**FARMERS GROUP DEVELOPMENT POTENTIAL THROUGH THE MAKE STRAW COMPOST IN NAGARI LIMA KAUM TANAH DATAR REGENCY**

**WEST SUMATRA**

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**ABSTRACT**

Tanah Datar Regency is the one has population with profession as the farmer, and which one the product is paddy. The farmer has problems to buy fertilizer, the economic background and them financial, and then causes the price of fertilizer so high, the product is limited, it was not support to increasing paddy product from farming area. For full fill the hulled rice necessary more rise day after day so really important to make new innovation to cultivation paddy plant. One of that it must give more value and rise of efficiency in agricultural, one of the solution is using the straw waste as the ingredient. Some method has offered to realization the empowerment program is, training, lecture and practice, such: (1) case study, (2) practice and explanation how to make compost (organic fertilizer) use the straw waste, (3) brains storming/ collection all of idea, opinion, from the farmer, (4) doing discussion between farmer and speaker or the government, (5) lecture all of topic the program about the work flow, plan, to be solution by the farmer, farmer team of the problems.

**Keywords**: C**ompost Fertilizer, Straw, Main Food Productivity**

**INTRODUCTION**

Paddy plant (Oryza sativa L) is the main food crop in Indonesia, with the level of production and consumption of rice always ranks first among other food commodities, which produces rice as the staple food of Indonesian society in general. About 90% of Indonesians use rice as staple food because rice can contribute 40- 80% calories and 45-55% protein. The contribution of rice to fill the nutritional needs is greater in the layers of the population low income (Koswara, 2009).

Tanah Datar regency is one of the Nagaris whose the population work in agricultural sector, one of which is paddy. And Nagaris flatlands become reliable paddy production centers in West Sumatra Province. The data from Central Statistics Agency of Tanah Datar indicates that the average production of rice farming has decreased. If in 2015 the average paddy production of 5.31 tons / ha, in the year 2014 recorded that the average paddy production of 5.43 tons / ha.

The farmers in Nagari Lima Kaum throughout the year continue investing paddy plant. The need urea fertilizer every planting season is 200-250 kg/ha. Paddy produced reached 19,960 tons/year, but the production not be able to full fill all they necessary and markets. They needs the community that is balance with the population grow (Barlian, 1992; Barlian, 1994; Hermon, 2001; Hermon, 2011). Based on results of the survey, paddy productivity in Nagari Lima Kaum, is not as high as productivity from previous years. The decline in paddy productivity is caused by several obstacles such as the increasing population of weeds that grow so balance, the attacks of pests and diseases that are difficult to control and the utilization of fertilizer that has not been empowered. The dependence on urea fertilizer causes the farmers to be mocked by the fertilizer seller. Fertilizer sold at Rp.140.000-150.000 in 50 kg which should be Rp. 80.000-100.000 in 50 kg. Rice farmers can’t afford urea fertilizers. The farmers complain that fertilizer prices are high, rare, and cheap grain prices, but they can’t do anything.to full fill all of the population necessary, it is necessary to seek a breakthrough of aquaculture technology that can provide added value and improve business efficiency.

In addition to growing rice, Farmers in Nagari Lima Kaum also keep cattle and goats as sideline. The numbers of the cows thatare kept 1- 3 and goat 3-4. Some poor farmers in Nagari Lima Kaum utilize cow dung as fertilizer, and most have not utilized it. Low understanding of farmers, they all don’t understand, will other types of fertilizers that can be utilized to increase rice production, it makes farmers always depended to used urea fertilizer, so farmers only defending to use urea fertilizer in the season of fertilization. They are unfamiliar with the type of fertilizer other than urea, because farmers think by using urea fertilizer can improve the productivity of rice. Unwittingly the used of urea fertilizercontinually but it make the soil becomes solid (Barlian, 2000; Barlian, 2010; Barlian, 2017; Prarikeslan *et al*., 2020; Wilis *et al*., 2020; Hermon, 2012; Hermon, 2015; Hermon, 2019). As a result, farmers use continuous inorganic fertilizers and the use of relatively high inorganic fertilizers causes a negative impact on the soilenvironment, and decreases the productivity of agricultural land. Currently another obstacle faced by farmers is the difficulty of getting fertilizer in the market because of the fertilizer that began to be rare.

