DETERMINATION OF BREAK-EVEN POINT BY USING ABC METHOD ON AGRICULTURAL COMMODITIES (TOBACCO) IN MADURA

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ABSTRACT

This study aims to determine the BEP of Maduranesse tobacco by using an activity-based costing method (ABC). The present research is qualitative research with a descriptive approach using primary based on the expenditure of production factors by farmers. The result pointed out the expenditure until harvest is equivalent to the cost from harvest to sold out, so by using ABC, production cost that is a baseline to determine BEP will be decreased by efficiency in cost, eliminating several activities, and timing to plant before dry seasons.

Keywords: Cost of good sale; tobacco; Madura; activity-based costing

ABSTRAK

Penelitian ini bertujuan untuk mengetahui Harga BEP komoditas tembakau Madura berdasarkan activity based costing (ABC). Jenis penelitian adalah penelitian kualitatif dengan pendekatan deskriptif dengan menggunakan data primer berdasarkan pengorbanan faktor produksi yang dimiliki petani. Hasil penelitian menunjukkan biaya yang dikorbankan petani sampai siap panen bahwa biaya sampai panen dilakukan itu hampir sama dengan biaya mulai panen hingga pasca panen, sehingga dengan menggunaka ABC, biaya produksi yang menjadi dasar penentuan BEP bisa ditekan dengan melakukan efisiensi biaya, menghilangkan beberapa aktivitas, dan waktu penanaman pada saat menjelang musim kemarau.

Kata Kunci : *Harga Pokok Produksi; Tembakau; Madura; Activity Based Costing*
JEL Classification: *Q110; M41*

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INTRODUCTION

The selling price of the farmers to the tobacco warehouse in 2017 is IDR 28.000,- to IDR 50.000,- (Rosy, 2017). Whereas, based on the government of Pamekasan Regency through the Department of Industry and Trade of the break event point (BEP) is about IDR 36.978,-/kg with the assumption without a lease of land dan be IDR 42.513,-/kg with the lease of land (Azis, 2017). The tobacco market price is below from the expected price of farmers, so the examination to determine of cost of sale of a commodity with a more accurate method is necessary. The cost of the sale of commodities will help the parties to appreciate the expenditure of economics resources by farmers appropriately.

One of the methods used to determine the cost of production is the Activity Based Costing (ABC) method, by identifying the cost of production based on activities carried out to produce a product. This method can be used not only for manufacturing, but also for services and even for the agriculture sector (González & Morini, 2009; Koutouzidou, Vazakidis, Theodoridis, & Batzios, 2015; Dwivedi & Chakraborty, 2014). Furthermore, in international accounting standards, the cost of production of agricultural products is determined based on fair value (Sedláček, 2018).

Tobacco is the primary commodity of the Madurese community except for salt, whose cultivation was started in the 19th century, initiated by the Sumenep kings in collaboration with Dutch businessman and has become local knowledge for the Madurese community (Hefni, 2008). Even Madura has its local variety, namely prancak. Madura tobacco production is 24,48% of 58% of the total national tobacco production (Hasan & Darwanto, 2013). This tremendous potential has not been able to improve farmers' welfare because farmers are in the lowest chain in determining the price of tobacco (Hasan & Darwanto, 2013). It happens because the local businessman of tobacco in Madura was involved in a social contract with the tauke (Chinese warehouse owner) and Bandol (local tobacco collector) (Zamroni, 2007). On the other hand, the equilibrium of demand and supply, quality and quota of production are problems among farmers, government and factory (Andri, Santosa, & Arifin, 2011) The suitability of the land for tobacco cultivation, the appropriate land area is 51,971 ha or equivalent to 11,4% of the total land area in Madura, and highly appropriate is 8,749 ha or equivalent to 1,9% of the total land area in Madura (Z.M, Farid, Amzeri, & Hasan, 2010).

There is much research on tobacco. Fauziyah, Hartoyo, Kusnadi, & Kuntjoro (2010) have a study on the productivity analysis of tobacco farming in Pamekasan that pointed out factors that could affect farmers increase productivity, as labor, fertilizer, pesticides, and land area. Similarly, Hasan & Darwanto (2013) explained the importance of zoning tobacco planting areas and tobacco replacement plants. Rachmat & Aldillah (2010) found the farmers' strategies to avoid anti-smoking policies that consisted of intensification strategies for large land farmers, whereas small and medium land farmers use intercropping strategies.

Ningsih (2017) found a decrease in farmer's production and income caused by climate change. Santoso (2004) shows the broker's role (Bandol) in the Madura tobacco trading system. Even since the 1980s, the government did not set limits on land areas, quality standards, and prices that were prepared without regard to the local community's socio-cultural conditions. Hartono (2016), Hartono (2011), Hartono (2013), Hartono (1999), Rachman & Suwarso (2016) show the differences in the efficiency of cropping patterns twice and once harvest of tobacco in Madura. Besides, the process of pruning and spraying to produce tobacco with lower nicotine, because at this time, there is more demand for lighter cigarettes.

