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SOCIALIZATION OF PLANT SACHA INCHI AS AN ANIMAL FEED INGREDIENT IN REULEUT TIMUR GAMPONG ACEH UTARA DISTRICT

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Abstract

This plant is easy to cultivate so farmers can cultivate it and make it animal feed. This of course will make it easier for breeders because livestock do not have to be released and get enough feed. Planting sancha ichi plants can be a solution to the problems faced by people in this region because these plants can survive in any soil conditions. Besides being able to be used as a raw material for animal feed, this plant can also solve the problem of the impact of global warming in this area which is produced by brick factories around residents' residential areas. This community service activity is expected to solve the various problems above. The community service location was taken around the UNIMAL Faculty of Agriculture, namely Gampong Reulet Timur, North Aceh Regency. The implementation method used in this service activity is in the form of counseling and mentoring with a participatory approach and referring to the adult-learning process which consists of: (1) Presentation of material supplemented by Power Point presentations and simulation materials, (2) discussions with service participants, (3) assistance for the practice of cultivating/planting pythons and making animal feed. The output targets to be achieved from this activity are: (1) Scientific publication in cross-reference/national-based international service journals (2) Publication of activities in print or online media, (3) product of python inch.

Keywords: ***livestock, community, sancha inci.***

1. INTRODUCTION

As one of the efforts to realize the vision and mission of the Agency, academics from the Faculty of Agriculture UNIMAL through a service program with PNBP funds have the aim of overcoming problems that occur in the environment around the campus. To overcome the problems that exist in this area it is very appropriate if community service activities are carried out by Unimal academics which will be carried out in villages around the campus (Zahara, 2021)

The people of Gampong Reuleut Timu, Muara Batu District, North Aceh Regency have various livestock. Each livestock must be given food intake every day. The animal feed that is known to the public is elephant grass which must be sought. The difficulty of finding animal feed makes people prefer to release their livestock. This poses various risks such as loss of livestock, livestock consuming something that is dangerous such as plastic etc., and cattle being hit by cars/motorcycles because they are wandering around. Sacha Inchi plant is one of the potential alternative feeds to solve this problem. This plant is easy to cultivate so farmers can cultivate it and make it animal feed. This of course will make it easier for breeders because livestock do not have to be released and receive sufficient feed (Souza et al., 2013).

Sacha Inchi is a plant that is relatively new and has a high potential value. This plant comes from the highland rain forests in the Andes region of South America. Currently sacha inchi has spread to the Amazon lowland in Peru. The plant may have been used by pre-Incas and the Incas, 3000 years ago. This is evident from the interpretation of the paintings of the sacha inchi plant in ancient tombs belonging to the Incas (Suwanangul et al., 2021).

Sacha inchi is a type of legume that has not been widely cultivated by Indonesian people. But in fact, Sacha Inchi is very rich in fatty acids such as omega 3, omega 6 and omega 9 which are very beneficial for children's intelligence (Sethuraman et al., 2020). However, nowadays this bean has been cultivated in China, Vietnam, Malaysia, Thailand and more recently in Indonesia. Morphologically, sacha inchi fruit has a star shape, where in one star can store between 4-5 seeds. Young fruit is green while old fruit is blackish brown.

The type of soil around this area is red soil which is not suitable for planting plants. So the solution offered is to plant sacha inchi plants because they can survive in any soil conditions (Mawardati, 2021). Besides being able to be used as a raw material for animal feed, this plant can also solve the problem of the impact of global warming in this area which is produced by brick factories around residents' residential areas. This community service activity is expected to solve the various problems above. The problems that underlie the formation of community service activities are as follows:

1. Many people give up their livestock because of the difficulty in obtaining good, easy and cheap feed ingredients.
2. The community does not yet know information regarding the types of animal feed raw materials that are good, easy and inexpensive to make animal feed.
3. The number of brick businesses in the area around the campus has a risk of increasing the impact of global warming.

2. EXECUTION METHOD

Location devotion Public taken at Approx agency Faculty UNIMAL Agriculture ie Gampong Reulet East North Aceh District . Determination location this is because Faculty Agriculture University Malikussaleh which is located in North Aceh District , then with exists activity devotion this expected could give contribution live to problems that exist in the environment around agency . For dig problems that exist in the community , dedication TEAM stage interview deep with society . On phase This is the Devotion Team listen problem society .

implementation method used in this service activity is in the form of counseling and mentoring with a participatory approach and referring to the adult-learning process which consists of: (1) Presentation of material supplemented by Power Point presentations and simulation materials, (2) discussions with service participants, (3) assistance for the practice of cultivating/planting python inches and making animal feed as shown in the following figure:

