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Revolutionizing Farming: Innovative Feeds and Techniques at Di Bambo Farm and Cattle and Goat Group in Jambula, Ternate Island

Sariffudin Fatmona, Sri Utami, Gunawan
Universitas Khairun
sariffudinunkhair2022@gmail.com

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Abstract: *Breeders feel that there is less and less forage in their environment because the land where forage grows is converted into residential areas, causing breeders to find it difficult to find forage. This farm has not utilized technology in its management, causing a qualitative decrease in livestock productivity, namely body weight, even though the population has increased in quantity. The goals of Community Service are: To Create strong institutions and farms that are legally registered with relevant agencies; to increase breeders' understanding of livestock reproduction and the ability to recognize lust, productive age, and post-mating handling; and to provide knowledge and skills to partners regarding the production of Urea Molasses Block. Approach in three ways: Lectures and discussions; Demonstration plot; and activity evaluation. The results of this PKM show that partner science is growing, especially in the field of livestock reproduction and the development of new UMB feed.*

Keywords: *Feed innovation, reproductive biotechnology*

Introduction

Community Service (PKM) that involves partners (breeders) and lecturers is necessary to be conducted sustainably so that partners as the recipients of technology can transform the technology received well.

In North Maluku, the population of local livestock commodities, including Beef Cattle and Goats, have increased from 2019-2021[1]. However, the livestock business is considered inoptimal because the breeding system implemented is still traditional. Hence, to overcome this problem, it is deemed necessary to assist related parties, especially academics.

This partner business should be implemented using modern methods with biotechnological innovation to increase production and ultimately increase the income

[1] Sulasmi SFatmona, Gunawan, "Strategi Pemulihan Sektor Peternakan Yang Terdampak COVID -19," *Prosiding Seminar Nasional Inovasi Teknologi Peternakan II Kendari, 19 November 2022* (2022): 265–282.

and welfare of breeders. Therefore, the breeders require knowledge and skills, such as being able to adopt and master the technology, both reproduction and feed technology. In this case, artificial insemination is known by breeders as an effective livestock reproduction technology [2].

This activity involved lecturers from the animal husbandry study program at the faculty of agriculture of Khairun University. In this case, the partners involved are Bambo Farm Breeding and Beef Cattle and Goat Breeders in Jambula Sub-Village, Ternate Island District, Ternate City, North Maluku Province.

The implementation of this Community Service Activity (PKM) is expected to increase the partners' income. In general, livestock businesses require large areas of land because they can be used for forage crops and grazing their livestock. Inadequate land, such as the ownership of Partners in this PKM which is not very large, needs to be overcome by implementing biotechnology and innovation such as the application of feed biotechnology (UMB), understanding and benefits of Reproductive Biotechnology, and breeding management systems.

If the livestock business is run intensively and applies technology and innovation, it will increase household income, absorb labor, and support national programs. This can be realized if it is carried out widely in society, one way is through the Community Service (PKM) Program.

Adopting innovation in the cattle breeding system is an anticipatory step that must always be carried out so that the business can develop. If the livestock business is carried out intensively, it will be easier to handle, especially those related to reproductive control. In a ruminant farming business, production and reproduction failure can occur due to improper management and feeding implementation. In addition, it can also be caused by the lack of the role of the medical staff in treating reproduction and infertility diseases as well as the length of the calving interval or anestrus.

Breeders should carry out the adoption of innovation, especially in animal feeding. UMB is one of the animal food innovations as the solution to overcoming the above feed problems because this innovation can replace energy sources since it is composed of molasses (glucose) in addition to other ingredients. Urea Mineral Block (UMB) is useful in increasing production because there is an increased protein synthesis in the rumen by microbes, increased feed digestibility, and increased feed consumption, all of which will provide a better balance between the supply of amino acids and energy and the needs of livestock for growth and production. When the forage given to livestock has low quality and is unappetizing, Urea Molasses Block (UMB) is usually further used as additional

[2] Tria Deviana Putri et al., "Faktor-Faktor Yang Memengaruhi Keberhasilan Inseminasi Buatan Pada Sapi Di Kabupaten Asahan, Sumatera Utara," *Jurnal Ilmiah Peternakan Terpadu* 8, no. 3 (2020): 111.

feed.[3]

Breeders are the targets for changes to improve the breeding management system, including in terms of seeds, feed, disease management (prevention and treatment), housing systems, and marketing management factors[4]. In this case, the academics are in charge of a resource in transferring the science and technology. The partner involved in this activity is Bambo Farm, founded in 2013 with a total of 15 livestock and a land area of approximately 2 hectares. In 2023, the livestock have currently reached 50 cattle with a total of 101 breeders. Their feed is planted around the cow pen. The breeders have also carried out AI and succeeded in producing 3 superior bulls. In this case, the most dominant cattle bred are Balinese cattle and ongole as the crossbreeds of Balinese and Limousin cattle.