The present study also classifies activities carried out by farmers who become cost centers that will affect tobacco's cost production. This study measures the determination of the cost of production of agricultural commodities (tobacco) in which can be used as a baseline to determine BEP by using the ABC method. This study's results are expected to help determine the cost of sale of the commodity, which can further assist farmers in determining the selling price of their agricultural commodities at a price that contains margins that will later improve the welfare of the community. This research could be considered in determining the BEP of tobacco prices in each tobacco-producing district in Madura. This research can also identify activities that can be eliminated in the context of cost efficiency that needs to be expenditures in producing tobacco products.

METHOD

This research is qualitative research with a descriptive approach, which is carried out by measuring the costs of production of tobacco commodities in three agroecosystems (wetland, dry land, and upland) in three tobacco commodity-producing districts by forming data clustering by following per under the similarity of the treatment of tobacco planting process. The research process will be carried out by referring to the components and concepts of qualitative research delivered by Sugiyono (2013), as in Figure 1.

The study population was tobacco farmers in three agroecosystems in 3 tobacco-producing districts in Madura. The sampling technique was accidental sampling, where the sample taken were those that were encountered at the time of data collection, while still considering the agro-clustering of tobacco ecosystem. Data collection was carried out by interviewing tobacco farmers in three tobacco agroecosystems (wetlands, drylands, and uplands) (Fauziyah et al., 2010; Rachman & Suwarso, 2016; Verona & Tiortosuprobo, 2016). However, before collecting the data process, farmers' characteristics by their treatment of producing tobacco in three agroecosystems in three districts in Madura had been grouped.

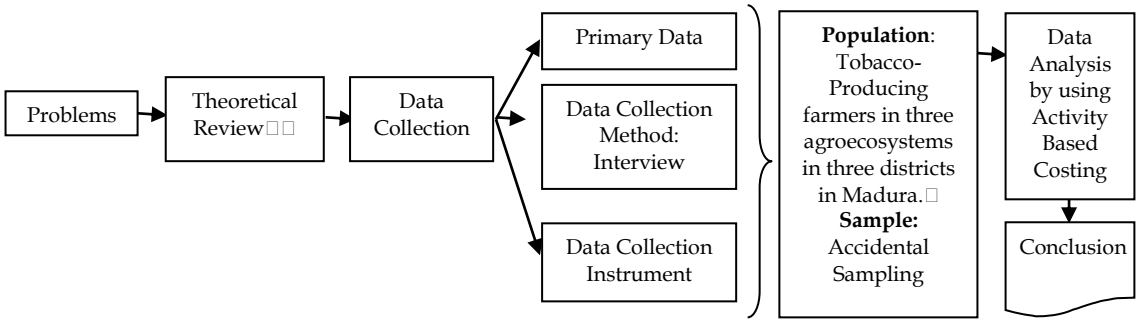

Figure 1. Research Flow Chart

The data measurement instruments needed are activities that arise in producing tobacco commodities, the intensity of activities as a cost center in producing tobacco commodities, and the unit to measure each activity as a cost center to produce tobacco commodities. The data is then analyzed by calculating the cost of production using the activity-based costing (ABC) method.

The cost measurement is by considering that farmers' expenditure of production factors are land, labor, capital, and skills. Each factor of production is taken into account the returns that farmers must obtain are rent, wages, interest, and profits. Cost identifying is also at the unit level, product level, and facility level.

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RESULT AND DISCUSSION

A preliminary survey in three tobacco-producing regencies in Madura, Pamekasan, Sampang, and Sumenep was found that the agroecosystem conditions for tobacco plants are various. The agroecosystem of agricultural land in Madura can be well identified in the rainy season because, at the time, it will be easy to find land that is easy to get water, and that is difficult to get water, and also will easily found in muddy, sandy, and rocky soils. It will be different by using Kholilurrahman (2010) criteria, which states that the type I (the southern coast region of Madura island), the type II (the hilly region of the central part of Madura island), the type III (the central part of the hills extending from west to east), and the last the type IV (the northern coastal region of Madura island). The land cand also identified based on land elevation above sea level, tobacco from the upland area and lowland area (Hartono, 2016).

The land in the southern part of Madura, precisely in Sampang Regency, is a coastal area similar to the wetland during the rainy season, but will be different during the dry season, where the soil becomes dry and very difficult to cultivate. Then the dry land agroecosystem, a flat agricultural field like a wetland, is just rain-fed and only relies on irrigation that can be given limited in the rainy season. However, due to many wells, both boreholes and conventional wells owned by residents, there have been many water reservoirs found that make it easier for residents to water their tobacco. Water storage ponds for watering will also be easily found in the upland agroecosystem, both in Sampang, Pamekasan and Sumenep districts.

