

Buffalo Farmers' Abilities in Accessing Information and Financial Supports in Pemalang Regency

Krismiwati Muatip^{1*}, Rahayu Widiyanti², Yusmi Nur Wakhidati², Lis Safitri¹,
Hermin Purwaningsih¹, Oentoeng Edy Djatmiko², Alief Einstein², Sri Mastuti²,
Nunung N Hidayat², Moch Sugiarto², Novie A Setianto²

¹Laboratory of Social, Faculty of Animal Science, Jenderal Soedirman University, Purwokerto, Central Java, Indonesia

²Laboratory of Economics, Faculty of Animal Science, Jenderal Soedirman University, Purwokerto, Central Java, Indonesia

*Corresponding author. Email: krismiwati.muatip@unsoed.ac.id

ABSTRACT

The purpose of the study is to determine the age, level of education, and length of being buffalo farmers with their ability to access the information and financial supports from the government and the banks. The study has been carried out in Pemalang Regency, with the total number of 184 respondents has been selected. The results showed that as many as 73.19% of buffalo farmers were in productive age and had a low level of education. They have been being farmers for different duration from 1-50 years and most of them (94.23%) were members of the farmer group. The farmers' ability to access the information was in a low category (51.92%), their ability to access financial loans from the banks was in a low category (91.355%) and their ability to reach the government aid was in the medium category (56.73%). To sum up, the farmers' age, the level of education, and the length of being buffalo farmers have a weak relationship with their abilities to access the information, fund capital, and government aid funds.

Keywords: farmer's ability, age, level of education, funding, length being farmer, method of rearing

1. INTRODUCTION

Buffalo is one of the local livestock which spreads in many regions in Indonesia. Based on the data of the Central Bureau of Statistics of Central Java (2018), as many as 62.032 buffalos lived in Central Java with the highest population in Brebes Regency (7,540 heads), followed with Pemalang Regency (7,339 heads) [1]. Therefore, Pemalang Regency has a high opportunity to be developed.

As well as the other areas in Indonesia, Pemalang Regency has a tropical climate with two seasons with the average temperature ranges from 24°C to 31°C. The regency has rainfall between 2,000 and 6,700 mm/year, with an average of 267 mm/year, with the highest range occurring between January and February, namely 593 mm and 673 mm, while the

lowest rainfall occurs in August as much as 60 mm. The level of the weather exceeds the standard weather for buffalo as much as 15.5-21.00 C. However, the farmers deal with the excess heat by planting lots of trees around the cage.

The farmers in Pemalang chose the mud buffaloes (*kerbau lumpur*), which has a strong force to be used for transportation or field processing and are good meat producer. Generally, buffaloes can produce carcasses around 32% - 44% of which the meat contains protein ranged from 18.90% - 22.30% and water 75.00% - 77.70% [2].

Buffaloes are animal that can survive in various conditions without having a very high quality of forage. Their digestive system can dissolve the coarse fibrous forage [3]. Moreover, their long period of

productivity provides many benefits for farmers since one of the indicators of livestock productivity is body weight in terms of body shape and size. However, their low reproduction rate becomes the weakness of buffaloes farming because it is difficult to find the superior buffalo breed.

Buffalo cultivation in Pemalang Regency requires not only supporting natural resources but also farmers' ability to access the latest information and funding. The farmer can interact with the others through the farmer groups to increase their ability and cooperate to raise the level of livestock productivity [4]. The easy digital access provides a large scale of information in grasping the work experience of farmers or inviting an extension worker.

The government provides several funds and the bank provides a low-interest loan for the smallholder farmers [5]. They can access several government-subsidized of program credits for the agricultural sector such as a) KKP-E or the investment and capital loans for a group-based farmer, b) KUPS as the loans with low interest for businessmen.

To sum up, it is important to study farmers' ability to access information and funding to develop farmers' welfare. The study aims to determine the characteristics of buffalo farmers in Pemalang Regency, to determine their ability to access information and funding, and to analyze the relationship between the characteristics of buffalo farmers and their ability to access information and funding.