Since there is rarely attention from related parties such as the agricultural service, agricultural extension workers, and veterinarians as well as academics, breeding is seen as less productive based on the breeding business aspect. This is because the calving interval is very long, and a mother giving birth to one calf can take up to 24 months. In this case, the calving interval should be around 13 months or no more than 13 months 10 days. Reaching the age of puberty by genetic potential is one way to measure reproductive efficiency. This is important for optimal reproductive performance of cattle and increased productivity[5].

Therefore, it is important to provide assistance to create strong institutions and legally registered livestock at relevant agencies, improve farmers' understanding of cattle reproduction and ability to recognize lambing, productive age, post-breeding handling, etc., and provide knowledge and skills to parties involved in the production of Urea Molasses Block.

Method

This community service was carried out in Jambula Village, Ternate Island District, Ternate City, North Maluku with the assisted community at "Bambo Farm," as well as cattle and goat farmers in the area. This assistance aims to overcome several problems faced by farmers, and concrete steps are taken to achieve sustainable solutions, including assistance with group legality and livestock reproduction. In implementing the Community Service program, it is carried out through a service-learning approach.

[3] Erita and Isnaini, "Kadar Hormon Estrogen Pada Sapi Bali Saat Pubertas" (2022): 2016–2020.

[4] Fatmona dan Gunawan, "Daya Tampung (Carrying Capacity) Sapi Potong Di Kecamatan Gebe , Kabupaten Halmahera Tengah , Provinsi Maluku Utara Indonesia" 20, no. 2 (2022): 63–70.

[5] Herdi Wahyu Adi Prananda, Desak Nyoman Dewi Indira Laksmi, and I Gusti Ngurah Bagus Trilaksana, "Kadar Hormon Estrogen Pada Sapi Bali Saat Pubertas," *Buletin Veteriner Udayana* 2021, no. 158 (2022): 197.

In the initial stage, research and initial coordination were carried out to find out the conditions and problems faced by the assisted community.

At the service stage. The methods used in the thematic *Kubermas* PKM program plan for resolving group problems are:

Lectures, socialization, and guidance

Partner problems related to the legality of partners in related institutions are resolved using this strategy. The lecture format has the advantage of allowing the speaker to adapt the content of the speech to the needs and interests of the audience, as well as allowing the speaker to pay attention to how the audience responds. In addition, the audience also received an explanation and the opportunity to ask questions.[6]

Field Meeting

Field meetings, also known as lectures, are similar to Focus Group Discussions where partners and experts meet to discuss the problems they are facing to find solutions. According to the agreement, meetings were held in the cattle house or one of the group members' houses to discuss issues related to livestock reproduction. Experts are presented directly related to cow reproduction topics such as signs of estrus (heat) during the presentation.

Plot Demonstration

Demonstration plots are an agricultural extension method used to demonstrate better agricultural or livestock business products or to demonstrate how they can be improved.[7] It was also stated that this demonstration plot was a pilot. Method demonstration and results demonstration are two types of demonstration. These two types of demonstration are usually used separately with slightly different materials, but in certain cases they can also be combined. [8]

Most of the time, plot demonstration shows how to do something step by step. The time and money required for implementation is minimal. The goal of a results demonstration is to directly demonstrate the benefits of the proposed technology in a specific location.

[6] WAHYUNINGSIH, "PENINGKATAN KETERAMPILAN MENYIMAK PIDATO MELALUI MEDIA AUDIO PADA SISWA KELAS X-A MADRASAH ALIYAH GUPPI SAMATA," *skripsi PENDIDIKAN BAHASA DAN SASTRA INDONESIA FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN UNIVERSITAS MUHAMMADIYAH MAKASSAR* (2020).

