Open Access

Hasanuddin J. Anim. Sci.
Vol. 2, No. 2:58-69 November 2020
pISSN 2621-9182 eISSN 2621-9190

# Local Government and University Partnership Systems: Evidence from Cattle Beef Farmers in Barru, South Sulawesi, Indonesia

**Sitti Nurani Sirajuddin[11], Ahmad Ramadhan Siregar[1], Siti Nurlaelah[1], Syahdar Baba[1], Retno Fitrianty[2]. Abdel Razzaq Al-Tawaha[3]**

[1]Department of Socio-economics, Faculty of Animal Husbandry, Hasanuddin University, Makassar 90246, Indonesia,

[2] Department of Business, Faculty of Economics and business, Hasanuddin University, Makassar 90246, Indonesia

[3]Faculty of Agriculture, University Putra Malaysia, 43400 Serdang, Selangor, Malaysia

*Corresponding author: E-mail: E-mail: sitti.nurani@unhas.ac.id

## Abstract

Partnership systems still become an interesting issue to discuss. Partnerships with beef cattle farmers can be carried out by several parties, including the private sector, universities, and local governments. Therefore, this study aimed to compare the partnership systems of regional governments and Hasanuddin university from the perspective of beef cattle farmers. This study was conducted in Barru Regency, South Sulawesi Province, Indonesia, from September to December 2018. The samples comprised farmers who participated in the partnership system in Tanete Riaja Subdistrict, Barru Regency, amounting to 80 people. Farmer perceptions of the partnerships were assessed using descriptive statistics with a distribution frequency. The results showed differences in the partnership system between tertiary institutions and local governments, namely, from the system of sharing results and the different benefits obtained by farmers if partnering between universities and local governments.

**Keywords** : Cattle farmers, local government, partnership system, university

## INTRODUCTION

Partnerships are a form of cooperation undertaken between individuals or entities and others for a specific purpose (Saleh, 2015; Nuryanti & Swastika, 2011), including the market of innovative products (Hardin *et al*., 2018). One form of the business partnership involves the cooperation between small businesses and medium or large businesses accompanied by coaching and sustainable development, based on principles of mutual need, mutual strengthening, and

[1] Corresponding author — sitti.nurani@unhas.ac.id

mutual benefit. However, often, such partnerships are unequal. The big business dominant larger can often dictate terms such as the pricing and quality of commodity goods offered.

Business partnerships between farmers and larger companies are entered into on the expectation of mutual benefits: companies often enter into such partnerships to ensure the smooth supply of raw materials, while farmers receive economic and technical benefits (Erfit, 2012; Sumarno *et al*., 2013). However, the larger company always becomes the determiner of price for each commodity produced by the farmer, while the farmers are price recipients. In other words, farmers often have a weak bargaining position (Erfit, 2012; Febriandika *et al*., 2017; Nurhayati *et al*., 2016; Sirajuddin *et al*., 2015). Therefore, it is important to note that the most important stakeholders who need to get attention toward sustainability are the farmers and farmer group institutions (Asir *et al.,* 2019; Rahmadanih *et al*., 2018). In addition, a partnership also needs business integration. Darma *et al*. (2018) found that the integration of enterprises creates an increase in revenues through the increases of value-added and price stability. This activity encourages an optimal utilization of resources and gender relations, strengthens farmers–fishermen group, and supports the conservation of (natural) resources simultaneously. Therefore, these integrated enterprises could be recommended as a model of economic empowerment for the communities.

