PA-128

Selection of Promising Potato Varieties for the Multiple Upland Crops Cropping System of Paddy Field in the Middle Area of Korean Peninsula

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[Introduction]

Various types of crops can be cultivated in mixed cropping practice, such as food crops, vegetables, silage crops. Farmers determine various factors such as crops, varieties, and cultural methods to earn benefic gains under cropping system. This helps farmers become self-sufficient in food production while also providing them the option to sell additional products for making money. Optimum upland crops combination, potato-sesame-garlic, to develop multiple cropping system in the central northern area of Korea was determined by earlier experiment during two years of study. This study was also conducted to find out optimum potato varieties under optimum multiple cropping system in the central northern area of Korea.

[Materials and Methods]

The experiment was conducted at the Suwon and Anseong during 2020~2021 under two-year three-crops multiple cropping system of potato-sesame-garlic. Total three potato varieties 'Sumi', 'Jopoong', 'Choobaek' were planted and compared to general growth characteristics, yield potential etc. General survey methods were followed by Standard sesame cultivation technology of Rural Development Administration.

[Results and Discussion]

We compared agronomic characteristics of potato depending on the variety, experimental region and year. Jopoong showed higher stem length, 62cm, rather than other varieties. number of branch was similar value. In the comparison of region, Suwon and Anseong, Anseong region showed relatively better agronomic characteristics mainly due to the meteorological condition as well as soil properties. In the comparison of year between 2020 and 2021, 2021 showed relatively better agronomic characteristics mainly due to the meteorological condition such as average temperature, total radiation amounts etc. Suwon and Anseong, Anseong region showed relatively better agronomic characteristics mainly due to the meteorological condition as well as soil properties. In total, the variety, Choobaek, showed relatively higher tuber yield potential as 5,150kg at the unit area(10a). Other varieties, Sumi and Jopoong showed 3,601kg, 4,857kg respectively. Marketable fruit productivity is important factor for potato sale. The variety, Jopoong, showed relatively higher marketable fruit productivity as 77%. Other varieties, Sumi and Choobaek showed 65%, 70% respectively. Those results would be determined by various factors to affect crop variety yield potential such as meteorological factors such as temperature, soil moisture, irradiation and physiological disaster such as disease & insects incident, lodging rate etc. Those are very important factors to determine crops yields potentials. Therefore it needs to investigate more detailed study to find out genetic effects from potato varieties rather than environmental factors.

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