[7] Sariffudin Fatmona et al., "PEMBUATAN PAKAN FERMENTASI LIMBAH PANGAN, LITER ARANG SEKAM AMPAS GERGAJI PADA KELOMPOK ITIK MILLENNIAL DI SANGAJI UTARA KOTA TERNATE" 6 (2023): 1188–1197.

[8] T. Hindersah, R., Hermawan, W., Mutiarawati and R. Kuswaryan, S., Kalay, A.M., Talahaturuson, A. dan Risamasu, "Penggunaan Demonstrasi Plot Untuk Mengubah Metode Aplikasi Pupuk Organik Pada Lahan Pertanian Sayuran Di Kota Ambon," *Dharmakarya* 5, no. 1 (2017): 9–15.

To overcome the problems of partners as breeders regarding UMB production, a combination of method demonstration and results demonstration was carried out; where the method of making UMB and the results of administering UMB to livestock are both demonstrated.

Activity Evaluation Stage.

In the evaluation phase, in addition to discussing future activity plans, the main focus is to see changes in farmers' behavior, knowledge, attitudes, and skills. The evaluation also includes the implementation of the suggestions provided by the experts. This is done to ensure that the solutions that have been provided have a positive and sustainable impact on farmers and their livestock businesses. This evaluation is an important step to assess the overall success of this PKM project.

The Role of Assisted Partners

The active role of the farmers is the key to success. They contributed their labor, provided time and space, and actively participated in discussions, guidance, and field meetings. Through this participation, it is expected that the improvement of farmers' skills and experience can be achieved.

Institutional Capacity

Beef cattle farming "Bambo Farm" and cattle and goat breeders in Jambula Village, Ternate Island District, Ternate City, in 2023 has been officially registered and focus more on breeding and feeding, particularly related to knowledge and skills of the reproductive biotechnology and feed namely AI and UMB feed. In 2023, this service activity was specifically carried out in the Bambo Farm cattle breeder group, Jambula Village, Ternate Island District, Ternate City, aiming to increase the breeders' livestock production both quantitatively and qualitatively so that problems occurring in the field can be resolved.

Result

Institutional empowerment.

This activity was carried out in stages. First PKM team discussed with the partner to give understanding to the partners concerning institutional empowerment by emphasizing the benefits of registering livestock business groups to government institutions, including easy access to assistance from stakeholders such as the government, business sector, private sector, and campuses. Another advantage of is that the registration makes it easier for the members to obtain information about cattle and

goat breeding businesses from the other members involved. This activity was attended by fifteen breeders as well as four members of the PKM team and three Kuberma students who were involved.

Even though not all group members attended, the activity went to the expectations because there was an in-depth discussion between the community service team and the existing group members. After the extension in this discussion was carried out, partners or breeders understood and were aware of the importance of institutional legality, which is to support their livestock business because several breeders have not joined a group and are also not legally registered with the related institution. Therefore, the PKM team formed a new group from several breeders and registered to related institutions, with the hope that the related institution records their data so that the management of their livestock businesses can be well coordinated and their cattle and goat breeding businesses can develop and increase their income.

Extension to Increase the Breeders' Knowledge about Reproduction in Cattle and Goats.

This activity stage is an effort to increase breeders' knowledge about Cattle and Goat Reproduction using lecture-counseling methods and discussions with the breeders and members of breeder groups. This was done at the house of Mr Usman M Nur, the owner of the Bambo Farm as well as cattle and goat breeder.

This location was deliberately chosen because the house of the Bambo Farm owner is located in the center of the region so it is easier for the other breeders to attend the activity. In this activity, information about livestock reproduction, which most breeders don't know about, is conveyed such as selecting good parent stock, the characteristics of estrus, a good mating time, the characteristics of pregnant livestock, the artificial insemination mating program and its benefits, and pregnant livestock so that nutritional needs are met, as well as calf handling and weaning.

This meeting was attended by fifteen group members, including three mothers representing their husbands who were not able to attend because they were still working. This activity was carried out at 14.00, where the majority of members worked. At this stage of the activity, the speaker was Mr. Gunawan, SPt. MSi. The materials presented include:

1. Education about the proportion of males in a female group to ensure a balanced ratio;
2. Detection of estrus in the mother, the right time for mating, success of mating until pregnancy, pregnancy signs, etc.
3. Extension concerning the productive age of male cattle;

4. Training the breeders to identify and select the potential broodstock as well as post-breeding handling of cattle;
5. Introducing new developments in reproductive biotechnology (Artificial Insemination and Embryo Transfer).

