Bull. Fac. Agr., Saga Univ. No. 89 : 93～103 (2004)

# Change of Agricultural Practices in Wetland Rice Field Area: A Case Study in Blitar and Tulungagung Regencies, East Java

Kuntoro Boga Andri and Yoshiharu SHIRATAKE
(Laboratory of Economics of Agricultural Marketing)
*Received December 25, 2003*

**Summary**

Up until now, wetland rice area has been known only for producing food crops such as rice, maize, soya and vegetables, while the other potential uses of this land have not been significantly considered. In fact, wetland rice areas are also appropriate for other purposes such as fishery and livestock production which their excrements are used as manure (Reijntjes *et al*.,1992). In farm management, type of work activities or kind of crops varieties are selected to meet the farmers' subsistence needs, and are sold or used for other purposes (Hutabarat,1999). Closer investigation or observation of the farmers' circumstance shows that agricultural practices are not static, but they change from generation to generation and adapt to the changes and challenges that the farmers encounter.

The following analysis was conducted in Blitar and Tulungagung regencies in order to identify the dynamic in farm management activities and trends of commodities producing by wetland rice farmers. The selection of the above two regions in the study was based on the fact that these regions represent most of the main agro-ecological zones in East Java. In this study, survey was done by method using questionnaire on the field on growing season of 2001 in June.

The result of this study shows that livestock sector, especially large ruminants such as dairy cattle and beef cattle has been primary source of income as well as poultry and fishery and occupied greater part of farmers' working-time in the study areas. Livestock products have significantly substituted previous dominant commodities such as food crops, horticultural crops and estate crops as source of income. Non-agricultural activities such as industrial labor, services and overseas employment are still important sectors especially for farmers who have no sufficient resources to nourish their families, or for those who perceive that agricultural sector is no longer reliable to fulfill their households' daily needs. Source of information to which farmers base upon their thoughts to change their orientation in farm management practices is obtained mainly from their neighboring farmers (fellow farmers) or from agricultural shops where they bought inputs for cropping, and only few from agricultural extension agents or farmers' group representatives.

**Keywords**: wetland rice field, farm management, changes, livestock

## 1.Introduction

Up until now, wetland rice area has been known only for producing food crops such as rice, maize, soya and vegetables, while the other potential uses of this land has not been significantly considered. In fact, wetland rice areas are also appropriate for other purposes such as fishery and livestock production which their excrements are used as manure (Reijntjes *et al*.,1992). Rapid development of agricultural sectors in parallel with rapid growth of population has led to increasing pressure on land resources, which in turn, results in low productivity of the land as well as land conversion (Kasryno,1997). Research has shown that wetland rice conversion in Java within the last decade has increased from 13,400 to 27,600 ha per year (Hermanto,1996). It is expected that land conversion in Java will continue in the coming years. Further, Rusastra and Budhi(1997) reported that the total land conversion in Indonesia was about 1.28 million ha, whereas 79.3% of it was in Java.

According to Hayami and Otsuka(1994),agricultural diversification can be carried out in two ways, i.e.: cultivation of new commodities in unutilized land and increasing the planting density as well as change in current intercropping pattern. Integration between crops and animals in certain farm management should not be regarded only as a random collection of genetic resources (Reintjes *et al*.,1992). Each activity should be selected as appropriate for the specific biophysical, social and economic environments of the farming-system to ensure economic environmental viability. In a farm management, type of work activities or kind of crops varieties are selected to meet the farmers' subsistence needs, and are sold or used for other purposes (Hutabarat,1999). Selection of crops or livestock will be dependent on what can be produced by the households or what can be taken from the market in consideration of the quantity, quality and market price of the product as well as services and supply availability (Sadikin,1982).

