Relation Between Application of Shallot Cultivation Components by Alumni of SL UPSUS and Their Productivity in Kretek District, Bantul Regency

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Abstract. Sekolah Lapang Upaya Khusus (SL-UPSUS) shallot is one of the activities designed by the Ministry of Agriculture in order to oversee and assist farming in shallot production centers. This study aims to 1) analyze the level of application of shallot technology components of SL-UPSUS alumni farmers 2) determine the productivity of shallots and 3) to analyze the relationship between application of shallot cultivation components and productivity among farmers alumni SL-UPSUS. The study was carried out from March to July 2021, located in Donotirto Village, Kretek District, Bantul Regency. Proportional random sampling method was used for determining respondents. Data collection was done by interview using a questionnaire. Data analysis was carried out using descriptive analysis and Spearman Rank correlation. Results of study revealed the categorize of application of farmer's cultivation component is in the category of implementing but not accordance with the recommendations yet. Productivity of shallots for SL-UPSUS alumni farmers is 17.3 t/ha. There is a significant relationship between application of shallot cultivation components and productivity, with the acquisition of the correlation coefficient value is 0.731.

Keywords: Cultivation component · Field school · Shallot productivity · SL-UPSUS

1 Introduction

Shallots (Allium ascalonicum L.) are plants from the Lilyceae family originating from Central Asia. Shallots contain nutrients and compounds that are classified as non-nutritive substances as well as enzymes that are useful for therapy, improving and maintaining the health of the human body. Shallots are also one of the horticultural commodities that are used as food seasoning [1]. Shallots are agribusiness commodities and seasonal horticultural crops that have high economic value [2].

Sekolah Lapang Upaya Khusus (SL-UPSUS) translates as special effort field school. This is one of the activities designed by the Ministry of Agriculture in order to oversee and

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assist farming in shallot production centers. Field schools is non-formal learning facilities for the community in order to apply technology that is adapted to existing resources. Field school activities are useful for improving farming and livestock to become more advanced, efficient, high-productive, and sustainable. The material taught at the shallot field school in 2017 consisted of cultivation component which include cropping patterns, selection of superior varieties, selection of seed tubers, tillage, planting, fertilization, maintenance, and harvesting [3].

Bantul Regency is one of the largest shallot-producing districts in the Special Region of Yogyakarta Province, with an area of 894 hectares and production reaching 9,043.2 t [4]. In Bantul district, Kretek sub-district is the sub-district with the widest harvested area of 370 ha in 2019 with onion production in 2019 was 4,798.5 t [5].

Donotirto Village is one of the villages in Kretek District with a harvested area of 40 hectares of shallots, and received the Red Onion Field School activity in 2017. When the Red Onion Field School was implemented, the productivity of shallots in Donotirto Village reached 19.5 t [6]. However, after the field school activities were completed, the productivity of shallots decreased. In 2018 it was 15 t, in 2019 and 2020 it reached 17.3 t [7]. It is important to study how alumni farmers implement the knowledge and skills that have been acquired during the shallot field school activities, where productivity afterward is lower than when the activity was carried out.

Based on the description and problems in the field, the research objectives can be formulated as follows: 1) analyze the level of application of shallot technology components of field school alumni farmers 2) determine the productivity of shallots and 3) to analyze the relationship between application of shallot cultivation components and productivity among farmers alumni of field schools. The research hypothesis that has been compiled states that there was a significant relationship between application of shallot cultivation components and productivity.

2 Methods

The research was carried out in March-July 2021. It took place in Donotirto Village, Kretek District, Bantul Regency, Yogyakarta Special Region. Determination of the location of the study was carried out using a purposive sampling technique, with the consideration that it was a shallot production area in Bantul district which had held field school activities with special efforts for shallots. There were two farmer groups that received shallot field school activities in 2017 namely “Mekar Jaya” and “Rumah Tani Kencono”. Sampling was carried out using proportional random sampling technique, with the result that 19 respondents came from the Mekar Jaya farmer group and 11 farmers came from the Rumah Tani Kencono farmer group.

Survey method used in this research is an effort to collect information from respondents who are sampled by using a structured list of questions. Primary data collected included socio-economic characteristics of the respondents, application of shallot cultivation components from shallot field school alumni farmers and their productivity. Secondary data was obtained from related agencies and literature studies.

Data collected were analyzed by descriptive statistical analysis. To examine application of shallot components cultivation using median formula. Application of shallot

cultivation components was categorized into three: applying according to the recommendations, implementing but not according to the recommendations and not applying according to the recommendations. To find out relationship between application of shallot cultivation components by alumni of special effort field schools with productivity, the Spearman Rank correlation test was used.

