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Increasing Economic Value in the Utilization of Goat Manure Into Organic Fertilizer in Cibeuti Village, Kawalu Tasikmalaya

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ABSTRACT

Goat manure is livestock waste which, if not processed properly, can cause several problems., but has economic value because it can be used as organic fertilizer. The objectives of this service are (1) to increase the capacity of livestock farmers in optimizing the use of livestock waste into organic fertilizer, (2) to reduce environmental pollution resulting from livestock waste, and (3) to increase the economic value of the results of processing this waste. This service is carried out using the training method for making organic fertilizer using Stardec technology. The results of service activities include partners being able to make organic fertilizer from animal waste using Stardec technology. The benefits of this training and in the future the production of organic fertilizer can help the economy of the surrounding community.

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INTRODUCTION

Livestock business in addition to producing of livestock products in the form of meat and milk, it also produces waste in the form of livestock manure, feed waste and used cage mats. This waste can be in the form of liquids, solids and gases if not treated properly, it can cause environmental pollution problems. Untreated organic waste can cause pollution so it needs to be utilized (Desiana et al., 2013). Waste in the form of feces, urine, and goat feed residue can cause air pollution and the gathering of fly nests that are feared to cause disease (Darmawan and will cause disease (Darmawan and Astuti, 2018). Goat manure waste that is processed with the right treatment can prevent environmental pollution and also have high economic value. One way of processing livestock waste is by making fertilizer. However, these materials must only be absorbed by plant roots, if they have undergone a decomposition process. This is because if materials such as livestock manure, feed waste and former raw bedding are directly applied to fertilize plants, it will cause plant growth to be severely hampered and even die, because these materials will emit heat in the decomposition process.

In reality, farmers often just leave manure, feed waste, used bedding from their cages and livestock waste, feed waste, and bedding waste and livestock waste waste is simply spread without a roof or shade, let alone special treatment. Thus the manure, feed and bedding waste will be slow to decomposed into compost that is ready to be used to fertilize crops. CV Abah Farm is one of the largest goat farms in Kawalu sub-district. CV Abah Farm has about 40 dairy goats and has 11 business partners.CV Abah Farm oversees several KWT and Gapoktan in the Kawalu Kawalu area. Goat manure from the farm is not processed, it is just placed on the ground under the goat pen. Goat manure waste at CV Abah Farm is usually taken free of charge by local farmers. With proper processing, goat manure waste can have high economic value so as to provide added value. Waste that can be processed in the form of solids because there is no liquid waste storage so that liquid waste is absorbed by the soil.

Based on the situation analysis, the problems faced by partners and surrounding farmers can be formulated including: 1) lack of understanding of the potential utilization of goat manure waste into economic value in quantity and quality, 2) lack of knowledge and skills of breeders and farmers about the application of compost organic fertilizer processing for plant cultivation, and 3) limited infrastructure and infrastructure in processing and managing waste. This activity aims (1) to increase the capacity of farmers in optimizing the utilization of goat waste into organic fertilizer, (2) to reduce environmental pollution caused by livestock waste, and (3) to increase the economic value of the waste processing results. The success indicator of this training is that participants can make solid organic fertilizer independently by utilizing livestock waste obtained around the cage.

IMPLEMENTATION AND METHODS

This service activity uses counseling and training methods. The extension stage is carried out by providing material on the utilization of livestock waste and the potential economic value of waste processing results. The training stage was carried out in an open field by demonstrating and practicing how to make organic fertilizer from goat farm waste using stardec technology. Then the participants took turns practicing by following the instructions of the trainer. Stardec Technology Animal Manure Fertilizer is a technique for making animal manure compost by utilizing decomposers. The decomposers that can be used include M21, EM4, MBio and other biodecomposers.

Extension Phase

At the beginning of the program implementation, counseling was conducted. The materials presented included increasing the economic value of manure, processing goat manure into manure, and marketing techniques. Before the counseling, a pretest was conducted to measure the extent of understanding of the program participants before being given the material.

