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The Effectiveness of Agricultural Extension Methods And Techniques In The Application of Cultivation Technology Sweet Potato (Ipomoea Batatas L.)

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Abstract

This research was conducted in Bandorasa Kulon Village, Cilimus District, Kuningan Regency, from January to February 2023. This study aims to find out: (1) the effect of the effectiveness of agricultural extension methods in the application of sweet potato cultivation technology, (2) the influence of agricultural extension techniques with the application of sweet potato cultivation technology, and (3) the effect of the effectiveness of agricultural extension methods and techniques with the application of sweet potato cultivation technology. The method used in this study is quantitative descriptive with a survey approach. The object of research in the boled flower farmer group of Bandorasa Kulon Village with a sample of 47 farmers. Primary data collection was obtained through interviews with respondents using a list of questions, and secondary data were obtained from agencies related to this study. To determine the variable relationship between the effectiveness of agricultural extension methods and agricultural extension techniques, with the application of sweet potato cultivation technology, the Spearman level correlation coefficient test is used. The results showed that: (1) there is a medium and real relationship between the effectiveness of agricultural extension methods and sweet potato cultivation technology as shown by the value of rs = 0.456, (2) there is a low and real relationship between agricultural extension techniques and sweet potato cultivation technology, which is indicated by the value of rs = 0.360, and (3) there is a very strong and real relationship between the effectiveness of agricultural extension methods and techniques with sweet potato cultivation technology, indicated by the value of rs = 0.943.

keywords: Effectiveness; Extension Techniques; Sweet Potato

INTRODUCTION

Indonesia's agricultural development has been carried out gradually and continuously starting from the old order to the current reform era, with the hope of increasing agricultural production as much as possible, so as to increase farmers' income in achieving prosperity.

Increasing food production, increasing income, and farmers' welfare are the directions and goals of agricultural development.

In Indonesia, sweet potato is a plant that has strategic value, in addition to having an important role in people's lives, especially in the economic sector and can indirectly affect other consumption materials. In an effort to maintain survival, humans always try to meet their primary needs and one of these needs is food (food). Sweet potatoes besides functioning as a staple food are also a source of livelihood. Therefore, efforts to increase the production of important food commodities always receive high priority (Jati et al., 2022).

Agricultural extension is a non-formal education system for farmers to be able to farm better (better farming), farm more profitably (better bussines), live more prosperously (better living), and better community (better community) and maintain the sustainability of their environment (better environment). According to Sadono, (2018), agricultural extension is an education outside of school for farmers and their families, where they learn while doing to be curious and can solve the problems they face well, profitably and satisfactorily. So agricultural extension is a form of education whose methods, materials and targets are adjusted to the needs and interests of the target.

Agricultural extension activities are faced with limitations, including limited number of extension workers, limitations on the target side, such as the level of formal education of farmers which varies greatly, limited facilities and learning time for farmers. For this reason, it needs to be balanced with the selection of methods, increasing the role and use of agricultural extension media. The agricultural extension method is a way of delivering agricultural extension material (message content) by agricultural extension workers to farmers and their family members either directly or indirectly so that they know, are willing and able to use new innovations (Kusnadi, 2021). Agricultural extension methods and techniques are ways and procedures carried out by extension workers in conveying messages to targets so that behavior changes occur according to the goals to be achieved. The purpose of selecting agricultural extension methods and techniques is to encourage the effect / change of behavior as much as possible from the target, to improve communication and reduce communication disorders, to increase target interest and to encourage the emergence of openness and independence of farmers.

Food is a basic need for humans whose fulfillment is the human right of every Indonesian to realize quality human resources (HR) to carry out national development (Pinckney et al., 2019). In the national food structure, sweet potatoes are one of the most strategic commodities. Therefore, production and availability must be guaranteed continuously so that economic turmoil does not occur. To ensure the availability of national sweet potato production, the Ministry of Agriculture has carried out various movements involving all stakeholders through the national

sweet potato production increase program, as one of the efforts to support the increase in national sweet potato production.

