CONTRIBUTION OF WOMEN ON FAMILY INCOME AND MARKETING OF COCONUT SUGAR HOME INDUSTRY AT DISTRICT OF JEMBER[1)]

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ABSTRACT

Women act as a cooker in home industry of coconut sugar. Their role is important because at least effect two things, that were marketing related to its quality and its contribution on family income. This study want to know: (1) profit and income of coconut sugar home industry; (2) contribution of coconut sugar cooker women on family income (3) contribution of cooker women on marketing of coconut sugar. Method which was used in this study was FGD, indept interview and survei. There were 122 sample which were determined by snow ball sampling method. Data was analized by quantutatively on cost, profit and income, and also qualitatively. Study was done at Sub District Tempurejo and Wuluhan, District of Jember. The result shows that: (1) profit of home industry of coconut sugar at Tempurejo was Rp 4.287.339/25 trees /month and income was Rp 4,426.688/ enterprise/month, while at Wuluhan was Rp3.481.386/ 25 trees/month and income was 3.467.260/ enterprise/month; (2) contribution of women on family income at Tempurejo was 17,29% while at Wuluhan was 15,05%; (3) contribution of women as coconut sugar cooker on marketing was high at Tempurejo but low at Wuluhan in order to fulfill determined standard to produce high quality product which was suitable with market need.

Key words : coconut sugar cooker women, family income, quality, determined standard marketing.

INTRODUCTION

Coconut sugar was one kind of brown, which is used coconut 'sap' as raw material. It is called brown because of its colour. Brown sugar was used as food sweetener and added gadient at some food industry such asa soy bean sauce. Brown sugar was not strange product in Indonesia. Almost each province which was suitable to gow palm tree could produce brown sugar from palm sugar, include coconut sugar. Generally palm sugar was processed traditionally as a home industry.

Jember as one of district at Province of East Java also produce coconut sugar as local product, although not much because was produce by two sub districst among 31. Coconut sugar is not famous as other local commodities such as tobacco, coffee or cacao, but it has been pillar life of coconut sugar family. Two sub districts of coconut sugar producer are Tempurejo and Wuluhan. The defference between them was management sistem. Most of coconut sugar producer at Tempurejo have partnership with state plamtation entreprise (PTPN XII), beside at Wuluhan was privatly. Producer at Tempurejo could rent coconut trees and sell coconut sugar to PTPN XII. In privat system producer get sap from their own trees or rent to their neighbor and sell their sugar to final consumer or village middleman freely.

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Coconut sugar was a small home industry between 15 – 70 trees, so members of nuclear family such as husband and wifeare enough to handle it. Husband or men . climb trees to make incision in coconut trees to obtain sap. Wifes or women cook the sap to produce sugar which was marketable directly. Sometimes, bigger scale of business or have health problem will be help member of extended family. Wage for nuclear family will be family income and for the others based on ageement system.

Marketing at producer level was not a problem because there are village middleman or consumer which buy the product. The real and main marketing problem, specially at privat system, is there is no quality standarization. It cause low price and so the profit. Quality of coconut sugar was affected by two factors, they are sap and its processing technology.

Based on the back gound above , this study purpose to know: (1) profit and income of coconut sugar home industry; (2) contribution of coconut sugar cooker women on family income (3) contribution of cooker women on marketing.

METHODOLOGY

Study used partisipative approach (qualitative) and gounded for revealing interesting phenomena to support the study by FGD (Focus Goup Discussion) methode. This study need 3 months from Pebruari to May 2016 at Sub District of Tempurejo and Wuluhan, as producer of coconut at istrict of Jember. There were 122 coconut sugar producer as samples or respondent, 82 at Wuluhan and 40 at Tempurejo, which were determined by proportioned random sampling methode.

Primary data primer were collect from stright observation and interview wirh respondent at study field by indept interview and survey methode. Data were analized by quantitative for measuring profit and income

Profit = total revenue – (total fixed cost+variable cost)

Income = profit + rent of trees + wage of labor from nuclear family

$$\text{Contribution of income} = \frac{\text{Income of the meaning things}}{\text{Total family income}} \text{ X } 100\%$$

Qualitaive analysis also used for observing and revealing interesting phenomena.