2. MATERIALS AND METHODS

This is survey research that has been conducted in Pemalang Regency District in 2021. As many as 184 respondents have been chosen using the Slovin formula with a margin of error of 5%. The data related to the age, the education level, the length of being a farmer, the number of buffaloes, and farmers' ability to access the information and funding has been presented descriptively.

Rank-Spearman correlation analysis has been used to analyze the relationship among farmers' age (X1), farmers' education (X2), length of being farmer (X3), and the number of buffaloes (X4) with the ability of buffalo farmers in Pemalang Regency to access information (Y1), capital from banking (Y2), and funding from government (Y3).

$$r_s = 1 - \frac{6 \sum d_i^2}{n(n^2-1)}$$

r_s = Spearman Rank correlation coefficient

d_i = difference between the two ranks of each sample

n = number of sample

3. RESULT AND DISCUSSION

3.1 Buffaloes Farming in Pemalang Regency

The people have already been involved in buffaloes farming for a long time. In the past, livestock was used for religious-traditional rituals in Pemalang. Burying buffalo's head served for ancient spirits was a safety guarantee when establishing infrastructure. Furthermore, the number of buffaloes as a wedding gift for the bride's family showed the groom's social status since this became compulsion indicated the groom's level of wealth. Moreover, buffalo meat is one of the main ingredients of local-special food named *soto grombyang*, *soto dekem*, and *sate loso*. As time goes, the farmer was not capable to provide the demand for buffalo meat, so people changed to beef as the more widely available meat in the market.

As many as 31.52% of farmers have a grant from the government in their early farming. The others have already started their business without any financial aid or raising the others' livestock as profit-sharing as much as 60% for the owner and 40% for the farmers. The farmers bought the small female buffalo to be raised with traditional fattening methods without being highly profit-oriented. The farmer did not pay attention to the possibility of inbreeding.

Raising buffalo was not their primary job except for sideline business. Some farmers were old who raising livestock as an easy job to spend their spare time and financial saving. In addition, the farmers lived in a rural area with a modest lifestyle caused they did not need much money for daily expenditure. They needed money to pay school fees, accommodation, social activities, and health costs. The rest, harvesting vegetables from the backyard deemed sufficient to meet daily consumption needs. Eventually, the buffalo population has not been increased for years since they had low motivation to earn money.

Generally, the farmers raised their livestock in three methods. *First*, the buffaloes lived in a cage all day (intensive). *Second*, the buffaloes reared out of the cage in the day and went back to the cage in the night (semi-intensive). *Third*, the livestock lives in nature all day (extensive). The intensive rearing method was found in Taman District, while the semi-intensive method was found in Pemalang and Bantarbolang District. Thus, the farmers in Belik District have implemented an extensive method of rearing until 2020 and switched to the semi-intensive method due

Table 1. . The characteristic of buffalo farmers in Pemalang Regency

Characteristic	Number of respondent	Percentage (%)
Age		
- Productive	141	76.63
- Post productive	43	23.37
Education		
- Unschooled	70	38.04
- Unfinished elementary school	20	10.87
- Elementary school	87	47.28
- Junior high school	6	3.26
- Senior high school	1	0.5
Length of being buffalo farmer		
- < 15 years	71	38.59
- 15 – 27 years	72	39.13
- > 27 years	41	22.28
Numbers of buffaloes		
- < 3 heads	91	49.46
- 3 – 6 heads	58	31.52
- > 36 heads	35	19.02

to reduced grazing land. All of the farmers did not provide water directly for the livestock in all rearing methods. Both in the intensive and semi-intensive methods, the buffaloes led to the river around the cage to drink and wallow. While in the extensive methods, the buffaloes were grazing in the forest with puddles provided.

Even though the buffaloes were grazed in open space, the farmer provided forage (agriculture waste and grass) regularly without paying attention both to the quality and quantity of forage. Unfortunately, no farmer provided the forage land which limiting the quantity of grass. In the dry season, all buffaloes lacked in foraging in all three methods of rearing. The farmer did nothing except herd their livestock farther from the living area to find grassy areas.