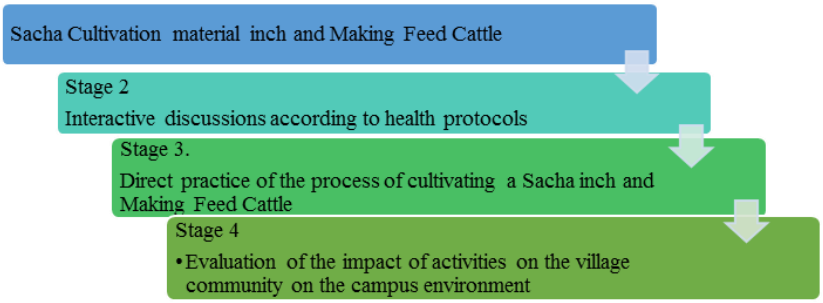

Figure 1. Stages of Community Service Activities

In the early stages, material will be presented accompanied by a Power Point presentation to discuss the impacts and risks of releasing livestock in the surrounding environment. Furthermore, the service team also provides counseling about the impact of global warming on environmental conditions and the health of the community around the campus. Furthermore , training and mentoring activities will be carried out planting practice reticulated pythons and the production of livestock feed from reticulated pythons.

Figure 2. Sacha Inchi Plant

Plukenetia volubilis-Linneo aka sacha inchi bean is a plant native to the Amazon region, including Peru. Scientific studies show that sacha inchi is the best vegetable oil-producing plant because of its high nutritional composition and quality (Cai, 2011). Sacha inchi which is also called "wild bean", "Inca inchi" or "mountain bean" is a plant from the Euphorbiaceae family, which grows in the Amazon jungle. This plant, which is widely cultivated in Peru, has been a component of the diet of various indigenous tribal groups in the region (Kodahl & Sorensen, 2021).

Participation of partners is as participants who play an active role in participating in a whole series of service activities to assist in the practice of cultivating python inches and making animal feed in Gampong Reuleut Timu, Muara Batu District, North Aceh Regency.

The survey was carried out by the proposing team, using interview techniques. The instrument for evaluating the results of community service activities used is in the form of a questionnaire with open-ended questions regarding the trainee's understanding of the material and practices presented in this training. The survey was also carried out after the demonstration activity/cultivation practice. The survey results were analyzed using a Likert scale. The expected impact of community service activities is:

1. There is an increase in public knowledge regarding the manufacture of natural animal feed from the sacha inchi plant
2. Increasing public knowledge of the potential of sacha inchi plants for livestock.
3. Increased public interest in producing independent livestock experts.

3. RESULTS, DISCUSSION, AND IMPACT

This service activity is carried out by socializing how to plant Sacha Inchi and make animal feed by taking it directly from nature. To get fresh animal feed, various efforts have been made, such as the location of farms close to forage sources, so that farmers can reduce transportation costs and maintain the freshness of the feed, so that the nutritional quality will be maintained. In addition, the location of farms that are close to forage feed sources will make it easier for farmers

to provide feed according to their needs without the need to do excess storage, so that if the availability of forage is running low, farmers can easily get it.

By doing development effort by making pen which it's located enough away with source feed ingredients , for push cost transportation by trying to obtain ingredients feed as much possible for then saved, Thing this will reduce freshness and quality feed nutrition . But what happens is livestock do not like feed that is not fresh, already nutritional reduce, reduce lust eat farm animals , many remainder, and finally growth cattle even not maximal which impact on sale value . Temporary no possible again to look for a place of business close to source ingredients forage . Finally to maintain nutritional quality fodder _ although saved in time which enough long, the service team intends to socialize the planting of sacha inchi plants with utilizing sacha inchi and waste other with method fermentation fodder . With method this, provision ingredients feed will be more efficient, can be produced in large scale (if use counter machine where the end result of animal feed will be obtained more uniform size, fine and mixed with perfect).

Before carrying out community service activities, the service team first socializes the planting of sacha inchi plants as animal feed ingredients, while the planting and cultivation techniques can be done in the following way.

Figure 3. The speaker carries out socialization activities for planting sacha inchi.

Because the product from the sacha inchi plant is related to food and health, it is best to cultivate it in an organic way. Or at least with a semi-organic system. Namely, it is permissible to use manufactured fertilizers, but may not use hard toxic pesticides. Good seeds to be used as seeds are seeds from trees that are 3 years old or more. Because the germination rate will be better. Seeds must be large enough, pithy and hard.

Sacha inchi seeds have a dormancy or dormant period of institutional buds. To break this period of dormancy, there are two practical ways. Soak the seeds for two days in plain water, or soak the seeds in warm water at 50 degrees Celsius and allow the water to cool 24 hours later. The seeds are then sown into moist rice husks or cockpits.

