# Analysis of The Influence of Competency and Extension Methods on Increasing Agricultural Yields Through the Application of Integrated Technology

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#### **ABSTRACT**

Indonesia is known as an agricultural country, where most of the population work in agriculture. Agriculture is a field that has a vital role in the national economy. This research design is a survey. It conducted this research at the Central Mamuju District Agricultural Extension Implementation Agency (BPPP). This research is planned to last for approximately two months, starting from September 2019 to November 2019. Data collection was carried out through observation, interviews, questionnaires, documentation. The study sample was 100 people—data analysis through research instrument test, validity test, reliability test. Multiple linear is intended to determine the linear relationship between several independent aspects, which are commonly called X1, X2, X3, and so on, with the dependent part called Y. The results show that the competency variables and extension methods have an important influence both directly and indirectly in supporting the application. Integrated technology and increase in agricultural products, so that the existence of competency variables and extension methods need to be maintained, especially in increasing integrated technology and increasing agricultural products.

Keywords: Competence, Extension, Agriculture, Technology, Indonesia

#### 1. Introduction

The extension is an important thing to advance the agricultural sector in Indonesia, which knows good techniques and methods to be accepted by the community. The extension is essential to be the community's dedication to advancing and improving agriculture quality, especially in Indonesia, where people still do not know about agricultural technology. It is essential to do counseling. The method that I use is to analyze all aspects that have become farmers' habits where it is a legacy from their ancestors so that understanding and application is easier and more efficient for farmers.

Farmers' acceptance of agricultural technology is excellent because the approach method used understands the problem and its solution. The most important thing is processing for the application of agricultural technology so that the community's results are better at any time so that the welfare of the community can be appropriately fulfilled. This technology-based extension method is expected to be applied in every community activity in terms of agriculture so that Indonesia can improve its quality. And the quality of agricultural produce.

Indonesia is an agricultural country where natural resources are very abundant, especially in agriculture. However, farmers' current reality in managing and implementing agriculture is felt very far from maximizing agricultural yields where the main problem is that the method used is no longer compatible with the current era (Mu'adi et al., 2020; Nawawi et al., 2020). Farmers who have succeeded have moved to more modern methods, namely the application of technology in agricultural activities so that the results are better and more increased.

According to Kusmiyati (2010), external factors that support extension workers' performance in carrying out their main tasks and functions are government policies (institutions, funds, facilities). However, the number of extension workers is not following the Ministry of Agriculture policies. About agricultural extension activities to empower farmers, according to Marliati (2008), the level of performance of farming instructors has a significant effect on the performance of agricultural extension agents, namely: social, cultural, respect for time, and respect for processing. Agricultural development must be a severe concern to create superior farmers (Nuraini et al., 2019; Umanailo, 2020, 2019). People's interest in farming or farming can grow even better, especially farmers in Mamuju Tengah district, West Sulawesi province. On the way, many farmers still do not understand well the efficient farming methodology. The results obtained are still very far from satisfactory, where the impact is the erosion of farmers' interest in planting so that many empty lands are not cultivated. Caused by fear of bad harvests or waiting for a good season, this has a significant impact on food shortages.

#### 2. Methods

The research model is a survey, namely analyzing or observing facts and supporting data to become a barometer in the research. This research was conducted at the Central Mamuju Regency Agricultural Extension Implementation Agency (BPPP). This research is planned to last approximately two months, starting from September 2019 to November 2019. Data collection is used to retrieve information needed to achieve research objectives through observation, interviews, questionnaires, documentation. Research subjects that will be used as a method are all farmers in Central Mamuju Regency, with 100 farmers. The data collected from the data are primary and secondary. Preliminary data can be obtained by direct discussion with farmers who live in the Mamuju Tengah district, West Sulawesi province that has been determined previously by asking some questions to the farmers used as research objects. And some secondary data obtained from statistical data, the number of samples is 100 farmers.

#### 3. Results

# 3.1. The influence of education on the application of integrated technology

The influence of competency variables on the application of integrated technology is positive, so it is beneficial for both the farmers themselves and the next generation. Farmers are more aware of the changing times, especially in agriculture, which is the source of state food. The application of education in integrated technology is important because the impact or influence in the agricultural sector is very significant.

