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Use of Independent System Animal Feed Lawn Mowing Machine At Sunan Gunungjati Ba'alawi Islamic Boarding School, Gunungpati Semarang

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Abstract

Farmer awareness in Cottage Sunan Gunung Jati Islamic Boarding School Ba'alawi Gunungpati Semarang city for improve quality and income in the group breeder . There are breeders in that environment just make feed cattle in a way traditional without use machine , then create a livestock group to be able to process it quality feed . The technological transformation developed is improve feed quality cattle using manufacturing technology machine enumerator grass . Machine manufacturing technology enumerator grass feed cattle For increase income, How breeder get tool cutter grass in accordance with need feed and energy efficiency . Machine manufacturing enumerator grass is a new innovative technology for downstreaming products resulting from the UNNES team's research. Service Team This much needed to support energy efficiency and upgrades coffee quality . Machine manufacturing technology enumerator grass , able to increase income breeders , improve feed quality and energy efficiency . Machine manufacturing enumerator grass is a new innovative technology for downstreaming products resulting from research by the Community Service team UNNES. During the activity, mentoring and monitoring and evaluation were carried out to measure target achievement.

Keywords: chopping machine, grass, breeder, feed, Islamic boarding school

INTRODUCTION

Sunan Gunung Jati Ba'alawy Islamic Boarding School Semarang is next called PONPES SGJBS, located in Gunungpati Village , Gunungpati District , Semarang City . Islamic boarding school Mount Jati Ba'alawy educate students become memorize Al Qu'aan (Tahfidhul Qur'an). Besides focuses on Al Qur'an Education, Islamic Boarding School This has two formal educations , namely School Intermediate First (Junior High School) and School Intermediate Vocational / Vocational School [1].

PONPES SGJB Gunungpati Semarang has a vocational school with p program skill Crop Production Agribusiness and Livestock Production Agribusiness . Because of that , then PONPES SGJB provides teaching businessman to Students . This matter seen that exists development agribusiness livestock , that is cattle goats and cows . Raising cows and goats is one source of income for the students . Animal feed is a major part of its role in the chain livestock production [2] . Survey results beginning show that feed on livestock, occurs reduction in livestock weight of up to 130-150 grams/cow/day, which depends on the age and sex of the cow. It is very low , if compared to with sufficiency animal feed can experience weight gain body, namely 430-510 grams/head/day [3][4].

Feed which is commonly used in the form of forage. One of the forages used is elephant grass plant. This type of grass has a high nutritional content . Grass It can grow to a height of around 7 meters , has hard and thick stems [5] . A number of study show stems of elephant grass which are suitable as animal feed, have diameter 3 cm and yield cut about 3 kg. Apart from elephant grass , feed from stalks and leaves of corn , straw, king grass , stems and leaves of legumes and other food obtained from the fields [6][7] .

Feeding livestock is usually done at the center SGJB livestock directly, without treatment or touch technology . This type of feeding model reduces efficiency in animal feeding. Serving this food

tends to produce food waste because it is not eaten completely, or falls to the ground [8] .

One way to increase feed efficiency is by chopping feed first. This feeding model makes it easier for animals to eat, so that all feed given to livestock can be consumed and is more easily digested. The small size of the feed is used to make it more efficient, and allows mixing with additions from other feed ingredients [9][10].

Fostered partners who are members of breeders and Islamic boarding schools convey the problems they face. Apart from the problem of improving the quality of feed for livestock, they also do not have the skills to make grass chopping machines for processing livestock feed in the area.

The results of this collaboration (breeders group, Islamic boarding school and UNNES) are expected to improve the economy of breeders around Gunungpati , Semarang City. Collaboration between UNNES, which produces grass chopping machines for feed processing, will produce high quality feed products and avoid low quality feed. In this way, there are breeders around Gunungpati will receive knowledge and technological innovation regarding the latest grass chopping machine products downstream from UNNES.

Based on survey And interview direct towards fostered partners , the problems they face Breeder group can become aspect skills in applying technology machine enumerator grass For processing feed cattle quality tall . The creativity and skills of breeders in the Gunungpati region require technological innovation which must be supported by human resources . Semarang State University which is hosted by the Institute for Research and Community Service (LPPM UNNES) as a facilitator for the downstreaming of research products towards the application of research results, especially technology for making grass chopping machines as a tool for processing feed, in collaboration with livestock groups.

METHOD

Based on problems that exist in the field, as well A joint agreement between the fostered partners and the service team determines the problems to be resolved , including :

1). Machine Manufacturing Enumerator Grass Feed Cattle

The design of an animal feed chopping machine starts from a design that is tailored to the farmer's needs, then a preliminary design is made. After that, it continues with the manufacturing process. This process was carried out in the Mechanical Engineering laboratory, Faculty of Engineering, UNNES. Processes carried out include welding and other fabrication processes. The final result of the grass chopper machine is ready to be tested for its performance.

2). Introduction Machine to Partners

The machines created are then disseminated to partners to introduce and provide information about standard operating and maintenance procedures for the equipment produced. Machine evaluation is also carried out to measure its performance [11-12]. The service activity implementation team also carries out intensive monitoring of each planned activity carried out, to ensure that the implementation of the activity can be carried out according to the plan. Assessments are carried out as part of the monitoring process, so that problems can be corrected immediately. Evaluation is carried out at each stage of the activity, while the evaluation design includes a description of how and when the evaluation will be carried out, criteria, indicators of goal achievement and benchmarks used to explain the success of the activities carried out.

3). Feed Quality Analysis

Forage quality testing includes physical characteristics (shape, color, aroma and texture). Meanwhile, the chemical content of feed includes carbohydrate, fat and protein levels [13].

