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The Farmers' Satisfaction of UPJA Services in Yogyakarta

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ABSTRACT

Agricultural Equipment and Machinery Services Business (UPJA) is a rural economic entity that provides services to improve farming equipment and machinery (alsintan). UPJA's good performance will satisfy consumers (farmers). The purpose of this survey was to discover how satisfied farmers were with UPJA services. The method employed was descriptive, with IPA-Kano integrated analysis. The data was gathered through interviews and the distribution of questionnaires to 90 UPJA clients from three classes: Beginner, Developing, and Professional. The results revealed that clients were Quite Satisfied in the Beginner class, Very Satisfied in the Developing class, and Satisfied in the Professional class. The Beginner class's priorities for increasing service were the diversity of machinery, its adequacy, and the number of staff. In the Developing and Professional classes, advertising attributes, personal protective equipment utilization, and team member uniforms were prioritized for service improvement.

Keywords: agricultural tools and machinery, farmers' satisfaction, UPJA

INTRODUCTION

Agricultural development is now faced with limited land availability, especially land that has ideal conditions for agricultural land. Therefore, one of the government's efforts is to intensify agriculture by increasing farming equipment and machinery (alsintan). Alsintan has now become a basic need for farmers in managing their farming, such as cultivating the soil, planting, harvesting, and post-harvesting. This is due to the lack of availability of labor, as many have switched professions to non-agriculture (Subagiyo 2016). Using alsintan in production encourages the emergence of economic businesses in farming equipment and machinery services. Alsintan Service Business, from now on referred to as UPJA, is a rural economic entity engaged in service in the context of optimizing the use of agricultural equipment and machinery to obtain business benefits both inside and outside farmer groups (Regulation of the Minister of Agriculture Number 25/Permentan/PL130/5/2008).

The existence of alsintan from the UPJA program positively impacts paddy farmers, because it saves time, reduces labor and costs, increases productivity and reduces yield loss. Yield loss at harvest time ranges from 10 to 12%, and using a combined harvester can reduce losses by up to 3%. Another benefit of modern agriculture using alsintan is the reduction of farming costs and the increase in farmers' income.

The Provincial Government of the Special Region of Yogyakarta has developed the use of agricultural mechanization. The development of agricultural mechanization in this region has also been carried out starting from several years, even decades ago. In addition, the Provincial Government of the Special Region of Yogyakarta has also developed the Agricultural Alsintan Service Business (UPJA). Economically, this UPJA is expected to significantly increase the income and welfare of farming communities in rural areas.

UPJA, with its good performance, will satisfy both consumers (farmers) and commercial clients. Consumers are satisfied when the service they receive meets their expectations. As a result, while being a small firm, UPJA must prioritize consumer satisfaction to run its operations professionally, develop, and sustainably. According to Husnia and Sugiarti (2021), farmers in Dlemer were satisfied with Alsintan Nusantara's service and use. Nusantara UPJA's image assessment of its service and use falls into the good category. Farmers are satisfied with the services given by the UPJA because they have a positive perception of the organization.

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METHODS

The study was carried out in the Regencies of Sleman and Gunung Kidul, Yogyakarta's Special Region Province. The research location was chosen because the Agriculture Offices in these regencies recognized and classified UPJA classes, as well as activated UPJA services for agricultural communities.

Purposive sampling was used to collect the samples, which is a strategy that was chosen with certain criteria or concerns in mind. The Agriculture Offices of these regencies have classified UPJA into three categories: beginner, developing, and professional. The sample used in this study was UPJA, representing each UPJA class. Farmer sampling was done on purpose. The respondents were chosen specifically because the farmer engaged in rice growing and used UPJA services. 90 farmers from each UPJA class were sampled.

The research method chosen was quantitative descriptive. Farmers' satisfaction was measured using UPJA service users and the 7P marketing mix attributes: price, place, product, promotion, process, people, and physical evidence. The Integrated IPA and Kano Analysis was used to find the attributes that needed to be adjusted to increase farmers' satisfaction.

Importance Performance Analysis (IPA) Method

The IPA method mainly displays information related to service factors that, according to consumers, significantly affect their satisfaction and loyalty and service factors that, according to consumers' need to be improved due to the current unsatisfactory conditions. The IPA method combines the measurement of importance and performance factors into a two-dimensional graph that facilitates data interpretation and practical suggestions (Figure 1).

