

## UTILIZATION OF ICT BY RURAL FARMERS IN LAMPUNG, INDONESIA

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*Lampung as the gateway of the island of Sumatra, the progress of development and society quite rapidly. The development of information communication technology has also been felt by farmers. This study aims to determine: the accessibility of farmers to conventional agricultural information sources and farmers accessibility to ICT in finding agricultural information. The sample of farmers is taken by rural area of urban border (Kecamatan Jati Agung, Lampung Selatan Regency adjacent to Bandar Lampung City) where 3G and 4G cell phone signal coverage is sufficient. The results showed that the accessibility of farmers to ICT is good enough, but the utilization of conventional media is still relatively high. Most farmers know the benefits of hp to find agricultural information, but most farmers use face-to-face with agricultural extension workers to obtain agricultural information. Currently, radio and television have been abandoned by farmers to find agricultural information, and the majority of farmers use it as a medium of entertainment.*

Key words: ICT, rural urban farmer, Lampung

### Introduction

Lampung Province is located on the southern tip of Sumatra island and is known as the gateway to Sumatra from Java. The potential of natural resources has the potential as a producer of various agricultural products, so that Lampung is also known as the land of agribusiness. Because of its close proximity to DKI Jakarta, Lampung is a Jabodetabek buffer in supplying agricultural and livestock products.

National economic development coupled with the development of technological innovations in agriculture requires farmers to keep abreast of agricultural information. This is in line with the development of farming issues, especially food crops and horticulture, so farmers need information on agricultural innovations that are up to date to address the problems of their farming. The rapid development of information innovation can be obtained by using the information and communication technology (ICT) that continues to develop as well. However, the use of ICT is highly depended on

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the availability of supporting infrastructure, such as internet networks and the availability of 3G or 4G signals. The availability and strength of 3G and 4G signals are more focused in urban areas, so that only urban communities who are easier to access information. On the other hand the existence of agricultural extension agents and other conventional media such as radio broadcasts, television, community leaders, opinion leaders in the dissemination of agricultural information cannot be ruled out.

South Lampung Regency as the buffer zone of Bandar Lampung City, especially in supplying the needs of agricultural products for food crops and horticulture. The development of Bandar Lampung City with all the supporting infrastructure facilities is faster and better than in other regions. Because of the adjacent location, rural peasant communities around the city of Bandar Lampung can be beneficiary from the availability of information and communication technology infrastructure.

The research problems examined in this study are; (a) How do farmers use conventional media? (b) What is the use of ICT by farmers in the Lampung region? To answer this problem, this study aims to know (a) the use of conventional media by farmers; (b) knowing the extent of the use of ICT by rural farmers.

## **Literature Review**

The development of information and communication technology (ICT) has reached all levels of society, including rural farmers. The development of ICTs directly and indirectly brings changes in rural communities. Various studies show that utilization of ICT has been used as a powerful instrument to accelerate economic and social development, including the quality of life's improvement in rural communities. Information technology has been used by the public as an internet and multimedia-based learning media so that it can improve the capacity of agricultural extension workers and farmers through independent learning. The availability and utilization of ICT access takes an important role in the effort to open the isolation of rural areas to markets, production technologies, prices, capital, and other supporting facilities and infrastructure (Idris, 2015).

Several studies in the country related to the use of ICT was carried out by Harahap (2016). The result of the research indicated fulfilling information from ICT still less because minimum access toward television, radio and internet. Broadcast quality from television and radio can not be accepted clearly. Radio ownership and utilization

only used by some respondents and internet rarely used by respondents because there is no broadband connection. Information fulfilling to household farming industry are very rare because ICT access is still very low.

On the other place, research result at Grobongan District, Central Java by Yuantari, Kurniadi, and Ngatindriatun (2016) showed that there were still many farmers who did not know the function of the internet and could not be used for sale, only 9.26% were able to use the internet.

Research of Raghuprasad, Devaraja and Gopala (2012) at Bangalore, India showed that more than two-fifth (40.83%) of the farmers had favorable attitude towards ICT tools followed by 31.67 per cent had least favorable and 27.50 per cent had most favorable attitude.