As in the central part of the Madura mountain range extending from west to east, the mountain tobacco, as stated by Kholilurrahman (2010) in Pamekasan Regency, can be found in the Pasean and Waru areas, then in the Sumenep Regency in Pasongsongan, Rubaru and Ganding areas. Those areas have condition lack of water during the dry season, even the effort to procure bore wells is not always successful. Many people in those areas make large water reservoirs to irrigate their tobacco plants, and even this area does not have high tobacco and broadleaf due to water shortages. The number of leaves in one tobacco tree is only in the range of 15 sheets with leaves that are not too large. On the other hand, the land with hilly contours and in small plots will require investment expenditure for piping equipment so that water can reach the residents' lands. The number of trees that grow around the land also makes tobacco plants do not grow evenly on all land planted with tobacco.

Another interesting in Ganding and Guluk-Guluk areas is in mountainous area categories that have very abundant water availability, although adequate irrigation channels do not accompany them. Furthermore, the land tends to be flat and sloping, and in some areas are not many trees grow around tobacco planting land, making tobacco in those areas are growing well. It is found there are many water reservoirs in tobacco growing areas for watering, although, in size, it is not too large. The quality us almost as same as in the pakong area of Pamekasan Regency. Even in this area, there is a warehouse to purchase tobacco for Gudang Garam, Ltd Kediri, one of Indonesia's most giant cigarette factories.

Data collection was carried out by identifying the farmer activities in Madura to produce tobacco for the first. Production activities expenditure by farmers as Rachman et al. (1999), Hartono (2016), Hartono (2011), also mostly carried out by farmers, but there has been adjustment by farmers make efficiency in jobs and cost as an effort to compensate for inappropriate market prices in the hope of farmers.

Figure 2. Wetland tobacco

Figure 3. Dryland tobacco

Figure 4. Upland tobacco

Farmers in Madura's procurement of tobacco seeds is by buying from seed farmers because of the land under control by farmers in on average 0,25 ha (Rachman et al., 1999). The seed chosen by farmers will affect the cost of producing tobacco and the quality and quantity of the harvest of tobacco obtained by farmers. The naming of this type of seed in Madura is known as *jhepon.* The types of tobacco seeds commonly provided by seed farmers in 2019, as the result of interviews with Mr. Rudi, Irfan and Mudhari, are *Malateh tompang*, Bojonegoro, *Mores, Bukabu, Cangkreng, Prancak, Serompong,* and *Super.* The Seedling that is excellent in the 2019 season is *malateh tompang*. The cost center to procure seeds by farmers is purchasing seeds, transportation costs, and consumption costs.

Farmers do farming because tobacco is a unique plant that cannot get too much water and lacks water. At the beginning of planting, tobacco plants require adequate water because this will accelerate their growth and help absorb the fertilizer nutrients given to plants. However, tobacco's quality will be determined by the absence of tobacco by rain at least one month before harvest, as Rachman et al., 1999; Ridhawati et al, 2018. The processing of plants in the field consists of land management, planting, watering, weeding 1 (*pendangiran*), weeding 2 (*pembubunan*), fertilizing, pruning 1 (*pemangkasan*) and pruning 2 (*penyirungan*), pest and disease controlling. The plant processing in the fields is carried out by land management, rolling, making planting holes, water supply, planting, weeding, fertilizing, and pruning.

Land management begins with preparing the land that will be used as tobacco cultivation. The costs necessary between agroecosystems have differences. It is due to the unequal crop planted by farmers before tobacco. The unequal land preparation period will also affect, so farmers in Madura grow tobacco on average mid-May, where

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the soil conditions still tend to be wet. The land should also be taken into account in the form of the return of it in the form of rent, as with most wetland and profit sharing for dry land and upland, while land clearing costs are needed in the dry land and upland agroecosystem. The cost center of land clearing is labor costs and consumption costs. However, if it is too late to cultivate the land, then there is an additional cost to irrigate the land to be tilled.

The next land cultivation is rolling, which does not need to be done on upland and dry land, because it is only sufficient with the hijacking process that requires hijack equipment rent and consumption costs. However, on wetland still need rolling. This process, known by two systems, namely conventional and the second process, is by first flooding the land with water (*Ngeba*'), which requires land irrigation costs.

After the rolling is ready, the farmer's next step is to make a planting hole (*coklak*). It happens in all tobacco agroecosystems in Madura. The calculation of the costs to make *coklak* for land with an area of ± 3,000 tobacco units requires labor and consumption costs. After the planting hole is finished, the next step is to fill the hole with fertilizer. This activity only occurs in the agroecosystem of dry land and upland. The calculation of the cost of this fertilizing activity for the planting hole for land with an area of ± 3,000 tobacco units requires labor costs, the cost to purchase fertilizer, transportation costs, and consumption costs.

