

**Social Transformation of Sedulur Sikep Farmers
In Achieving Local Wisdom-Based Food Security in Sukolilo Subdistrict of Pati
District**

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Abstract

The social transformation of Sedulur Sikep farmers in Sukolilo subdistrict of Pati district became very interesting topic to study, especially the impact of agriculture modernization of irrigated rice field of Sedulur Sikep farmers in achieving local wisdom-based food security as local genius. The study aimed at analyzing the social transformation of post harvesting agricultural technology from indigenous technology into new technology, describing the implementation of irrigated rice field technology applied by the Sedulur Sikep farmers based on local wisdom and the significant correlation between the new technology and the production, the income and the food security of the farmers. The quantitative data of the study was analyzed using McNemar Test, point biserial correlation test, Pearson correlation test and Spearman correlation test supported by qualitative data analysis with ethnographic method. The results of the study showed that the McNemar Test described the social transformation in agriculture, especially in seedling, soil processing, irrigation, fertilization and crop disease control from the indigenous ones into the new ones. The point biserial correlation test was used to analyze the correlation between the implementation of Panca Usaha Tani technology, including soil processing, fertilization and crop disease control, and food production and the conclusion of the analysis was significantly different. The Pearson correlation test was used to analyze the correlation between food crops and the income of the Sedulur Sikep farmers and the correlation was 72.80% that fell in the category significantly correlated and different. The Spearman correlation test was used to analyze the correlation between the income and the food security, including availability, distribution and consumption and the conclusion was that they were significantly different. The local wisdom of the Sedulur Sikep farmers was still used in seed selection, harvesting yield sharing as irrigation wage, mutual assistance among irrigation board, farmer meeting (rembugan) and mouse eradication with gropyokan method using dogs.

Keyword : Social Transformation, Sedulur Sikep Farmers, Local Wisdom, Food Security

INTRODUCTION

1.1. Background

The social transformation in agriculture was social condition change as observed in daily life of a society. It occurred naturally when the society had agricultural problems or because of the presence of agricultural social engineering in modernization era in line with the development of science and technology at local, regional and global levels. The understanding of the social transformation in agriculture might be examined from sociological, cultural, economical, social welfare and multidisciplinary points of view. Agricultural sector played an important role in national economic growth in which more than a half of Indonesian population lived in rural areas and made their livelihood as farmers. Their main contribution was their effort to secure sufficient rice supply, to create agricultural employment and to improve people prosperity. In the effort to maintain agricultural existence that supported farmers' life it was necessary to sustainably use agricultural innovations in rural areas that were in harmony with nature. Therefore, agricultural modernization in irrigated rice field aimed at increasing production and achieving food security, while at the same time followed the existing local life philosophy and local genius as local wisdom and positive values of the farmers.

Modern era demanded the *Sedulur Sikep* farmers to change their agricultural practices from rice field activities to modern agriculture practices starting from seeds, soil processing, irrigation, fertilization and crop disease control that were referred to as *Panca Usaha Tani*, five agricultural efforts.

1.2. Problem Formulation

Author formulated following problems:

1. How did the social transformation of the *Panca Usaha Tani* technology in food crops influence the farmers' behavior in changing from the use of indigenous technology to the new technology?
2. How was the implementation of the irrigated rice field technology among the *Sedulur Sikep* farmers based on local wisdom?

3. How close was the correlation between the implementation of the new technology and the production, the income and the food security of the farmers?

1.3. Special Objectives of the Study

The special objectives of the study were:

1. To analyze how the social transformation in the *Panca Usaha Tani* technology of food crops influenced the change in the farmers' behavior from the use of indigenous technology to new technology.
2. To describe the implementation of the irrigated rice field technology by the *Sedulur Sikep* farmers based on local wisdom.
3. To describe how close was the correlation of the implementation of the new technology and the production, the income and the food security.