Closer investigation or observation of the farmers' circumstance shows that agricultural practices are not static, but they change from generation to generation and adapt to the changes and challenges that the farmers encounter. Rapid changes within the last decade have resulted partly from rapid developments through agricultural research and partly from the increasing demand for food and employment. The recent changes are not only a response to external pressures but also an expression of local community creativity. It seems that the need to change will increase as the economic, technological and demographic conditions change at the farmer's level. Product marketing and promotion along with financial constraints have encouraged farmers to seek alternative sources of income beyond their current farming practices (off farm). Furthermore, some farmers are dependent on other activities beyond agriculture in order to fulfill their household needs and to sustain their farm activities as well.

The following analysis was conducted in Blitar and Tulungagung Regencies in order to identify the dynamic in farm management activities by wetland rice farmers. The selection of Blitar and Tulungagung in this study was based on the fact that these two regions represent most of the main agro-ecological zones in East Java.

In this study, survey was done by method using questionnaire on the field during the last one year (growing season of 2001 in June). Three hundred wetland rice farmers in Blitar and Tulungagung were selected to participate in this survey. In Blitar, this survey was carried out in five districts such as Srengat, Nglegok, Talun, Gandusari and Ponggok districts, represented by 30 re-

spondents each region, while in Tulungagung it was carried out in Gondang and Rejotangan districts and each region was represented by 75 respondents. Secondary information was obtained from annual reports provided by local agricultural services, statistics and previous research publications. In addition to simple statistical tool of percentage, mean etc for analyzing quantitative data, attitude scores and satisfaction index are also developed for analyzing qualitative data.

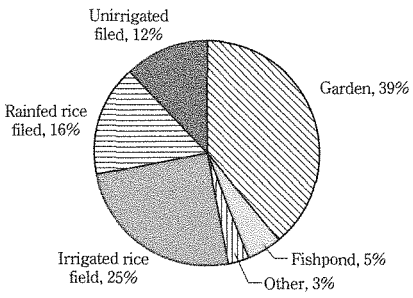
## 2.Land Holding and Ownership

Broadly speaking, land is the most important capital in agricultural activities (Myers,1995). Area of owned land is a good indicator of activity's scale, production ability and current type of farming (Webster and Wilson,1980). The survey showed that in addition to vast land area in average, land holding obtained from rental occupied almost a half of total land managed by farmers (total farmer's owned land was 1.90 ha in average and rented land was 0.80 ha in average). This condition shows that the farmers' owned land is no longer sufficient to fulfill the households' need especially for those who are dependent entirely on agricultural sector. On the contrary, there are two possibilities of those who rent out the land, that is, they are either rich people or they already had left the agricultural sector. Table 1, figure 1, and figure 2 show the composition of agricultural land managed by respondents in detail.

Table 1.Average Area of Farmers' Owned and Rented Land (ha)

| Land Type | Type of Land Holding | | | | | | Total Average | | |
|---|---|---|---|---|---|---|---|---|---|
| | Blitar | | | Tulungagung | | | | | |
| | Owned | Rent, etc. | Total | Owned | Rent, etc. | Total | Owned | Rent, etc. | Total |
| Irrigated rice field | 0.41 | 0.48 | 0.89 | 0.80 | 0.37 | 1.17 | **0.60** | **0.42** | **1.03** |
| Rainfed rice field | 0.24 | 0.33 | 0.57 | 0.12 | 0.13 | 0.25 | **0.18** | **0.23** | **0.41** |
| Unirrigated field | 0.40 | 0.01 | 0.41 | 0.27 | 0.07 | 0.34 | **0.34** | **0.04** | **0.38** |
| Garden | 1.21 | 0.16 | 1.36 | 0.06 | 0.00 | 0.06 | **0.63** | **0.08** | **0.71** |
| Fishpond | 0.15 | 0.03 | 0.18 | 0.04 | 0.00 | 0.04 | **0.10** | **0.02** | **0.11** |
| Others | 0.05 | 0.04 | 0.09 | 0.06 | 0.00 | 0.06 | **0.05** | **0.02** | **0.07** |
| Total | **2.46** | **1.04** | **3.50** | **1.35** | **0.57** | **1.92** | **1.90** | **0.80** | **2.71** |

