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INFLUENCE OF POT TYPES ON GROWTH AND DEVELOPMENT OF PEPPER

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Abstract

To increase the culture quality is absolutely necessary improving the methods of obtaining the seedlings. This paper refers to the behavior of pepper seedlings cultivated in different types of pot. The experiments were done in 2007 in cold glass house at the National Research & Development Institute for Biotechnology in Horticulture - Ştefaneşti - Argeş. For the development of experimental model we used seeds from two hybrids: Oscar and Topepo. Seeds were sown in mixture substrate and then either were transplanted, in plastic pots of 450 cm^3, in plastic pots of 300 cm^3 or seedling without transplanting, planted straight from the tray where they were sown where the density at sown were reduce up to 1:5. At the planting, each row represents one repetition, each hybrid it's cultivated in three repetitions. The experimental variants are represented each by 20 plants and those are disposed in this order regarding the length of the glass house (30 m): V_1- seedling transplanted in plastic pots of 450 cm^3, V_2 - seedling transplanted in plastic pots of 300 cm^3, V_3 - seedling without transplantation. All the studied characters were higher when compared to alternatives variant witness seedling without transplantation. Using transplanted lead to a harvest of peppers used two-three days earlier meaning the achievement of significant additional income and in addition, filling a niche market.

INTRODUCTION

In the latest years researches were made for finding new, modern solutions regarding the economic efficiency insurance, optimum seeds germination, the reduction of seeds lost, early crop, the elimination of some costs and the reduction of hand work.

This paper was made as a comparative study of the pepper seedlings obtaining methods (in different types of pots) concerning they recommendation in to the small, medium and big farms. The purpose of this study is the prominence of the differences of the pepper seedlings obtaining methods for the protected seedlings culture.

MATERIAL AND METHODS

For the realization of experimental model we wised seeds from *Capsicum annuum*: Oscar - sweet pepper variety and l Topepo - bell pepper variety.

OSCAR- early sweet pepper variety, conic, recommended for plastic and glass greenhouses, with good results in field culture. The indeterminate plant produce three lobs fruits, for 6 x 14 cm and 0.5 cm pulp. The average fruit weight is 180 g. The seeds wore treated with Thiram.

TOPEPO- red bell pepper variety, medium early to mature, recommended for field culture. The plant is vigorous, with fruits that can have 150-200 g weight. The seeds wore treated with Thiram.

Seeds were sown in a mixture substrate with manure, sand and top soil in 1/3 equal parts. We added peat for increase the water retaining capacity. Some seedlings were transplanted in plastic pots of 450 cm^3 and in plastic pots of 300 cm^3 and others were planted straight from the tray where they were sown where the density at the sown were reduce up to 1:5 cm. At planting, each row represents one repetition, each variety it's cultivated in three repetitions.

The experimental variants are represented each by twenty plants disposed in this order regarding the length of the glass house (30 m):

- V_1 - transplanted seedlings in plastic pots of 450 cm^3;
- V_2 - transplanted seedlings in plastic pots of 300 cm^3;
- V_3 - witness - seedlings without transplantation.

Fig. 1. Oscar sweet pepper seedlings in the two types of pots

Because we wanted the measurements to represents the correct period of stagnation and the period of grow restarting was established a marker by the mounting of

some pieces of glass on the soil, beside the pepper stem base, so that each measurement to be made from the same label.

RESULTS ANS DISCUSSION

The influence of the seedlings obtaining methods on the Oscar sweet pepper growing is represented in Figure 2.

In the first part of the experiment V_1 had an accelerated growing (at 7.06.2010 V_1 had 27.9 cm and V_2 had 17 cm). Meanwhile V_2 values exceeds V_1, V_2 values being then higher than V_1 values until the end of growing period (at 26.07.2010 V_1 had 74.6 cm, and V_2 had 78.3 cm). The lowest values had V_3 (at 7.06.2010 V_3 had 15.3 cm, and la 26.07.2010 V_3 had 65.8 cm).

