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Efforts to obtain better rice seedlings performance under nontidal swamp land agro-ecosystem in south Sumatra, Indonesia

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Abstract

Swampland is a potential alternative land to be used in various agricultural production activities in Indonesia, because Indonesia have 33.41 million hectares of swamp land that consists of 13.28 million hectares nontidal swamp and million hectares 20.13 tidal swamp. In the province of South Sumatra, because of unpredictable water level in the field before planting, farmers have been doing agronomic adaptation method through the delay time of transplanting and forced to apply more than one the nursery practice with the combination of a floating nursery method and a dry-bed nursery method. This study was aimed to (1) evaluate the seedling growth and tillering pattern of several popular Indonesian rice varieties, and (2) look for alternative technologies to get a better rice seedlings under two nursery methods in the nontidal swamp land. In the first experiment, the seedling growth characteristics of five rice varieties (Ciherang, Inpara 5, Inpara 9, Inpari 29, and Inpari 30) was evaluated by two methods of nursery, i.e. floating nursery and dry-bed nursery. In the second experiment, rice variety of Inpari 30 was treated with Zn seed priming and foliar fertilizer of 2,300 ppm N at the nursery stage. Those treatments were combined with the time of seedling under floating and dry-bed nursery. The results of the first experiment showed that of the five varieties tested, dry-bed nursery method showed better seedling growth than floating nursery. This was indicated by high leaf number, tiller number, tillers pattern, shoot-root ratio and relative growth rate. Ciherang and Inpari 30 showed high tiller number, and they had produced tertiary tiller in the sixth week of observation. Moreover, shorter period of floating and dry-bed nursery in combination with the treatment of Zn seed priming and spraying seedling with foliar fertilizer N could improve the growth of seedlings.

Keywords: rice, nontidal swamp, seedling growth, Zn priming, N foliar

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