

AHW018-P07

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## Relation between amount of nitrogen fertilizer used and water quality in tea plantation, Shimizu district, Shizuoka city

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Large amount of nitrogen fertilizers was used in a tea plantation and high nitrate concentration was big problem. Although amount of nitrogen fertilizer used in a tea plantation decreased from 100 to 54kg/10a past ten years, the used value was still higher than another farm land because high quality tea leaves need a lot of fertilizer. Therefore, way to achieve the Japanese Environmental Standard (10mg/l) for nitrate is studied researching water quality and amount of fertilizer used in catchments without reduction of amount of nitrogen fertilizer. Nitrate concentration of groundwater under a tea plantation is over the Japanese Environmental Standard with amount of 54kg/10a nitrogen fertilizer. However, each basin containing tea plantation area has some kinds of land use such as forest and orchards and then average nitrate concentration in the basin groundwater is low. Therefore, each basin nitrate concentration is calculated by the following equation.

$$\text{NO}_3\text{-N of groundwater} = 17.66 * \text{Ratio of tea plantation in catchment} + 2.47 * \text{Ratio of Orchard in catchment} + 0.71 * \text{Ratio of forest in catchment}$$

The ratio of the land use in each basin to achieve the Japanese Environmental Standards for nitrate was calculated from the equation.

Keywords: tea plantation, nitrogen, basin, fertilizer, groundwater