



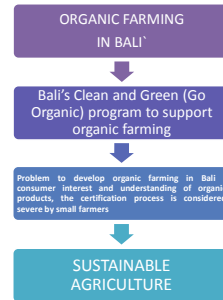
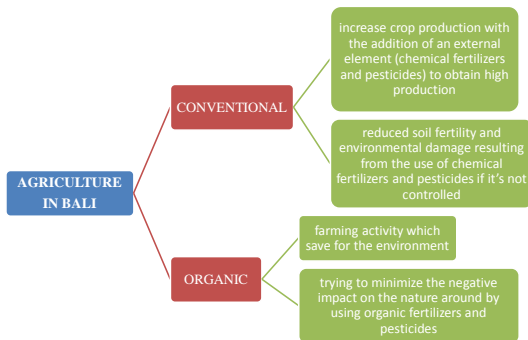
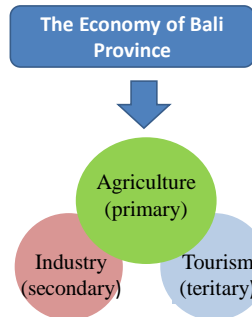
ANALYSIS OF CONVENTIONAL AND ORGANIC FARMING PRACTICES FOR TOWARD SUSTAINABLE AGRICULTURE IN BALI

By:
GROUP A

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1. Introduction

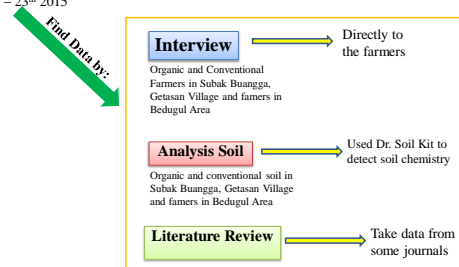


This study aims to give information about development of conventional and organic farming system in Bali and find the solution to make agriculture in Bali keep in sustainable.

2. Research Method

Place:
A. Conventional and Organic Rice Farming in Subak Buangga, Getasan Village, Badung Regency
B. Conventional and Organic Vegetables Farming in Bedugul Area, Tabanan Regency

Time:
August, 22nd – 23rd 2015



3. RESULTS AND DISCUSSION




3. 1. Conditions & Problems in Conventional and Organic Farming in Bali

Subak Buangga → **148ha**
215 people
4group(1organic, 3conventional)


Organic since 2007(certificate 2012)

- land: 48ha
- yield of rice: 6~7t/ha
- cost (government subsidy 90%)
- income: Rp 5000/kg
- rad attack: 0%
- spicy spray



Conventional

- land: 100ha
- income: Rp 4000/kg
- yield of rice: 6~7t/ha
- rad attack: 15%
- rat poison
- chmeical fertilizer and pesiticide

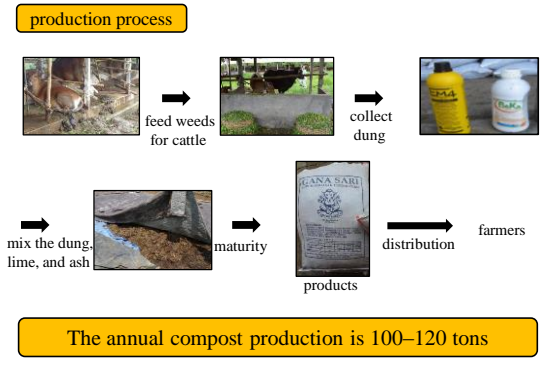


Subak Buangga

- Cow manure**
- Group name (Gana Sari)
 - 50 cows
 - Care 2 cows/ people
 - All females (one male)
 - Total 500kg/day
 - Distribution near farmers



Manure production group



Bedugul Area

- Conventional** since 1982
- 4 family/ ha
 - Green onion income: Rp 15000/kg
 - Rp 5million /month
 - bio control for 2 million/ month
 - Products (green onion, tomato, passion fruits)
 - Chicken manure and husk
 - Rp 70.000/ ton Water
 - Bio control (5 products)
 - 1 time/ week in dry season
 - 4 time/ weel in rainy season



Bedugul Area

Started organic farming since 1999

conventional | organic

1994 | 1999 | 2015

- Organic**
- Total area: 4ha (1.5ha ルンチャさん)
 - More than 20 kinds of products
 - Carrot is most income products
 - Income: Rp 20 million/ month ルンチャ
 - Labor time: 10.5 hours
 - Sell for nearly restaurants and chinese area
 - Certified
 - Organic fertilizer cow manure (damaged fruits juice+microorgnism +molases)
 - Training center for near farmers



Based on observations and interviews in the field, show that in general the problems that arised in conventional and organic farming systems in Subak Buangga and Bedugul area caused by several things such as : **water was limited, prices was fluctuative , and pests and diseases problems**, as shown in Table 1 and Table 2.