After the land is ready for planting, the next process is the provision of water for watering, which starts with the provision of water pools for watering and in some areas by making infiltration wells. There is a difference in costs between dryland, wetland, and upland in making water storage ponds, while the costs required are labor costs, the cost of plastic, and consumption costs, while in the wetland, there is no plastic base needed. After the water holding ponds have been completed in dry land and upland need to be made for the initial watering and filling channels for water holding ponds, the costs center are labor costs, equipment costs, and consumption costs.

After all of the necessary planting tobacco is ready, the next process is a planting process that requires labor and consumption costs. The next activity is watering, where the watering will depend on the age of the plant after the planting period and the condition of the agroecosystems, and the availability of water for watering, because even though tobacco is a plant that does not need excess water, to increase the quality and productivity, water is still needed. The cost center is the cost of labor and water and the equipment necessary.

The intensity of watering between the three existing agroecosystems is different. Wetland only needs to be watered twice at the age of plants 1-20 DAP (days after planting) and only seven times in the age range of plants 21-40 DAP that is at the time of fertilization, while dry land is watered every day until the age of the plant is 50 DAP. The agroecosystem of the upland is only the first week watered every day, while the next is only a day in between. In upland areas, the intensity and quantity of watering are caused by inadequate water availability. Watering techniques using technology can cut the use of labor. Watering will affect the quality of tobacco produced.

The next stage of the process of producing tobacco is weeding, which should ideally be carried out three times, but usually, there are adjustments to treatment between wetlands, drylands, and uplands. The wedding is a process of hoeing the middle of the tobacco rolling so that the soil between the tobacco sidelines is hollow again and can facilitate the rooting of tobacco. It will also make the land in tobacco

rolling, which has begun to harden, become the beginning of planting. In the wetland, where the mounds will be hard and difficult to re-hoe, the herbicide is not separately done. The weeding process is done at the same time as the herbicide process. After the weeding process is completed, the rolling process is carried out by taking the land between the tobacco rolling to be raised and added to the tobacco rolling. Meanwhile, on wetland agroecosystem that is not carried out land treatment before the planting process does not require separate weeding, herbicide, and weeding two processes. The details of the costs are labor costs and consumption costs.

The next process is fertilization, which is the process of applying fertilizers of types and quantities are different between agroecosystems or even between farmers. The types of fertilizer given are Urea, ZA, and NPK fertilizers. Giving the combination of fertilizers is sometimes the secret formula of each farmer, because mistakenly in giving fertilizer will only look good on trees as fresh tobacco and will be challenging to ripen when fermented. The costs required are material, transportation costs, and labor costs. The fertilizer mix in each region may not be the same, as Rachman et al. (1999), Sholeh, Rochman, & Djajadi (2016).

After all of the processes, it will be an indicator that the tobacco is ready to be harvested, and then to accelerate the maturation of leaves, a pruning process is carried out by removing the tobacco stem flower stalks. After the pruning process is carried out, usually the leaf shoots will emerge, and to maintain the aim of producing good quality tobacco leaves can still be obtained, it is necessary to do the pruning 2 (*penyirungan*). The cost of pruning and pruning 2 are labor and consumption costs and pest control, which is usually done by spraying pesticides or insecticides, but there are times when by removing the caterpillars manually.

After the process of processing plants in the field is completed and the tobacco is ready to be harvested, the harvesting process is done by picking tobacco leaves ripe enough. Farmers in Madura usually do the harvesting process in two to three times. Farmers in the wetland agroecosystem will harvest twice. This is based on the characteristics of wetland tobacco that does not quickly dry out in the waiting period until the tobacco is ripe enough to be harvested. However, it is different from farmers in dry land and upland agroecosystems who usually harvest their tobacco up to 3 times. It is done to reduce the draining of the lowest level leaves so they do not become more dry leaves (*krosok*) while waiting for the harvest to be ready for the leaves above. After the leaves are harvested, ripening is done to make the leaves mature correctly, but before the ripening process, the leaves' arrangement is made so that it is accessible at the time of chopping. The costs of harvesting and curing are labor costs, equipment costs, transportation costs, and consumption costs.

After the tobacco leaf has gone through the ripening process, the next is processing the results, which begins with a leaf rolling process that requires labor and consumption costs. After that is chopping, there are two techniques used in chopping: using machines or using traditional tools (Rachman & Suwarso, 2016; Hartono, 1999; Hartono, 2016; Rachman et al., 1999; Ridhawati et al, 2018). If the chopper process by using a machine, then there will be savings of labor. If you use a machine, the cost of leaf rolling can also be eliminated because it is enough to arrange leaves before the curing process. After being chopped, the wet shredded clay is arranged in a widig and then dried and reversed to facilitate the drying process. After completely dry, then the packaging is done by using palm leaves. This packaging process must be done quickly, as soon as the tobacco is no longer hard. Because if it is too soft, it will affect the quality of the tobacco produced, and of course, it will add to the costs that must be expenditures.