Besides the nutriment, reproduction is an important aspect of farming life. The farmers in Pemalang Regency did not pay high attention to the aspect since buffalo has a hidden lust which difficult to recognize. The farmers let them mate naturally without setting arranged mating or artificial insemination. They could get a blessing when they found their buffalo was quiet and self-isolated as the pregnancy behaviour.

3.2 Farmers Characteristic

A person's characteristics are some traits that distinguish a person from others. The level of education, occupation, income, number of children, and number of families affect a person's behavior. The characteristics of the farmers in this study have been observed through the age, education, length of being a farmer, number of buffaloes, and their ability.

The farmer's age was divided into three categories, namely pre-productive age (<24), productive age (24-60), and post-productive age (>60) [5]. The age is related to the level of productivity, especially for the physical-labor based [6]. Table 1 showed that buffalo farming was dominated by the farmers in productive age as many as 76.63%. However, the number of the post-productive farmer was in a high percentage (23.37 %) since their reason to raise the buffalo as sideline activity to spend their spare time. The old farmer, in their post-productive age, reared their livestock in an intensive method which did not need much physical strength except providing forage from agricultural waste and herding them to the river around the cage to wallow and drink.

Furthermore, the age is hard-wired to farmers' ability in thinking, decision making, involved in innovation, and managing their business [7]. The level of curiosity of people of different ages is different.

Table 2. Farmer's abilities to access financial support

	Number of farmers	Percentage (%)
Ability to access information		
- low	75	40.76
- moderate	88	47.83
- high	21	11.41
Ability to access governmental funding		
- low	160	86.96
- moderate	19	10.33
- high	5	2.71
Ability to access financial loans from the bank		
- low	180	97.83
- moderate	3	1.63
- high	1	0.54

Young people tend to be more curious and want to learn something new than older people. The old farmers usually were fanatic about the traditional methods of farming and hard to accept innovation to change their way of thinking, working, and living. The results of the study showed that today farmers are dominated by old people, the young farmer is in a small percentage, which difficult to regenerate the farming chain [8].

As many as 38.04% of the buffalo farmers were unschooled. In the past time, besides their parents did not pay attention to formal education, they lived in a remote area where no formal school was established. As many as 13.04% of the farmers have already attended elementary school, but they did not finish it, while those who graduated from elementary school reached 47.28%. Their low level of education obstructed innovation adoption for developing their business. Furthermore, the level of education is related to the communication skill, both speaking and grasping new information from the extension worker [9]. Makatita [6] argued that the quality of human resources would be hard to improve because difficult to understand new information and apply recent technology in farming.

It has been proved by some research, for instance, Paltasingh & Goyari [10], who believed that farmers' education influenced the adoption of modern rice varieties significantly. The research strengthened the Schultz hypotheses that education increases agriculture productivity by adopting the latest technology. The research suggested that non-formal

school for the farmer is exigent together with a strong extension networking to disseminate the recent technology widely. The other case showed research conducted by Kurnia *et al.* [11] that the farmer with a low level of education has not been able to apply the introduced innovation. The farmers needed extension workers' supervision in all aspects of farming life, including knowledge, skills, behavior, and insight.

Most farmers in Pematang have already been involved in buffalo farming for a long time, while some of them just started. As many as 39.13% of farmers have already been farmers for 15-27 years. Understanding the length of being a farmer can show their ability and resilience in farming. Necessarily, the longer they became farmers, the more experience they had. Unfortunately, the length of being a farmer did not relate to the amount of their income [12]. This might happen because during being farmers, they still kept traditional methods inherited by their precursor. The way to feed, the method of caging, and the reproduction method were the same as they did for decades.

Some researchers such as Maryam [13] and Bahta dan Baker [14] found that the business scale or ownership influenced farmer's income. The more animal they had, the more efficient their labor and feed were. Our study found that the scale of buffalo ownership was low, although the farmer has been involved in buffalo farming for decades. Most of them have only 3 buffalos because of limitations in area and cage capacity. Furthermore, they raised their livestock as sideline businesses without high-profit orientation.

