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DEVELOPMENT OF CATTLE CATTLE WITH MODIFICATION MODEL TO PREVENT BACTERIOLOGICAL CONTENT OF E. COLI CONTENT IN A WELL WAS DAILED IN GAMPONG LAMPASI ENGKING, DISTRICT DARUL IMARAH, ACEH BESAR DISTRICT

Hamdani[1], Zubir[2]

[1]Lecturer in environmental Health, Poltekkes Kemenkes Aceh (hamdaniamponwoyla@gmail.com)

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ABSTRACT

The presence of Colifaecal bacteria in clean water indicates contamination caused by dirt. The discovery of E. Coli in water is thought to pose a threat to human health because the water is suspected of containing pathogenic microorganisms, which include viruses, bacteria, protozoa, and parasites which are transmitted through fecal material. The study aimed to determine the relationship between the distance between cattle sheds and the quality of dug well water on the bacteriological content of E. Coli in Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District in 2018.
This research is a Quasi Experiment type of non-equivalent control group design. The subjects in this study were the effect of the number of E.coli after and before the modified cattle barn on the dug wells around the cowshed in Lampasi Engking Village, Darul Imarah District, Aceh Besar District with a total of 4 dug wells.
The results showed that the number of E. coli before the cage was modified was 26 MPM while after the modification there was a decrease in the number of E.coli in dug wells of 7 MPM in Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District.
The conclusion is that there is a difference in the content of E.Coli in the wells that have not been modified in cow pens with the amount of E.Coli bacteria content after being modified where the value of p = 0.070. It is hoped that the Lecturer can add information material that can be used as a reference for the development of science or further research for those who need it, especially regarding models of Modification of cattle pens to reduce the bacteriological number of E. Coli in dug wells around cow pens.

Keywords: Cattle pens, well water quality, E. Coli bacteria, Modified Models of Cattle Cage.

PRELIMINARY

Water is one of the most important natural resources for life. Water is an environmental component that is needed for the survival of humans and other creatures. This is evidenced by the presence of water in the bodies of organisms. Approximately 70% of the human body weight consists of water and in water bodies, there are living things that greatly determine the characteristics of the water, both chemically, physically, and biologically.

Water is also a medium for nesting and transmission of dangerous diseases to humans. Dirty water is a comfortable place to breed various bacteria and viruses that cause disease. One of the germs of infectious diseases that reproduce through water intermediaries is diarrhea.

Microbiological quality that does not meet health requirements can cause health problems. The presence of Colifaecal bacteria in clean water indicates pollution caused by human feces. The discovery of E. Coli in water is thought to pose a threat to human health because the water is suspected of containing pathogenic microorganisms which include viruses, bacteria, protozoa, and parasites which are transmitted through fecal material.

One of the most common facilities used by small communities to collect shallow tap water and use it as a source of drinking water is dug wells. Meanwhile, shallow groundwater is water that is most easily contaminated by seepage originating from sewage facilities, latrines, livestock pens, and animal waste. Pollution of the Gaki wells is especially common in densely populated residential areas, for example in slum areas.

The cages should be built at a distance of 6 to 8 meters from each edge of the roof of the cage. Isolation cages and quarantine cages from cages or other buildings that are spaced 25 m or at least 10 m with a parapet height of 2 m. The office is 25 to 30 m away from the stables. The manure

storage area is located 100 m from the pens. The distance between the cages greatly affects the water quality of the gas wells.

Describes the physical condition of dug wells including the construction of dug wells where the walls of the well are at least 3 meters deep from the surface of the floor or soil, the height of the lip of the well is at least 70 cm from the floor made of strong and watertight material to prevent water from seeping into the well, the floor of the well is cemented/watertight, has a width around the well 1.5 m from the edge of the lip of the well so that surface water does not enter, and the distance of the dug well to pollutant sources (septic tanks, sometimes livestock and trash cans) > 11 meters7

Based on the results of observations made by the author in Lampasi Engking Village, Darul Imarah District, Aceh Besar District, stated that the average distance between the cage and the dug well was less than 10 meters, there was a cowshed behind the house, and beside the house. The existing dug wells generally have a ring but not plastered on the ring. There are also some houses that have livestock pens that are far from the well or above 10 meters but are still in the yard of the house. While some wells are dug outside the house, some are also inside the house. Based on data in Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District, which has 4 dug wells which are the object of research which are very close to the cowshed.