RESULTS AND DISCUSSION

Profile of Coconut Sugar Producer at District of Jember

The profile of coconut sugar producer at District of Jember was in Table 1. Age was 40 years. It is good phisicly because coconut sugar industry need strength of phisic for climbing trees to get sap every day, even in dry or wet season, although the cilmate was not good, such as hot, rain or thunderstrom. If there is even one day leave, production of sap on some next days will be turn to worst quality.

Table 1. Profile of Coconut Sugar Producer at District of Jember 2016

Nomor	Profile	Unit	Tempurejo	Wuluhan
1	Age	(years)	40,63	41,46
2	Education	(years)	7,23	7,27
3	Business experience	(years)	8,45	12,06
4	Member of family	(person)	4	4

SourceSumber: Processed Primary Data (2016)

Education was relatively low and same between two fields, 7,23 years at Tempurejo and 7,27 yeas at Wuluhan or unfinished at secondary shcool. Actually coconut sugar processing does not need complicated technology so it doesn't need well educated labor. Unfortunately, education correlate with concepts and thoughts so some one with not good enough education will be hard and difficult to change or follow new inovation or method for better condition.

Coconut sugar was a family, so the skill as a producer was naturally, combination of trial and error and daily observation from look around home and neighbours. Coconut sugar procesing absolutely does not need high technology, but not every one coud do it, it needs experience. Experience at study fields was between 8,45 – 12,06 years.

Climbing, incisioning, taking sap and go down a tress in less than 10 minutes until 25 trees twice per day are not easy work. Climbing is started at 5.00 a.m in the morning dan 3 p.m in evening. There are two job at top of tree, incisioning and taking collected sap which was produced from previuos incision.

Production of sap between antara 1 - 6 litres/trees in avarage, with 15-29% content pf sugar. This sap was just gathered 12-18 hours after incision, so sap which was taken in the morning was the result from incision in the evening and incision in the morning will be harvested in the evening.

The next work was cooking to change sap to be brown sugar. Cooking was starts at about 8 – 9 a.m in the morning. Sap which was taken in the evening will be strraged to be cooked in the next day together with sap which was taken in the morning. For keeping the evening sap not to worst in the morning, upper ends of spoon of traditional calcium flour was put in bamboo as sap receptacle. Calcium is a buffer ingedient to keep pH of sap about 6-7. Sap will be sour and damaged in pH less than 6 and tasted sour. Generally sap which was harvested in the evening will be boiled to kill microorganism (Endrasari dan Yuwono, 2012).

Time of cooking does not depend on quantity of sap, as long as wok can take in and the temperature keep in 110 ^{0}C the process will be going on while stiring up rarely and going to often and faster when the sap turn to coagulate. After 4,5 to 5 hours sap will be caramelized and more and more coagulate. When there is a clot if the dough of sap was entered in cold water, cooking process was stopped. When temperatur was about 70^{0}C the sugar could be formed by taking dough into special tray which was made from coconut shell, hard pipe, palstic etc. The dough will be hard in 15 – 30 minutes. Cooking process seems easy, but for unskilled labor it could be annoyance such as :

a. Too small flame cause longer time to cook, but too big flame can annoy caramelized process, caused burnt smell, bitter in taste and the colour was too brown.

b. Too early to stop cooking cause dough is difficult to be hard, sugar was too soft and easy to melt, but too late to stop cooking cause caused burnt smell, bitter in taste and the colour was too brown.

Experience in coconut sugar processing was 8,45 years at Tempurejo and 12,06 years at Wuluhan showed that the producers in study fields was very expert.

Members of family are 4 person, consist of husband, wife and two childrens. Some families have children which are stand alone, but there are extended family live towith them. Family will share duty, the husband climb coconut to obtain sap and look for another job or help in cooking process if there is a time. Meanwhile the wife cook the sap and look for another job such as farming, trading, and gowing chicken, atau memelihara ternak kambing, ayam atau sapi.

