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Local wisdom: Local Rice Excellence From Creativity of Farmer Breeders (Case Study of Indramayu Regency, West Java)

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ABSTRACT

Creativity farmer breeders get legal protection through the Constitutional Court of Indonesian Republic Decision No.99/PUU-X/2012 so that the seed and grain farmer breeders creative product can be marketed for their communities. This activity has an economic impact. Therefore the study aims to analyse the benefits of rice farming and to know the content of local wisdom on the application of environmentally friendly rice cultivation and sustainable. The research location in Indramayu with samples farmer breeders in the first 13 districts of local rice production centre using a snowball sampling technique. The data of this research is primary data obtained from an interview with questionnaire guide, during July-August 2016. The analytical tool used is the analysis of income and descriptive analysis related to local wisdom in the cultivation of rice crops in the fields. The results of the research are as follows: (1) Farmer breeders gain a significant advantage because of two things: the cost savings of inputs and able to increase the average rice productivity (2) local wisdom appearing in the institution rice cultivation,for breeder farmers to grow awareness that rice farming in addition to meaningful economic, ecological and social, also means life itself.

Keywords: farmer breeder, dream rice seed, profit, local wisdom, West Java

INTRODUCTION

Based on data from the Central Bureau of Statistics Indramayu Regency 2013 and 2014 shows that Indramayu Regency is one of the rice granaries in West Java Province. The success of Indramayu Regency in increasing rice production by 1,68 million tons in 2013, caused Indramayu to contribute about 14% of West Java rice production (12.08 million tons), equivalent to 2.4% of national rice production (68.9 million ton). The high production of Indramayu rice is due to the increase in land area and plant area. In 2013, the total area of Indramayu reached 204 thousand ha, of which 116,8 thousand ha (55%) are technical irrigated rice fields. So with the area of rice fields of that size, Indramayu ranks first in rice production in West Java. The second position is occupied by Karawang and Subang. Not only in terms of land area, in terms of productivity, but Indramayu was also able to fill the first position, with success in 2013, rice productivity reaches about 6.2 tons per ha.

In early 2000 the district of Indramayu was selected by the Indonesian FIELD Foundation (Farmers' Initiatives for Ecological Livelihood and Democracy) in cooperation with Indramayu Agriculture Office to introduce the knowledge and practices of plant breeding to rice farmers through Farmer Field School(Winarto,2011). Farmer Field School, according to Smolders and Caballeda (2006) that is a process of improving local capacities, teaching farmer breeding technologies to develop locally adapted varieties that are better fitting the farmers'local environments. Since the introduction of farmer empowerment program through Farmer Field School of Participatory Plant Breeding (PPB in FFS) in 2002 until 2010 Indramayu breeder farmers have produced up to 400 different rice varieties (Winarto, 2011). Some of the resulting types have the superiority of the weatherproof and high-productivity "dream" rice seed. This success turned out to attract the attention of the surrounding farmers and was encouraged to

plant " dream " rice seeds in more extensive paddy fields. This activity has an economic impact on the breeder farmers and the general farmers around them. There is a striking difference in the pursuit of rice farming using dream seeds. The role of farmers is dominant in the planting of seeds, the provision of organic fertilisers and homemade organic pesticides.

Research purposes

Based on the formulation of the above problem can be set the use of this study is to analyse the income of farmers according to marketing channels of rice and local rice in Indramayu Residence and to know the local wisdom that is formed through the practice of rice cultivation in rice fields by farmer breeders.

THEORY AND FRAMEWORK ANALYSIS

Issues of agricultural-based economic development today is how to conduct sustainable agribusiness, prospering the peasant community, justice and the realisation of a sustainable environment. The sustainability of agribusiness efforts means improving profitable farming through increasing productivity per unit area, improving human resource productivity, and maintaining and improving agricultural markets. The viability of rice farming is realised through the independence of rice breeder farmers, especially in Indramayu Regency in crossing paddy and finding local varieties. Although up to now, the types of seeds of the farmers have not been recognised by the government because they have not been certified and constrained by government regulations. While the advantages of locally ground-proof and high-productive rice seeds attract the attention of the surrounding farmers and are encouraged to grow local rice seeds in more extensive paddy fields, this activity has an economic impact on the breeder farmers and the general farmers around them.

