https://ojs.unud.ac.id/index.php/soca

Attitudes and Knowledges of Dairy Farmers toward Forage Canning Tecnology

Ali Mahmud[1⊠], Ary Bakhtiar[1], Ridha Rizki Novanda[2], Hendro Ardiansyah[3] Dian Fibriyanti[1],
Orca Oryza Anantha Helian Thus[1], Yanti Benson[3]
[1]University of Muhammadiyah Malang, Indonesia
[2]Bengkulu University, Indonesia
[3]Sultan Idris University of Education, Malaysia
[⊠]Correspondence Email: alimahmud@umm.ac.id

	Abstract
Keywords: Farm; Farmer Group; Attitudes; Knowledge	Nowadays, the problem faced by dairy farmers is that the supply of forage is unstable, while dairy cows required forage intake of 10% of their body weight. In addition, the use of concentrate that was not appropriate affected the quality and quantity of cow's milk. The aims of this research are 1; Analyzing the condition of respondents' characteristics toward the forage canning technology as an alternative feed, 2; Analyzing the attitudes and knowledge of dairy farmers towards forage canning technology as an alternative feed, 3; Formulating a strategy for the development of forage canning technology. The method that used was descriptive analysis which obtained from 62 respondents that taken purposively in 5 Sub-districts, which were Karangploso Sub-district, Ngajum Sub-district, Dau Sub-district, Pujon Sub-district, and Ngantang Sub-district. The research results of knowledge showed that 67.31% of respondents belonged to the category of moderate knowledge, while attitudes showed that 68.43% was included in the category of moderate. Thus, it was concluded that the application of forage canning technology was acceptable and properly implemented in the 5 Sub-districts.

INTRODUCTION

Dairy farming in Malang Regency was included in a small scale, it was also mentioned in (Muhyidin, Arman, & Zaenuri, 2019) that the majority of livestock in Indonesia was in small scale and using traditional methods, this will hamper the productivity. On the other hand, the development of the livestock sector continued to increase from year to year. According to data (Central Bureau of Statistics, 2019) from 2013 to 2019, the number of dairy cows in Malang Regency continued to increase significantly. The average increase from 2013 to 2019 was 2298 heads/year. The regency was the biggest contributor of cow's milk, according to data (Central Bureau of Statistics, 2018). In 2018, Malang Regency had 85,188 dairy cows with total cow's milk production reached 148,000 tons. This showed that the increase potential for dairy farmers' production was increasing every year.

Dairy cows will produce milk optimally if the cows were given the right feeding techniques, one of which was using forage canning technology. Forage had an important role in the quality and quantity of cow's milk production. This was in line with the opinion (Magrianti & Priyanto, 2019) which explained that forage canning needed to be performed continuously; therefore forage continued to meet feed needs during the dry season, because forage was the main component in dairy farming. The canning of forage can use fermented rice straw, (Wurlina, Hariadi, Mustofa, & Meles, 2018) also explained that rice straw with molasses will accelerate the process of microbial stimulation.

 Malang Regency was one of the national dairy establishment area, it was also explained in (Amam & Harsita, 2019) that Malang Regency was included in the Decree of the Minister of Agriculture Republic of Indonesia in 2015 Number 43/Kpts/PD.010/1/2015 concerning in National Establishment Area for Beef, Buffalo, Goat, Dairy, Sheep, and Pig. Developing a dairy business in Malang Regency was a rational business, considering that Malang Regency has a suitable environment for animal husbandry, especially dairy farm. In line with the opinion (Larasati, 2016) that productivity was influenced by external factors, such as the environment, feed, and treatment. Thus, the environment was one of the important factors in producing the quality and quantity of cow's milk.

The farmer group was a cooperation media between group members. The farmer group had a relation with farmer groups in other areas, besides that it also had a relation with the government. According to (Hariri, Dewi Andaru, & Suliyanto, 2016) and (Bakhtiar, Pulung Sudibyo, Indriani, & Muhammad Shodiq, 2020) explained that farmer groups were a learning media for farmers, in groups they can exchange ideas, so they can solve problems by deliberation. The activities that performed together will be more efficient than working together individually.