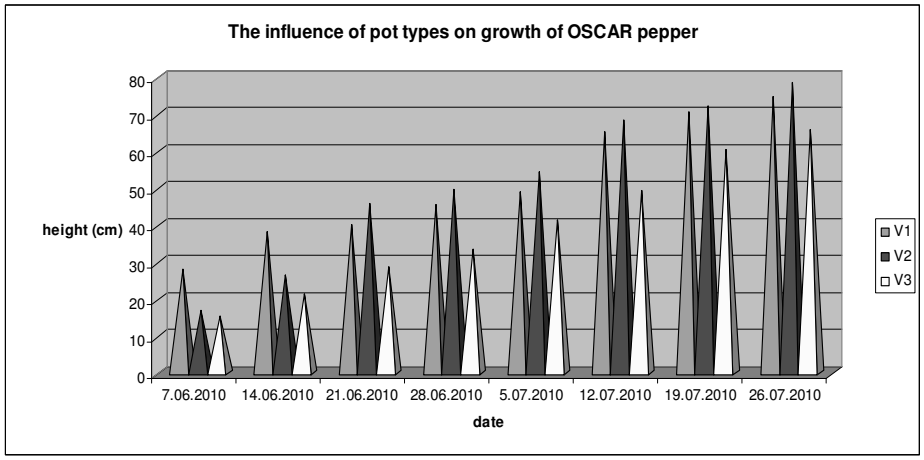

Fig. 2. The influence of pot types on growth of OSCAR pepper

The pot volume was important only at the beginning of growing period. In this period we observe that the growth was least in seedling without transplantation case.

The influence of the seedling obtaining methods on the Topepo pepper growing is represented in Figure 3.

In the first part of experiment V_1 had an accelerated growing for Topepo to (at 7.06.2010 V_1 had 28.3 cm, and V_2 had 25.6 cm). Meanwhile V_2 values exceeds V_1, V_2 values being then higher than V_1 values until the end of growing period (at 26.07.2010 V_1 had 50 cm, and V_2 had 52.1 cm). The lowest values had V_3 (la 7.06.2010 V_3 had 18.6 cm, and la 26.07.2007 V_3 had 49.3 cm).

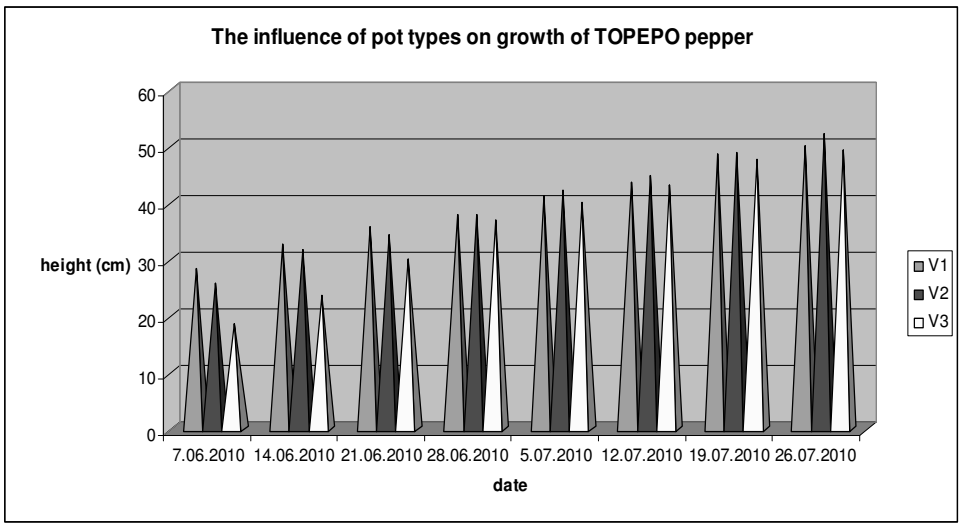

Fig. 3. The influence of pot types on growth of TOPEPO pepper

The values were close but V_3 had the lowest one.
We consider necessary to study the plants production. Figure 4 illustrate the productions/variants.