Farmers, as business actors, expect maximum production results to obtain a significant income. For that, farmers use energy, capital and other production facilities as bait to get the expected results. Besides, the application of new technology in the field of agriculture is an alternative that is expected to help increase the production of farming. Soetriyono et al. (2006) said that farmers should pay attention to internal and external factors in the struggle. These factors can be explained as follows:

1. Internal factors of farming include farmer manager, farmland, labour, capital, technology level, farmers ability to allocate family income and number of a family member.
2. External factors of farming include the availability of transportation and communication facilities, aspects related to marketing of products and farming materials (selling price, input price, etc.), credit facilities, and extension facilities for farmers.

Increased productivity of farming is needed to meet the food needs of the people of Indonesia. Ministry of Agriculture creates integrated crop management technology components (PTT) which are integrated crop management consisting of superior varieties, nurseries, young seedlings, *legowo* cultivation system, balanced fertilisation, organic matter use, pest control, harvest and post-harvest (Directorate General of Food Crops Ministry of Agriculture, 2015)
Efforts to maintain rice production should be made through a reduction of yield loss by controlling plant pest organisms (OPT). The results of Harahap (2012) show that there is a significant difference in production cost, production and income of paddy farmers before and after implementing integrated pest control. Integrated pest management is a concept that has a positive impact on increasing rice production, decreasing production costs and increasing farmer income. An important implication is integrated pest control as an environmentally friendly technology package and able to improve the welfare of paddy rice farmers.

This research is a continuation of Winarto (2011) research with a focus of research on the economic side of the breeder farmers in Indramayu District. The struggle of breeder farmers to get official recognition from the government has been running since 2010. Based on the Decision of the Constitutional Court of Republic, Indonesia with Decision No. 99 / PUU-X / 2012 that smallholders are permitted to conduct germplasm search and collection for their communities. Domestic breeding results made by individual small farmers is an act of inheriting or having local wisdom in the agricultural sector that can advance the agricultural industry and can spread the results of its varieties to its community. The success of breeder farmers get permission to cover their rice varieties in limited communities, will have an economic impact, so it is necessary to research whether the breeder can improve their welfare through rice farming using the rice varieties of his creation.

METHODS

The location of research is the local rice seed production centre in Indramayu Regency, West Java. The research data is taken for two months (July- August 2016). This research uses breeder farmer respondents by tracing back figures of breeder farmers based on the results of the anthropological study conducted Winarto (2011), which can identify the existence of the breeder farmers are spread in 11 districts in KabuptenIndramayu. Farmer breeder, who was appointed by Winarto case (2011) amounted to 33 people spread in 16 districts. Farmer breeders who successfully traced back there are 18 people (50%) and who are willing to be only ten respondents only.

The technique of determining the next research respondents is to ask the breeder farmer who is willing to be a respondent to appoint a farmer who has the same perspective with himself. This is done because the breeder farmer population is a "hidden population" (Dragan and Maniu, 2013). Generally, farmers of PPB in FFS alumni know each other, facilitate in the search respondents

Sampling was done by snowball sampling technique and amounted to 30 farmers who breed in 13 sub-districts and 31 villages in Indramayu District. Farmers without land and only rely on labour are known as agricultural labourers, not included in the criteria of respondents, because their authority in decision-making is highly dependent on the landowners. Sources of data used in this study are the primary data obtained from interviews with a questionnaire guide. The types of data used include sample characteristics, production and factors of production and financial condition of farmers.

