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Research Article

Organic Farming Model of Paddy Rice Production with Environmental Efficiency in Thailand

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Abstract: The research studied on system and management of the whole process of the organic rice farming practices in the local community farmer with a livelihood that having adherence to the sufficiency economy philosophy. The establishment with philosophy studied on the frame for hypothetical constructs to explain why certain farmers following organic agriculture in Maechan District Chiangrai Province upheld the sufficiency economy principles in their way of life as vested by the high attainments of sufficiency in spiritual, social, economic, environmental, and technological terms because of the inherent self-reliant food security and input supply features of organic farming and then their belief in the potential of sufficiency economy approach to help them save production costs and daily life consumption expenditure. Organic rice does not cause climate-driven impacts. In the end, these would help solve their problems effectively. Not only the communities became strong and a very reliable foundation but also paved ways to the sustainable development of the country.

Keywords: Organic, Rice, Climate change, Paddy, Environment, Efficiency, farmer

1. Introduction

The Twelfth National Economic and Social Development Plan (NESDB) 2017- 2012 is the plan to create measures in dealing with challenges in Economy, society, and environment. The phenomenon that many countries around the world have experienced a draught season, wrong time winter, and climate change. We are facing a global warming disaster which results from human activities whether burning fuel to response to the needs. In addition, the use of chemicals containing greenhouse gases like chlorofluorocarbon (CFC) and many others which increase the number of greenhouse gases (Greenhouse Gases: GHGs) and other gases that absorb heat (Solomon et al., 2007). When greenhouse gases float up to gather on the atmosphere absorbing heat from the sun. This causes the solar rays which used to be reflected back in the proper amount, become absorbed by these greenhouse gases instead, causing the world temperature to increase as well (Sutthiprasert, 2012). Prevention and problem solving of the condition change of environment cannot be performed by one government agency alone, but we must ; seek ways to prevent and holistically solve problems and to integrate (Nicharoj, 2010) to solve the problems sustainably starting from personal level, community level, organization level, state level, to country level (Phoboon, 2011); seek for the role of the organization by focusing on knowledge, understanding, awareness, problems, and obstacles in implementing the measures to handle the impacts of climate change.; understand that flooding events, wildfires, earthquakes are the impact of climate change.; recognize the effects of natural disasters such as drought, floods, storms, and epidemics,etc.; have energy saving measures, deforestation prevention measures, measures to prohibit burning of plant stubble; have guidelines for defining measures to support the impacts of climate change through the campaign to stop plowing the plant stubble, global conservation community project, reforestation project, and organic agriculture project (Suttiprasert,2012)

More recently, the National Hydroinformatics and Climate Data Center (NHC) recorded a significant period recurrent and prolonged droughts between 2015 and 2016 that led to critically low levels of water in reservoirs nationwide. In 2016, these droughts significantly reduced the duration of the growing season, as well as agricultural yields. Furthermore, in an economic study, by focusing on trends in extreme weather conditions along the Chao Phraya river basin, it was projected that in the next two decades, extreme droughts could create conditions for dry season irrigated rice production, where total production levels would be reduced by 30.9% (Worawong, 2016)

Furthermore, Bangkok, the capital city of Thailand has been identified as a city as particularly vulnerable to climate driven impacts, such as flooding due to both SLR and extreme rainfall events. For example, a case study assuming a scenario of the climate warming by 4°C, without adaptation measures being applied predicts severe