In accordance with the objectives of the activity, the method that will be used in this community service activity will be implemented in 4 (four) activity stages, namely; (1) Socialization, (2) Competency Improvement, (3) Production or Implementation of Activities, and (4) Monitoring and Evaluation. Variables observed in analyzing food quality are analyzing chemical tests with proximate testing, as well as analyzing the physical form of feed, both color, aroma, and texture, and will do.

RESULTS AND DISCUSSION

Proximate Test Results

Analysis content nutrition through proximate testing consists on water content tests , levels ash

, fat, protein, and carbohydrates . Test results proximate served to in table 1.

Table. 1. Proximate test table

	Water content (%)	Ash Content (%)	Fat (%)	Protein (%)	Carbohydrates (%)
Elephant Grass	80	3.94	2.14	12.51	1.50
	81	3.80	2.17	12.35	1.40
	80	3.75	2.13	12.45	1.35

Water Content Test

Water is component important in feed cattle because water can influence form physique feed nor texture feed cattle . Based on results analysis proximate known the average water content of the sample amounting to 80.3%. Grass water content test results This own high water content . The difference this water level can influenced by time taking sample namely when the volume of rainwater tall . Water content can also be understand the fermentation process moment fresh grass will processed become silage .

Silage is a method of preserving forage for livestock, which can consist of field forage, agricultural waste, plantation waste, or even industrial waste. This preservation process is carried out through anaerobic fermentation with lactic acid, also known as ensilage . The forage is stored fresh with a water content of around 60-70% in a storage structure called a silo (Syofyan and Febrisiantosa . 2007) [14].

Ash Content Test

Ash content is a mixture of inorganic or mineral components found in a processed food ingredient . The ash content of a food ingredient shows the amount of minerals contained in the food ingredient [15]. In testing, the ash content measured is the residue left on samples that have been completely burned in an ashing furnace. Ash content describes the amount of minerals that are not burned into volatile substances. Based on the analysis results, the average ash content was 3.83%.

According to Wahyono and Hardianto [16] the ash content in animal feed that is good for fattening is 8.7%. Apart from that, it is recommended that the ash content in animal feed should not be more than 15%. This is a standard for making good animal feed as an effort to increase livestock growth to the maximum. According to Sudarmadji and Bambang [17], the ash content in feed indicates the mineral content contained in the feed. The higher the ash content, the higher the mineral content. However, because minerals and vitamins are needed by the body in small quantities, the mineral requirements for livestock cannot be too high. Therefore, the value of ash content in feed must be adjusted to the established standards for animal feed requirements [18].

Chemical Test for Fat Content

Based on the fat content test, results were obtained in the range of 2.13-2.17% with an average value of 2.14%. The crude fat content of this animal feed grass is relatively low. Fat is an important component of milk as is protein. Fat functions to provide greater energy than protein or carbohydrates. Calculating the conversion of one gram of fat can provide approximately nine calories. In milk, fat exists as small globules or emulsions in the milk serum [19]. Geographical conditions can also have a big influence on the results of fat concentration analysis . Fat can experience damage caused by chemical processes.

Chemical Test for Protein Content

The results of the analysis carried out showed that the protein content ranged between 12.35-12.51% with an average protein content of 12.43%. Protein is a source of amino acids which contain the elements C and N. Nitrogen (N) is an element that neither fat nor carbohydrates have. Protein molecules contain phosphorus, sulfur and there are types of protein that contain metal elements such as iron and copper [20]. Different protein contents are caused by environmental conditions, as well as different habitats [21].

Chemical Test for Carbohydrate Content

The results of the proximate test regarding the carbohydrate content in grass samples showed a value of 1.35-1.5%, with a median value of 1.42%. Factors that can influence carbohydrate levels are the photosynthesis process. High and low levels of carbohydrates by The difference is also influenced

by the high and low values of other nutritional compositions. Other nutritional compositions in question include fat, protein, fiber, water and ash content. The percentage of water content contained in a material is called. Water content has a very important role in determining the durability of a material because it influences physical properties, physical changes and enzymatic changes .

Physical Test Grass Feed Cattle

Physical test analysis results to grass feed cattle presented in tables 2 and 3. In table 2 it is stated that condition physique grass feed cattle in study This No pregnant mushrooms that have pH levels tending to sour that is with range 3.2-4.5 so in a way smell will emit slight smell sour .

Table. 2. Table feed grass elephant

Criteria	Good very
Mold	No There is
Smell	Sour
pH	3.2 – 4.5

Table 3. Test characteristics physique feed

CRITERIA	CHARACTERISTICS
Form	Fat elongated
Color	Fresh green
Aroma	Distinctive fragrance grass
Texture	A little hairy

As a result of observations through a microscope, it appears that physically it has a fat, elongated shape, with a fresh green color and has a distinctive grassy aroma and a slightly hairy texture. Based on observations regarding the characteristics of grass aroma, 60% chose fragrant aroma (the typical aroma of grass). Based on the panelists' observations regarding the characteristics of grass texture, 70% chose hairy texture.

CONCLUSION

Service program to public Utilization of grass chopping machines for processing high quality feed. Breeders in Gunungpati , Semarang City have good potential as capable business competitive and safe For traded in society wide . The development of feed processing in tropical areas is an effort to maintain and improve the quality and quantity of feed needed by livestock, so that it is always available throughout the year. Feed processing methods such as making hay , silage and feed ammonization are solutions to feed availability in tropical areas. Research related to the application of this feed processing method has been widely carried out and will continue to be improved in the future with the application of technology that involves artificial processing intelligence so that the efficiency and effectiveness of feed use, both in terms of quality and quantity, will be maintained

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