Quantitative analysis is used to determine the income level of paddy farmers. Revenues are earned by calculating the difference between the recipients received from the business proceeds and the production costs incurred, formulated:

$$\pi = Y.Py - \Sigma X_i .Px_i - TFC$$

Information:
π = Revenue (Rp)
Y = Rice production (Kg)
Py = GKG Price (Rp)
ΣXi = Number of factors of production to i (i = 1 , 2,3 ... n)
Px = Price factor of production to i (Rp)
TFC = Total Fixed Cost (Rp)

RESULTS AND DISCUSSION

Characteristics of Respondents

The size of rice fields generally use brick, "bahu" (local unit) and hectare units that must be converted into the same group of hectares. The area of paddy fields planted with rice has two statuses namely own land and rent for one year or two planting seasons. This land ownership status is significant calculated as a component of farming costs, where rice fields that have been considered as easy-to-buy properties, causing wetland stocks are decreasing. Rice fields that have changed hands to non-farmers will occur land conversion from land function as paddy fields turned into non-agricultural features. Maman's (2018) study shows that agricultural land sales tend to based on conditions where high demand for land due to development dynamics is a worrying condition for agricultural sustainability. However, for the case of KabupatenIndramayuthe total area reaches 204 thousand ha,that is capable of producing 1,68 million tons of rice in 2013.

The speed of paddy field sales is higher in locations close to the village/regency/ province road facilities. This condition causes the price of renting paddy fields up each year. The amount of rice field rent determined from the high/low yield of rice in general in the area. The renting paddy fields in Kec.Kertasemaya and Widasari are around 5.5 kw paddy / 100bata / year, and the highest rents are in Kec. Sukra reaches 7.2 kw / 100bata / year. In detail group of land area and land tenure status are listed in Table 1.

Table 1. The Spreading of Farmers Respondents, Land and Land Ownership Status Per District in Indramayu, West Java, 2016

Districts	Farmers	Land area				Ownership status	
		> 2 ha	1-2 ha	0.5 -1 ha	<0.5 ha	Own	Rent / pledge
Kertasemaya	4	0	2	2	0	3	1
Bangodua	2	0	0	0	2	2	0
Widasari	4	1	3	0	0	2	2
Juntinyuat	4	0	0	2	2	2	2
Lelea	3	0	0	0	3	3	0
Sukra	3	2	0	0	1	1	2
Gabus Wetan	3	0	2	1	0	1	2
Anjatan	4	1	0	3	0	2	2
Kroya	2	0	1	1	0	2	0
Bongas	1	0	1	0	0	0	1
Krangkeng	1	0	1	0	0	1	0
Terisi	1	0	1	0	0	1	0
Lohbener	1	0	1	0	0	1	0
TOTAL	33	4	12	9	8	21	12

Own rice fields as many as 21 farmers (63.3%) spread across 12 districts. The rest was rented land spread in 7 districts. The range of land area is between 0.14 ha to 10 hectares, so it is grouped into (1) under 0.5 hectare, (2) between 0.5 ha to 1 hectare, (3) between 1 ha to 2 ha and last (4) over 2 hectares. Based on these groups, the most netted respondents have paddy fields between 1 - 2 ha as many as 12 people, followed by the next nine people have wetlands between 0.5 to 1 ha. Thus, most of the farmers are in middle-class farmers. Farmers without land and only rely on labour are known as agricultural labourers, not included in the criteria of respondents, because their authority in decision-making is highly dependent on the landowners.

Farmers' Success Generates Local Seeds

Integrated Pest managementFarmers'Field Schools do not create dependency (Barlett, 2005), but should be able to encourage the creativity and independence of the community to develop further the ability to be self-represented, self-help, self-directed and self-managed for the implementation of goals, the wishes of the target community. Winarto (2011) illustrates how the change of mindset of farmers who follow the activities of IPM Farmers'Field School. The Integrated Pest Management (IPM) training (Dilts, 2001) that farmers have previously accepted sharpens farmers' observation capabilities (Feder et al., 2004) through more thorough, meticulous and systematised methods. And it turns out they were able to do it, showing that sophisticated scientific knowledge about genetic engineering that can be adopted and adapted by farmers in limited conditions.

Farmers are already aware of the impact of agricultural intensification on high production costs, the dependence of chemical inputs that do not benefit the farmers and undermine the environmental quality of the land, the inadequate quality of seeds, the implications of the free market and the play of others. The situation faced is what strengthens the motivation of the researcher farmers to participate in IPM-FFS training. The hope of producing "dream" rice seeds is following the environmental conditions of the village and has the advantage that can increase the production and welfare of farmers.

