

## DAIRY FARMERS' KNOWLEDGE AND STANDPOINTS REGARDING FORAGE PRESERVATION TECHNOLOGY IN "NEW NORMAL" ADAPTATION (A Case Study in Pujon District)

*Sikap dan Pengetahuan Peternak Sapi Perah Terhadap Teknologi Pengawetan Pakan Hijauan Pada Adaptasi New Normal (Studi Kasus Kecamatan Pujon)*

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### ABSTRACT

*Covid-19 pandemic has restricted social and physical mobility, such as using a mask during outdoor activities, applying hand sanitizer, washing hands, and maintaining health by exercising and controlling body intake. These restrictions also have caused the termination of forage subsidy by the milk processing industries. The "new normal" era requires farmers to secure self-sufficient forage. This research aims to 1; analyze the characteristic situation of the respondents regarding forage preservation technology in "new normal" adaptation, 2; analyze the insight and standpoints of the dairy farmers regarding forage preservation technology in "new normal" adaptation. The researchers used the descriptive analysis method and obtained 50 respondents by purposive sampling in Pujon District. The results showed that 63.70% of the respondents are "moderately informed," and 61.45% have "moderate standpoints". In conclusion, so it was concluded that the level of knowledge about forage feed preservation technology affected the attitude of farmers in applying forage feed preservation technology. the forage preservation technology is well-established and applicable among the dairy farmers in Pujon District.*

**Keywords:** *farm, farmer group, insight, standpoint*

## ABSTRAK

*Pandemi Covid-19 membuat aktivitas menjadi terbatas secara mobilitas sosial dan fisik, seperti anjuran menggunakan masker, memakai handsanitizer, sering mencuci tangan, menjaga kesehatan tubuh dengan cara olahraga dan menjaga imunitas tubuh. Hal ini juga berimbas di bidang peternakan di Kecamatan Pujon tepatnya pada subsidi pakan yang dihentikan oleh pihak Industri Pengolahan Susu (IPS). Era new normal mengharuskan peternak memiliki kemandirian pakan yang kuat. Tujuan dari penelitian ini yaitu 1; Menganalisis kondisi karakteristik responden terhadap teknologi pengawetan hijauan pada adaptasi new normal, 2; Menganalisis pengetahuan dan sikap peternak sapi perah rakyat terhadap teknologi pengawetan hijauan pada adaptasi new normal. Metode yang digunakan yakni analisis deskriptif dan didapat 50 responden yang diambil secara purposive di Kecamatan Pujon. Hasil kajian pengetahuan menunjukkan bahwa sebanyak 63,70% responden termasuk dalam kategori pengetahuan sedang, dan sikap menunjukkan 61,45% termasuk kategori sedang. Sehingga disimpulkan bahwa tingkat pengetahuan tentang teknologi pengawetan pakan hijauan mempengaruhi sikap peternak dalam menerapkan teknologi pengawetan pakan hijauan. Penerapan teknologi pengawetan hijauan dapat diterima dan diterapkan dengan baik di Kecamatan Pujon.*

**Kata Kunci:** *peternakan, kelompok ternak, pengetahuan, sikap*

## INTRODUCTION

Covid-19 pandemic has restricted social and physical mobility, such as using a mask during outdoor activities, applying hand sanitizer, washing hands, and maintaining health by doing exercise and controlling body immunity. Meanwhile, one of the ways to maintain body immunity is by consuming cow's milk. According to Septanti et al., (2020), milk consumption has increased during the Covid-19 pandemic. This phenomenon is significant momentum to develop the national milk industry.

In Indonesia, dairy farming can be a main or a side income, most of the farmers in Indonesia still use the traditional farming system. Muhyidin et al. (2019) stated that Indonesian farms are small-scale, and thus majority of the farmers manage their farms traditionally. This practice may restrain productivity. Setyorini et al., (2020) also stated that cows milk in Indonesia is not sufficient for national milk consumption. On the other hand, the development of the farming sector keeps increasing year by year. Statistics Indonesia (2019) showed that the number of dairy cattle in Malang Regency had increased significantly from 2013 to 2019. The average increase was 2298 cows/year.

Malang district is a large contributor cows of milk. According to BPS data (2016) that in 2016 Malang District produce cows milk 136.332.000 liters, while in 2017 according to BPS data (2017) Malang District produce cows milk in a

large number its 141.954.288 liter. This outcome shows that the potential of dairy production in Pujon District is increasing year by year.