Table 1. Problems in conventional and organic farming in Subak Buangga

Problems	Conventional	Organic
Water irrigation)	little of water to plant	little of water to plant
rice products	<ul style="list-style-type: none"> •fluctuation Rp 11000~18000 •competing other region's products 	<ul style="list-style-type: none"> •stabilization Rp 25000 •limited market
pest and	Rats, insect	Rats, insect

Table 2. Problems in conventional and organic farming in Bedugul area

Problems	conventional	Organic
water	little of water to plant	little of water to plant
Price of the product	<ul style="list-style-type: none"> •fluctuateion •lower 	<ul style="list-style-type: none"> •stabilization •higher
crop damage	pests and desease	pests and desease

3. 2 Solutions to solve problems for conventional and organic farming in Bali

Table 3. Solutions for conventional and organic farming in Bali

Management	Solutions of the problem
Conventional	a. Governments aid for initial investment for create new water sources and keeping costs
	b. Make standard of a minimum price for farmers
	c. Integrated pest management
Organic	a. Governments aid for initial investment for create new water sources and keeping costs
	b. Make standard of a minimum price for farmers
	c. Integrated pest management, the use of biopesticides, and insect pathogens
	d. Improving the quality of products and government facilitate farmers to market their products

3.3 Comparative analysis of soil chemistry between organic and conventional farming in Bali

Soil nutrient conditions in conventional and organic farms were very essential to know.

This information was very important to take the next step in order to maintain and improve the productivity of land cultivated by farmers.

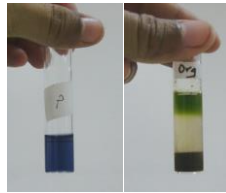


Table 4. Chemical properties of the soil in conventional and organic rice farming in Subak Buangga

Chemical Properties	Conventional	Organic
NO ₃ (mg/100g)	1	1
P ₂ O ₅ (mg/100g)	5	5
K ₂ O (mg/100g)	100	100
CaO (mg/100g)	400	400
pH	5	5.5

NO₃ is not detected in paddy field because usually nitrogen was reduplicated by water



Based on the results of soil analysis in Subak Buangga in conventional and organic land use Dr. soil provide results that , there was no difference in the nutrient content of the soil. But in testing on soil pH showed differences (Table 4).



Chemical Properties	Conventional	Organic
pH	5	5.5

However, the pH conditions in both farming systems could be categorized under acidic conditions (7 <).

One solution could be to increase the pH of the agricultural land is to add organic materials such as lime and manure.



Some materials that could be used to improve soil conditions were cow manure and lime. Cow manure contains many macro nutrients such as Ca, Mg, S, N, P, and K (Junita et al., 2002).



Liming could raise soil pH and decrease the high level of soluble, which could poison plants.

Table 2. Chemical properties of the soil in conventional and organic vegetables farming in Bedugul Area

Chemical Properties	Conventional	Organic
NO ₃ (mg /100g)	5	1<
P ₂ O ₅ (mg/100g)	150	150
K ₂ O (mg/100g)	35	150
CaO (mg/100g)	100	1,000
pH	7	7

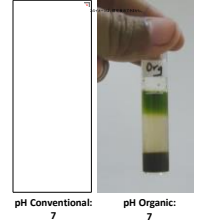
Calcium (CaO) in organic farming was higher than conventional farming. Accumulation of calcium in the soil organic farms higher conventional farms because farmers added of lime to the soil before it was processed.



Liming in the soil

Potassium in organic farming was higher conventional farming. In organic farms were found husk that used to be mixed in the planting medium. Husk was also used to increase the levels of potassium in the soil.

Value of pH was in netral condition in the both places. Maybe, farmers they tilled their soil in the both places used lime, so it could increase pH.



5. Conclusions

Conventional farming conditions in Bali today still use pesticides and chemical fertilizers. Meanwhile, organic farming has been eliminated using chemicals that damage the environment.

Some problems that arise in the application of conventional and organic farming today, such as: water was limited, prices was fluctuative, and pests and diseases problems.

The solving problems that can be done is governments aid for initial investment for create new water sources and keeping costs, make the standard of a minimum price for farmers, and integrated pest management.

Actually, organic farming practices is the one way that can make sustainable agriculture in Bali. But, to provide agricultural practices that need support from the government, society, and university to help farmers.

4. Opportunity of sustainable agriculture in Bali

Thank You



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