

Production Efficiency of Corn Shellers in Sidomulyo Village, Kutai Kartanegara, East Kalimantan

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Abstract— Corn farming communities in the Anggana sub-district usually harvest dry corn every 2-3 months, where the harvested dry corn is 45 mm in diameter with a corn weevil diameter of around 3.3 mm. The production of dry corn produced reaches 200-700 kg per harvest. According to the head of the joint farmer group (GAPOKTAN) Kutai Lama Village, Anggana District, in addition to corn ore, the weevil can also be used as a medium for making mushrooms named by the jenggel mushroom farmer group (weevil mushroom), after the jenggel mushroom is harvested, the corn weevil still functions for worm media. Worms are used to feed the livestock of birds, fish, giant prawns, chickens, goats and cows. Livestock waste is used as organic fertilizer in corn plants. Corn is harvested and so on. The problem is that the corn sheller machine that the farmer group uses so far produces corn weevils that are cut or crushed, so they cannot be used as a medium for making jenggel mushrooms and worm media. Finally, to meet the needs of jenggel mushroom making media and worm media, the farmer group chose to use a manual, namely picking by hand. Shelling corn by hand in addition to not being produced also makes the palms thicken because they rub against the surface of the corn kernels. Previously, the Corn Sheller Machine in the Independent Farmer Youth Group of Kutai Lama Village, Anggana District, Samarinda, East Kalimantan was very well received, because according to the chairman of the combined farmer group (GAPOKTAN) together with the deputy chairman of the Independent Farmer Youth of Kutai Lama Village, Anggana District, Samarinda, East Kalimantan said that the results of the shelling process were in accordance with what the farmer group wanted where the corn cheeks were clean and the corn weevils were intact so that can be used as a medium for making jenggel mushrooms and worm media. To see the level of efficiency, it is necessary to calculate the level of efficiency when compared with similar machines sold on the market. With the calculation of the efficiency level, it can be concluded that with the 1 HP machine made, the corn threshing machine has an efficiency level of 1400 and includes a very high level of efficiency

Keywords— Machine, corn sheller, Farmer Group, Kutai Kartanegara.

I. INTRODUCTION

Kutai Lama Village, Anggana District, Samarinda, East Kalimantan has a community that lives as farmers and ranchers. Apart from the rice farmer group, it is also a corn farmer group. Corn farmer groups usually harvest dry corn once every 2-3 months, where the harvested dry corn is 45 mm in diameter with a diameter of 3.3 mm of corn weevils/cobs. The production of dry corn produced reaches 200-700 kg in each harvest. Corn ore and weevil have value, where corn ore can be used as a daily staple food while the weevil can be used as a medium for making mushrooms

named by the farming community of Kutai Lama Village, Anggana District, Samarinda, East Kalimantan jenggel mushroom (weevil mushroom). After the harvest of jenggel mushrooms, corn weevils can still be used as a worm breeding medium. Worms are used as feed for birds, fish, giant prawns, chickens, goats and cows. Furthermore, livestock waste is used as organic fertilizer in corn plants. Corn is harvested and so on in a unified manner. To meet the needs of jenggel mushroom media and furthermore, worm media for the farming community of Kutai Lama Village, Anggana District, Samarinda, East Kalimantan still uses hands.

The increase in agricultural products has given rise to the thought of processing these agricultural products using appropriate technology before the agricultural products are marketed. The goal is none other than to increase the productivity of agricultural products and ease the work of farmers. Because with the right technology in the proper processing of agricultural products, high quality agricultural products will be obtained so that they can provide significant added value to farmers. The corn sheller machine used by the Independent Peasant Youth Group of Kutai Lama Village, Anggana District, Samarinda, East Kalimantan is as shown below.

II. METHOD

The method carried out in this study is the calculation of production efficiency. As explained in <https://aksaragama.com> that production efficiency e is the point at which production reaches full capacity. At this point, it uses all the resources, and cannot produce more products without giving up the production of other products.

This means that this point is the most efficient level of production, and can allow producing goods at the lowest cost. Therefore, production efficiency is important to understand in order to make the best decisions for the company.

The production efficiency formula is a simple formula that can be used to calculate production efficiency based on data. The production efficiency formula is:

Production efficiency = (actual output rate / standard output rate) x 100%

The formula means that the production efficiency is equal to the actual output rate divided by the standard output rate multiplied by 100%. To use the production efficiency formula, it is necessary to know two important factors:

1. Actual output rate: The actual output level of a business is the actual cost divided by the actual output. Basically, the

actual output rate describes the output that actually happened.

- Standard output rate: A standard output rate of a business is the work produced per specified unit of time. The standard output rate describes the output that can occur, in contrast to the actual output rate, which describes the output that actually occurred.

III. RESULT AND DISCUSSION



The corn sheller machine

The ability of the corn sheller machine that has been made for Sidomulyo Village, Kutai Kartanegara Regency, East Kalimantan is calculated as follows:

Experiment -	Threshing mass per 2 corns with 2 threshing machines (kg/h)	Threshing mass per 2 corns with 1 threshing machine (kg/h)	Mass of threshing yield per 2 corns by hand (kg / h)
1	788,4	349,2	13,03
2	838,0	419,04	17,34
3	886,26	443,13	17,46
4	896,8	448,4	18,82
5	930,14	465,7	19,15
6	946,52	473,26	19,78
7	971,52	485,76	22,73
Average	881,82	440,64	18,33

From the table, it can be concluded that the ability of a corn sheller machine that has been made with a power of 1 HP is

440 kg / hour. Machine production efficiency is calculated by calculating the machine efficiency level as follows:

$$\text{Production efficiency} = (\text{actual output rate} / \text{standard output rate}) \times 100\%$$

- Actual output level: The actual output level on this machine is used engine capability figure which is 440 kg / hour
- Standard output level: The standard output rate is used to assess the capabilities of similar machines that are already sold in the market. In this calculation, the ability of the corn sheller machine sold on the website www.rumah machine with the same power as the power of the corn sheller machine made is 1 HP. Where in the specifications it is written that the production capacity is 20-30 kg / hour.

From the data above, it can be calculated the production efficiency of the corn sheller machine that has been made as follows:

$$\begin{aligned} \text{Production efficiency} &= (440 / 30) \times 100\% \\ &= 1.467 \end{aligned}$$

From the calculation results with a production efficiency level of 1,467, it shows that the corn sheller machine that has been made has a very high level of efficiency.

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