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After the process of producing tobacco has been carried out by producing dried shredded tobacco which has been wrapped using palm leaves, which also supports the findings of Ridhawati et al (2018), Rachman et al. (1999), Rahman & Widodo (2015), Hartono (2016), Hartono (2011), Hartono (2013). The farmer then sells the harvest to the buyer, which is classified by Hasan & Darwanto (2013) as follows: (a) tobacco collectors/ bound agent (*Bandol*); (b) Free agent; (c) Branches (skipper); and (d) Factory warehouses. *Bandol*'s sale is the most likely sale by farmers because *Bandol* will operate in search of tobacco by door to door. Farmers who sell to *Bandol* do not need to bring their goods to the warehouses (skipper), which are branches of the factory warehouse or even to the factory warehouse, so there is no need to pay transportation costs to bring the goods to the warehouse directly. Farmers who sell their harvests to the Bandol must pay a sales fee of 10% of the tobacco produced and tobacco samples' gross weight that can reach 1 to 2 kilograms.

According to the ABC method, all costs to produce tobacco in determining the cost of production include in the category of result producing activities. The next cost that can be calculated is determining support activities, which in this case is calculating the cost of funds that should also be sacrificed during the 2,5 - 3 months of the tobacco planting process. The cost of these funds should also be calculated as an effort to provide feedback (return) on the use of capital production factors owned by farmers. Farmers usually use their capital or use capital from the informal financial sector (Fauziyah, 2010).

The equivalence rate used to calculate the cost of funds used by farmers is the assumption of the cost of funds that must be paid to *Baitul Maal Wat Tamwil* (BMT) as a microfinance institution is easily accessible to the community. The cost of funds for financing provided by BMT is 2,5% per month, presented in the form of *Ujroh* (capital lease fee). Then, the period time as a measurement of payment of the cost of funds that farmers must do is the number of days starting from the funds that should be used until the time the tobacco products are sold. The framework for calculating the cost of these funds is the period time for using the funds. The earlier the funds are used, the longer the period time. The period time is accumulated in units of months. The amount of capital rent will be more significant if farmers make loans to money lenders.

If the result-producing activities of each agroecosystem are compared as in table 1, the information will be obtained that drylands have a relatively higher cost compared to uplands and wetlands. The high costs incurred by farmers in the tobacco production process are due to the costs of watering and its installation because dry land must be sought to be watered up to two months to get maximum tobacco yields. Tobacco on wetlands is only sufficient to be watered when providing fertilizer and the process of dissolving fertilizer given to tobacco plants. Tobacco on the dry land and upland agroecosystems is late to be tilled, and there is no aftershock rain as in 2019, there are additional costs that must be expenditures by farmers to irrigate the land before it is plowed and the hijack costs become more expensive. The difference in cost that must be expenditures can reach IDR 342.500,- for land with an area that can be planted with ± 3.000 tobacco units. Based on this information, then the cost of result-producing dry land activities becomes IDR 7.013.075,- and upland becomes IDR 6.593.075,-.

As for the comparison of the cost of planting until ready to harvest, the wetlands are indeed almost the same. Costs that were expenditures starting from the planting process to ready for harvest for tobacco in the wetlands were 49,22%, which amounted to IDR 2.870.500,- of the total as IDR 5.832.500,-, while the rest were costs to be

expenditures from harvest to post-harvest. At the same time, the percentage of costs for dryland that must be expenditures from planting to harvest is 62,45%, which amounted to IDR 4.166.075,- of the total IDR 6.670.575,- while the rest is the cost of harvesting until post-harvest. The costs to be expenditures from the process of planting to harvesting on upland is 59,93%, which is IDR 3.746.075,- of the total IDR 6.250.575,- while the rest is for the process of harvesting until post-harvest.

The cost of planting that expenditures by farmers from the process of planting to the harvest are activities consisting of the costs of procuring seeds, land rent, land clearing, land plowing, rolling, making hoe (*coklak*), giving fertilizer in *coklak*, making water storage pool, installation of channels water, planting, watering, weeding 1, weeding 2, fertilizing, pruning 1, pruning 2, and pest control. At the time of late planting for one month or more, the costs incurred for the planting process on dry land are 64,29%, because additional costs must be incurred to irrigate the land before processing, whereas on an upland, the cost is 62,01%. The harvest cost is indeed a large enough cost to be incurred by the farmer because within two weeks, must successively spend money on harvesting needs until after harvest. While planting until ready for harvest, the only costs that need to be sacrificed are the costs of the farmers' production factors.