**METHOD**

The research will be conducted in Nagari Lima Kaum, Tanah Datar Nagari. The Problems encountered in the field is matter of knowledge and the willingness of society in utilizing organic waste that is straw. It is hoped that composting can be done, for that cooperation between the wali Nagari and all of elements in the society, including the leaders of the existing farmer groups. Besides, the team also involves related elements in the local government of Tanah Datar Regency, which is Camat and who asked to conduct counseling and continuous develop. UNP (State University of Padang) devotion team is more directed to the problem of straw utilization in composting as well as direct practice of composting with members of farmer groups.

**RESULTS AND DISCUSSION**

The dynamics of farmer groups are strongly influenced by the roles of group members, in this case the roles of group members in the process of group farming activities in achieving the objectives. There are 3 kinds of roles played by group members:

* Task Role (Task Role)

These roles include the submission of ideas/ideas, information seekers for the group, informers of the group, evaluate, and summarize the various opinions to achieve the goals.

* Role of Maintenance (Maintenance Role)

These roles are, for example, peace resolutions, inviting members to respect differences, encouragement, praise, etc. This attitude seeks to keep the group in harmony so as to achieve group goals.

* The Role of Blocker (Blocking Role)

This role is the farmer group members play with their activities in disrupting, the group in achieving goals such as dominating activities or conversations by displaying their superiority, opponents of people's opinions, rude and brutal, cynical, disrespectful. He attempts to disrupt group activities because of his hidden agenda (Yuwono, 2016).

Farmer groups in service locations still include the role of Task Role. Go ahead hopefully Task Role and Maintenance more dominant than Blocking Role so that group easy to progress and develop. The process to make compost has taken anywhere from three weeks to two months depending on the basic ingredients has used, whether it is easy to break down or not. In general case, composting it doing in shady place that is not exposed to the sun directly and not exposed to rain. In order for optimal fertilizer results, we must do check every week. Checks include temperature checking the moisture, whether dry or too wet, smelly or not, and made the reversal of fertilizer so that the composting process evenly.

Essentially, composting should be done because organic materials can’t be used directly by plants.

* 1. Composting Process

The composting process can be simply divided into two stages, namely the active stage and the maturation stage. The active stage, where the temperature of the compost feed will increase.

* 1. Composting in Two Conditions Composting is done in two

Conditions: oxygen (aerobic) and without oxygen (anaerobes). Aerobic composting occurs where the decomposing bacteria utilize oxygen to decompose. The an-aerop process will produce odorous compounds, such as organic acids.

* 1. Factors Affecting the Composting Process

There are several things to note on the making of compost, among others:

* + 1. Ratio C / N

The effective C / N ratio for the composting process ranges from 30: 1 to 40: 1. If the C / N ratio is too high.

* + 1. Size of Particle

The size of particle also determines the amount of space between materials (porosity). To increase the surface area can be done by reducing the area of the particle.

* + 1. Aeration

The Aeration is determined by the porosity and water content of the material if aeration so late, it will occur anaerobic process that will produce odor.

* + 1. Porosity

The Porosity is the space between the particles in the compost pile. Porosity is calculated by measuring the volume of the cavity divided by the total volume.

* + 1. Humidity

The Humidity plays a very important role in the process of microbial metabolism. If the humidity below 40% of microbial activity will decrease and will be lower again at humidity 15%.

* + 1. Temperature / Temperature

The higher the temperature will be more oxygen and the faster the decomposition process.

* + 1. pH

The optimal pH for the decomposition process ranges from 6.5 to 7.5, it the range quality pH used to composing.

* 1. Composting Process

The composting needs to follow some steps like the one below:

* + 1. Composting Materials

Making yeast compost using some of the necessary ingredients are: fresh rice straw 1 m3 (1m x 1m x 1m), Urea 2 Kg, SP-36 1 Kg, Lime 1 Kg, Fertilizer Sometimes 20 Kg,

EM4 1 Liter.

* + 1. Compost Making Method

The Paddy straw is the most part produced by paddy crops. Paddy straw has C / N 50:70. Rice straw has a cell wall consisting of 39.7% cellulose in dry weight, 25.2% hemicellulose, and 4.8% lignin. In paddy husk contains silica mineral (SiO2) of 23.96% and on the straw contains 4-9% silica.

**CONCLUSION**

 Making compost from straw so they can increase their knowledge, skills and innovation in utilizing and processing rice straw to be used as compost, so farmers no longer depend on the use of an-organic fertilizer. Materials needed for composting, Preparation of straw using some of the necessary ingredients are: fresh rice straw 1 m3 (1m x 1m x 1m), Urea 2 kg, SP-36 kg, Lime 1 kg, Fertilizer Sometimes 20 kg, EM4 1 liter.

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