Source: Field Survey,2001




Source: Field Survey,2001

Figure 1.Composition of Land Owned by Respondents in Blitar (%)

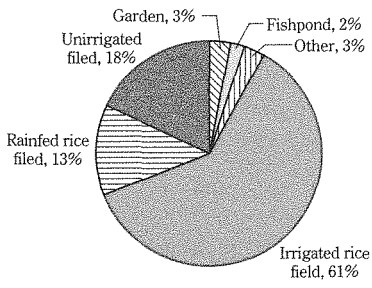
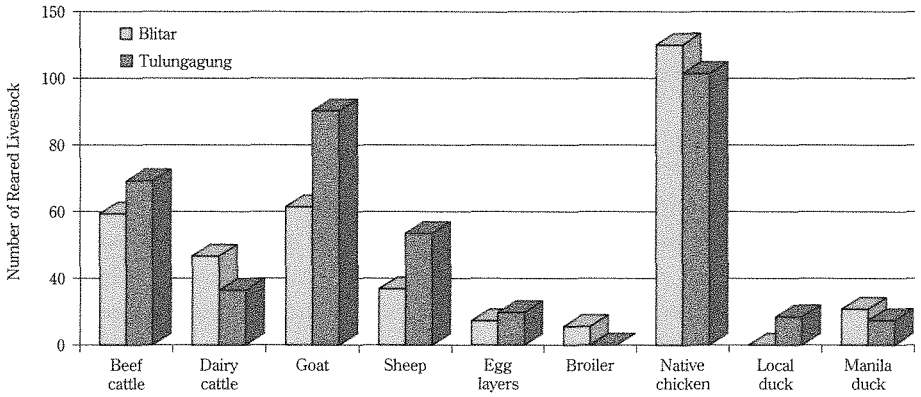



Figure 2.Composition of Land Owned by Respondents in Tulungagung (%)

Other interesting finding is that the average area of fishpond owned by the farmers in Blitar is 0.18 ha, and in Tulungagung 0.04 ha. Fishponds are almost found widely in all districts under study areas, except in Srengat and Ponggok. In Talun District, the average fishpond area is 0.35 ha. It shows that the comparative value of fisheries in these areas is significant and important for the local farmers.

### 3.Livestock Development

In Indonesia, livestock sector contributes about a quarter of the gross value of agricultural output (Knipscheer, *et al*.,1994). Livestock ownership is very common among farmers because livestock and crops cultivation are complimentary and related each other. However, the role of livestock in farmers' household income structure is often neglected (Webster and Wilson,1980). Most of respondents in the above two study areas own livestock in their homes and each number of large ruminant and small ruminant or poultry reared by respondents is shown in figure 3 and table 2.




Source: Field survey,2001

Figure 3.Number of Reared by Respondents

Table 2.Average Livestock Owned by Respondents

| Type of livestock | Blitar (heads) | Tulungagung (heads) | Average (heads) |
|---|---|---|---|
| Beef cattle | 0.6 | 0.6 | 0.6 |
| Dairy cattle | 1.7 | 0.1 | 0.9 |
| Goat | 1.0 | 1.1 | 1.1 |
| Sheep | 1.1 | 0.1 | 0.6 |
| Egg layers | 3.8 | 50.0 | 26.9 |
| Broiler | 143.2 | 0.0 | 71.6 |
| Native chicken | 22.1 | 93.9 | 58.0 |
| Local duck | 0.0 | 1.1 | 0.5 |
| Manila duck | 1.0 | 1.4 | 1.2 |

Source: Field Survey,2001

Table 2 shows that the majority of farmers in these study areas raise some livestock. The most dominant livestock in those areas respectively are native chicken(85%), goat(55.7%) and

beef cattle(44.3%)as well as sheep(25%) and dairy cattle(21.7%)are significant in those areas. However, the variation of the number of livestock raised in all districts both in Blitar and in Tulungagung is relatively high, possibly, it is due to different supporting natural and socio-economic resource potential besides different access to marketing and information for each area.