Profile of Coconut Sugar Home Industry at District of Jember

Profile of coconut sugar home industry at District of Jember could be seen at Table 2. There was 27 days work per month, it means they have 3 - 5 days off in average per month. Producers must have neighbourhood to take over the duty if they want to leave the job for few days because incision must be done every day. Compensation of neighbourhood varies depend on ageement. There are some examples of agement which were often done:

a. Rent of tree is equal with the price of 1,5 ons coconut sugar per tree at that incision day pada hari penyadapan at Tempurejo, while at Wuluhan is 1 ons

b. If the owner of doesn't work at all, they deserve of three days result while while the tenant deserve two days results for the same counted tree.

c. Depend on ageement, owner deserve three days while tenant deserve only one day fro the same counted tree.

Table 2 . Profile of Coconut Sugar Home Industry at District of Jember 2016

No.	Profile	Unit	Tempurejo	Wuluhan
1	Day work	day/month	27	26
2	Production	kg/day	24,98	19,00
3	Produktivity	kg/tree	0,53	0,49
4	Status of tree			
	a. Their own	%	0	59,76
	b. Rent	%	100	40,24
5	Number or trees	trees	49	37
6	Age of trees	years	16,95	15,09

Source: Processed primary data (2016)

Coconut trees which were incisioned at Tempurejo were 47 trees/day and produce 24,98 kg sugar, so the productivity was 0,53 kg/trees, while at Wuluhan were 39/day, produce 19 kg sugar and the productivity was 0,49 kg/tree.

All tree at study field were deep kind of coconut with 10 – 15 meters in height. Age of most of trees were at productive stage, between 10 – 20 years. Deep coconut start to produce suger since 8 years until the end of productive stage, 30 years. Based on Sasono (2011), production of superior variety of coconut was 1 kg, so productivity at study field was categoried low. Inspite of that there still opportunity for increasing productivity of sugar by fertilizing coconut tree regularly and nursing them well.

Status of tree implied to the family income. The owner doesn't have to pay rent for tree, and on the contrary they will receive income 1 ons coconut sugar if some one rent their tree. Producer at Tempurejo must rent the tree to PTPN XII with higer price , that is 1,5 ons coconut sugar/treea, but they could sell the sugar with higher price.

Profit of Coconut Sugar Home Industry at District of Jember Jember 2016

Profit was total revenue minus total cost, so everything that affect revenue or cost will affect profit.

1. Total Revenue

Revenue was multiplication between production and price. Table 3 shows that revenue at Tempurejo which was managed by partership system with PTPN XII was higher than Wuluhan which was managed privatly.

Tablel 3. Revenue of Coconut Suger Home Industry at District of Jember 2016

No	Statements	Unit	Tempurejo	Wuluhan
1.	Produktivity	kg/tree	0,53	0,49
2.	Production	kg/enterprise/day	24,98	19,00
3.	Price	Rp/kg	12.119	11.030
4.	**Revenue**			
	enterprise/day	Rp/ enterprise/day	301.814	209.304
	enterprise/month	Rp/ enterprise/month	7.968.789	5.397.519
	25 trees/month	**Rp/25 trees/month**	**4.287.339**	**3.481.386**

Source: Processed primary data (2016)

The defference of revenue between two study fields could discuss from two sides, they are production and marketing.

a. Produktion Side.

Produktivity at Tempurejo was higher because the trees belongs to big enterprise (PTPN XII) so the trees were gown well and fertilized regilarly compared with trees at Wuluhan which was rarely or even never been fertilized. Beside that, partnership build structure of industri that PTPN could controll production process to produce qualified sugar which suitable with standard of PT Indofood as the buyer (Santosa et all, 2016). At private enterprise there is no controll on standardized product, using factors of produtsion, market orientation or product diversification.

b. Marketing Side

Marketing which affect revenue was structure of market (Santosa et all, 2016) . Stucture of market in partnership system at Tempurejo was monopsony (one buyer) by PTPN XII. Monopsoni in this case give advantage for two subjects. PTPN XII as the only one buyer, could direct and controll on production process to fulfil standard which was determined by next buyer, that is PT Indofood. Producer gain high price because they could fulfil the stadardof buyer. Standard which could be seen were uniformity of form, colour and no chemical ingedient as a preserver or brighter of colour .