This research discussed the attitudes and knowledge of dairy farmers in Malang Regency, specifically in 5 Sub-districts, which were Karangploso Sub-

district, Ngajum Sub-district, Dau Sub-district, Pujon Sub-district, and Ngantang Sub-district. One of the factors that made these 5 Sub-districts as the research location was because the majority of people own dairy cows. Attitude and knowledge have a close relation. A person will take an action if they have knowledge of what to do. Knowledge was related closely to education, formal education was basically one of the factors that affected a person's knowledge. However, it did not mean that someone with low education was absolutely low in knowledge. Considering that the increase in knowledge was not all obtained from formal education itself, but can be obtained through non-formal education, such as experience. A person's knowledge of an object contained two aspects, positive and negative. These two aspects will determine a person's attitude, the more positive aspects and objects that were known, the more positive attitudes will arise. (Amanda Novandila Soerahman, Marina Sulistyati, 2016) also mentioned that attitudes can arise from experience, from observing an object to imitating something positive and then continuing to seek information in the form of knowledge, can be from verbal information.

The novelty of this research was to find a solution for forage storage using a new innovation, which is simple silage, when compared with research (Trisnadewi et al., 2016) which used ammonia technology using straw or reeds with a mixture of urea and water and the technique of inserting it into a plastic bag has a less effective method. This research had the surplus in using a simple method without other mixtures, it was enough to use forage that put in a barrel until it was solid, then it was reversed and left for 3 weeks. After that, the forage was ready to be given to livestock. The aims of this research in detail were 1; Analyzing the condition of respondents' characteristics to the forage canning technology as an alternative feed, 2; Analyzing the attitudes and knowledge of dairy farmers towards forage canning technology as an alternative feed, 3; Formulating a strategy for the development of forage canning technology.

RESEARCH METHOD
Framework
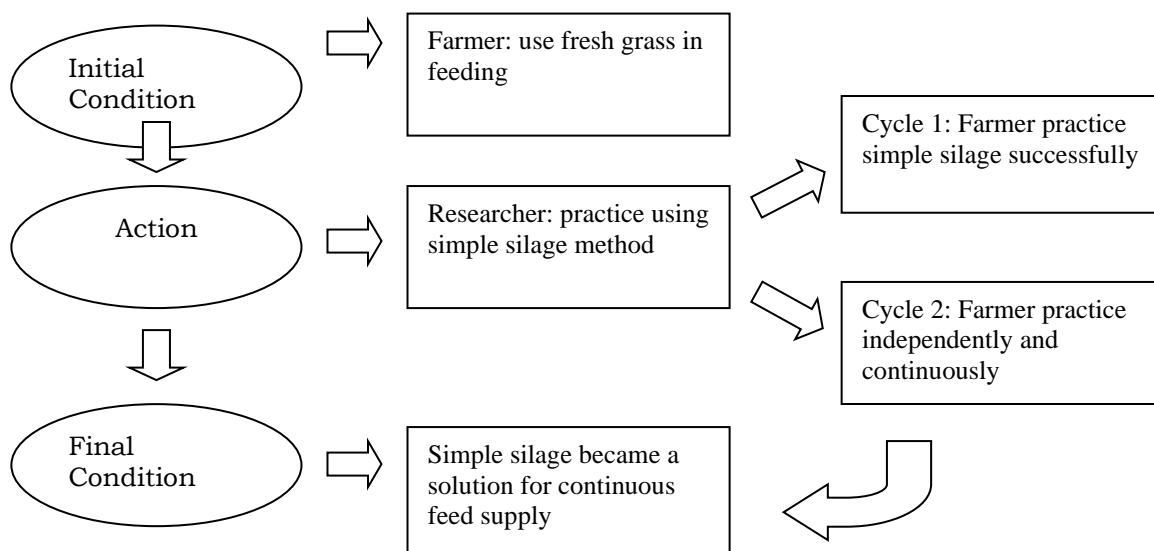
Research Location

This research was conducted from April to November 2021. The research location was in 5 Sub-district of Malang Regency, in which Karangploso Sub-district, Ngajum Sub-district, Dau Sub-district, Pujon Sub-district, and Ngantang Sub-district. This research location was determined purposively based on the implementation about the application of silage technology as dairy cows' feed. The location was chosen based on the survey with result that dairy farmer in Malang Regency had not yet using silage technology in feeding. Therefore, by this research, it was expected to help farmers in the application of forage canning technology.