flooding in Bangkok. Under these assumptions, 40% of the city would be inundated by extreme rainfall event and a 15 cm SLR by the year 2030. Furthermore, the same event in the 2080's would inundate 70% of the city with an 88 cm SLR (World Bank, 2013). Ahead of 2015 Paris Agreement, Thailand submitted an Intended Nationally Determined Contribution (INDC) plan. The plan included a 20-25% reduction in greenhouse gas emissions from the projected business-as-usual approach by 2030. National institutions, such as the Office of the National Economic and Social Development Board (NESDB) and the Office of Natural Resources and Environment Policy and Planning (ONEP), have implemented climate change mainstreaming into planning and budgeting functions of government. Key national strategic policies to address climate change. (Raweewan,2015).The Twelfth National Economic and Social Development Plan (NESDB) 2017-2021 is informed by Thailand's Twenty-Year National Strategy Framework 2017-2036and complies with the 2015 Paris Agreement. Thailand has also chosen to adopt the Sufficiency Economy Philosophy of His Majesty the late King BhumibolAdulyadej, Rama IX as the pathway to achieve the 17 UN Sustainable Development Goals and has developed the Thailand 4.0 policy model as a means to translate these plans into action. Environmentally Sustainable System Plan (Vimolsiri, 2017). Sufficiency Economy Philosophy consists of 3 features and 2 conditions namely: modesty, reasonableness, and immunity. And 2 conditions consist of knowledge and morality. Which can be applied at all levels (Office of the National Economic and Social Development Council, 2004). Especially in agriculture by making synthetic microorganisms or photosynthetic bacteria Is photosynthetic bacteria. Photosynthetic Bacteria is bacteria found naturally in both the soil and in water. There are two groups of it; one group that collects sulfur and another that does not accumulate sulfur, but we will use a group that does not accumulate sulfur which is called Purple bacteria or purple photosynthetic bacteria. The group does not accumulate sulfur, once it is cultivated, has a red color. And the benefit of the photosynthetic microorganisms is that it can be applicable in many ways both for plant and animal, for water treatment and for human. The benefits for the plants are;1) Help to improve nitrogen fixation for plants 2) Help to eliminate Hydrogen Sulfide gas in the soil from the decomposition of organic matter that is toxic to plant roots 3) Make plants to grow faster by increasing minerals in the soil and decomposing minerals in the soil for plants to exploit 4) Act as an agent in the process of recycling for carbon, nitrogen, and sulfur compounds making the green leafy plants to become oily, last longer and not wither away easily 5) Source of various useful minerals such as amino acids, nucleic acids, physiologically active compounds and polysaccharides 6) Make the plant taste perfect, plump seed, grow fast, strong 7) Make plant roots grow faster by adding proteins, minerals and various acids necessary for plants. Chemical fertilizers must be filled in large quantities so that to make rice grown perfectly but when filling in a large quantity too much it will damage the structure of the soil, destroying the ecosystem because the soil and water will no longer contain microorganisms, causing all living things can no longer live. Or using chemicals to eliminate grass and pesticide improperly resulting outbreaks of diseases and insects. Therefore, using chemicals in greater quantities is needed resulting consequence of farming cost to rise. Besides, due to material prosperity, it changes the way of life of farmers. In the water, there is no longer fish, in the field, there is no longer rice. The cost of farming is rising due to expensive production factors and farmers encounter losses causing them to borrow money for investment. Some years, natural disasters, and losses occur. Some farmers can't endure the situation any longer and decide to make suicide finally.

The development potential of farmers to grow organic rice with The Dharma in Chiang Rai province, growing organic rice with sustainability between Natures. Enhance the farmers in the communities to grow rice wisely with organic methods which would help lower input costs, reduce the use of the chemicals. Nature and environments resulting in the better quality of life of the farmers. Agricultural Sustainable Development under the Philosophy of Sufficiency Economy must be cooperation among the public and private sectors as well as the farmers. For Sustainable Development to continue, the following are necessary: technology, natural resource conservation, and environment, sufficient production and marketing, joint planning between the government and farmers. Community leaders and representatives from the state and the private sectors. They are interest and alert to agricultural products and consumption greatly but lack accurate information about organic agriculture in compliance with standard certification, including technology adaptation and modern methods in the production process, technology adaptation and modern methods in the production process and marketing mechanism to support products (Jai Aree, 2018).