The collected data from the questionnaires were then calculated using the IPA analysis with the following steps (Supranto 2006):

1. Determined the level of conformity between the level of importance and the level of performance of the marketing mix strategy by comparing the performance score with the importance score.

$$TK_i = \frac{P_i}{I_i} x100\% \cdot \quad (1)$$

where:

TK_i = The degree of suitability of the marketing mix strategy

P_i = Marketing mix strategy performance level assessment score

I_i = Marketing mix strategy importance rating score

a. Calculated the average for each attribute perceived by the respondent using the formula:

$$\overline{P} = \frac{\sum P_i}{n} \quad (2)$$

$$\overline{I} = \frac{\sum I_i}{n} \quad \ldots (3)$$

where:

$\overline{P}$ = Average score of the performance level of the marketing mix attribute

$\overline{I}$ = Average score of importance level of marketing mix attributes

n = Number of respondents

b. Calculated the average of all important attributes Î and the performance level 'P that are the limits on the Cartesian diagram:

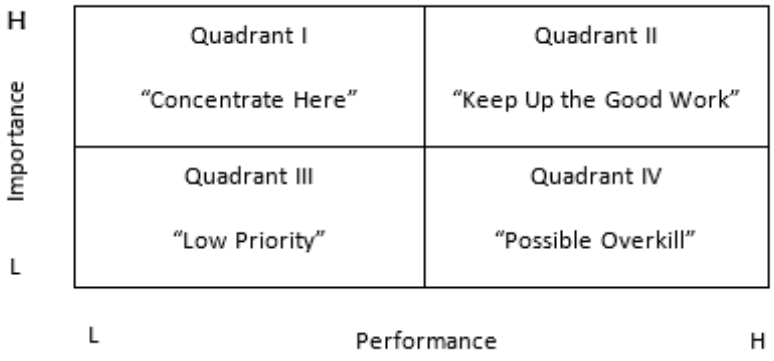

Figure 1 Quadrant of Important Performance Analysis (Martilla and James 1977).

$$\hat{P} = \frac{\sum \overline{P_i}}{K} \quad (4)$$

$$\hat{I} = \frac{\sum \overline{I_i}}{K} \quad (5)$$

where:

$\hat{P}$ = Average performance level across marketing mix attributes

$\hat{I}$ = Average level of importance across all marketing mix attributes

K = The number of attributes that can affect product quality

The criteria for assessing service performance based on the attributes of the marketing mix in UPJA can be seen in Table 1. The calculation continued with measuring farmer satisfaction using the Customer Satisfaction Index method. The first stage determined the Mean Importance Score (MIS) and Mean Satisfaction Score (MSS). These values were derived from the average level of importance and performance of each attribute:

$$MIS = \frac{\sum_{i=1}^{n} \bar{I}_i}{n} \quad (6)$$

$$MSS = \frac{\sum_{i=1}^{n} \overline{P_i}}{n} \quad (7)$$

where:

n = Number of respondents

$\bar{I}_i$ = Value the importance of the ith attribute

$\dot{P}$ = I-rated performance

The second stage was to calculate the Weight Factors (WF). This weight was the percentage of the MIS value per attribute to the total MIS of all attributes.

$$WFi = \frac{MISi}{\sum_{i=1}^{p} MISi} x100\% \quad (8)$$

where:

p = Number of importance attributes

i = Ith attribute

Next, calculated the Weight Score (WS). This weight was a multiplication between the WF and the MSS.

$$WS_i = WF_i x MSS_i \quad (9)$$

The last step was to calculate the Customer Satisfaction Index (CSI) using the formula:

$$CSI = \frac{\sum_{i=1}^{p} WS_i}{5} x100\% \quad (10)$$

The values from the CSI calculation were used to determine the level of farmer satisfaction. The overall level of satisfaction of respondents can be seen from the satisfaction criteria (Table 2).