Struvture of marker at Wuluhan was oligosony (few buyer many producer), so the price was lower. The price maker was the buyers, they were village middlemen which buy coconut sugar everyday. The price varies depend on quality of product. In fact there are only five middlemen for 100 producer. Generally every producer has fixed middlemen because of

emotional linkage and loan. Middlemen often not just buy sugar but also give loan for work capital other needs.

The negative effect of oligosoni for producer was dependency of producer on middlemen. Middlemen must have very big work capital to buy coconut sugar from the producers but on the other side they face unpredictable market. For overcoming the risk that might be exist they buy sugar with low price.

2. Biaya Produksi

Based on cash flow, production cost of coconut sugar consist of out of pokcet cost and non out of pocket cost. Out of pocket cost consist of shrinkage of tools, chemical ingedient, and corn cob. Shrikage of tools was categoried as out of pocket cost because actually producer must save some money for replacing damage tools such as wok and fire place (every 10-12 moths), coconut former (every 3-4 months) ang sap acumulation storage (every 6-8 moths). Non out of pocket cost were consist of rent of own trees and wage of nuclear family.

Based on relation between production and cost, there are fixed cost and variable cost. Fixed cost in this enterprise was shrinkage of tools, while Vaiable cost consisit of rent of trees, chemical ingedients, corn cob as firing matered, and labor.(Table 4)

Table 4. Cost of Coconut Sugar Home Industry at District of Jember 2016

No	Kind of Cost	Tempurejo		Wuluhan	
		Rp	%	Rp	%
1.	**Fixed cost**	**232.950**	**7,12**	**131.271**	**4,67**
2.	**Variable cost**				
	a. rent of trees	1.207.308	36,89	709.717	25,23
	b. chemical ing.	0	0	77.302	2,75
	c. corn cob	513.791	15,70	363.902	12,94
	d. labor	1.318.716	40,29	1.531.082	54,42
	Total Variable	**3.039.815**	**92,88**	**2.682.003**	**95,33**
3.	**Total Cost**	**3.272.765**	**100**	**2.813.274**	**100**

Source: Processed primary data (2016)

Cost structure of coconut sugar home industry (Table 4) shows that the proportion of fixed cost is lower than variable cost. Fixed cost at Tempurejo was just 7,12% from total cost, while at Wuluhan was 4,67%. Fixed cost was accumulation of shrinkage of all tools which were used such asa wok to cook, fire place, trays for forming sugar, and sap receptacle for bringing sap from plantation to home, where producer ussually cook sap in their own kitchen. The bambooes as sap receptacle on top of the trees was not counted because producer ussually made it theirself and bambooes was available around easily without spending money.

Structure of variable cost showed that the biggest cost of this business was labor, about 40,29 % from total cost atn Tempurejo and r 54,52% at Wuluhan. The second bigest was rent of trees, about 36,89% at Kecamatan Tempurejo and 25,23% at Wuluhan. Cob corn as firing matered was the third, about 15,70% at Tempurejo and 12,94% at Wuluhan. Cob corn was choosen as firing matered because (a) easy to get e; (b) cheap; (c) aesy to keep for rainy season; (d) effective.

In order to decrease cost of firing matered producers use available material around without out of pocket money such as looking for falling dry barnch.

