PERCEPTION OF FARMERS AGAINST LIQUID FERTILIZER BENEFITS OF BEEF CATTLE URINE

[1]SITTI NURANI SIRAJUDDIN, [2]IKRAR MOH.SALEH, [3]KASMIYATI KASIM

[1,2,3]Faculty of Animal Science, Hasanuddin University, Makassar 90245, and South Sulawesi, Indonesia
E-mail: [1]sitti_nurani@ yahoo.co.id, [2]ikrarm@yahoo.com, [3]kasmi-hirdan@yahoo.co.id

Abstract- the aim of this study was to know the perception of livestock farmers on the use of liquid organic fertilizer from urine of cattle at Sinjai Regency, South Sulawesi Province. The choice of location for a farmer group manufactures and markets liquid organic fertilizer from cattle urine. This research was conducted in May to July 2013.The population were all livestock farmers who use organic liquid fertilizer from cattle urine samples while livestock farmers who are directly involved in the manufacture of liquid organic fertilizer totaled 42 people. Data were collected through observation and interview. Data were analyzed descriptively. The results showed that the perception of livestock farmers of using liquid organic fertilizer from cattle urine provide additional revenue benefits, cost minimization farming, reducing environmental pollution which not contrary to the customs.

Keywords- Cattle, Farmers, Perceptions, Liquid Organic Fertilizer, Urine.

I. INTRODUCTION

The development of environmentally friendly farms and resource-based Local is a strategic step in realizing an increase in the quantity and the quality of farm products. System use of animal waste as fertilizer organic agricultural crops is increasingly growing. Effort undertaken to address the problems of environmental pollution and land The farm, then the system cultivation of agricultural crops with sewage livestock especially cattle urine has now also begun in earnest, but farmers still little to implement but if livestock waste processed cow urine into organic fertilizer have long-term effects that are good for the soil, to improve the structure of the organic content of the soil because it has many different types of nutrient content of this oil necessary, also produces agricultural products which are safe for health. Cow urine can be processed into liquid organic fertilizer after mixed with a certain mixture. Raw materials urine used is a waste of farms that have also as waste material. Liquid organic fertilizer from cow urine is a fertilizer no dense liquid that easily dissolves in soil and carries elements essential to soil fertility [1]

Therefore, improper application would be futile because the nutrient elements that are missing due to evaporated or washed away by water. Livestock waste is the waste product of a farm business activity such as livestock rearing enterprises, slaughterhouses, livestock product processing, etc. The waste includes solid waste and liquid waste such as feces, urine, food scraps, embryo, egg shells, fat, blood, hair, nails, bone, horn, paunch manure, etc [2]. The continued development of animal husbandry, waste generated is increasing. Waste is an organic or inorganic material that is not utilized anymore that can cause serious problems for the environment if not handled properly. One of which is the discharge of waste production is livestock waste cattle. Livestock waste is made of cow urine as a fertilizer for sustainable agricultural development [3]. Cow urine is a natural plant growth regulator containing hormones from the class of IAA, Gibberellins (AI) and sistokinin. Physiologically PGR function in the development and differentiation of cells that can stimulate the growth of plant organs such as roots, shoot apical meristem other [4]. Livestock manure if treated in a better way would be of high economic value, such as a liquid fertilizer. Some farmers have been applying manure processing technology but the development of such technology is not yet evenly because some farmers do not understand even yet adopted the technology of processing beef cattle dung into liquid fertilizer. Liquid fertilizers have the ability to fertilize the plants and can replace the role of inorganic fertilizers to produce organic vegetables or other foodstuffs are safe for consumption and reduce the effects of environmental pollution from livestock waste [4] and [5] said efficient use of N applied in the form of organic and inorganic fertilizers is important in maize (Zea mays L.) production to maximize producer's economic returns and maintain soil and water quality. One group of animals trying to process beef cattle urine into liquid fertilizer that is Gapoktan Sipakainge, East Sinjai district with the maintenance of as many as 45 head of beef cattle intensively reared in a month where the total cow urine collects an average of 1100 liters in one month and the results are processed into liquid fertilizer about 220 liters and packaged in bottles containing 5 liters of liquid fertilizer. Despite all of this liquid fertilizer but the use of liquid organic fertilizer processed Gapoktan Sipakainge still not fully applied to plants by farmers on the farm, this agrees the opinion [3] in that farmers prefer inorganic fertilizer faster responsiveness seen without thinking of the future benefits. The benefits provided by a liquid organic fertilizer, both of in economic terms and in terms of the environment because it can reduce odor pollution in the environment, minimize costs, and increase soil

