ABSTRAK

Kecamatan Gemolong di Kabupaten Sragen adalah daerah penghasil beras dengan luas sawah tadah hujan 2.047,64 hektar. Pada musim kemarau, ketersediaan air di Gemolong sangat terbatas, sehingga petani bergantung pada pompa air tanah. Petani Gemolong masih menerapkan metode konvensional irigasi yaitu pemberian air irigasi genangan terus menerus dengan penambahan pupuk kimia yang dianggap boros air dan dapat merusak karakteristik tanah. Irigasi hemat air dengan metode *System of Rice Intensitification* (SRI) pada tanah campuran bahan organik dapat menjadi alternatif untuk mengatasi masalah tersebut. Penelitian ini bertujuan untuk mengetahui pengaruh perlakuan SRI dan bahan organik terhadap produktivitas air

Penelitian ini menerapkan perlakuan budidaya padi metode konvensional dengan penambahan bahan kimia, metode konvensional dengan penambahan bahan organik persentase 20% dan 40% terhadap berat tanah, dan metode SRI dengan penambahan bahan organik persentase 20% dan 40% terhadap berat tanah. Penelitian mengamati pengaruh dari setiap perlakuan terhadap sifat tanah, keragaan tanaman, hasil produksi, jumlah air irigasi, kebutuhan air konsumtif, dan produktivitas air tanaman padi. Padi yang digunakan adalah varietas Ciherang. Tanah yang digunakan bertekstur liat yang diambil dari Kecamatan Gemolong Kabupaten Sragen. Penelitian dilakukan di rumah kaca pada lahan percobaan 0,6 m x 0,6 m x 0,3 m. Pada budidaya padi metode SRI diberikan air irigasi setinggi 2 cm kemudian dibiarkan sampai kondisi macak-macak, sedangkan pada metode konvensional diberikan air irigasi setinggi 4 cm dengan genangan terus menerus.

Hasil penelitian pada perlakuan metode konvensional menunjukkan bahwa tanah berbahan organik presentase 40% dapat menghemat air mencapai 15% dan meningkatkan produktivitas air sebesar 19% dari tanah asli penambahan pupuk kimia. Pada Irigasi hemat air dengan penambahan bahan organik presentase 20% dapat menghemat air mencapai 24% dan meningkatkan produktivitas air sebesar 16,5%. Selama musim kemarau, metode SRI dengan penambahan organik 20% dapat menjadi alternatif budidaya padi. Namun, penggunaan metode SRI memiliki risiko mengurangi hasil panen, terutama ketika persentase yang terlalu banyak pada penambahan bahan organik.

Kata kunci: padi, irigasi hemat air, *system of rice intensification* (SRI), bahan organik, produktivitas air, pupuk kompos jerami

ABSTRACT

Gemolong District in Sragen Regency is one of Indonesian granary with utilizing rainfed lowland rice area of 2.047,64 hectare. In the dry season, the availability of water in Gemolong is very limited, so farmers depend on groundwater pumps. Gemolong farmers still apply the conventional method of irrigation, namely the provision of irrigation water by continuous flooding with the addition of chemical fertilizers that are considered wasteful of water and can damage soil characteristics. Water-saving irrigation with the System of Rice Intensitification (SRI) method and the addition of organic material can be an alternative to overcome these problems. This study aims to determine the effect of SRI and organic matter treatment on water productivity.

This study applies the conventional method of rice cultivation treatment with the addition of chemicals, the conventional method with the addition of organic matter percentage of 20% and 40% to the weight of the soil, and the SRI method with the addition of organic material percentage of 20% and 40% to the weight of the soil. The study looked at the effect of each treatment on soil properties, crop performance, yields, amount of irrigation water, consumptive water requirements, and rice crop water productivity. The rice used is the Ciherang variety. The soil used is clay textured taken from Gemolong District, Sragen Regency. The study was conducted in a greenhouse on a trial area of 0.6 m x 0.6 m x 0.3 m. In rice cultivation the SRI method is given irrigation water as high as 2 cm then left to the messing condition, whereas in the conventional method is given irrigation water as high as 4 cm with continuous puddles.

The results of research on conventional methods with the addition of organic material a 40% percentage can save water up to 15% and increase water productivity by 19% from the original soil with the addition of chemical fertilizers. In water saving irrigation with the addition of organic material a 20% percentage can save water reaching 24% and increase water productivity by 16.5%. During the dry season, the SRI method with the addition of 20% organic can be an alternative rice cultivation. However, the use of the SRI method has the risk of reducing crop yields, especially when too much percentage is added to organic matter.

Keywords: rice, water saving irrigation, system of rice intensification (SRI), organic matter, water productivity, composted rice straw