Study results were little different, Williams and Agbo (2013) research in Ebonyi, Nigeria found that 54.17 percent of the respondents had access to mobile phones whereas 57.50 percent had no access to computer. ICTs was used by 31.67 percent of the respondents to get information on new varieties, ICT was effective in information delivery in determining the quantity of farm inputs.

The latest research by Lokeswari (2016) at rural area of Coimbatore, India showed that ICT helps in growing demand for new approaches. It also helps in empowering the rural people by providing better access to natural resources, improved agricultural technologies, effective production strategies, markets, banking and financial services etc.

## **Methods**

This research was conducted in Lampung Province which is divided into 13 districts and two cities. Sample area was chosen intentionally, namely Jati Agung Subdistrict, South Lampung Regency with consideration that the region borders Bandar Lampung City which can be beneficiary of the availability of agricultural information through the internet network by using mobile phones. Samples of farmers of food crops (rice and horticulture) were 52 peoples. Primary data was collected from farmers related to the use of digital and conventional communication media to find agricultural information. The collected data were analyzed descriptively (Thompson, 2009; Lawless and Heyman, 2010).

## **Results and Discussion**

Administratively South Lampung Regency is divided into 17 sub-districts (BPS South Lampung, 2017). Jati Agung Subdistrict is one of the sub-districts in South Lampung Regency whose territory is directly adjacent to Bandar Lampung City. The distance from the capital of Teak Agung District to the capital city of Bandar Lampung is around 20 km. Some Jati Agung residents work in the informal sector such as masons, carpenters, or construction workers in Bandar Lampung City, especially during the dry season or dry season where they cannot cultivate their agricultural land. The informal workers generally have land that is not too large (less than 1 hectare), so that while waiting for the next job to work they seek work in the city,

Sample farmers are farmers of food crops who cultivate their land for planting rice and or horticulture, especially vegetables such as eggplant, chili, mustard, and lettuce. The general characteristics of respondents can be described as follows:

- Gender: 50 men (96.15 percent) and 2 women (3.85 percent).
- Education level of majority respondents graduated from high school (23 peoples or 44.23 percent); graduated from junior high school (15 peoples or 28.85 percent); graduated from elementary school (7 peoples or 13.46 percent); not graduated from elementary school (5 peoples or 9.61 percent); and undergraduate (2 peoples or 3.85 percent).
- Experience in responding to respondents: 3-15 years (26.92 percent); 16-28 years (7.69 percent); and 28 - 40 years (65.39 percent).
- The area of ownership of arable land ranges from 0.25 to 2 hectares, with the following percentage; 0.25 - 0.83 hectares (30.77 percent); 0.84 - 1.42 hectares (26.92 percent); and 1.43 - 2.00 hectares (23.08 percent).

As farmers of food crops who need the development of agricultural information to overcome farming problems, they try to look outside the village area (82.69 percent), the rest (17.31 percent) never seek information outside their village.

The existence of agricultural extension worker as agricultural information source for farmers stated that 96.15 percent stated that they always asked the extension worker, and only 3.85 percent sometimes asked th eagricultural extension workers. This data shows that the existence of agricultural extension workers is still quite important for farmers.

Vegetable farmers (horticulture) who are more often facing farming problems, generally seek information directly to the area around their homes (outside the village). The results showed that most farmers (82 percent) had sought information related to horticultural farming outside the village. The rest believe in the information they get from neighboring farmers in the village area. Farmers in rural areas in general still rely on information from agricultural extension workers to increase their production and farm income. The majority of farmers still believe in PPL as a source of information for farmers, 96.15 percent of farmers make PPL as a source of information, and only 3.85 percent only sometimes seek agricultural information from PPL in their area.

The development of communication technology that has reached the village level has also changed the communication patterns of rural communities. The price of a relatively affordable (relatively cheap) mobile phone, with around 200 thousand rupiahs, the farmer can already have a 2G or 3G cellphone. Ownership of ICTs in the form of HP communication devices, almost all farmers already have HP even though there is one farmer whose HP is damaged or not functioning. The ownership causes the activity of using HP to find agricultural information in the past year: 1.92 percent never, 1.92 percent rarely, 94.23 if necessary, and 1.92 percent always use mobile phones (see Table 1).

