

Performance of Agricultural Extension Workers in Pemalang District, Central Java, Indonesia



Waridin¹, Made Ika Prastyadewi², Aini Nur Furoida³

^{1,3}Faculty of Economics and Business, Diponegoro University, Semarang, Indonesia

²Faculty of Economics and Business, Universitas Mahasaraswati Denpasar

ABSTRACT: Agricultural extension plays an important role in the development of food agriculture, especially in efforts to increase production. This study describes the performance of agricultural extension in Pemalang Regency, Central Java on internal factors and available infrastructure. The analysis method used is a mixed method, which is a combination of descriptive statistics and simple triangulation. In Pemalang Regency, the overall performance of extension workers is 62.7% included in the sufficient category. The availability of facilities and infrastructure has no significant effect on the performance of extension workers. The results of multiple linear regression analysis found that the variables of education and the number of assisted farmers had a significant effect on the performance of extension workers, while the variables of age, working period, and regional distance did not have a significant effect on the performance of extension workers.

KEYWORDS: performance, agricultural, extension, Pemalang

I. INTRODUCTION

The agricultural sector still has a strategic role in national development, both in terms of economic growth and equitable development. This is related to the vision of agricultural development which realizes resilient agriculture to strengthen food security, increase added value and competitiveness of agricultural products, and improve farmers' welfare. To realize food security, government policies that are more in favor of farmers are needed so that the entire series of agricultural production processes can run optimally through the achievement of production and price stability that puts farmers in a profitable bargaining position. This achievement can be achieved if it is supported by the condition of qualified human resources of farmers and government apparatus (Ministry of Agriculture, 2013). The agricultural sector accounted for 13.70% of the Gross Domestic Product in the year 2020, an increase of 0.99% from the previous year. Plantation crops (3.63%), food crops (3.17%), fisheries (2.80%), livestock (1.69%), horticultural crops (1.62%), forestry (0.70%), agricultural services, and hunting (0.20%) are the main contributors of agricultural sub-categories to GDP in 2020. Agricultural extension should share a bigger role in helping farmers overcome difficulties, especially in terms of overall agricultural operations (Jamil et al., 2023).

To support agricultural development, especially in achieving increased production, the role of agricultural extension cannot be ignored. The important contribution of agricultural extension to improve agricultural development and increase food production has led to a rapid development of people's interest in agricultural extension over the decades (van den Ban and Hawkins, 1999; Sadono, 2008; Bakorluh, 2015). Several countries have succeeded in advancing agriculture that allows the food needs of their people to be met and farmers' incomes are increasing. The urge to meet the food needs of its growing population has made countries aware of efforts to increase food production. Therefore, better agricultural technology continues to be developed and introduced to farmers so that farmers are willing to apply the technology, and food production increases. The activity of disseminating agricultural information and technology is known as agricultural extension. Agricultural extension can be defined as a non-formal education system for farmers and their families with the aim that they know, want, capable, and self-help to overcome problems well and satisfy them in improving their welfare (Wiriadmadja in Sadono, 2008).

Agricultural extension in Indonesia has received a legal umbrella in agricultural development since the issuance of Law Number 16 of 2006 concerning the Agriculture, Fisheries, and Forestry Extension System. The birth of this law can be interpreted as an effort to realize agricultural revitalization, where, agriculture is widely seen which includes agriculture, fisheries, and forestry. The SP3K Law can be used by the central and regional governments in carrying out agricultural extension activities in Indonesia. The improvement includes institutional aspects, human resource aspects both extension workers and farmers, in addition to other aspects (Mujiburrahmad, Muljono, and Sadono, 2014).

Performance of Agricultural Extension Workers in Pemalang District, Central Java, Indonesia

The various programs and results that have been achieved are certainly inseparable from the role of agricultural extension workers in carrying out their duties and responsibilities in fostering farmers. For decades, there have been various approaches to agricultural extension that have been carried out in Indonesia. The *demand-driven approach* in agricultural extension is an approach that theoretically and practically in some countries is more able to provide benefits to farmers (Qomar, 2011; Rivera and Alex, 2014). This is because the substance and extension materials are closer to the local reality and the condition of the farmers themselves. The various programs and results that have been achieved are certainly inseparable from the role of agricultural extension workers in carrying out their duties and responsibilities in fostering farmers.