fertility and liquid waste contain many nutrients (NPK) and other organic materials. The use of fertilizer from waste could help improve the structure and soil quality. Added by [6] that plants givent liquid organic fertilizer can be more qualified than the fertilizer inorganic. Vegetable crops are fertilized with organic fertilizer will be more fresh and tastes good, as well as a longer shelf. For example, carrots Organic can be stored for 3-4 weeks, while non-organic carrots only can be retained for 1-2 weeks. Organic cabbage can hold stored until one week, while non-organic cabbage lasted less than week. In addition to longer lasting organic cabbage also has more weight compared with inorganic cabbage which is about 2 kg per fruit. Also added by [7] the use of organic fertilizers proved so much better than the use of inorganic fertilizers, by her government.

According to [8] Liquid manure is a good fertilizer as nutrient source plant collecting liquid fertilizer is good, then this material is a source of fertilizer that can be used at a low price. Nutrient content of livestock manure contained in the liquid Under the terms of its physical liquid manure odor is more than solid manure, however, liquid fertilizer has various advantages. Liquid manure contains nutrients needed for growth, development, and plant health. The elements consisting of nitrogen (N), phosphorus (P), and potassium (K). Nitrogen used for the growth of shoots and stems and leaves. Phosphorus (P) is used to stimulate the growth of roots, fruits, and seeds. While potassium (K) is used to improve plant resistance to pest and diseases. Organic fertilizers has many advantages, when compared with inorganic fertilizer is fertilizer that has a more complete nutrient both macro nutrients and micro nutrients and organic fertilizers contain organic acids, enzymes and hormones that are not contained in the fertilizer.Organic fertilizer is organic fertilizer from animal urine. Urine animal urine frequently used is beef, because the number of cattle in Indonesia amounted to 16,707,053 tail and one day cow urine can produce an average of 10 liters / day to one of his cows [6]

Liquid manure can be made from the urine of cows, goats or sheep. Urine best cattle to be processed into liquid fertilizer is pure fresh urine (less than 24 hours) are not mixed with other contaminants present in the enclosure. Mechanical manufacture of liquid fertilizer according to [2] are as follows:

a. Material : Urine 800 liter. R.Bacillus 1 liter and Azotobacter 1liter
b. Ways Of Making

1. Collect the urine of cattle in the tub
2. Enter Rumino Bacillus and Azotobacter into it
3. Stir with a wooden or bamboo up to two bio-activator dissolved
4. Cover the surface of the tub with a plastic. Let stand for 7 days. On the 8th day, stir again urine a few rounds. Stirring is intended to vaporize ammonia because it is toxic to plants. Urine that has been fermented ready to be used or stored in the container.

Here the difference or superiority between organic fertilizer and inorganic fertilizer

Organic fertilizer

1. Containing elements of macro and micro nutrients complete, but few in number.
2. Can improve the structure of the soil so that the soil becomes loose.
3. It has a shelf life (water holding capacity) high.
4. Some of the plants in the fertilizer with organic fertilizer is more Resistant to disease / pests.
5. Increase the activity of beneficial soil microorganisms.
6. Have a positive residual effect. This means that the positive effect of organic fertilizer on crops planted in the next season is still there so that the growth and productivity is still good.

