

## Efforts to fulfill stock of soybean commodity (*Glycine max*) through restoration of rural agribusiness development program

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### Abstract

In 2010, the national demand for soybean commodity reached about 2,12 million tons, while its production is only about 747,611 tons so that Indonesia must import soybean 1,37 million tons from abroad. According to the projection that up to 2020, Indonesia will decrease soybean production by 1,61%, but the consumption will increase by 2.64%. Implementation of Rural Agribusiness Development Program (RADP) is expected to be one of the factors driving the fulfillment of nasional soybean commodity demand stock. This paper explains about are: 1) Impact of RADP on the development of domestic soybean production, especially in East Java Province; 2) The growth rate of soybean based agribusiness in rural areas; 3) The profit level change of processed food craftsman based on soybean raw material. The type of this research is quantitative and qualitative descriptive research with survey, formative and summative methods. This research took place in 2017 in Jember, Pasuruan and Banyuwangi districts. In order to answer all research objectives descriptive analysis is used, and Test the difference t-test average. This study reveal that 1) The development of soybean stock in East Java has decreased relatively during the period of 2015-2016 (-2,75%) due to decrease in harvested area in the same period that is (-2,94%) although productivity increased by 0,91%; 2) The growth rate of soybean-based agribusiness in research location during the period of 2011-2016 experienced an average increase of 13,99% seen from the aspect of labor absorption and on the aspect of the number of business units actually decreased on average below 10%, but from the absorption of manpower is quite significant; 3) The profit rate change per business unit only experienced an average increase of 18,17% compared before the implementation of the program. The condition shows that the RADP is substantially and its implementation has not been effective.

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### Introduction

The phenomenon of the development of land area, the amount of production, and the productivity of soybean in East Java Province is relatively the same as the national condition in the same period. The area of harvest and soybean production in East Java in 2012 reached 222,738 hectares and 316.395 tons with productivity level 1.42 tons per hectare and decreased from the previous year which reached 1.45 tons/ha. Furthermore, in 2014, East Java Province Soybean production reached 329.46 thousand tons of Dry Seed or increased by 12.21% while its harvest area decreased, resulting in an increase in productivity level of 16.47%. Increased productivity is due to the level of application of soybean farming technology the better at the farm level. In detail about the condition of the development of harvested area, the production and productivity of soybean

commodities in East Java in 2007- 015 are relatively presented in Figure 1.

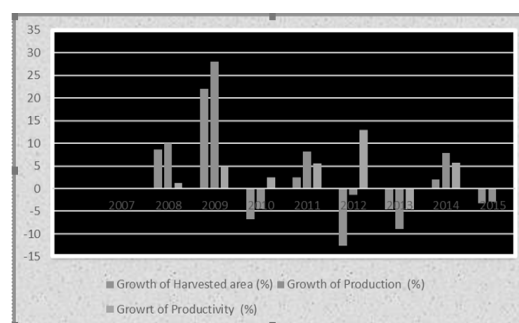


Figure 1. The Development of Harvested Area, Production and Productivity of Soybean in the Province of East Java Period 2007 - 2015 Relatively (Source: BPS of East Java Province, 2016)

The condition of soybean cultivation in the area such as the symptoms that occurred in Jember, Lamongan, Blitar and Nganjuk (which included as) one of the national food barns including soybean

granary in East Java Indonesia shows the average development of harvested area, production and productivity of soybean which fluctuated during the period 2010-2015 with an average of 4.50%, 16.67% and 11.77% per annum respectively as shown in Figure 2.