Pujon District has the most dairy cow population in Malang Regency, reaching 20.411 (Indonesia Statistics, 2019). Most of the farmers in the district own a small-scale farms so using the traditional way. The majority farmer in Pujon Subdistrict join the respective groups so that the milk that has been milked is immediately delivered to the unit cooperative, because the cows milk that is too long in the cowshed will easily be contaminated by bad air. According to Siswanto et al., (2018) the air in the cowshed contains bacteria so the milk will be damaged. Bacteria will convert the sugar into acid, so the damaged milk will change the taste. Of course, spoiled milk will affect the selling value. The groups deposit the milk to the village cooperatives, which will distribute the product to the milk processing industries, such as Nestle, Indolacto, SGM, and Frisian Flag.

Pujon farmers before getting now preservation technology they feed their cows with fresh grass, corncob, straw, and nuts with the concentrate. Currently, Pujon farmers feed their cows with fresh grass and concentrate. The concentrate used is the product of each village cooperative. Before 2021, the milk processing companies provided the farmers with the subsidy of concentrate. However, after the stipulation of the "new normal" regulation in 2021, the subsidy was terminated, and, consequently, the milk price was raised. Following the termination, the farmers should adapt to the situation by looking for more forage and buying concentrates.

The demand for cow forage is continuous and stable. If the supply is disrupted, the farmers will not fulfill the demand. This halt can affect the quality and quantity of milk. Unlike the forage, which maintains the quality and quantity of milk, the concentrates only serve as additional nutrition. During the rainy season in Indonesia, the source of forage is abundant. Contrastingly, in the dry season, the source of forage is scarce. According to Bahrin et al., (2018), the supply and quality of greens decrease in the dry season and affect the quality of livestock's productivity. In addition, the weight of the forage for each cow should be equal to 10% of the cow's weight, with a composition of 70% of greens and 30% of legumes (Main Station for Farming Training of Kupang, 2021).

Forage preservation technology is not a new thing in Pujon District. However, more foraging is sufficient to produce good quality, and the quantity of cow milk. According to Pratiwi et al., (2016), one of the ways to improve cow's milk's quantity and quality is following the standard procedure, as stated by the Main Station for Farming Training of Kupang (2021) that forage significantly affects the milk's quality and quantity. Simple silage technology in dairy farming is crucial during the scarcity of forage in the dry season and the

termination of subsidy from the milk processing company. Therefore, high motivation is needed for individual farmers to use preservation technology.

Entrepreneurial motivation is significant in the results of a business. It can be a stepping stone to develop self-motivation. According to Maryani et al., (2018), assisting the farmer groups can improve entrepreneurial motivation. This research was conducted among dairy farmer groups in Pujon District with guidelines regarding forage preservation technology. Assistance is significant to motivate the farmers in finding the solution to forage problems. Indratmi et al., (2018) discovered that assistance can increase society's interest in the dairy farm business. Meanwhile, according to Rahmawati & Saidah (2020), the number of livestock and farming experience generate motivation to engage in farming.

The innovation of this research is discovering the solution of forage storage using simple silage technology. According to Susilowati et al., (2020), silage feeding will increase milk product. Compared to the invention found by Trisnadewi et al., (2016) stating that one of the preservation metode with the silage technique can be applied easily. This research has simple advantage without other mix just used chopped grass then put into the barrel until solid and leave for 3 weeks, and there is second option there is mix the chopped grass with the concentrate, EM4, and molases In detail, this research aims to 1; analyze the characteristic situation of the respondents regarding forage preservation technology in “new normal” adaptation, 2; analyze the insight and standpoints of the dairy farmers regarding forage preservation technology in “new normal” adaptation.

## RESEARCH METHOD

This research was conducted in the Pujon District of Malang Regency from April 2021 to November 2021. The research location purposively determined based on the survey result that the farmers in the district has just developed with simple silage technology. Therefore, it is expected that this research can provide insight for the farmers that forage preservation technology using the silage method can be sustainable forage storage.

Meanwhile, the population in this research used a *purposive sampling method* from Pujon District is represented by two farmer groups. The first group is Anjasmoro Agrilestary from Pandesari Village, consisting of 15 members, while the second group is Tirtasari Kresna Gemilang from Ngabab Village, with 200 members. There were 50 farmers selected for the research samples, comprising 15 members of the first group and 35 members of the second group. The reason for taking the number of total samples in Anjasmoro Agrilestari because they are already practiced it, then just grow to the Tirtasari Kresna Gemilang group. So in this group we only take 35 person as the sample.