At this stage of the activity, partners quite understood the material provided by the experts and were enthusiastic about following the material presented. This can be seen from the emergence of questions and suggestions submitted. This material is considered very important for partners as knowledge for future application in the beef cattle farming business and goats so they can increase their livestock production.

Figure 1. Presentation of Cattle Reproduction by the *Presenter*, Gunawan SPt., MSi

Beef Cattle and Goat Breeding Cultivation Techniques.

This PKM stage provides material related to Beef Cattle Cultivation Techniques. Beef cattle breeding is a livestock sector that has great potential as a meat producer due to the demand for beef. On this occasion, the presenter was Dr Eny Endarawati, SPt., M. Si. The presenter delivered material about techniques and strategies for cultivating beef cattle and goats. The material provided by the presenter was quite comprehensive since it includes seed and feed management, disease prevention and management, housing systems, and marketing strategies for cattle and goats.

The participants quite understood and were enthusiastic about participating in the materials presentation, as indicated by numerous questions submitted by the participants. Therefore, it is expected that the partners or cattle and goat breeders can apply the knowledge that has been transferred to increase the productivity of their livestock business and increase the partners' income and welfare.

Figure 2. Presentation of Beef Cattle Cultivation Techniques by the Presenter, Dr. Eny Endarawati SPt., MSc

The materials extension concerning the introduction of Urea Molasses Block (UMB) feed innovation.

This PKM stage is presenting materials about the introduction of Urea Molasses Block (UMB) feed innovation using lecture and extension techniques about the benefits and uses of providing feed supplements to ruminant animal feed and providing information about UMB feed innovation. At this stage, the method used is in the form of extension or lectures regarding the components of UMB feed, its composition, how to make it, its benefits, and the amount of feed that must be given to ruminant livestock.

The next stage of PKM activities is practice or demonstration plots for making animal feed biotechnology, aiming that the partners or breeders truly understand the importance of feed supplements for their cattle and goats. In this stage, the spokesperson who delivers the material about the feed supplements for ruminant livestock is Dr. Sri Utami, SPt., M. Sc. This session is even more interesting for partners because it is basic theoretical knowledge so that in the practical session or demonstration plot, breeders already understand how beneficial it is for their livestock to receive feed supplements which will ultimately increase the livestock's immune system and productivity increasing livestock population and breeder income.

Figure 3. Presentation of material regarding feed supplements for cattle and goats by the presenters, Dr. Sri Utami SPt., MSi

The practice of making feed innovation/UMB Demonstration Plot.

This PKM stage is an activity stage that partners looking forward to because based on the information obtained, they have never known or carried out practical activities or carried out such supplementary feed manufacturing activities. Therefore, many breeders wanted to take part in making urea mineral blocks at this stage. In addition, since related materials have been given in the previous stages, breeders were very enthusiastic, understood, and wanted to practice directly how to make UMB well. In this case, the breeders took turns mixing the ingredients according to the method presented until the printing of UMB products was carried out. Before the practicum process was carried out, the presenter conveyed the composition of the ingredients, the manufacturing process, the advantages of UMB animal feed, and the amount of feed. Meanwhile, the demonstration on how to make UMB animal feed was carried out in the second stage.

Through this demonstration plot activity, the presenters hope that partners can carry out this activity on an ongoing basis to increase their livestock production in each group. The demonstration activity for the method of making UMB is simply mixing molasses and urea with other ingredients such as rice bran, hardener, and a mixture of salt and minerals to form a smooth dough which is then compacted using a mold. The person in charge of delivering a demonstration plot of feed supplements to ruminant livestock is Dr. Sariffudin Fatmona, SPt., M Si

Figure 4. Providing training on making feed innovation/UMB Demonstration Plot (demonstration plot) by presenter Dr. Sariffudin Fatmona SPt., Msi

Materials presented include (1) The purpose of giving Urea Molasses Block, (2) Increasing feed consumption, digestibility of food substances, and livestock production, (3) the amount of Urea Molasses Blocks given, (4) Providing UMB feed supplements to large ruminants in grams per day.

Table 2. Standard of UMB Feed Supplement UMB Administration on Cattle Based on the Type and Age

Cattle	Type	Amount
Large Ruminant	Beef Cattle, Bull, Blood Cattlem Dairy Cows	350-500 g/cattle/day
	Calf aged 6 months – 1 year	150-250 g/cattle/day

In this PKM activity, the partners or breeders were so enthusiastic about listening to the explanation about the UMB material that some members even wanted to demonstrate how to make the UMB feed. However, not many group members attended this material presentation, even though the activity had been scheduled according to the members' available time.