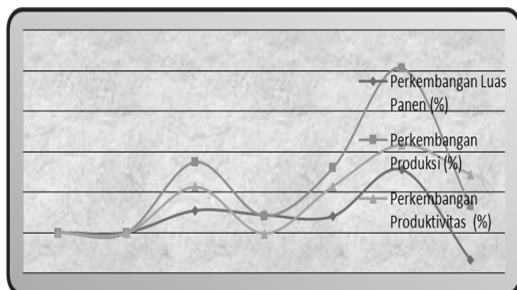


Figure 2. Average Development of Harvested Area, Production and Productivity of Soybean in Jember, Lamongan, Blitar and Nganjuk Districts Period 2010 - 2015 Relatively (Source: East Java Food Crops, 2016)

The dynamics of the development of the four districts are in contrast to the general development in East Java Province during the period of 2012 - 2014, in which one side of the total area of harvest and soybean production in East Java Province has increased significantly, while on the other hand it experienced a sharp fluctuation in four districts. The implication is that the deficit between soybean production and consumption is widening, so the government must import from abroad to meet the consumption needs of soybeans.

The RADP program is a form of facilitation of venture capital assistance for member farmers, both farmers, farmers, farm workers and farm households coordinated by the Joint Farmer Groups. One of the objectives is to empower farmers' institutions and rural economy for the development of agribusiness activities which is a series of upstream industry activities, soybean farming and downstream industries that will be sustainable.

Based on the results of the workshop and evaluation of the implementation of RADP program for four years since 2008 in Malang City East Java in 2012 recommended that the program needs to be reviewed (reviewed) both at the level of concept and implementation in the field. The results of these evaluations and recommendations are in line with the results of Fatma (2012) study on Solok Regency which revealed that on the conceptual level, the revolving model of the capital loan is less educational so that the low Repayment Rate, the assistance mechanism and less systematic empowerment. While at the level of application, it can be revealed that the performance of the actors of the program is not good

due to the lack of empowerment model built can encourage high performance.

Furthermore, the above conditions are also in accordance with the results of research Wijayanti (2011) that the lack of training activities for Gapoktan beneficiaries of the RADP program resulted in the soul of the entrepreneur is relatively low, so the restoration effort needed on the RADP model. Therefore, the purpose of this research is 1) To know the impact of RADP Program on the development of domestic soybean production, especially in East Java Province, 2) To analyze the growth rate of agribusiness based on soybean food in rural areas, and 3) to know the change of food craftsman advantage level processed based soybean raw materials.

## Materials and methods

### *Types and research methods*

The type of this research is descriptive quantitative and qualitative research (Nazir, 1985). Meanwhile, the method used in this research is survey method, formative, summative, and panel (Singarimbun, 1987). The choice of survey method because the target population of the type of activity is too much and scattered in several remote areas, and the selection of this formative evaluation based on the consideration that the object of research is a program that is still ongoing since 2008 as well as the method of summative evaluation used to examine and measure indicators success of the RADP program. The choice of the panel technique method because the object of this study also noticed changes in behavior and views of a group of people the same in different situations.

### *Determination of time and location research*

This first year research was conducted in 2017 and the location of this research was conducted in Jember, Pasuruan and Banyuwangi districts of East Java Province. The location point of research includes the sub-district and village Gapoktan recipient RADP program determined by Multistage sampling.

### *Population and sampling techniques*

The population of this study includes Gapoktan actors, farmer groups, farmer group members and savings and loan businesses receiving RADP program and agribusiness based on soybean food spread in the sample location. The sample gapoktan recipient of RADP Program is determined at least 20% of a number of gapoktan and Agribusiness Microfinance Institutions existing research area by probability sampling with simple random sample technique.

The basis of the consideration is to provide equal and unlimited opportunities for each element of the population to be selected as a sample.

#### *Data collection technique*

Primary data collection techniques in this study among others conducted through a combination of several techniques Focus Group Discussion, Indepth Interview and observation. Secondary data were collected from sources related to this research such as Dinas Pertanian, sub-district and village government and other related institutions institutionally as basic information to start the primary data mining in the field conducted by convenience sampling in accordance with the needs of the research.

