

An Extension of Competence and Technology in Supporting the Effectiveness of Kostra Tani's Program on Agricultural Products

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Abstract:- The agricultural sector has a very significant contribution to the achievement of sustainable development goals (SDGs). The role of the agricultural sector is directly related to the target in 2030, which is to eradicate poverty and hunger. One of the efforts made by the government to reduce poverty in Indonesia is to strive to increase agricultural production through extension activities in each Sub-District Agricultural Extension Center (BPPK). The presence of the Agricultural Technical Strategic Command (Kostra Tani) program is an effort by the government to strengthen the relationship between the government and the extensionists. In addition, with the program, it is expected that the Ministry of Agriculture can have one database that is completely accurate. Competence and mastery of good technology extension is expected to help farmers increase pro-production. Kostra Tani can help facilitate extension to have competence and mastery of the use of technology. Research objects in Bulukumba Regency, Jeneponto Regency, Takalar Regency, and Gowa Regency. This research used Collection techniques using questionnaires and sampling techniques purposive sampling with 392 sample. The analysis method uses path analysis. The results showed that: (1) kompetensi positive and significant effect on the production. (2) Technology has a positive and significant effect on the production. (3) Competence and technology have a positive and significant effect on production results.

Keywords:- Competence; Technology; Production Results.

I. INTRODUCTION

The agricultural sector has a very significant contribution to the achievement of *sustainable development* goals (SDGs). The role of the agricultural sector is directly related to the sdgs target in 2030, which is to eradicate poverty and hunger. One of the efforts made by the government to reduce poverty in Indonesia is to strive to increase agricultural production through extension activities in each Sub-District Agricultural Extension Center (BPPK). Counseling services in Indonesia to disseminate useful information to farmers on the one hand have not been effective due to the weak relationship between the

government and agricultural extensionists (Margono & Sugimoto, 2011). Therefore, the presence of the Agricultural Technical Strategic Command (Kostra Tani) program initiated by the Minister of Agriculture Syahrul Yasin Limpo, is an effort by the government to strengthen the relationship between the government and extension workers. In addition, with the program, it is expected that the Ministry of Agriculture can have one database that is completely accurate. Kostra Tani program is intended to strengthen the Sub-District Agricultural Extension Agency (BPPK) as a place for extension consolidation. In addition, the existence of Kostra Tani program is expected to not only increase production and quality, but also improve the welfare of farmers through the empowerment of extension workers in BPPK (<https://trotoar.id>). The object of the study was aimed at districts that became candidates for Kotra Tani in South Sulawesi Province. Table 2 shows data related to candidate districts of Kostra Tani in South Sulawesi Province.

Table 1. Data Related to Prospective Counter Tani District Year 2018

District	Number of Farmers	Production (tons)	Number of BPPK (fruit)	Number of POKTAN (group)
Maros	49.049	222.640	9	1.111
Pangkep	42.145	136.567	7	2.015
Bone	130.017	1.020.365	15	5.301
Wajo	74.244	866.344	4	3.715

Source: Source: Simluhtan (January, 2020).

Agricultural extension in an effort to change the behavior of farmers into qualified farmers in order to support the effectiveness of the Counter-Farmer program, must have competence. Therefore, one of the strategic steps to improve the competence and professionalism of extension workers is stipulated in Regulation of the Minister of Agriculture No. 43 of 2013 which explains that every civil servant extension must obtain a professional certificate in accordance with the standard of work competence and level of professional position. Competency standards are contained in the Indonesian National Work Competency Standard or commonly abbreviated as SKKNI, in accordance with the Regulation of the Minister of Manpower and Transmigration