In agriculture carried out by farmers, with the land that is not so large, there are no separate parts that take care of the production parts. All production is done by the farmers themselves, so all the costs will be managed and carried out by them. Production activities are carried out without the parts in it, and then there is no element of the cost result contributing activities. The elements that need to be taken in analyzing the Break Event Point (BEP) of tobacco produced by farmers with the ABC approach, only combine the two costs, namely the costs of producing and supporting activities, amounting to IDR 33.658,23, IDR 77.420,46, and IDR 72.676,02 respectively for wet, dry, and uplands assuming a total production of 180 kg for wetland and 90 kg for dry land and upland. If the tobacco is sold in fresh leaf, it will result in BEP for each tobacco tree of IDR 1.019,82, IDR 1.477,35, and IDR 1.355,- for rice, dry, and uplands, respectively. If planting is delayed for one month from the standard security period, it will also increase the BEP for dryland and upland, which will be IDR 81.226,02 and IDR 76.481,57, while for fresh tobacco, it becomes IDR 1.591,51 and IDR 1.449,18.

As for activities that can be reduced to reduce the cost of tobacco, commodity production costs is the cost of making a planting hole (*coklak*) by merely making a planting sign to keep it straight. The next process is the cost of labor for watering by irrigating agricultural land to flooding, the labor for a watering can be done every 4-5 days, and the cost of weeding one and weeding 2 (*pembubunan*), these two activities can be done at the same time as weeding. The costs that can be saved in the harvest and post-harvest activities are the costs of rolling, the cost of rolling is no longer needed if the chopping process has used a chopper machine.

This activity's adjustment will also affect BEP calculation on tobacco production, IDR 33.658,23, IDR 58.423,03, and IDR 58.345,25, respectively, for wetlands drylands, and uplands. If the tobacco is sold in fresh tobacco leaves, it will produce a BEP for each tobacco tree of IDR 1.019,82, IDR 1.059,30, and IDR 1.056,97 for wetlands, drylands, and uplands, respectively. If the expenditure of labor, land, production factors, and other resources is ignored, the elimination of the costs for some activities is carried out, because according to the customs of the community, the abolished works are carried out by the farmers themselves and do not require wages to be paid.

Farmers themselves usually do the activity that can be erased in making planting holes (*coklak*). The cooperation system in the process can also minimize planting costs.

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Watering is a process carried out privately by farmers without involving other parties. Making water storage ponds for watering is usually done privately, or even social gathering work with other farmers. The rolling indeed sometimes not done. Pruning one and pruning two that is done when free. Rolling, lately not done, because it has been using a machine.

Table 1. Total cost production of tobacco based on Result-Producing Activities

No	The type of activities	Activities Category	Wet Lands (IDR)	Dry Lands (IDR)	Uplands (IDR)
1	Cost of procuring seeds	Product Level/ Unit level	105.000,-	105.000,-	105.000,-
2	Field rent	Facility Level	500.000,-	450.000,-	450.000,-
3	Cost of field clearing	Product Level		62.500,-	62.500,-
4	Cost of field hijack	Product Level		195.000,-	195.000,-
5	Cost of rolling in wetland	Product Level	600.000,-		
6	Cost of rolling in in rice field by *bak* system	Product Level	100.000,-		
7	Cost of planting hole (*coklak*)	Product Level	240.000,-	240.000,-	240.000,-
8	Cost of fertilizing in planting hole (*Coklak*)	Product Level		214.000,-	214.000,-
9	Cost of water storage pound	Product Level	65.000,-	97.000,-	97.000,-
10	Cost of watering channeling	Facility level		248.000,-	248.000,-
11	Cost of planting	Product Level	70.000,-	70.000,-	70.000,-
12	Cost of labor for watering	Product Level	180.000,-	1.040.000,-	620.000,-
	Cost of initial filling of the watering pound	Product Level		329.075,-	329.075,-
13	Cost of weeding	Product Level		105.000,-	105.000,-
	Cost of herbicide	Product Level	156.000,-	156.000,-	156.000,-
	Cost of re-rolling	Product Level	210.000,-	210.000,-	210.000,-
14	Cost of fertilizing	Product Level	160.000,-	160.000,-	160.000,-
15	Cost of pruning 1	Product Level	102.500,-	102.500,-	102.500,-
	Cost of pruning 2	Product Level	307.500,-	307.500,-	307.500,-
16	Cost of pest control	Product Level	74.500,-	74.500,-	74.500,-
17	Cost of harvesting	Product Level	285.000,-	285.000,-	285.000,-
	Cost of curing	Product Level	25.000,-	25.000,-	25.000,-
18	Cost of rolling of tobacco leaves	Product Level	450.000,-	450.000,-	450.000,-
	Cost of chopping	Product Level	410.000,-	410.000,-	410.000,-
	Cost of structuring in *widig*	Product Level	650.000,-	650.000,-	650.000,-
	Cost of drying	Product Level	7.000,-	7.000,-	7.000,-
	Cost of reversal of tobacco drying	Product Level	40.000,-	40.000,-	40.000,-
	Cost of packaging	Product Level	555.000,-	277.500,-	277.500,-
19	Cost of post-harvest	Unit level	540.000,-	360.000,-	360.000,-
The total cost of result producing activities			5.832.500,-	6.670.575,-	6.250.575,-

The BEP calculation will also be different if it only calculates capital production factors, IDR 23.725,-, IDR 38.067,50, and IDR 38.067,50, respectively for wetland, dryland, and upland. If the tobacco is sold in fresh tobacco trees, it will produce a BEP

for each tobacco tree of IDR 610,16, IDR 526.025,-, and IDR 526.025,- for wetland, dryland, and up-land, respectively.