## 4.Allocation of Working Time

Allocation of time is very important to identify the intensity of farm management carried out for certain commodity (Flinn,1982). In this survey, information about total man-days allocation needed for cropping and livestock raising for one year has been collected and presented in table 3

Table 3.Labor Allocation (in Family and Paid Labor) for Livestock Raising and Cropping for one year

| Type of activities | Blitar (man-days) | | | | | Average | Tulungagung (man-days) | | Average |
|---|---|---|---|---|---|---|---|---|---|
| | Srengat | Nglegok | Talun | Ponggok | Gandusari | | Gondang | Rejotangan | |
| Agriculture | 218 | 238 | 142 | 201 | 238 | **207.4** | 224 | 153 | 188.5 |
| Livestock | 133 | 170 | 247 | 442 | 150 | **228.4** | 195 | 454 | 324.5 |
| **Total** | **351** | **408** | **389** | **643** | **388** | **435.8** | **419** | **607** | **513** |

Source: Field Survey,2001

It is interesting that total time allocated for livestock raising in some districts such as Talun and ponggok in Blitar and Rejotangan in Tulungagung is higher than that for cropping. Moreover,

Tabel 4.Proportion of Source of Household's Income (Father, Mother and Children) in Blitar and Tulungagung

| Source of Income | **Blitar (%)** | | | | | | **Tulungagung (%)** | | | **Average** |
|---|---|---|---|---|---|---|---|---|---|---|
| | Srengat | Nglegok | Talun | Ponggok | Gandusari | **Average** | Gondang | Rejotangan | **Average** | |
| Ⅰ.Agriculture | | | | | | | | | | |
| A. Farming | | | | | | | | | | |
| Food crops | 15.9 | 13.3 | 20.8 | 3.6 | 6.2 | **12.0** | 17.0 | 11.1 | **14.0** | **13** |
| Horticulture | 23.4 | 4.0 | 4.5 | 18.1 | 3.1 | **10.6** | 14.0 | 4.1 | **9.1** | **9.9** |
| Large ruminant | 2.0 | 8.3 | 5.8 | 37.7 | 19.9 | **14.7** | 14.1 | 5.3 | **9.7** | **12.2** |
| Small ruminant | 2.8 | 3.6 | 0.0 | 0.0 | 5.5 | **2.4** | 2.7 | 2.4 | **2.5** | **2.5** |
| Poultry | 3.1 | 4.6 | 10.7 | 4.3 | 0.3 | **4.6** | 1.2 | 28.1 | **14.6** | **9.6** |
| Fisheries | 0.0 | 5.1 | 8.1 | 0.0 | 9.0 | **4.5** | 0.0 | 8.6 | **4.3** | **4.4** |
| Estate crops | 0.3 | 7.7 | 5.8 | 8.3 | 1.8 | **4.8** | 1.0 | 1.0 | **1.0** | **2.9** |
| B. Off Farm | | | | | | | | | | |
| Labor | 8.5 | 1.6 | 8.2 | 10.3 | 0.9 | **5.9** | 25.7 | 6.1 | **15.9** | **10.9** |
| Asset rental | 0.8 | 2.0 | 0.0 | 0.0 | 0.0 | **0.6** | 0.0 | 0.0 | **0.0** | **0.3** |
| Others | 0.0 | 1.9 | 0.0 | 0.0 | 2.6 | **0.9** | 3.7 | 12.0 | **7.9** | **4.4** |
| Ⅱ.Non Agriculture | | | | | | | | | | |
| Trade | 0.0 | 2.2 | 7.3 | 8.2 | 5.2 | **4.6** | 10.4 | 2.5 | **6.5** | **5.6** |
| Transportation | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | **0.0** | 0.0 | 0.0 | **0.0** | **0** |
| Service | 0.0 | 12.5 | 0.0 | 3.8 | 6.0 | **4.5** | 1.8 | 4.2 | **3.0** | **3.8** |
| Industrial | 0.0 | 4.8 | 0.0 | 5.5 | 0.0 | **2.1** | 4.6 | 1.9 | **3.3** | **2.7** |
| Labor | 0.0 | 5.1 | 0.0 | 0.0 | 4.2 | **1.8** | 0.0 | 0.3 | **0.2** | **1** |
| Overseas employment | 0.0 | 23.5 | 0.0 | 0.0 | 32.9 | **11.3** | 0.0 | 7.2 | **3.6** | **7.5** |
| Others | 43.2 | 0.0 | 28.7 | 0.0 | 2.3 | **14.8** | 3.8 | 5.2 | **4.5** | **9.7** |
| Total | 100 | 100 | 100 | 100 | 100 | **100** | 100 | 100 | **100** | **100** |