Bandoras Kulon Village, Cilimus District, is a sweet potato granary for Kuningan Regency, in addition, Bandoras Kulon Village is also an agricultural area that is very suitable for sweet potato cultivation. In increasing sweet potato production in the village, there are still several obstacles in sweet potato cultivation, so that the average productivity of sweet potatoes at the national level has only reached 25 - 35 tons per hectare. One of the problems faced by farmers is the ineffective application of agricultural extension methods and techniques. This study aims to determine the effect of the effectiveness of agricultural extension methods and techniques with the application of sweet potato cultivation technology.

METHODS

The research was conducted in Bandoras Kulon Village, Cilimus District, Kuningan Regency. The study was conducted from January to February 2023. The design of this study is quantitative with a survey approach, which is a study conducted to obtain data from ongoing phenomena and seek factual information, both about social and economic institutions of a group or region (Moh. Nazir, 2018).

The study was conducted on the boled flower farmer group of Bandoras Kulon Village, Cilimus District, Kuningan Regency as many as 47 people and determined the number of respondents using a census, where all members of the population became samples (Tarsito, 2014). This is in accordance with the opinion of Arikunto, (2012) that if the population is less than 100 people, then all of them are sampled. The required data type consists of primary data and secondary data. Primary data are data obtained directly from the object of research through direct observation and interviews. While secondary data is data obtained from libraries and agencies / agencies related to the problem under study (Sloan et al., 2018).To find out the socioeconomic picture of the community at the research location using a questionnaire.

In this study there are three research variables, namely the effectiveness of agricultural extension methods, the effectiveness of agricultural extension techniques and the application of sweet potato cultivation technology. The data analysis techniques used are: (1) Descriptive analysis through data collection in the field. and (2) correlation analysis that is useful for determining the relationship between variables of effectiveness of agricultural extension methods (X1) and agricultural extension techniques (X2), with the application of sweet potato cultivation technology, used the Spearman level correlation coefficient test (rs).

RESULTS AND DISCUSSION

Effectiveness of Agricultural Extension Methods

Extension effectiveness is the level of achievement of the objectives of the extension program. The level of achievement of this goal can be seen from the level of application of elements in sweet potato cultivation technology which can be expressed by the score achieved. The effectiveness of extension is known from formative evaluations that collect information for the development of extension programs. The effectiveness of an agricultural extension service is largely determined by the awareness of target farmers to actively change their behavior through learning efforts. The effectiveness of agricultural extension can be measured, among others, from the effectiveness achieved, namely the level of achievement of agricultural extension goals which can be seen from empowering farmers in implementing recommended innovations (Haryadi, 2017).

The effectiveness of the Agricultural Extension Method in the boled flower farmer group in Bandorasa Kulon Village, will be revealed through respondents' answers to the statements submitted on the questionnaire. An overview of the effectiveness of agricultural extension methods can be seen in Table 1

Tabel 1. Tanggapan Responden tentang Efektifitas Metode Penyuluhan Pertanian

No	Effectiveness of Agricultural Extension Methods	Score		Percent (%)	Category
		Hope	Real		
1	Planning	8	5,66	0,74	Good enough
2	Implementation	16	10,77	7,29	Good enough
3	Monitoring	8	5,40	7,55	Good enough
4	Evaluation	16	11,11	9,41	Good enough
5	Effectiveness of Extension Methods	48	32,94	8,62	Good enough

Source : Data Processing Results (2023)

Description : a. Good (> 75.00% - 100%),
b. Good enough (> 50.00% - 75.00%)
c. Less good (≤ 50.00%)

Based on the results of research on the effectiveness of agricultural extension methods, it is classified as quite good, with an average score of 32.94 (68.62%). An overview of the effectiveness of agricultural extension methods is as follows:

1. Planning

The planning of agricultural extension methods carried out in the Kembang Boled Farmer Group of Bandorasa Kulon Village based on respondents' responses was classified as quite good, with an average score of 5.66 (70.74%).

Based on the results of interviews, it showed that as many as 42 farmers (89.36%) stated that the planning of agricultural extension methods implemented was quite

good, and as many as 5 farmers (10.64%) stated the effectiveness of agricultural extension methods that were implemented well.