#### *Data analysis technique*

Validity test is used to measure the validity or validity of an instrument in the questionnaire. Next test Reliability to determine the extent to which the measurement results can be trusted to do with the help of SPSS which is a facility to measure reliability, with statistical tests cronbach alpha ( $\alpha$ ). A variable is said to be reliable if it has cronbach alpha > 0.60 (Ghozali, 2005). In order to answer the first and second objectives are used frequency table analysis, and in order to answer the third goal, descriptive analysis and t-test average test analysis were used

## **Results and discussion**

### *Impact of RADP program implementation on increasing soy needs stock*

In line with the price of imported soybeans cheaper than domestic soybean, so the effort to increase soybean production is rather neglected. Whereas the greater dependence on imports can be a disaster especially for local farmers. In order to reduce dependence on imported soybeans, serious efforts are needed to increase domestic soybean production with government support through peasant policies, such as arrangement of soybean regulation, import duty and basic pricing.

The development of soybean commodity production in East Java Province is relatively the same with the condition nationally in the same period. The area of harvest and soybean production in East Java Province in 2012 reached 222,738 hectares and 316.395 tons with productivity level 1.42 tons per hectare and decreased from the previous year which reached 1.45 tons/ha. Meanwhile, in 2014, East Java Province Soybean production reached 329.46 thousand tons of Dry Seed and compared to soybean production in 2012, soybean production growth in

East Java increased 12.21%, but its harvested area decreased or in other words, its productivity increased by 16.47%.

Increased productivity is due to the level of application of soybean farming technology the better at the farm level. The districts of Jember, Lamongan, Blitar, Banyuwangi and Nganjuk as one of the national food barns including the soybean crops in East Java showed the average development of harvested cultivation area, production and productivity of soybean during the period of 2009-2014, respectively 4.50%, 16.67% and 11.77% per annum. The growth of soybean production stock in East Java has decreased relatively during the period of 2015-2016 (-2.75%) due to decreasing of harvested area in the same period that is (-2.94%) although its productivity increased by 0.91%.

Table 1 below is a result of in-depth study of the intended effort and at least as a material for refining the model or restoring it. In relation to the declining supply of soybean needs in East Java, the program actors provide insight into the RADP program's restoration efforts based on the impact of implementation where the program has not only been devoted solely to soybean commodity crops, but to other commodities. Therefore as many as 38.64% of respondents disagree if RADP is restored unless there are substantial changes.

Table 1. Perception of Gapoktan Against Restoration of RADP Program in Fulfilling Stock of Domestic Soya Needs in Research Area Year 2017

No	Description	Number of Respondents (Persons)	Percentage (%)	Description
1	Agree	15	34.09	Increase farm capital
2	Less Agree	12	27.27	Awareness of farmers less, economically soy less profitable (less interested in planting soybeans), and soybean quality is less good
3	Disagree	17	38.64	Because RADP is not just for soybeans
Sum		44	100	

Source: Primary Data Processed Year 2017

Table 2. Perception of Target Group on Restoration of RADP Program in Fulfilling Stock of Domestic Soya Needs in Research Area Year 2017

No	Description	Number of Respondents (Persons)	Percentage (%)	Description
1	Agree	50	37.04	Increase the capital of soybean farming and if the climate supports, then the production will increase, so more and more are interested
2	Less Agree	77	57.04	There is still a lot of deviation from the program, not yet run optimally, soybean production proof is not available yet, because RADP funds are not all for soybean, weather and pest factors that harms farmers, and farmers are less interested in planting soybeans because their prices are eberfluktuatif
3	Disagree	8	5.93	If soybean productivity is likely to remain, while rice can increase, soybean quality is better than local products, and the arena of capital is not sufficient for the production cost of soybean farming
Sum		135	100	

Source: Primary Data Processed Year 2017

Table 1 above also reveals that as many as 27.27% of respondents stated that RADP is less restored because so far the level of awareness of farmers to plant soybean is relatively less, economically soybeans are considered less profitable, and the quality of soy is not good, unless there are government efforts to protect it through consistent and consistent regulation. Meanwhile, it was revealed that as many as 34.09% of respondents agreed RADP was restored on the grounds that with the RADP patani would increase their farming capital. However, if it only adds capital and there is no recommendation or obligation of farmers (recipients of capital loans) to plant soybeans, then the presence of RADP will not bring any meaning to the efforts to fulfill the domestic demand for soybean.