Population and Total Sample/Respondents

The population of dairy farmers in 5 chosen Sub-district was represented by 5 farmer groups from each Sub-district, with the total members were 152. The total sample that conducted was 62 people with dairy farmer as their main occupation nor side job, which taken by purposively random sampling.

Data Collection Method

This research had primary and secondary data sources. Primary data were obtained from direct interviews with dairy farmers groups in several Sub-districts of Karangploso, Ngajum, Dau, Pujon, and Ngantang which were the samples in the research by using a list of questions (questionnaires) that had been prepared by taking research references first and adapted to the conditions of research data needs. Questionnaire with ordinal data, the linkert scale was used in the data collection process of 62 samples. While, secondary data was taken through literature study, such as in the form of journals, books, notes, existing evidence, or archives, both generally published and unpublished, of course in accordance with this research. The type of data needed to conduct this research was qualitative data. Information qualitative data was regarding the data development of the number of dairy farmers in Malang Regency and development plans for the future. The data obtained through observation, interviews, and distributing face-to-face questionnaires with farmers by filling out the Google form.

Data Analysis Method

This research used quantitative data that was supported by qualitative data. The research object was described descriptively based on facts in the field. Descriptive analysis technique was performed to explain the level of each part of the farmers' attitude and knowledge. The first and second objective used descriptive quantitative analysis, and third objective used a SWOT (Strength, Weakness, Opportunities, Threat) analysis. The variables in this research consisted of two variables, which were attitudes and knowledge. The measurement of variables was conducted by distributing a linkert scale questionnaire which was divided into 5 categories, which were Strongly Disagree (1), Disagree (2), Hesitative (3), Agree (4), and Strongly Agree (5).

RESULT AND DISCUSSION
1.   Respondent Characteristic

The result of respondent data recapitulation that obtained from questionnaires was presented in the following table.

Table 1 respondent characteristics based on age

No	Respondent based on age Years old	Total (people)	Percentage (%)
1	21 – 30	6	9.68
2	31 – 40	25	40.32
3	41 – 50	26	41.94
4	51 – 60	5	8.06
	Total	**62**	**100**

Source: primary data (processed), 2021

Table 1 showed that the characteristics of the 62 respondents based on age have been dominated by respondents aged between 41-50 years old with a total of 26 people at a percentage of 41.94%. Then, 25 respondents with a percentage of 40.32%, aged between 31-40 years. Respondents aged 21-20 years old were 6 people with a percentage of 9.68% and respondents who had an age between 51-60 years old were respondents who had the smallest percentage of 8.06% or only 5 people. The arrangement in performing a livestock business was closely related to the age of the farmers, this was because a person's age affected the level of concern, productivity and mindset in making a decision. (Aisah, Sahar, & Hastono, 2010) said that a person's age was a picture of maturity in making decisions, people who were young and mature can be more able to develop their desires. (Onainor, 2019) said that age had a relation in the concern level of young people (15–34) and adults (35–54) tended to have high concern and for elderly people (55–64) tended to have low concern. Based on the results above, with the majority of respondents between 41-50 years old whose have a high level of concern, this will make it easier for farmers to adapt to the change in technology or environmental conditions.

Tabel 2 respondent characteristic based on gender

No	Respondent based on gender	Total (People)	Percentage (%)
1	Male	48	77,42
2	Female	14	22,58
	Total	**62**	**100**

Source: primary data (processed), 2021

Based on table 2, it was discovered that of the 62 respondents in this research, male respondents were dominated. Total male respondents were 48 people with a percentage of 77.42% while female respondents were only 14 people with a percentage of 22.58%. The respondent's factor was dominated

by man, it can be seen from the type of work as a farmer that definitely required a strong and agile workforce, especially in finding animal feed and taking care of livestock, of course a man had more strength than a woman. In addition, in Indonesia the majority of workers and employers were men, this was as stated by (Lusiyanti, 2020) that the participation of female workers in Indonesia was getting smaller by only 50% and the participation of male workers was 80%, the participation of female workers was low because patriarchal culture, discrimination, and housewife factors. Also, according to (Abdulkadir-Sunito, 2013) men who work as farm laborers and farmers have a longer duration of work and higher productivity than women who work as farm laborers and farmers.