The results of this study are in line with the statement in Sinamo's (2011) formulation. Competence is a set of positive behaviors rooted in fundamental beliefs accompanied by total commitment to an integral work paradigm. Herzberg in Keban (2007) states that the application of integrated technology will be fulfilled if everyone can produce exciting work. It is satisfied with the work challenges faced, appreciates the resulting achievements, is satisfied to get an award, and is confident with carrying out work responsibilities. Thus, education can have a relationship with the application of integrated technology.

Table 1. The Effect of Education and Extension on Increasing Agricultural

	Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients					
		В	Std. Error	Beta	t	Sig.			
1	(Constant)	1.405	1.032		1.554	.051			
	Education (x1)	.145	.022	.320	6.114	.000			
	Extension (x2)	.113	.044	.142	1.112	.001			
a. Dependent Variable: Agricultural (Y1)									

Research has been carried out to find a conclusion so that the correct data can be obtained by Darsono (2010). The results of this research can be concluded that there is a relationship to integrated technology. Furthermore, the research was conducted by Ucup Yusup. (2016), this study strengthens the above research regarding the influence and linkages of integrated technology. The research was undertaken by Made Wisnu Darmadi et al. (2017), based on scientific research and testing, found that education had a partial effect on the application of integrated technology.

The vertical influence by applying the integrated technology application method is cost and time efficiency, so that the farmers' acceptance is more favorable for this method. The effect generated is direct and indirect, which is a consideration and future analysis to make this method even better either vertically or horizontally (Kanto et al., 2020; Lionardo et al., 2020; Rachman et al., 2019). Overall, developing this integrated technology method impacts both the farmers themselves and the agricultural sector in general, which is undoubtedly an aspect of the government's seriousness to prioritize this technique or integrated technology method to farmers in Mamuju Tengah district, West Sulawesi province.

This result is the same as that of any organization aiming to make it a particular concern for its plans to increase human and natural resources. There is hope that in the future, all levels of society who are engaged in agriculture can apply this integrated technology method so that all aspects can have their satisfaction with what has been done and become a shared responsibility. The level of application of integrated technology can be fulfilled the application of integrated technology will be fulfilled. If everyone can produce exciting work, is satisfied with the work challenges faced, gives an appreciation for the resulting achievements, is satisfied to get an award, and is confident with carrying out work responsibilities (Herzberg in Keban, 2007).

The influence of competency variables on rising agrarian products is the initial goal. What happens is a positive impact so that realization in the field can be easier to do. Skills are the primary goal of implementing this integrated technology method and, most importantly, become the essential reference for managing crops both in the short and long term. As a result, a sense of respect for time and processes is created in every activity, especially in the agricultural sector, which is the primary source of livelihood for the people in the Central Mamuju District of West Sulawesi Province.

This is a challenge, including extension workers in developing this integrated technology method where all must also be in line with the local government's policies in particular and the head of state in general. Besides that, the object also certainly feels very helpful and is more open in terms of insight and knowledge about management to improve agricultural products with this integrated technology method.

### 3.1. The effect of extension methods on the increase in agricultural yields

The influence of the variable of extension agent methods on increasing agricultural yield is good, which proves that counseling with this integrated technology method is beneficial and very influential on farmers' performance even though the changes are not spontaneous. Still, the produced ones are relatively good constantly, shown by the results of agriculture that is increasingly satisfying both vertically and horizontally.

 Table 2. The Effect of Extension and Competence on Agricultural Products

Coefficients <sup>a</sup>									
Model		Unstandardized Coefficients		Standardized Coefficients					
		В	Std. Error	Beta	t	Sig.			
1	(Constant)	1.151	1.054		3.721	.000			
	Extension (x1)	.110	.026	.188	1.975	.001			
	Competence (x2)	.152	.025	.217	1.437	.000			
	Products (y1)	.144	.014	.151	1.247	.000			
a. Dependent Variable: Agricultural (Y2)									

The results of this study are in line with the statement according to Trijoko (2008). This method impacts a person's knowledge because activities carried out constantly and continuously with the knowledge gained are expected to carry out duties and responsibilities properly and have a qualified ability to apply into the world of work, which later can be used ideally for satisfying results. Meanwhile, according to Mangkunegara (2011), the method is the impact of work in terms of quality and quantity achieved by a person carrying out his duties in line with the responsibilities given to him in a good, precise, and positive manner. The method of extension someone in a job that is manifested in the number of years of service will increase a person's ability and work skills to improve. According to Smayling et al. (2012), workers who have a lot of knowledge can foster cooperation in the learning process, affecting worker performance.

