Water budget characteristic of upland field with infiltration capacity changes

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It is necessary to study a way for fostering an environmentally sound water cycle while actualizing problems of a decrease in the streamflow and the dryness of spring water, etc. The number of cases which are quantitatively evaluated is small although it had been pointed out since before that are hydrological characteristics of farmland like the surface runoff rate and the infiltration capacity etc. are changed by the increase of utilization rate of plastic mulch or green houses in the farmlands. Then, a field experiment was conducted to evaluate the influence on hydrological characteristics by ground surface management in the farmland. When the surface runoff model of the farmland where the infiltration capacity changed based on the phi-index method was applied to the experimantal data, good applicability was obtained. As a result, using plastic mulch causes the rise of runoff ratio up to 47% while the ratio by the differences of plowing was the range of 1% to 22%.