In this session, the presenter only provided an extension. In this case, the presenter used the formulation for making UMB as explained in Table 3.

Manufacturing materials and composition

Table 3. Ingredients for making Urea Molasses Block and their composition

No	Materials	Composition (%)
1.	Molasses	40
2.	Rice bran	40
3.	Cattle mineral mic	5
4.	Ionized Salt	3
5.	Urea	8
6.	White Cement	4

Various Ways of Making UMB

1. The cold method is carried out by simply mixing molasses and urea with other ingredients such as fillers, hardeners, and additives to form a flat dough that is compacted using a mold. This method can be employed if only a small amount of molasses is used.
2. Warming technique is carried out by heating the molasses first at a temperature of 40-500^{o}C, then mixing the urea, filler, and hardener as well as other ingredients. After the dough becomes flat, it is molded and compacted.
3. When UMB is made using the warming method, the molasses mixture used is in large quantities. The molasses-and-filling mixture is then compacted by pouring it into molds and boiled for 10 minutes at 100-1200^{o}C before mixing with urea and hardeners and cooling slightly to 700^{o}C.

Figure 5. Enthusiasm of the participants in a discussion of PKM Activity

Activity Evaluation.

This activity stage is an evaluation of the training implementation so that it can be carried out continuously and seriously. This cannot be separated from the very close distance between the PKM activity training site and Khairun University. The following are several stages carried out during the evaluation:

A week after the UMB feed production activity was carried out, a list of interview questions was given to the target breeder group. The aim is to find out whether all breeders have understood and implemented everything that was conveyed and also to directly check the UMB feeding to the cattle and goats. In addition, it also aims to know whether the livestock want to eat it. All members have understood and applied the material and training provided, including giving UMB feed to cattle, and the cattle want to consume it.

Discussion

Institutions and legality of the livestock groups.

The partner of this activity is the Bambo Farm and added with Cattle and Goat Breeders located in the Jambula sub-village, Ternate Island District, Ternate City, North Maluku. In this case, Bambo Farm was established in 2013 with an initial amount of 15 cattle and a land area of 2 Ha. Currently, the cattle have reached 70 cattle with a total of 10 breeders. The forage for the cattle is planted around the cattle pen. In this case, the grass is often taken using an open cup car because there is a lot of grass growing wild in the Ternate city area, especially during the rainy season. In addition, the availability of forage for livestock is quite abundant.

In providing feed supplements, these breeders provide tofu dregs obtained from tofu manufacturing factories around Ternate City. This farm has carried out AI and succeeded in producing 3 superior cattle. Furthermore, the most dominant cattle breed is Balinese cattle, Ongole crossbreeds, and a cross between Balinese and Limousin cattle.

There is rarely attention from related parties such as the agricultural service, agricultural extension workers, and veterinarians as well as academics so from a

livestock business perspective it is seen as less productive. Service activities from academics from the Animal Husbandry Study Program, Faculty of Agriculture, Khairun University are one of the highlights of the enthusiasm of breeders in Jambula Village, which was attended by breeders at Bambo Farms and Cattle and Goat breeders in Jambula Subdistrict, the breeders always motivate themselves on how their livestock can further develop and can be a forum for sharing information related to the business being undertaken. Before this activity was carried out, the PKM team coordinator communicated with the owner of the Bambo farm, namely Mr Usman M Nur SE, and several breeders who further approved the planned PKM activities to be carried out.

At the first meeting, Mr. Usman and several livestock groups agreed regarding the PKM activity plan. In the discussion, the legality of livestock being registered with the sub-district and agricultural department of Ternate City was also discussed and it was conveyed that their livestock had been registered with the Livestock Sub-Department of the Agricultural Service, Ternate City. This was also confirmed by the head of the Livestock Division of the Ternate City Agriculture Service. One of the members wanted to help take care of this matter. In addition, the following meeting was agreed to be held with an agenda for Technical Counseling on Livestock Care and counseling and training on Demonstration plots for making Feed Supplement Urea Molasses Block (UMB) every month with place and time implementation being mutually agreed upon.