Table 3. Result of Rank Spearman analysis

	Access information	Access governmental funding	Access banking loans
Age	- 0.14	- 0.13	0.01
Education	0.14	0.06	0.14
Length being farmer	- 0.5	0.02	- 0.01
Number of buffalos	0.05	0.06	0.05

3.3. *The Farmer's Abilities to Access the Information and Financial Support*

The ability of farmers in Pemalang Regency to access the information was in a low category. This is hard-wired to their level of education with the result that they were hard to accept the latest information and technology. The respondents confessed that they only used their mobile phones to communicate with the others, minus looking for information related to farming problems from the internet. The low cosmopolitan behavior also has limited their insights. Thus, they need to learn from the real models, such as internships or field trips to buffalo farmers in other areas.

According to Arestyani *et al.* [15], farmers (age 30-50) in Manado were able to grasp the information from television and YouTube. Then, to accelerate the technology adoption process and communication skills, the farmer should be facilitated in accessing new markets to sell their products and get the latest information related to buffalo farming. In addition, research conducted by Magesa [9] showed that the middleman has better knowledge in understanding the market condition and accessing the agricultural market. In comparison, the farmer has worse knowledge to understand the market condition. As a result, the middleman will earn more money than the farmer who devoted more energy. To summarize, access to the market and its information using technology should be developed to support farmer autonomy.

Farmer's ability to access financial aid from the government was low because they had low relation and interaction with the outsider. There was only the administrator of the farmer group who had governmental funding. The government provided the animals, animal assurance, artificial insemination aid, cage, facilities for farmer group activities, Etc. Their ability to access the financial loan from the bank was in a low category.

The benefit of financial loans for farmers is to help farmers provide capital since they had limited capital. The loan benefited the farmer if it could increase their welfare, income, business scale, and profit. According to Habaora *et al.* [16], farmers would only accept the credit increases related to their scale of business. In addition, differences in farmers' attitudes towards loans were influenced by farmers' perceptions of credit, while the perception was related to farmers' age. The old farmers avoided the loan because being a farmer was for social orientation, not-for-profit orientation.

3.4. *The Relationship between Farmer's Characteristic and Farmer's Abilities to Access Information and Financial Aid*

To find out the relationship between farmer's characteristics and their ability to access information, government funding and the financial loan from the bank should be calculated by a Rank Spearman analysis.

Table 3 showed that farmer's age has a very weak relationship with the farmer's ability to access information, governmental funding, and banking loan even the older farmer, the lower their capability to access information and governmental funding. It happened because of the decrease in their mobility and sensory capability.

The level of education and number of buffaloes has very weak with farmer's ability to access the information, governmental funding, and banking loan. The low level of farmer education and a small number of buffalo had caused difficulties in accessing information and funding from the government and bank. Their weak competence was inseparable from the role of extension worker, the lack of innovation availability, and the low level of farmer's education. Their competence is related to their capacities to involve in an organization and social adaptation, which impacted the low interdependence of farmers and caused low production and income [17, 18].

The length of being a farmer has quite a strong relation to the farmer's abilities to access information. On the contrary, it has a weak relationship with the farmer's ability to access government and bank financial aid. As time goes by, the farmers tend to decrease their abilities to access financial supports from the government and banks. The financial loan is important to increase buffalo farming, but farmer accessibility to the credit agency such as banks, coop, and the governmental institution was limited [7].

4. CONCLUSION

Buffalo farmers in Pemalang Regency were in productive age, had a low level of education, been farmer long enough, and their ownership of buffaloes in low category (<3 heads). Their abilities to access information and financial support both from government and bank was in a low category. Length being a farmer has a strong enough relationship with the farmer's abilities to access information, while the farmer's age, their level of education, the length being farmer, and a number of buffaloes, have a weak relationship with their abilities to access information, governmental fund, and banking loan.