1.4. Study Urgency

The study was very urgent because the technological modernization of the irrigated rice field drove strongly the farmers as modernization agents such as in the use of mechanical equipment in soil processing that gave both positive and negative impacts.

1.5. The Systematics of Rational Framework

The systematics of the rational framework of the social transformation of the *Sedulur Sikep* farmers in achieving food security based on local wisdom in Sukolilo subdistrict of Pati district might be described in Figure 2.1 below.

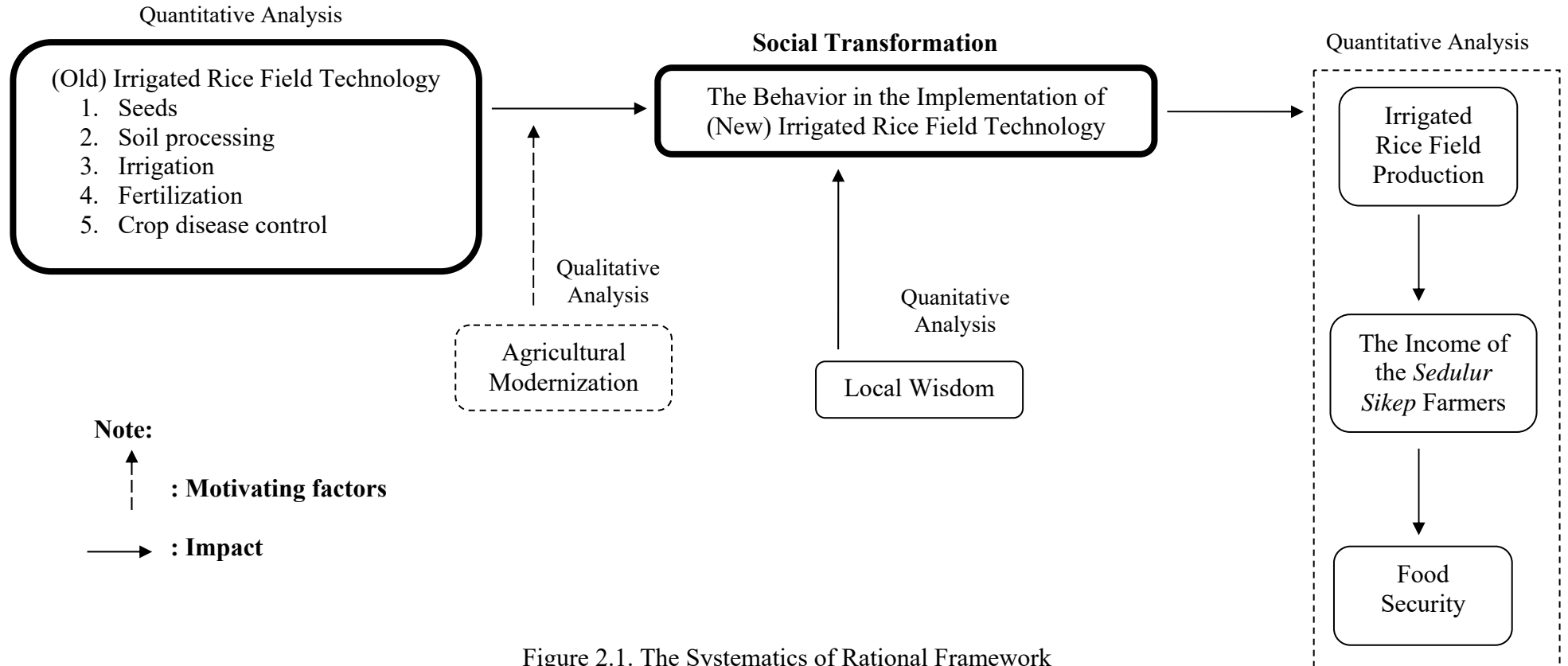


Figure 2.1. The Systematics of Rational Framework

STUDY METHOD

2.1. Location and Data Collection Technique

The location of the study was Sukolilo subdistrict of Pati district determined on the basis of the objective of the study, including Kedumulyo, Baturejo, Sukolilo, Baleadi and Wotan villages in which 75 individuals were sampled out. The sampling used the criteria that were implicitly found in the life of the *Sedulur Sikep* farmers. However, there was not any *Sedulur Sikep* farmer found in Wotan village who has changed Adam religion to Islam, Christianity, Budhha and Hindu. With hence the study was focused in Kedulumulyo, Sukolilo, Baturejo and Baleadi villages. It was expected that the villages have experienced social transformation from indigenou technology to new technology of irrigated rice field in achieveing food security, while at the same time upholding local wisdom positive values as the basis of the agricultural practices of the *Sedulur Sikep* farmers.

2.2. Study Problem Limitation

Author intended to obtain proper study results in light of the objective of the study. Therefore the problems were limited to the followings:

- a. The farmers in the study were those coming from *Sedulur Sikep* society who organized agricultural activities in irrigated rice field.
- b. The social transformation in the study was focused on the change in the behavior of the *Sedulur Sikep* farmers from the use of traditional technology to new technology of food crops.
- c. The study was conducted in the villages of the *Sedulur Sikep* society in Sukolilo subdistrict in 2014.

2.3. Data Analysis Method

2.3.1. Quantitative Data Processing

Quantitative data was processed by considering the appropriateness between the data of the real facts and the data collected by the author. Reliability test was conducted to obtain valid data by finding out the consistency of the data