In general, this study aims to analyze the facilities and infrastructure that support the performance of agricultural extension workers that affect the performance of agricultural extension workers and analyze internal factors (age, working experience, education) and external factors (distance to work areas) that affect the performance of agricultural extension workers.

II. RESEARCH METHOD

This study used the purposive sampling method, which was to select the sample with certain considerations. The sample taken was 52 extension workers at the Agricultural Extension Center (BPP). Primary data were obtained through interviews using questionnaires (as the Decree of Minister of Agriculture No. 91/Permentan/OT.140/9/2013 concerning Guidelines for the Evaluation of Agricultural Extension Worker Performance) and direct observation. Secondary data were obtained from various publications. The research was conducted on BPP in 7 sub-districts (Pemalang, Taman, Petarukan, Comal, Ulujami, Ampelgading, and Bodeh) in Pemalang Regency, Central Java, Indonesia. The mix-method analysis (quantitative analysis using descriptive statistics, cross-tabulation, chi-square test, multiple-regression), and simple triangulation analysis were used in the data analysis.

III. RESULTS AND DISCUSSION

The following section will describe the general characteristics of agricultural extension workers in the study area (see Table 1).

Table 1. Characteristics of Extension Workers

Description		Frequency	Percentage
Gender	Man	43	82.70
	Woman	9	17.30
Status	Civil servant	25	48.07
	Honorary	27	51.93
Age (year)	<41	10	19.22
	41-50	25	48.06
	>50	17	32.68
Education	Senior High School	18	34.61
	Diploma	10	19.23
	Bachelor	24	46.15
Work experience (year)	<11	28	53.84
	11-20	20	38.45
	>20	4	7.68
Work distance (km)	<11	28	53.84
	11-20	20	38.45
	>20	4	7.68
Farmer's group	<11	18	34.61
	11-20	29	55.76
	>20	5	9.61

Performance of Agricultural Extension Workers in Pemalang District, Central Java, Indonesia

Most of the agricultural extension workers who were sampled (82.70%) were men. Their employment status is civil servants (PNS), which is 48.07% and the rest have the status of honorary (Freelance Daily Workers - THL). The highest (48.06%) age group is 41-50 years, followed by those over 50 years old. The education level of agricultural extension workers mostly (46.15%) is undergraduate followed by Senior High School and Diploma. Their working experience was 10 years or less (53.84%), followed by those with working experience of 11-20 years (38.45%). The distance between the extension worker's residence to the working area (WKPP) was 10 km or less (53.84%), followed by 38.45% at 11-20 km. More than half (55.76%) of extension workers have served farmer groups between 11 to 20.

Performance of Agricultural Extension Workers

The results found that 62.5% of agricultural extension workers had sufficient performance. According to research by Sapar dan Bustami (2014), it is stated that the performance of agricultural extension workers affects the competence or skills of farmers. Listya (2009) explained that PPL work performance influences the developing agribusiness. Sundari (2015) also said that agricultural extension workers play a role in increasing rice farming production. To improve the performance of agricultural extension workers relates to Law No. 16 of 2006 concerning the Extension System article 31 paragraph 1, it is necessary to have an institutional capacity for extension and good performance of extension workers through adequate facilities and infrastructure. The counseling can be held effectively and efficiently. The relationship between the use of facilities and the use of pre-facilities for counseling with the performance of extension was explained using cross-tabulation analysis.

Table 2: Performance of Agricultural Extension Workers by Utilization of Facilities

Utilization of Facilities	Category	Performance			Total
		Low	Moderate	High	
Centre of Information	Low	0	2	1	3
	Moderate	0	7	20	27
	High	0	12	10	22
Supporting tools	Low	0	3	10	12
	Moderate	0	6	10	16
	High	0	12	11	23
Administrative equipment	Low	0	1	0	1
	Moderate	0	7	21	28
	High	0	13	10	23
Transportation/Vehicle	Low	0	0	0	0
	Moderate	0	4	19	23
	High	0	17	12	29
Books/Research Publication	Low	0	3	1	4

Performance of Agricultural Extension Workers in Pemalang District, Central Java, Indonesia

	Moderate	0	9	16	25
	High	0	9	14	23
Furniture	Low	0	0	0	0
	Moderate	0	6	8	14
	High	0	15	23	38

From Table 2, there is a dependence between the use of information centers and the performance of extension workers. The use of information centers is the use of information tools in the form of computers, modems, cameras, and telephones that are used to access the latest information. The use of information centers at the Pemalang Regency Agricultural Extension Center is included in the sufficient category and can be used to improve performance. The performance of agricultural extension workers is included in the good category. The use of information centers such as computers helps in facilitating the performance of extension workers related to making reports. Although the use is sufficient, it can be used optimally by one person, making it easier for other extension workers.

