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Granting of Several Types of Cash Fertilizer and Distribution of Apical Approaches to Growth: Results of Flour Plants (*Capsicum frutescens* L.)

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Keywords

Apical Approaches;
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Abstract

The objectives of this study are for the type of manure that is most appropriate for the improvement of fertility and the generation of the period of nutrients and the best time of pruning for the growth and yield of chili. This research is a Factorial experiment, with Basic. Design of Randomized Block Design (RBD) with 2 factors that tried and done in glass house lasted from July to November 2017. In the first factor type of manure from level 4: K 0 = no fertilizer, K 1 = cow manure, K2 = chicken manure laying hens, K 3 = rabbit manure. The dose of each fertilizer 20 tons ha-1. The second factor with 3 levels: P 0 = without trimming, P 1 = pruned apical shoots age 8 days after planting, P2 = pruning apical shoots age 16 days after planting. From the experiment will be obtained 12 treatment combinations and will be repeated 3 times. The interaction between several types of manure and apical trimming (K x P) was markedly significant (P <0.05) to the variable wet weight of leaves and leaf dry weight. The interaction is very important (P <0.01) against the maximum leaf number variables, wet root weight, root dry weight, and fresh fruit weight. Fresh weight of fruit obtained on interaction with manure by pruning apical part 16 days after planting (K3P2) of 47.67 g and when compared to the combination of no fertilizer and without pruning (K0P0) of 37.80 which can be increased 26, 11%.

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Contents

1. Introduction

Sulistiawati *et al.,* (2017), chili plants are seasonal crops that have important values at this time. The market is in dire need of chili commodities. The availability of chili in the market is influenced by many things, including low production levels, environmental conditions in production centers and natural disasters, increasing needs. The still high demand for chili in the community with its availability in the market cannot meet the demand, both for large chili (Capsicum annum L.) and small chillis (*Capsicum frutescens* L.) provides an opportunity to meet these needs through increasing the application of crop cultivation technology.

Prajnanta (2011), Rukmana (1996), cultivation techniques through the provision of manure on the planting media can provide an increase in the supply of nutrients. The number of types of manure available on the market causes testing of chili plants to be tested for manure which has the greatest impact on plant growth and development Cow manure, chicken is quite a lot of use by farmers in the chili planting medium, but it needs to be tried again comparing with the provision of rabbit manure which has higher substance content which has not been used much. The provision of manure must be efficient and effective there are so many techniques and technologies developed to increase agricultural production. Pruning chili plant seed is an innovation that is now starting to be popular because it is proven to be able to increase crop productivity and have several advantages. Chili seeds that are very young have very high regeneration abilities, this is the reason for cutting seeds. With a very high level of regeneration, if pruning is done, it will produce a new branch, which is 2 branches. With proper care and availability of plant nutrients, productivity will increase.

Hartatik & Widowati (2009), (2002), Linga (2006), pruning can be done on apical buds and lateral shoots. Pruning can be done when the plant is in the ocher (polybag) or when in the field. Pruning is generally used for canopy arrangements, increasing lateral shoots / productive branches stimulates flowering. When pruning when in polybag/ocher can accelerate the release of lateral shoots that can contribute to the faster release of flowers and quality harvests. Lakitan (1995) states that pruning is often done to stimulate the growth of primary, secondary and so on. Rai (2011) states that pruning stimulates flowering by thinning

Hanafiah (2012), branches or twigs so that sunlight can enter evenly about the entire canopy/plant canopy. From the background explanation above, it can be formulated the problem is that there are still many farmers who have not used manure (cow, laying hens, rabbits) and trimming the apical part when polybag/ocher as part of the application of chili cultivation technology, Sari (2011), Harjadi (1989), it is necessary to do research so that farmers can use types of manure and the right apical trimming time to get the best growth and yield.

2. Materials and Methods

2.1 Place and Time of Research

This research was conducted from July 2017 to November 2017 in a greenhouse, Faculty of Agriculture, Warmadewa University, Denpasar at an altitude of 15 m above sea level.

2.2 Materials and Tools

The materials used in this study are seeds of local varieties, cow manure, chickens and rabbits, insecticides. While the tools used are scissors, sprayers, meters, stationery, scales, and millimeter paper

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The materials used in this study are seeds of local varieties, cow manure, chickens and rabbits, insecticides. While the tools used are scissors, sprayers, meters, stationery, scales, and millimeter paper.

2.3 Research Methods

Nugraheni *et al.,* (2011), this research is a factorial experiment with the basic design of Randomized Block Design (RBD) consisting of two factors. The first factor is the type of fertilizer (K) which consists of four levels, namely:
K0 = without fertilizer (control)
K1 = cow fertilizer
K2 = chicken fertilizer
K3 = rabbit fertilizer

The actor is trimming the apical part (P) which consists of three levels, namely: P0 = without trimming / controllingP1 = pruning 8 days after transplantingP2 = pruning 16 days after transplanting. Thus there are 12 types of combination treatment, each treatment repeated 3 times so that 36 pots are needed.

2.4 Research Implementation

Supari (1999), Zulkarnain, H. (2009), chili seeds used are local varieties and to accelerate germination, the seeds are soaked for ± 6 hours. Seeding is done in a seedbox, with a cockpit mixture and soil with a ratio of 1: 1. After the 35-day-old seedlings are transplanted into the polybag. The soil is prepared in each polybag weighing 10 kg and treated with adding fertilizer equal to 100 g / poly bag in all types of fertilizer.
Embroidering is done 1 week after planting taken from the plants that have been prepared. Watering is done in the morning and evening, weeding and planting are carried out at any time. Spraying pesticides for prevention is done before pests/diseases develop.

