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Change of Soil Phosphorus distribution in Converted Paddy Soil

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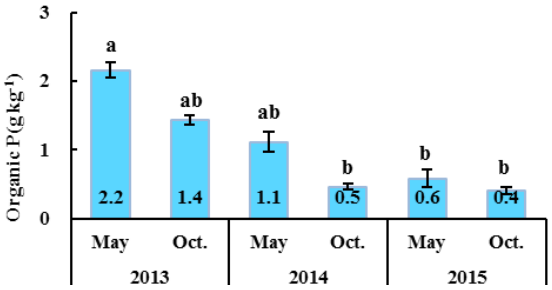

Recently, need of increasing upland crop cultivation in paddy field elevated due to growing importance of activating upland farming and overproduction of rice in South Korea. A yield of soybean decreased according to increase cultivation period in paddy field. The cause was widely known as soil organic matter content and soil nitrogen supply decrease. But paradoxical results existed. And the cause of yield decrease was also assumed that pH decrease according to cation leaching and phosphate availability decrease according to iron oxidation were related to. In order to prevent decreasing yield, it is necessary to identified the root cause. The objective of this study was to research for soil phosphate availability through investigating change of soil phosphorus distribution according to cultivation period of sorghum in paddy field. When converts paddy to upland, oxidation condition lasts and change of soil iron material occurs. Because high phosphorus adsorption coefficient lasted due to change of oxidation state in soil iron but soil organic phosphorus decreased exponentially, it was assumed that soil phosphate availability and crop productivity was limiting factor. This suggests that the limiting factor of soil fertility can be changed from C, N to P and change of soil management practices is required depending on the soil characteristics before cultivating upland crop such as amorphous iron content and phosphorus adsorption coefficient in converted paddy field.

Recent Publications

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