# Socialization Of The Using Of Disinfectants In Cattle As An Effort To Prevent The Transmission Of Foot And Mouth Diseases (FMD) In Sumber Rejeki, Dau, Malang

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***Abstract.***

*Foot and Mouth Disease (FMD) is a contagious animal disease that attacks livestock. The Sumber Rejeki Dairy Cattle Group in Gading Kulon Village, Malang Regency has 356 cows of the Friesian Holstein breed. Several cows in Sumber Rejeki has been infected with the PMK virus. This disease causes a decrease in milk production in infected cows, causing economic losses to KSP breeders. Source of fortune. One of the efforts to prevent its spread is to disinfect the cage. Disinfection of cages is effective enough to kill the FMD virus because the FMD virus does not have an outer membrane and is easily destroyed at pH <5 and >7. Community knowledge regarding disinfection is still low, so socialization is carried out regarding the provision of disinfectants in cages. After the socialization, there was an increase in the knowledge of the farmers by 41.5% through the pretest and posttest which were given before and after the socialization.*

***Keywords:*** *Foot and Mouth Disease, Socialization, and Disinfectant.*

## I. INTRODUCTION

The Sumber Rejeki Dairy Cattle Group (KSP. Sumber Rejeki) is an organization whose members are farmers who have a business producing cow's milk. KSP. Sumber Rejeki has 356 cross-breed cattle *Friesian Holstein* and during the FMD outbreak, milk production in KSP. Sumber Rejeki decreased and make a big losses for farmers. For KKN program and also as a form of Community Service, outreach is carried out at KSP. Sumber Rejeki in an effort to prevent the spread of Foot and Mouth Disease.Foot and Mouth Disease (FMD) is a disease caused by a non-enveloped RNA virus belonging to the genus *Aphtovirus* family *Picornaviridae* which often attacks cloven-hoofed animals ranging from livestock to wild animals (Hole,*et al.*,2016). This virus does not have an outer membrane that can be destroyed at pH <5 and pH >11, and dies at temperatures >56$^{O}$C for 30 minutes in the environment (Hyun-Min,*et al.*,2013).The FMD virus can spread very quickly through food contamination, contamination, facilities and transport vehicles carrying infectious agents. This virus has an incubation period of approximately 7 days. The clinical sign of this disease is that the animal has a high temperature reaching 41$^{O}$C, hypersalivation that hangs on the nose and mouth, the formation of vesicles on the mucous membrane of the mouth, tongue, gums and nose, as well as the presence of interdigital spaces and blisters on the legs that make cows experience lameness (Jamal & Belsham, 2013).Prevention that can be done for FMD disease is vaccination and biosecurity. Biosafety is an effort to protect humans and other living creatures from the spread of disease. Biosecurity is an action to prevent the spread of diseases and pests that harm humans, animals, plants and the environment.

Example from biosecurity according to the Ministry of Agriculture (2014), namely restrictions on livestock and labor traffic, control and supervision in certain zones, disinfection of cages and equipment, environmental sanitation, and spraying insecticides.Disinfectants are chemicals used to inactivate pathogens on the surface of contaminated inanimate objects and are useful for preventing the spread of disease (Hole, *et al.*,2016). Currently the world organization for Animal Health or *Office of International Epizootics* (OIE) has recommended a powerful disinfectant to eliminate FMD, the ingredients include 4% sodium carbonate, 2%

sodium hydroxide, 0.5% citric acid, 0.2% hydrochloric acid and 2% global formalin (Ministry of Agriculture, 2014). According to Harada, *et al* (2015), an effective disinfectant for eradicating FMD is a disinfectant containing acid ethanol, alkaline cleaner and sodium hypochlorite.Disinfectants are usually used on the surfaces of inanimate objects because some materials or agents can cause irritation to living tissue. Disinfectants can be sprayed on equipment, objects, means of transportation, or buildings that may be contaminated with the FMD virus, but there are several materials such as cresol, chlorine and formalin that are corrosive on metal objects so their use must be considered **(Table 1)**. Spraying can be carried out periodically 5 times a day in cage areas that have the potential to be contaminated with the FMD virus (Ministry of Agriculture, 2022).

| Type | Usage | Corrosive | Example |
|---|---|---|---|
| Kresol | Bacteria, Viruses | + | Lisol |
| Phenol | Bacteria, Viruses. Fungi | - | Carbolic |
| Chlorine | Bacteria, Viruses | + | Laundry detergent |
| Iodine | Bacteria | - | Betadine |
| Ethyl Alcohol | Bacteria, Viruses | - | Medical device |
| Formaldehide | Bacteria, Fungi, Viruses | + | Preservative |

**Table 1.** Types of disinfectants (Hyun-Mi,*et al.*,2013).

## II. METHODS

This Real Work Lecture (KKN) activity will be held on 18 June 2022- 21 July 2022 at the Sumber Rejeki Dairy Cattle Group, Perinci Hamlet, Gading Kulon Village, Malang. The KKN program is carried out using direct and indirect methods. The direct method is carried out by observing the disinfectant used, looking for information and collecting data regarding the Sumber Rejeki Dairy Cattle Group, Gading Kulon Village, one way is by interviewing farmers directly.door to door, and administer a questionnaire. Furthermore, the indirect method is carried out by means of literature studies in order to increase insight and material that will be presented during the socialization implementation. The socialization event was attended by 40 breeders. Socialization activities begin with filling pretest and distribution leaflet which contains disinfectant material, then a presentation of the material is held through powerpoint and continue with filling posttest. After obtaining the results, a recapitulation of the data results is carried out.

