

VARIETIES OF TOMATO (*Lycopersicon esculentum*) BY USING LOWER TRUNK INNOVATION

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Abstract

The research entitled “Varieties of Tomato (*Lycopersicon esculentum*) by Using Lower Trunk Innovation.” The research aims at knowing the age of switching, varieties of growth, and the highest yield on tomato. This research conducted in October 2013 – December 2014 in Kedunggalar village, District of Ngawi. The method of the research is factorial method by using Randomized Complete Design, which consist of two treatment factors; treatment factor is based on the age of *cepokak* covering three treatments and treatment factor is based on varieties of tomato covering two treatments. From those two treatments, the research finds six combined treatments and each combination of treatment should repeat three times. The treatment based on the age of switching shows a real affect toward parameter of successful observation, the amount of shoots, the length of shoots, the amount of flower, fruit, weight of fresh fruit, and weight of dried stover. The treatment which based on several varieties shows significantly real affect as well toward the success of switching, the amount of shoots, the length of shoots, the amount of flower, the amount of fruit, the weight of fresh fruit, and the weight of dried stover. The interaction both in the treatment based on the age and varieties show significantly real affect toward the success of switching, the amount of shoots, the length of shoots, the amount of flower, the amount of fruit, the weight of fresh fruit, and the weight of dried stover. The result of the research shows that the highest yield falls into the weight of fresh fruit based on the treatment of M₃V₂/six week of tomato switching. While the lowest yield falls into treatment M₃V₁/six week tomato switching.

Keywords: the age of switching, *cepokak*, types of varieties

1. Introduction

Tomato (*Lycopersicon esculentum*) is one of agriculture commodities which give advantages for human growth and health body for it consists of vitamins and mineral. The nutrients in tomato are carbohydrate, protein, fat and calorie. Tomato plays as multifunction agriculture commodity as vegetable, cooking ingredient, fruit, appetizer, food coloring, cosmetics material and drugs. As the source of mineral, tomato may useful to form bone and teeth (sulphur, and Phospor), while its calcium (Fe) may function to create blood cell or hemoglobin. Besides, tomato has potassium which is very useful to reduce human hypertension. Tomato counts in annual herbaceous plant species, its trunk is weak and wet, the leaves is triangle, the flower is yellow, the fruit is green when it is young and yellow or red when it is mature, the seeds are many, the shape is oval, and it has haired seeds. Based on its performance, there are several color of tomatoes; green, yellow, violet, red, purple or dark purple, and the party-colored (Cahyono, 2005). Thus, the demand on tomato is growing up hand in hand with population growth and social awareness about the important of hu-

man bodies health (Wiriyanta, 2004). One of the problems to fulfill the demand of tomato needs is by using agronomy technique, the switching between *cepokak* and tomato.

The switching between *cepokak* and tomato plays important role in the productivity of the plant. Therefore, the mixed between those plants can be able to increase both the quality and quantity. However, the problem emerges since *cepokak* is not well known yet, so it needs a study on the mixed between *cepokak* and tomato to get the highest harvest of tomato.

2. Research Method

The method of the research is factorial method using Randomized Complete Design which consist of two factor treatments, they are: 1) Age treatment factor which covers three levels; M₁ : four week plant, M₂ : five week plant, and M₃ : six week plant. 2) Factor treatment based on types of varieties which consist of two varieties, they are; V₁ : Varieties of tomato fruit, and V₂ : Varieties of tomato vegetable. From those two factors, the research comes to six combination of treatments and each treatment repeats three

times. The parameter of observation are the success of switching (%), the amount of emerging shoots : the length of shoots (cm) : the amount of flower: the amount of fruit, the weight of fresh fruit: the weight of dried stover (gram).

Data Analyzing Technique

The data analyzing technique is F testing and then go on to Least Significance Different testing in the level treatment of 5% and 1%.

3. The Result of the Research

Based on the finding of the research, the switching on the lower trunk of *cepokak* plant and the higher trunk of tomato brings about the level of success, 65.90% (Lukman *et al.* 2003). The chance of success will be higher when it does in a greenhouse, the level of success is about 81% (Pranowo dan Saefudin 2009), and it is getting much higher, 86.40% if the switching is done at 08.00–11.00 a.m (Zaubin dan Suryadi 2002). To support the development of grafting shoots technology, it needs entres garden collection which is taken from the best quality variety as the higher trunk source.

In the case of switching plant, the most successful thing will gain through switching between two plants which remained relatives, it usually did between one species. However, this effort is sometimes unsuccessful. Thus, the process of switching two different plants is no doubt anymore such as tomato and *cepokak* in this case, tomato and potato, lettuce and cabbage, yet to stick between different plant family has ever succeed (Rahardja, 2003). Tomato is offering better quality than tomato fruit. It produces more than the other one. To Asnanto (1995), variety is a group of plant having unique yet distinct

Parameter	Source of diversity		
	P	M	PxM
The success of switching (%)	**	**	**
The amount of shoots	**	**	**
The length of shoots (cm)	**	**	**
The amount of flower	**	**	**
The amount of fruit	**	**	**
The weight of fresh fruit	**	**	**
The weight of dried stover	**	**	**

characteristics and stable which different from other variety.

Table 1. The yield of the research

Note:

M : The age of switching

V : Variety of tomato

MxV : Interaction between the age of switching and varieties of tomato

** : Significantly different

The finding of research on the growth of tomato toward the weight of dried Stover shows significantly real. It shows that the varieties of tomato are possessing good characteristics, one of them is photosynthesis process. The more photosynthesis process, the more dried weight people get (Prawiranata, dkk, 1981).

4. Conclusion and Suggestion

From the previous analysis, the present researcher concludes that:

The age of switching treatment gives real affect toward parameter of observation on the success of switching process, the amount of shoots, the length of shoots, the amount of flower, the amount of fruit, the weight of fresh fruit, and the weight of dried stover.

The treatment on the varieties of tomato shows its real affect toward the success of the switching plant, the amount of shoots, the length of shoots, the amount of flower, the amount of fruit, the weight of fresh fruit and the weight of dried stover.

The interaction toward both the age of switching treatment and varieties of tomato shows real affect toward the success of the switching plant, the amount of shoots, the length of shoots, the amount of flower, the amount of fresh fruit, and the weight of dried stover.

The highest yield on the weight of fresh fruit is based on the treatment (M₃V₂) /six week treatment age by using tomato vegetable. While the lowest yield falls into the treatment of M₃V₁/ six week treatment age by using tomato fruit.

Suggestion

The present researcher suggests that the age of switching treatment must be raised to get the higher yield on tomato.

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