Ownership of communication tools by farmers is in varying conditions. The quality of the communication equipment that is owned is generally influenced by price, farmers' assessment of the quality of IT facilities: poor (5.77 percent), good (90.38 percent), very good (1.92 percent), and 1.92 percent saying no know. Farmers who do not know about the quality of the communication equipment they have because they generally only use it, for example the cellphone owned is the gift of another party.

The availability and accessibility of ICT infrastructure in this region has been very good. The infrastructure is in the form of electricity networks, landline networks (cable phones), cellular telephone networks, internet networks. Almost all regions and all farmers can access it, except for the landline network, there are 3.85 percent (92 sample farmers) who are not covered by home telephone services from PT. Telkom. At present the PLN electricity network, the cellular telephone network, has reached the entire Jati Agung District.

Farmers' assessment of ICTs is quite interesting. Farmers' assessment of the accuracy of ICTs (mobile phones, home phones, computers, computers and the internet,

VCD / DVD) in delivering agricultural information messages. Only around 23 percent of farmers stated that ICT had accuracy in conveying agricultural information, 54.24 percent of farmers said they did not know. This result can be caused by farmers not understanding or not knowing how to assess the accuracy of ICTs.

The results of the study show that the assessment of the accuracy of ICT in conveying agricultural information according to the assessment of Lampung farmers is also interesting to be studied further. As many as 78.85 percent of farmers do not know (cannot judge) the accuracy of ICTs in conveying agricultural information. However, more than 19 percent of farmers stated that information obtained through ICTs was not or was not appropriate. This shows information or agricultural innovations that are disseminated through several media are not appropriate (not appropriate) to the needs of farmers.

The rapid development of ICT does not reduce the role of conventional media.

- All farmers still conduct face-to-face communication (meetings) with PPL.
- Radio broadcasts have been abandoned by farmers, only 1.92 percent of farmers have radio, and even then rarely used to obtain agricultural information.
- Print media (magazines, tabloids, and newspapers) are no longer used by farmers.
- Television broadcasts are still used by 88.46 percent of farmers, and 67.31 percent of farmers have rarely used them to obtain agricultural information
- Fellow farmers, only 7.69 percent were used as agricultural information sources.
- Community leaders still have a large role, 73.08 percent of farmers have figures, although they are rarely used as agricultural information sources.
- Opinion leader also still has a large role, 76, 92 percent of farmers still have, although 42.31 percent of farmers are rarely used as a source of information.

The use of conventional media by farmers to obtain agricultural information, in general when they need it, and most (37.91 percent) have never been used as agricultural information sources. (see Table 6).

Farmers' assessment of the quality of agricultural information from various information technology facilities in detail as follows: (see Table 7).

- 92.31 percent of farmers assess face-to-face communication (meetings with extension workers).
- 1.92 percent of farmers consider radio broadcasts to be of poor quality, the rest do not know because they do not have a radio

- 100 percent of farmers cannot assess the quality of print media (magazines, tabloids, newspapers) because none of the farmers have used print media to find out agricultural information.
- In general (67.31 percent) farmers consider that television broadcasts are currently lacking in quality, this is because very few television broadcasts disseminate agricultural information. Television broadcasts are dominated by news broadcasts, entertainment, sports broadcasts, and advertisements,
- Farmers as sources of information among peasants (78.85 percent) are considered quality.
- Community leaders and opinion leaders as sources of information for farmers are also considered to be of the same quality (42.31 percent).

In general conventional media is assessed by quality farmers, this shows that farmers in Lampung still believe in conventional media (see Tabel 7).

The existence of ICT infrastructure that has been used by farmers to find agricultural information, has its own advantages and disadvantages. The shortcomings felt by farmers are the background for them to hope for a better ICT infrastructure in the future. The most expectation of farmers are Addition of agricultural information material. The completely farmers expectation, can be seen at Table 8.

## **Conclusion**

From the discussion above it can be concluded that: (1) In the era of digital communication information technology, it turns out that the role of field agricultural extension agents as conventional media by farmers is still dominant; radio and television broadcasts have been abandoned by farmers because of inadequate broadcast quality; and television tends to be a medium of entertainment; (2) Lampung farmers already have cellphones that are generally 2G or 3G, and they use to find agricultural information in times of need.