In the beef cattle business, partnerships with agribusinesses are one alternative to increase farmers'/ranchers' profits. Various types of partnerships are possible, including profit-sharing system patterns, plasma core patterns, general trade patterns, agency patterns, and franchises, each with advantages and disadvantages (Sirajuddin *et al*., 2018a; Sirajuddin *et al*., 2017a; Sirajuddin *et al*., 2017b). The business partnership patterns in beef cattle farming that usually occur include custom feeding, profit-sharing patterns, rental housing, build–operate–transfer (BOT), and price contracts, with profit-sharing patterns occurring more often. Profit-sharing patterns are, for investors, vehicles for making productive investments, while for cattle farmers, they are vehicles for creating jobs for families to generate income (Tawaf, 2018a), the potential for foreign exchange income (Yusuf *et al*., 2018), and as an effort to settle the land conflict (Pulubuhu *et al*., 2018).

Therefore, in South Sulawesi Province, in particular, the Barru Regency government carries out the development policy and development of beef cattle agribusiness, namely, by developing the area and attracting investors with a cow showroom program carried out with a system of results. There are several partnership programs that have provided benefits such as beef cattle partnership programs including *the Sarjana Masuk Desa program* was a scholar who assists farmer groups in the village and a scholar acts as a member and assists the group leader in carrying out livestock activities. which has a significant effect on the socioeconomic characteristics of beef cattle farmers (Suryana, 2009). While the partnership in the beef cattle business in Barru Regency has provided benefits to technology adoption, the income earned has not provided an increase (Sirajuddin *et al*., 2017b). Research on partnerships between farmers and the private sector, breeders, and the government has been carried out, but research into partnerships between universities and beef cattle farmers are still rarely done.

Partnerships may also be conducted between farmers and governmental entities such as local governments and universities, which may have such aims as extracting the potential of natural resources and human resources, shifting the typology of the livestock business, employment, and application of technology. Since partnerships with governmental entities can have different priorities than partnerships with the private sector, this research was designed to

compare the mechanisms of partnership between Barru local governments (Showroom cattle) and Hasanuddin Universitiy (Maiwa Breeding Centre) as well as the perceptions of beef cattle farmers about these partnerships in Barru Regency, South Sulawesi Province. The partnership between breeders and local governments that aims to attract investors through mechanisms such as contractual arrangements, vertical ownership arrangements, and sharing of information technology, increasingly characterizes firms at various levels. The business profit is shared based on the specific proportion as written in the initial agreement made by either parties, land, or capital with sharecroppers (Sirajuddin *et al.*, 2018b).

## MATERIALS AND METHODS

Comparative research on these public-private partnership systems was carried out from September to November 2018 in Tanete Riaja Subdistrict, Barru Regency, South Sulawesi. This research can be described as descriptive quantitative research, explaining and describing in general the mechanism of such partnerships and perceptions of farmers about the rules of the partnership system of local governments and universities.

### Population and Partnership

The population in this study was beef cattle breeders in the Tanete Riaja District who partnered with the showroom cattle program, a partnership with the local government of Barru District Agriculture Office, South Sulawesi Province, and Maiwa Breeding Center, a university partnership with Hasanuddin University, in Barru Regency; the sample consisted of 80 cattle farmers. The sample was taken intentionally, and there were 40 farmers who joined the partnership with the university while 40 farmers who partnered with the local government; thus, the sample consisted of 80 people, with 40 people in each of the 2 partnership systems.

### Data

The types of data obtained in this study were both qualitative data and quantitative data, using both primary data and secondary data. The data collection methods used were observation and interviews. Following Riduwan (2013), in order to measure the research variables used, measurements were taken in the form of question items arranged in a questionnaire using a Likert scale. A Likert scale is a scale used for qualitative answers that are given a score. The scoring was done as follows: agree, 3; hesitate, 2; and disagree, 1. The data analysis included descriptive statistics and frequency distributions of farmer perceptions on the Likert scale.

## RESULTS AND DISCUSSION

### Farmer Characteristics

The characteristics of breeders who follow the system are presented in Table 1.