The fewest variable cost was **Natrium Bisulfit (NaO_4)** or known as coconut sugar chemical. This ingedient was not use at Tempurejo in order to obey what PTPN XII asking. On the contrary at Wuluhan, almost all producers use it without knowledge about how much the save dosis was exactly for healthy. Natrium bisulfit was added to coconut sugar as a preservative material and making beatutiful colour. Producers hope bright yellow colour and durable sugar will improving performance so the price could be high. As we know, too much chemical for food in long time will affect function of particular organ of body. Up till now using of chemical ingedient for ccoconut sugar was not standardized, just aproximation. Few according to producers was very varied on implementation in field, so the taste dan colour of coconut sugar home industry was very varied too.

3. Profit of Coconut Sugar Home Industry

Table 5 shows that profit of coconut sugar home industry was small relatively, about Rp 1.014.575/ 25 trees/month at Tempurejo and Rp 668.113 at Wuluhan. Profit of producers at Tempurejo was higher than Wuluhan, but actually the case was their cost was higher too. It because they produced by effective and efficient way, so they got high quantity of product beside fair price too. Further more revenue was high and so the profit was.

Table 5. Profit of Coconut Sugar Home Industry at District of Jember 2016

No.	Statements	Unit	Tempurejo	Wuluhan
1.	Productivity	kg/trees	0,53	0,49
2.	Production	kg/ enterprise/day	24,98	19,00
3.	Price	Rp/kg	12.119	11.030
4.	**Revenue**			
	enterprise/day	Rp/ enterprise/day	301.814	209.304
	enterprise/month	Rp/enterprise/month	7.968.789	5.397.519
	25 trees/month	**Rp/25 trees/month**	**4.287.339**	**3.481.386**
5.	**Total Cost**	**Rp/25 trees/month**	**3.272.765**	**2.813.274**
6.	**Profit**	**Rp/25 trees/month**	**1.014.575**	**668.113**
7.	**Efficiency of cost**	**-**	**1,31**	**1,24**

Source: Processed primary data (2016)

Most of producers weren't conscious that this business could not make big profit because there were no cash for family labor and their own trees. They just know that they receiced Rp 301.814/enterprise at Tempurejo and Rp 209.304/enterprise at Wuluhan everyday as revenue from this business. This money was big according to rural society. It is enough to fulfil capital work for running business next day and daily need for family.

Income of Coconut Sugar Home Industry at District of Jember 2016

From Table 5 we know that profit of coconut sugar processing was low, but this business still running in fact even be a main job for the subject. This condition shows that family need was fulfilled from another source, such as profit and income from coconut sugar processing and another side job. Table 6 shows family income of coconut sugar producer.

Table 6. Family Income of Coconut Sugar Producer at District of Jember 2016

	Source of Income	Tempurejo (Rp/enterprise/month)	Wuluhan (Rp/enterprise/month)
1.	Profit of coconut sugar processing	2.191.938	1.149.591
2.	Rent of trees	0	715.621
3.	Wages for climbing trees to obtain sap	1.425.000	1.023.735
4.	Wages for cooking sap	809.750	578.313
5.	Income of coconut sugar processing	4.426.688	3.467.260
6.	Another income	256.250	376.506
7.	Family Income	4.682.938	3.843.766
8.	Contribution of coconut sugar processing on family income	94,53%	90,21%
9.	Contribution of women on coconut sugar processing	17,29 %	15,05%

Source: Processed primary data (2016)

Family income of coconut sugar producer was sum of profit and income from coconut sugar processing and another side job. Income from coconut sugar processing consist of wages as family labor and rent of their own trees. Family labor as climber and cooker could saved a lot of out of pocket cost. Actually, wages for climbing tree and cookoing sap was never detemined. As an approach we used wages on rice field, that were Rp 50.000/day/25 trees for twice climbing and Rp 17.500/day for cooking because there was no big risk as the climbers.

Rent of trees at Wuluhan was equal with price of 1 ons coconut sugar at the day it was cooked, while at Tempureho was equal with 1,5 ons. The system was cash at Wuluhan while at Tempurejo by reducing revenue from selling sugar directly by PTPN XII.