2. Implementation
   The implementation of the agricultural extension method carried out in the Kembang Boled Farmer Group of Bandorasa Kulon Village based on respondents' responses was classified as quite good, with an average score of 10.77 (67.29%).
   Based on the results of interviews, it showed that as many as 38 farmers (80.85%) stated that the implementation of agricultural extension methods was quite good, and as many as 9 farmers (19.15%) stated that the implementation of agricultural extension methods was good.
3. Monitoring
   Monitoring the implementation of agricultural extension methods carried out in the Kembang Boled Farmer Group of Bandorasa Kulon Village based on respondents' responses was quite good, with an average score of 5.40 (67.55%).
   Based on the results of interviews, it showed that as many as 43 farmers (91.49%) stated that the monitoring of agricultural extension methods was quite good, and as many as 4 farmers (8.81%) stated that the monitoring of the implementation of agricultural extension methods was carried out well.
4. Evaluation
   The evaluation of the implementation of agricultural extension methods carried out in the Bandorasa Kulon Village Boled Farmer Group based on respondents' responses was classified as quite good, with an average score of 11.11 (69.41%).
   Based on the results of interviews, it showed that as many as 41 farmers (87.23%) stated that the evaluation of the implementation of agricultural extension methods implemented was quite good, and as many as 6 farmers (12.77%) stated that the evaluation of the implementation of agricultural extension methods was carried out well.

According to Kurniasih, (2019), in applying agricultural extension methods, what must be considered for extension workers is to understand the principles that can be used as a basis for choosing the right method.

Meanwhile, the number of farmers based on farmers' responses to the effectiveness of agricultural extension methods in the Bandorasa Kulon Village boled flower farmer group can be seen in Table 2.

Table 2. Number of Farmers Based on Responses to the Effectiveness of Agricultural Extension Methods

No	Efektivitas Metode Penyuluhan	Jumlah (orang)	Persentase (%)
1	Kurang Baik (≤ 50,00%)	0	0,00
2	Cukup Baik (> 50,00% – 75,00%)	38	80,85
3	Baik (> 75,00% – 100,00%)	9	19,15
	Jumlah	47	100,00

From Table 2, it can be seen that most farmers, namely 38 people (80.85%) stated that the effectiveness of agricultural extension methods in the Kembang Boled farmer group of Bandorasa Kulon Village was quite good, and the remaining 9 people (19.15%) the effectiveness of agricultural extension methods was good.

The selection of the right method or approach greatly affects the success of extension services, so extension officers must choose and determine the right method according to the situation and condition of farmers, so that the information submitted can be received and applied by farmers (Permana et al., 2019). Counseling must be a combination of teaching methods, because the target ability is different in receiving lessons or to convey community feedback or feedback to the relevant government/extension agency. Because, only by placing themselves in such a position or position will farmers be able to carry out their duties well (Sururi, 2015).

Agricultural Extension Techniques

Agricultural extension activities are involved in the teaching and learning process because extension services are included in the non-formal education system. In accordance with the objectives, the teaching and learning process in agricultural extension requires high retention or maximum effect. To achieve high retention, each audience requires repeated learning. Thus, agricultural extension techniques can be defined as decisions made by sources or extension workers in selecting and arranging the nodes and content of messages, determining the choice of ways and frequencies of message delivery, and determining the form of message presentation (Prihantiwi et al., 2016).

Agricultural Extension Techniques in the boled flower farmer group in Bandorasa Kulon Village, will be revealed through respondents' answers to the statements submitted on the questionnaire. An overview of agricultural extension techniques can be seen in Table 3.

Tabel 3. Tanggapan Responden tentang Teknik Penyuluhan Pertanian

No.	Agricultural Extension Techniques	Score	Percent	Category

		Hope	Real	(%)	
1.	Communication techniques	8	5,70	71,28	Good enough
2.	Number of goals achieved	8	5,45	68,09	Good enough
3.	Receiver's sense of the target	8	5,53	69,15	Good enough
4.	Learning strategi	4	2,79	69,68	Good enough
5.	Use Media	4	2,91	72,75	Good enough
6	Agricultural Extension Techniques	32	22,38	69,95	Good enough

Source : Data Processing Results (2023)

Based on the results of research on agricultural extension techniques , it is classified as quite good, with an average score of 22.38 (69.95%). An overview of agricultural extension techniques is as follows:

1. Communications Techniques

   Communication techniques in the implementation of agricultural extension services carried out in the Kembang Boled Farmer Group of Bandorasa Kulon Village based on respondents' responses are classified as quite good categories, with an average score of 5.70 (71.28%). Based on the results of interviews showed that as many as 44 farmers (93.62%) stated that communication techniques in the implementation of agricultural extension techniques were implemented quite well, and as many as 3 farmers (6.38%) stated that communication techniques in the implementation of agricultural extension techniques were carried out well.