in certain interval of time. There were several data analyses used in the study, which were: a) McNemar test, b) Point biserial correlation test, c) Pearson correlation test, and d) Spearman correlation test.

2.3.2. Qualitative Data Processing

Qualitative data was processed by finding out the figure of direct occurrence context in the effort to illustrate the occurrences as precise as its factual occurrences by considering various occurrences as gluing elements and involving author's participative perspective in various occurrences in addition to the use of induction that gave description of phenomena that were observed (Gorman *et al*, 1997 *dalam* Santana, 2010).

THE CHARACTERISTICS OF *SEDULUR SIKEP* FARMERS

3.1. *Sedulur Sikep* Farmers

Sedulur Sikep farmers have been influenced by Islam, Christianity, Hinduism and Buddhism. Consequently, there were an increasing number of them who left their Adam religion. Even, it was observed in a location, which was Wotan village, that all of the *Sedulur Sikep* villagers changed to Islam, Christianity, Hinduism and Buddhism. The characteristic dress of the *Sedulur Sikep* was as illustrated in the Figure 3.1 below.



Figure 3.1. *Sedulur Sikep* Farmers

The symbolic identity of the *Sedulur Sikep* farmers as illustrated in the Figure 3.1 showed that the male wore long sleeve shirt without collar like *Koko* shirt and loose black trouser above ankles and without any waistband because such trouser had drawstring. Additionally, the male farmers also wore headcloth of batik motif and its color was adjusted to the color of female dress that looked in general like Javanese female dress and her sarong-like blouse ended under ankles.

3.1.2. Livelihood

Livelihood was defined as routinous activities organized by the *Sedulur Sikep* farmers to fulfil the daily needs of their family for food, cloth and shelter, consisting of primary job and side job. The kinds of the primary livelihood were summarized in Table 3.1 below.

Table 3.1 The kinds of primary livelihood of the *Sedulur Sikep* farmers

The kinds of primary livelihood	Number (Individuals)	Percentage (%)
Land holding farmers	69	92.00
Farmworkers	6	8.00
Total/Mean	75	100.00

Source: Primary data analysis, 2014

It was observed in the table that 92% of the livelihood of the *Sedulur Sikep* was land holding farmers, while 8% of them represented farmworkers who worked on the land they did not own. There were also land holding farmers who did side job as farmworkers, construction workers/carpenters, fish catchers, snail collectors, animal breeders, drivers and sound system repairing job as presented in details in the Table 3.2 below.

