

Motivation for Women Farmers Group of Cattle Milk Curd Motivation Differences of Bamboo

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Abstract: Milk is one of the livestock products which are essential for life as it has Yag nutrients needed by everyone. This study aimed to determine the effect of the use of bamboo as a medium manufacture cow's milk curd and to determine the level of knowledge, attitudes and skills of the public regarding dairy products, especially processed cow's milk. This study was designed with a qualitative approach by using parameters that do that organoleptic test by observing the shelf life of the curd. The method used is to conduct a descriptive test with 2 treatments 5 replications. Data collected by observation, interview, and documentation and the data were analyzed statistically using deskriptif test. Dadi cow's milk with bamboo innovation can be damaged if the shelf life of more than 2 days. By using two types of bamboo, we conclude that the type of bamboo Ampel / pettung better because dadi generated more interest to respondents compared bamboo lain. Efektivitas knowledge, attitudes, and skills of counseling conducted on cow's milk curd with bamboo innovation on women farmers obtain a value of 42.40% (effective enough).

Keywords: cow's milk, motivation, bamboo, cow's milk curd.

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1. Introduction

Milk is one of the livestock products which are essential for life, because it contains nutrients that are needed by everyone. Milk is a perishable commodity farms if not treated or dealt with quickly and appropriately. Milk is a good medium for bacterial growth including spoilage bacteria. Therefore, dairy products require proper handling and proper processing, purpose made milk processing is to obtain a dairy product variety, quality, and high nutritional value, last longer when stored, easy to market and increase the rate and efficiency of material raw.

Along with the elevation of human consciousness of the importance of healthy living then there is also an increase in product research - food products with the potential to maintain a healthy body. Nutritious therapeutic food products known by the term functional foods. One of the functional foods are foods that contain probiotics are live microbes which, when consumed will cause a therapeutic effect on the body by improving the balance of microflora in the digestive tract.

In Indonesia known some traditional food, one that has the potential as a functional food for preventing cancer, cholesterol, and diabetes is a curd. The curd is fermented dairy products traditionally with raw milk or cow buffalo. The curd is a traditional food called "bumbungan" for milking cow's milk or buffalo milk is taken from the first milking is poured into a bamboo and a half old. Bamboo is

used usually bamboo species Ampel (*Bambusa vulgaris*) if in Mamasa usually called "pantung or Tallang also ao". Fermentation happens to manufacture curd occurs naturally without adding anything. Buffalo's milk or cow milking results directly inserted into the bamboo tube that has been allowed to stand for overnight, then covered with banana leaves or plastic.

Implementation of research on this exciting curds are looking for the type of bamboo suitable or advisable to carry out the fermentation, because the type of bamboo obtained from the reference becoming very difficult to find in the community of South Sulawesi. Bamboo types Ampel / pettung (*Bambusa vulgaris*) and the type of gombong / reed (*Gigantichola verticillata*) is very rare, and interesting from the curd is dadi a probiotic foods are good for health, and also prevent the growth of the seeds of cancer or that proliferate in the human body, Research on the curd do for potential farm in the village of Fort Elephant is very promising, especially dairy cows that milk can be processed into curd or other fermented milk.

2. Review of Literature

a) Principles of Formation

The curd is curd dairy products Minangkabau produced through a natural fermentation method application buffalo milk in a bamboo tube with facultative anaerobic conditions that are likely a result of the banana leaf as cover packaging. Viscosity Aqueous originally buffalo milk

eventually turns into lumps with a texture that tends to semi solid, acidic flavor due to the production of organic acids results lactose fermentation, and specific flavorful combination of bamboo powder and volatile compound fermented buffalo milk. Natural microorganisms contained in a bamboo tube was instrumental in breaking down lactose milk into organic acids especially lactic acid. The acid produced by microorganisms will lower the pH of the milk, causing milk protein terkoagulasinya that slowly will form two layers, namely curd and liquid. Curd formed during the fermentation process buffalo milk will float to the top, while the liquid will be down, and in this case most of the liquid is also berimbibisi to the tube wall of bamboo used. Curd formed is then termed as curd. Compared with yogurt, the texture formed on the inclined semi-solid curds for real separation between curd and some constituent liquid milk, so even though they happen coagulation protein, they much higher viscosity than yogurt. while liquid will be down, and in this case most of the liquid is also berimbibisi to the tube wall of bamboo used. Curd formed is then termed as curd. Compared with yogurt, the texture formed on the inclined semi-solid curds for real separation between curd and some constituent liquid milk, so even though they happen coagulation protein, they much higher viscosity than yogurt.