Number: Per.21/MEN/X/2007. SKKNI for agricultural extension has been determined based on the Decree of the Minister of Manpower and Transmigration Number: KEP.29/MEN/III/2010 dated March 5, 2010 concerning the Determination of Draft Indonesian National Work Competency Standards. The results of Muliady's research (2009), Bahua (2010), prove that the competence of agricultural extensionists in developing rice paddy farming in three districts in West Java (Karawang, Subang and Sukabumi) is relatively low (25%) in terms of information management counseling and extension leadership. In addition to the competencies that must be possessed by the extension, technology has a significant contribution to the improvement of production results. The statement from Syahrul yasin Limpo as Minister of Agriculture, asserted that the extensionists in Kontra Tani must be technologically literate in order to provide their knowledge to farmers. in conducting counseling, in addition *to face to face*, can *teleconference*, through social media, *messenger* application so that it does not have a time limit space between farmers and extension workers. However, agricultural technology in some regions in Indonesia may still not be suitable for overall application, as it still has to consider several factors such as natural conditions, experts who operate equipment, as well as public knowledge about agricultural technology tools. Research from Mira et al (2018) related to the use of technology to improve the production efficiency of farmers in Bogor. The results prove that the use of technology can increase production better through the efficiency of production factors.

II. LITERATURE REVIEW

2.1 Kostra Tani's Program in Indonesia

The Ministry of Agriculture has launched a program of Strategic Command for Agricultural Development at the sub-district level or Kostra Tani. Kostra Tani is the center of agricultural development activities at the sub-district level which is the optimization of tasks, functions and roles of the Agricultural Extension Center (BPP) in realizing national food sovereignty. This program aims to: (1) revive and strengthen the role and capacity of officers of the Sub-District Agricultural Extension Center, (2) create the sub-district as the controlling focus and rational operation of agricultural development.

2.2 Agricultural Extension Competencies

Competency of agricultural extension is the roundness of knowledge, attitudes and skills in the form of smart actions and responsible in carrying out agricultural counseling tasks. Basing on the understanding of agricultural extension competencies, the competency units of agricultural extensionists are distinguished into 3 groups, namely: (1) General / Basic Competencies, covering competency units that are generally applicable and needed at all levels of agricultural extension. (2) Core/Functional Competencies, includes the applicable competency units and is required in performing functional core tasks and is *compulsory* units for the field of agricultural extension expertise. (3) Special Competencies/ Specialties, including competency units that are specific in the field of agribusiness expertise.

2.3 Technology Information

Technology can be defined as entities, objects or intangibles created in a unified way through deeds, and thoughts to achieve a value. Agricultural technology is a practice based on mechanistic understanding with an emphasis on formal objects of engineering in the manufacture and application of equipment and systems of production or processing of production. The philosophy of agricultural technology is a pragmatic finalistic practice-empirical, based on mechanistic-vitalistic understanding with an emphasis on formal objects of engineering in the manufacture and application of equipment, buildings.

2.4 Production

Production is defined as the use or utilization of resources that turn a commodity into another commodity that is completely different, either in what sense, where or when the commodities are allocated, or in the sense of what can be done by consumers to the commodity (Iga, 2014). Soekartawi (stated that the understanding of the function of production is a relationship between the factors of production and the level of production that it creates. These production factors consist of labor, land, capital, and entrepreneurial expertise.

III. RESEARCH METHODOLOGY

3.1 Research Approach

This research approach uses a quantitative approach, because the symptoms of the observations are converted into numbers so that statistical techniques can be used to analyze the results. This research locations and data collection units in Maros Regency, Pangkep Regency, Bone Regency and Wajo Regency.

3.2 Types and Data Sources

The type of data used in this study by its nature is data expressed in the form of numbers (quantitative) or trimmed (*scoring*) such as the amount of production, land area, the number of labor, the number of seedlings, and the amount of fertilizer. These types of data are collected directly from farmers (primary data) and indirectly (secondary data) from the Central Bureau of Statistics, and from various internet sites (secondary data). Primary data collection techniques through methods: (1) interviews, (2) observations, (3) questionnaires. As for secondary data through methods: (1) library studies, (2) documentation. The questionnaire is organized based on items related to variables to be studied, using *Likert's Summated Rating* (LSR) method (strongly agree = 5, agree = 4, do not know = 3, disagree = 2, strongly disagree = 1).