Table 3.2 The kinds of side jobs of the *Sedulur Sikep* farmers

The Kinds of Side Jobs	Number (Individuals)	Percentage (%)
Farmworkers	10	13.33
Farmworkers and fish catchers	1	1.33
Farmworkers and snail collectors	20	26.67
Farmworkers and animal breeders	1	1.33
Farmworkers, construction workers/carpenters and snail collectors	3	4.00
Farmworkers, construction workers/carpenters and animal breeders	1	1.33
Farmworkers, fish catchers and snail collectors	8	10.67
Construction workers/carpenters	3	4.00
Construction workers/carpenters and fish catchers	1	1.33
Construction workers/carpenter and snail collectors	2	2.67
Snail collectors	9	12.00
Snail collectors and drivers	1	1.33
Fish catchers and animal breeders	1	1.33
Animal breeders and sound system repairers	1	1.33
No side job	13	17.33
Total/Mean	75	100.00

Source: Primary data analysis, 2014

Table 3.2 summarized the side jobs of the *Sedulur Sikep* farmers. They were respectively farmworkers and snail collectors (26.67%), no side job (17.33%), farmworkers (13.33%), snail collectors (12%), farmworkers, fish catchers and snail collectors (10.67). Usually the daily need for food was fulfilled through the side jobs and when they wanted to consume fishes or snails they could catch them in the nearby river and rice field, while they bought side dishes in food stall, market and *tereng*¹ with the money they earned from the side jobs.

3.1.3. The Width of Agricultural Land

The agricultural land with the land holding status valid in Sukolilo subdistrict was property right² suggesting that the land title holders managed their agricultural land along with their household members and their relatives. However, the *Sedulur Sikep* farmers rented the land of other farmers to farm out

¹ *Tereng* were hucksters selling stuffs like vegetables, side dishes, etc. using motorcycle or bikes.

² Property right was the right hold by farmers to control and to process an agricultural land as proven by land certificate.

and it was referred to as renting right³. Also, there was also a kind of land holding called *maro* right⁴, which represented crop sharing, valid among them that they could regularly do their agriculture activities in the land. The details of the land holding status were summarized in Table 3.3 below.

Table 3.3 Agricultural land holding status

Land Holding Status	Land Width (m ²)	Mean Land Width (m ²)
Property right	374,500	5,427.54
Renting right	2,500	2,500.00
<i>Maro</i> right	100,750	4,030.00

Source: Primary data analysis, 2014

Table 3.3 summarized the agriculture land holding status and the widest agricultural land (374.500 m²) was of the land holding status of property right with the mean width of 5,427.54 m², while the smallest land (2,500 m²) was of the land holding status of renting right because of the high renting rate, which was IDR 11,500,000/4 cultivating seasons. If the renting cost was divided by cultivating seasons, it would give IDR 2,875,000/cultivation that it posed difficulties for the farmers to obtain the rented agriculture land.

THE SOCIAL TRANSFORMATION IN THE IMPLEMENTATION OF PANCA USAHA TANI BY *SEDULUR SIKEP* FARMERS IN ACHIEVING FOOD SECURITY BASED ON LOCAL WISDOM

4.1. Irrigated Rice Field Seeds

The irrigated rice field seeds resulted from the seeds generatively cultivated in the rice field to produce rice seeds and food stuff production. In the past the *Sedulur Sikep* farmers used local varieties developed by their predecessors such as Deli, Cempo and Andel. The social transformation in the agricultural practice in selecting rice seeds was summarized in Table 6.1 below.

³ Renting right was the right hold by farmers to control and to process an agricultural land by renting the land for certain period of time and paying the renting rate that has been agreed by both parties involved.

⁴ *Maro* right was the right hold by farmers to control and to process an agricultural land of other farmers for certain period of time and when the harvesting season came they gave the land owner a part of the harvesting yield as agreed by both parties in an crop sharing agreement.