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**Attachment:**

Table 1. Ownership of mobile phones by farmers

Possession of handphone	Percentage (%)
Do not have	1,92
Have but it's broken	0,00
Have and good	98,08
Total	100,00

Source: primary data, 2017

Table 2. Opportunity or frequency of use of mobile phones by farmers

Opportunity to use a cellphone	Percentage (%)
Never	1,92
Rarely	1,92
If they need	94,23
Every time	1,92
Total	100,00

Source: primary data, 2017

Table 3. Farmers' assessment of IT quality

Quality of ICT	Persentase (%)
Not qualified	0,00
Lack of quality	5,77
Qualified	90,38
Very good quality	1,92
Do not know	1,92
Total	100,00

Source: primary data, 2017

Table 4. Farmer assessment of the accuracy of ICT used

Types of information technology facilities used	Acuracy					Total
	Not accurate	Less accurate	Accurate	Very good accurate	Do not know	
Cell phone / cable telephone (%)	0	1,92	25	5,76923	67,31	100
Cell phone internet (%)	0	21,15	75	0	3,85	100
Computer (%)	15,38	40,38	1,92	0	42,31	100
Computer & internet (%)	13,46	3,85	3,85	0	78,85	100
VCD/DVD (%)	17,31	0	3,85	0	78,85	100
Average	9,23	13,46	21,92	1,15	54,24	

Source: primary data, 2017

Table 5. Farmers' assessment of the accuracy of ICT in passing on agricultural information

Types of information technology facilities used	Accuracy						Total
	Not accurate	Less accurate	Accurate	Very good accurate	Do not know		
Cell phone / cable telephone (%)	0	9,61	17,31	5,77	67,31	100	
Cell phone internet (%)	0	32,69	61,54	1,92	3,85	100	
Computer (%)	17,31	40,38	0	0	42,31	100	
Computer & internet (%)	13,46	5,77	1,92	0	78,85	100	
VCD/DVD (%)	15,38	3,85	1,92	0	78,85	100	
Average	9,23	18,46	16,54	1,54	54,23	100	

Source: primary data, 2017

Table 6. The use of conventional media by farmers

Type of ICT	Posses/ use			Opportunity to use					Total
	Yess	No	Total	Never	Rarely	If they need	Every time		
Face to face communication / farmers group meeting, AEW (%)	100	0	100	0	0	98,07	1,92	100	
Radio broadcast (%)	1,92	98,08	100	98,07	1,92	0	0	100	
Printed media (magazine, tabloid, newspaper, etc) (%)	0	100	100	100	0	0	0	100	
Television broadcast (%)	88,46	11,54	100	13,46	67,31	17,31	1,92	100	
Farmer (%)	7,69	92,31	100	7,69	15,38	75	1,92	100	
Public figure (%)	73,08	26,92	100	25	55,77	19,23	0	100	
Opinion leader (%)	76,92	23,08	100	21,15	42,31	36,54	0	100	
Average	49,72	50,28	100,00	37,91	26,09	35,17	0,83	100	

Source: primary data, 2017

Table 7. Farmers' assessment of the quality of conventional information source facilities

Type of ICT	Quality of conventional information source facilities					Total
	Not qualified	Lack of qualify	Qualified	Very good quality	Do not know	
Face to face communication / farmers group meeting, AEW (%)	0	5,77	92,31	1,92	0	100
Radio broadcast (%)	0	1,92	0	0	98,08	100
Printed media (magazine, tabloid, newspaper, etc) (%)	0	0	0	0	100	100
Television broadcast (%)	1,92	67,31	17,31	0	13,46	100
Farmer (%)	0	13,46	78,85	0	7,69	100
Public figure (%)	0	32,69	42,31	0	25	100
Opinion leader (%)	0	36,54	42,31	0	21,15	100
Average	0,27	22,53	39,01	0,27	37,92	100,00

Source: primary data, 2017

Table 8. Farmers' expectations for the existence of ICT infrastructure

Expectations for the existence of ICT infrastructure	Total	Percentage
Addition of agricultural information material	18	34,61
Addition of agricultural information material and equipment assistance	16	30,77
Equipment assistance	10	19,23
Increased signal strength	4	7,69
Increased signal strength and equipment assistance	2	3,85
Increased signal strength and Increased signal strength	1	1,92
Increased signal strength, addition of agricultural information materials and equipment assistance	1	1,92
Total	52	100,00

Source: primary data, 2017