At this activity stage, the PKM team carried out discussions or extensions with partners regarding the benefits of the collaboration and the benefits of registering a breeder group with the relevant institution. In this case, running livestock together with good management will make it easier to increase productivity[9]. In addition, when the group is registered (legality) with the agricultural service, the group can be monitored so that if a problem is found in the livestock business, such as disease infection, the officers can immediately handle it. Besides that, the agency will assist in increasing the production of the livestock group. The beef cattle breeding farm "Bambo Farm" and most of the cattle and goat breeders in Jambula Sub-Village, Ternate Island District, Ternate City in 2023 will officially be registered. There are only a few breeders who have not yet formed groups and have not registered with the relevant institution (livestock sub-division of the agricultural service Ternate City, North Maluku).

Increasing the breeders' knowledge concerning the reproduction of cattle and goats.

The extension activity stage is related to Breeders' knowledge of Reproduction in Cattle and Goats. Although not all group members were present, many of the participants repeatedly asked questions. This was in line with what was expected for a good knowledge transfer process. The extension learning process is not measured by how

[9] Nur Solikin1 and & Linawati2, "PARTISIPASI ANGGOTA KELOMPOK TERNAK DALAM PENGEMBANGAN SUMBERDAYA DAN USAHA PETERNAK SAPI POTONG," *Jurnal Karya Pengabdian* 2, no. 2 (2022): 100–104.

much information is presented; rather it is measured by how in-depth the discussion is between the presenter and the partner. [10]

The active participation of group members in delivering material related to reproduction was very high, where almost every point raised by the presenter was asked by the participants present. In running a cattle and goat breeding farm, understanding reproduction is very important to increase livestock production, for example selection of good broodstock, knowing the characteristics of estrus, the right time for mating, handling pregnant broodstock, feed for pregnant broodstock, signs of success pregnancy, calving interval, and artificial mating or artificial insemination.[11] In this case, the calving interval should not be too long. This needs to be known by the breeders through such PKM, since there was a lack of agricultural instructors and veterinarians as well as academics. Therefore, based on the livestock business perspective, the partners' breeding business is seen as less productive. This is indicated by the cases encountered in the field such as very long calving intervals, where a mother can give birth to one calf up to 24 months, while the ideal calving interval is 14 months.[12] Livestock reproduction is the physiological process of livestock producing offspring. Based on Kurniasih et al's statement, some factors influence livestock reproduction, namely marriage, handling of newborn offspring, availability and quality of feed, and health management.[13]

Providing material related to beef cattle cultivation techniques.

In a modern beef cattle breeding business, cultivation techniques are given great attention in the management of beef cattle breeding, including how to choose good broodstock, feeding, feeding, housing, labor, health, and medicines as well as marketing systems.

In this session, techniques and strategies for cultivating beef cattle and goats were presented by the presenter. In this case, the presenter presented that in cultivating

[10] Salman Ali Rusdy and Aryo Fajar Sunartomo, "Proses Komunikasi Dalam Penyuluhan Pertanian Program System of Rice Intensification (Sri)," *Jurnal KIRANA* 1, no. 1 (2020): 1.; Rayhana Jafar and Sulton Alimin, "Peran Penyuluh Pertanian Dalam Penerapan Budidaya Padi Organik Dengan Metode Sri (System Rice of Intensification) Di Kota Tarakan," *J-Pen Borneo Jurnal Ilmu Pertanian* (2020); Syaifurrizal Khoriri, Sri Subekti, and Titin Agustina, "Pemberdayaan Petani Dalam Menerapkan Program System of Rice Intensification (Sri) Berbasis Kegiatan Kelompok," *Agritexts Journal of Agricultural Extension* (2020); Rahmad Syukur Siregar et al., "Pelayanan Penyuluh Pertanian Dan Kepuasan Petani Program System Rice of Intensification (Sri) Di Kabupaten Serdang Bedagai," *Jurnal Agrica* (2021).

[11] B O S Taurus et al., "PERFORMAN REPRODUKSI INDUK SAPI CROSSBREED (BOS JAVANICUS X BOS TAURUS) DI WILAYAH KECAMATAN KUPANG TIMUR Matheus Mbele Dede 1 , Tarsisius C. Thopianong 2 , Nancy D. F. K. Foeh 2 1" VI, no. 07 (n.d.): 1–11.