Table 1. Characteristics of Beef Cattle Breeders Who Followed With a University Partnership System and the Regional Government Partnership System

| Characteristics | Description | University partnership system (percent) | Local government partnership system (percent) |
|---|---|---|---|
| Age | 21–36 | 20 | 20 |
| | 37–52 | 52.5 | 40 |
| | 53–68 | 27.5 | 40 |
| Education level | Senior high school | 44 | 47.5 |
| | Junior high school | 40 | 32.5 |
| | Elementary school | 16 | 17.5 |
| | Graduate | 0 | 2.5 |
| Farming experience | 2–5 | 60 | 4 |
| | 6–9 | 25 | 48 |
| | 10–13 | 15 | 48 |
| Number of family members | 1–3 | 18.2 | 28 |
| | 4–6 | 34.1 | 68 |
| | 7–9 | 47.7 | 4 |
| Number of livestock owned | 2–8 | 92.5 | 100 |
| | 9–15 | 5 | 0 |
| | 16–22 | 2.5 | 0 |

Table 1 demonstrated the different characteristics of farmers who follow a partnership system with the local government (cow showroom) and partnership with universities. At the age level, farmers were all at good productive levels who partner with universities and local governments, but the difference was in the age of 37–52 years, where breeders who take part in the university partnership are higher in percentage than attending the local government partnership.

At the education level, farmers who took university partnership system on average were lower than those of farmers who attended local government partnership. Except at the junior high school education level, the farmers who attended university partnership system were more qualified than those who attended the local government partnership. Education was also extremely important to support business progress. The level of education influences the ability of farmers in applying technology, besides that the level of education can be used as a benchmark

for a person's thinking ability in dealing with family problems that can be overcome. If education was low, the thinking power was narrow; thus, the ability to reason a new innovation will be limited, and the insight to progress was lower than that of highly educated farmers. Farmers who have a clearer mindset and who were flexible in responding to a problem will always strive to improve for a better level of life.

## Local government partnership (showroom cattle program) and university partnership (Maiwa Breeding Center) mechanisms

In the local government partnership, the showroom cattle program, program participants (interested beef cattle farmers) were given assistance in cultivating beef cattle, procuring pens, vaccines, and medicines, and making installations to process cow manure and biogas reactors. The showroom cattle program (local government partnerships) encouraged the building of livestock housing so that the livestock's health and feed can be more carefully controlled. The showroom program group members included up to 30 people, but not all group members put their livestock into the showroom. There was a profit-sharing system with the capital owner, so the distribution in the maintenance system was 50:50, with some exceptions and divisions of responsibility for various situations. Besides clustering, the cattle showroom program was a modernization of the Teseng system that aims to facilitate access to investors and cattle breeders in Barru Regency.

In the university partnership system, farmers who participate in partnering with Maiwa Breeding Center (MBC) received 1–3 partner cows/farmer, so there were farmers who have more than one letter of agreement because they only qualify for one female cow. The distribution of partner cows in Barru Regency started in June 2017.

## Difference in Perception of Partnership Rules

In the cow showroom partnership program, there were rules that must be obeyed and conducted by all elements, both farmers and related agencies as well as references and benchmarks so that what was done is expected. Table 2 presented data on the results of research on community assessments regarding the rules for implementing university partnership system and local government partnership in Barru Regency.

Table 2 showed that cattle farmers who follow the system of partnerships with universities and partnerships with local governments understood the rules of the group, including the replacement of dead cattle if livestock dies due to farmer negligence. Thus, the cattle showroom program has not been properly understood by all farmers in the research area; the Tesang system has been carried out from generation to generation based solely on trust without contracts.

Table 2 presented data on the results of research on farmers' responses to the rules in the beef cattle cooperation system with the MBC in Tanete Riaja Subdistrict. As many as 77.5% of farmers stated that they agreed with the rules, stating that if livestock deaths were caused by breeders' negligence, then farmers would be obliged to replace dead animals; however, 22.5% of farmers still felt doubtful about the rules. This was because the farmer did not yet know what negligence under the rules meant. If an incident occurred, it depended on the prerogative of the farmers to refer to it as negligence.