Table 3. Pearson Chi-Square Test on the Utilization of Extension Facilities

Utilization of Extension Facilities	Asymptotic Sig.
Centre of Information	0.003
Supporting tools	0.014
Administrative equipment	0.011
Transportation/Vehicle	0.001
Books/Research Publication	0.065
Furniture	0.412

Table 3 indicates that there is a dependence between the use of tools and the performance of extension workers. Assistive devices in the form of LCD, sound system, TV/tape recorder, and board. The *Asymp. Sig. (p-value)* value was 0.014. The use of supporting tools at the Pemalang Regency Agricultural Extension Center is good and has a good effect on the performance of agricultural extension. The use of administrative equipment is also good and affects the performance of agricultural extension as well.

There is a dependence between the use of transportation means and the performance of extension workers. The means of transportation provided by official vehicles are in the form of motorcycles. The *Asymp. Sig. (p-value)* value is 0.000. The use of assistive devices at the Pemalang Regency Agricultural Extension Center tends to be good and affects the good performance of agricultural extension workers. Another dependence is from the use of books and publication results with the performance of extension workers. Although the use of books and publications is in the sufficient category, the performance of agricultural extension is included in the good category.

Performance of Agricultural Extension Workers in Pemalang District, Central Java, Indonesia

Table 4: Performance of Extension Workers by Utilization of Extension Infrastructure

Utilization of Infrastructure	Category	Performance			Total
		Low	Moderate	High	
Office Room/Space	Low	0	4	1	5
	Moderate	0	5	5	10
	High	0	12	25	37
Threshing Land	Low	0	7	11	18
	Moderate	0	1	6	7
	High	0	13	14	27
House (official)	Low	0	16	19	35
	Moderate	0	1	6	7
	High	0	4	6	10
Water source	Low	0	4	6	10
	Moderate	0	10	15	25
	High	0	7	10	17
Electricity	Low	0	3	1	4
	Moderate	0	7	19	26
	High	0	11	11	22

Table 5 shows the dependence between the use of office space and the performance of extension workers. The availability of rooms (leaders, administration, extension groups, halls, meeting rooms, data and information rooms, bathrooms, warehouses, kitchens) owned by the Agricultural Extension Center and used to provide services to farmers. *Asymp. Sig. (p-value)* of 0.238. Room utilization and counseling performance are included in the good category.

There is independence between the use of pilot land and the performance of extension workers. This can be seen from the value of *Asymp. Sig. (p-value)* 0.076. The use of pilot land and the performance of extension workers are good. Another dependence is between the use of official houses and the performance of extension workers, with *the value of Asymp. Sig. (p-value)* 0.003.

Performance of Agricultural Extension Workers in Pemalang District, Central Java, Indonesia

Table 3. Pearson Chi-Square Test on the Utilization of Extension Infrastructure

Utilization of Extension Infrastructure	Asymptotic Sig.
Office room/ Space	0.238
Threshing Land	0.003
House (official)	0.076
Water source	0.006
Electricity	0.008

There is a dependence between the use of clean water sources and the performance of extension workers (*Asymp. Sig.* 0.006). The use of clean water sources at the Pemalang Regency Agricultural Extension Center tends to be in the sufficient category and is used to be able to influence the performance of agricultural extension workers who are in the good category. Other results found that there was a dependence between the use of lighting and the performance of agricultural extension.

Internal Factors Affecting Extension Worker Performance

Table 6 shows that independent variables consisting of extension workers' age, work experience, education level, distance from work areas, and the number of assisted farmers together affect the performance of agricultural extension workers. An R-square value of 0.853 means that as much as 85.3% of the variation in the dependent variable can be explained by the independent variables, and the rest is explained by other variables in the model.

