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Review of Potato Productivity by Cultivation Period According to Cultivar Characteristics in Substrate Culture

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[Introduction]

The local government prefers cultivation of potato substrate culture because of its convenience in management, but has low productivity and lacks cultivation techniques related to frequent replacement of imported media, disposal of waste media, and nutrient management. The purpose of this study was to find out the growth characteristics and the quantitative properties of substrate-grown potatoes according to the cultivar and cultivation period.

[Materials and Methods]

Potato (*Solanum tuberosum* L.) cultivars used in this test were the early maturing cvs. 'Saebong', 'Superior', 'Jopung' and the medium maturing cvs. 'Haryeong', 'Geumsun', 'Seohong'. The test was performed in the greenhouse (747, Sacheonjin-ri, Sacheon-myeon, Gangneung-si, Gangwon-do) from April to November 2020. It was cultivated in the temperature environment of spring cultivation 24.5 ℃, autumn cultivation 16.2 ℃ and average humidity 60.8%. Growth investigation was conducted 90 days after planting potato seedlings in plant containers. Twenty-four plants were examined for each repetition of plant height, SPAD, specific gravity, leaf weight, root length, number and weight of tubers with three replications.

[Results and Discussion]

As a result of examining the growth characteristics of each cultivar, cv. ‘Seohong’ was the most excellent in terms of plant height, SPAD, and leaf weight, followed by cvs. ‘Saebong’ and ‘Haryeong’ in spring cultivation. In autumn cultivation, plant height was high in the order of cvs. ‘Geumsun’ and ‘Seohong’, and there was no significant difference in lateral shoot. In terms of cultivation, the above-ground part showed better spring cultivation than autumn cultivation, and the best cultivar were ‘Seohong’ and ‘Geumsun’. As a result of investigating the tuber characteristics of each cultivar, the number of tubers per plant and the tuber weight during spring cultivation were excellent in the cv. ‘Geumseon’ with 8.2 and 400 g, respectively. Autumn cultivation also tended to be the same as spring cultivation, cv. ‘Geumsun’ were excellent in both the number of tubers and tuber weights. However the specific gravity was high at 1.085 in cv. ‘Haryeong’. Therefore, when examining tuber characteristics, cvs. ‘Haryeong’ and ‘Geumsun’ were excellent cultivars in common in spring and autumn cultivation.

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