Table 2. Perception of Beef Cattle Breeders Who Followed A University Partnership System and The Local Government Partnership System

| No | Description | Answer | University partnership system | Local government partnership system |
|---|---|---|---|---|
| 1 | In the event of livestock deaths Due to farmer negligence, the farmers were obliged to replace dead animals | Agree<br>Doubt<br>Disagree | 77.5<br>25.5<br>0 | 56.1<br>4.8<br>39 |
| 2 | Farmers get proper assistance from the partnership in maintaining cattle partners | Agree<br>Doubt<br>Disagree | 0<br>2.5<br>97.5 | 53.6<br>4.8<br>17 |
| 3 | Farmers have understood the rules in groups | Agree<br>Doubt<br>Disagree | 97.5<br>2.5<br>0 | 68.3<br>7.3<br>24.3 |

Unlike the perceptions of the farmers about the rules, the farmers said they did not get adequate assistance from MBC in maintaining cow partners. In general, 97.5% of farmers answered that they did not agree that they had proper assistance from MBC. Furthermore, in the regulation that farmers report the development of livestock every month to the MBC, according to the results of this study, 81.5% of farmers generally answered they disagreed, seemingly because farmers were still confused about what things should be reported and to whom will they report to. Farmers only report the development of livestock such as the occurrence of successful cow breeding to the head of each group. As for the rule that states that farmers do not have the right to sell or transfer calves without MBC and the group leader's knowledge, 97.5% of the farmers replied to agree with these rules. Farmers already understand what their rights and obligations were in the maintenance of partner cows based on a mutually agreed cooperation contract.

At the beginning of the showroom cattle program launch—which was significant—by the Barru District Animal Husbandry Office, the farmers received assistance and guidance in this activity. However, in 2017, the Livestock Service Office was changed to the Agriculture Service so that the role of the cattle showroom program was managed by the livestock sector—as regards the field of animal husbandry—to help farmers, conduct extension activities, assist in making animal feed and medicines as well as facilitate between investors and beef cattle farmers.

The characteristics of breeders, namely, age, education level, number of family members, scale of business, and length of livestock raising, greatly influence the management of livestock business (Sirajuddin *et al*., 2017b). Here age level affected the acceptance of innovation for livestock business, the age of farmers has a strong influence, especially with regard to the ability to provide food for animals which might be gathered from green fodder gardens that were

located generally relatively quiet far from the location of the maintenance or cage group (Armunanto *et al.*, 2014).

Regarding the experience of managing livestock, it showed that farmers who attend university partnerships have the highest experience of 2–5 years, while in the local government system, the highest experience of managing livestock is 10–13 years. This affected to adoption of technology, which was also in accordance to the opinion of Mahmud *et al*. (2013) stating that the cattle breeding experience positively influences the income rising of beef cattle ranchers.

The number of family members of farmers who attend university partnership was lower than farmers who were in partnership with local governments. The number of family members of farmers can affect business activities because they can supply manpower that will assist in its activities (Sirajuddin *et al*., 2017c; Sumanto, 2013). The number of livestock raised showed that the number of livestock raised by farmers who were partnering with the local government was small, namely, 2-8 by 100%, and those partnering with university 92.5% from number livestock 2-8 head, this means two partnership were low scale and the difference was that the farmers attend to local government partnership did not have 9-15 cattle and 16 -22 cows while farmers attend the university partnership have 9 cows -15 cattle and 16-22 cattle. The low scale of business results from farmers who were generally still raising cows as a side business, where the main goal is savings; thus, maintenance management was still done conventionally. People in the livestock business, among others, are characterized by small or home businesses (Sumanto, 2013).

Technology transfers were also carried out to farmers who take part in the program, in line with the opinion of Suharto (2014) that the integration of livestock can be accomplished through partnerships between companies or local governments and livestock farmers. In addition, it will encourage agricultural efficiency as a key contributor to agricultural productivity growth and the efficient allocation of resources (Suharto, 2014), especially in a globalizing economy.