Coconut sugar home industry made income Rp 3.467.260/month to producer at Wuluhan for by processing 39 trees (Rp 88.904/month/tree) and at Tempurejo Rp 4.426.688 by processing 47 trees (Rp 94.184/month/tree). In comparison with Regional Minimum Wages (RMW) Rp 1.629.000/month at District of Jember, income of coconut sugar processing was higher.

Contribution of coconut sugar on total family income was higk too, reached at Tempurejo and 90,21 % at Wuluhan. It indicated that this home industry had been a main job for the producer. Unfortunately they were unconcious that their busniness didn't make a lot of profit.

Table 7. Side Job of Coconut Sugar Producer at District of Jember 2016

No	Statements	Tempurejo		Wuluhan	
		Number	%	Number	%
1	Number of sample	40	100,00	82	100,00
2	Producer with side job	26	60,00	56	66,67
3	Kind of side job	Gowing cows and goats		Gowing cows and goats	

Source: Processed primary data (2016)

Table 7 shows that otherwise income from cocout sugar was higher than RMW, there were a lot of producer had side job. There were 66,672% of sample at Wuluhan and 60% at Tempurejo had side job. Why did most of them choose gowing lifestock? Because it is easy to do and did'nt need a lot of attention. This condition showed that rural society, espcially coconut sugar producer, were hard worker for making better life for their family.

Contribution of Women on Coconut Sugar Marketing at District of Jember 2016

Marketing is not just delivering good or services fram producers to consumers. American Marketing Association (AMA) defined marketing as an activity, set of institution, and processes for creating, communicating, delivering and exchanging offerings (good and services) that have value for customers, client, partners, and society at large. According to that definition women contribute in process to produce a good quality coconut sugar that have value for customers.

In coconut sugar home industry, women take a duty as a cooker for converting sap into sugar. Although sap had fulfilled quality condition, quality of final product was still determined by cooking process which was done by women. Quality of final product will affect the price, so contribution of women on marketing was cooking sap to produce qualified coconut sugar which was suitable with market or consumers. Unfortunately most of them still don't know or don't care or have not had concious about quality yet. It was indicated by using added ingredient inaccuratelly

Quality of Coconut Sugar

Quality is a condition which describe fulfilling or not any deternined standard. More standard was fulfilled more qualified such a good or services, and so the contrary Quality of coconut sugar was detremined by quality of sap and processing technology .

Qualified sap is fresh, smells good, sweet and colourless. Sweet taste of sap is caused by high suchrose in it. Table 8 shows sap chemical content of *Arenga pinata* as raw material of palm sugar compared with sugar cane as raw material of refined sugar and fan palm as traditional bavarage.

Table 8. Chemical Content of Some Kind of Sap

No	Material	Content (%)		
		Arenga pinata	Sugarcane	Fan Palm
1.	Water	9,16	10,32	8,61
2.	Suchrose	84,31	71,89	76,85
3.	Sugar reductioner	0,53	3,70	1,66
4.	Fat	0,11	0,15	0,19
5.	Protein	2,28	0,06	1,04
6.	Total mineral	3,66	5,04	3,05
7.	Calsium	1,35	1,64	0,86
8.	Phosphor (P_2O_5)	1,37	0,06	0,01

Source: Anonim (2015)

Sap of *Arenga pinata* has the highest suchrose but the lowest sugar reductioner, that is why palm sugar was save relatively for diabetes sufferer. Palm sugar also save for cardiac and obesity sufferer because of low content of fat but high content of protein.

Contaminated sap by microorganism or because neglected on open air for long time without cooked will damage, its colour turned to turbid and the smell turned to pungent. This damaged happened because pH was lower and lower so suchrose truned to reduction (Santoso, 1993; Aryati, 2005 in *digilib* Unila).

Microbe which played role in suchrose hydrolysis process to reduction sugar was khamir and bacteria. Dominant khamir which besmirch sap was *Saccharomyces cereviceae*, while dominant bacteria was *Leuconostoc mesenteroides* dan *Lactobacillus plantarum* (Martoyo, 1989 dalam digulib Unila).