2.5 Research Variables

Observations will be made on the variables: plant height, number of lateral shoots, number of leaves, number of flowers formed, leaf area, number of fruits, wet and dry weight of leaves, wet and dry weight of roots, fresh fruit weight, wet and dry weight of stems/branch.

2.6 Data Analysis

Data were analyzed using analysis of variance (F test) at the level of 5% and 1%. If the F test shows the effect of treatment, then proceed with the BNT test at the level of 5%.

3. Results and Discussions

3.1 Research Results

The significance of the effect of treatment on several types of manure (K) and apical pruning (P) and its interaction (KxP) on the observed variables are presented in Table 1.

Table 1
The significance of Giving Some Types of Enclosure Fertilizer (K) and Pruning Apical Parts (P) to Growth and Yield of Chili Plants (*Capsicum frutescens L.)*

No.	Variable	Type of Enclosure Fertilizer (K)	Treatment Pruning the Apical Section (P)	Interaction (K x P)
1	maximum plant height (cm)	**	*	ns
2	Maximum number of leaves (strands)	ns	ns	**
3	Number of Branches (fruit)	ns	*	ns
4	Number of Flowers (fruit)	ns	*	ns
5	Leaf area / plant (cm2)	ns	ns	ns
6	Number of Fruits (g)	ns	**	ns
7	Wet Weight Rod (g)	**	ns	ns
8	Wet Root Weight (g)	*	ns	**
9	Wet Leaf Weight (g)	ns	**	*
10	Dry WeightRod (g)	**	ns	ns
11	Root Dry Weight (g)	**	ns	**
12	Dry Leaf Weight (g)	ns	ns	*
13	Fresh Fruit Weight (g)	**	**	**

Description: ns = Not real influence (P≥0,05)
** = Very real influence (P<0,01)
* = Have a real influence (P<0,05)

From Table 1 it can be seen that the interaction between several manure treatments with apical trimming (KxP) significantly (P <0.05) on the variables of leaf wet weight and leaf dry weight. The interaction had a very significant effect (P <0.01) on the variable number of maximum leaves, root wet weight, root dry weight, and fresh fruit weight. Treatment of manure (K) had no significant effect (P> 0.05) on all observed variables except for root wet weight significantly (P <0.05). Whereas for maximum plant height, stem wet weight, stem dry weight, root dry weight, and fresh fruit weight were very significant (P <0.01).
The apical pruning treatment (P) had no significant effect (P> 0.05) on all observed variables except for plant height, a number of branches, the number of flowers significantly affected (P <0.05). Whereas for the number of fruit, the wet weight of the leaves and the fresh weight of the fruit were very significant (P <0.01).

3.2 Discussion

The results of statistical analysis showed that the wet weight of fruit per plant was obtained by giving several types of manure (K) with pruning on the apical part of the plant (P0) and from the combination, there was a significant effect (P <0.01). From the results of the study, K3P2 is a combination of rabbit manure application with apical pruning 16 days after planting to get the highest fresh fruit / fresh fruit weight of 47.67 g when compared with the combination of no fertilizer and no pruning (K0P0) of 37, 80 g increased by 26.11%. Both the K3P2 combination that gives the highest value that causes different interactions is not significant in most combinations except in K0P0.

The values obtained from each combination: in the observation of the wet weight of the fruit showed that all of them experienced an increase when compared with the combination of K0P0. Can be shown an increase of K1P0 of 19.39%, K2P0 of 17.11%, K3P0 of 18.60%, K0P1 of 19.39%, K1P1 of 24.42%, K2P1 of 25.66%, K3P1 of 25.74 %, K0P2 is 19.31%, K1P2 is 20.90%, K2P2 is 25.13%.

Fruit weight increase is caused by fertilizer (with various types of manure tested) and pruning. The provision of all types of fertilizer increases can be supported by the statement of Hardjowigeno (1987) that the advantages of organic fertilizer can increase nutrients, improve soil structure, increase cation exchange capacity, increase soil holding water, and increase soil biological activities. The availability of nutrients N, P, K and other elements that exist in cow manure, chicken and rabbits provide the role of the fertilizer contributes to its availability can meet the needs of plants.

From the apical pruning of the age of 8 and 16 days after planting, it has an impact on increasing the fresh weight of the fruit. Zulkarnaen (2009) states the main effect of pruning on the equilibrium of auxin in plants in the apical dominance of fomenting. Pruning of the stem ends causes active shoots of axillary buds which are usually directly below pruning.

4. Conclusion

From the results of the research conducted, it can be concluded the following:

1) Treatment of type of manure (K) had no significant effect (P> 0.05) on all observed variables except for root wet weight significantly (P <0.05). Whereas for maximum plant height, stem wet weight, stem dry weight, root dry weight, and fresh fruit weight were very significant (P <0.01).
2) The apical trimming treatment (P) had no significant effect (P> 0.05) on all observed variables except for plant height, a number of branches, the number of flowers significantly affected (P <0.05). Whereas for the number of fruit, the wet weight of the leaves and the fresh weight of the fruit were very significant (P <0.01).
3) The interaction between types of several *manure* and apical pruning (K x P) significantly (P <0.05) on the variables of leaf wet weight and leaf dry weight. The interaction had a very significant effect (P <0.01) on the variable number of maximum leaves, root wet weight, root dry weight, and fresh fruit weight.

The highest fresh fruit weight obtained in the interaction of giving rabbit manure with apical trimming 16 days after planting (K3P2) of 47.67 g and when compared with the results of the combination between without fertilizer and without pruning (K0P0) of 37.80 g an increase of 26.11%

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