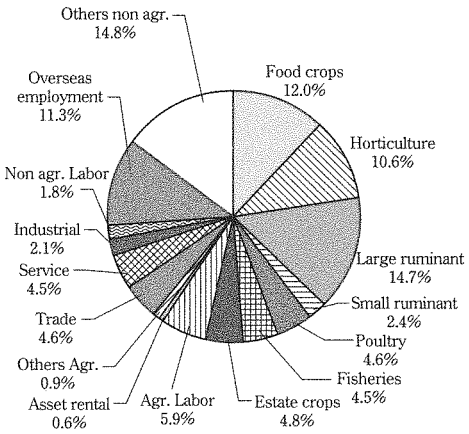
Source: Field Survey, 2001

the average labor allocation within regency, Blitar or Tulungagung, shows that labor allocation for livestock raising is higher than that for cropping(228.4 man-days to 207 man-days in Blitar and 324 man-days to 188.5 man-days in Tulungagung). Therefore, it shows that livestock raising is overwhelming cropping as the source of reliable income for farmers in this study areas.

## 5.Household Income

The main objective of a productive agricultural activity, anyway, is to obtain income for the family (Webster and Wilson,1980). From the survey in the two regencies, some information about income structure of the farmers were compiled into proportion of household's income generated from asset ownership and various productive activities performed by the father, mother and children in the family both from agricultural and non-agricultural sectors. These are shown in table 4, figure 4 and figure 5. It is expected that this information can explain the importance of a certain sector in a farmer household's economy.

From table 4, figures 4 and 5,we can see clearly that proportion of income generated from food crops, horticultures and livestock especially those of large ruminant and poultry is almost equal in the two regencies. It shows that farmers in the surveyed areas are no longer relying on single sector for their households' income. In fact, there are other important sectors showing large contribution to the income, for example, fisheries, trading, services and labor in agricultural and non-agricultural sectors. It seems that all of the family members in farmer households nowadays have to be able to optimally allocate their resources including labor and time of work to generate income.




Source: Field Survey,2001

Figure 4. Percentage of each Household's Income Sources in Blitar

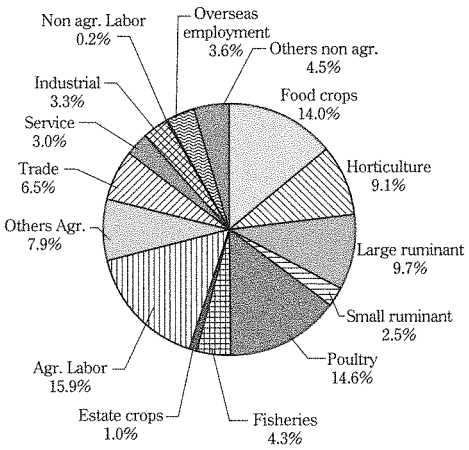



Figure 5. Percentage of each Household's Income Sources in Tulungagung

## 6.Changes in Farm Management Orientation

Essentially, implementation and sustainability of farm management are determined by farmers' perception and orientation (Syafa'at,1999). The results of this survey showed that the major-

ity of farmers(43%)were not satisfied with their current farming practices, while 24% of them were less satisfied, and only 10% of them were fairly satisfied and 23% of them said that they were extremely satisfied. This finding is related to the fact that 67% of the respondents were unable to meet their daily needs from their own asset, although 28% of them had extra occupation beyond agricultural activities.

