pandemic. It happened because the innovation from Extension officers was cheap. Moreover, some of the innovations provided by the Government and it was free to farmers. It related to Anwar [8] statement that said the innovation would adopt by farmers if it not incriminating and suitable with what farmers needed.

The obstacle to the availability of raw materials for innovation is in the medium category, with a total score of 173 points. It categorised as non-significant of constraint because some of the raw materials for innovation are imported from outside the region so that it requires additional costs. Then, there are also types of innovation that must be demonstrated directly by extension officers but constrained by the limit on the number of crowds that set by the Government during Covid 19 pandemic situation. Rosana [10] said it is necessary to provide a demonstration from Extension officer, so the farmers feel got attention to their business so that communication constraint caused by attention factors could reduce

The results showed that the constraint of the complexity of innovations was in the low category with a total score of 108 points. It means the complexity of innovations insignificant affect the farmer to adopt the innovations. These results explain that the types of innovation introduced extension officers can be adopted by farmers properly. The farmer adopted the innovation can because of the urgency of innovation and how to socialise it. Mosher [11] states that one of the main tasks in agricultural development is to find farming methods that can be practised effectively and efficiently by smallholder farmers, as long they are willing to learn and develop their skills.

The indicator of constraint for the suitability of innovation on what farmers need is in the low category with a total score of 146 points. It means the constraint of the suitability of innovation was an insignificant effect the farmers to adopt the innovation during Covid-19 pandemic. It happened because the types of innovations that offered or socialised by extension officers to farmers based on farmer needs

so that farmers feel helped and willing to adopt it. Mardikanto [12] said the innovation would have applied by the target group if innovation is non-overlapping, according to their needs, and it becomes a solution to their problems. Indraningsih [13] also stated that the factors that affect the farmers to adopt innovation are the level of profit, the suitability of innovation with their needs, difficulty, habits and farmers' perceptions of the influence of interpersonal media as a provider of technical information.

4. Conclusion

Motivation factors (profit, the freedom to doing their business, the farmers wishes, and independency on their business) are significant affect the farmers to adopt the innovations during Covid-19 pandemic in Agam Regency. Constraint factors (time availability, farming cost, the availability of raw material, complexity of innovation, and suitability of innovation on what farmers need) are insignificant effect the farmers to adopt the innovations during Covid-19 pandemic in Agam Regency.

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