3.3 Population and Samples

The population in this study is all farmer groups located in Maros Regency, Pangkep Regency, Bone Regency, and Wajo Regency. The population in this study was 12,142 farmer groups. Minimum sample size of 392 farmer groups. Sampling techniques use *a simple random sampling method* for the selection of farmer groups and *purposive sampling*.

3.4 Data Analysis Techniques

Data analysis technique is a way of analyzing research data, including relevant statistical tools for use in research (Eng & Slamet, 2017: 42). Test the Validity and Reliability of Research Instruments. Descriptive Statistical Analysis. Inferential statistical analysis used, i.e. classical assumption test, multiple regression analysis, simultaneous hypothesis test (F test) and partial hypothesis test (T test), compound linear correlation, and compound linear determination.

IV. RESULTS AND DISCUSSION

4.1 Description of Production Results (Y)

Table 2. Descriptive Statistics

	N	Min.	Max.	Mean	Std. Dev.
Production	392	1.5	9.0	3.960	1.6924
Valid N (listwise)	392				

Source: Primary data processed, 2020

The highest yield achieved by farmers was 9 tons per ha and the lowest was 1.5 tons per ha. The average production is 3,960 tons per ha with a standard deviation of 1.6924 tons.

Instrument Validity and Reliability Testing

In total the correlation coefficient indicator is product moment $r > r_{table}$ (0.138) or Sig. (1-tailed) ≤ 0.05 . This indicates that all indicators can measure each latent (valid) construct. Similarly, the value of Alpha Cronbach = 0.623 ≥ 0.6 then the latent construct instrument is declared reliable.

Table 3. Hypothesis Test Results

Model	Unstandardized Coefficients		Standardized Coefficients	Q	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.511	.907		4.976	.000
Competence	.010	.046	.015	2.210	.034
Technology	.080	.100	.057	2.801	.023

Source: Processed primary data, 2020.

Hypothesis 1: Influence of Competency (X1) on Production Results (Y): The test result of t for competency variable (X1) to production result (Y) showed value $t = 2,210 \geq 1.96$ and significance value = 0.034 ≤ 0.05 . The conclusion is that an alternative hypothesis (Ha) is accepted. This means that competence has a positive and significant effect on the production. The meaning turns out that competence has a meaningful meaning to the production. The better competence, the more the production results are increased.

Hypothesis 2: The Influence of Technology on Production. The t test result for the technology variable (X2) against the production result (Y) showed a value of $t = 2,801 \geq 1.96$ and a significance value of = 0.023 ≤ 0.05 . The conclusion is that an alternative hypothesis (Ha) is accepted. This means that technology has a positive and significant effect on production. The meaning turns out that technology has a meaningful meaning to the production. The better technology, the more the production will increase.

Table 4. F Statistical Test Results

Model	Sos	Df	Mean	F	Sig.
1 Regression	2.526	2	1.263	.440	.005b
Residual	1117.378	389	2.872		
Total	1119.903	391			

Source: Processed primary data, 2020.

Hypothesis 3: Effect of Competence (X1) and Technology (X2) on Production Results (Y). The F test results for competency variables (X1) and technology (X2) against the production result (Y) showed a value of $F = 2,210 \geq 1.96$ and a significance value of = 0.005 ≤ 0.05 . The conclusion is that an alternative hypothesis (Ha) is accepted. This means that competence and technology have a positive and significant effect on the production. The meaning turns out that competence and technology have a meaningful meaning to the production. Competencies and technology are getting better, the production results are increasing.