Further investigation on farmers in Blitar and Tulungagung came out with the results that about 31% of them had relied on livestock for their income and 18% on fisheries sector. On the other hand, farmers who still relied on food cropping for their households' income were only 19%,on horticulture and on agricultural labor were 5% each.

It seems that in the future, livestock is expected to be the most reliable source of income for majority farmers (57%) who stated that in effort to improve their families' welfare they would take more advantage on livestock. About 21% of the respondents stated that they would stick on cropping activities and about 22% of them stated to work on other sector than agriculture as shown in Table 5.

Table 5.Perception of Farm Management Practiced by Farmers in Blitar and Tulungagung

| Description | Number | (%) |
|---|---|---|
| 1.Perception on the current farming practices: | | |
| a. Extremely satisfied | 30 | 10 |
| b. Fairly satisfied | 69 | 23 |
| c. Less satisfied | 72 | 24 |
| d. Unsatisfied | 129 | 43 |
| 2.Can the produce fulfill households' needs? | | |
| a. Yes | 81 | 27 |
| b. No | 201 | 67 |
| c. Uncertain | 18 | 6 |
| 3.If not, What about extra job in addition to owned production plus? | | |
| a. Enough | 204 | 68 |
| b. Not enough | 84 | 28 |
| c. Uncertain | 12 | 4 |
| 4.The most reliable occupation as the source of income: | | |
| a. Food crop | 57 | 19 |
| b. Horticulture | 15 | 5 |
| c. Livestock | 93 | 31 |
| d. Fisheries | 54 | 18 |
| e. Estate crops | 6 | 2 |
| f. On farm labor | 15 | 5 |
| g. Trade | 18 | 6 |
| h. Off farm labor | 6 | 2 |
| i. Industry/services | 27 | 9 |
| j. Overseas employment | 6 | 2 |
| k. Others | 3 | 1 |
| 5.Future plan to improve the household welfare: | | |
| a. Improvement of farming activities | 63 | 21 |
| b. Improvement of livestock raising | 171 | 57 |
| c. Carry out activities beyond agriculture | 66 | 22 |

Source: Field Survey,2001

## 7.Farm Management Dynamic

Additional interview with farmers has been carried out in Tulungagung in relation to their perception on the dynamic changes of farm management they are practicing currently. The information obtained from this interview is very important to be used as reference for future agricultural development in this region. Table 6,table 7 and figure 6 show the results of those extra interviews done in Tulungagung.

Table 6.Farmer's Perception of the Farm Management Dynamic Changes in Tulungagung

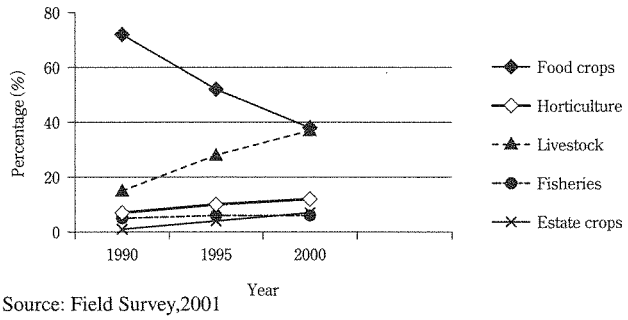
| Description | Number | (%) |
|---|---|---|
| 1.Source of information about current farm activities: | | |
| a. Mass media (printed and electronic) | 12 | 8 |
| b. Extension agents | 15 | 10 |
| c. Local government officials | 6 | 4 |
| d. Neighboring farmers | 61 | 41 |
| e. Farmers' representatives | 17 | 11 |
| f. Agricultural shops | 39 | 26 |
| g. Others | - | - |
| 2.Dominant source of agricultural information in the villages: | | |
| a. Mass media (printed and electronic) | 16 | 11 |
| b. Extension agents | 23 | 15 |
| c. Local government officials | 3 | 2 |
| d. Neighboring farmers | 53 | 35 |
| e. Farmers' representatives | 26 | 17 |
| f. Agricultural shops | 30 | 20 |
| g. Others | - | - |
| 3.Is the land being farmed decreasing within the last ten years? | | |
| a. Yes | 32 | 21 |
| b. No | 118 | 79 |
| 4.If yes, by how much? | | |
| **Average (of point No.3.a.)= 0.23 ha** | | |