Thailand needs to consider policy options in the future in which any policy implementation in order to ensure food security of the country must be conducted by creating participation of people in all sectors including development in the potential of people in participating. This includes propelling the policy into practice seriously and effectively by encouraging all sectors to help each other in raising awareness of the negative effects of using agricultural chemicals. And relevant agencies should disseminate knowledge on the correct and appropriate use of agricultural chemicals for farmers.

As for rice farming occupation at present, no workforces join and assembly to help each other in farming like it used to be before. Therefore, it comes the occurrence of businesses in renting of transplanting vehicle, rice harvesting machine, insecticide spraying vehicles, resulting in higher production costs. From the above reasons, it can be seen that farmers who grow organic rice are now in the most concerned situation. And that relevant

agencies in all sectors in the community must adjust their strategies to be stronger and must come to look after, help or solve problems in both production and marketing and provide systematic and proactive approach in thinking and management with continuity and more seriousness in order to improve the quality of life for farmers and to control environmental problems so that they do not cause climate change at the same time. Because of these reasons, the researcher, therefore, is interested in studying the sufficiency economy philosophy to be applied for the development for farmers growing organic rice in Wiang Nong Lom in Mae Chan District, Chiang Rai province so as to utilize the research results as a guideline in solving problems and to make farmers of organic rice in Chiang Rai to have strength point which will make them to earn higher income and to have a better quality of life. However, organic rice itself does not cause any climate change.

This research objective is to study organic farming guidelines that do not affect the environment, to enable farmers to have a better quality of life and have a stable career .The scope of this research includes population extent consisting of organic rice growers and the extent in content. This research studies the situation of organic rice production, the synthesis of knowledge and knowledge management regarding organic rice cultivation. As for the extent of area, this study covers organic rice growing areas in Wiang Nong Lom, Mae Chan District, Chiang Rai province. As for the assumption of the research, the assumption is organic rice based on the sufficiency economy philosophy does not negatively affect the environment and organic rice causes farmers to have a better quality of life.

2. Objectives

To study on system and management of the whole process of the organic rice farming practices in the local community farmer with a livelihood that having adherence to the sufficiency economy philosophy.

3. Materials and methods

3.1 Study of sample organic rice growing areas

Research area in this study is located in Wiang Nong Lom sub district, It is a public area with a basin or the largest wetland of Mae Chan District, Chiang Rai Province. There are 3sub-districts and 2districts with the boundaries that are close to each other: Chan Chwa Subdistrict, Tha Khao Pluak Subdistrict, Mae Chan District and Yonok Subdistrict, Chiang Saen District, Chiang Rai Province. This area, if calculated base on the watershed division, is about 60, 000rai. At present, there is a remaining area of approximately 15, 000rai due to some areas have been invaded, occupied, exploited and already issued for the documents of rights. Some areas are destroyed by many people who are ignorant causing various environments to be destroyed, including archaeological sites that are historical evidence and the precious geology which has been lost and destroyed due to such various reasons. And at present, the current condition of the area still contains natural swamps with biodiversity or ecological systems that are relatively complete consisting of swamps, grasslands, forests, aquatic animals and various birds. The villagers usually call the area as "Muang Nong" or Wiang Nong "or some may call " Wiang Nong Lom"

3.2 Study of soil preparation procedures for organic farming

The size of the area should be large situated suitable terrain with natural area division such as mountains. The area should have fertility in moderate or higher level containing water source. The location must not be located close to industrial plants, no chemicals or contaminated soil persists. (Figure 1)

Figure 1 Preparation of soil for organic farming

3.3 Study in the preparation of organic rice seedlings and organic fertilizers

When applying fertilizer for planting, there is various proportion for mixing ratios that can be used, but the easiest way to do by pouring the fertilizer into empty water in any size container and then notice if water begins to change to a darker color with a faint pink color. That means it is usable. When applying fertilizer, it should be sprayed at the plant leaf or watered directly to the soil. From the trials, and from the results of using as collected from users, dipping or spraying on the base will be the most effective for plants because it is a living organism, not a hormone or nutrient and it lives in the soil.