This study's results also support previous research from Wanceslaus Bili, Erwin Resmawan, and Daud Kondorura (2018). The conclusions obtained by extension methods have a significant effect on increasing agricultural yields. Furthermore, Bachtiar Arifudin Husain (2018) conducted research based on the results of the study. It can be concluded that extension methods have a positive and significant effect on increasing agricultural yields. Then the research conducted by Decky Candra Devischa & Mochammad Djudi Mukzam (2018), based on the study results, can be concluded that the extension method has a significant effect on employee performance.

The extension agent aims to increase the knowledge of the world of agriculture, improving the farmers' quality in carrying out their work as a farmer, who becomes a farmer who is full of responsibility and has high integrity. This, of course, can foster interest in plunging into the world of agriculture, which can produce even better. To become a farmer or worker who is full of responsibility for predicting authority in the world of work, namely, to estimate a person's desire and capacity or reasoning ability, then attitudes and needs, and finally, skills and abilities, namely to assess the ability to carry out technical aspects of work.

# 3.5. The influence of competence on increasing agricultural products through the application of integrated technology.

Research produces an excellent and beneficial environment in terms of education and knowledge, increasing agricultural output through increased pastoral work. This can be seen from the path analysis of the indirect effect of education through an increase in agricultural production, which has a significant impact on increasing agricultural yields. Thus, increasing agricultural output can affect education on increasing agricultural output.

The managerial implication of the effect of education on increasing agricultural yields through rising agrarian products is that the increase in agrarian profits with a good attitude from extension agents influences the mindset of farmers towards work through assessing one of the jobs as a sense of respect in achieving one of the essential values of work, being able to influence education with the behavior of an instructor in carrying out his career as seen from his performance towards increasing agricultural yields with a positive attitude from the extension agent influencing the mindset of farmers towards work through an assessment of one of the jobs as a sense of appreciation in achieving one of the essential values of the job The influence of extension methods on the increase of agricultural products through the application of integrated technology

This study suggests a positive and good influence in extension methods to increase agricultural yields through advanced agrarian products. This can be seen from the path analysis of the indirect effect of the extension agent

method through the increase of farm yields, which significantly impact the rise in farm yields. Thus, the increase in agricultural products can influence the extension method to the rise in agricultural output.

The managerial implication of the effect of extension services on increasing agricultural yields through increased agrarian profits is that the increase in agricultural products with a good attitude in implementing work fosters a positive attitude. The methods used are more respectful of work for satisfactory results. It can influence extension methods at a level mastery of the knowledge and skills of extension workers in their work that can be measured and the length of their work and from a qualified level of skill to increase agricultural yields and management skills. Of course, it can foster an attitude and respect for processors and time, which are very good benchmarks in developing integrated technological methods.

#### 3.6. Effect of the application of integrated technology on the increase in agricultural products

The influence of the variable of increasing agricultural yields on rising agricultural yields is positive. This means that an increase in agricultural yield will be followed by an increase in agricultural yield, if other factors that affect agricultural yield growth are considered constant. This study shows a positive and significant effect of increasing agricultural yields on increasing agricultural yields. This can be seen from the results of the direct effect path analysis. It is found that the increase in agricultural yields has a positive and significant effect on the increase in agricultural yields.

This is very useful for the sake of knowing and being an observation used by researchers to calculate or calculate how much impact changes in terms of agricultural output. This extension method is carried out so that farmers' results can be better and more satisfying than before (Hasibuan, 2011). All of this is closely related to each individual's understanding or view of the method's changes to get better and more satisfying results. The more aspects of the farmers' comparisons are expected to be directly proportional to the maximum results.

#### 4. Discussion

The managerial implication of the effect of education on the application of integrated technology is a good attitude. The insight, which is the most crucial thing, can be helpful in future development. While these gains can be used to advance integrated technology in agriculture, the fundamental thing in this development is awareness of all aspects changes that some people still refuse to leave behind the old method where the principle of utilization is still significantly less than it should be. The knowledge of the farmers who are the object of research is still very minimal in our area, namely in Mamuju Tengah district, West Sulawesi province, about integrated technology to improve the quality and agricultural products. That becomes an obstacle to suggest positively on the importance of being an intelligent farmer to improve the quality and efficiency. The main problem of the farming community is the object of research is the time and results obtained. This is due to the lack of knowledge and insight into technology. However, farmers are broadly open in terms of science, including in the field of agriculture.