Sirajuddin et al. (2017b) listed the conditions that must be fulfilled by farmers in order to become participants in the cattle showroom program:

1. Must have a cage
2. Must have land for forage feed
3. Must have a business processing agricultural waste into animal feed
4. Must have a livestock waste processing business
5. Must engage in artificial insemination breeding activities
6. Must routinely carry out animal treatment activities
7. Must follow the rule of the game at the location of a cattle showroom

The reasons why breeders join the showroom program were as follows: the health of livestock was easily controlled; there was effective feeding, easy processing of waste, and easy marketing systems; it was easy to manage recording; there was uniformity of cattle prices at a certain weight; the implementation of artificial insemination was easily controlled; it has a shared value between groups; there was cleanliness; the showrooms have well-maintained facilities; and it was easy to acquire knowledge about the utilization of beef cattle waste and making local feed from agricultural waste (Sirajuddin *et al*., 2017b).

Collaborating with MBC, breeders obtained cattle and income from the distribution of profit-sharing systems. The continuation of the collaboration between MBC and breeders depended on how farmers understand, pay attention to, and appreciate the collaboration system.

If farmers think positively about the system of collaboration with MBC, it will encourage farmers to continue the program; alternatively, if farmers do not respond well to the program, it may pose risks to its continued operation (Wardana *et al*., 2019).

The profit-sharing system was carried out with a cooperation contract where the farmer receives one female cow from MBC. Both parties agreed to enter into a binding cooperation agreement with legal consequences for both parties to carry out maintenance and development activities of the beef cattle. MBC's task and function were to conduct group assistance in the development of beef cattle cultivation, transfer knowledge and technology to groups and surrounding communities, as well as guide and foster farmers to be able to identify and overcome common problems. On the other hand, the famers tasked with maintaining and caring for the beef cattle properly, making pens according to technical requirements, providing and planting grass as a source of animal feed, and providing additional feed according to livestock needs. The letter of cooperation contract for maintenance of cattle was valid for an unspecified period of time from the date signed by both parties. The pattern of profit sharing in this cooperation contract was 55% for the farmer, 40% for MBC, and 5% for group development handled directly by the group leader.

Breeding cattle provided by MBC are cows that have a SKLB certificate and meet the Bali cattle SNI for Grade I, II, and III requirements. The breeding cattle production target was 1,000 calves per year starting in 2018. The pattern developed in producing cattle for breeding was the mini ranch and village breeding center system. The mini ranch system was centered on the Enrekang mini ranch and Soppeng mini ranch. MBC's cattle were maintained in mini ranches applying breeding technology. In the village breeding center system, MBC collaborates with the community based on cow breeding cooperation agreements. MBC cattle are maintained by farmers that are obliged to raise the cattle, provide feed, and apply the technology as instructed by MBC. MBC's obligation was to provide technology, HR, and production inputs. The profit-sharing system was similar to that listed above (i.e., 55%/40%/5%). This activity was facilitated by the local government through the Animal Husbandry Service or which carries out livestock functions. The level of involvement of these breeder groups is still at the level of participation, where the local government and farmers are both active as development actors (Siregar *et al.,* 2018). The regional government in this matter was only a facilitator.

This is in line with Sirajuddin (2017b), who argued that the limitations of sharing partnership program (CCM) were complicated marketing cattle rules, CCM location cages, and cattle feed management among CCM members. This was also in line with the opinion of Firmasyah *et al.* (2006), which states that informal agreements in the partnership pattern of intermittent profit sharing need to be refined and formalized. The role of the government is very much needed in the beef cattle breeding business, the partnership pattern of intermittent profit sharing in the form of policies and arrangements for agreement on profit-sharing patterns that better guarantees both in terms of overall share and legal strength. Farmer groups are an effort to empower farmers to increase their productivity, income, and welfare. The formation of farmer groups helps to consolidate agriculture processes, making them optimal and efficient (Nurhayati *et al*., 2016).