Table 2 below provides an overview of the views of the target group's respondents on the need for RADP restoration to fulfill the domestic soybean supply requirement. Most of the respondents (57.04%) stated that they do not agree if RADP restoration is done, because there is still a lot of misuse of the program, it has not been run optimally yet there is

no evidence of soybean production, because RADP funds are not all for soybean and farmers are less interested in planting crops soybean because the price is fluctuating. The reasons described indicate that the target group including farmers is showing despair and decreasing trust in the government and the constellation of problems that are happening on RADP so far.

Similarly, Table 3 below also illustrates the view of counterparts on efforts to meet the stock of soybean commodities through the RADP program, where most (48.57%) of respondents agreed if RADP was restored substantially. The reason is that access to farming capital is easier, and increases production costs for saprodi procurement as long as product prices are guaranteed rational. Meanwhile, as many as 45.71% of respondents actually less agree if RADP is used as a policy to fulfill the stock of soybean requirement because RADP program fund is not only for soybean, the selection of crop commodities depends on each region and policy not only on soybean commodity but for all food crops except specified according to each agroclimate.

Table 3. Perceptions of Associate Personnel on Restoration of RADP Program in Fulfilling Stock of Domestic Soya Needs in Research Area

No	Description	Number of Respondents (Persons)	Percentage (%)	Description
1	Agree	17	48.57	Access to farming capital is easy, and adds production costs to saprodi procurement provided the product price is guaranteed rationally
2	Less Agree	16	45.71	The increase in soybean stock depends on the size of the land and the number of the commodity growers, so it does not always increase, the RADP Fund is not only for soybeans, depending on their respective regions and policies not only on soybean commodities but all food crops
3	Disagree	2	5.71	Loan funds are not used all for soybeans
Sum		35	100	

Source: Primary Data Processed Year 2017

Table 4. Perception of Target Group on the Impact of RADP Program Implementation on Manpower Absorption in Research Area 2017

No	Description	Number of Respondents (Persons)	Percentage (%)	Description
1	Agree	81	60.00	The spirit of work is getting stronger, adding new jobs, because the business of agribusiness requires a lot of manpower, and Stimulate micro business actors who are members of farmer group
2	Less Agree	49	36.30	Because it still can not absorb the labor, One side is profitable (craftsmen) but on the farmer side is still unclear, Because still can not absorb labor, depending on the type of business, its value is still small to absorb labor, in long term may be true, and Reduce unemployment and poverty
3	Disagree	5	3.70	Still nothing will matter, and even if there is a RADP fund the people are not prosperous yet
Sum		135	100	

Source: Primary Data Processed Year 2017

#### *Impact of RADP program implementation on the development of soybean agribusiness in rural areas*

Furthermore Table 4 describes the achievement of success benefit indicator from the side of the target group as measured from the progress of agribusiness effort and this can be used approach of development level of workshop absorption on the target group agribusiness business. Because through other approaches such as the level of development of production and production value difficult to dig with a valid and reable. As for the 135 respondents of the target group, there are 25 respondents whose activities are soybean-based agribusiness which includes tofu, tempeh, tempeh, and soybean milk crackers. It can be illustrated that the average change of employment absorbed from agribusiness in the study area only increased by 19.30% compared to before being targeted by the RADP Program. The development, if described in detail, revealed that the respondents of the target group of crafters based on soybean raw material that did not change at all as much as 13 respondents (52%), which experienced the reduction of labor as much as 2 respondents (8%) and the remaining 10 respondents (40%) has increased significantly. Table 3.4 below provides an overview of the perception of the target group on the level of agribusiness development in the research area after being targeted by the RADP program.

Table 4 above shows that most of respondents are very optimistic with RADP fund assistance, so it is expected that micro-handicraft business based on soybean raw material will grow more advanced because by adding capital easily with very soft service level. Only 3.70% of respondents stated that the existence of the RADP program did not provide any changes to its business. On the other hand, agribusiness based on soybean raw material has a strong implication to the absorption of labor in rural areas as presented in Table 5. The result of average difference test shows that statistically the increase of manpower absorption by crafters is significant, where  $t$ -count (-2,571) <  $t$ -table (-1.32) at a real level of 10%. These conditions indicate that, although the implementation of the RADP program is far from ideal, the impact on employment has begun to appear significant. If the model of RADP program can be restored more applicable and the implementation process can be implemented properly, then the opportunity for the absorption of manpower is wider.