2. Number of goals achieved

   The number of targets achieved in the implementation of agricultural extension services carried out in the Kembang Boled Farmer Group of Bandorasa Kulon Village based on respondents' responses is classified as quite good, with an average score of 5.45 (68.09%). Based on the results of interviews, it was shown that as many as 40 farmers (85.11%) stated that the number of targets achieved in the implementation of agricultural extension techniques implemented was quite good, and as many as 11 farmers (14.89%) stated that the number of targets achieved in the implementation of agricultural extension techniques was well implemented.

3. Receiver's sense of the target

   The senses of recipients of the target in the implementation of agricultural extension services carried out in the Kembang Boled Farmer Group of Bandorasa Kulon Village based on respondents' responses were classified as quite good categories, with an average score of 5.53 (69.15%).

   Based on the results of interviews, it showed that as many as 44 farmers (93.62%) stated that the sense of recipients of the targets achieved in the implementation of agricultural extension techniques was quite good, and as many as 3 farmers (6.38%)

stated that the sense of recipients of targets in the implementation of agricultural extension techniques that were implemented well.

4. Learning Strategy

   The learning strategy in the implementation of agricultural extension services carried out in the Kembang Boled Farmer Group of Bandorasa Kulon Village based on respondents' responses was classified as quite good, with an average score of 2.79 (69.68%).

   Based on the results of interviews, it showed that as many as 42 farmers (89.36%) stated that the learning strategies achieved in the implementation of agricultural extension techniques were quite good, and as many as 5 farmers (10.64%) stated that learning strategies in the implementation of agricultural extension techniques were implemented well.

5. Media Use

   The use of media in the implementation of agricultural extension services carried out in the Kembang Boled Farmer Group of Bandorasa Kulon Village based on respondents' responses was classified as quite good, with an average score of 2.91 (72.75%). Based on the results of interviews, it showed that as many as 41 farmers (87.23%) stated that the use of extension media in the implementation of agricultural extension techniques was quite good, and as many as 6 farmers (12.77%) stated that the media used in the implementation of agricultural extension techniques were carried out well.

Meanwhile, the number of farmers based on farmers' responses to agricultural extension techniques implemented in the Kembang Boled farmer group of Bandorasa Kulon Village can be seen in Table 4.

Table 4. Number of Farmers Based on Responses to Agricultural Extension Techniques

No.	Agricultural Extension Techniques	Sum (people)	Persentase (%)
1.	Not Good (≤ 50,00%)	0	0,00
2.	Good enough (> 50,00% – 75,00%)	40	85,11
3.	Good (> 75,00% – 100,00%)	7	14,89
	Sum	47	100,00

From Table 6, it can be seen that most farmers, namely 40 people (85.11%) stated that agricultural extension techniques in the Kembang Boled farmer group of Bandorasa Kulon Village were quite good, and the remaining 7 people (14.89%) agricultural extension techniques were classified as good.

Farmer empowerment programs through agricultural extension programs can improve farmers' skills and abilities in farm management. With this agricultural extension

program, it can increase crop yields and farmers' incomes through improving the quality of human resources and also the application of technology that is in accordance with farmers' conditions and the local environment (Ministry of Agriculture, 2019). The results of the application in West Java and Lampung Provinces, show that agricultural extension methods and techniques (Demfarm) are successful because this method applies several extension methods such as demonstration of technology use according to recommendations, training and visits (practice), vision and evaluation with learning materials according to farmers' needs, including; (1) Use of site-specific new high-yielding varieties (VUB) seedlings; (2). Balanced use of fertilizers; (3) Cropping system (jajar legowo, SRI, etc.; (4) Post-harvest harvesting; (5) Processing of results; (6) Marketing results (Putra et al., 2022).

Sweet potato cultivation technology

Sweet potato cultivation technology in the Kembang Boled farmer group in Bandorasa Kulon Village, will be revealed through respondents' answers to the statements submitted on the questionnaire. Based on the results of research on sweet potato cultivation technology in the Kembang Boled farmer group in Bandorasa Kulon Village, it is classified as quite good, with an average score of 63.98 (72.70%).