b) Media Bamboo

Bamboo is used as a container for the manufacture of whey been old bamboo so that the water content is relatively low, so the quality is better curd (Suyuti, 1992). In making bamboo is cut approximately 1.5 segments and a segment of the top of the hollowed out a little about the size of a finger. Furthermore, cleaned and reversed for removing impurities contained in a bamboo tube. Other researchers use bamboo to manufacture curd with a size of ± 15 cm and a diameter of $\pm 4-5$ cm (Dzarniza, 1999).

c) Microorganisms

The existence of microorganisms as starter curds used for the formation of curd and whey specific flavor, not separated from its association with the natural microorganisms found in a bamboo tube. From the literature, most microorganisms play a role in this case is of the type of lactic acid bacteria and yeast. Elida (2002), which conducts research on a wide range of traditional commercial curds are sold in Singapore, Batungkar, District 50 City, and Solok district identified 10 species of BAL including four species of the genus *Lactobacillus* (*Lb. brevis*, *Lb. viridescens*, *Lb. buchneri*, and *lb. plantarum*), two species of the genus *Leuconostoc* (*Ln*, and *Ln mesenteroides. paramesenteroides*), three species of the genus *Streptococcus* (*S. lactis* subsp. *diacetylactis*, *S. raffinolactis*, and *S. faecium*) and one species of the genus *Lactococcus* (*Lc. piscium*). Yurliasni (2010) on the identification of yeast do get three species of *Candida* yeast in buttermilk ie *curiosa*, *Brettanomyces custersii*, and *Kluyveromyces lactis*. Meanwhile, recent research conducted by Farhana (2011), identified the existence of

several types of bacteria and yeast in buttermilk. The bacteria in question include from species *Lactobacillus delbrueckii*, *Lactobacillus lactis* and *Lactobacillus acidophilus*.

In addition to the 3 types of lactic acid bacteria, there are also some yeast are unidentified in the curd including *Geotrichum SP.* and *Saccharomyces sp.*, and there are also a variety of *Zygosaccharomyces sp.* types of microorganisms found on curd estimated to be affected by variations in the use of the bamboo tube. The difference in location to grow bamboo, bamboo species, bamboo and age will most likely be a factor in the variation of levels and varieties of microorganisms which later ferment milk Buffalo. Related to this, some research has also been trying to use some of the refined culture of the curd is then added to the Buffalo's milk or cow's milk is evaporated to become curd. It is intended to look at the formation of the fisikokimia characteristics, knowledge, and the level of effectiveness of curd from each species of microorganisms including use of *Lactobacillus acidophilus* and *Lactobacillus starter casei* (Sugitha, 1999; Usmiati and Setiyanto, 2010; and Usmiati, Broto, and Setiyanto, 2011).

3. Materials and Methods

The research activities carried out for 3 months, from March to June 2016, in the laboratory processing of STPP Gowa. Extension study conducted on a group of Women Farmers Harapan Kita in the village of Fort Gajah District of Tompobulu, Maros.

The equipment used in this research are: bamboo, banana leaves or plastic, rubber bands, and writing equipment currently used materials are: fresh cow's milk or whole milk.

Preparation of pure milk curd is traditionally very simple: Cow's milk or buffalo milk is pasteurized at a temperature of 60-75°C for 30 minutes, then cooled to a temperature of 37°C to produce probiotic curd after incubation for 40 hours at a temperature of approximately 27-30°C space. bamboo used approximately 4-5 cm in diameter and cut approximately 15 cm and then the milk was added to the bamboo of approximately 250 ml per bamboo and covered with banana leaves or plastic and tied with a rubber band.