On the other hand, Table 6 below is the target group's view on the impact of RADP program implementation on the progress of agribusiness based on soybean raw materials. The respondent's perception of the target group is that most respondents have strong confidence in the progress of agribusiness based on soybean raw material as

Table 5. Average Differences Test Result on the Number of Abandoned Workforce Development in Agribusiness in Perdesan Daerah Penelitian Tahun 2017

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
L1 - L2	-.36000	.70000	.14000	-.64895	-.07105	-2.571	24	.017

Source: Primary Data Processed Year 2017

Table 6. Perception of Target Group on Impact of RADP Program Implementation on Soybean Agribusiness Development in Research Area 2017

No	Description	Number of Respondents (Persons)	Percentage (%)	Description
1	Agree	85	62.96	Soybean raw materials are easier to obtain, Sufficient as additional capital of soybean farming, can increase the number of tempe tofu craftsmen, RADP will facilitate the development of agribusiness
2	Less Agree	44	32.59	Because RADP's fund management system is only a savings and loan, because RADP is not only focused on soybean and the amount of loan is relatively small and only borrowed once, The impact is not too good, because the price of soybean is expensive, the quality of local soybeans is worse than import, Soya bean production cost high and low product prices, RADP recipients are not evenly distributed to farmers and seemingly selective logging, and RADP simply helps not solve farmer problems
3	Disagree	6	4.44	Currently still difficult raw materials, raw materials used imported soybeans due to poor quality local soybeans, and Because soybeans for tempe 80% processing is still imported
Sum		135	100	

Source: Primary Data Processed Year 2017

Table 7. Perception of Assistance Personnel for Impact of RADP Program Implementation on Soybean Agribusiness Development in Research Area Year 2017

No	Description	Number of Respondents (Persons)	Percentage (%)	Description
1	Agree	25	71.43	Soybean craftsmen can add the latest technology info, With the addition of capital, increase the capacity of business / production, and RADP improve the development of agribusiness well enough
2	Less Agree	10	28.57	Because not all farmers who are members of GAPOKTAN receive RADP funding loans, the lack of soybean farmers, and Increasing soy production depends on climate
3	Disagree	0	0.00	
Sum		35	100	

Source: Primary Data Processed Year 2017

the impact of RADP program implementation in rural area. Some of the reasons why the respondents are very confident of this matter among others are because the raw materials more easily obtained and in the dry season the farmers choose to plant soybean commodity so it is expected to meet the needs of soybean raw materials with ease. Furthermore, only 4.44% of respondents said they did not agree if the RADP program is considered to be able to advance agribusiness business with several reasons revealed, such as during this program within a decade, the fact is still difficult to obtain raw materials of soybean in the field, while imported soybean commodity very accessible with better quality and relatively competitive price.

Furthermore, as a comparison of the perception of the target group on the impact of RADP implementation on the progress of the soybean based business based on soybean business, Table 7 below presents the perceptions of assistants (PMT and Penyuluh) on the same context. Most (71,43%) of respondent respondents strongly agree if existence of RADP have positive impact for progress of

agribusiness effort base on soybean raw material in rural. Factors that made the argument, among others, soybean craftsmen can add the latest information technology with ease, increasingly strong business capital, and production capacity is increasing.

As many as 28.57% of respondents stated less agree and less optimistic on the grounds that not all farmers who are members of GAPOKTAN receive loans PUAP funds, at least farmers who cultivate soybean due to economic and social promises, and natural factors in which increased production of soybeans depending on climate or season. Based on the facts of the above phenomenon, then basically the development and progress of agribusiness based on soybean raw material in rural areas is determined by strong policy intervention with effective model and concept in field. Associated with not all farmers who are members of GAPOKTAN receive PUAP loan, this condition is in accordance with the result of Handriyanta (2012) research that the implementation of the target of activity is not good with score achievement (42.22%).