Table 3 respondent characteristic based on education level

No	Respondent based on education level	Total (people)	Percentage (%)
1	Elementary School	8	12.90
2	Junior High School	25	40.32
3	Senior High School	28	45.16
4	Bachelor	1	1.61
	Total	**62**	**100**

Source: primary data (processed), 2021

Based on table 3, the characteristics of respondents based on education level were elementary school with a total of 8 people (12.90%), junior high school with a total of 25 people (40.32%), high school with a total of 28 people (45.16%), bachelor degree with a total of 1 person (1.61%). The majority of the population in the 5 research sub-districts had the last education in high school. According to the facts in the field, based on the farmers age ranged from 31-50 years old, so that when viewed from the age of the farmer, it was relatively young. They understand about 12 years of compulsory education. According to this fact, this was in accordance with the opinion (Hasanah & Jabar, 2017) that the 12-year compulsory education program increased the number of minimum high school/vocational high school graduated and the equivalent. The knowledge gained during 12 years at school will more or less influence the mindset of individuals, so the function of the livestock group was to exchange knowledge. According to (Fahma Nurdina, Kustanti, & Hilmanto, 2015) that the level of education was one of the motivations in the group, and according to (Effendy & Apriani, 2018) the motivation of group members can improve group function. So that, groups that have members with a high school vocational education level and the equivalent have a mindset that can make the livestock group understand the desired goal. Groups that have goals based on the members' needs were able to implement group functions properly.

The following table was presented based on collected data from 5 Sub-district with total respondent of 62 people. The data was obtained in accordance with the recapitulation result that processed based on result of filled questionnaires.

Table 4 calculation of knowledge and attitudes element percentage

Element	Value (%)					Total Value	Average	Category
	Karangploso	**Pujon**	**Dau**	**Ngantang**	**Ngajum**			
Knowledge	**71.45**	**82.73**	**75.10**	**57.70**	**49.55**	336.53	67.31	Moderate
Attitude	**79.33**	**82.50**	**75.64**	**59.56**	**45.14**	342.17	68.43	Moderate

Source: primary data (processed), 2021

2.   Attitude and Knowledge

Attitude was basically a willingness or readiness to take an action. The farmers' attitude in the application of forage canning technology in dairy cows was different. The difference lied in already or not, the farmer had applied the given technology. According to (Pratiwi, D. A., M. Sulistyati, 2016) explained that this can be influenced by attitudes which influenced by culture, personal experience, mass media and the security provided by others. Based on the research results, in each Sub-district had a different percentage of attitudes, Karangploso Sub-district had a percentage of (79.33%), Pujon Sub-district was (82.50%), Dau Sub-district was (75.64%), Ngantang Sub-district (59.56%) and Ngajum Sub-district had a percentage of (45.14%). Based on the 5 Sub-districts that observed, the average was (68.43%) in the moderate category. The moderate category means that most of the dairy farmers from the five Sub-districts already knew and practiced forage canning technology, but not yet in large-scale quantities and used it as substitute forage. Dairy farmers still provide feed in the form of nuts and their families, and factory feed as additional feed. Most of the farmers were active in the dairy farmer group and felt that they will support the application of forage canning technology in their farms. The moderate category obtained can be influenced by the lack of motivation possessed by farmers towards the use of forage canning technology, on average, farmers felt that the application of forage canning technology took a long time and had risks from poisoning to failure of the fermentation process. This was supported by the opinion (Muhyidin et al., 2019) which stated that the higher the motivation possessed by the respondent will increase the respondent's self-attitude, where the attitude will be determined by the interests needed by the respondent.