Based on the pattern of cost production, several factors of production used by farmers to produce will be different amounts of production costs. If all production factors are calculated, it will produce relatively high costs of production and will undoubtedly increase the value of the BEP. However, if only using capital production factors, it will produce production costs as stipulated by the government as a standard basis minimum purchases made by warehouses or cigarette factories. In real conditions, tobacco's purchase price is also still determined by the law of supply and demand. The BEP in units per kilogram of dried shredded tobacco is still determined by the quantity of production that still needs to be increased by farmers by not reducing its quality, and even the use of technology must also be increased.

CONCLUSION

The results of the study pointed out that the determination of the value of tobacco BEP by related parties was only based on the use of capital production factors, which were expenditures by farmers, while other factors of production were ignored. Suppose all the factors of production are calculated. In that case, the farmer will not be disadvantaged, although to reduce the level of production costs that must be carried out by farmers, there are still activities that can be eliminated by an engineering activity that includes the cost of making planting hole (*coklak*), labor costs for watering, weeding costs, rolling costs, and the cost of re-rolling. These costs can be eliminated by utilizing technology that can replace its function, and for that, it needs investment to be made by farmers.

Another thing that farmers can do to reduce risk is to sell tobacco in the form of fresh tobacco trees. This method can reduce the cost of harvesting, and post-harvest production is quite large. The BEP itself is still measured based on community habits, not using experimental gardens, which can be directed engineering activities and expected quality observations. Another thing that is the limitation of this research, including the tobacco planting time, which only occurs in May to September and most recently is October causing unequal costs when the dry season comes earlier. Further research needs to be done using experimental gardens where quality and quantity standards can be established to minimize the risk of BEP determination that tends to change according to conditions.

REFERENCES

Andri, K. B., Santosa, P., & Arifin, Z. (2011). An Empirical Study of Supply Chain and Intensification Program on Madura Tobacco Industry in East Java. *International Journal of Agricultural Research*, *6*(1), 58–66. https://doi.org/10.3923/ijar.2011.58.66

Azis, A. (2017). bep-tembakau-madura-2017-rp36978-per-kilogram. *Antara News*. Retrieved from https://jatim.antaranews.com/lihat/berita/197499/bep-tembakau-madura-2017-rp36978-per-kilogram

Dwivedi, R., & Chakraborty, S. (2014). An activity-based costing model for a food processing industry. *International Journal of Innovative Research and Development*, *3*(12), 121–124. Retrieved from http://www.ijird.com

Fauziyah, E. (2010). Pengembangan Sistem Pertanian Pada Daerah Sentra Produksi Tembakau Di Kabupaten Pamekasan (Reorientasi Pendayagunaan Sumberdaya Pertanian Dan Antisipasi Merosotnya Industri Rokok). *Embryo*, *7*(2), 117–129. https://doi.org/0216-0188

Fauziyah, E., Hartoyo, S., Kusnadi, N., & Kuntjoro, S. U. (2010). Analisis produktivitas

usahatani tembakau di kabupaten pamekasan. *Jurnal Organisasi Dan Manajemen*, *6*(2), 119–131.

González, J. I. G., & Morini, S. (2009). A model for cost calculation and management in a multiproduct agricultural framework. The case for ornamental plants. *Spanish Journal of Agricultural Research*, *7*(1), 12–23. https://doi.org/10.5424/sjar/2009071-394

Hartono, J. (1999). Cara Panen dan Pengolahan Tembakau Rajangan Madura. In *Monograf Balittas* (pp. 60–67).

Hartono, J. (2011). Teknik Pemangkasan , Panen , Blending Dan Desain Rokok. *Perspektif*, *10*(1), 33–43.

Hartono, J. (2013). Variasi dan Perbaikan Cara Pengolahan Berbagai Tipe Tembakau Rajangan Berbagai Wilayah Penghasil Tembakau. *Perspektif*, *12*(1), 37–46.

Hartono, J. (2016). Dinamika cara panen tembakau rajangan madura. *Perspektif*, *2*(1), 1–10.

Hasan, F., & Darwanto, H. (2013). Prospek Dan Tantangan Usahatani Tembakau Madura. *Sepa*, *10*(1), 63–70.