## III. RESULTS AND DISCUSSION

The results of data collection from 40 breeders showed that the average age of the breeders was 44 years, the average education was elementary school, and they had a total of 356 crossbreed cattle. *Friesian Holstein*. The observation results showed that only the chairman of the KSP. Sumber Rejeki uses disinfectant. The disinfectants used are septocid (PT. Mensana Aneka Satwa, Indonesia) which contains 2% povidone iodine, and Destan (PT. Sanbe Farma) which contains 10% Benzalkonium chloride.Septocid disinfectant is a type of iodine which is effective in killing bacteria and safe when used on living tissue but is less effective in killing the FMD virus.

Apart from that, Septocid has the disadvantage of causing color stains after use on the surface of objects or tissue. Destan disinfectant is a type of chlorine which is effective in killing bacteria and viruses in high concentrations but is corrosive.Lack of knowledge of KSP breeders. Sumber Rejeki regarding the type of disinfectant that is effective in killing the FMD virus and how to use it, socialization was held regarding the importance of using disinfectants. The socialization event began with filling pretest, distribution of leaflets, presentation of disinfectant material, and ending with filling posttest. Next, a data recapitulation of the average value of the results is carried out pretest **(Figure 1)** and average value *posttest* **(Figure 2).**

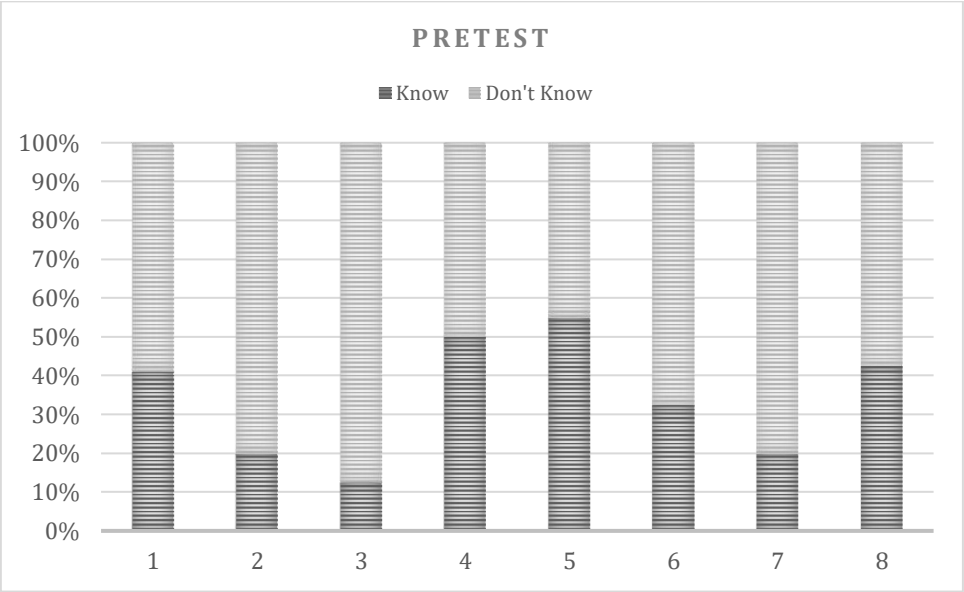


**Fig 1**. Results Pretest 40 KSP breeders.

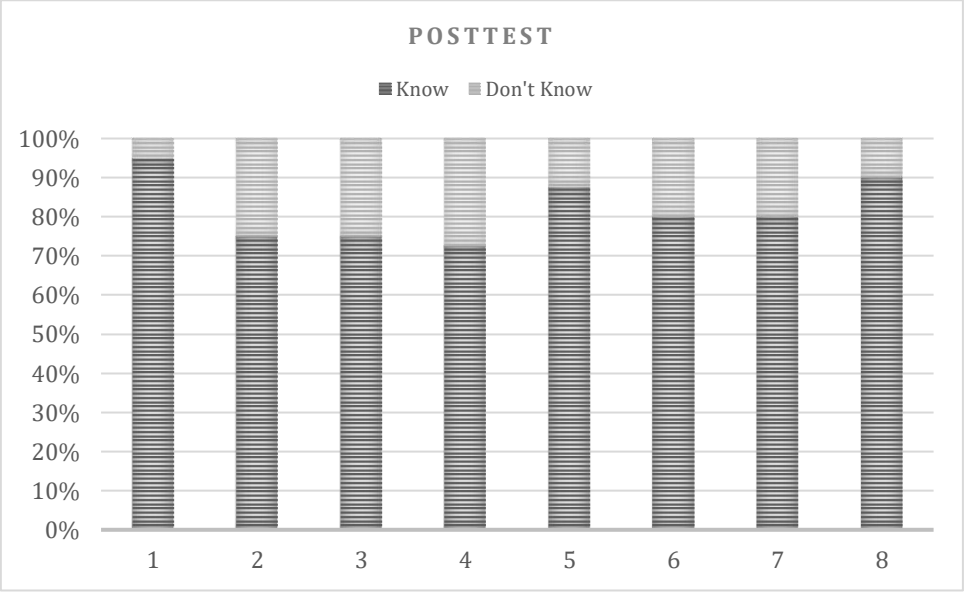


**Fig 2.** Results Posttest 40 KSP breeders.

The results show quite significant differences in the understanding of breeders before and after being given material or information about PMK. Question number 1 is about the symptoms of FMD, seen in the results pretest there were 24 respondents who did not know the answer, while the results posttest increased to 38 respondents who already knew the answer. Next, in question number 2, namely regarding how FMD disease is transmitted, it can be seen in the results pretest there were 32 respondents who did not know the answer, while the results increased posttest So there are 30 respondents who already know the answer. Then, in