Adoption of Integrated Agricultural Systems Technology in an Effort to Maximize Profits and Utilities

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Abstract

Incorporating Agriculture Practice into Education (5)

Technological changes in agriculture and information flow of increasingly advanced and growing farming system requires agricultural actors to be better understood with the current technological sophistication. Technological advances are expected to assist farmers in staggering the results of their farming. Integrated agricultural systems are developed to increase production per hectare of land. Based on the background, it is necessary to conduct research on the adoption of integrated agricultural system technology in *Tabanan*. The purpose of this research is to know the response of farmers to adoption of integrated agricultural system technology in *Tabanan*, and factors influencing the process related to transfer adoption technology integrated agriculture system in *Tabanan*.The research was conducted in *Selemadeg Timur of Tabanan Regency*, with the consideration that there are three groups of farmers implementing integrated Agriculture System built by the Provincial Office of Agriculture of Bali-based and producing their own bio pesticide from livestock waste. Research shows that the farmer's response to adoption of integrated agricultural system technology in *Tabanan* is very fast, this is indicated by the time required by farmers to adopt the technology within 5 years. Factors affecting the process associated with the adoption of agricultural technology transfer system integrated in *Tabanan* is education, frequency follow the broadcast

Keywords : Adopted technology, integrated farming

1. Introduction

Agricultural technology continues to be developed to generate increased productivity of farming. The changes that took place over the years led to many new ideas emerging to continue to improve farming production. The applied technology is changing from conventional technology to modern technology. The change is expected to give satisfaction to farmers. the satisfaction depends on the impact after application of the technology.

Technological changes in agriculture and information flow of farming are increasingly developed and growing very rapidly, demanding agricultural actors to be better understood with the sophistication of technology.

Technological advances are expected to assist farmers in determining farming outcomes, in addition to technology for the development of farming and facilitate interaction with each other without being limited by distance and time

Tabanan is known as a rice barn causing various efforts to maintain agricultural production to exist throughout the mass

To maintain the totality of rice barns, various farming technologies were developed that could increase agricultural production.

limited agricultural land farming into non-agricultural business and production prices that have not stimulated farmers to produce, causing rice production is growing slowly.

Integrated agriculture was developed to increase farm production. This integrated farming system is a way of managing farming by integrating crops and livestock in farming areas, by utilizing livestock waste as farm input and farming waste as inputs in livestock farming.

So there is no waste of crops or livestock are discarded, then the cost of farming becomes lower, production is expected to increase

The technology of agricultural integration has been introduced by the Provincial Food Crops Department of Bali since 2009 or already Nine years, but adoption is still slow.

why the technology of integrated system of integrated farming has not been widely adopted by farmers, especially rice farmers in *Tabanan*, based on the background, it is necessary to conduct research on the adoption of integrated agricultural system technology in Tabanan.

Based on the above background can be formulated research problems as follows.

1. How is the farmer's response to adoption of integrated agricultural system technology in Tabanan
2. What factors affect the process associated with the adoption of integrated agricultural technology system transfer in Tabanan.

I. Material and Method

The research was conducted in Tabanan district, with the consideration that there are three groups of farmers implementing integrated program of Integrated Agriculture System and producing their own biopesticide from livestock waste. Respondents were taken by census of 60 farmers, where all group members were made respondents

The data has been collected, analyzed using Soekartawi(1984) model, with identification approach to the characteristics of Adopters consist of :
information received by farmers
The advantages of adopting new technologies are applied in land area
The assumption that farmers choose a technology if the technology is more profitable than other technologies. Thus the decision to choose technology

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as follows
D = 1, In case of adoption of new technology
D = 0, If old technology is still used
So as to determine the distribution of subjective opportunities of farmers who adopt technology

$$Pi(.) = X_{tj}\alpha_{kt}+e_{ki.ti}$$

2. **Result and Discussion**
3.

3.1 Characteristics of Respondents

Characteristics of respondents in Kecamatan Selemadeg Timur in this study include the area of arable land, education of respondents and age of respondents who are considered to support the results of the research described as follows.