Table 4.1 The social transformation in agricultural practice in selecting rice seeds among the *Sedulur Sikep* farmers and the results of McNemar test and also its significance

Past	Present	
	Indigenous Seeds	New Seeds
New seeds ⁵	1	37
Indigenous seeds ⁶	0	37

The Results of McNemar Test	
N	= 75
<i>Chi-square</i> hitung (χ^2_{hit})	= 32.237
Sig	= 0.000***

<i>Chi-square</i> table (χ^2_{tab})	= 3.84
Alpha (α)	= 0.05 (5%)* , 0.01 (1%)** , and 0.00 (0%)***

Source: Primary data analysis, 2014

Table 4.1 described the results of the McNemar test showing that χ^2 counting (32.237) was bigger than χ^2 table (3.84) with the sig value of 0.000, which equaled to α value. It indicated that the number of the *Sedulur Sikep* farmers who changed indigenous rice seeds to the new seeds was bigger than those who changed the new seeds to the indigenous seeds (PA > PD).

4.2. Soil Processing

The agricultural activities in processing soil were habitual for farmers before rice cultivation. The preparation was made to recover soil fertility by activating microorganisms and other soil fauna that could loosen the soil and by crop disease control usually affecting crop roots and stems in the soil. The implementation of the indigenous technology in processing soil developed because of the presence of mechanization and irrigation system since 1993 in the agricultural land of the *Sedulur Sikep*'s land. The existing local wisdom was

⁵ The new seeds were defined here as new and more complex technology in agriculture.

⁶ The indigeneous seeds were defined here as local technology that has long been used by local farmers because of the lack of new and more complex agricultural technogy.

maintained by organizing *rembugan* meeting⁷ before using mechanical equipment such as tractors. The significance of the social transformation in the agriculture area, especially in processing soil resulting from the McNemar test might be found in Table 4.2 below.

Table 4.2 The social transformation in agriculture, especially the soil processing among the *Sedulur Sikep* farmers and the results of the McNemar test and its significance

Past	Present	
	Indigenous	Renewed
Renewed	2	19
Indigenous	9	45

The Results of *McNemar Test*

N = 75

Chi-square counting (χ^2_{count}) = 37.532

Sig = 0.000***

Chi-square table (χ^2_{tab}) = 3.84

Alpha (α) = 0.05 (5%)*, 0.01 (1%)**, and 0.00 (0%)***

Source: Primary data analysis, 2014

Table 4.2 described the criteria of the results of the McNemar test suggesting that χ^2 counting (37.532) was bigger than χ^2 table (3.84) with sig (0.000) that equaled to α (0.000). It indicated that the number of the *Sedulur Sikep* farmers who changed the indigenous technology to the new technology in processing soil was bigger than those who changed the new technology to the indigenous technology (PA > PD).

4.3. Irrigation

Agricultural effort continued to develop because of the increase in the number of the need for food and of population growth and hence government involvement was required in developing technical irrigation in 1986-1993. The irrigation has irrigated all of the agricultural land in Sukolilo subdistrict. Local wisdom was maintained by the irrigation board of 5-8 individuals of the *Sedulur Sikep* farmers in mutual assistance activities, while the maintenance cost and the

⁷ *Rembugan* was a discussion process in a face-to-face meeting to make a useful agreement for both parties. It represented one of the local wisdoms of the *Sedulur Sikep* farmers that was maintained up to the present.

maintenance workers were pain using the harvesting yield of unhulled pady in the sum of one eighth (1/8), one tenth (1/10) and one fourteenth (1/14) of the cultivating area width. The *Sedulur Sikep* farmers experienced social transformation of agricultural effort of irrigation and the results of the McNemar test and its significance might be found in Table 4.3 below.