After identifying the number of E.Coli based on the distance between the cowshed and the community well, a laboratory examination was carried out to determine whether the community dug well was contaminated with E.Coli and to what extent the spread of E.Coli had an impact on public health.

Based on previous research on the Relationship between Cattle Cages Spacing and Bacteriological Quality of Dug Well Water in Slum Settlements in XIV Tegal Sari Mandala II Village, Medan Denai District, it is stated that at a distance of 0.30 meters (closest distance) there are 240 MPN Colifaecal, which means that the bacteriological conditions for this dug well no longer meet the requirements and at a distance of 9 meters (long distance) there are 96 MPN Colifaecal which also do not meet the requirements.

RESEARCH METHODS

Type Of Research

This type of research is a Quasi Experiment research method with a non equivalent control group design type, Quasi Experiment, namely a method to determine the effect of the relationship between the spacing of cattle pens and certain treatments on the quality of dug well water with bacteriological content and an appropriate cattle pen design model in Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District

The experimental design in this study is shown in the following table:

Table 1. Design Matching pretest-posttest control group design

Kelompok	Pre test	Perlakukan (X)	Post test
P1	O1	X1	O2

Information ;
P1 ; Experiment Group
O1 ; Number of E. Coli before cage modification treatment
X1 ; Cowshed Modification Model
O2 ; Number of E. Coli after cage modification treatment

Research subject

The subjects in this study were the number of E. coli in dug wells before and after the development of a modified model of cattle pens in Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District. The number of dug wells is 4 dug wells around the cowshed.

This research was conducted in Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District on 24 to 1 November 2021. The instrument used in this study was a checklist to obtain dug well water quality data. in this study using primary data obtained from sampling dug well water in Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District. while secondary data were obtained from Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District, and the library.

RESULTS

Table 2. Job Frequency Distribution In Gampong Lampasi Engking Darul Imarah District, Aceh Besar Regency

No	Work	F	%
1	Farmer	974	54,44
2	Carpentry	57	3,19
3	Trader	84	4,70
4	Driver/Service	289	16,15
5	civil servant	326	18,22
6	soldier	12	0,67
7	Retired	47	2,63
	Total	1789	100
1	S1/d4	69	3,9
2	D3	52	2,9
3	D1/D2	0	0
4	High School Equivalent	572	31,9
5	High School Equivalent	422	23,6
6	Elementary School Equivalent	472	26,4
7	No school	202	11,3
	Total	1789	100

Based on the results of the research that the writer carried out on 4 dug wells with the observations that the writer did. The author made observations to determine the relationship between the spacing of cattle pens and the quality of well water on the bacteriological content of E. Coli. Before and after the cattle pens were modified in Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District.

Table 2. Frequency Distribution Of The Distance Of Livestock Cages To Daily Wells In Gampong Lampasi Engking, Darul Imarah Sub-District Aceh Besar District

No	Cattle Barn Distance	F	%
1	Far	2	50
2	Near	2	50
	Total	4	100

Based on table 2, the majority of respondents are in the far category, namely 2 wells (50%) and 2 wells (50%) near Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District.

Tabel 3. Frequency Distribution Of E. Coli Content In Water In Gampong Lampasi Engking Well, Darul Imarah Sub-District Big Aceh District

No	Content of E. Coli	F	%
1	Lots	2	50
2	Not enough	2	50
	Total	4	100

Based on Table 3 it can be concluded that from the results of laboratory examinations that in the many categories, namely 2 wells containing E. Coli bacteria (50%) while 2 wells contained less E. Coli (50%) in Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District

Table 4 Frequency Distribution Of Distance To The Number Of E. Coli Bacteria Before The Cage Was Modified.In Lampasi Engking Gampong, Darul Imarah Sub-District Big Aceh District

No	Well water	Well Distance	Tube Volume			MPN E. Coli/100 ml	MPN Coli Form/100 ml
			5	1	1		
1	A 1	16 m	1	0	0	11	21
2	B 2	18 m	3	0	0	21	33
3	C 3	28 m	4	0	0	22	49
4	D 4	29 m	2	0	0	26	26
	Total					80	129

Based on Table 4, it can be concluded that in well A1 there are 11 E. Coli, Well B2 is 21 E. Coli, Well C3 is 22 E. coli, Well D4 is 26 E. Coli, in Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District.