3.1.1 Land area of Respondent's

Village	Average land area (Ha)	Average rice area (Ha)	Unirrigated agricultural field (Ha)
Megati	0,62	0,38	0,24
Sandan	1,43	0,57	0,85
Mambang	0,54	0,08	0,45
Quantity	2,58	1,03	1,54
Persentage	100,00	40,05240683	59,95

The land area of 60 respondents in Selemadeg Timur as in the table shows that from 2.58 ha of land area of respondents, there are 40.05% planted rice that is about 1, 03Ha. about 59, 95% of land area or area of 1.54 ha of land of respondents is a unirrigated agriculture field. Based on the results of the research respondents indicated that the technology of agricultural integration is carried out on medium land with an area of 0.54 to 1, 43 ha

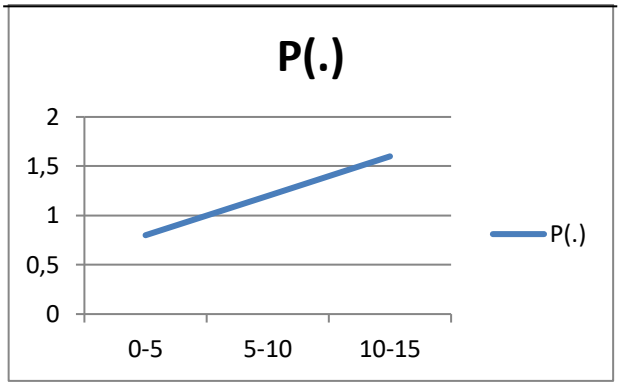
2.1.2 education of respondens

No	education	Number of responden	%
1	Elementary	17	28,33
2	Primary school	11	18,33
3	High school	30	50,00
4	collage	2	3,33
	Quantity	60	100

Based on the results of research indicates that education of respondents including high educated that most of graduate high school education by 50%.

This shows that farmers who adopt integrated agricultural systems technology have a high education, so that farmers more easily adopt the knowledge and technology that want to apply in their farm.

3.1.3 Opportunities for technology adoption



Based on the results of research conducted in three villages namely Sandan Village, Megati Village and Mambang Village can be saw that the adoption of integrated agricultural technology implemented rapidly that is between five to ten years.

In the past five years in Selemadeg Timur Tabanan have successfully implemented integrated agricultural technology between food crops and beef cattle thoroughly

The implication is that the technology package must be introduced continuously and routinely, has been gradually developed from year to year and with various improvements, the goal of creating technology integration with a system easily adopted by farmers. With 5 years technology age

3.1.4 Frequency of listening to agricultural broadcasts

No	Frequency of listening to agricultural broadcasts	Number of responden	%
1	Routin	2	3,33
2	Sometime	22	36,67
3	never	36	60,00
	quantity	60	100,00

Efforts to adopt integrated agricultural technology is one technology that is expected to increase farm profits.

Measuring the frequency of respondents in listening to agricultural broadcasts is a difficult activity so that in this study measured the number of listening broadcasts in a week.

It can be assumed that the more frequency of listening to agricultural broadcasts both on television and radio, it is expected that higher knowledge of farmers respondents to agricultural technology (Soekartawi, 2005).

The result of the research on respondents in subdistrict of Selemadeg Timur is known that the frequency of listening to agricultural broadcasts is very low, in fact there are 60% of respondents never listen to agricultural broadcasts either from television or radio broadcast. Only 36% of respondents sometimes listen to agricultural broadcasts and that too if they see unintentional broadcasts in the media.

3.2 Factors Affecting the Adoption of Integrated Agricultural Technology

Factors influencing farmer's decision to adopt technology are direct benefits from technology in the form of relative advantage, technological conformity, and perception of farmer to influence of media / information interpersonal,

in non-adopter farmers is the compatibility and complexity of technology and perceptions of farmers on the influence of media / information interpersonal as communicative communicator to the farmers. A new technology will not be useful without adoption. Similarly, biopesticides that support organic agricultural development will not be useful without adoption.

Adoption is a process of behavior change in the form of knowledge (cognitive), attitudes (affective) and skills (psychomotor) on a person after receiving the message conveyed extension on the target (Mardikanto, 1993). An innovation will be very easy to adopt if the innovation can be seen / and observed with the eye (Ray, 1998) Based on the results of research conducted in the District of Selemadeg Timur Tabanan, factors influencing the existence of an adoption of integrated agricultural technology are education level, frequency follow agricultural broadcasting, frequency follow agriculture extension, farm location distance to main road, farmer distance to sub-district town, farmer age.

4. CONCLUSION

Based on the results of research on Adoption of Integrated Agricultural System Technology for Farmers in Effort to Maximize Profit and Utility, it can be concluded that:

1. Farmer's response to adoption of integrated agricultural system technology in Tabanan is very good, as evidenced by the time required by farmers to adopt the technology within 5 years.

2. Factors affecting the process associated with the adoption of integrated agricultural technology transfer system in Tabanan is education, frequency following agricultural broadcasting, frequency follow agricultural extension, farm location distance to main road, farming distance to sub-district town, farmer age.

2. Suggestions

Based on the results of research and conclusions that can be created in this study include:

1. Farmers are given technology to respond more quickly because in general technology is created to create broad progress in agriculture.

2. Government or non-government parties who provide technology should continue to provide information and counseling so that farmers understand the technology to be conveyed to farmers.

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