

Integrating Thai Native Cattle into Organic Paddy Rice Farming System in Bokcharearn Community, Ubonratchathani Province

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Abstract

Organic farming system in Thailand was started in part of paddy rice and vegetable orchard around 20 years ago. It consisted of mainly organic paddy rice and vegetable orchard with a minor crop-livestock production system. The aim of this research was to evaluate production efficiency of raising native cattle integrated with organic paddy rice. This research was conducted from 15 farmers raising native cattle integrated with organic paddy rice farms in Bokcharearn community, Ubon Ratchathani Province. The results showed that each farmer raised 26 cattle/farm (10 cows). They could sale cattle 7 heads/year/farm. Average rice area was 13 rai/farm. They could produce averagely paddy rice yield of 10.40 ton/year/farm. They could produce organic fertilizer from manure at 2,358.00 ton/year/farm. They could get total income of 133,810.00 bath/year/farm. The average carcass and lean meat percentage were 53.20 and 45.19%, respectively. The total income was 133,810.00 bath/farm.

Keywords : cattle, organic paddy rice, farming system

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Introduction

Thailand is the best for high quality rice production country. The best quality of Jasmine rice is found in northeastern part of Thailand. The plantations cover more than 7 million acres nationwide. There is a significant area dedicated for Jasmine rice found in Sisaket, Surin, Buriram, Nakhonratchasima, Ubonratchathani, and Roiet Provinces. This is due to soil conditions, upland, and low rain. Ubonratchathani Province has the area for Jasmine rice cultivation around 10% of northeastern jasmine rice cultivation area. The agriculture vision of province is "Strong Community, Livable City, Trade and Tourism Gate, and potential Agriculture". The policy focuses on organic rice for increasing production efficiency and enhancing the commercial value for farmers. By these reasons of no chemical using in paddy rice field, they need to use manure fertilizer from cattle.

Integrated organic paddy rice and native cattle system is free of chemicals. Cattle were raised in buildings closed to farmer houses. Farmers raised them with rice straw, paddy rice by-product, and forage crops closed to their houses grown organically. Cattle provided manure as fertilizer. The main diet of cattle is farm grown pasture supplemented with concentrates in small amounts. These concentrates were from paddy rice and other grains produced from their farms. The farmers can decrease the cost of their paddy rice production by not using chemicals and earn more price from organic rice. They had lower costs of raising cattle because they do not need to buy any input for the cattle. More importantly, organic farming is good for the health and environments. The aims of this research are to analyze integrated organic paddy

rice and native cattle production in Bokcharearn community, Ubonratchathani Province.

Material and methods

This study was the result of encouraging farmers to raise native cattle integrated with organic paddy rice. Farmer produced organic compost from native cattle manure at Bokcharearn community, Ubonratchathani Province. The Native cattle in Bokcharearn community, Thumbol Banmad, Amphur Buntharik, Ubonratchathani Province, were composed of local breed and their crossbreds. The number of native cattle was average 26 heads in 2008. There were 15 farmers participated in the research. They totally produced organic compost for 195 rai of organic paddy rice.

Data were collected from native cattle integrated organic paddy rice at Bokcharearn community, Ubonratchathani Province.

1. Primary data were composed of cattle identifications, body weight, feeding system, manure management, calving numbers, and paddy rice yield.
2. Secondary data were as relevant information from research papers, book, etc.

The data were then analyzed for native cattle production efficiency in integrated organic paddy rice production.

Results and discussion

1. General Characteristics of the sample

There are 15 farmers raising native cattle integrated with organic paddy rice. They are 45 – 64 years old. They got primary education. The first objective of raising native cattle is to produce organic fertilizer from manure. The

second objective is to earn extra income from cattle selling. They produced organic fertilizer from manure and crop residual with microorganism mixtures provided by The Province Land Development Office. The average members in family are five persons. The number of workers is 2-3 workers. One or two workers work full-time. Farmers have experience in animal husbandry for more than 10 years. They joined a group of organic farmers, especially paddy rice more than 5 years. All farmers own their own land. The average area for paddy rice is 13 rai per person.

Farmers receive information about livestock production and organic agriculture from Buntharik Livestock Breeding and Research Station. They are communicated with the organic livestock production. They had been trained in livestock integrated with organic paddy rice and training which visit monthly.

The farmers raise native cattle and other animal such as native chicken and pig. They use the products from paddy rice and other crop as source for animal feed. Knowledge to integrated cattle with organic paddy rice production systems is in high level. The majority of farmers have deep knowledge about the enterprise. However, they seem to be more knowledgeable in organic rice production than organic livestock production. They know only the point of the management of animal welfare, nature and behavior of animals. However, knowledge about organic livestock standards is very low.

In the aspect of attitude, most farmers agree with the point of the management of animal welfare and behavior of animals. They also agree with organic livestock standards production. In the aspect of practice in

integrated organic livestock-crop production system, they followed the organic livestock production system in moderate levels, but very low in organic livestock production.

2. Production of native cattle integrated with organic paddy rice

The average livestock holding per farm found in this research were 26 cattle/farm (10 cows). They could sale cattle 7 heads/year/farm. Average rice area was 13 rai/farm. This turn into average organic rice yield of 10.40 ton/year/farm. The organic fertilizer produced from manure were average 2,358.00 ton/year/farm. The average total income earning was 133,810.00 bath/year/farm (Table 1). For their paddy rice production, the organic rice could sell at more expensive price than the conventional paddy rice (8,000 vs 4500 bath/ton). They could decrease the uses of chemical fertilizer and pesticides by using organic fertilizers. Organic beef and crop production costs were lower than conventional beef production in USA (113.69 versus 120.28 USD/acre/year) (Acevedo et al, 2006).

3. Carcass quality of native cattle integrated with organic paddy rice

In this research, 7 native cattle were used for studying carcass quality. They were all male cattle at 3 years of age. Average live weight is 241.59 ± 99.26 kg/head. Average carcass and lean meat percentage are 53.20 ± 4.66 and 45.19 ± 13.13 percent, respectively. Average crude protein and crude fat are 17.04 ± 4.72 and 0.69 ± 0.06 percent, respectively (Table 2).

Table 1 Native cattle integrated with organic paddy rice production system

List	Value
No of farm	15.00
Average number of cattle (heads/farm)	26.00
Average number of cow (heads/farm)	10.00
Average calf crop (%)	86.57
Average sale cattle (heads/farm/year)	7.00
Average rice area (rai/farm)	13.00
Average paddy rice yield (ton/farm/year)	10.40
Average income from cattle (bath/farm/year)	50,610.00
Average income from rice (bath/farm/year)	83,200.00
Average organic fertilizer/(ton/farm/year)	2,358.00
Average total income (bath/farm/year)	133,810.00

Table 2 Carcass quality of native cattle in integrated organic paddy rice

List	Value
No of native cattle (heads)	7.00
Live weight (kg/head)	241.59±99.26
Carcass weight (kg/head)	127.83±52.60
Carcass percentage (%)	53.20±4.66
Lean meat (%)	45.19±13.13
Loin eye area (cm ²)	48.77±4.37
%CP	17.04±4.72
%Fat	0.69±0.06

A study by Acevedo et al (2006) showed that average carcass percentage of organic grass fed, organic grain fed, and conventional beef cattle production were 61, 63, 63 percent respectively. The carcass from grass fed is lower. In this research, carcass percentage compare with other research are 53.20 and 54.11 percent

(Boonyanuwat et al, 2011). Native cattle in this research are majority fed on home grown pasture, rice straw, and byproducts from paddy rice. The cattle produced without grain supplementation so the meat produced is low in crude protein and crude fat.

References

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