Plant breeding activities from 2002 to 2008 have resulted in many varieties of rice findings of farmers themselves. The steps they have passed include:

1. Selection of crosslinking raw materials, as "parent" to be crossed. The whole process of plant breeding takes time to allow the homogeneity of the resulting derivative, to reach the 12th (F12) derivative, meaning 12 times the growing season (5-6 years).
2. Knowledge of seed selection is identified with the "mbibiti" activity of selecting seeds to be planted in the next planting season. Selection methods are introduced to farmers to obtain seed purification and how to choose edible seeds. The process of selection given refers to the methods used by plant breeding scientists such as the Bulk selection method, the pedigree selection method, the semi-pedigree method and the cross-sectional selection method
3. Cross the seed, castrate and pollinate the stamens to the pistil's head. The knowledge and skills provided are castration time, pollination method, crossing method, harvesting of hybrid rice and sowing hybrid.
4. Selecting the crosses from generation F1 to obtain the result of selection reaching the characteristic of the (homogeneous) and is the ideal seed characteristic, generation F8 - 12 (Table 2)

Table 2. Characteristics of Ideal Seeds

No	Characteristics
1	Number of tillers
2	High production
3	Long blinds
4	The runs are numerous and contained
5	Seeds long, round beans as long as it tastes good
6	Large stems, sturdy, durable, rather high
7	Leaves the flag upright, not too tall or too short
8	Short life (maturity)
9	Suitable with conditions in your land (adaptation), waterproof, dry resistance, moderately high, medium and low soil or valley
10	Suitable with season condition, rainy season (rendeng) and dry season (gadu)
11	Resistant pests and diseases, no need to use pesticides
12	Efficient in using fertiliser
13	The taste of rice is good-tasting and tasty
14	Fragrant aroma
15	Selling in the market
16	The name of Ideal Seeds: longong, jalawaraberasmerah, jalawaraberasputih, gundil, ketanbetik, ketanhitam, sabo (asanekebo), ketansalam, ketanlusi, goyangdombret, Rangsel, blirik, cengkong, ngendongan, mentikwangi etc

5. Selected seed planting on farmer's land from one crossing result, the next generation of planting is carried out on a broader field on the farm of each breeder and his community. Selection observation is done collectively.
6. Preserve local seed by plant breeders, continuously developing local seed genetic components through purification activities (seeking seed characteristics following the "original"), local seed storage as seed banks, crosses and selections in cultivation.
7. The crosses of new cultivars are disseminated to non-breeder farmers as testing of seed adaptation at different sites. When the yield is flat and the same characteristics, the seed is considered stable. An example of the name of the seeds of the crosses is listed in Table 3

Table 3. Name of Rice Seed of Crosses

Name of rice seed	The male and female parent
1. Bongong	Result of crosses kebo and longong
2. Borang	Result of crosses kebodanCiherang
3. Jonggol	Result of crosses JonggoldanCiherang
4. CiboatauRangbo	Result of crosses Ciherangdankebo
5. Botan	Result of crosses kebodanketan
6. Sri Apeli	Result of crosses JonggoldanCiherang
7. Gadingsurya	Result of crosses are white stripes

source: Winarto (2011)

8. Recording the seeds of crossing elders and documenting the Selection of Result of crosses for at least eight seasons. Recording characteristics of crossed seeds and morphology, as well as the appearance of crops resulting from crosses, are conducted every week of observation as well as mapping the crosses and seed selection. There are 16 grains of plant growth characteristic. Result of crosses is age, height, leaf position, leaf colour, leaf position, grain shape, number of seed per panicle, loss, lying down, rice texture, yield potential, foot colour, disease and planting suggestions. The number of rice varieties that farmer breeders successfully created is listed in Table 3.