Parameters that do that organoleptic test by observing the shelf life of the curd. The method used is to conduct a descriptive test with 2 treatments 5 replicates data collecting technique in this research is to conduct observations and interviews that include primary data and secondary data.

Data were analyzed statistically using deskriptif test to calculate the average - average with 2 treatments and 5 replicates. The tool used to measure the level of knowledge and attitude of farmers is a questionnaire with a number of questions as much as 10, and the highest is 4 and the lowest value of 1. High and low level of knowledge of the target can be determined by the answers of respondents from each question in the initial evaluation and final evaluation.

The evaluation is conducted to measure the attitudes and knowledge of target against cow's milk curd technology with

innovation different types of bamboo. The evaluation consists of the evaluation of early and late. The method used to analyze the objective response rate in this case women farmers to extension materials is by using a rating scale or a scale of values then tabulated and processed using continuum line (Padmowiharjo, 2002).

Effectiveness of extension using the following formula:

The effectiveness of counseling

$$\frac{Ps - Pr}{(N \cdot 4 \cdot Q) - Pr} \times 100\%$$

Description

Ps = Pos test, Pr = Pre test, N = Number of respondents, 4 = The ultimate answer, Q = Number of questions. The assessment criteria are as follows: <33, 33% = Less Effective, 33.33% - 66.66% = Effective Enough and >66.66% = Effective.

Based on predetermined criteria then the draft espionage was carried out in the category quite effective where the value obtained by 42.40%, This shows that the extension organizing activities greatly in response by a group of women farmers in the village of Fort Elephant, District Tompobulu, Maros.

Material presented in the extension of fermentation technology cow's milk curd with bamboo media innovation to women farmer groups using a group approach towards women farmers then do an evaluation of women farmers, further individualized approach to women farmers. In the implementation of the extension using the technique of lecture, discussion and demonstration of how the real thing by sharing a folder or leaflet as reading material when conducted counseling.

Data collected in the form of primary data and secondary data, the collection of primary data obtained through interviews to farmers using questionnaires, in addition to the primary data may also be obtained through observation. Secondary data can be obtained from government and related agencies for the completeness of the required data.

Based on the results of the identification of the location and learn the characteristics of the state of the local community can then be made the draft extension that includes the sequence of use of extension methods, counseling techniques, as well as education media used in doing good counseling to lecture or discussion. Plans were made in the form of extension activities Preparation Sheet counsel (LPM).

To determine the level of adoption and livestock farmers' knowledge on a given technology, it needs to be evaluated by means of measuring devices in the form of a list of questions (questionnaire). The question asked before and after the implementation of the extension, the data resulting from the questionnaire is qualitative data.

4. Results

Characteristics of Cow Milk Curd analysis results organoleptic parameters for aroma, flavor, color and texture of the curd of cow's milk can be seen in Table 1.

Table 1: Test Results Appearance, Color Assessment Score, Aroma, Texture and Taste of cow's milk curd

Parameters	Cow's milk curd	
	Bambu I (Gombong)	Bambu II (Petung)
Color	3,40 white	3,68 white milk
Aroma	3,56 milk aroma	3,92 a little milk aroma aroma bamboo
Texture	3,24 lumpy	3,80 lumpy and slightly sof
Taste	2,72 sour taste	3,48 sour taste
Amount	12,92	14,88

Source: Data Primer setelah diolah, 2016

a) Evaluation of Agricultural Extension

1) Knowledge Level Respondents

a. Initial evaluation

Score obtained : 132
 The highest score obtained : 20 x 5 x 4 = 400
 Lowest score obtained : 20 x 5 x 1 = 100

Thus the level of knowledge respondents members of women farmers of cow's milk whey fermented with innovation different types of bamboo before following the extension is:

$$\frac{132}{400} \times 100\% = 33,3\%$$

If the line is drawn with the continuum is as follows:

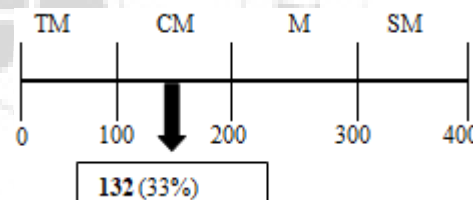


Image: Continuum Line Knowledge Level Respondents before doing counseling

b) Final evaluation

The results of the initial evaluation of the level of the attitude of members of women farmers of respondents were 20 people, it can be judged as follows:

Score obtained : 150
 The highest score obtained : 20 x 5 x 4 = 400
 The lowest scores were obtained : 20 x 5 x 1 = 100

Thus level sikap anggota women farmers responder before attending counseling is:

$$\frac{150}{400} \times 100\% = 37,5\%$$

Score obtained : 257
 Score the highest were obtained : 20 x 5 x 4 = 400
 The lowest scores were obtained : 20 x 5 x 1 = 100.

Thus level knowledge of members of women farmers of respondents on the analysis of making salted eggs with the addition of garlic extract after attending counseling are:

$$\frac{257}{400} \times 100\% = 66,75\%$$

Jika di gambar dengan garis continuum adalah sebagai berikut :

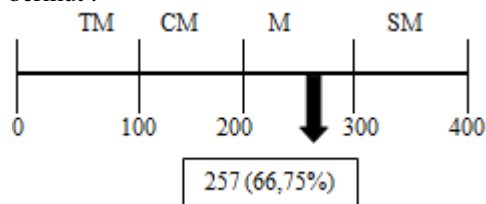


Image: Lines continuum Knowledge Level Respondents Once Following Extension

Description:

- TM: Not Knowing
- CM: Simply Knowing
- M: Knowing
- SM: Very Aware

1) Level of Respondents Attitudes

a) Initial evaluation

Continuum line above it can be seen that, before counseling is done then the attitude of members of women farmers of respondents on cow's milk whey fermented with different types of bamboo innovation by 37.5% or disagree is in the category (the score can be seen in appendix 10). The results showed a score of 37.5% the attitude of members of women farmers of cow's milk whey fermented with innovation means different types of bamboo that women farmers do not agree with the fermentation. This makes the farmers have to change the mindset to do counseling knowledge of fermented milk curds.

b) Final Evaluation

The results of the final evaluation of the level of the attitude of members of women farmers who were interviewed as many as 20 people, the importance of values as the following:

Score obtained: 248

The highest score obtained: $20 \times 5 \times 4 = 400$

The lowest scores were obtained: $20 \times 5 \times 1 = 100$

Thus the skill level of the respondent members of women farmers after attending counseling is:

$$\frac{248}{400} \times 100\% = 62\%$$

Jika diif the line is drawn with the continuum is as follows:

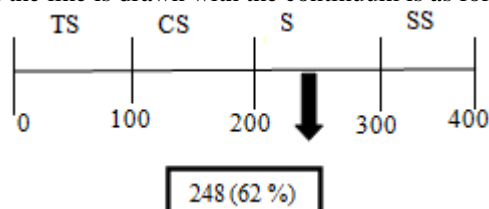


Image: Outline of Continuum Level Attitudes of Respondents After

Description:

- TS: Disagree
- CS: Simply Agree

S: Agree

SS: Strongly Agree

lines continuum above shows that after participating in the counseling of women farmers sikapanggota respondents increased to 61.75%, or is in the category agree (the score can be found in appendix 11).

2) Skill Level

a) Initial evaluation

Results of the initial evaluation of the level of knowledge of members of women farmers of respondents were 20 people, it can be judged as follows:

$$\begin{aligned} \text{Total score} &= 154 \\ \text{Highest Score} &= 20 \times 5 \times 4 = 400 \\ \text{The lowest score} &= 20 \times 5 \times 1 = 100 \\ \frac{154}{400} \times 100\% &= 38,5\% \end{aligned}$$

If portrayed in a continuum line is as follows:

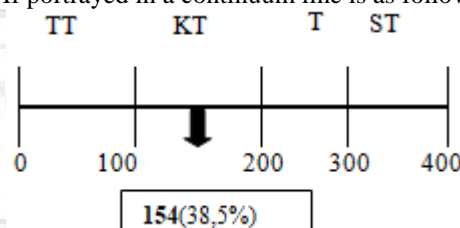


Image: Line Continuum Skills in Evaluation Preliminary

Description:

- ST : Highly Skilled
- Q : Skilled
- KT : Less Skilled
- TT : Unskilled

Line continuum above can be seen that, before counseling is done then the members of women farmers as respondents on fermented milk curd cow with innovation differences bamboo 47.6% or in less-skilled category (the score can be seen in appendix 10).

b) Final Evaluation

$$\begin{aligned} \text{Total score} &= 275 \\ \text{Highest Score} &= 20 \times 5 \times 4 = 400 \\ \text{The lowest score} &= 20 \times 5 \times 1 = 100 \\ &= \frac{275}{400} \times 100\% \\ &= 68,75\% \end{aligned}$$

If the continuum is illustrated in the following lines:

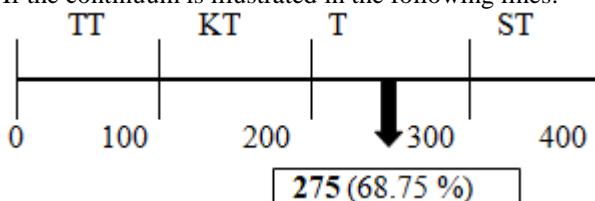


Image: Skills Continuum line on Final Evaluation

Specification

- ST : Highly Skilled
- Q : Skilled

KT : Less Skilled
 TT : Not Terampileterampilan on Final Evaluation

Line continuum above shows that after participating in the counseling group members' knowledge of women farmers increased to 68.5%, or that are in the skilled category (the score can be seen in appendix 11). Furthermore, the results of the initial evaluation and final evaluation are tabulated to determine the level of knowledge and attitude of ranchers respondents by category scores achieved. Recapitulation used to determine changes and an increase in the acquisition value of a percentage of the maximum value at the level of knowledge and attitude. Recapitulation results are presented in Table 15.

Table 2: Average Rate Change Knowledge, Skills and Attitudes of Respondents Breeders

Description	Max value	Value				Change %
		Initial tests	%	Test end	%	
Knowledge	400	132	33	267	66,75	31,75
Attitude	400	150	37,5	248	62	24,5
skills	400	154	38,5	275	68,75	30,25
Total		436		790		

Source: Primary Data Once processed, 2016

$$\begin{aligned} \text{The effectiveness of counseling} &= \frac{790 - 436}{20.4.15 - 436} \times 100\% \\ &= \frac{354}{764} \times 100\% \\ &= 46,33\% \end{aligned}$$

6. Discussion

a) Characteristics of Cow Milk Curd

preliminary study were to determine the distance or range of the shelf life of cow's milk curd show that fermented milk products were damaged as the wheying off as well as changes in color, aroma, taste and tekstur and mushrooms grown on the inside of the adjacent bamboo with cow curd product during storage over 2- 4 days (at room temperature). Based on these results it was determined to save it curd old cow at room temperature for 4 days done. It can be seen in the graph, how to change the color, flavor, aroma, texture happened fermenting cow's milk curd with two kinds of bamboo.

1) Color

Color is important in a product that is produced, because the color is so decisive, this is influenced by raw material. In addition to taste, the color of a product, especially in food products plays an important role in consumer acceptance. If a food product has an attractive color can enhance the taste of consumers to try these foods.

2) Aroma

Aroma is the smell that can be observed with the sense of smell. Testing scent is one important test to provide an assessment of the acceptability of the product. Most of the scent is detected in cow's milk curd is milk aroma with a hint of bambu. Perlakuan difference two types of bamboo, panelists provide an assessment of the average - average from 3.56 to 3.92. This suggests that the assessment categories panelists to cow's milk curd aromas produced

significantly different. Cow's milk curd bamboo 1 produced little flavored cow's milk, while in the second bamboo produce milk aroma and flavor bambu. This is because the cow's milk and bamboo used has a distinctive flavor and odor.