Table 4.3. The social transformation of agricultural effort experienced by the *Sedulur Sikep* farmers and the results of the McNemar test and its significance

Past	Present	
	Indigenous	Renewed
Renewed	2	31
Indigenous	1	41

The Results of the McNemar Test
 N = 75
 Chi-square counting (χ^2_{count}) = 33.581
 Sig = 0,000***

Chi-square table (χ^2_{tab}) = 3.84
 Alpha (α) = 0.05 (5%)*, 0.01 (1%)**, and 0.00 (0%***)

Source: Primary data analysis, 2014

Table 4.3 described the results of the McNemar test suggesting that χ^2 counting (33.581) was bigger than χ^2 table (3.84) with its significance value of 0.000 that equalted to α (0,000). It indicated that the number of the *Sedulur Sikep* farmers who changed their agricultural effort of indigenous irrigation to the renewed irrigation was bigger than those who changed their agricultural effort of renewed irrigation to the indigenous irrigation (PA > PD).

4.4. Fertilization

Fertilization aimed at providing rice field with sufficient nutrients necessary for rice crop for good physiological function of the crop based on farmers' wisdom to achieve normal harvesting results that were determined by the nutrients contained in the soil. The social transformation of the agricultural effort of fertilization experienced by the *Sedulur Sikep* farmers and the results of the McNemar test and its significance might be found in Table 4.4 below.

Table 4.4 The social transformation of the agricultural effort of fertilization experienced by the *Sedulur Sikep* farmers and the results of the McNemar test and its significance

Past	Present	
	Indigenous	Renewed
Renewed	3	25
Indigenous	6	41

The Results of the McNemar Test

N = 75

Chi-square counting (χ^2_{count}) = 31.114

Sig = 0.000***

Chi-square table (χ^2_{tab}) = 3.84

Alpha (α) = 0.05 (5%)*, 0.01 (1%)** and 0.00 (0%)***

Source: Primary data analysis, 2014

Tabel 4.4 described the results of the McNemar test suggesting that χ^2 counting (31.114) was bigger than χ^2 table (3.84) with the sig value of 0.000 that equaled to α (0.000). It indicated that the number of the *Sedulur Sikep* farmers who changed their agricultural effort of indigenous fertilization to the renewed fertilization was bigger than those who changed their agricultural effort of the renewed fertilization to the indigenous fertilization (PA > PD).

4.5. Crop Disease Control

Crop disease control was the most important part of agriculture and played an important role in maintaining quality, quantity and sustainability of production or well-known as crop protection. The maintained local wisdom was called *gropyokan* organized in mutual assistance activities among the farmers with mouse hunting dogs. The social transformation of the agricultural effort of crop disease control experienced by the *Sedulur Sikep* farmers and the results of the McNemar test and its significance might be found in Table 4.5 below.

Table 4.5 The social transformation of the agricultural effort of crop disease control experienced by the *Sedulur Sikep* farmers and the results of the McNemar test and its significance

Past	Present	
	Indigenous	Renewed
Renewed	8	21
Indigenous	15	31

The Results of the McNemar Test

N = 75

Chi-square counting (χ^2_{count}) = 12.410

Sig = 0.000***

Chi-square table (χ^2_{tab}) = 3.84

Alpha (α) = 0.05 (5%)*, 0.01 (1%)** and 0.00 (0%***)

Source: Primary data analysis, 2014

Table 4.5 described the results of the McNemar test suggesting that χ^2 counting (12.410) was bigger than χ^2 table (3.84) with the sig value of 0.000 that equaled to α (0,000). It indicated that the number of the *Sedulur Sikep* farmers who changed their agricultural effort of indigenous rice crop disease control to the renewed rice crop disease control was bigger than those who changed their agricultural effort of the renewed rice crop disease control to the indigenous rice crop disease control (PA > PD).