Overview of Sweet Potato Cultivation Technology as follows:

1. Tillage

   Soil processing in the application of sweet potato cultivation technology carried out by respondent farmers of the Kembang Boled farmer group is classified as quite good, with an average score of 11.68 (73.01%). Based on the results of interviews showed that as many as 38 farmers (80.85%) carried out tillage quite well, and as many as 9 farmers (19.15%) carried out tillage in sweet potato cultivation classified as good.
2. Seedling preparation

   The application of sweet potato cultivation technology based on seed preparation indicators carried out by respondent farmers The Kembang Boled farmer group is classified as quite good, with an average score of 8.74 (72.87%). Based on the results of interviews, it showed that as many as 36 farmers (76.60%) carried out seed preparation quite well, and as many as 11 people (23.40%) carried out seed preparation in sweet potato cultivation classified as good.
3. Planting

   The application of sweet potato cultivation technology based on planting indicators carried out by respondent farmers The Kembang Boled farmer group is classified as quite good, with an average score of 8.72 (72.70%). Based on the results of interviews showed that as many as 40 farmers (85.11%) carried out planting quite well, and as many as 7 farmers (14.89%) carried out planting in sweet potato cultivation classified as good.

4. Fertilization

   The application of sweet potato cultivation technology based on fertilization indicators carried out by respondent farmers The Kembang Boled farmer group is classified as quite good, with an average score of 11.49 (71.81%). Based on the results of interviews, it showed that as many as 38 farmers (80.85%) carried out fertilization quite well, and as many as 9 farmers (19.15%) carried out fertilization in sweet potato cultivation classified as good.

5. Irrigation

   The application of sweet potato cultivation technology based on irrigation indicators carried out by respondent farmers The Kembang Boled farmer group is classified as quite good, with an average score of 8.55 (71.28%). Based on the results of interviews, it showed that as many as 40 farmers (85.11%) carried out irrigation quite well, and as many as 7 farmers (14.89%) carried out irrigation in sweet potato cultivation classified as good.

6. OPT Control

   The application of sweet potato cultivation technology based on OPT control indicators carried out by respondent farmers The Kembang Boled farmer group is classified as quite good, with an average score of 5.77 (72.07%). Based on the results of interviews, it was shown that as many as 41 farmers (87.23%) carried out good pest control, and as many as 6 farmers (12.77%) carried out irrigation in sweet potato cultivation classified as good.

7. Harvest

   The application of sweet potato cultivation technology based on harvest indicators carried out by respondent farmers The Kembang Boled farmer group is classified as a good category, with an average score of 9.02 (75.18%). Based on the results of interviews, it showed that as many as 34 farmers (72.34%) carried out a fairly good harvest, and as many as 13 farmers (27.66%) carried out a good harvest in sweet potato cultivation.

Meanwhile, the number of farmers based on the application of sweet potato cultivation technology implemented in the Kembang Boled farmer group of Bandorasa Kulon Village can be seen in Table 6.

Table 6. Number of Farmers Based on the Application of Sweet Potato Cultivation Technology

No.	Sweet potato cultivation technology	Sum (people)	Persentase (%)
1.	Not good (≤ 50,00%)	0	0,00
2.	Enough Good (> 50,00% – 75,00%)	33	70,21
3.	Good (> 75,00% – 100,00%)	14	29,79

Sum	47	100,00

From Table 6, it can be seen that most farmers, namely 33 people (70.21%) in the application of sweet potato cultivation technology are quite good, and the remaining 14 people (29.79%) apply sweet potato cultivation technology classified as good.

Handley et al., (2014), said that the purpose of planting spacing technology in sweet potato cultivation itself is:

1. Take advantage of sunlight for plants that are on the edge of the row. The more sunlight that hits the plant, the process of photosynthesis by the leaves of the plant will be higher so that it will get a heavier weight of tubers
2. Reduces the likelihood of pest attacks, especially rodents. On relatively open land, rodent pests are less fond of living in it
3. Suppresses disease attacks. On relatively open land, humidity will decrease, so disease attacks will also decrease.
4. Facilitate the implementation of fertilization and pest/disease control.