question number 3, namely regarding agents that can transmit FMD, it can be seen in the results pretest there were 35 respondents who did not know the answer, while the results posttest an increase of 30 respondents who already knew the answer. Then, in question number 4, namely regarding preventing FMD, the results can be seen pretest there were 20 respondents who did not know the answer, while the results posttest an increase of 29 respondents who already knew the answer.

Next, question number 5, which is about what a disinfectant is, can be seen in the results pretest there were 18 respondents who did not know the answer, while the results posttest an increase of 35 respondents who knew the answer. Then, in question number 6, which is about how to properly disinfect the cage, it can be seen in the results pretest there were 27 respondents who did not know the answer, while the

results posttest an increase of 32 respondents who already knew the answer. Then, in question number 7, namely regarding the composition of disinfectant ingredients that are effective in killing the FMD virus, it can be seen in the results pretest there were 32 respondents who did not know the answer, while the results posttest an increase of 32 respondents who already knew the answer. Then, in question number 8, namely regarding the use of disinfectants, 23 respondents did not know the answer, while the results posttest an increase of 36 respondents who knew the answer.

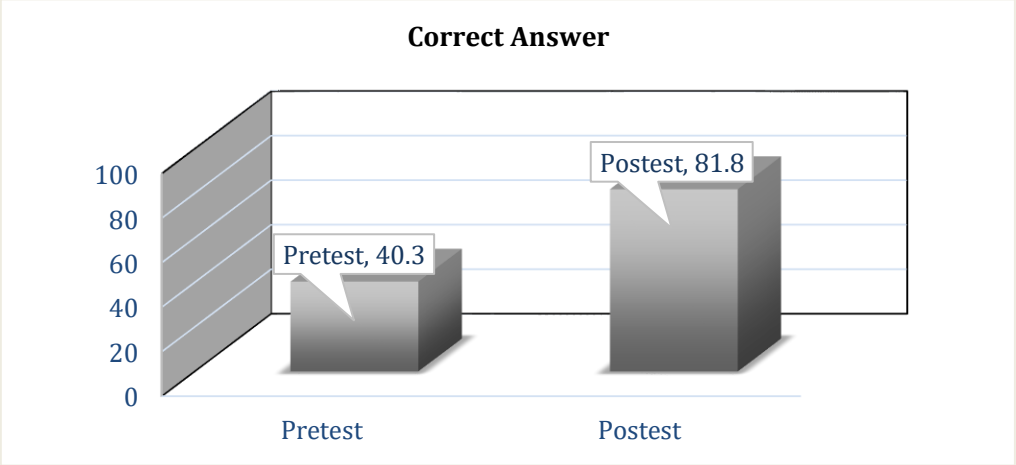


**Fig 3.** Evaluation value of increasing knowledge 40 KSP breeders.

Average value results pretest regarding disinfectants, namely 40.3% and after presenting material regarding disinfectants, the average was*posttest* 81.8%. There was an increase in knowledge from breeders after the socialization was carried out by 41.5%.

## IV. CONCLUSION

Some breeders already know what disinfectants are, but few know how to use them. From the evaluation value, there has been an increase in the knowledge of breeders by 41.5%, which means that this program is useful in increasing knowledge regarding the use of disinfectants in an effort to prevent the spread of Foot and Mouth Disease.

## V. THANK YOU

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