Training Phase

After the counseling was conducted, participants were directed to training. This training stage is more about applicative activities, the training begins by demonstrating the process of making fertilizer, then participants can take turns trying to follow the instructions of the trainer. The tools used in making fertilizer include shovels, hoes, drums / reservoirs, paddles, buckets and tarpaulins. While the materials needed include: goat manure, feed waste, former cage mats, rice bran, decomposers, and molasses / brown sugar. Molasses is useful as food for bacteria.

The process of making fertilizer includes:

1. Prepare a place/container
   The place needed for making simple livestock waste compost is a tub/drum with a height of approximately 1 meter while the length and width are as needed. If possible, the sides of the tub are made of boards or other types that can be disassembled. This aims to make it easier to flip through the materials. This tub also needs to be given a roof/cover to avoid livestock waste compost fertilizer from direct sunlight and rainwater splashes.
2. Prepare tools and materials
3. Mix evenly to a height of approximately 20 cm.
4. Sprinkle loose soil / bran on top, until all materials are covered with a thickness of approximately 5 cm.
5. Dissolve molasses with water in a ratio of 1:1 and stir well.
6. The microorganism activator (decomposer) is dissolved into the molasses solution and allowed to stand for a few minutes.
7. Flush the mixture of goat manure, feed waste, and former drum mats with the decomposer solution slowly and evenly until the moisture content is

±40% by sprinkling/using a paddle with a fine nozzle. Keep in mind to do it slowly and do not let it stagnate. If it is too wet, you can add rice bran.

8. Repeat this step, until the compost pile is level with the height of the tub.
9. The compost fertilizer is then put into a closed drum

Every week, the compost pile needs to be stirred to speed up the decomposition process and also to keep the temperature from exceeding 700 C. Watering can be done if the material is too dry. Within one month, the materials have decomposed with the characteristics of dark color (blackish brown) and no pungent odor. After the training session, a posttest and evaluation were conducted to measure the success rate of the training, and to correct shortcomings and mistakes for future trainings. The pretest and posttest results were analyzed using paired t-test, and the evaluation results using descriptive statistics. The programs used for analysis were SPSS 26 and Microsoft Excel.

RESULTS AND DISCUSSION

This training is a community service organized through the community partnership program of LPPM Siliwangi University in 2023 with CV Abah Farm as a Partner. The training was held on July 15, 2023 starting at 09.00 at CV Abah Farm goat farm located in Cibeuti Village, Kawalu District, Tasikmalaya City. The training was attended by 15 participants consisting of breeders, farmers and the community around Cibeuti village. The event began with remarks from the Head of CV Abah Farm, Mr. Asep Iskandar, S.Kep. and remarks from the head of Gapoktan, Mrs. Lia. Furthermore, remarks from the Head of the Community Partnership Program of LPPM Siliwangi University, Mr. Yogi Nirwanto. After the remarks, the participants were directed to fill in the pretest first to measure the extent of the participants' knowledge.

Then continued with a brief material presentation related to increasing the economic value of manure, processing goat manure into manure, and marketing techniques. The speakers who filled the material included Nurul Risti Mutiarasari, Yogi Nirwanto, and Rudhiana Salam. This counseling activity was carried out in the CV Abah Farm cage yard. After the counseling, the material was followed by a demonstration and practice of making compost by Mr. Yogi Nirwanto. This training activity was carried out on open land. Participants took turns practicing making goat manure compost while following the instructions of the resource person.

Figure 1. Presenters Giving Counseling

Figure 2. Participants Practicing how to Make Goat Manure Compost

After the provision of all materials and practices was completed, participants were directed to return to work on the posttest to measure how much the participants' knowledge had changed and fill in the Evaluation directed by Leny Yuliyani. The success indicator of a training can be seen from the increase in knowledge and skills of the participants. Participants are expected to understand the theory and be able to practice how to make goat manure compost. To measure changes in the level of knowledge of participants, the results of the pretest and posttest were used.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreTest	46.00	15	19.567	5.052
	PostTest	70.67	15	10.998	2.840

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	PreTest & PostTest	15	.843	.000

Figure 3. Output SPSS paired t-test

The pretest and posttest results were processed using the paired t-test. Based on spss output, the sig value is obtained. (0.000) is less than α=0.05. So it can be concluded that there is a difference in pretest and posttest scores. The average results show that the posttest value is greater than the pretest value. So it can be concluded that there is an increase in knowledge after this counseling and training. . The average posttest score obtained was 70.67. This value is considered large enough to assess that participants are able to absorb the material well.