Duration required for spraying or sprinkling should be 7 days/time or 14 days/time by observing that the soil for planting has appropriate moisture or does not dry out. Because the PSB and common bacteria live and exist well in appropriate damp soil. If it is properly wet, 14 days/time will be appropriate or if it is more dried, spraying should be made more frequently. Culturing or expanding of seedlings is possible or seedlings is available but it requires leavening agent which is currently available in many groups both by selling and distributing including in this group too (But sold at an inexpensive price to seek for funding).As for the leavening agent, it is needed to wait for a while since new breeds are being cultured. Ingredients include as follows; (1 Blended egg (whole egg) for 5 kg. (2 Molasses for 5 kg (3 A bottle of Yakult or sour milk 1 (4 tablet of yeast .Mixing method: Ferment all ingredients for two weeks. How to apply: Use in the ratio of 2 tablespoons per 20 liters of water for watering every morning or evening. Watering every 5 - 7 days will benefit plant to accelerate the growth, greenery leave, and productivity (Office of Agricultural Economics, 2012).(Figure 2)

Figure 2 Preparation of organic rice seedlings and organic fertilizers

4.3 The study of organic farming

Planting paddy using sprout transplantation method will help control weeds effectively. Good soil preparation can be done by plowing and dry the soil in order to eliminate the growth of weeds. The next step is releasing water to flood into the plot n order to eliminate the growing weeds. Then followed by plowing and raking adjusting the level of the soil surface to be even while maintaining the water level in the paddy field during the first phase of planting, approximately 2-1months after indirect cultivation. Begin planting to the field by using a ratio of about 100 grams per 1 square meter plot of seedlings. The seedlings will be rich and strong (about 7 kilograms of seed per 1 rai, 20x20 cm, 3-5 trees per one cluster using seedlings aged between 25-30 days) (Kwanream Panchan, 2009) (Figure 3)

Figure 3 Organic paddy farming

3.5 Study for the growth of rice in organic fields

High fertility is an important condition in organic rice production and we must maintain soil fertility levels in order to maintain complete yields especially for the main nutrient management of plants. The area used must not

have the burning of stubble, rice straw, and plant debris because this will cause the soil to be absent of the main nutrient for the plants. (Figure 4)

Figure 4 Growth of rice in organic fields

3.6 The study in organic rice threshing for distribution

Drainage from the fully mature rice fields will be conducted for 15-10days, depending on the nature of the soil so as to allow the soil to be dried and the rice to be mature steadily, which will yield in good quality. After harvesting process is done then rice will be sent for the threshing process then the acquired paddy rice will be stored in the sacks to maintain the rice in good condition. The storage location should be granary or storehouse that can properly prevent insects and enemies.

Organic rice marketing is the marketing that focuses on consumers who love health so as to make a difference, build confidence for consumers. And this kind of market is becoming popular in modern times. (Figure 5)