As can be seen from Table 1, according to the perceptions of some respondents, the application of various rules is still the main obstacle to participating in cattle showrooms in Tanete Riaja District, Barru Regency. However, if viewed from a number of constraints, it can be seen that the community still needs to be given more understanding and guidance regarding

the implementation of rules and what benefits will be obtained if the showroom maintenance system was implemented. This is in accordance with the opinion of Nuryanti and Swastika (2011) that an innovation must be accompanied by effective counseling, so that the adoption of technology will achieve its goals [2]. In addition, the community's thinking about the maintenance system still needs to be influenced to be more interested in implementing cattle showrooms. This is also in line with Tawaf's opinion that the implementation of partnerships in beef cattle commodities still causes many complaints from business actors that it still does not provide optimal benefits, especially in terms of value added to the business (Tawaf, 2018b). This phenomenon, among others, occurs in the partnerships involving beef cattle breeding, where the burden on farmers is felt to be too heavy.

Farmers still doubt the collaboration system for cattle raising with the MBC and need a deeper understanding of the rules in the cooperation contract. The continuity of MBC and breeders' collaboration depends on how farmers know, pay attention to, and behave toward the cooperation system. If the farmer thinks positively about the system of collaboration with MBC, this encourages farmers to continue the program (Wardana *et al*., 2019).

In partnerships between universities and breeders, the role of the government, namely, from the livestock sector, is to facilitate the assistance of activities, including processing livestock products; however, the results of Siregar's research (2018) revealed that partnership activities have not increased the knowledge of cattle farmers. If viewed from the aspect of income, farmers' income increases, and this is in accordance with Siregar's research (2018) that farmers have a perception that partnering with MBC can increase income and fulfill their daily needs (clothing, shelter, and food). Farmers feel more profitable with a profit-sharing pattern in a cow maintenance contract with the MBC. The pattern for the results of the MBC is 55% for the second party, 40% for the first party, and 5% for group development, which is handled directly by the group leader. For the results of this collaboration system, farmers can choose whether they want to divide livestock or cash according to the price of cattle raised. In addition, breeders are only bound by a period of 1 year and 6 months. Based on this, the farmer feels that the pattern of the results is better with that time period. Compared to Tesang where farmers only get 50% or by dividing calves, farmers are bound by a period that cannot be determined. Sirajuddin et al. (2017b) stated that in the Tesang system cattle distribution, if cows give birth to calves in the first year, it is given to the owner, whereas in the second year, it is given to farmers or vice versa according to verbal agreements until the fifth year.

In the local government partnerships, farmers will get investors to buy Bali cattle according to standards, where before they are purchased, they are kept in cattle showrooms with feeding technology and given medicines by assisting officers from Barru's livestock service at certain times (fattening patterns), and with system results, namely, with the purchase of cattle, the division is 50% for ranchers and 50% for owners. Meanwhile, in the partnership of cattle ranchers with universities, that is, cows are raised by farmers with a system of results with fattening programs and breeding systems with the assistance from universities, namely, handling livestock sick, routinely counseling, as well as giving medicines and group-based outcome systems, the distribution for selling the cattle is 55% for breeders, 40% for colleges, and 5% for groups.

## CONCLUSION

The difference in the partnership system in terms of the percentage of revenue sharing between farmers and tertiary institutions is the distribution of 55% for breeders, 40% for colleges, and 5% for groups, while in the partnership system with the government, the distribution is 50% for breeders and 50% for the government. Cattle farmers' perceptions reveal that the partnership system with tertiary institutions provides benefits, but the partnership system with local governments has not yet provided benefits.

## ACKNOWLEDGEMENTS

Authors thank the Institute for Research and Community Services, Hasanuddin University (UNHAS) for funding the research (UNHAS Internal Research Scheme).