THE CORRELATION BETWEEN THE IMPLEMENTATION OF PANCA USAHA TANI FOOD CROP TECHNOLOGY, IRRIGATED RICE FIELD RICE PRODUCTION, THE *SEDULUR SIKEP* FARMERS' INCOME AND FOOD SECURITY

5.1. The Correlation between the Implementation of *Panca Usaha Tani* and Food Crop Production

The social transformation of the *Sedulur Sikep* farmers in the implementation of the *Panca Usaha Tani* included seeds, soil processing, irrigation, fertilization and crop disease control in agricultural land. It would increase the production of the food crop that was rice. The correlation between the *Panca Usaha Tani* technology (values 1 and 0) and the food crop production (quintal/m²) was one of the motivating factors for the *Sedulur Sikep* farmers in

making their agricultural efforts of food crop that were managed by the farmers. Table 5.1 described the results of the point biserial correlation analysis.

Table 5.1. The results of the point biserial correlation analysis between the implementation of the *Panca Usaha Tani* and the food crop production

The Kinds of the <i>Panca Usaha Tani</i>	Variable
	Production
Seeds	-0.044
Sig	0.706
Soil processing	0.355**
Sig	0.002
Irrigation	0.129
Sig	0.269
Fertilization	0.232*
Sig	0.046
Crop disease control	0.330**
Sig	0.004

Alpha (α) = 0.05 (5%)*, 0.01 (1%)** and 0.00 (0%)***

Source: Primary data analysis, 2014

Tabel 5.1 described the results of the point biserial correlation analysis suggesting that the implementation of the *Panca Usaha Tani* was correlated to the food crop production at the error levels (α) that were 5%, 1% and 0% or the comparison of $\text{sig} < \alpha$ (significant), viz. fertilization ($0.046 < 0.050$), while the error level (α) = 1% or $\text{sig} < \alpha$, including: soil processing ($0.002 < 0.010$) crop disease control ($0.004 < 0.010$). The magnitudes of the closeness of the correlation were 35.50%; 23.20% and 33%, respectively. It indicated that there was weak closeness of the correlation between them.

5.2. The Correlation between Food Crop Production and the Income of the *Sedulur Sikep* Farmers

Food crop production represented the harvesting yield of the irrigated rice field in the form of unhulled paddy and rice in quintal/m² and then sold in market to get money as the income of the *Sedulur Sikep* farmers (in IDR) and the improvement of the family prosperity of the farmers. The correlation between the production of the food crop and the income of the *Sedulur Sikep* farmers was analyzed using Pearson correlation test and the results were summarized in Table 5.2 below.

Table 5.2 The results of the Pearson correlation test between the food crop production and the income of the *Sedulur Sikep* farmers

Description	Variables	
	Production	Income
Production	1	0.728***
Sig	-	0.000
Income	0.728***	1
Sig	0.000	-
Alpha (α) = 0.05 (5%)*, 0.01 (1%)** and 0.00 (0%)***		

Source: Primary data analysis, 2014

Table 5.2 described the results of the Pearson correlation analysis of the food crop production and the income of the *Sedulur Sikep* farmers. The closeness of the correlation was 72.80% at the = 0%. It indicated that there was strong closeness of the correlation between them.

5.3. The Correlation between the Income of the *Sedulur Sikep* Farmers and the Food Security

The income of the *Sedulur Sikep* farmers resulted from agriculture production in achieving family and society food security. The food security was an important part of the effort to fulfill the need for the right of food sufficiency and served also as milestone of human right of harmonious life between a society and others. It might be proven through the fulfillment of the need for the real food of a society. Therefore, hard work and high motivation were highly required among the *Sedulur Sikep* farmers to warrant the food supply for proper consumption. Food availability aimed at fulfilling the need of households for food that increasingly high. Therefore, it was necessary to find out the correlation between the income (in IDR as ratio data) and the food security (including availability, distribution and consumption) that were interval data analyzed in the Spearman correlation analysis and the results were summarized in Table 5.3 below.