Source: Field Survey,2001

Table 7.Trend of Intensive Farmed Commodities in Tulungagung in the last ten years

| Most intensive farmed commodities | Year | | | Change (%) |
|---|---|---|---|---|
| | 1990(%) | 1995(%) | 2000(%) | |
| a. Food crops | 72 | 52 | 38 | −34 |
| b. Horticulture | 7 | 10 | 12 | +5 |
| c. Livestock | 15 | 28 | 37 | +22 |
| d. Fisheries | 1 | 4 | 7 | +6 |
| e. Estate Crops | 5 | 6 | 6 | +1 |

Source: Field Survey,2001




Source: Field Survey,2001

Figure 6.Trend of Changes in Farming System Practiced by Respondents in Tulungagung (1990-2000)

Some interesting information can be discussed from table 6.

one of them is that the most important agricultural information received by farmers, represented by the respondents, is from neighboring farmers (35%) and from agricultural shops (20%) while the others are from the agricultural extension agents and the farmers' representatives ("kontak tani"). From table 7 and Figure 6 other important information from the survey is the sharp declining trend of cropping activities in the study areas in contrast with sharp escalating of livestock raising activity within the last ten years (1990-2000). Therefore, it is necessary to set up a wise and appropriate anticipative measure from all related institutions for the overall agricultural development.

## 8.Conclusion

Some restrictions including land suitability, opportunities and access to market as well as market information, resource availability (labor, knowledge, genetic etc.) and inputs availability (fertilizers, pesticides, chemicals, water etc.) have driven farmers in this study areas to perform the selection of income generating activities to fulfill their households' daily needs. In some cases, as observed in the field, the efforts to create activities beyond agricultural sector, especially that of food crop, has led to opportunities for farmers to take advantage on their own resources including labor and working time allocation.

Livestock sector, especially large ruminants such as dairy cattle and beef has been primary source of income as well as poultry and fisheries for farmers in this study areas. Livestock commodities have significantly substituted previous dominant commodities such as food crops, horticultural crops and estate crops as source of income.

Non-agricultural activities such as industrial labor, services and overseas employment are still important sectors especially for farmers who have no sufficient resources to nourish their families, or for those who perceive that agricultural sector is no longer reliable to fulfill their households' daily needs.

Finally, source of information to which farmers base upon their thoughts to change their orientation in farm management practices is obtained mainly from their neighboring farmers (fellow farmers) and from agricultural shops where they bought inputs for cropping and only few from agricultural extension agents or farmers' group representatives. It also shows that both creativity

and self-sufficiency among farmers under current national condition is getting better.

## Acknowledgements

Authors would like to thanks to Dr. Toshio Sato from Tottori University for his support in preparing this paper as well as to the officials of the Assessment Institute for Agricultural Technology-East Java (BPTP Jawa Timur) for their help during the field survey and data entry. Special thanks to Dr. Gatot Kartono and Ir. Bambang Irianto, MS that fully support during conducting this study.

## Reference

Flinn, J.C., J.K. Jayasuriya, and E. Labadan, 1982, "Evaluating Cropping Patterns in a Whole-Farm Framework", International Rice Research Institute, Los Banos, Philippines.

Hayami, Y., and K. Otsuda, 1994, "Beyond the Green Revolution: Agricultural Development Strategy into the New Century", CAB International, London.