1. Kano Model

The Kano model does not have a mechanism to prioritize attributes but prioritizes the rules of M > O > A > I. This Kano method consists of three categories, but there are responses from service users in the indifferent category. The following is the category of customer needs that influence customer satisfaction (Kano *et al.* 1984; Bayraktaroglu *et al.* 2007):

Table 1 Service level criteria

Service level assessment	Criterion
4.3–5.0	Excellent
3.5–4.2	Good
2.7–3.4	Fairly good
1.9–2.6	Less good
1.0–1.8	Not good

Table 2 Farmer satisfaction criteria

CSI score	CSI criterion
0.81–1.00	Very satisfy
0.66–0.80	Satisfy
0.51–0.65	Fairly satisfy
0.35–0.50	Less satisfy
0.00–0.34	Not satisfy

Source: Sukardi and Cholidis 2006.

a. *The must be* or *basic need* (M). For this need, customers will feel dissatisfied when the performance of product attributes (goods or services) is low. Still, customer satisfaction will not increase beyond the neutral area, even if the performance of product attributes is high.
b. *The one-dimensional* or *performance needs* (O). For this need, customer satisfaction has a linear function with the performance of product attributes. High product attribute performance results in high customer satisfaction.
c. *The attractive* or *excitement needs* (A). For this need, customer satisfaction increases exponentially along with the increase in attribute performance. Still, the decrease in the performance of this attribute does not cause a decrease in customer satisfaction level.
d. *Indifferent* (I). The presence or absence of attributes in this category does not affect the satisfaction of service users.

2. Integrated IPA-Kano

After conducting an IPA and the Kano models, the attributes that are included in the improvement priorities can be determined with several indicators, namely:

a. These attributes are attributes that belong to the first quadrant of IPA.
b. For the Kano category that is selected to be adjusted is in accordance with the M>O>A>I rule.

The determination of the priority of improving attributes that are included in quadrant I of IPA and in accordance with the Must be > One-dimensional > Attractive > Indifferent rules are:

1) *Fatal* (Quadrant I and *must be* attribute category). Attributes in this category cause high dissatisfaction among service users, where in this condition, the service users are always correct, and thus, attributes in this category can stop business continuity. For business owners, improving fatal attributes and preventing the decline in service quality must be prioritized.
2) *Defenseless strategy point* (Quadrant I and *one-dimensional* attribute category). This attribute category is like a fortress that is not guarded during wartime. Attributes that fall into this category have a low level of performance, but they are essential. Business owners must be able to improve the quality of service in this attribute from competitors so that customer satisfaction can increase.
3) *Dusty Diamond* (Quadrant I and *attractive* attribute category). The attributes in this category are like a diamond luster covered by dust and need to be cleaned (enhanced) to spread its original glory. If resources allow, companies are advised to increase attributes in this category to attract service users (Figure 2).

RESULTS AND DISCUSSION

Customer Characteristics

The characteristics of customers in each UPJA class are seen in terms of age, education, and cultivated land area (Table 3). It can be concluded that the majority of UPJA's customers are cultivators. Cultivators are farmers who usually cultivate land owned by others without having to own their land and get the yield agreed upon by the landowner and cultivator farmers (Wahyuningsih 2011). The education level of UPJA customers is

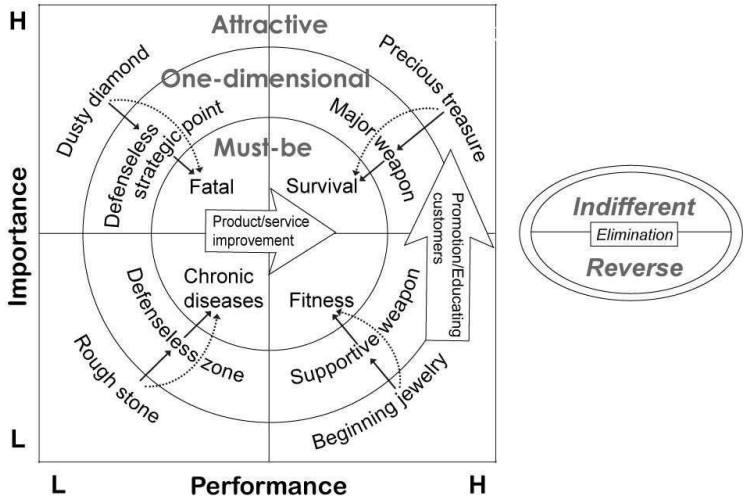

Figure 2 Quadrant of IPA-Kano model (*Kuo et al.* 2012)