9. The exchange of seeds to fellow farmers is done by direct transfer, trade in the context of rice cultivation, especially during the planting season, the exchange can also use money as a tool of exchange. The indirect exchange of seeds through the prevailing rice cultivation system is the "ceblokan" and "nderep" system as the wage of farm labourers doing “tandur” activities, weeding the grass and cutting the rice ready for harvest. Wage quantity 1/6 part of the crop, known as a “catu” or “bawon”.
10. Ownership (patent rights) and distribution of cultivar seeds are done in two ways, namely recognition by the State through registration to the Director-General of PVT (Plant Variety Protection) or declare the Community Registry that is a declaration on the identification of ownership of the property of the varieties of rice crops with the community and village officials.
11. The struggle of breeder farmers obtains the legal status of their cultivar to the level of the Constitutional Court of Indonesia republic. Breeding farmer support institutions are included in the Plant Breeding Farmers Advocacy Team. The case filed in the Testing Act No. 12 of 1992 on Plant Cultivation System and Act no 29 of 2000 on the protection of plant varieties. After six submissions of the Constitutional Court of Indonesia, it was decided that there were six articles deemed to inhibit the participation of farmers in the development of crop cultivation, received by removing the meaning "excluded for individual small farmers in the country". Thus, the cultivation of the farmers' creation is legally protected.

Profit Analysis

In addition to paddy fields, rice farming requires production factors such as superior rice seed, fertiliser, pesticides, labour and management. Ordinary farmers will buy all farming needs in farm shops/stalls spread evenly in each village. But for farmer breeders and farmers of IPM-FFS and PPB-FFS alumni, the need for rice farming can be created by utilising the natural wealth around their fields and homes. The utilisation of crops, waste products such as animal waste and household waste are organic materials that can function as fertilisers and pesticides. So they tend to replace chemical fertilisers and pesticides with organic materials, so they are classified as "organic rice farmers". As explained by Winarto (2011) that the success of PPB-FFS relies heavily on the success of three main pillars: empowering farmers, creating local varieties and increasing in-situ conservation. Through plant breeding activities it is expected that farmers can preserve genetic resources which among others come from local varieties.In detail, the distribution of farmers is listed in Table 4.

Table 4. Distribution of Respondents of Farmers, Using the Dream Seeds (Farmer Breeders' Creation) Per District in Indramayu Regency, August 2016

Districts	Respondent	Seeds Variety		Acquisition of Seeds		Fertiliser		Pesticide	
		"Dream"	Government	Selection	Buy	Organic	Chemical	Organic	Chemical
Kertasemaya	4	*Bongong, Gading Putih*	Ciherang	3	1	1	3	1	3
Bangodua	2	*Bongi (Kebo vs pandan wangi)*		2	0	2	0	2	0
Widasari	4	*Sri Putih, tanpa nama, pandan wangi*	Ciherang	3	1	2(1)	2	3	1
Juntinyuat	4	*Rangbo, Borang,tanpa nama (ciherang vs Asa kebo) dan (jonggol vs Kebo putih)*	Ciherang	4	0	0(1)	4	1	3
Lelea	3	*Borang*	Ciherang	1	2	0(2)	3	2	1
Sukra	3	-	Ciherang, Mekongga	0	3	0(1)	3	2	1
Gabus wetan	3	*F8 Riau-mayangsari*	IR Kebo	2	1	0(3)	3	1	2
Anjatan	4	*Bravo, Sriputih,ketan bendot*	Ciherang, Mekongga,	3	1	1(3)	3	4	0
Kroya	2	-	IR Kebo, Ciherang	1	1	0	2	1	1
Bongas	1	-	IR Ciherang, Cidenok	1	0	0(1)	1	0	1
Krangkeng	1	-	IR, kalimuncul	0	1	0	1	0	1
Terisi	1	-	IR Kebo	1	0	0(1)	1	0	1
Lohbener	1	-	Ciherang	0	1	0	1	0	1
Jumlah	33	16	17	21	12	6	27	17	16

Description: number in brackets () means chemical and organic mixture, there are 13 farmers.

The consistent PPB-FFS alumni farmers will continue to maintain their existing skills by conducting selection and cross-linking activities, with the aim of obtaining good seeds that are able to withstand extreme weather changes such as water shortages in “gadu” season (dry season) or mostly water in “rendeng” season (flood / rainy season). So the cross-rice activity follows the needs of farmers to the changes that occur around them. This condition is an adaptation to environmental change. The seeds created will be disseminated to other farmers who are in the network and outside the network who are interested in planting the seeds. Distribution of seeds in different locations is a test location and multi-location test for the success of seed craving. Table 4 above shows that farmers who conduct seed selection for the next farming there are 21 people (63%) scattered in 10 districts. Seed selection takes place 3 to 2 weeks before harvest and is specially treated so that the seeds can be well preserved until the next planting season.