Inorganic fertilizers

1. Only contains one or more nutrient elements, but in large quantities.
2. Unable to improve soil structure, even its use in the long term lead to the soil becoming hard.
3. Often make plants susceptible to disease / pests.
4. Inorganic fertilizers volatile and leached. Therefore, improper application would be futile because the nutrient elements that are missing due to evaporated or washed away by water.

The local need to provide counseling to increase knowledge of farmers about the benefits of organic fertilizers both in terms of economic, technical with these things need to be examined farmers' perceptions of the benefits of beef cattle urine as a liquid organic fertilizer.

II. MATERIALS AND METHODS

The experiment was conducted in the village Pattalassang, East Sinjai districts, Sinjai Regency in May 2013 until July 2013. Descriptive type of research was to explain or describe a phenomenon, in this case the public perception of the use of cattle urine waste as a liquid organic fertilizer. This type of data was qualitative data and quantitative data. Sources of data were primary data sourced directly from interviews using questionnaires and secondary data obtained from research related institutions. The populations were all the people who have livelihood of farmers in the village numbered 420 people at village Pattallasang and sampling of 10% of the population that is 42 people. Analysis of the data was descriptive analysis with the use of a frequency distribution.

III.RESULTS AND DISCUSSION

Management of cow urine into liquid organic fertilizer was developed by members of the group

Gapoktan Sipakainge since 2011 with the division of labor was 15 managers and 125 other members as collecting urine. In the experimental stage only produce as much as 15 liters of urine subsequently tested beef on rice plants and further processing successfully improved on a larger scale until now averaging 220 liters processed each month and the name of the liquid fertilizer that is Baramase. Sharing system of production of liquid fertilizer from cattle urine was used 50 % for group members and 50 % marketed by Gapoktan group coordinated by the group leader.

Marketing Baramase liquid fertilizer that is primarily to affluent Sinjai even outside South Sulawesi. With liquid fertilizer marketing is quite widespread perception that the farmers can be known. Perception of farmers is a process activity by an individual to choose and organize in giving the impression, judgment, opinion, feel and interpret the inputs based on information displayed from other sources (perceived). The perception of livestock farmers on the benefits of liquid fertilizer that is in terms of:

1. ECONOMICAL BENEFITS

Economic benefits are the benefits of farmers use liquid organic fertilizer. Liquid organic fertilizer will be quickly adopted by the public if the revenue calculations showed significant improvement. To see the farmer's perception in the East Sinjai district can be seen in Table 1.

Table 1. Farmers Perception on the use Liquid Fertilizer from Urine Cattle in Terms of Economic Benefit

No	Indicator	Category Answers	Number of Respondent	Percentage
1	Economics Benefit	Disagree	2	5
		Quite agree	22	52
		Strongly agree	18	43
	Number		42	100

Source:[2]

Table 1 showed that the villagers were largely Pattalassang agree that liquid manure from cattle urine economic benefits that increase revenues although in small amounts. Most of the villagers Pattalassang have seen the results obtained from the use of liquid organic fertilizer and said that their profits increased after using the liquid organic fertilizer, it is appropriate opinion of [9] and [7] that the use of organic fertilizers livestock have better benefits and it's cheap and [10] states that innovation better than previous innovation if it is economically more advantageous.

2. EXCESS BENEFIT BENEFIT TECHNICAL

Benefit technical advantages are the benefits people see from the costs incurred in terms of its use. Community perceptions of the benefits seen technical advantages can be seen in Table 2.