Hefni, M. (2008). Local Knowledge Masyarakat Madura : Sebuah Strategi pemanfaatan Ekologi Tegal Di Madura. *Karsa*, *14*(2), 131–141.

Kholilurrahman. (2010). *Tembakau Madura Tantangan dan Prospek*. Surabaya: Kencana Jaya Promosindo.

Koutouzidou, G., Vazakidis, A., Theodoridis, A., & Batzios, C. (2015). A review of ABC methodology for the agricultural sector. In *HAICTA* (Vol. 7, pp. 20–25).

Ningsih, K. (2017). Produksi dan Pendapatan Petani Tembakau Madura : Sebuah Kajian Dampak Perubahan Iklim. *Agromix*, *12*(2), 31–45.

Rachman, A., Machfudz, & Istiana, H. (1999). Tekhnik Budi Daya Tembakau Madura. In *Monograf Balittas* (pp. 33–40). Retrieved from http://balittas.litbang.pertanian.go.id/images/Monograf/madura/Teknik-budidaya-tembakau-madura.pdf

Rachman, A., & Suwarso. (2016). Studi Populasi Optimal Pada Tembakau Madura dengan Cara Panen Satu Kali. *Jurnal Penelitian Tanaman Industri*, *9*(3), 98–103.

Rachmat, M., & Aldillah, R. (2010). Agribisnis Tembakau Di Indonesia : Kontroversi Dan Prospek Tobacco Agribusiness in Indonesia : Controversy and Prospects. *Pusat Analisis Sosial Ekonomi Dan Kebijakan Pertanian*, *20(1)*, 69–80.

Rahman, M., & Widodo, S. (2015). Dampak kebijakan anti tembakau terhadap strategi nafkah petani tembakau madura (Studi Kasus Desa Panaguan Kecamatan Proppo Pamekasan). *Media Trend*, *10*(2), 114–124.

Rosy. (2017). Curhat Petani Tembakau Sumenep: "Kami Belum Rasakan Untung". Retrieved from https://mediamadura.com/2017/08/28/curhat-petani-tembakau-sumenep-kami-belum-rasakan-untung/

Santoso, T. (2004). Tata Niaga Tembakau di Madura. *Jurnal Manajemen Dan Kewirausahaan (Journal of Management and Entrepreneurship)*, *3*(2), pp–96. Retrieved from http://cpanel.petra.ac.id/ejournal/index.php/man/article/viewArticle/15612%5Cnhttp://cpanel.petra.ac.id/ejournal/index.php/man/article/viewFile/15612/15604

Sedláček, J. (2018). The methods of valuation in agricultural accounting. *Agricultural Economics (Zemědělská Ekonomika)*, *56*(2), 59–66. https://doi.org/10.17221/1487-agricecon

Ridhawati, A., Djufry, F., Hartono, J., Diana, N. E., Hamida, R., Yulaikah, S.,

Nugraheni, S. D., Suwarso, S., Djajadi, D., Rochman, F., Wijayanti, K. S., Asbani, N., Basuki, S., Subiyakto, S., Supriyadi, S., Basuki, T., Nurnasari, E., Prabowo, H., Verona, L., Syaputra, R., Kadarsih, S. A., Hidayati, S. N., Supriyono, S., Yogi, Y. A. (2018). *Peningkatan Produksi dan Mutu Tembakau Madura Melalui Inovasi Teknologi dan Dukungan Kebijakan*. Jakarta : IAARD Press.

Sholeh, M., Rochman, F., & Djajadi, D. (2016). Pengaruh Pemupukan N dan K Terhadap Produksi dan Mutu Dua Varietas Baru Tembakau Madura. *Buletin Tanaman Tembakau, Serat & Minyak Industri*, *8*(1), 10–20. https://doi.org/10.21082/bultas.v8n1.2016.10-20

Sugiyono. (2013). *Metode penelitian kuantitaif kualitatif dan R&D*. Bandung: Alfabeta.

Verona, L., & Tiortosuprobo, S. (2016). Peranan Usahatani Tembakau di Berbagai Agro Ekosistem terhadap Pendapatan Petani dan Kesempatan Kerja di Kabupaten Sampang , Jawa Timur. *Agritech*, *36*(3), 156–161.

Z.M, S. Z., Farid., M. F., Amzeri, A., & Hasan, F. (2010). Pengembangan Pola Tanam Dan Diversifikasi Tanaman Pangan Di Madura : Suatu Upaya Peningkatan Produksi Dan Pendapatan Petani. *Agrovigor: Jurnal Agrotekhnologi*, *3*(1), 65–76. Retrieved from http://journal.trunojoyo.ac.id/agrovigor/article/view/258

Zamroni, I. (2007). Juragan, Kiai dan Politik di Madura. *Jurnal Inovasi Dan Kewirausahaan*, *30*(65), 264–276. https://doi.org/10.20885/unisia.vol30.iss65.art5