

**MERIT AND PROBLEMS OF CONVEBCIONAL RICE
FARMING SYSTEM IN BALI**

GROUP 2

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Background

Rice is the most important crops around the world. The fact is also in Indonesia.

Rice field area of Indonesia is very wide, and it's on 3rd position in the world. The other data showed that Indonesia have very low rice production, if it's compare with the others country like Japan, and Indonesia is one of the largest rice importer country. That's mean Indonesia have low efficiently production of rice, so we must improve it.

we find two rice field methods in Bali, such as conventional system and traditional system.

conventional system is one of agricultural system, which was born from Green Revolution. using chemical fertilizer and pesticides due to increase production crop significantly.

conventional system has some advantages for farmers, but also some problems. many opinion develop in our society about this problems.

in this study, we focused about what merits and problems of conventional system, especially for rice planting in Bali. we measured a state of soil by using Dr.soil and interviewed farmer to clarify the merit and problems of conventional farming and traditional farming, and compare it each other.

objectives

1. To clarify the merit and problems of conventional farming and traditional farming.
2. To compare with conventional farming system and traditional farming system .

Real impact in conventional agro ecosystems include

1. Increasing land degradation (physical, chemical and biological),
2. Increased pesticide residues and interference as well as pest and weed resistance,
3. Reduced biodiversity
4. Health problems of farmers and other community members as a result of the use of pesticides and environmental pollution materials.

Methodology

- **Collection the soil samples**

This step will occurred in several location, such as:

- Sindu village, Abiansema subdistrict, Badung District,(Conventional 1 Rice Field(C1))
- Lungsakan village, Ubud subdistrict, Gianyar District (Conventional 2 Rice field (C2), Conventional Sweet potato (Cs1))
- Wongaya Gede village, Gelagah Tebel subak, Tabanan District (Conventional 3 Rice field (C3))
- Jatiluwih village, Tabanan district

- **Interview farmers**

We were doing interview in

1. Ayunan Subak, Badung District
2. Wongaya Gede village, Gelagah Tebel Subak
3. Jatiluwih village, Telabah Gede subak

- **Analysis on the soil by using Dr. soil.**

Dr. soil is one method to know about the nutrient in soil samples.

we measured pH, NH₄-N, NO₃-N, P₂O₅, K₂O.

- **Analysis all data and compare with references and make synthesis about the problems**

Results and Discussions

1. state of soil

table.1 soil condition

	are name	crop	pH	NH4-N	NO3-N	P2O5	K2O
conventional	Sindu	rice	5.5	1	35	25	100
	Ubud	rice	6.5	5	1	10	150
	Ubud	sweet potato	5.0	5	2	100	100
		Av.	5.7	3.7	12.7	45.0	116.7
traditional	Jatiluwih	rice	6.2	3	1	25	100
	Jatiluwih	rice	6.3	1	1	5	150
	Jatiluwih	rice	6.4	2	2	25	70
		Av.	6.3	2.0	1.3	18.3	106.7

2. yield component

table.2. yield component of conventional rice farming

	no.panicle /hill	number of grain/panicle	percentage of pithy grain/panicle	weight of grain per hill(gram)
1	22	123.06	0.8689	48.4
2	17	77.294	0.8455	40.38
3	16	73.227	0.8131	40.13
Av.	18.33	91.19	0.84	42.97

$$\begin{aligned}
 \text{Yield per m}^2 &= \text{average weight of grain/hill} \times \text{average percentage of pithy} \\
 &\text{grain/panicle} \times \text{average number of hill/m}^2 \\
 &= 42,97 \times 84,25 \times 16 \\
 &= 5,79 \text{ tons/ha}
 \end{aligned}$$

3. interview

Conventional farming system	Traditional farming system
• Less production loss	• High production loss
• More efficient	• Less efficient
• High cost	• More cheap
• Cause health and environmental problems	• Keep the environment sustain
• Misuse and overuse chemical fertilizer and pesticides	• Not use chemical input, so lower productivity

We compared the chemical compound of conventional and traditional farming system. Table.1. shows the results. Average of conventional type are, on the whole, more higher than one of traditional type. Perhaps, it means farmers in conventional field give some nutrients for field, too much. In other words, there is a possibility that conventional field have some residual.

Table.2. shows about yield component in Ayunan Subac. We calculated yield per 1 ha. The value is 5.79t/ha. We can understand this conventional system can achieve enough yield. Because the average yield in Bali is about 5ton/ha.

We compared the merits and problems of conventional farming system and traditional farming system by interview farmer.

From these results, we concluded that the conventional farming system and traditional farming system should collaborate. First, the conventional farming system should be reviewed. Because there is a possibility that conventional field have residual. But not using chemical fertilizer is not realistic from the yield's point of view . Therefore, Indonesia should consider new farming system to decrease amount of using chemical fertilizer.