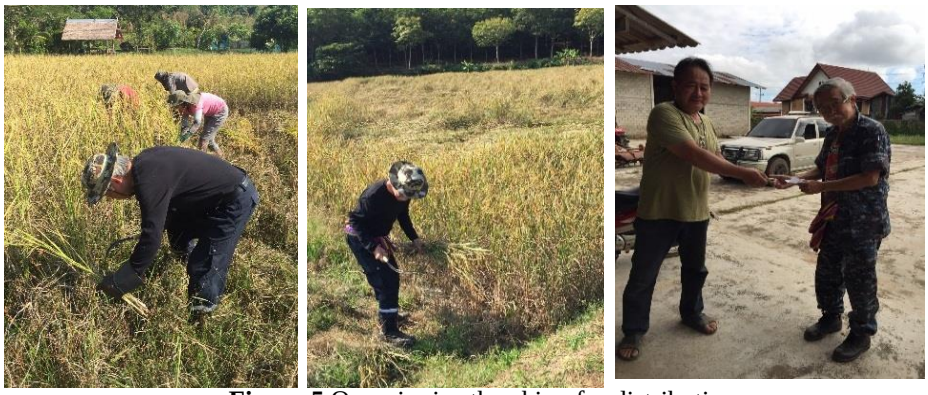

Figure 5 Organic rice threshing for distribution

3.7 The Study of organic rice marketing

Organic Rice Market Development in Thai Society, we must know the marketing opportunities. To develop, the following 3 steps in marketing must be conducted: 1) First step is to develop a farmer with an organic spirit. Expertise can develop space as a source of learning or tourism. 2) Second step is quality oriented production. Give value to creativity and 3) Step three is to integrate organic marketing aggressively with a green market. Sales to government agencies or joint market development of all sectors according to the Thai way of life (Pramote Yodkaeo2012 ,).

3.8. Cost analysis

Total fertilizer cost is 500 baht and Preparation of organic solvents for insect repellents but it is not used, the preparation cost is 200 baht.Daily workers' wages of 300 baht / person / day, throughout the planting season.

Wage = (1x30x1) + (9000 = 300x15x13,500 = (300 baht

Gross profit = 35,13 - 200 - 500 - 000,19 = 500, 300baht

Thus, operation gain = 19,300 baht

Some of round shaped rice is included about 5 percent in the planting, Gor Khor 105 variety.

3.9 Production analysis

Organic rice variety has a price of 550 baht/sack. The amount used is of 2 sacks/six rai.

Planting area of 6 rai (6x1, 600 = 96,000 square meters), the paddy production for 6 rai x 70 rice bucket = 420 rice buckets or 4,200 kilograms. Selling price at the beginning of December 2017 = 10 baht/kg for glutinous rice variety Gor Kor 6 stored for the whole year for 20 rice buckets or 20x6 = 120 kilograms. Rice in the amount of 50 rice bucket is donated to Wat Pa Mak Nor and then of 350 rice bucket remains for sale and 35,000 baht in cash is acquired from the selling.

3.10 Ecological Analysis

.1The area is lowland located between two hills. The land lies between the west and the east sides with mountains on the north and south sides.

2. The soil is loamy, suitable especially for farming.

3. The area is adjusted to be like a staircase descending from the west side down to the east.

4. The surrounding areas of the paddy field have water irrigation channel which is called the north as "Public watercourse" with water flowing all year round

5. Divert water stream into the west side, gradually allowing water to flow naturally into planting plots without using the water pump in any way. Allow the water stream from the middle of the public creek to flow down gradually step by step and exit at the exit of the public creek no. 4

6. The mountain on the south contains rubber trees. The mountains on the north side contain half of the rubber plantations. And villagers grow Phu Lae pineapples, Phu Lae pineapple is a famous product that as a geographical indication of Chiang Rai Province (Chiangrai GI Product). Therefore, this agricultural product, the grower must be finely meticulous in planting and must not use grass killers or pesticides. In Chiang Rai province, it tries to preserve these reputations seriously. (Figure 6)

Figure 6 Ecological analysis

4. Results

4.1 The study for sample organic rice planting areas

(1 Wiang Nong Lom is a public area that contains a basin of water or largest wetland of Mae Chan District and Chiang Rai province which still has natural swamps in the area.

2)The area has a good source of flowing water that can be divided using watershed.

(3The area has a relatively complete ecosystem consisting of swamps, grasslands, forests, aquatic animals and birds.

4.2 The study on soil preparation procedures for organic farming

1) The size of the area should be large, located in a suitable terrain

2) There are natural division elements in the area such as mountains.

3) The area should have moderate or high fertility.

4) The area has water sources for cultivation, located not closed to industrial plants, no chemicals or contaminated soil.