This study's results also support the results of previous research from Alfian, Reno (2015). The conclusions obtained by extension agents' methods have a significant effect on the application of integrated technology. Furthermore, Hendri Waluyo Yudistira (2015) conducted research based on the results of the study. It can be concluded that there is a significant effect of extension methods on the application of integrated technology. Then the research conducted by Lubis, Lamtiurmaida (2017), based on the study results. It can be concluded that the extension method affects the application of integrated technology. Attitudes and needs are often a barrier to innovating more with the times, so that it is felt necessary to carry out this counseling so that the values that want to be applied do not become in vain. The indirect impact is to respect time, respect knowledge. In these respect processes, the importance of technology in the packaging in work to be obtained is a strong sense of responsibility and dedication, especially in agriculture.

The assessment results and this research also support the factors of time efficiency against safe processes. So far, this has become a significant obstacle in the field, so it is necessary to examine the development and processing more intensely to get good results. This method of extension gets positively substantial outcomes. Further research conducted by Rian Oztary Hardiansyah (2017), based on the study results, can be concluded that education has a positive effect on increasing agricultural output. Then the research conducted by Saputra, Adam Yogi (2018), based on the study results, can be concluded that competence has a significant effect on increasing agricultural output.

The managerial implication of the influence of competence on increasing agricultural output is a higher quality and effective work process. The goal of the extension workers is to be on time and provide both education and overall

understanding so that the target they want to achieve can be achieved perfectly, namely creating humans. -Human beings who are strict, intelligent, careful, have high integrity, especially in agriculture. These challenges can be the primary capital to provide excellent and positive thinking, especially in work, so that later human beings who are reliable and ready to enter the world of work are created the evaluation can be applied to the world of work in full so that each problem can be translated into lessons to analyze better.

This study's expected results also support the results of previous research conducted by Diana Sulianti K. L. Tobing (2009). The conclusion is that there is a significant effect of increasing agricultural yields on workers' performance. Furthermore, the research method conducted by Novita Marlia (2010), based on the results of the study, it can be concluded that the increase in agricultural yields has a good effect on the performance of workers, so it is essential to apply this method to the management of the world of agriculture. The research conducted by Wanda Febriyana (2015), based on the results of the study, can be concluded that the increase in agricultural yields on workers' performance has a good and significant effect.

The managerial implication of increasing agricultural products is the quality and quantity of work that the instructor wants to achieve in carrying out his obligations following the responsibilities given to him, namely by increasing the increase in agricultural output utilizing work, namely expertise. Required to do the job will increase or reduce the growth of farm products. Wages or salaries are the factor of fulfilling the life needs of extension workers who are deemed appropriate or not, work supervision. They are an excellent bosses/supervisor means that they want to appreciate the work of their subordinates. Then opportunities for promotion, namely factors related to whether there is an opportunity to gain career advancement while working and finally colleagues, are factors related to the relationship between the instructor and his superiors and other extension workers.

## 5. Conclusion

The results showed that the competency variables and extension methods had a significant effect both directly and indirectly in supporting the application of integrated technology and increasing agricultural yields so that the competence variables and extension methods needed to be maintained, especially in expanding integrated technology and increasing agricultural output. The competence and methods of extension workers can be used as a reference for farmers and related agencies to support and improve the professional performance of extension workers related to increasing integrated technology and increasing agricultural output. This study took the research object at the Agricultural Extension Implementation Center (BPP) in the Mamuju Tengah district. The objectives to be implemented can be fulfilled very well and satisfactorily. This integrated technology method is a crucial aspect of being better for farmers in managing crops and the results obtained. It can indirectly overcome malnutrition and poverty due to a lack of food. The plan is to prioritize farmers at lower levels who have received relatively little special attention so that the programs to be achieved are always not on target, with the extension method in increasing agricultural products through this integrated technology. It is hoped that the problems in Meet the farmers that they can shrimp paste and can have a positive impact on all farmers, especially farmers who are in the central Mamuju district of West Sulawesi province. The farmers received very positively about the times so that there were no significant obstacles in extension activities. Hence, increasing agricultural products using integrated technology had a powerful effect on increasing agricultural output.

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