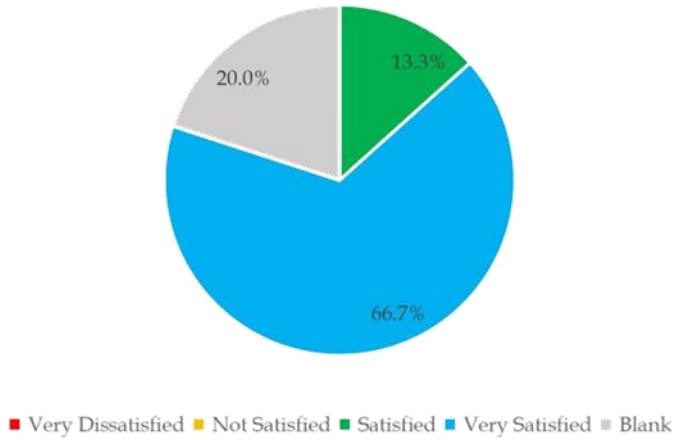

Figure 4. Satisfaction Level of Service Program Participants

Based on the evaluation results in Figure 4, it was found that the satisfaction of program participants reached 80%, consisting of 66.7% very satisfied and 13.3% satisfied. The evaluation is divided into three assessment criteria, namely evaluation of the material presented, evaluation of the resource person, and evaluation of the facilities provided during the service program.