Successful dream seeds will be seen from high yields at various locations, which means the seeds are resistant to pest and disease attacks, and the seeds can respond well to organic fertilisers. The skills of organic fertilisers and pesticides are obtained by farmers through IPM-FFS. Based on Table 4 above shows that the number of farmers who use organic fertiliser as

much as six people who purely rely solely on organic fertiliser, while 13 people are still worried about the growth of seeds planted so that still mixing organic fertiliser with chemical fertiliser. The use of organic fertilisers slightly reduces the dose of chemical fertiliser use.

Similarly, the use of pesticides as much as 17 (52%) of farmers have relied on organic fertiliser in maintaining the growth of seed from pest attack. Major activities in pest control are empirical observation and comparison of seed growth each week from seedbed to harvest. According to Winarto (2011), through IPM-FFS farmers are trained to "not use pesticides if not necessary". Instead "nourish natural enemies" to "grow healthy plants" and "become IPM farmers (integrated pest control) on their land". Thus farmers have skills in decision-making about pest control strategies that will be pursued based on careful observation of the condition of the land using agro-ecosystem analysis.

The main goal of creating superior seeds, according to breeder farmers is to meet the needs of cheap and not greedy seeds against chemical intake. Farmers have "independence" not only from the capital but also in the freedom to plan cultivation strategies in the coming seasons, including pest control, fertiliser use and seed procurement (Winarto, 2011). Decreasing the need for production intake will increase savings on farmer spending and accompanied by high yields will increase farmers' profits. High profit in return for satisfactory rice farming will improve farmers' welfare. This is the aspiration and hope of the breeder farmers.

The income of rice farmer obtained by calculating the total cost of farming which is the burden of farmers to organise rice farming in the fields, in the hope of obtaining the maximum yield. Harvest is an abundant acceptance of farmers after selling all their harvests following the prevailing prices at the time. The difference between the two is the total revenue and income is the income/profits of farmers as a reward for his efforts to seek rice farming in the fields. The quantity of farmers' acceptance is determined by the level of rice production and the prevailing price of grain. The prices that apply in the grain market are highly dependent on the season (drought, harvest, celebration) and the stock of paddy/grain available at farmers' stores. The profit of breeder farmers in Indramayu District is presented in Table 5.

Table 5. Average Benefits of Farmer Conserving Farmers Using Consistent Seeds, Organic Fertilizers and Pesticides Perhektar

No	Cost component	1-2 ha	0.5 -1 ha	0.5 -1 ha (rent)
1	Productivity Kw / ha	70	49	42
2	GKG (Rp / kw)	430,000	700,000	12000 / kg of rice
3	Sales	42,303,427	34,300,000	30,240,000
4	Total cost	8,575,926	4,923,333	15,155,000
5	Advantages	33,070,649	26,684,233	15,085,000

Based on Table 5, there are three pricing conditions received by breeder farmers. First, the breeder farmer receives the prevailing market price of grain at Rp 430,000 / kw GKG. Generally, farmers sell their grain savings in large numbers ahead of the next harvest. Second, the breeder farmers sell their grain to a special grinder of organic rice with grain price higher than the market price of paddy rice which is Rp 700,000 per quintal. The grinder can serve as a trader distributing organic rice to organic rice shops/cooperatives. Third, breeder farmers can cut the market chain, so they can directly process the grain into the rice and market themselves in the form of economical packaging with plastic packaging, 1kg - 5 kg rice/packet with the price Rp 12.000 / kg rice. Generally rice from varieties of grain known as organic rice such as *pandanwangi*, black rice, brown rice, and purple rice (jasmine).

LocalWisdom: Preserving Local Biological Wealth Rice.