## REFERENCES

Armunanto, A., J. Yusri, and C. Cepriadi. 2014. Analisis Usaha Sapi Potong Dengan Pola Kemitraan Antara Investor (Pemodal) Dengan Petani Peternak (Penggaduh) Di Kelurahan Sail Kecamatan Tenayan Raya Kota Pekanbaru. Jom Faperta 1(2): 1-11.

Asir, M., R. Darma, M. Mahyuddin, and M. Arsyad. 2019. Study on Stakeholders Position and Role in Supply Chain of Cocoa Commodities. Int. J. Sup. Chain Mgt. 8(1): 1-9.

Darma, R., A. N. Tenriawaru, and L. Fudjaja. 2018. Fishery Based-Processing Enterprises Integration for the Coastal Community Development. J. Eng. Appl. Sci. 13(3), 588-595.

Erfit, E. 2012. Analisis Kesetaraan Dalam Kemitraan Pada Agribisnis Hortikultura. Jurnal Embrio 5(2): 132-143.

Febriandika, B., S. Iskandar, and S. Afriyatna. 2017. Kemitraan Usaha Peternakan Ayam Ras Pedaging (Broiler) Di Desa Gelebak Dalam Kecamatan Rambutan Kabupaten Banyuasin. Societa 6(1): 57–65.

Firmansyah, C., S. Kuswaryan, and U. Rahayu. 2006. Manfaat Finansial Pada Pola Kemitraan Usaha Pembibitan Sapi Potong. Jurnal Ilmu Ternak 6(1): 75-80.

Hardin, H., S. Suriadi, I. K. Dewi, Y. Yurfiah, C. Nuryadin, M. Arsyad, D. Darwis, A. Akhsan, P. Diansari, and N. Nurlaela. 2019. Marketing of Innovative Products for Environmentally Friendly Small and Medium Enterprises. IOP Conf. Ser.: Earth Environ. Sci. 235: 012035.

Mahmud, A. 2013. Analisis Daya Saing Dan Strategi Pengembangan Peternakan Sapi Potong Di Propinsi Sulawesi Selatan. Ph.D. Thesis; Institut Pertanian Bogor, Indonesia

Nurhayati, A., M. Basir, H. Hadayani, and W. Wahyuningsih. 2016. Partnership Pattern, Strategy and Income of Oil Palm Farming of Pt Lestari Tani Teladan In Donggala, Central Sulawesi. IJBMI 5(8): 94-101.

Nuryanti, S. and D. K. S. Swastika. 2011. Peranan Kelompok Tani Dalam Penerapan Teknologi Pertanian. Forum Penelitian Agroekonomi 29(2): 115-128.

Pulubuhu, D. A. T., A. N. Eryani, and M. E. Fachry. 2018. The Strategy of Women in Facing Agrarian Land Conflict: Case of Female Farmers of Makassar Ethnics. IOP Conf. Ser.: Earth Environ. Sci. 157: 012068.

Rahmadanih, S., S. Bulkis, M. Arsyad, A. Amrullah, and N. M. Viantika. 2018. Role of Farmer

