

Improving the Productivity of the Agricultural Land through Intercropping Maize with Radish in Shahr-e Rey

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Abstract

In an attempt to investigate the possibility of intercropping maize (*Zea mays* L.) with radish (*Raphanussativu*) and its impact on controlling the weeds, an experiment was carried out in the research field of the Islamic Azad University, Shahr-e Rey branch, in 2009. The study followed the split plot randomized complete block design and had 3 replications. The experimental treatments included weeds factors (weed free and weed infest) as the main factor and 6 pure stand and intercropping planting densities (maize 100%(C), radish 100%(R), maize 100% + radish 100% (CR), maize 100% + radish 50% (Cr), maize 50% + radish 100%(cR), and maize 50% + radish 50%(cr)) as the sub-factor. The yield characteristics of the maize and radish along with the physiological growth indices such as leaf area index (LAI), harvest index (HI), and land equivalent ratio (LER) were measured in this study. The results indicated that there was no significant difference between weed free and weed infest with respect to most of the yield traits, illustrating that the weeds were controlled in the intercropping cultivation. In addition, there was a significant difference between pure and intercropping cultivations of the maize and radish across different treatments of the intercropping planting density. Maize 100% (C) and radish 100%(R) treatments had a higher yield in most of the measured traits of the maize compared to the other treatments. Furthermore, the yield characteristics of the radish indicated that the radish 100%(R) treatment was better than the others. The amount of LER was higher than one in all of the intercropping cultivation treatments which highlights the usefulness of this method of planting over the pure one. The highest proportion of land equivalent ratio belonged to the maize 100% and 100% radish treatments with an average of 2.47. Drawing on the results and in an attempt to enhance the productivity of the land, the maize 100% and radish 100% treatments are recommended for planting in Shahr-e Rey region.

Keywords: Maize, Radish, Intercropping planting, Land equivalent ratio, Leaf area index.

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