Table 3 Characteristics of UPJA Sleman Customer

UPJA class	Variable	Classification	Number	
			Person	Percentage (%)
Beginner	Age (yr)	17–50	4	13.3
		51–60	7	23.3
		>60	19	63.3
		Total	30	100
	Education	Not graduated from elementary school	0	0
		Elementary school	14	46.7
		Junior high school	8	26.7
		Senior high school	7	23.3
		Diploma/Bachelor	1	3.3
		Total	30	100
	Cultivation land area	0,05–0,10 ha	4	13.3
		0,11–0,49 ha	16	53.3
		>0,5 ha	10	33.3
		Total	30	100
Developing	Age (yr)	17–50	16	53.3
		51–60	6	20
		>60	8	26.7
		Total	30	100
	Education	Not graduated from elementary school	3	10
		Elementary school	9	30
		Junior high school	6	20
		Senior high school	12	40
		Diploma/Bachelor	0	0
		Total	30	100
	Cultivation land area	0,05–0,10 ha	13	43.3
		0,11–0,49 ha	16	53.3
		>0,5 ha	1	3.3
		Total	30	100
Professional	Age (yr)	17–50	12	40
		51–60	14	46.7
		>60	4	13.3
		Total	30	100
	Education	Not graduated from elementary school	0	0
		Elementary school	6	20
		Junior high school	14	46.7
		Senior high school	9	30
		Diploma/Bachelor	1	3.3
		Total	30	100
	Cultivation land area	0.05–0.10 ha	7	23.3
		0.11–0.49 ha	17	56.7
		>0.5 ha	6	20
		Total	30	100

relatively low, especially in elementary and junior high schools. The age of UPJA customers is in the productive age category. According to data from the Central Statistics Agency (BPS), the productive age group in Indonesia is 15 to 64 years old. Based on the land area cultivated by farmers, the majority is in the category of small-scale farmers, namely land area of less than 0.5 hectares.

Customer Satisfaction Level

The measurement of UPJA customer satisfaction level used the attributes of the marketing mix of 7P service products: price, place, product, promotion, process, people, and physical condition. The level of service that has been provided by each UPJA can be seen in Table 4.

Based on the assessment of the level of service and the level of service importance in each attribute of the

marketing mix, customer satisfaction can be measured. The level of customer satisfaction was assessed by measuring the Customer Satisfaction Index (CSI) (Table 5).

Analysis of Integrated IPA-Kano

The IPA-Kano Integration Analysis combines the results of the IPA and Kano analyses to decide which service aspects should be prioritized for improvement. The service attributes that are in the improvement priorities based on the IPA-Kano Integration analysis are those that are included in the IPA analysis's I quadrant because they are important. However, service customers' satisfaction remains poor, and the category of Kano chosen for improvement adheres to the requirements of *Must be* > *One- Dimensional* > *Attractive* > *Indifferent*. The results of the IPA-Canoe Integration Analysis are shown in Table 6.

Beginner Class

UPJA for Beginner classes in Sleman Regency is OJHA, managed by Makmur Farmers Group. The level of satisfaction of farmers with the Beginner class services (UPJA OJHA) is in the category of quite satisfied and, when viewed from the service performance, is in the category of quite good. This is because the services provided by UPJA to surrounding farmers still need to be improved. After all, they began operating in 2019. The business management carried out has yet to develop well. The services provided are still limited to the Godean District area, Sleman Regency.

The level of customer satisfaction based on the analysis of IPA-Kano Integration in the Beginner class (OJHA) revealed that several service attributes are in the *Fatal* category, namely the attributes of the variety of equipment, the adequacy of the number of equipment, and the number of staff. Attributes that fall into the *Fatal* category are attributes with low performance but a high level of importance and must-be attributes. This attribute is the top priority in increasing customer satisfaction because it is an attribute customers need. OJHA only provides rice seeding and planting services using transplanter machines. Alsintan owned by OJHA UPJA are shown in Table 7.

Other mechanized agricultural equipment, such as hand tractors (for tillage), threshers, and water pumps, have ultimately become a necessity for farmers to optimize the management of paddy fields. In general, Friyatno *et al*. (2003) said that the tendency to replace equipment from manual to mechanical in the agricultural business is inevitable due to technical, economic (increasing purchasing power), and employment (reduction of farming labor). Therefore, it is necessary to add the type and quantity of alsintan owned by UPJA to

Table 4 Service level of Agricultural Equipment and Machinery Services Business (UPJA)

UPJA level	Level of service	Criterion
Beginner	3.0	Fairly good
Developing	4.3	Quite good
Professional	3.6	Good

Table 5 Customer satisfaction level of Agricultural Equipment and Machinery Services Business (UPJA)

UPJA level	CSI	Criteria
Beginner	62.07	Fairly satisfy
Developing	85.82	Quite satisfy
Professional	75.04	Satisfy

Table 6 Results of integrated IPA-Kano analysis of Agricultural Equipment and Machinery Services Business (UPJA)

UPJA level	Integrated IPA-Kano category	Service attribute
Beginner	Fatal (Quadrant I –*Must be* category)	1. Variety of alsintan 2. Adequacy of alsintan 3. Number of staff
Developing	Dusty Diamond (Quadrant I – *Attractive* category)	1. Advertising 2. PPE use 3. Staff uniform
Professional	Dusty Diamond (Quadrant I – *Attractive* category)	1. Advertising 2. PPE use 3. Staff uniform

be able to provide more services to farmers so that it is not only in the form of rice planting services but can be expanded by giving land cultivation and post-harvest handling services.