3) Texture

Texture produced in the process of making the curd is good is a semi-solid or viscous bit soft and the texture of the curd is influenced by the fat contained in the milk to form a component of flavor products curds of cow's milk which shows that the assessment of texture on curds of cow's milk produced from these two types of bamboo different panelists are cow's milk curd texture feels a bit thick and soft.

4) Sense

The taste is a combination of flavor and aroma created to appeal to consumer tastes. Rasa affect consumer preference towards cow's milk curd products. The taste is also influenced by several things such as acetaldehyde compounds and other acidic group, (Helferich and Westhof, 1980). Showed that the addition of cow's milk curds Taste produced from bamboo 1 has a sour taste in comparison with bamboo 2 with a sour taste.

b) Evaluation of Agricultural Extension

1) Knowledge Level Respondents

Knowledge level can be interpreted as a reality understood and acknowledged by farmers on cow's milk whey fermented with different types of bamboo innovation in this evaluation of knowledge level, there are five questions for the initial evaluation and final evaluation. Continuum line above it can be seen that, before counseling is done then the knowledge of members of women farmers of respondents on cow's milk whey fermented with innovation different types of bamboo is 33% or that are in the category of not knowing (the score can be found in appendix 10. Based on the results showed that the percentage obtained by 33%, which means the level of knowledge of farmers in the category do not know or do not understand fermented milk curd, so farmers do penyluhan perluh of fermented milk curd.

Continuum line above it can be seen that the level of knowledge of members of women farmers respondents by 64.75% (to know). This shows that the response of women farmers in receiving counseling has been good. The changes are influenced by factors which groups of farmers productive age of respondents aged 36-57 years, this means the ability of a person's memory support in counseling. In addition it has a function that farmer groups as a forum of cooperation, mutual learning and mutual exchange of experience.

2) Level of Respondents Attitudes

a) Initial evaluations

Lines continuum above can be seen that, before counseling is done then the attitude of members of women farmers of respondents on cow's milk whey fermented with different types of bamboo innovation by 37.5% or disagree is in the category (the score can be seen in appendix 10). The results showed a score of 37.5% the attitude of members of women

farmers of cow's milk whey fermented with innovation means different types of bamboo that women farmers do not agree with the fermentation. This makes the farmers have to change the mindset to do counseling knowledge of fermented milk curds.

b) Final evaluation

Continuum line above shows that after participating in the counseling of women farmers sikap anggota respondents increased to 61.75%, or is in the category agree (the score can be seen in appendix 11). The results showed that the group of women sikap anggota after counseling showed that the women's group finally agreed with their fermented milk curd, this is because the score showed 61.75%. So by doing counseling the women farmers to know and agree with their fermented milk curd.

3) Skill level

a) Initial evaluation

Results of the initial evaluation of the level of knowledge of members of women farmers of respondents were 20 showed 47.6%. Continuum line above it can be seen that, before counseling is done then the members of women farmers as respondents about cow's milk whey fermented with different types of bamboo innovation 47.6% or in less-skilled category (the score can be seen in appendix 10).

b) The final evaluation

Continuum line above shows that after participating in the counseling group members' knowledge of women farmers increased to 68.5%, or that are in the skilled category (the score can be seen in appendix 11). Furthermore, the results of the initial evaluation and final evaluation are tabulated to determine the level of knowledge and attitude of ranchers respondents by category scores achieved. Recapitulation used to determine changes and an increase in the acquisition value of a percentage of the maximum value at the level of knowledge and attitude

7. Conclusion

- a) Results of research can be concluded that dadi cow's milk with bamboo innovation can be damaged if the shelf life of more than 2 days. By using two types of bamboo, we conclude that the type of bamboo Ampel / pettung better because dadi generated more attractive to respondents than other bamboo.
- b) Effectiveness of knowledge, attitudes, and skills of counseling conducted on cow's milk curd with bamboo innovation on women farmers obtain a value of 42.40% (effective enough)

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