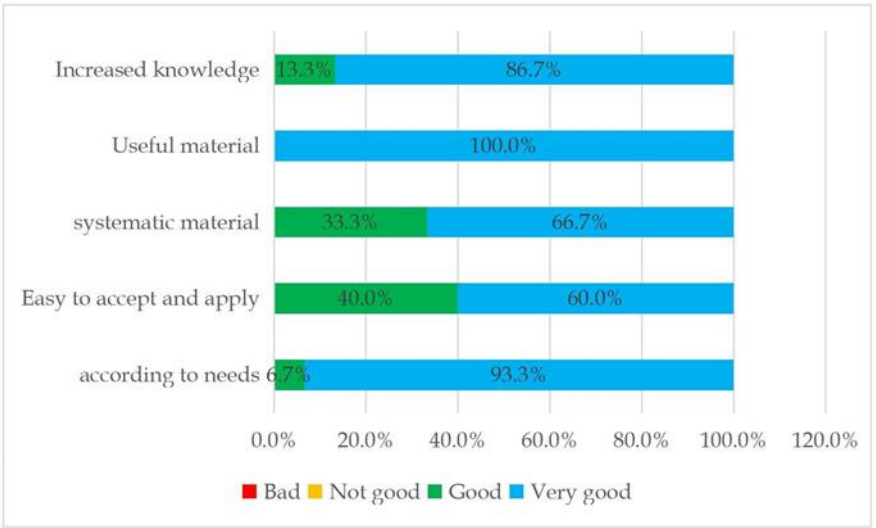

Figure 5. Participants' Assessment of Training Materials

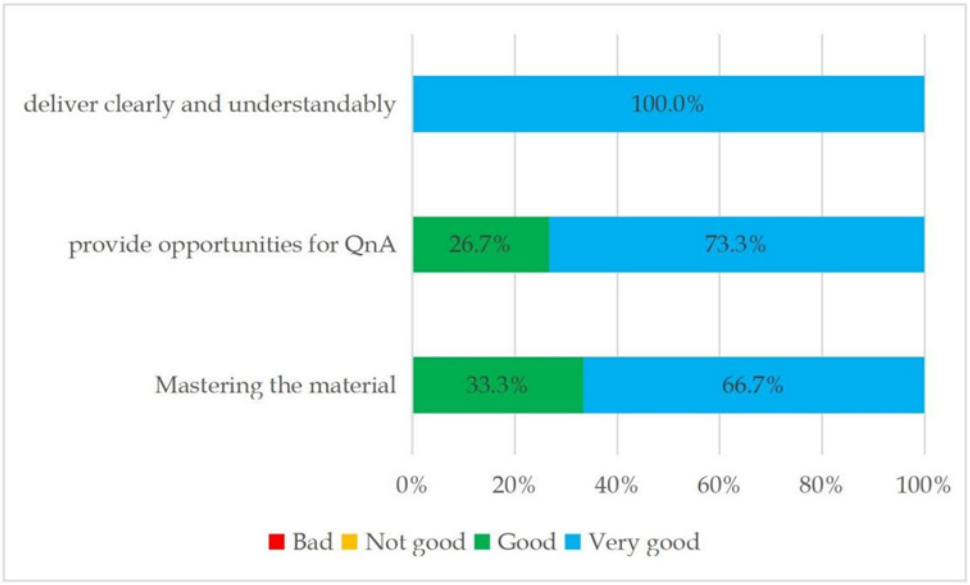

Figure 6. Participants' Assessment of Trainers

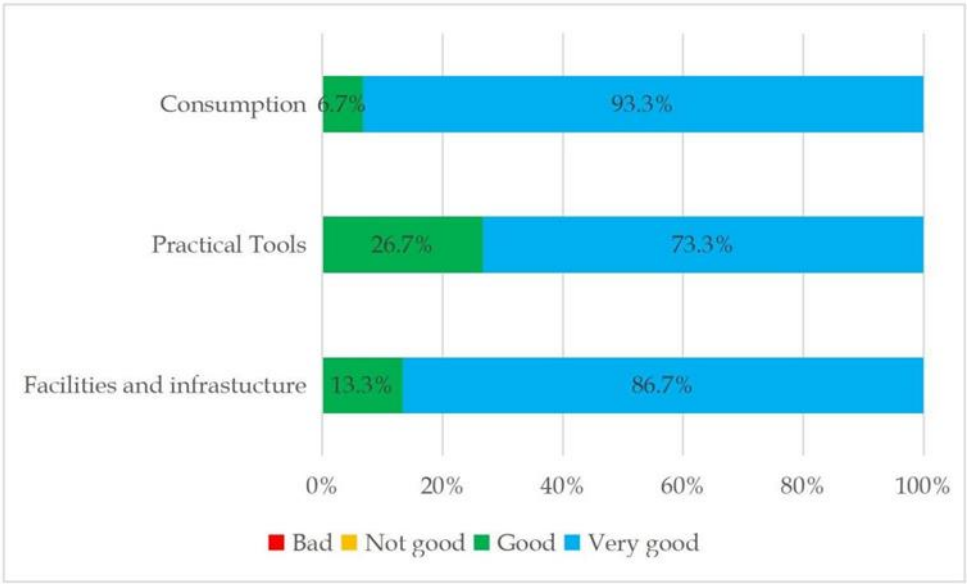

Figure 7. Participants' Assessment of Training Facilities

All program participants rated all three assessment criteria as good and very good. This can be seen in the graphs (Figures 5, 6, and 7) which show that no one rated it unfavorable and unfavorable. The highest assessment of the material was on the indicator "The material presented is useful" with 100 percent of participants answering very well. The highest assessment of the resource person was on the indicator "The resource person delivered the material clearly and was easy to understand" with a score of 100 percent of participants rated it very good. Meanwhile, in the criteria for assessing facilities, the highest assessment was on the indicator "Availability of consumption during the training" with an assessment of 6.7 percent of participants rated good and 93.3 percent rated very good.

The evaluation was carried out in addition to assessing the three assessment criteria, participants were also asked to measure the sustainability of this service program. The sustainability felt by program participants where participants are felt to be able to apply and practice it in the community. Participants also feel that this program is useful and will help recommend to other relatives regarding the processing process, benefits and uses of animal manure organic fertilizer. In addition, from the results of this counseling and training, it is felt that it can improve the family economy for farmers, breeders and the surrounding community.

CONCLUSIONS AND RECOMMENDATIONS

Extension and training on making animal manure compost can increase the knowledge of farmers and breeders in the utilization of livestock manure waste into organic fertilizer. Farmers and breeders are able to make solid organic fertilizer independently by utilizing goat manure. Farmers and breeders feel the benefits of the service program and feel that processing organic fertilizer can improve the economy of the surrounding community.

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