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Investigating Effect of Three Tillage time on Soil, Pests, Diseases and common Weeds of Rice with or without Rice Residual in the Region of Pirbazar (Guilan)

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Abstract

Agricultural wastes and their management is one of the important issues in agriculture which in most cases, farmers find it easy to dispose of them by burning. But this method, in addition to air pollution, has other drawbacks. Of course, this method can have some beneficial effects in some cases. In order to investigate the effects of burning the crop residues on some physical properties of the soil and rice yield, pests, diseases and common weeds in the province, ۱۸۰۰ m land plot (including ۱۸ plots of ۱۰ × ۱۰ m۲) was selected. The experiment was carried out in a factorial arrangement (tillage operation in the main plot and residues burning as a sub-treatment) in a randomized complete block design. The treatments consisted of different tillage methods including three levels of non-plowing, autumn plowing and winter plowing, and management of crop residues including two levels, residues burning and residues conservation, which carried out in three replications. The results showed that residues conservation with plowing led to an increase in the amount of organic matter by ۵۱,۰٪ percent, which before the implementation of the treatments was ۲,۱۸٪ and after applying the treatments showed ۲,٦۹٪.According to the results, the rate of emergence of rice stem borer pest in burning of residues treatment with non-tillage treatment with a value of ۲,٦٦٪ showed more significant effect in compare with residues burning treatment and plowing in autumn and winter with a value of ۰,٦٦٪.Applying treatments also had a significant effect on weed populations and its amount was ۲,۸۷٪ for burning treatment and ۱,۸۸٪ for residues conservation and led to decrease of weed populations. Residues conservation, along with tillage, also had a significant effect on the yield and resulted in an increase in the weight of ۱۰۰۰ seeds

Keywords: Organic matter, tillage method, residues burning, residues conservation, Zn, pest stem borer