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ORIGINAL PAPER

POSSIBILITIES OF YEAR-ROUND ROMAINE LETTUCE PRODUCTION IN NORTH CYPRUS

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Abstract

In this study, three different varieties (Paris Island, Filipus and Quintus) were grown between September 2010 and August 2011 and recorded their bolting rates, head fresh weight, head diameter and head length. Seeds were sown in the first day of each month starting from September 1, 2010 until August 1, 2011. The average head fresh weight, head diameter and head length were determined as plant growth parameters. Bolting percentage was also recorded. All varieties showed early bolting in spring and summer growing period. The highest average head fresh weight was acquired from Paris Island cultivar. Paris Island was showed highest head fresh weight from October to March sowing periods, and bolting did not observe from October to February sowing periods.

Keywords: Lettuce, Cyprus, Bolting

INTRODUCTION

Lettuce is the one of most common leaf edible vegetable consumed in North Cyprus, and it is one of the indispensable vegetables of Cypriot Turkish culture. Although grown in cold climates, it is cultivated in all seasons of the year by developing new varieties adapted to different conditions (Gezer, 2012). Cultivated forms of lettuce belong to Lactuca sativa species. It is believed that this species is derived from three wild species: Lactuca seriola, Lactuca scariola and Lactuca virosa (Aybak, 2002). The optimum temperature for lettuce growth is between 7-24 °C, with a mean of 18°C (Lorenz et al., 1988). High temperature causes decreasing of quality and initiates the

generative period (bolting and flowering) in lettuce (Decoteav, 2000). In addition, some researchers have carried out some experimentations to determine the effects of different varieties and planting dates on to the lettuce quality, and they determines some positive results (Al-Harabi, 2008; Zhao et al., 2009). One of the main problems of lettuce production in North Cyprus is bolting in hot climates and areas during spring, summer and autumn growing periods. Moreover, reductions in yield and quality (height and diameter) are the other important problems for lettuce production.

This study was investigated to solve these problems of the different selected lettuce varieties grown in year-round.

MATERIALS AND METHODS

This study was conducted between September 2010 and October 2011 at European University of Lefke, Faculty of Agriculture Sciences and Technologies Research and Application Farm in Güzelyurt. On the experiment three different varieties of Romaine type lettuce (*Lactuca sativa* L. var. Longifolia) (Paris Island, Filipus and Quintus) were sowed at the first day of each month for twelve months in plastic viols with peat. After that, they transplanted in the field when plants had 4-5 true leaf. The randomized complete block design was used as a experimentation method. Three replications were used for each variety and each replication contained 20 plants. Planting system was designed 0,5 m between rows and 0,25 m on the rows. At harvest time, average plant weight, height, diameter and bolting rates were determined.

Data from the experiments were subjected to Analysis of Variance and mean separations were done with Duncan's multiple range test by using SPSS 22.0.

RESULTS AND DISCUSSION

Climate and soil differences may influence lettuce yield and quality (Dufault, et al., 2006; Lamont, 2009). Growing environments also contribute to differences in lettuce yield and quality (Rader and Karlsson, 2006). All varieties showed early bolting in spring and summer growing period and they have same tolerant to the bolting (Filipus 44.3 %; Paris Island 30.8 %; Quintus 32.2 %). The highest average head fresh weight was obtained from Paris Island (1009 g). Filipus (572.5 g) and Quintus (590.5 g) had head fresh weight was less than the Paris Island. The highest average head diameter was obtained from Paris Island (17.5 cm). Filipus (15.2 cm) and Quintus (12.8 cm) had head diameter was less than the Paris Island. The highest average head length was obtained

from Quintus (19.8 cm). Paris Island (18.4 cm) and Filipus (16.6 cm) had head length was less than the Paris Island. Paris Island was showed highest head fresh weight from October to March sowing periods, and was not showed bolting from October to February sowing periods. Quintus was showed highest head length between September and May sowing periods. Paris Island can produce from October to March sowing periods and its harvesting period can be realized until May (Table 1) (Figure 1).

Table 1. Average bolting, head fresh weight, diameter and length of three Romaine Lettuce varieties in 12 months of the year

Varieties	Bolting (%)	Head Fresh Weight (g)	Head Diameter (cm)	Head Length (cm)
Filipus	44.3 a	572.5 b	15.2 b	16.6 c
Paris Island	30.8 a	1009 a	17.5 a	18.4 b
Quintus	32.2 a	590.5	12.8 c	19.8 a

Values followed by the same letter or letters within the same column are not significantly different at a 5% level Duncan's multiple range test

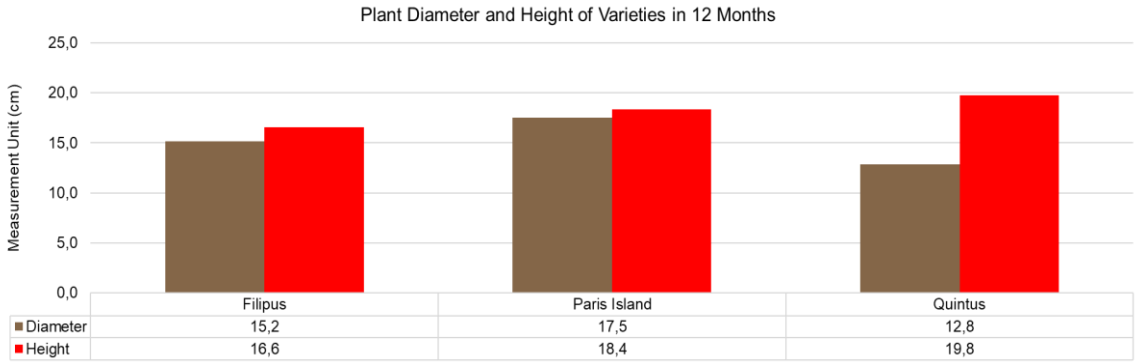

Figure 1. Average head diameter and head length of three Romaine Lettuce varieties in 12 months of the year

CONCLUSIONS

Temperature is an important factor which efect the bolting rate, and it is very important for lettuce production in Cyprus.

This research showed; producers can tolerate the bolting problem, if they use shading system in summer and spring periods. Because all these varieties (Paris Island, Filipus and Quintus) showed susceptibility to the bolting in summer and spring periods. Therefore, producers can produce these varieties without shading system in autumn and winter periods.

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