In another 5 to 14 days, the seeds will start to germinate. Then transferred to the planting medium in polybags. 12 poly bag size x 17cm. How to plant it is the same as how to plant jengkol seed sprouts. Standing position, the buds and 1/3 of the seeds are immersed in the planting medium, while 2/3 of the seeds are visible. The planting medium should be a mixture of fertile soil and husk charcoal or kokopit (pulled coconut husk), with a ratio of 2 to 1.

Then put it in a place that is not too hot and watered every evening and every time it rains. Fertilization using NPK fertilizer 16-16-16-0.2. Dissolve 100 grams of fertilizer in 10 liters of

water. Water for 100 seed polybags. Treatment every 20 days. Leaf spot disease is controlled by applying biological fungicides, such as tichoderma or gliocladium. Pest control is also carried out using biological insecticides. How to make biological fungicides and organic insecticides, many parties have shared them on the internet.

At the age of 2 to 3 months, the seeds are suitable for planting in the field. How to plant sacha inchi is fairly easy. Much like planting long beans. But no need to make a bund. The land is cleared of grass and then plowed until loose. Plow depth 30 cm. Then sow dolomite as much as 500 kg per hectare. A marker is made to determine the spacing. With a distance of 2x 3 meters. This means that there are around 1,666 plant points in each hectare.

Make a planting hole 25 cm deep. Mix 3 kilograms of mature dry manure with 2/3 of the excavated soil. Put the dough into the planting hole. Then plant the seeds well. Sprinkle 50 grams of TSP fertilizer on the disc. Compact the soil around the planting. Then flush sufficiently.

Install the ramp as a support for the propagation of this semi-woody shrub tree. The track material must be strong. Because this sacha inchi plant is semi-perennial. The age limit is not clear. Can be up to tens of years and still produce well. If the ramps are made of concrete as in planting dragon fruit, then the poles must be made before planting. If you don't have funds, then you can use wood or bamboo ropes. Later if it is weathered, it can be replaced or pasted. The important thing is that between the poles that are 2 meters apart, wood, bamboo or a strong rope must be attached. This path will greatly determine the amount of fruit production.

The next fertilization when it is 2 months old. Sow evenly on the planting disc 50 grams of NPK 16-16-16-0.2 fertilizer. Sowing distance of 15 cm from the stem to 40 cm. The next stage of fertilization is every 2 months with the same dose. The sowing distance is widened to a radius of 50 cm. Then every 6 months the application of dry organic fertilizer as much as 3 kg and 50 grams of dolomite. It is also good to add complete micro fertilizers, which are sold in many fertilizer kiosks. Treatment of pests and diseases according to existing symptoms. Just like the treatment for the sacha inch plant seeds that we have described above.

Figure 4. Speaker do activity socialization harvesting plant sacha inch .

Plants usually start flowering at the age of 3-4 months. Starfruit-shaped fruit with 4, 5, 6, 7 or 8 eyes. And the first harvest is at the age of 7-8 months. The fruit is considered old if the outer skin is brown and the bottom of the fruit has cracked.

The fruit is picked and then dried in the sun for 5 days. Then the fruit can be peeled easily. The seeds obtained are then dried in the sun again for 3 to 4 days during the day which are quite hot. After that the seeds can be sold or stored. Or disangan (sangray, roasting) and then eaten. If

you want disangan, seed epidermis do not peel. But directly in the back. Later, when it is cooked, it will be peeled. To make it taste better. Don't forget to provide tea or coffee as a friend. Because the sacha inchi sangan seeds are a bit dragging, hard to swallow.

After the first harvest, the next harvest is about 4-5 months later. Then the sacha inchi plants will flower at random times, so they can be harvested every 20-30 days. One sacha inch plant, which is the first harvest, usually produces 500 grams of seeds per tree. And if it is 3 years old, the yield increases to 2 kilograms. Pruning is done once a year. Leaves that are too dense will make flowers and fruit become few. Cut branches that look weak, small, deformed, and those that point inward. Seeds can also be made SIO oil. How: the seeds are dried in the sun one day in the hot afternoon or baked for 3 hours at a temperature of 60 degrees Celsius. Then directly put into the press machine or extraction machine. The dregs can be used as food ingredients. Or made into animal feed.