Table 8. Average T-test Difference Test Result on Change of Agribusiness Effort Rate Before and After the Implementation of RADP Program in Research Area Year 201

	Paired Differences			90% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
	Y1 - Y2	38.096	262.904	22.627	.619			

Source: Primary Data Processed Year 2017

### *Impact of RADP implementation on increased profit of agribusiness*

In this section we will discuss the development of the rate of profit for all respondents of the target group, where the change in the profit of the respondents increased on average by 12.51% after the implementation of the RADP program. However, as many as 18.52% of respondents did not change the amount of production generated from the agribusiness business and 5.93% of respondents actually decreased after implementing the RADP program and the rest (72.55%) experienced a significant increase. This condition indicates that the implementation of RADP program that has been running for ten years has not contributed to the development of agribusiness in rural areas. This is because the substance and model of the construction program has not pushed the target toward educational capacity (capacity building). In addition, the implemented advisory model has not been able to create an adequate process of community development (empowering), including monitoring and evaluation model, so that the concept needs to be reviewed (reviewed).

The proliferation of profits is quite encouraging as described above supported by the difference test results of the average t-test at a real level of  $\alpha 10\%$  as shown in Table 8, where  $t\text{-count} (1.684) > t\text{-table} (1.28)$  means that the impact of RADP implementation has a positive impact on the increase of agribusiness profits. This condition has a positive implication on the income level of the program actors, which in turn the loan repayment rate tends to increase. If the process of implementing a RADP program is done better like the mechanism and performance of the program implementer, then the impact on the profit change will be more significant. The condition is in accordance with the results of research Zaky (2012) on the Influence of Rural Agribusiness Development Program (PUAP) on Rice Production in Sruni Village, Jenggawah Subdistrict, Jember District. The results showed that: (1) Income between farmers who participated in PUAP program is higher than farmers who do not follow RADP; and (2) Farmer farming efficiency following PUAP program is higher than non-participant farmers.

The effort to fulfill the domestic soybean commodity supply requirement referred to in this research is in accordance with the Technical Guidance Manual of RADP Program (2015) which asserts that the aid of Joint Venture Capital of Farmer Group in developing agribusiness effort in accordance with agricultural potential of the targeted village. Then one of the program targets is the development of agribusiness in the village, especially the poor villages in accordance with the agricultural potential of the village, and one indicator of the success of the outcome is the increased activity of agribusiness activities (upstream, cultivation and downstream) in rural areas. But the program has no concrete confirmation of the priority scale of soybean crops, so it needs to be restored.

### **Conclusions**

The development of soybean production stock in East Java has decreased relatively during the period of 2015 - 2016 (-2.75%) due to the decrease of harvested area in the same period (-2.94%) although the productivity increased by 0, 91%. The growth rate of soybean-based agribusiness in the research location during the period of 2011 s.d. 2016 with the indicator of employment absorption experienced an average increase of 19.30% and seen from the aspect of the number of business units actually decreased on average below 10%, and in the aspect of success benefit indicator measured from the rate of change of profit per business unit only experienced an average increase of 12.51% compared before the implementation of the program. The RADP program is a good Government of Indonesia program because it is oriented towards the welfare of farmers and increasing soybean stock in Indonesia. Its application in Jember, Pasuruan and Banyuwangi districts has not been effective in achieving the objectives, so it needs to be restored by improving various aspects of both concept and implementation.

## Reccommendation

It is therefore necessary to recommend some things to some related parties as follows: 1) The Central Government should create new regulations as part of refining the old rules that direct RADP to be devoted to the development of rural agribusiness based on local soybean food from upstream to downstream. 2) The location of the RADP Program target is determined based on the specification of agricultural land that allows local soybean farming to be developed; and 3) Need to strengthen the capacity and performance of Assistance Personnel in order to encourage the achievement of program keshaslan especially in the effort to fulfill the stock of domestic soybean needs.

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