REFERENCES

- [1] Badan Pusat Statistik Jawa Tengah 2018 BPS Provinsi Jawa Tengah
- [2] G Siamtiningrum, B W Putra and R Priyonto 2016 Morfometrik Tubuh Serta Persentase Karkas dan Non Karkas Kerbau Rawa dan Sapi PO Hasil Penggemukkan Secara Feedlot *J. ilmu-ilmu produksi dan Teknol. Has. Peternak.* 4 227–33
- [3] K Komariah, B Burhanuddin and N Permatasari 2018 Analisis Potensi dan Pengembangan Kerbau Lumpur di Kabupaten Serang *J. Ilmu Produksi dan Teknol. Has. Peternak.* 6 90–7
- [4] K Muatip, H Purwaningsih, A Priyono, M Nuskhil, L Setiana and A P Putra 2020 The Correlation of The Age and Length of Stay with The Compliance of Beef Cattle Farmers Norms: Case Study in Final Waste Disposal of Jatibarang, Semarang City *Anim. Prod.* 21 148–56
- [5] U Yunasaf 2012 Peran Penyuluh dalam Proses Pembelajaran Peternak Sapi Perah di KSU Tandangsari Sumedang (The Role of Extension Agent in Learning Process Dairy Farmer in KSU Tandangsari Sumedang) *J. Ilmu Ternak Univ. Padjadjaran* 12
- [6] J Makatita 2014 Tingkat Efektifitas Penggunaan Metode Penyuluhan Pengembangan Ternak Sapi Potong di Kabupaten Buru Provinsi Maluku *Agromedia* 32
- [7] D Mayangsari, E Prasetyo and M Mukson 2014 Business credit evaluation program at a cattle livestock farmer group in Grobogan *J. Ilmu Pertan. dan Peternak.* 2
- [8] H Harniati and O Anwarudin 2018 The Interest and Action of Young Agricultural Entrepreneur on Agribusiness in Cianjur Regency, West Java *J. Penyul.* 14 153–5
- [9] M Magesa, K Michael and J Ko 2020 Access and use of agricultural market information by smallholder farmers: Measuring informational capabilities *Electron. J. Inf. Syst. Dev. Ctries.* 86
- [10] K Paltasingh and P Goyari 2018 Impact of farmer education on farm productivity under varying technologies: case of paddy growers in India *Agric. Food Econ.* 6 1–19
- [11] E Kurnia, B Riyanto and N Kristanti 2019 Pengaruh Umur, Pendidikan, Kepemilikan Ternak dan Lama Beternak terhadap Perilaku Pembuatan Mol Isi Rumen Sapi di Kut Lembu Sura *J. Penyul. Pembang.* 1 40–9
- [12] I Indrayani and A Andri 2018 Faktor-faktor yang Mempengaruhi Pendapatan Usaha Ternak Sapi potong di Kecamatan Sitiung, Kabupaten Dharmasraya *J. Peternak. Indones. (Indonesian J. Anim. Sci.)* 20 151–9
- [13] M B Maryam, P Pali and A Astaty 2016 Analisis Faktor-Faktor Yang Mempengaruhi Penentu Pendapatan Usaha Peternakan Sapi Potong (Studi Kasus Desa Otting Kab. Bone) *J. Ilmu dan Ind. Peternak.* 3
- [14] S Bahta and D Baker 2015 Determinants of Profit Efficiency among Smallholder Beef Producers in Botswana *Int. Food Agribus. Manag. Rev.* 18 107–30

- [15] A Ariestyani, U Yunus and M Rizkiansyah 2021 ICT (Information and Communication Technology) Access to the Agricultural Farmers in Manado *IEEE* p 304
- [16] F Habaora, A M Fuah, L Abdullah, R Priyanto, A Yani and B P Purwanto 2019 Attitude analysis of Bali cattle farmers toward credit programs based on agroecosystems in Timor Island *Int. J. Innov. Sci. Res. Technol* 4 769–76
- [17] I M Mulyawati, D Mardiningsih and S Satmoko 2016 Pengaruh Umur, Pendidikan, Pengalaman dan Jumlah Ternak Peternak Kambing terhadap Perilaku Sapta Usaha Beternak Kambing di Desa Wonosari Kecamatan Patebon *Agromedia Berk. Ilm. Ilmu-ilmu Pertan.* 34
- [18] K Muatip, H Purwaningsih, N A Setianto, M Sugiarto, R Widiyanti, L Safitri, W Istiqomah, 2019, Organizational Commitment of Members of The Dairy Farmer Group in Banyumas Regency, *IOP Conference Series: Earth and Environmental Science* **372** 012004.