The Relationship between the Effectiveness of Agricultural Extension Methods and Techniques with Sweet Potato Cultivation Technology

The Relationship between the Effectiveness of Agricultural Extension Methods and Sweet Potato Cultivation Technology

Based on the calculation of the spearman rank correlation coefficient, it shows that there is a real relationship between the effectiveness of agricultural extension methods and sweet potato cultivation technology. For more details, the relationship between the effectiveness of agricultural extension methods and sweet potato cultivation technology can be seen in Table 7.

Table 7. The Relationship between the Effectiveness of Agricultural Extension Methods and Sweet Potato Cultivation Technology

Variable X	Variable Y	Rs	tcalculate	T0.05	Categories rs
Effectiveness of Agricultural Extension Methods	Sweet potato cultivation technology	0,456	3,437*	2,014	Keep
Remarks : * Real difference					

Based on Table 7 above, it shows that there is a real relationship between the effectiveness of agricultural extension methods and sweet potato cultivation technology, with a value of rs = 0.456, the value of the coefficient is included in the medium category. This means that the relationship between theeffectiveness of agricultural extension methods and sweet potato cultivation technology is 0.456. From the results of the significance test, tcount 3.437 is greater than t0.05(47-2) 2.014 at a real level of 5%,

meaning that there is a real relationship between theeffectiveness of agricultural extension methods and sweet potato cultivation technology.

The Agricultural Extension Method is a way of delivering agricultural extension material (message content) by agricultural extension workers to farmers and their family members either directly or indirectly so that they know, want and are able to use new innovations. While agricultural extension techniques can be defined as decisions made by sources or extension workers in selecting and arranging the nodes and content of messages, determining the choice of how and frequency of message delivery, and determining the form of message presentation.

The success of efforts to increase productivity, production and income of farmers depends on the ability to provide and apply production technology which includes the use of superior varieties, quality seeds and other cultivation technologies. In order to overcome these problems, a farmer empowerment program was launched. This program is expected to increase crop yields and farmers' incomes through improving the quality of human resources and also the application of technology that is in accordance with farmers' conditions and the local environment (Ministry of Agriculture, 2019). With a program planned by farmers and guaranteed operational support from agricultural extension apparatuses, provision of production facilities, marketing, processing of produce, capital, thus agricultural productivity continues to increase and market demand is met (Yunus et al., 2021).

The Relationship between Agricultural Extension Techniques and Sweet Potato Cultivation Technology

Based on the calculation of the spearman rank correlation coefficient, it shows that there is a real relationship between agricultural extension techniques and sweet potato cultivation technology. For more details on the relationship between agricultural extension techniques and sweet potato cultivation technology, see Table 8.

Table 8. The Relationship between Agricultural Extension Techniques and Sweet Potato Cultivation Technology

Variable X	Variable Y	Rs	tcalculate	T0.05	Categories
Agricultural Extension Techniques	Sweet potato cultivation technology	0,360	2,589*	2,014	Low

Remarks: * Real difference

Based on Table 8 above, it shows that there is a real relationship between agricultural extension techniques and sweet potato cultivation technology, with a value of rs = 0.360, the value of the coefficient is included in the low category. This means that the relationship between agricultural extension techniques and sweet potato cultivation technology is 0.360. From the results of the significance test, tcount 2.589 is greater than t0.05(47-2) 2.014 at a real level of 5%, meaning that there is a real relationship between agricultural extension techniques and sweet potato cultivation technology.

The selection of the right method or approach greatly affects the success of extension services, so extension officers must choose and determine the right method according to the situation and condition of farmers, so that the information submitted can be received and applied by farmers (Saptana et al., 2017). Counseling must be a combination of teaching methods, because the target ability is different in receiving lessons. or to convey community feedback or feedback to the relevant government/extension agency. Because, only by placing themselves in such a position or position will farmers be able to carry out their duties properly (Agricultural Extension Center, 2021).

The Relationship between the Effectiveness of Agricultural Extension Methods and Techniques with Sweet Potato Cultivation Technology

Based on the calculation of the spearman rank correlation coefficient, it shows that there is a real relationship between the effectiveness and agricultural extension techniques with sweet potato cultivation technology. For more details, the relationship between the effectiveness and techniques of agricultural extension with sweet potato cultivation technology can be seen in Table 9.