The researchers used the primary data from observations, surveys, and direct interviews with one of the structural members of the groups and questionnaires (Likert scale) to all of the group members. As a requirement, every respondent should have a livelihood or a side income as a dairy farmer and a membership in one of the two groups. The researchers used published and unpublished books, journals, and records for secondary data. Determination of standpoints scale use *summated rating*, while the determination of insight scale based of interest and sources of information factor.

Researchers used the descriptive analysis method with quantitative data supported by qualitative data in the form of a interviews, observation, and questionnaires results which calculated with an average value and grouped by interval values low (20%-46%), moderate (47%-73%), and high (74%-100%). Furthermore, supported with qualitative data as a document study. According to Bakhtiar et al., (2020), the descriptive analysis describes data results based on obtained facts. Variables in this research are insight and standpoints, which are measured by Likert scales with five categories comprising very disagree (1), disagree (2), uncertain (3), agree (4), very agree (5). There are indicators in the questionnaire the understanding of farmers about technology, farmers mindset, sources of preveration technology, and understanding metode of silage.

## RESULT AND DISCUSSION

### Respondents' Characteristics

The following table describes the results of respondents' data recapitulation obtained from the distribution of questionnaires in the Anjasmoro Agrilestari and Tirtasari farmer groups. Table 1 shows the respondents' characteristics with three criteria: sex, age, and current education level. The samples comprise 15 members of Anjasmoro Agrilestari group and 35 members of Tirtasari Kresna Gemilang group.

Based on sex, 84.00% of the population is dominated by males (42 persons), followed by 16.00% of females (8 persons). This comparison shows that dairy farm requires heavy labor, and therefore, the majority of the farmers are males. According to Masri, (2021), men, in general, are physically stronger than women. There are several physical works that only men can perform. Farmes activities require strong physical strength of men from cleaning the cage to feeding and drinking. Moreover, the observation result shows that women take the role of milkmaids. Different from this finding, Dalmayatun et al., (2015) reported that women often clean cowsheds and farming tools, provide forage and drinking water, and bathe the cows in dairy farming. Not a few wives of farmers in the Pujon subdistrict who help the process of milking

cows with the aim of helping their husbands. Besides that, the farmer 's wives in pujon subdistrict also work as a farmer to increase the income. Sopamena (2019) said that the shift in the gender roles occurs in the household, it proved by the wives help the husband to service household need by carrying out varios economic activities.

Table 1. Respondents' Characteristics in Pujon District

No	Characteristic	Total	%
Sex			
1	Male	42	84,00
	Female	8	16,00
Age			
2	20-30	6	12,00
	31-40	16	32,00
	41-50	24	48,00
	51-60	4	8,00
Current Education Level			
3	SD	11	22,00
	SMP	10	20,00
	SMA/SMK	28	56,00
	S1	1	2,00

source: primary data (processed), 2021

Regarding age, 48.00% of the population is dominated by respondents aged 41-50 (24 persons. According to Sapti, (2018), men and women reach their maximum physical strength at 25 and begin to lose it afterwards. Its different with the research metode of Ibrahim et al., (2020) at the age of 15-20 year have high productivities in manage the farm. However, based on Table 1, the most active farmers are those aged between 41 to 50. This age is the productivities of the farmer in Pujon Subdistrict. They said as long as they still have physical health they will still work to fulfil the household needs.

Meanwhile, based on current level education, 28 respondents are high school graduates reaching 56.00%. These respondents are well-informed of the 12-Year Compulsory Education. According to Hasanah & Jabar (2017), 12-Year Compulsory Education increases the minimum number of high school graduates. The education gained from this program roughly affects an individual's way of thinking, and therefore, a farmer group can construct a more positive mindset. Nurdina et al., (2015) stated that education level is one of the motivations in a group, and according to Effendy & Apriani, (2018) a group member's motivation could improve a group's function. Therefore, a

group with a high-school graduate member has a mindset that helps the farmer group understand its objectives. A group having goals based on its members' can apply its function correctly.

### Insight and Standpoints

The following table describes the data recapitulation based on the filled questionnaires.

