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# Variation of organic matter and rice yield in in continuous forage use of barley and rice straw

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## Abstract

Organic matter is very important and essential factor to maintain productivity of paddy field. But as meat consumption and the demand of grain increase, the demand of forage also increased gradually in Korea. So the amount of organic matter in paddy field have been declined gradually by the reduction of return of rice straw for the forage use for cattle. There is not enough alternative resources for forage, we guess this trend of organic matter decline in paddy field would continue for the time being in Korea. So this study was performed to confirm the variation of organic matter and change of rice yield to select suitable rice cultivars which yield reduction is small in condition of organic matter decrease in paddy field. To confirm the change of rice growth and yield in condition of organic matter decrease in paddy field, we transplanted 10 rice cultivars which yield reduction are small in low fertilizer condition. We transplanted it Buan where double cropping of winter barley continues several years on June 10. Planting density were 70 plants/3.3 ㎡. Fertilizer amount was N-$P_2O_5$-$K_2O$ = 9-4.5-5.7kg/10a and fertilizer split application of nitrogen was basal-tillering stage-panicle initiation = 50-20-30%. And in the other cultivation management, we observed rice standard culture of NICS. In paddy field where withdraw straws of barley and rice, the organic matter content showed tendency to decrease as the years go on. During rice cultivation season, organic matter decreased little by little, but it increased again after rice harvest season. Rice yield was more in order of Sodami, Chunghaejinmi and Saenuri. We judge that there is an advantage in rice yield of rice cultivars which have later heading date because of suitable ripening temperature. Although Sobibyeo and Shindongjinbyeo showed high yield, head rice yield decreased severely owing to chalky and cracked rice.

Keywords: rice, organic matter, rice straw, double cropping

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