P198

Development of sweet potato double cropping system in the southern island area of Korea

Jin-Young Moon[1)*], Jung-Ho Shin[1)], Jae-Ki Song[1)], Yong-Jo Choi[1)], and Kwang-Pyo Hong[1)]

[1)] *Crop Research Division, Gyeongnam Agricultural Reseatch & Extension Services, 570, Daeshin-ro, Jinju, Gyeongsangnam-do Republic of Korea*

Abstract

In Korea, the average air temperature has been elevated twice faster than the average global warming. And the climate warming is characterized by the smaller rise of air temperature in summer and the greater rise of air temperature in spring and winter. Therefore, the number of frost-free days to determine the cultivation ability of crops has increased by more than 15 days in 10 years according to climate warming. This climate warming trend has extended and is projected to extend not only the sweet potato growing season but also the sweet potato early cultivating area to higher altitude and latitude region. This study was carried out to evaluate the possibility of sweet potato double cropping in the southern island area of Korea by assessing the growth and yield performance of sweet potato cultivated at extremely-early and -late time. We had performed at Yokji Island Yokji Island(E128° 18’ N34° 36’), a representative specified complex area of sweet potato cultivation in southern Korea. As the test varieties, the major cultivars of the this region, Shinyulmi and early hypertrophic cultivars, Dahomi were used. The prior cropping were planted with PE film mulching on March 30 and April 10, and harvested after 110 days. So the succeeding cropping were planted without PE film mulching on July 25 and August 5 according to the harvesting time of the prior sweet potato and harvested after 120 days. As a control, it was harvested on September 15, 120 days after planted on May 15. Each experimental plot had an area of 12 square meters consisting of 4 beds, and was planted one at a time at intervals of 25cm. We had investigated growth characteristics – main vine length, node number, branch number, total vine yield, and tuberous root characteristics – tuberous root number, average weight, starch value, and etc. After harvesting, we analyzed the economic effects by examining the postharvest quantity, the input labor, the management cost, and the income. The total yield of marketable products in prior and succeeding cropping was 46~70% higher than that of control. The average unit price of sweet potato was 36% higher than the conventional culture, and the gross income increased by 98%, but the operating cost increased by 83%, and the farm income increased by 103%. There are considerations such as the difficulty of enlargement of cultivation area due to lack of labor in limited space and the need for watering measures due to spring drought. However, if the area of application for sweet potatoes double system is increased by 10%, it can be used as a new cropping system.

Acknowledgements: This work was supported by a grant from the Agenda Program (No. PJ011759072017), Rural Development Administration Republic of Korea.

Keywords: Sweet potato, Double cropping system, Shinyulmi, and Dahomi

Corresponding author: Jin-young Moon
Address: Crop Research Division, Gyeongnam Agricultural Research & Extension Services, 570, Daeshin-ro, Jinju, Gyeongsangnam-do Republic of Korea
Tel and Fax: 82-055-254-1234(tel), 82-055-254-1219(fax)
E-mail: iammoonjy@korea.kr