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Effects of Used-paper Mulching on Growth of Early-season Culture Rice

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Abstract:

The purpose of this study was to find practical-use methods of untapped resources, especially used-paper, which have been collected through recycling systems as organic materials in agriculture. The effects of used-paper mulching were studied on the growth and yield characteristics of early-season culture rice, cv. Koshihikari, in the southern part of Kyushu. The experiments were carried out at the University Experimental Farm, Miyazaki University in 1995 and 1996. Used-paper mulching treatment lowered soil temperature during the daytime and raised it slightly at night in the early vegetative growth stage. Since the vegetative growth stage was prolonged by the mulching treatment, heading time and maturing time were delayed. Mulching treatment had much the same or higher grain yield than usual cultivation methods at the farm, and was effective in the control of competition with weeds. The higher grain yield was due to the increase of productive tillers and number of grains per head. Weeds were controlled effectively by the mulching treatment. It seemed very effective to use paper mulching collectively with herbicide in the early stage to control all kinds of weeds in the paddy field. It was estimated that the loss of soil nitrogen from the surface of paddy field was reduced by the mulching treatment. We concluded that mulching the surface of a paddy field with used-paper is very effective to obtain a high yield and reduce the usage of chemicals in paddy field cropping.

Keywords:

paddy rice, Soil nitrogen, Soil temperature, Untapped resource, Used-paper mulching, Weed control.

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