4.3 The study on preparation of organic rice seedlings and organic fertilizers

1) The easiest way is by pouring the fertilizer into plain water in any size of mixing container and then notice if water begins to change to a darker color with a faint pink color. That means it is usable.

2) When applying fertilizer, it should be sprayed at the plant leaf or watered directly to the soil. From the trials, and from the results of using as collected from users, dipping or spraying on the base will be the most effective for plants because it is a living organism, not a hormone or nutrient and it lives in the soil

3) Duration required for spraying or sprinkling should be 7 days/time or 14 days/time by observing that the soil for planting has appropriate moisture or does not dry out to much. Because the PSB and common bacteria live and exist well in appropriate damp soil. If it is properly wet, 14 days/time will be appropriate or if it is more dried, spraying should be made more frequently.

4) Culturing or expanding of seedlings is possible but it requires a leavening agent. As for the leavening agent of the group, it is needed to wait for a while since new breeds are being cultured.

5) Ingredients include as follows; (1Blended egg (whole egg) for 5kg. (2Molasses for 5kg (3A bottle of Yakult or sour milk 1 (4tablet of yeast. Mixing method: Ferment all ingredients for two weeks. How to apply: Use in the ratio of 2tablespoons per 20liters of water for watering every morning or evening. Watering every - 5 7days will benefit plant to accelerate the growth, greenery leave, and productivity (Office of Agricultural Economics, (2012.

4.4 The Study in the organic rice transplantation

(1 It helps control weeds effectively

(2 Good soil preparation can be done by plowing and dry the soil in order to eliminate the growth of weeds.

(3 The next step is releasing water to flood into the plot order to eliminate the growing weeds. Then followed by plowing and raking adjusting the level of the soil surface to be even while maintaining the water level in the paddy field during the first phase of planting, approximately 1-2 months after indirect cultivation (Kwanream Panchan,2009).

4.5 The study in the growth of rice in organic fields

Organic rice production requires a high fertility area and we must maintain soil fertility levels in order to maintain complete yields with having the main nutrient management of plants. The area used must not have the burning of stubble, rice straw, and plant debris because this will cause the soil to be absent of the main nutrient for the plants.

4.6 The study in organic rice threshing for distribution

1. Organic rice threshing process is still found, but most of them usually rely on machinery for a quicker process in the distribution.

2. Organic rice marketing is the marketing that focuses on consumers who love health so as to make a difference, build confidence for consumers. And this kind of market is becoming popular in modern times. Thus, the development in stimulating consumer decision-making should be increased with providing standard quality, which is in accordance to (Sukhothai Thammathirat Open University, (2016.

4.7 The study on the organic rice market

As for organic rice marketing in Thai society, we must know to find various distribution channels for continuous development. It is a market of the present day. The market development should be starting from ;

.1Develop villagers to dedicate their love for agriculture, growing organic rice. Promote knowledge to be able for development as a learning resource to increase tourism channels.

.2Focus on the quality of production, use organic fertilizer and use no chemical additives

.3Create proactive marketing promotion along with collaboration with the organization and government agencies.

4.8 Cost analysis

As for organic rice production process using organic fertilizer and bio-fermented water, the preparation of organic solvents for insect repellent, daily worker wages, these are the total cost of the production process (Kwanream Panchan, 2009). Results from the study reveal that organic farmers who quit using chemical fertilizers have a low cost of production. As for the average rice yield per rai of organic rice farming is less than the farming

that is mixed between using organic chemical fertilizers. This can be considered that organic rice farming is suitable for further development in providing knowledge.