Group Institutions in Increasing Farm Production and Household Food Security. IOP Conf. Ser.: Earth Environ. Sci. 157: 012062.
Riduwan, R. 2013. Skala Pengukuran Variabel-Variabel Penelitian. Alfabeta, Bandung.
Saleh, M. 2015. Studi Tentang Pola Kemitraan Pt Perkebunan Nusantara Xiii Dalam Meningkatkan Perekonomian Masyarakat Di Desa Semuntai Kecamatan Long Ikis Kabupaten Paser. eJournal Ilmu Pemerintahan 3(4): 1527-1538.
Sirajuddin, S. N., M. Aminawar, S. Rohani, V. S. Lestari, A. R. Siregar, and T. Aryanto. 2015. Analisis Kontrak Sistem Kemitraan Ayam Ras Pedaging Dan Kaitannya Dengan Undang-Undang Nomor 5 Tahun 1999 Tentang Larangan Praktek Monopoli Dan Persaingan Usaha Tidak Sehat. JITP 4(2): 79-84.
Sirajuddin, S. N., Hastang, V. S. Lestari, and Rosmawaty. 2018. The Values of Local Wisdom in the Sharing System Between Beef Cattle Farmers and Institution. Adv. Environ. Biol. 12(8): 10-12.
Sirajuddin, S. N., S. Nurlaelah, A. Amrawaty, T. Amrullah, S. Rohani, and I. M. Saleh. 2017. Relationship Between Farmers Characteristic and Income from Beef Cattle with the Traditional Profit-Sharing. Am-Eurasian J. Sustain. Agric. 11(5): 29-34.
Sirajuddin, S. N., A. R. Siregar, and P. Mappigau. 2017. Differences Among Cattle Farmers' Income from Partnership and Non-Partnership System. World J. Environ. Biosci. 6(4): 20-23.
Sirajuddin, S. N., A. R. Siregar, and P. Mappigau. 2018. Application of Capital Social of Bali Cattle Farmers That Participate in the Partnership System in Barru Regency, South Sulawesi Province. IOP Conf. Ser.: Earth Environ. Sci. 157: 012059
Sirajuddin, S. N., A. R. Siregar, and S. Nurlaelah. 2017. The Limitation and Benefits of Partnership Sharing System of Corporated Cattle Market (Ccm). Am-Eurasian J. Sustain. Agric. 11(1): 11-15.
Siregar, A. R., S. N. Sirajuddin, and V. S. Lestari. 2018. Sustainability Strategy for Profit Sharing Systems for Beef Cattle Farmers with Institutions in Terms of Economic Aspects. Adv. Environ. Biol. 12(9): 8-10.
Suharto, S. 2014. Pengalaman Pengembangan Usaha Sistem Integrasi Sapi-Kelapa Sawit Di Riau. In: Proceedings of Lokakarya Nasional Sistem Integrasi Kelapa Sawit-Sapi, Bengkulu, 9−10 September 2003. pp. 57−63
Sumanto, S. 2013. Pemberdayaan Peternak Sapi Potong Melalui Kemitraan Bagihasil Di Kalimantan. Seminar Nasional Teknologi Peternakan Dan Veteriner. pp. 250-258.
Sumarno, S., B. Hartono, B. A. Nugroho, and H. D. Utami. 2013. Farmer's Motivation of Broiler Industry in Gerbang kertasusila, East Java, Indonesia. Journal of Economics and Sustainable Development. 4(10): 138-143.
Suryana, S. 2009. Pengembangan Usaha Ternak Sapi Potong Berorientasi Agribisnis Dengan Pola Kemitraan. Jurnal Litbang Pertanian 28(1): 29-37.
Tawaf, R. 2018a. Analisis Kelayakan Usaha Kemitraan Sapi Potong, Sapi Perah Dan Ayam Ras. Fakultas Peternakan Universitas Padjajaran Dan Dinas Peternakan Propinsi Jawa Barat, Bandung.
Tawaf, R. 2018b. Analisis Usaha Pembiakan Sapi Potong Pola Kemitraan Antara Korporasi Dengan Peternak Rakyat. Sosiohumaniora - Jurnal Ilmu-Ilmu Sosial dan Humaniora 20(1): 45-56.
Wardana, W., W. D. Alzarliani, S. Suriadi, M. Arsyad, M. Salam, D. A. T. Palubuhu, and A. A.

Unde. 2018. Effect of App Utilization on the Agricultural Efficiency of Rural Communities. IOP Conf. Ser.: Earth Environ. Sci. 235: 012101.

Yusuf, S., M. Arsyad, and A. Nuddin. 2018. Prospect of Seaweed Development in South Sulawesi through a Mapping Study Approach. IOP Conf. Ser.: Earth Environ. Sci. 57: 012041.