The number of OJHA staff is also still limited to operate the alsintan, which is only four people. No dedicated technician can assist in the maintenance and repair of damaged alsintan. This is in line with Husnia and Sugiarti (2021), who stated that there is a lack of special technical officers for agricultural machinery, so if there is damage to the machine, technicians must be brought in from outside UPJA which can have an impact on the postponement of activities. In the context of the development of OJHA, there is a need for training for the managers to expand their business because the quality of managers and the training of managers have a positive and significant effect on the development of UPJA (Ilmi *et al.* 2020).

Developing Class

UPJA for the Developing class in Gunung Kidul Regency is Tirtosari UPJA, managed by the Tirtosari Group. The services provided by Tirtosari are related explicitly to rice field cultivation activities. Tirtosari is supported by rice field processing equipment and equipment that is quite complete (Table 8) so that it can serve not only Wonosari District but also farmers in other sub-districts: Playen, Paliyan, and Girisubo.

Farmers are quite satisfied with the services provided by Tirtosari UPJA. This is because the service offered is excellent. Tirtosari is administered by very good personnel, according to the local community's opinion, hence the community has a positive image of UPJA. This is consistent with the opinions of Husnia and Sugiarti (2021), who indicated that most officers at UPJA are concerned about farmers' requirements, operator officers are polite and kind in accordance with farmers' expectations, and officers do not regard social status when giving services. Suratno *et al*. (2016) and Saktiani (2015) also found a positive and substantial relationship between a company's image and its consumers, implying that the greater the company's image, the higher the customer satisfaction. If the company image matches consumer expectations, contentment will rise. According to Supranto (2001), satisfied customers are more likely to remain loyal, are less price sensitive, and have positive attitudes toward the company.

Farmers are satisfied with the services offered by Tirtosari UPJA. This is because the service provided is exceptional. According to the local community, Tirtosari is run by excellent personnel, and as a result, the community has a positive perception of UPJA. This is consistent with Husnia and Sugiarti's (2021) opinions, which stated that most officers at UPJA are concerned about farmers' needs, operator officers are polite and kind in accordance with farmers' expectations, and officers do not consider social status when providing services. Suratno *et al*. (2016) and Saktiani (2015) discovered a positive and significant association between a company's image and its customers, meaning that the stronger the company's image, the higher the customer satisfaction. Customer satisfaction will increase if the company's image fulfills their expectations. According to Supranto (2001), satisfied clients are more likely to stay loyal, are less price sensitive, and have a good attitude toward the business.

Professional Class

Sumber Makmur is UPJA Professional class at Sleman Regency. This UPJA is very good with the support of t the ownership of a fairly complete alsintan, which includes land tillage tools and machines (2-wheel and 4-wheel tractors), planting equipment (Indo Jarwo Transplanter), harvesting and post-harvest equipment (combined harvester, power thresher, sweet potato post-harvest equipment) (Table 9). Farmers report being

Table 7 Alsintan owned by OJHA UPJA

Types of equipment	Number (unit)	Condition
Transplanter Ubin	1	Good
Transplanter Indo Jarwo	2	Good
Grand Sider atau Mesin Semi Otomatis	1	Good

Source: Profile of OJHA UPJA (2022).

Table 8 Alsintan owned by Tirtosari UPJA

Equipment	Number (unit)	Condition
Hand tractor G 3000	2	Good
Hand tractor G1000	2	Good
4-wheel tractor 50 PH	1	Good
Robbin water pump 3,5 PH	1	Good
Water pump 8,5 PH	1	Good
Workshop tools	1	Good

Source: Profile of UPJA Tirtosari (2022).