Table 5.3 The results of the Spearman correlation analysis between the income of the *Sedulur Sikep* farmers and the food security (including availability, distribution and consumption)

Description	Variables			
	Income	Availability	Distribution	Konsumsi
Income	1	0.282*	0.340**	0.342**
Sig	-	0.014	0.003	0.003

Alpha (α) = 0.05 (5%)*, 0.01 (1%)** and 0.00 (0%)***

Source: Primary data analysis, 2014

Table 5.3 described the results of the Spearman correlation analysis suggesting that the income of the *Sedulur Sikep* farmers was correlated to the food security (including availability, distribution and consumption) at the error levels of (α) = 5% and 0% or the comparison of the $\text{sig} < \alpha$ (significant). The closenesses of the correlation between the income and each of the components of the food security were 28.20% for availability, 34% for distribution and 34.20% for consumption at the $\alpha = 1\%$. It indicated that there was weak closeness of the correlation between the income and the components of the food security.

CONCLUSION AND RECOMMENDATION

6.1. Conclusions

Based on the description and the discussion of the results of the study following conclusions were drawn:

1. The results of the analysis of the social transformation of agriculture from the original *Panca Usaha Tani* technology to the renewed one that included seeds, soil processing, irrigation, fertilization and crop disease control indicated that there has been a change in the *Panca Usaha Tani* technology based on McNemar test. The social transformation of agricultural effort of seeds took place using Ciherang variety, soil processing with tractors, technical irrigation system and water sucking pumps, fertilization with fabricated chemical fertilizers and crop disease control using fabricated chemical pesticides.
2. The social transformation of agricultural effort still took place on the basis of local wisdom as local genius form of the *Sedulur Sikep* farmers as manifested in seeds (i.e., the seeds were selected using traditional method

by soaking the seeds when the grains were good, they would sink), soil processing (i.e., learning process with figure model and “social learning”, *rembugan* meeting to decide whether they had to rent tractors or not or combining the tractors and traditional soil processing tools), irrigation (i.e., irrigation network and water sucking pumps in self-supporting manner with the payment of 1/8 of the harvesting yield of the farmer’s land), fertilization (i.e., the use of manure as traditional generation-to-generation natural fertilizer combined with fabricated chemical fertilizers), and crop disease control (i.e., the implementation of *gropyokan* technique organized in mutual assistance among the farmers with mouse hunting dogs to control mouse at the end of the cultivating season of third cultivating season in September-October).

3. The results of the point biserial correlation test in the implementation of the *Panca Usaha Tani* technology and the production of the food crop showed that the comparison of the soil processing (sig 0.002 < α 0.010), fertilization (sig 0.046 < α 0.050) and food crop disease control (sig 0,004 < α 0,010) were significant with the closenesses of 35.50%, 23.20% and 33%, respectively. It indicated that there was weak closeness of the correlation among the three components. The results of the Pearson correlation analysis between the crop production and the income of the *Sedulur Sikep* farmers was the comparison of the sig 0.000 = α 0.000 with the closeness percentage of 72.80% (significant) and the closeness of the correlation fell in the category of strong between them. The results of the Spearman correlation analysis between the income and the food security (including availability, distribution and consumption) indicated that the availability (sig 0.010 = α 0.010), income and distribution (sig 0,003 < α 0,010), and income and food consumption (sig 0,003 < α 0,010) were significant and the percentages of the closeness of the correlation were 28.20%, 34% and 34.20%, while the closeness of the correlation fell in the category weak among the components of the food security.

6.2. Recommendations

Following were the recommendation made in the study:

1. It was necessary to pay special attention to the social transformation of the agricultural effort of the *Sedulur Sikep* farmers in the form of plot demonstration around their agricultural land in addition to direct advocacy and oral directive by authoritative parties/government officers that must be given on the basis of the culture and the custom of the *Sedulur Sikep* farmers.
2. It was necessary to pay special attention to government officers in delivering agricultural dissemination in order to preserve local wiscom of *Panca Usaha Tani*.

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