Table 5 Frequency Distribution Of Distance To The Number Of E. Coli Bacteria After Modified Cages In Lampasi Engking Gampong, Darul Imarah Sub-District Big Aceh District

No	Well water	Well Distance	Tube Volume			MPN E. Coli/100 ml	MPN Coli Form/100 ml
			5	1	1		
1	A 1	16 m	1	0	0	7	17
2	B 2	18 m	3	0	0	12	29
3	C 3	28 m	4	0	0	15	38
4	D 4	29 m	2	0	0	18	19
	Total					52	103

Based on table 5 it can be concluded that after the cage was modified, there were 7 E. Coli in A1 well, 12 E. Coli in B2 well, 15 E. coli in C3 well, 18 E. Coli in D4 well, in Lampasi Engking Village.

Table 6 FREQUENCY DISTRIBUTION OF THE AMOUNT OF E. COLI BACTERIA BEFORE AND AFTER MODIFIED CAGES IN ENGKING LAMPASI GAMPONG

VARIABLE	N	MIN VALUE	MAX VALUE	AVERAGE	STANDARD DEVICE
Coli content of the form before the modified cage model	4	21	49	32,25	12,203
Coli content form after modified cage model	4	17	38	25,75	9,708
Content of E. Coli Before the Modification of the Cage Model	4	11	26	20,00	6,377
Content of E. Coli After Modification of the Cage Model	4	7	18	13,00	4,690

In table 6 it can be seen that the average value of the form coli number was 32.25 high before the cage was modified and after the cowshed model was modified, the form coli number value fell to 25.75 as well as the E.Coli number.

Table 7 Distribution Of Statistical Calculations Of The Amount Of E. Coli Bacteria That Have Been Modified In Lampasi Engking Gampong

No	MODEL KANDANG MODIFIKASI	CL 95%	t	NILAI p
1	Laboratory examination of coli form content before modification Laboratory examination of coli form content after modification	1,223 – 11,777	3,920	0,030
2	Laboratory examination for E. Coli content before modification Laboratory examination for E. Coli content after modification	3,563 - 10,437	6,481	0,007

The results of statistical calculations show that there is a relationship between the number of Coli forms before and after modification in the cowshed model with a value of p = 0.030, as well as in the treatment before and after modification where the examination of the number of E. Coli with a value of p = 0.070.

DISCUSSION

The results showed that the majority of respondents were in the far category, namely 2 wells (50%) and 2 wells (50%) near in Gampong Lampasi Engking, Darul Imarah District, Aceh Besar District.

Most of the respondents who had a negative attitude did not give exclusive breastfeeding to their babies, namely 62.4%. Based on the results of the questionnaire answers, the majority of mothers answered that they agreed that their babies were given additional food at the age of fewer than 6 months. An attitude that lacks foundational trust regarding the meaning of exclusive breastfeeding makes mothers not only give breast milk for the first 6 months. Generally, the reasons for mothers not giving only breast milk are fear of not producing enough milk, or the quality of breast milk is not good enough, delays in starting breast milk, and the belief that the baby needs additional fluids (Assriyah et al., 2020)

A person will do an action if he views the action positively. Beliefs can shape a person's attitude toward doing an act or not. This belief can come from one's experience with the behavior in question in the past, but it can also be influenced by information about that behavior. Attitudes have several characteristics, including attitudes that are not inborn but are learned or formed based on experience (Marwiyah & Khaerawati, 2020).

CONCLUSION

The results of this study indicate that the 47 respondents who were studied, who gave exclusive breastfeeding were 53.2% and who did not give exclusive breastfeeding were 46.8%. There is a relationship between knowledge and attitudes of mothers with exclusive breastfeedingin Gampong Ceurih, Ulee Kareng District, Banda Aceh.

A cage is one of the important needs in the livestock business. Cages are structures or buildings where farm animals are kept. The main function of the barn is to keep livestock from roaming and facilitate monitoring and care of livestock. There are many types of cages, both based on the type and material used to make the cages, while their use is adjusted to the needs. The cages indirectly also affect the quality and quantity of livestock products. Functional cages will increase income for the owners. This time I will discuss the functions and conditions of a cage.

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