The oil obtained can be consumed alone or sold. It can also be added to various recipes. However, usually sacha inchi oil is added and stirred into the dish for about five minutes before the dish is removed. So that the active elements in the form of unsaturated fatty acids, proteins and various very important minerals are not damaged by excessive heat. Thus the tutorial that can be conveyed by the dedication speaker regarding the cultivation and use of sacha is compiled briefly. Because planting sacha inches is not difficult. Just like planting long beans, cucumbers, peas, and the like, which requires support poles, aka poles. The important thing now is to start planting them. And take good care of it. Seven months later already harvest. This plant is also almost not familiar with the term replanting. Its lifespan is almost unlimited. One planting is enough for a lifetime. Sacha inchi plants only die due to external causes, such as pests, disease or flooding

Socialization and training is direct technology transfer activities _ could is known and practiced live by society , with purpose for society increase knowledge , skills and _ have independence so activity Keep going continuously conducted with ok . On moment carry out practice , people seem enthusiastic follow so you can make feed cattle in a manner independent , which is considered Technique manufacture .

1) Necessary materials prepared :

a) Leaf sancha inches already _ dried
b) Straw Rice already _ grind fine
c) Skin fruit sancha inches
d) Fluid sugar aren mixed with coconut water
e) bran is already grind

2) Necessary tools prepared :

a) Tarpaulin
b) Bucket
c) Machete
d) Shovel / tool stirrer
e) Plastic
f) Bag

3) Method of manufacture feed cattle fermentation Straw paddy and forage fresh :

a) Prepare bran that has been grind
b) Mix it up material add (Sugar Red , Water, and Salt) becomes one suitable by the comparison.

c) provide tarp for mixing _ Among Straw with mixture ingredients addition .
d) Straw ready rice _ mashed laid on tarp little by little , then porridge bran that has been provided , then flush aqueous solution (material addition) is appropriate ratio until equally and Straw visible wet .
e) After Straw has flush with _ solution the , Straw entered into the Plastic little by little for packed with sack .
f) Feed ready given to cattle

This socialization activity was carried out in order to encourage the community to continue and continue to carry out activities for making livestock feed independently using simple materials but which have enormous benefits.

Figure 5. Manufacturing Process Feed Cattle

It is hoped that this service activity will continue and be able to make a real contribution to the problems of the community around the campus.

Based on the questionnaire distributed during the training, it can be seen that the community service participants felt that this activity was very useful for them. partly Most of the participants

answered that they were very interested in the training and assistance during the service period. They continued to ask questions and take notes using ATK prepared in the seminar kit. Activity this will help people with their problems natural . As for the resulting impact from activity this is

4. CONCLUSION

Socialization activity was carried out in order to encourage the community to continue and continue to carry out activities for making animal feed independently using simple materials but which have enormous benefits. Activity this very welcomed good by community in the neighborhood campus Unimal . Implementation activity this still on Step drafting report progress , signing work same with partner , as well management publication in online media .

REFERENCES

Cai, Z. 2011. Shade delayed flowering and decreased photosynthesis, growth and yield of Sacha Inchi (Plukenetia Volubis) plants. Industrial Crop Prod, 1235-1237.

Zahara, H. ., Fadli, F., Tambarta, E. ., & Sinta, I. . (2021). IMPROVING WORKING AGE YOUTH ENTREPRENEURS SKILLS WITH PRODUCT QUALITY IMPROVEMENT TRAINING AND CUPPING COFFEE TESTS TO FACE NEW NORMAL CHALLENGES IN NORTH ACEH. IRPITAGE JOURNAL , 2 (1), 7–14.

Mawardati, Jamilah, Emmia Tambarta & Muliana. 2021. Increasing the Economic Capacity of Farmer Households Through the Assistance Program for Business Prospects of Ornamental Plants and Bokashi Plus Fertilizers in Gampong Reuleut Timu, Muara Batu District, North Aceh Regency . Devotion Report. LPPM UNIMAL

Sethuraman, G., Nizar, NMM, Muhamad, FN, Gregory, PJ, Jahanshiri, E., & Ali, SA (2020). Nutrition composition of sacha inchi (Plukenetia volubilis L.). International Journal of Research and Scientific Innovation (IJRSI) , VII (IX), 271–277. www.rsisinternational.org

Souza, AHP de, Gohara, AK, Rodrigues, Â. C., de Souza, NE, Visentainer, JV, & Matsushita, M. (2013). Sacha inchi as a potential source of essential fatty acids and tocopherols: Multivariate study of nut and shell. Acta Scientiarum - Technology , 35 (4), 757–763. https://doi.org/10.4025/actascitechnol.v35i4.19193

Suwanangul, S., Jittrepotch, N., & Ruttarattanamongkol, K. (2021). Effects of Thermal Treatments on Physico-Chemical Properties and Antinutritional Factor Reductions of Sacha Inchi (Plukenetia volubilis L.) Meal. Naresuan University Journal: Science and Technology , 29 (3), 43–55.