Table 2. Insight and Standpoints of the Dairy Farmers in Pujon District

Element	Value (%)		Total Value (%)	Average (%)	Category
	Anjasmoro Agrilestari	Tirtasari Kresna Gemilang			
Knowledge	89,58	37,82	127,39	63,70	Moderate
Standpoints	85,19	37,71	122,90	61,45	Moderate

Source: primary data (processed), 2021

Technology is a means to turn natural resources into simple tools for human living. It is crucial in dairy farming, as Handewi et al., (2016) proposed that technology can increase productivity and improve well-being. Under poor forage distribution, farmers need to adapt and develop a solution to forage provision. One of the forage preservation technologies is the simple silage method. It is a method of forage compaction using the principles of anaerobic fermentation. According to Nurfitriani et al., (2021)), silage application is one of the solutions to use the remaining forage for a year-round supply. It can be helpful for the farmers since they can independently provide their forage during the "new normal" situation after the subsidy termination by the milk processing industries.

Knowledge is everything that is known, for example intelligence or everything that known as the understanding of things (Ridwan et al., 2021). The farmers in Pujon Subdistrict already known about preservation technology from counseling. Counseling is one of knowledge. According to Lamarang et al., (2017), dissemination improves insight, skills, and standpoint to engage in farming. Pujon farmers also get knowledge from social media youtube. According to Said et al., (2018) high capacity of the farmers is important to the farmers receive innovation of technology. Based on Table 2, the Anjasmoro Agrilestari farmer group has better insight (89.58%) than the Tirtasari Kresna Gemilang farmer group (37.82%). Thus, the average insight of the population is categorized as "moderate", reaching 63.70%. The first group members have considerably better insight than the second group since they have participated in many dissemination regarding forage preservation technology. Insight significantly affects an individual or a group's standpoint or action. According to Mahmud et al., (2022), insight is a human's benchmark in

taking action. The data shows that the Anjasmoro Agrilestari farmer group has a remarkable insight to help them apply simple silage technology. Furthermore, insight is gained from disseminations.

Pandemic covid19 born new normal, this effect the farmers to deal with cows feed supplies. Standpoints is all the actions taken according to individual beliefs. According to Pratiwi et al., (2016), standpoints is readiness or willingness to take action. Farmers' standpoints are significant to prevent a shortage in dairy cows' forage during the "new normal" era of the Covid-19 pandemic. According to Utami et al., (2019), a change of standpoint may occur when there is a solution for a problem. In this case, the farmers in Pujon District should get creative and take positive action by applying technology in forage processing for sustainable supply. Table 2 reports that the Anjasmoro Agrilestari farmer group members have better standpoints (85.19%) than the members of the Tirtasari Kresna Gemilang farmer group (37.71%). Kelompok Anjasmoro Agrilestari group has high point because in this group they already known and applied simple silage, and for Tirtasari Kresna Gemilang group this technology is still new. Therefore, the average standpoints of the population are categorized as "moderate", reaching 61.45%. "Moderate" means that most farmers in Pujon District acknowledge and implement the simple silage in dairy farming. It is also caused by a lack of motivation in an individual or a group. Muhyidin et al., (2019) stated that respondents would act based on their needs. Moreover, Noviana et al., (2021) argued that motivation might come from the institution joined by a farmer group. The group leader of Tirtasari Kresna Gemilang group is very support in application of preservation technology. Muslimah et al., (2021) said the efforts to achieve affectiveness of group can not be separated from the role of the leader. The leader of Ketua kelompok Tirtasari Kresna Gemilang groups has high spirit and high motivation so the members of the group also have spirit to received preservation technology.

## CONCLUSION AND SUGGESTION

### Conclusion

In conclusion, insight and standpoints of the dairy farmers in Pujon District regarding forage preservation technology during the "new normal" era are categorized as "moderate". The average insight reaching 63.70% shows that most farmers have acknowledged the forage processing technology, yet they are still constrained to apply it sustainably. Meanwhile, the average standpoints reaching 61.45% indicate that most farmers actively participate in group activities, including the practice of forage preserving technology. They should have a forage supply to apply a simple silage technology in their farmer group.



## Suggestion

The development of forage preservation technology with a simple silage method is essential. Moderate levels of insight and standpoints indicate that dairy farmers are interested in this technology. It is expected that this technology can be a solution to the forage shortage during the dry season. In addition, it also expected that dairy farmers will have feed independence, so that feed supplies do not depend on subsidies provided by the dairy processing industry.

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