According to Dachlan (1984 dalam *digilib* Unila), damaged of sap was strated with inversion suchrose process, then fermentation, ended by oxidation and produced acetad acid. The reaction are:

1. $C_{12}H_{22}O_{11} + H_2O \rightarrow C_6H_{12}O_6 + C_6H_{12}O_6$
   Suchroea water glucose fructose
   In this reaction invertion was happened if sap was rather sour or enzym of
   β- fruktofuronosidase was exist

2. $2C_6H_{12}O_6 \rightarrow 4CO_2 + 4C_2H_5OH$
   Glucose/fructose etanol
   In this reaction fermentation was happened

3. $4C_2H_5OH + 4O_2 \rightarrow 4CH_3COOH + 4H_2O$
   Etyl alkohol (etanol) acetat acid

Last reaction of sap damage is oxidation process. As generally occur to food material which was in oxidation process, oxidated sap will also damaged and smell pungent. If damaged sap is processed will produce brown sugar unformable because it can not be hard, or even can, it will be mushy, undurable and categorized as a bad quality.

After sap was processed nutrition content of palm sugar was shown at Table 9. On comparison with refined sugar content of energy, carbohydrate, calsium, phosphor, and iron of palm sugar is higher.

Table 9. Nutrition Content of Palm Sugar in Comparison with Refined Sugar

No	Material Content per100 g bahan	Material of Sugar	
		Arenga Pinata	Sugarcane
	Energy	368 kkal	364 kkal
	Protein	0 g	0 g
	Fat	0 g	0 g
	Carbohydrate	95 g	94 g
	Calsium	75mg	5 mg
	Phosphor	35mg	1 mg
	Iron	3 mg	0 mg
	Vitamin A	0 UI	0 mg
	Vitamin B1	0 mg	0 mg
	Vitamin C	0 mg	0 mg

Source: Anonim (2015)

Quality of brown sugar is categoried high or good if could fulfill all condition which is determined. Here the condition which was determined by Badan Standarisasi Nasional (National Standardization Institution) as shown at Table 10.

Table 10. Quality Condition of Brown Sugar According to SNI (SNI 01-3743-1995)

No	Component	Unit	Condition
1.	Form		Normal
2.	Smell		Smells good, fresh
3.	Taste		Sweet, normal
4.	Colour		Bright yellow until brown
5.	Part of water unsoluble	%berat bahan	Maximal 1,0
6.	Water	% berat bahan	Maximal 10,0
7.	Dust	% berat bahan	Maximal 2,0

9.	Reduction Sugar	% berat bahan	Maximal 10,0
10	Suchrose	% berat bahan	Minimal 77,0
11.	Metal besmisched		
	a. Timbal (Pb)	mg/kg	Maximal 2,0
	b. Bronze(Cu)	mg/kg	Maximal 1,0
	c. Zinc (Zn)	mg/kg	Maximal 40,0
	d. Tin (Sn)	mg/kg	Maximal 0,03
	e. Mercury (Hg)	mg/kg	Maximal 40,0
	f. Arsen(As)	mg/kg	Maximal 40,0

Sumber : Badan Standarisasi Nasional (1995) in Syifa (2015)

Standardized quality which was determinated by BSN, can not be implemented directly among ordinary society because some conditions just known fulfilled or not if its tested in laboratory. Generally standard which was used by ordinary people to evaluate quality of brown sugar shown at Table 11.

Table 11. Evaluation of Brown Sugar Quality by Ordinary People

No	Komponen	Persayaratan
1.	Colour	Bright yellow until
2.	Smell	Fresh, arenga/coconut fragance, not pungent
3.	Taste	Manis, tidak asin atau pahit
4.	Tekstur	Soft, not hard but not mushy

Sumber: Field observation (2016)

Based on Table 11, there were four component which was used by ordinary people for evaluating quality of brown sugar, colour, smell, taste and tekstur.