Table 6. Multiple Regression Results on Factors Influencing Extension Worker Performance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	69.737	15.733	4.432	0.000
Age	-0.158	0.199	-0.792	0.432
Education	1.688	0.548	3.080	0.003
Work Experience	0.205	0.108	1.892	0.065
Distance to work area	-0.162	0.169	-0.962	0.341
Number of Farmer's group	-0.752	0.186	-4.049	0.001
R-squared	0.853			
F-statistic	53.589			
Prob. (F-statistic)	0.001			

Dependent variable: Extension worker performance

Performance of Agricultural Extension Workers in Pemalang District, Central Java, Indonesia

The results of the partial analysis found that the age of extension workers had negative effects on the performance of agricultural extension workers. This means that the increase in age will affect the decline in the performance of agricultural extension workers. This result is not significant (Sig 0.433 is greater than 0.05). This result is in line with the research of Sapar and Bustami (2017) which stated that age does not have a significant influence on the performance of cocoa agricultural extension workers in Papao City. The research of Bahua Mohamad et al. (2010) found that the performance of extension workers does not maximum because the extension workers are old. It is proven that the performance of agricultural extension workers decreases due to their age. The extension workers at the Agricultural Extension Center have an average elderly age and there is no good regeneration for the extension workers. This will affect the performance of extension workers who have not been maximized.

The educational variable has a positive effect on the performance of agricultural extension workers. The regression coefficient for the education variable is positive (1.688) which means that the improvement of education will affect the improvement of the performance of agricultural extension workers. The significance value of 0.003 is less than 0.05. Therefore, it can be concluded that educational variables have a significant effect on the performance of agricultural extension workers. The results of this study are not in line with the study of Sapar and Bustami (2017) which stated that differences in the education level of extension workers did not cause differences in their performance. However, this study found that these different educational backgrounds affect the quality of extension workers' performance. Extension workers with university degrees had higher competence than extension workers with a high school education.

The work experience of extension workers has a positive effect on their performance. The regression coefficient value is positive (0.205) which means that the increase in work experience will affect the improvement of the performance of agricultural extension workers. However, the influence was not significant (Sig. 0.065 > 0.05). This finding was in line with the research of Wicaksono et al. (2017) but not in line with the research conducted by Sapar and Bustami (2017). The results of this research found that the higher the competence of extension workers which can be seen from the level of education, the more likely it is to improve the performance of extension workers

The distance of the extension worker's work area negatively affected the performance of agricultural extension workers. The regression coefficient for this variable has a negative value (-0.162) which means that the increase in the distance of the working area will affect the decrease in the performance of agricultural extension workers. However, this effect was not significant (Sig. 0.341 > 0.05). The results of this study are in line with the research which found that the work area did not influence the performance of extension workers.

The number of farmers assisted by extension workers has a negative and significant effect on their performance. The results of this study are not in line with the research of Sapar and Lanteng (2017) but in line with the research of Bahua Mohammad et al. (2010). The latter states that an increase in the number of fosters will reduce the quality of extension workers' performance. This is in line with the conditions at the Pemalang Regency Agricultural Extension Center that one extension worker can be responsible for more than 3 farmer groups, even the extension coordinator can be responsible for more than 2 groups. This is not in line with the written rule that only one group of farmers should be responsible because time and cost limitations make the performance of extension workers decrease.

IV. CONCLUSION

The results of the study found that the performance of agricultural extension workers was included in the sufficient category. There are as many as 62.5% that are included in the sufficient category. The relationship between the use of infrastructure facilities and the performance of extension workers is less representative of the performance of extension workers because based on the results of the research, it is known that although some extension workers choose to use infrastructure facilities in sufficient category, the performance of extension workers mostly has a good performance category. There are other influencing factors which able to explain further the influence of agricultural extension worker performance. Based on the results of the multiple linear regression analysis, it is known that only the educational variables and the number of assisted farmers are the significant variables.

REFERENCES

- 1) Bahua, Mohammad dkk. 2010. Faktor-faktor yang mempengaruhi kinerja penyuluh pertanian dan dampaknya pada perilaku petani jagung di Provinsi Gorontalo (Factors affecting the performance of agricultural extension workers and their impact on the behaviour of corn farmers in Gorontalo Province). *Jurnal Ilmiah Agropolitan*, 3 (1).
- 2) Bakorluh (2015). *Apel Siaga Penyuluh se-Jawa Tengah (Standby apples for extension workers throughout Central Java)*. Jakarta: Ministry of Agriculture. Retrieved 2 May 2016 from <http://www.pertanian.go.id/>.
- 3) Bappenas (2015). *Rencana Pembangunan Jangka Menengah (RPJM) Indonesia Tahun 2015-2019 (Indonesia's Medium-Term Development Plan, Year 2015-2019)*. Jakarta: National Development Planning Agency.