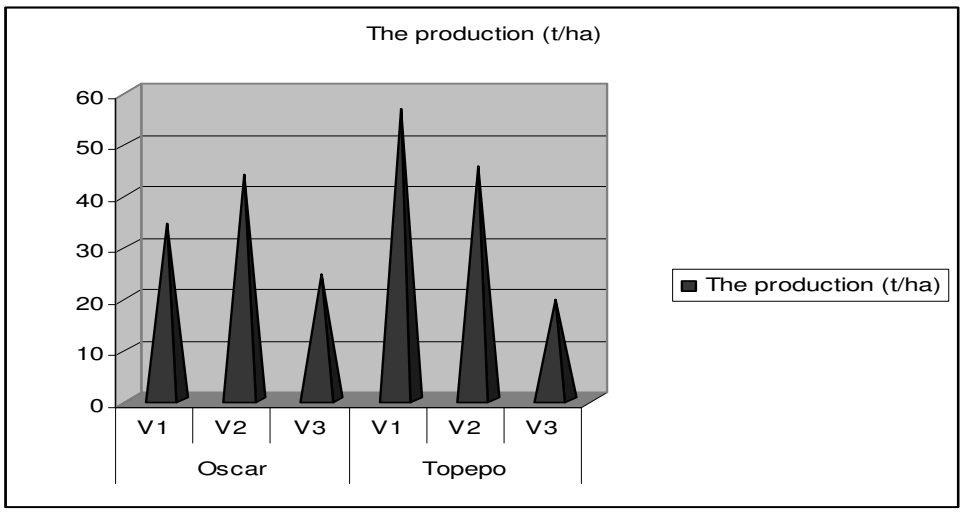

Fig. 4. The production

In Oscar case the biggest production had V_2 (43.75t/ha), in the Topepo case V_1 (56.66 t/ha). Between the experimental variants V_3 is less profitable because of the small production (Oscar 24.41 t/ha, and Topepo 19.41 t/ha).

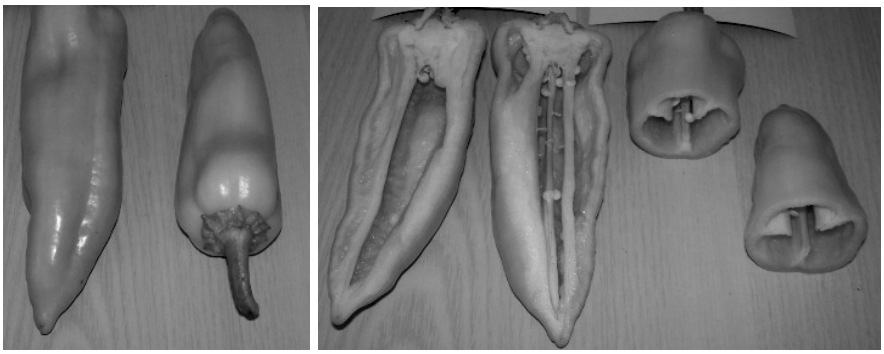

Fig. 5. Oscar fruits

Fig. 6. Topepo fruits

CONCLUSIONS

1. Soil volume is important only in the beginning of growing period, the seedling transplanted in plastic pots of 300 cm^3 exceeds after planting seedlings transplanted in plastic pots of 450 cm^3.
2. The growth speed after planting depends of the hybrid, Oscar had higher values than Topepo.
3. The transplanted variants had elder values of the studied characters than no transplanted variants.
4. The plants development and the early crop depend of the growth speed after planting and the planting stress reducing.

5. Using transplanted lead to a harvest of peppers used two-three days earlier meaning the achievement of significant additional income and in addition, filling a niche market.
6. The PVC pots volume is not very important for the research that we made.
7. The experimental variant V_3 is less profitable because of the small production.
8. The pots volume is not justifying the big production and early productions.

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