Table 2. Farmers Perception on the use of Liquid Fertilizer terms of Cattle Urine Excess Benefit Technical

No	Indicator	Category Answers	Number Respondent	Percentage
1	Benefit technical	Disagree	8	19
		Quite agree	16	38
		Strongly agree	18	43
	Number		42	100

Source: [2]

Table 2 shows that the villagers were largely Pattalassang agreed to utilize a liquid organic fertilizer when viewed in terms of the benefits of technical advantages, namely how to use liquid organic fertilizer mainly rice farming is quite simple, it is appropriate [1] that the technical benefits of the use of organic fertilizers liquid can minimize expenses so that this innovation quickly adopted because it provides a better profit than the previous technology and the same opinion [6] that nutrients in manure (feces and urine) that are essential for plant nutrients include nitrogen, phosphorus, and potassium. The third element is what is needed by plants. Each element has the function of each mutually support each other so as to be optimal plant growth. Especially for cow urine can be used for fertility. Benefit of liquid organic fertilizer are to add substances or nutrients in the soil. Poor soil infertile or contain insufficient nutrients for growth, so the fertilizer, especially organic fertilizer will directly be able to add nutrients are inadequate and providing additional nutrients which are not new.

3. LEVELS COMPLIANCE WITH ENVIROMENTAL

Level according to environmental conditions is a condition in which the liquid organic fertilizer according to the state of residence of society. To see the public perception based on the assessment of environmental conditions can be seen in Table 3.

Table 3. Farmers Perception on the use Liquid Fertilizer from Urine Beef Cattle in terms of rate of Compliance with Environmental

No	Indicator	Category Answers	Number Respondent	Percentage
1	Compliance with environmental	Disagree	7	17
		Quite agree	22	52
		Strongly agree	13	31
	Number		42	100

Source: [2]

Table 3 showed the perception of the villagers Pattalassang were largely agree that the use of liquid

organic fertilizer from cattle urine is in accordance with the environmental conditions in addition to its processing can add value even reduce the level of environmental pollution caused by waste urine of beef cattle, it is appropriate opinion of [9] which will be easy to adopt the innovation if the innovation is in line with the state of the environment.

And the same opinion [10] that nutrients in manure (feces and urine) that are essential for plant nutrients include nitrogen, phosphorus, and potassium. The third element is what is needed by plants. Each element has the function of each mutually support each other so as to be optimal plant growth. Especially for cow urine can be used for fertility. Benefits of liquid organic fertilizer are to add substances or nutrients in the soil. Poor soil infertile or contain insufficient nutrients for growth, so the fertilizer, especially organic fertilizer will directly be able to add nutrients are inadequate and providing additional nutrients which are not new.

4. LEVELS COMPLIANT WITH CUSTOM

Level according to the customs is a condition where an appropriate procedure for innovation, cultural values and customs of the people. To see the public perception of the benefits of liquid fertilizer from urine of beef cattle in terms of the level of compliance with customs can be seen Table 4

Table 4. Farmers' perceptions on the use of liquid fertilizer from cow urine in terms of the level of compliance with customs

No	Indicator	Category Answers	Number Respondent	Percentage
1	Compliance with customs	Disagree	5	12
		Quite Agree	15	36
		Strongly Agree	22	52
	Number		42	100

Source: [2]

Table 4 shows the perception of farmers on the benefits of liquid fertilizer from cattle urine in terms of the level of compliance with customs is large expressly agrees that use of liquid organic fertilizer from cattle urine in accordance with the customs / cultural values and customs are not contrary to the farmers, it is according opinion [11] that innovation is the use of liquid organic fertilizer made from animal urine is an innovation that is consistent with the cultural values and customs are not contrary to the public and organic agriculture is a production system that sustains the health of soils, ecosystem and people. It relies on ecological processes, biodiversity and cycles adapted to local condition rather than the use of inputs with adverses effect. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and good quality of life for all involved and policy decisions regarding the level of purification and location of agriculture using effluents consider multifarious aspect including costs, hazards of reuse of effluents [9]

CONCLUSIONS

Liquid manure from cattle urine provides benefits to farmers in Sinjai district east of providing additional income, costs minimization farming, reduce pollution to the environment and does not conflict with the customs. Therefore, efforts should be developed liquid fertilizer marketing in order to provide wider benefits to society.

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