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

Kang Bo Shim^{1*}, Myoung Na Shin¹, Won Tae Jeon¹, Areum Han¹

¹Crop Cultivation & Environment Research Division, NICS, Suwon 126, Korea

[Introduction]

The first and most important advantage of cropping system is to increase output potential per area with involving two or more crops cultivation in the same field during one or two seasons. Farmers determine various factors such as crops, varieties, and cultural methods to earn benefic gains under cropping system. Various types of crops can be cultivated in mixed cropping practice, such as food crops, vegetables, silage crops. This helps farmers become self-sufficient in food production while also providing them the option to sell 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 2020 to develop double-cropping system of potato and buckwheat. Each different sowing dates of 3.20, 3.30, 4.10 in the preceding potato crop and planting date of 6.30, 7.10, 7.20 in succeeding buckwheat crop were applied in view of cultivation stabilization, yield potentials etc. Potato variety 'Sumi', buckwheat variety 'Sodamchal' 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 traits and yield related traits were surveyed.

[Results and Discussion]

Study for food crop related double-cropping system development in the central northern region was conducted. Yield potential according to the sowing dates was statistically different. As sowing date was late, preceding potato tuber yield was decreased. Sowing date, March 20, showed 4,000kg per 10a tuber yield of potato which was relatively higher than other sowing dates. In case of succeeding crop, buckwheat, sowing date, June 30, showed 192kg per 10a seed yield which was relatively 200~400% higher than other sowing date treatments. We concluded that optimal sowing date of preceding potato and succeeding buckwheat in double-cropping system development in the central northern area of Korea were middle March, late June respectively. However, general meteorological condition of the experimental region in 2020 was not enough to survey growth and reproductive traits data for potato and buckwheat meaning that we need to analyze the repeatability of yield related traits of potato and buckwheat in year of 2021.

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*Corresponding author: E-mail, shimkb@korea.kr Tel. +82-31-695-0642