Table 9 Alsintan owned by Sumber Makmur UPJA

Equipment	Number (unit)	Condition
Rice powered thresher	1	Good
Soybean thresher	1	Good
Sweet potato post-harvest equipment	1	Good
4-wheel tractor	3	Good
2-wheel tractor	5	Good
4" water pump	5	Good
Indo Jarwo transplanter	3	Good
Workshop equipment	1	Good

Source: Profile of Sumber Makmur UPJA (2022).

satisfied with the Sumber Makmur. This UPJA has eight capable operators to operate the alsintan, in addition to complete equipment. Alsintan operators are capable of repairing damaged alsintan by forming a workshop coordinator who works with a workshop operator. Each operator is responsible for the cleanliness and maintenance of the equipment he runs, both before and after operation, in order to preserve its reliability and durability over its economic life.

Sumber Makmur UPJA also collaborates with technicians from PT Quick if there is heavy damage. For light service, repairs was done by UPJA's own workshop using equipment that Sumber Makmur already owns. Adam and Pebrian (2017) stated that the most significant factor in influencing the satisfaction of rice farmers is the operator of alsintan. They must master the operational management of agricultural machinery to achieve satisfactory field operations both from economic aspects and quality of work. The results of this study are in line with Ambarsari *et al*. (2017), which stated that the most dominant factor in service quality is operator reliability. The machine's reliability remains dependent on the reliability of the operator because it can determine failure or success, and the machine operates properly according to its function. However, Sumber Makmur needs to manage its financial records adequately. All expenses and income are not recorded and are still voluntary. Therefore, financial management must be implemented in every organization, including UPJA. Managers, as the person in charge, need financial management training (Yeni and Dewi 2014).

The priority for improving service attributes in the Developing and Professional classes is advertising, using personal protective equipment (PPE), and staff uniforms, which are in *the Dusty Diamond* category. Attributes that fall into the *Dusty Diamond* category are attributes that have low performance but a high level of importance and are attractive. The Attractive attribute is an attribute that can provide double satisfaction if the attribute is improved in quality. Therefore, attributes that fall into the *Dusty Diamond category* are recommended to increase these attributes to attract service users.

All UPJAs have never carried out advertising activities in both print and electronic media for their business promotion because the managers only rely on promoting "Gethok viral" (word of mouth). Farmer information related to UPJA is obtained by farmers from non-formal activities such as counseling and training (Husnayati *et al*. 2018). The acceleration of innovation adoption is also affected by the interconnectedness and openness of farmers in communication networks both inside and outside farmer groups (Ellyta *et al*. 2019). UPJA needs digital marketing training to increase advertising activities and expand the alsintan rental market (Ilmi *et al*. 2020).

Field operators continue to utilize PPE sparingly. One example is the use of boots, gloves, and hats. However, field operators have not consistently used PP) because they believe they are unable to move freely. The use of incomplete PPE is hazardous and can have an impact on employees' Occupational Safety and Health since it reduces concentration and health at work (Perdana and Muliatna 2014). PPE can help operators maintain their occupational safety and health, allowing them to continue providing excellent services over time.

Furthermore, UPJA managers' uniforms have yet to be deployed, therefore the local population has been unable to recognize the UPJA management team. Uniforms serve as a business's identification and can be used as a promotional tool when providing community services. This is consistent with the findings of Lisdiantini *et al*. (2019), who believe that uniforms can establish authority through habituation, eliminate economic inequities, and foster a sense of belonging to the organization and unity as an identity or differentiator from comparable companies.

CONCLUSION

Customer satisfaction with UPJA services is rated as Quite Satisfactory for Beginner, Quite Satisfactory for Developing, and Satisfactory for Professional classes. The majority of the Beginner class UPJA is limited in terms of equipment availability and UPJA management workforce. As a result, UPJA Beginners can develop their

businesses by growing the type and number of equipment owned, as well as the quantity and quality of human resources, allowing UPJA managers to increase their company reach.

The aim for increasing service qualities in UPJA for the Developing and Professional classes is to improve advertising (promotion), the usage of PPE, and staff uniforms. Advertising (promotion) activities are used to communicate the products and services available to consumers and to broaden the marketing network via print, electronic, and social media. PPE is utilized to improve the safety and health of UPJA staff, allowing them to deliver best customer service. Using uniforms benefits a UPJA manager's personal identity while also increasing authority and a sense of belonging.

The government should pay special attention to the current development of Beginner, Developing, and Professional classes. UPJA institutions are required to improve the efficiency of rice crop farming. As a result, the government must play a role in increasing UPJA's institutional competence and resources to promote modern agriculture and food security in Indonesia.

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