[12] Taurus et al., "PERFORMAN REPRODUKSI INDUK SAPI CROSSBREED (BOS JAVANICUS X BOS TAURUS) DI WILAYAH KECAMATAN KUPANG TIMUR Matheus Mbele Dede 1 , Tarsisius C. Thopianong 2 , Nancy D. F. K. Foeh 2 1."

[13] N. N. Kurniasih, A. M. Fuah, and R. Priyanto, "Karakteristik Reproduksi Dan Perkembangan Populasi Kambing Peranakan Etawah Di Lahan Pasca Galian Pasir," *Jurnal Ilmu Produksi dan Teknologi Peternakan* 1, no. 3 (2013): 132–137.

cattle, adequate knowledge and skills are needed so that livestock can progress and develop, such as knowledge about good broodstock, quality feed, and good breeding practices.[14]. Breeding management consists of five aspects which are referred to as the five livestock businesses, namely, broodstock, feed, mating systems, housing systems, and marketing strategies for cattle and goats (ruminants)[15]. One of the important factors in cultivating cattle and goats is the cleanliness or sanitation of the cage. Cage sanitation aims to kill disease in the cage as a whole, including the cage, the environment around the cage, and the cage equipment.[16]

Providing introduction material for urea molasses block (UMB) feed innovation.

In this session, the presenter provides counseling concerning the introduction of additional feed with urea molasses block or what is called the addition of nutritional supplements to ruminant livestock. The materials used in making UMB include molasses, EM4, minerals, white cement, and rice bran. Furthermore, it was also explained that the nutritional content of the ingredients used can increase livestock productivity. Partners are very interested in this material, as indicated by numerous questions raised. It is expected that this material can provide basic knowledge for breeders in understanding and making UMB feed and giving it to their livestock so that livestock can thrive well and increase their production both in terms of quality and quantity. Livestock require additional feed (nutritional supplements) in the form of Urea Molasses block (UMB) or livestock candy to improve their performance.[17] Therefore, giving UMB has a better effect on weight gain compared to just giving field grass.[18]

[14] Nurzainah Ginting Hasnudi, Uswatun Hasanah, and Peni Patriani, *PENGELOLAAN TERNAK SAPI POTONG DAN KERBAU*, 2016.

[15] Arif Qisthon et al., "Diseminasi Tata Laksana Reproduksi , Kesehatan , Dan Sanitasi Kandang Serta Aplikasi Pengobatan Massal Ternak Sapi Potong Di Desa Tambak Jaya Kecamatan Way Tenong Kabupaten Lampung Barat," *Jurnal Pengabdian Fakultas Pertanian Universitas Lampung* 02, no. 01 (2023): 143–160.

[16] Muhammad Mirandy Pratama Sirat et al., "Penyuluhan Manajemen Kesehatan, Reproduksi, Sanitasi Kandang, Dan Pengobatan Massal Ternak Kambing," *Agrokreatif: Jurnal Ilmiah Pengabdian kepada Masyarakat* 7, no. 3 (2021): 303–313.

[17] Rini Mastuti, Yenni Marnita, and Muhammad Fuad, "Pelatihan Pembutan UMB (Urea Molasses Block) Pada Peternak Sapi Potong Di Desa Meurandeh Kecamatan Langsa Lama Kota Langsa," *Global Science Society : Jurnal Ilmiah Pengabdian Kepada Masyarakat* 1, no. 1 (2019): 56–61.; Vian Dwi Chalisty et al., "Penyuluhan Dan Pelatihan Pembuatan UMB (Urea Molasses Block) Pada Peternak Sapi Potong Di Desa Blengorwetan, Kecamatan Ambal, Kabupaten Kebumen" (2022); Ediset Ediset et al., "Optimalisasi Performance Reproduksi Dan Adopsi Inovasi Urea Molases Block (Umb) Pada Kelompok Peternakan Sapi Makmur, Kecamatan Pauh, Padang," *Jurnal Hilirisasi Ipteks* (2018).