4.9 Productivity Analysis

Organic rice production with the using transplanting method in the paddy field and bio-organic fertilizer has a lower cost of production than the cultivation using chemical fertilizers which is in the agreement with the work of (Rampaipa Mahatad, 2005, cited in Kwanream Panchan, 2009) who studied in the process of developing agricultural chemical systems into organic systems.The results reveal that; (1In the economic aspect, it can reduce production costs, increase income security (2In the social aspect, it provides health safety both for manufacturers and consumers making strong communities 3)In the environment aspect, it helps restore soil fertility. It is capable to completely balance the ecological environment (4Using compost or bio-fermented water helps decompose stubble and rice straw by using bio-fermented water and plant extracts. As for production costs and rice productivity, it is found that organic rice farming has the production cost of 1,948 baht per rai, with average income and rice yield of 297 kg per rai, respectively. As for chemical farming, it has a production cost of 1,929 baht per rai and an average yield of 253 kilograms per rai. This is concluded that organic rice farming has net income higher than chemical rice farming, ie 1,227 and 273 baht per rai, respectively.

4.10 Ecological Analysis

The ecological system is quite complete with biodiversity consisting of swamps, grasslands, forests, aquatic animals and various birds, which villagers often call this area as "Muang Nong" or Wiang Nong "or some may call " Wiang Nong Lom"

5. Discussion

Farmers growing organic rice should consider in creating a learning network to participate in various activities to first improve the quality of health first and thus followed by changing in the method of production to be organic method in order to reduce residual toxins in the body. As for in terms of social and environmental aspects, it helps making natural resources complete, creating a balance in the ecology, which can be said that "in the water, there is fish in the paddy field there is rice". Culture, local wisdom in making organic fertilizers will promote the new generation to see the value of local herbs, promote knowledge transfer and the activities of people in the community and help to promote unity in the community resulting in a strong community with the establishment as enterprises within the community. Therefore, in current organic farming, if all farmers pay attention to the environment and consider the ecology by applying modern agriculture along with traditional agriculture, this will return the nature to the land. And that will be the time" in the water there is fish and in the field, there is rice, certainly. Organic farming will definitely give farmers a better quality of life.

6. Conclusion

1.Wiang Nong Lom is a public area that contains a basin of water or largest wetland of Mae Chan District and Chiang Rai province which still has natural swamps in the area.The area has a good source of flowing water that can be divided using watershed. The area has a relatively complete ecosystem consisting of swamps, grasslands, forests, aquatic animals and birds.

2.There are natural division elements in the area such as mountains. The area should have moderate or high fertility. The area has water sources for cultivation, located not closed to industrial plants, no chemicals or contaminated soil.

3.The easiest way is by pouring the fertilizer into plain water in any size of mixing container and then notice if water begins to change to a darker color with a faint pink color. That means it is usable.

4. It helps control weeds effectively and Good soil preparation can be done by plowing and dry the soil in order to eliminate the growth of weeds.

5.Organic rice production requires a high fertility area and we must maintain soil fertility levels in order to maintain complete yields with having the main nutrient management of plants. The area used must not have the burning of stubble, rice straw, and plant debris because this will cause the soil to be absent of the main nutrient for the plants.

6.Organic rice threshing process is still found, but most of them usually rely on machinery for a quicker process in the distribution.

7.The market development should be starting from Develop villagers to dedicate their love for agriculture, growing organic rice. Promote knowledge to be able for development as a learning resource to increase tourism channels. Focusing on the quality of production, use organic fertilizer and use no chemical additives. Creating proactive marketing promotion along with collaboration with the organization and government agencies.

8.Organic farmers who quit using chemical fertilizers have a low cost of production. As for the average rice yield per rai of organic rice farming is less than the farming that is mixed between using organic chemical fertilizers. This can be considered that organic rice farming is suitable for further development in providing knowledge.

9.Organic rice production with the using transplanting method in the paddy field and bio-organic fertilizer has a lower cost of production than the cultivation using chemical fertilizers. In the economic aspect, it can reduce production costs, increase income security.

10.The ecological system is quite complete with biodiversity consisting of swamps, grasslands, forests, aquatic animals and various birds, which villagers often call this area as "Muang Nong" or Wiang Nong "or some may call " Wiang Nong Lom".

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