Table 9. The Relationship of Effectiveness and Agricultural Extension Techniques with Sweet Potato Cultivation Technology

Variable X	Variable Y	Rs	tcalculate	T0.05	Categories rs
Effectiveness and Techniques of Agricultural Extension	Sweet potato cultivation technology	0,943	19,008*	2,014	Very Powerful
Remarks: * Real difference					

Based on Table 9 mentioned above, it shows that there is a real relationship between the effectiveness of agricultural extension methods and techniques with sweet potato cultivation technology, with a value of rs = 0.943, the value of the coefficient is included in the very strong category. This means that the relationship between the effectiveness of agricultural extension methods and techniques with sweet potato cultivation technology is 0.943. From the results of the significance test, tcount 19.008 is greater than t0.05(47-2) 2.014 at a real level of 5%, meaning that there is a real relationship between the effectiveness of agricultural extension methods and techniques with sweet potato cultivation technology.

According to Sastratmaja, (2013), what is meant by the effectiveness of counseling is the level of achievement of the objectives of the extension program. The level of achievement of this goal can be seen from the level of application of elements in sweet potato cultivation technology which can be expressed by the score achieved. The effectiveness of extension is known from formative evaluations that collect information for the development of extension programs. The effectiveness of an extension service is largely determined by the awareness of target farmers to actively change their behavior through learning efforts. The effectiveness of agricultural extension services, among others, can be measured from the effectiveness achieved, namely the level of achievement of agricultural extension goals which can be seen from empowering farmers in implementing recommended innovations (Suwarno & Kevin, 2020).

The Agricultural Extension Method is a way of delivering agricultural extension material (message content) by agricultural extension workers to farmers and their family members either directly or indirectly so that they know, want and are able to use new innovations. On the other hand, agricultural extension activities are involved in the teaching and learning process because extension services are included in the non-formal education system. In accordance with the objectives, the teaching and learning process in agricultural extension requires high retention or maximum effect. To achieve high retention, each audience requires repeated learning. Thus, agricultural extension techniques can be defined as decisions made by sources or extension workers in selecting and arranging the nodes and content of messages, determining the choice of how and frequency of message delivery, and determining the form of message presentation.

The extension program is made so that farmers are able to improve their knowledge and skills in farming, so that with the methods and techniques of agricultural extension delivered by extension workers to farmers, it means that it can be understood and accepted by farmers, it can increase farmers' knowledge and skills in farming, especially in applying sweet potato cultivation technology (Handley et al., 2014).

The success of efforts to increase productivity, production and income of farmers depends on the ability to provide and apply production technology which includes superior varieties, quality seeds and other cultivation technologies. In order to overcome these problems, a farmer empowerment program was launched. This program is expected to increase crop yields and farmers' incomes through improving the quality of human resources and also the application of technology that is in accordance with the conditions of farmers and the local environment (Wiraatmadja, 2020).

CONCLUSION

Based on the results of research and discussion that have been described in advance, the following conclusions can be drawn There is a low and noticeable relationship between farmer participation in program planning and sweet potato special efforts, with a value of rs = 0.375 and a calculated value of 3.023. The higher the level of farmer participation in program planning will be followed by the better the Sweet Potato Special Effort. There is a low and real relationship between farmer participation in program implementation and sweet potato special efforts, with a value of rs = 0.335 and a calculated value of 2.658. The higher the level of farmer participation in the implementation of the program will be followed by the better the Sweet Potato Special Effort. There is a low and noticeable relationship between smallholder participation in program monitoring and evaluation and sweet potato Special Efforts, with a value of rs = 0.341 and a calculated value of 2.719. The higher the level of farmer participation in program monitoring and evaluation will be followed by the better the Sweet Potato Special Effort. There is a low and real relationship between farmer participation in the utilization of program results and sweet potato special efforts, with a value of rs = 0.344 and a calculated value of 2.738. The higher the level of farmer participation in the utilization of the program will be followed by the better the sweet potato special effort. There is a low and real relationship between farmer participation and sweet potato special efforts, with a value of rs = 0.526 and a calculated value of 4.627. The higher the level of farmer participation will be followed by the better the Sweet Potato Special Operation.

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