Hermanto, 1996, "Agricultural Resource Optimizing and Dynamic for Economic Globalization: Case of Agriculture Land Function Changing", National seminar paper, Bogor, 25-26 September 1996.(in Indonesian)

Hutabarat, B., 1999, "Economic Production and Farm Management to Accelerating Adaptation of Technology, Increasing Production and Employment Opportunities: Summary and Suggestion for Research Guidance in the Future", PSE-Agency for Agricultural Research and Development, Book 1.(in Indonesian)

Kasryno, F., 1997, "The Direction of Agricultural Development in Java Island on 21st Century" Monograph Series No.17, PSE-Agency for Agricultural Research and Development. (in Indonesian)

Knipscheer, H.C, S. H. Webb, and A. Muljadi,1994,"Opportunities for Commercialization of Small Ruminant Production in Indonesia", Proceeding of a symposium held in conjunction with 7th Asian-Australasian Association of Animal Production Societies Congress, Denpasar, Bali, July 11-16,1994.

Myers, G., 1995, "Land Tenure Development in Mozambique, Implications for Economic Development", Land Tenure Center/USA.

Reijntjes, C., B. Haverkort and A. Waters-Bayer,1999,"Farming for the Future, an Introduction to Low－External－Input and Sustainable Agriculture", London: MacMillan Press,1992.

Rusastra, I W. and G.S. Budhi, 1997, "Agriculture Land Conversion and Anticipation Strategy to Preventive", Monograph Series No.17, PSE-Agency for Agricultural Research and Development. (in Indonesian)

Sadikin, S.W., 1982, "The Role of Cropping System in Increasing Food Production and Farmer Prosperity", International Rice Research Institute, Los Banos, Philippines.

Syafa'at, N., 1999, "Factors which Influence Technical Efficiency Relative and Farmers Attitude to Encounter Production Risk on Wetland Paddy Farming in Technical Irrigated Land", Innovation Dynamic and Agricultural Institution, PSE-Agency for Agricultural Research and Development, Book 1.(in Indonesian)

Webster and Wilson, 1980, "Agriculture in the Tropics" Longman Group Limited, London.

# 湿田稲作地帯における農業生産動向

## －東ジャワのブリターとトルウンガグゥン両地区における事例研究－

クントロ　ボガ　アンドリ・白武　義治
（農業経済学研究室）

平成15年12月25日　受理

**摘　　要**

本研究対象の湿田稲作地帯は，水稲，とうもろこし，大豆や野菜類のような作物の生産地としてだけ知られてきた．しかも，この地帯の他の潜在的な利用法は真剣に検討されてこなかった．しかし，実際，湿田稲作地帯では，一般的に漁業や家畜の生産，あるいは有機質肥料を利用するような農業など他目的に充当されており，農業経営における就労体系あるいは栽培作目の種類は，農民の所得や販売あるいは他の目的に適合するよう選択されている．また，最近の農家・農村調査は，農業が活気のあること，農民が次の世代へ交代しても，農民が遭遇した変化や挑戦に順応していることを示している．

本研究は，ブリターとトルウンガグゥン自治体の２地域において，湿田稲作農民による農業活動の動向を確認する為に行われた．本研究で，これらの地域を選択した理由は，これら２地域が東ジャワ地域のほとんどでみられる主な農業形態の典型であるという事実に基いている．このフィールドアンケート調査は，2001年６月の田植期に行われた．

本研究は次の諸点を明らかにした．この研究対象地域において，畜産部門，特に乳牛や肉用牛のような大型反芻動物が，家禽や漁業と同様に，農民にとって農業所得を得る優先的部門であり，労働時間を多く割り当てる部門であること．畜産部門が，従来の，所得源として多くを占めた穀物，園芸作物や家庭菜園作物のような作目から著しく交代したこと．工業労働，サービス雇用や海外雇用のような非農業活動が，彼らの家族を養うのに充分な資源のない農民にとって，あるいは，農業部門が彼等の家族の毎日のニーズを満たすのにもはや頼れないとみるものにとって，特に重要な部門となっていること．農民が彼等の農業経営方式を変える根拠となった考え方の情報源は，主に彼等の近隣農家であり，また肥培管理用資材を購入する農業資材店や，普及センター職員や農民の代表であること，などを明かにした．