[18] Duta Setiawan, "Pengabdian Kelompok Ternak Sapi Melalui Perbaikan Pakan Di Kabupaten Sambas," *Dharma Raflesia : Jurnal Ilmiah Pengembangan dan Penerapan IPTEKS* 18, no. 2 (2020): 218–227.; Nono Ngadiyono et al., "Inisiasi Pengembangan Dan Pendampingan Peternakan Sapi Secara Terpadu Di Kelompok Ternak Sapi Kandang Kalimasodo," *JPPM (Jurnal Pengabdian Dan Pemberdayaan Masyarakat)* (2019); Happy Poerwoto et al., "Perbaikan Manajemen Pakan Untuk Meningkatkan Pertumbuhan Sapi Muda Di Kabupaten Lombok Utara," *Jurnal Pengabdian Inovasi Masyarakat Indonesia* (2023); Kusmartono Kusmartono et al., "Pemberdayaan Kelompok Peternak Sapi Potong Melalui Teknologi Pakan Di Desa

Providing training on making feed innovations and UMB Demonstration Plots.

The PKM activities in this session are considered quite interesting and important for partners, namely in the form of practicum or demonstration plots for making UMB. Therefore, partners are very enthusiastic about this activity and understand and can carry out the making of UMB from the start until the product is printed. The finished UMB is further dried in the sun for several days and then ready to be given to livestock by hanging or placing it in a bamboo tube or feed box.

The enthusiasm of the breeders at this activity session is indicated by several members who directly demonstrate how to make UMB feed. A week after the materials were distributed, the service team returned to the breeder's group to see the UMB ready to use, which would be given to cattle and goats. The demonstration of how to administer UMB to livestock by group members in their pens was carried out at three different locations.

This additional feed was given in the morning in an amount appropriate to each type of livestock. For large livestock such as beef cattle, it reaches 350 grams per head per day. Meanwhile, the goats received 120 grams per head per day. By adding UMB to the feed, the community's cattle experience an increase in appetite, the runny nose has returned to normal, and sometimes the cattle become very tame because they have smelled the fragrant smell of the UMB brought by the breeder.[19]

Evaluation of Activities.

This activity stage includes the evaluation of the assessment of the continuity of training. This cannot be separated from the very close distance between the PKM activity training site and Khairun University. The following are several stages carried out during the evaluation:

A week after the UMB feed production activity was carried out, a list of interview questions was given to the target breeder group. The aim is to find out whether all breeders have understood and implemented everything that was conveyed. In addition, it is also conducted to directly check the feeding of UMB to cattle and goats and whether the livestock want to eat it. All members have understood and applied the material and training presented, including giving UMB feed to cattle and goats.

Evaluation of breeders' knowledge, especially regarding the detection of estrus, was carried out a week after exposure to cow reproductive material and administration of UMB to livestock. The results are satisfactory because the breeder already knows for sure which cattle is in heat and is sure that the cattle will become pregnant if an

Gunungrejo Kabupaten Malang," *Ternak Tropika Journal of Tropical Animal Production* (2021).

[19] Setiawan, "Pengabdian Kelompok Ternak Sapi Melalui Perbaikan Pakan Di Kabupaten Sambas."

inseminator is brought in. In addition, the breeder can also make UMB and give it to their livestock. In this case, the breeders have understood and applied what is given by the presenter in this activity. One way to increase livestock productivity is by improving the quality of animal feed, such as providing Urea Molasses Block (UMB) as additional animal feed.[20] [21]

Conclusion

The community service initiatives have successfully addressed various objectives, encompassing cattle reproduction extension, cultivation techniques for both cattle and goats, the formulation of additional feed supplements, and the introduction of innovative feed through demonstration plots for Urea Molasses Block (UMB) production. The process has also contributed to the institutional empowerment and continuous consolidation of group members. The application of diverse extension methods, such as lectures, group discussions, and home visits, tailored to the specific conditions of the targeted breeders, has proven effective. Notably, the partners' knowledge has significantly expanded, particularly in the realms of livestock reproduction and the development of the new UMB feed. It is emphasized that academics in the animal husbandry sector should persist in providing support to breeder groups, especially those in proximity to the Khairun University campus. Recognizing the busy schedules of livestock breeders, the implementation of extension methods for home visits and livestock businesses is encouraged. Moving forward, breeders are urged to proactively engage in meetings with current livestock stakeholders to sustain the progress achieved.

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[20] Solikin1 and & Linawati2, "PARTISIPASI ANGGOTA KELOMPOK TERNAK DALAM PENGEMBANGAN SUMBERDAYA DAN USAHA PETERNAK SAPI POTONG."

[21] Nissa Sajow et al., "Evaluasi Program Penyuluhan Usaha Peternakan Sapi Di Kecamatan Sinonsayang Kabupaten Minahasa Selatan," *Zootec* 34, no. 2 (2014): 27.

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