As has been shown in Winarto's (2011) research that breeder farmers who have been trained in plant breeding schools (PPB in FFS) learn how to glorify plants through experts, from the country and abroad that facilitate the learning process (Pontius et al., 2002). The success of the breeder farmers collects back the commonly long-lived, locally grown, high- flavoured rice seeds , used as a parent in the process of plant breeding. The main purpose of plant breeding is to produce superior seeds that produce high production. Therefore, genetic diversity conservation strategies are needed which can not be separated from the cultivation system of the plant itself.

The conservation form that is preserved by breeder farmers is the existence of conservation in the middle of cultivation activities, including the exchange of seeds to fellow farmers. When a seed circulates and spreads from one farmer to another through the exchange mechanism for cultivation, the seed is awakened from extinction. There are two kinds of exchange of seeds that are directly intercropping and exchange in the context of rice cultivation. The exchange of seeds between farmers is a common thing, especially when the planting season approaches. The exchange of seeds in Indramayu also took place on the grounds to try to match the "new" seeds with the season and soil conditions and to maintain the quality of the seeds. Farmers believe that the seeds that have been planted several times will decrease in quality. To maintain the quality of rice, in addition to buying new seeds *Saprodi* store, farmers can also exchange it with the seeds of other farmers who are considered still maintained quality. Currently, the exchange of seeds between farmers also uses money as a medium of exchange.

Based on the results of research Sukayat et al. (2014), it can be explained that there is suitability between cultivation technology developed by breeder farmers with the behaviour of "traditional" cultivation which is environmentally friendly rice cultivation and attention to aspects of health and sustainability of biodiversity-rich rice plant genes. Farmer breeders are able to combine the knowledge they get in the IPM in FFS (Maryono, 2007 and Harahap, 2013) and PPB in FFS (Nurasa and Supriadi, 2012) with knowledge of farming "bengen era" such as "ngopyori pari" using leaf lemon grass,'bangle ', brown sugar and grated coconut when the rice has started growing panicles.

Another activity carried out by farmers of the “bengen” era is "mbibiti", which is selecting seeds to be planted in the next season. In the process of plant breeding, selecting activities into one unified sequence, to choose the best seed from the acquired hybrid. So that ability seemed "restored". Seeds that have dried up when planted will need to be soaked for germinating. This activity is called "mengetim". This activity is still done by farmers so that the seeds that have germinated can be planted in the paddy fields. Another way is to sow seed "ngipuk" or sowing the seeds directly, the term now is "seeded" or stocking / direct seeding, articles used in this way for rainfed. To save the crops from bird pests, made "memedi rice" which is a bamboo puppet clothed farmers and moves with rope so that birds do not dare to approach. Thus, the practice of breeder farming is not much different from organic cultivation, which is in harmony with the environment.

The harmony of local rice farmers activities with their environment needs to be supported by the local government to make it local policy. As it has been developed in Gorontalo based on research by Wantu et al. (2018) through increasing resource competence, the farmers can increase their productivity which can give them welfare. In the future, local policies can encourage the sustainability of rice field through organic use (Eyhorn, et al. (2019).

CONCLUSIONS

Based on the results of the analysis and discussion can be drawn a conclusion that:

1. Result of income analysis of rice farmer breeder farming, obtained by the end that:
    a. The use of seeds of breeder breeders (seeds of dreams) provides savings in the expenditure of seeds, fertilisers and pesticides, to increase farmers' profits. The average seed productivity of 66 kw / ha is higher than the national average seed of 61.7 kw / ha.
    b. Farmer breeders have bargaining power and can selling price of organic rice between Rp12.000 - Rp. 20,000 per kg, according to the type of rice.

2. The local wisdom that is formed through the practice of rice cultivation in rice fields by the breeder farmers is as follows: a) preserve the rule cultivation of rice paddy such as wage/ “bawon” wage system, "ngopyori pari ", "gèdèngan" , "mbibiti" , "mengetim" , " swing " . b) to exchange seed to fellow farmers as a form of preserving "seed gene" and the preservation of the biological wealth of the rice crop gene diversity. c) growing awareness that rice farming in addition to significant economic, ecological and social, as well as meaningful life itself.

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