Knowledge was someone's benchmark in dealing with something. Knowledge can be obtained from various sources, including verbal information to experience. Based on table 4, it was known that the average element of knowledge was 67.31 in the moderate category. Each Sub-district had an average above 50%, half of the farmers have knowledge of forage canning technology. One of them was in Karangploso Sub-district, the farmer group already knew about the technology for canning forage. Even farmer groups in Karangploso Sub-district have implemented it, but it was not continued because of the high cost and also during the pandemic, farmers experienced economic problems, as well as other Sub-districts. This was considered as good because the farmer group had already implemented forage technology. According to (Muhyidin et al., 2019) good knowledge was able to support technology programs. In accordance with the facts in the field, that famer groups already have the knowledge and they have applied it but constrained

by the current pandemic. The COVID-19 pandemic has had a negative impact on the prices of animal feed; one of them was dairy farming. One of them was the soaring price of concentrate, which made farmers unable to meet the needs of dairy cows, which also had an impact on the quality and quantity of milk. This was also in line with the opinion (Jannah, N.A. Setianto, & K. Muatip, 2021) which stated that the COVID-19 pandemic has made animal feed prices soared, so that farmers were forced to reduce fortification feed.

In fact, the demand for cow's milk during the pandemic continued to grow. This was because consuming cow's milk can increase the body's immunity, so consumers flocked to buy cow's milk to maintain health. However, according to the facts, the demand for dairy cows in Indonesia was still not adequately met. The reason was the results of cow's milk still depend on the dairy farmers who still have various obstacles. (Septanti, Ariningsih, & Saliem, 2020) also stated that the dairy business still had traditional management and the scale of ownership was still low, so it was not efficient, which resulted in low milk production, limited capital sources, and sales were still in the form of fresh milk.

3. Development Strategy For Forage Canning Technology

Strategy worked to take advantage of all existing opportunities. From the SWOT matrix results, the recommended strategy was plan the development of dairy farms with good maintenance management, optimized productivity by combining experience with the development of science and technology, or by increasing mastery of science and the application of technology in daily practice. Forage canning technology was a forage supply pattern that can be used as a solution when there was not enough fresh feed available. According to (Magrianti & Priyanto, 2019) forage development strategies must be performed in synergy between farmers and dairy cooperatives, so that milk production remained optimal and sustainable at the farmer level and the quality of milk produced also meets standards.

Weaknesses and Opportunities (W-O) strategy was a strategy that implemented based on opportunities usage, by overcoming the weaknesses they have. Farmers in these 5 Sub-districts already more or less understand about the knowledge of forage technology, but in fact there were still obstacles that occurred. One of them was the lack of knowledge about the actual feed requirements needed by dairy cows. With this problem, the recommended strategy was to provide counseling about the nutrition of animal feed ingredients. According to (Santosa, Setiadi, & Wulandari, 2013) counseling was a solution to convey the development of science and technology to farmers, so that farmers were not always stuck in the traditional way. Moreover, the limited capital owned by farmer groups to purchase equipment, it was suggested that farmer groups can take opportunities by participating in credit programs provided by banks as business capital.

Strength and Threat strategy (S-T) was a strategy that used the strengths possessed to avoid existing threats. From the obtained SWOT matrix, the recommended strategy for farmer groups was to pay more attention to the relations with the government or cooperatives, so that they

can perform continuous discussions. In line with the opinion (Santosa et al., 2013) that farmer groups need to conduct regular discussions to be more cohesive and more effective in finding solutions. In addition, farmers also need to pay attention to the supply of feed because the majority of farmers were looking for feed at the time the feed will be given, so that supplies were not yet available. Therefore, it was recommended that farmers also need to increase the feed supply, because according to (Umela & Bulontio, 2016) animal feed must be available continuously.

Weaknesses and Threats strategy (W-T) was a strategy that was performed with more defensive activities and concluded a solution that aimed to minimize and overcome the weaknesses and threats that exist in the livestock business, especially the application of forage canning technology. Based on the existing weaknesses and threats, the strategy that can be performed was to collaborate in the feed manufacture that based on forage canning technology to accommodate excess forage in the rainy season and anticipate forage shortages in the dry season which were stored in shared storage areas in each village or each farmer group to facilitate distribution. Another way that can be performed to overcome the threat of a forage shortage was to provide joint arable land in a farmer group that was specifically planted with forage plants for animal feed, which will help meet the need for feeding by using livestock waste as compost. This was in accordance with the strategy (Magrianti & Priyanto, 2019) where the optimization of livestock's waste as compost fertilizer in green areas because it had N, P and K content.

