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Potato-maize double cropping using paddy field in southern plain of Korea

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Abstract

In order to reduce rice cultivation area in paddy fields and to increase domestic self-sufficiency of imported upland grain, it is necessary to increase double cropping area of upland crops in paddy field in accordance with decrease of rice consumption in Korea. The double cropping of spring potato–summer grain maize can be combined because of enough growing season in the southern plain of Korea. Spring potato, which is profitable, can be planted in the late February and harvested in the late May as the main crop. Subsequent grain maize can be planted in early June and harvested in November (maturity in the early October). Spring potato (variety Soomi) yielded 2,544 kg 10a⁻¹ (tuber) when planted in late February, 2016. When maize was planted in June as the second cropping crop, though growth of plant decreased much, grain yield decreased slightly compared to normal planting in April or May. There was enough time to dry maize ear in the field after maturity before harvesting, which saved labor and time for grain drying, since there is no autumn planting at the double cropping of spring potato–summer grain maize. When grain maize (variety Gwangpyeongok) was planted in the early June (June 10th), average grain yield of above 860kg 10a⁻¹ over 2 years of 2015 and 2016 was obtained, and the annual total yield (potato tuber + maize grain) of 3,400 kg 10a⁻¹ was obtained. The result indicates that the double cropping of spring potato-summer maize using paddy fields in southern plain of Korea, could contribute to the self-sufficiency of upland crops through the maximum production.

Keywords: double cropping, maize, potato, paddy field, southern plain of Korea

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