

PA-57

Optimum Sowing Date of Potato-Onion Cropping System in the North Central Region of Korean Peninsula

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[Introduction]

The most important advantage of cropping system is to increase output potential per area with the use of two or more crops cultivation in the same field during one or two seasons. Farmers have to consider various factors such as crops, varieties, and cultural methods to earn benefic gains under cropping system. Various types of crops, such as food crops, vegetables, silage crops are used in mixed cropping practice. The benefit of cropping system is to provide farmers self-sufficient food production as well as additional products for making money. This experiment was conducted to find out optimum sowing date for economic crops relating cropping system in the central northern area of Korea.

[Materials and Methods]

The experiment was conducted at Yeoncheon area in 2021 to develop double-cropping system of potato and onion. Each different sowing dates of 3.20, 3.30, 4.10 in the preceding potato crop and 10.10, 10.20, 10.30 in succeeding onion crop were applied in view of cultivation stabilization, yield potentials etc. Potato variety 'Sumi', onion variety 'Asnerl' were used as experiment materials. The experiment plot was mulched for soil water and temperature preservation and weed control. Standard cultivation methods were applied and general agronomic characters and yield related characters were surveyed.

[Results and Discussion]

Vegetable crops related food crops double-cropping system development in the central northern region was studied. Yield potential according to the sowing dates was statistically different. In a first cropping, tuber yield of potato was decreased as sowing date was late. Sowing date, March 20, showed 5,700kg per 10a tuber yield of potato which was relatively 30~36% higher than other sowing date treatments. In a second cropping, as sowing date was late, tuber yield of onion was increased. sowing date, October 30, showed 3,667kg per 10a tuber yield of onion which was relatively 2.7~4.6 times higher than other sowing date treatments. The conclusion of this study was that optimal sowing date of potato and onion double-cropping system was middle March, late October respectively. However, inadequate weather condition during onion cultivation affected to express fully yield-related characteristics, so we have to survey related date to get the exact data according to the different sowing dates.

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