CONCLUSION

From this research, it can be concluded that the attitudes and knowledge of respondents in five Sub-districts, in which Karangploso Sub-district, Ngajum Sub-district, Dau Sub-district, Pujon Sub-district, and Ngantang Sub-district regarding dairy farmers towards forage canning technology during the pandemic were in the moderate category. Knowledge in the moderate category with an average element of knowledge 67.31% indicated that the majority of farmers already knew about forage canning technology, but there were several obstacles that prevented farmers from applying it to their livestock business. The attitude in the moderate category with an average 68.43% explained that most of the farmers were active in the dairy farmer group and felt they would support the application of forage canning technology in their farms. In addition, farmers must also have forage supplies and be able to apply simple silage technology that has been practiced together.

RECOMMENDATION

The development of forage canning technology needs to be developed. Attitudes and knowledge were in the moderate category with the majority of farmers having an interest in forage canning technology. This technology was a feed supply solution, so that farmers did not experience a shortage of feed at any time. In the technology development strategy, it was suggested that farmer groups can take advantage of opportunities.

ACKNOWLEDGEMENT

DAFTAR PUSTAKA

Abdulkadir-Sunito, F. R. M. (2013). Faktor-Faktor Yang Mempengaruhi Akses. *Sosiologi Pedesaan*, 01, No. 03, 206–221.

Aisah, S., Sahar, J., & Hastono, sutanto priyo. (2010). Pengaruh Edukasi Kelompok Sebaya terhadap Perubahan Perilaku Pencegahan Anemia Gizi Besi pada Wanita Usia Subur di Kota Semarang. *Prosiding Seminar Nasional*, 119–127.

Amam, A., & Harsita, P. A. (2019). Aspek Kerentanan Usaha Ternak Sapi Perah di Kabupaten Malang. *Agrimor*, 4(2), 26–28. Retrieved from https://doi.org/10.32938/ag.v4i2.663

Amanda Novandila Soerahman,Marina Sulistyati, D. S. T. (2016). Hubungan Antara Pengetahuan Dan Sikap Dengan Tindakan Peternak Sapi Perah Dalam Upaya Pencegahan Penyakit Mastitis. *Didin S Tasripin*, (June), 1–11.

Bakhtiar, A., Pulung Sudibyo, R., Indriani, I., & Muhammad Shodiq, W. (2020). The Dynamics of Horticultural Farmers Groups in Malang Regency and Batu City. *SOCA: Jurnal Sosial, Ekonomi Pertanian*, 14(3), 473. Retrieved from https://doi.org/10.24843/soca.2020.v14.i03.p09

Badan Pusat Statistik [BPS]. (2017). Statistik Indonesia 2017. Jakarta. Diambil dari https://jatim.bps.go.id/statictable/2019/10/11/1877/produksi-susu-perah-menurut-kabupaten-kota-di-provinsi-jawa-timur-kg-2017.html

Badan Pusat Statistik [BPS]. (2019). Statistik Indonesia 2019. Jakarta. Diambil dari https://malangkab.bps.go.id/statictable/2015/03/17/464/populasi-ternak-besar-per-kecamatan-di-kabupaten-malang-2013-2019-ekor-.html

Effendy, L., & Apriani, Y. (2018). Motivasi Anggota Kelompok Tani dalam Peningkatan Fungsi Kelompok. *Jurnal Ekonomi Pembangunan STIE Muhammadiyah Palopo*, 4(2), 10–24. Retrieved from https://doi.org/10.35906/jep01.v4i2.270

Fahma Nurdina, I., Kustanti, A., & Hilmanto, R. (2015). Motivasi Petani Dalam Mengelola Hutan Rakyat Di Desa Sukoharjo 1 Kecamatan Sukoharjo Kabupaten Pringsewu. *Jurnal Sylva Lestari*, 3(3), 51. Retrieved from https://doi.org/10.23960/jsl3351-62