Performance of Agricultural Extension Workers in Pemalang District, Central Java, Indonesia

- 4) Jamil, MH. et al. (2023). Faktor-faktor yang mempengaruhi kinerja penyuluh pertanian dalam masa pandemi Covid 19 di Kabupaten Jenepono (Factors that affect the performance of agricultural extension workers during the Covid 19 pandemic). *Jurnal Penyuluhan* Vol. 19 (01) 2023 pp. 80-92.
- 5) Ministry of Agriculture (2013). Peraturan Menteri Pertanian No.091/Permentan/ OT.140/9/2013 tentang *Pedoman Evaluasi Kinerja Penyuluhan Pertanian (Regulation of the Minister of Agriculture No.091/2013 concerning Guidelines for Evaluation of Agricultural Extension Performance)*. Jakarta: Kementerian Pertanian Republik Indonesia.
- 6) Mujiburrahmad, P. Muljono, dan D. Sadono (2014). Kinerja penyuluh pertanian di Kabupaten Pidie Propinsi Aceh dalam melaksanakan tugas dan fungsinya (The performance of agricultural extension workers in Pidie Regency, Aceh Province in carrying out their duties and functions). *Jurnal Penyuluhan*, September 2014 Vol. 10 No.2.
- 7) Puspitasi, Listya (2009). Persepsi petani terhadap performansi kerja penyuluh pertanian lapangan dalam pengembangan agribisnis kedelai di Kecamatan Toroh Kabupaten Grobogan (Farmers' perception of the work performance of field agricultural extension workers in the development of soybean agribusiness). *Mediagro* Vol. 5 No. 1.
- 8) Qamar, M.K. (2011). *Introducing Demand-driven Extension Approach in a Traditional Region: a Case Study From Pakistan*. Rome: Food and Agriculture Organization of the United Nations.
- 9) Rivera, W. and G. Alex (eds) (2014). *Demand-driven Approaches to Agriculture Extension: Case Studies of International Initiatives*. The International Bank for Reconstruction and Development and The World Bank.
- 10) Sadono, D. (2008). Konsep pemberdayaan petani: Paradigma baru penyuluhan pertanian di Indonesia (The concept of farmer empowerment: A new paradigm of agricultural extension in Indonesia). *Jurnal Penyuluhan* Vol. 4 No.1, Maret.
- 11) Sapar and L. Bustami (2017). Faktor-faktor yang mempengaruhi kinerja penyuluh pertanian dalam peningkatan produktivitas kakao di Kota Palopo (Factors affecting the performance of agricultural extension workers in increasing cocoa productivity). *Jurnal Ekonomi Pembangunan*, 03 (01).
- 12) Sundari dkk. (2015). Peran penyuluh pertanian terhadap peningkatan produksi usahatani di Pontianak (The role of agricultural extension workers in increasing agricultural production). *Jurnal Social-Economic of Agriculture* Vol. 4 No. 1.
- 13) Swanson, B.E. and R. Rajalahti (2010). *Strengthening Agricultural Extension and Advisory Systems: Procedures for Assessing, Transforming, and Evaluating Extension Systems*. The International Bank for Reconstruction and Development and The World Bank.
- 14) Undang Undang No. 16 tahun 2006 tentang *Sistem Penyuluhan Pertanian, Perikanan, dan Kehutanan (The Law No. 16 Year 2006 - Agriculture, Fisheries, and Forestry Extension System)*. Retrieved from <https://jdih.menlhk.go.id/new2/uploads/files/UU%2016%20Tahun%202006.pdf>.
- 15) Van den Ban, A.W. dan H.S. Hawkins (1999). *Penyuluhan Pertanian (Agricultural Extension)*. Yogyakarta: Penerbit Kanisius.
- 16) Wicaksono, Pararto dkk. 2007. Faktor-faktor yang berkontribusi terhadap kinerja dan kompetensi penyuluh pertanian pada jenjang jabatan penyuluh pertanian ahli (Kasus di Malang, Jawa Timur) (Factors contributing to the performance and competence of agricultural extension workers at the level of expert agricultural extension positions). *Jurnal Habitat* Vol. 27



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0)

(<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.