4.2 Discussion

Effect of Competence on Production Results

Competencies owned by extension workers, such as competencies identifying potential good agricultural locations, competencies to develop programs, competencies to develop work plans, competencies to prepare materials, competencies to develop methods, competencies to develop self-help, self-initiative and self-sufficiency, competencies to motivate partners, and competencies to evaluate programs can improve production results. Therefore, extension competence has a meaningful meaning to the production of farmers. Extension workers who have low competence / less then greatly affect the production results. The results of this study also support the findings of Aryo. (2016) with the title Capacity of Agricultural Extension In An Effort to Increase Agricultural Productivity in East Java. The results prove that the capacity of extension / competence can be improved through training to support its performance in an effort to support agricultural productivity. Similarly, the findings of Aris (2019). The Role of Extension In Improving The Competence of Rice Paddy Farmers. (Case Study: Gapoktan Sri Rezeki Pasar Baru Village, Teluk Mengkudu District, Serdang Bedagai Regency). The results prove that: the role of extension can improve the competence of farmers to improve production. The results of this study do not support the findings of Zulfikar, et al (2018) with the title Perception of Farmers towards the Competence of Food Crop Extension in North Aceh Regency. The results prove that farmers' perception of agricultural extension competencies is still low, such as: competency of program preparation, material preparation competency, media selection competency, and method application competency. Similarly, the findings of several previous researchers prove that the competence of agricultural extensionists is still low. Therefore the competence of an extension needs to be improved. The results of Muliady's research (2009), Bahua (2010), prove that the competence of agricultural extensionists in developing rice paddy farming in three districts in West Java (Karawang, Subang and Sukabumi) is relatively low (25%) in terms of information management counseling and extension

leadership. The results of other studies showed that farmers' perception of agricultural extension competence is still low, such as research from Zulkifri (2018) in North Aceh Regency, Handayani et al.(2015), in East Kutai Regency, Timbulus et al. (2016), in Ratahan District, Southeast Minahasa Regency.

Effect of Technology on Production

The ease of obtaining new information, data deviations, and communication turned out to have a meaningful meaning to the increase in production results. Technology can improve the efficiency of the use of production factors that support the improvement of production results. However, the findings from Sry (2018) with the title Influence of Capital, Labor, and Technology on The Production of Shallots in Belo Subdistrict, Bima Regency. The results prove that: (a) capital and labor have a significant effect on production, (b) technology has no significant effect on production.

Competence and Technology on Production Results

Competency identifies potential, competency develops programs, competencies develop counseling work plans, competencies develop counseling materials, competencies of counseling methods, competencies to develop self-help and self-initiative, competencies to be partners, competencies of program evaluation, ease of storing data, ease of obtaining information, and communication turns out to provide meaningful meaning for the improvement of production results.

V. CONCLUSION AND SUGGESTIONS

5.1 Conclusion

5.1.1. Competence has a positive and significant effect on production results. This shows the competencies possessed by the extension, such as the competence of identifying the potential of a good agricultural location, competency of developing programs, competencies of drawing up work plans, competencies of composing materials, competencies of composing methods, competencies of developing self-help, self-initiative and self-sufficiency, competencies motivating partners, and competencies evaluating programs can improve production results.

5.1.2. Technology has a positive and significant effect on production. Indicators of technology such as, ease of obtaining new information, data deviations, and communication turned out to have a meaningful meaning to the increase in production results.

5.1.3 Competence and technology have a positive and significant effect on production results. competencies identify potentials, competencies develop programs, competencies develop counseling work plans, competencies develop counseling materials, competencies of counseling methods, competencies to develop self-help and self-initiative, competencies to be partners, competencies of program evaluation, ease of storing data, ease of obtaining information, and communication turns out to provide

meaningful meaning for the improvement of production results.

5.2 Suggestions

5.2.1 Extension workers always need to improve their competence in order to improve the ability to provide counseling to farmers related to how to further improve production.

5.2.2 Farmers need to improve understanding of the benefits of using technology because it can help obtain information related to how to increase production.

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