Hariri, A., Dewi Andaru, S., & Suliyanto, A. (2016). Pengembangan Kelompok Tani Yang Dinamis Dalam Pengembangan Agribisnis Hortikultura Di Kota Batu. *Agriekstensia*, 16(2). Retrieved from https://doi.org/10.34145/agriekstensia.v16i2.5

Hasanah, Y. M., & Jabar, C. S. A. (2017). Evaluasi program wajib belajar 12 tahun pemerintah daerah Kota Yogyakarta. *Jurnal Akuntabilitas Manajemen Pendidikan*, 5(2), 228. Retrieved from https://doi.org/10.21831/amp.v5i2.8546

Jannah, Z. ., N.A. Setianto, & K. Muatip. (2021). Analisis Dampak Pandemi Covid-19 Terhadap Usaha Ternak Domba. *Prosiding Seminar Teknologi Dan Agribisnis Peternakan VIII–Webinar*, 24–25.

Larasati, D. A. (2016). Faktor Yang Berpengaruh Terhadap Produktivitas Susu Sapi Perah Di Desa Geger Kecamatan Sendang Kabupaten Tulungagung. *Jurnal Geografi*, 14 No 1(2), 34–41.

Lusiyanti, L. (2020). Kesenjangan Penghasilan Menurut Gender Di Indonesia. *Jurnal Litbang Sukowati : Media Penelitian Dan Pengembangan*, 4(1), 16. Retrieved from https://doi.org/10.32630/sukowati.v4i1.214

Magrianti, T., & Priyanto, D. (2019). Analisis Pola Penyediaan Hijauan Pakan dan Strategi Pengembangan pada Lokasi Kawasan Sapi Perah di Jawa Tengah, 110–122. Retrieved from https://doi.org/10.14334/pros.semnas.tpv-2019-p.110-122

Muhyidin, M., Arman, C., & Zaenuri, L. A. (2019). Analisis Tingkat Pengetahuan, Sikap, dan Motivasi Peternak Sapi dalam Adopsi Teknologi Inseminasi Buatan di Sumbawa Barat. *Jurnal Ilmu Dan Teknologi Peternakan Tropis*, 6(3), 304. Retrieved from https://doi.org/10.33772/jitro.v6i3.6529

Onainor, E. R. (2019). 済無No Title No Title No Title, 1, 105–112.

Pratiwi, D. A., M. Sulistyati, dan H. (2016). Peternak Sapi Perah Dengan Penerapan Prosedur Pemerahan " Correlation of Knowledge and Attitude Dairy Cow, 1–15.

Santosa, S. I., Setiadi, A., & Wulandari, R. (2013). Analisis Potensi Pengembangan Usaha Peternakan Sapi Perah Dengan Menggunakan Paradigma Agribisnis Di Kecamatan Musuk Kabupaten Boyolali. *Buletin Peternakan*, 37(2), 125. Retrieved from https://doi.org/10.21059/buletinpeternak.v37i2.2431

Septanti, K. S., Ariningsih, E., & Saliem, H. P. (2020). Pengembangan Usaha Ternak Sapi Perah Rakyat Di Era Normal Baru. … *Seminar Teknologi …*, 230–238. Retrieved from http://jnp.fapet.unsoed.ac.id/index.php/psv/article/view/531

Trisnadewi, A. A. A. S., Cakra, I. G. L. O., Yadnya, T. G. B., Budiasa, I. K. M., Suarna, I. W., & Udayana, I. D. G. A. (2016). Teknologi pengawetan hijauan sebagai peningkatan ketersediaan pakan di Desa Sebudi Kecamatan Selat Kabupaten Karangasem. *Jurnal Udayana Mengabdi*, 15(3), 203–208.

Umela, S., & Bulontio, N. (2016). Daya dukung jerami jagung sebagai pakan ternak sapi potong. *Jtech*, 4(1), 64–72.

Wurlina, W., Hariadi, M., Mustofa, I., & Meles, D. K. (2018). Penggemukan Sapi Menggunakan Pakan Tanpa Hijauan (Complete Feed) Dan Tape Jerami Serta Growth Promotor Strategi Pencapaian Swasembada Daging. *Jurnal Layanan Masyarakat (Journal of Public Services)*, 2(2), 63. Retrieved from https://doi.org/10.20473/jlm.v2i2.2018.63-68