3 Results and Discussion

3.1 Characteristics of Respondents

Characteristics of farmers who are alumni of the shallot special effort field school can be grouped in terms of age, education level, farming experience, land ownership area. Based on age, respondents can be grouped into productive age (15–64 years) as many as 28 people (93.33%) and respondents who are not productive (>64 years) totaling 2 people (6.67%). When viewed from the level of education, respondents took basic education as many as 10 people (33.33%), secondary education 17 people (56.67%), higher education 3 people (10%). Distribution of respondents based on land area can be divided into categories of narrow land area (<0.5 ha) 29 people (96.67%) and land area above 0.5 ha totaling 1 person (3.33%).

3.2 Shallot Productivity

The Thai variety shallot (Tajuk) is an introduced shallot from Thailand. Its variety used by all farmers, which were average productivity of this variety reaches 12–16 t/ha [8]. The average productivity of shallots from field school alumni farmers is 17.3 t/ha. Distribution of the average productivity presented in Table 1.

Refer to Table 1, it can be seen that average productivity achieved by alumni farmers of special efforts field school shallots, is mostly below the average productivity when field school activities are carried out. However, it is already above the average potential productivity of the variety itself.

This condition in accordance with the Dewi et al. opinion [9], that one of indicators that affect farmer productivity was the experience of farmers in implementing the Field School Cultivation Component. The longer the experience of implementing field school cultivation component, the more benefits that would have an impact on the breadth of knowledge of the farmers, as well as increasing the skills of farmers in carrying out tasks and also making work more efficient so as to increase productivity. Field school is an

Table 1. Distribution of shallot farmers based on productivity

Productivity Category	Amount	Percentage
Below Average	18	60.00
Appropriate	1	3.33
Above Average	11	36.67

Source: Primary Data Processing, 2021.

educational pattern which is not just to learn from experience but is a process so that field school alumni can master a dynamic process of knowledge discovery and farmers can apply cultivation components that have been taught in everyday life [6].

3.3 Application of Shallot Cultivation Components

Application/adoption in the agricultural extension process is defined as the process of accepting innovations and/or behavioral changes in the form of knowledge, attitudes and skills in a person after receiving innovations that are conveyed by information providers to the target community [10].

Referring to Table 2, where majority of farmers who have attended the shallot field school, have not implemented many components of cultivation according to the recommendations because the attitudes and behavior of farmers has not changed, from the cultivation habits that have been carried out so far. Learning through field schools during one onion planting season has not been able to change the habits of farmers to cultivate according to the recommendations.

3.4 Correlation Analysis

Relationship between the application of shallot cultivation components and productivity in this study was analyzed using Spearman correlation. This analysis aims to determine the closeness of the relationship, direction of relationship and meaning or absence of the relationship between two variables. Results of the correlation analysis between two variables are presented in Table 3.

Based on Table 3, it can be seen that there was a positive sign in the coefficient value indicates the direction of the relationship between two variables, meaning that the higher application category of shallot cultivation components, the higher the productivity. This result is in line with research [11, 12].

Table 2. Distribution of shallot farmers based on application of shallot cultivation components

Cultivation Component Category	Amount	Percentage
According to Recommendation	4	13.33
Apply Not According to Recommendations	26	86.67
Not Apply	0	0

Source: Primary Data Processing, 2021.

Table 3. Results of relationship between application of shallot cultivation components and productivity

Correlation	Coefficient	Significance
Rank Spearman	0.731^{***}	0.00

Source: Primary Data Processing, 2021.

Value of the correlation coefficient is 0.731. Results of the significance test obtained in the Spearman correlation analysis are 0.00, meaning that there was a significant relationship between application of the components of shallot cultivation and productivity. According Sugiyono [13], correlation coefficient 0.731 was categorized into category of strong closeness. Application of shallot component cultivation will affect productivity, so that the application of farmers was related to productivity because farmers already understand enough about the benefits of implementing the components cultivation such as increasing production yields. This is in accordance with the BPP explanation [6], that field schools was useful for increasing farmers' knowledge so that the cultivation component can be applied next, which will make farming more efficient, increase productivity and be sustainable.

4 Conclusion

Productivity of shallots from farmers whose alumni of the special effort field school was lower than when the field school activities were held. Majority of farmers who were alumni of shallot field school special efforts have not implemented cultivation components according to the recommendations. There was a significant relationship between implementation shallot cultivation component and productivity of alumni farmers of special effort field schools in a strong/high level of closeness.

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