1. Colour :

   a. Too dark indicated two things, they are:
      - Cooking process too mature, so it is posible bitter in taste and when use as sweetener will affect its colour and presentation
      - Raw Material (sap) rather damaged before had cooked. Beside too dark its smells pungent

   b. Too yellow indicated too much chemical ingredient in it, both as preserver or brighter, which was used to keep sap fresh or processing time. Natrium Metabisulfit ($Na_2S_2O_5$) actually still be allowed to use based on Regulation SNI 01-0222-1995 in limit 20 ml/l material or 0,025 – 0,1 %. Over dosis for over adn over using will harm human being because carsinogenic, make allergy to skin and trouble to liver.

   Brown sugar is a perishable and durable product because oxidated easily. Pungent fragrance could indicate two cases, expired or processed from damaged sap.

2. Taste :

   Brown sugar must good in taste so that consumers will accept it. Salty and bitter with too yellow in colour, hard tekstur shows that there is too much natrium metabisulfat as preserver and brightener in it.

3. Tekstur

   Natural brown sugar without chemical added is hard but soft and soluble but not mushy.

- Hard tekstur could be caised by too much preserver or suchrose wich is added. Suchrose as added ingredient is still allowed until 5 – 15% from material to make cooking process quicker and increase suchrose content until minimum 77% as BSN determined.
- Mushy tekstur is caused by processing damaged sap which will produce unformable brown sugar because it can not be hard, or even can, it will be mushy, perishable, undurable and categorized as a bad quality.

Quality Control

Quality control is an activity series which must be done for reaching determined quality standard. There are two aspects in controling, supervisory and correction activity if there is any mistakes. Based on time, supervisory could be done :

a. at the end of process to see that final product has reached determined standard or not (management by obyek).
b. During process (management by process), to make sure that the process just be done as determined standard so that could reduce damage, imperfect or unquality product.

According to brown sugar processing, it is impossible to controll at the end of the process because if unexpected product was produced there is no way to fixed it and the price turn to bad. Reprocessing will not help to turn back quality. So, quality controll on brown sugar must be done during production process, since preparing raw material until processing

Increasing of society concious on healthy life style, choosing organik and natural product is a priority. Based on this life style added chemical and refined sugar should be reduced as long as possible so that product has good quality and so the price.

Quality control based on object was differed as: (a) technical control such as standardization on material, labor, quality of product etc, (b) managerial control on enterprise admisntration such asa HR procedure, acconting syatem etc. It seems quality control based on object conrol at cococnut sugar home industry, especially on private system, stiil hard to be done. It can be better if there are partners, cooperation, established association or group of producer which have high attention or concious on quality help them to do right thing.

Result of this study shows that quality control system which was done by PTPN XII as a partner was works. The producers were gathered in one big kitchen to make controlling quicker and easier and their product was refused if can not fulfill the determined standard. Price of qualified coconut sugar at Tempurejo could reached Rp 11.500/kg, that was bigger than uncontrolled sytem at wuluhan which just reached Rp 11.000/kg.

CONCLUSION

1. Profit of home industry of coconut sugar at Tempurejo was Rp 4.287.339/25 trees /month and income was Rp 4,426.688/enterprise/month, while at Wuluhan was Rp3.481.386/ 25 trees/month and income was 3.467.260/enterprise/month
2. Contribution of women on family income at Tempurejo was 17,29% while at Wuluhan was 15,05%

3. Contribution of women as coconut sugar cooker on marketing was high at Tempurejo but low at Wuluhan in order to fulfill determined standard to produce high quality product which was suitable with market need.

Suggestion

Marketing related to fulfilling consumers need and most of consumers have kindness to pay more for qualified product so it is need to raise concious of quality to producer, espcially women as a cooker. Raising concious of quality could be started by look for a partner which will pay more for qualified product and at the same time coached them to produce qualified product. It can be done by related government institution, education institution, NGO, group or association of coconut sugar or even enterprise just like PTPN XII.

Acknowledgements

Our thanks goes to Ministry of Research, Technology and High Education of Republic of Indonesia, which has funded this study by MP3EI scheme at first year in 2016.

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