

Manipulating of pearl and proso millet with grass pea intercropping for maximising the forage yield with a low input

Abstract

A field experiment based on RCBD with 11 treatments, three replicates and three crops, grass pea, nutritified and proso millet, was carried out at Farm of Agriculture Researches and Natural Resources center of Kerman in 2012 growing season. The treatments were the sole cultivation of grass pea, nutritified millet and proso millet, 25% grass pea +75% notified millet and vice versa, 25% grass pea + 75% proso millet and vice versa, 50% grass pea +50% nutritified millet or 50% proso millet, mixed cultivation (50:50) of grass pea and nutritified or proso seeds on the same row. The experiment was carried out by replacement method. The measured traits were: Plant height, dry forage yield, leaf to stem ratio, percentage of crude protein (CP), acid detergent fiber (ADF), neutral detergent fiber (NDF), ash, mineral nutrition uptake, land equivalent ratio, competition ratio, relative yield total and aggressivity. With increasing in ratio of grass pea in both intercropping of notified and proso millet the ADF (%) was reduced. The lowest ADF was recorded for the treatment of 75% grass pea + 25% millet. Grouped comparisons showed there was no significant difference among different groups under comparison for ADF. Ash percentage of nutritified row intercropping was higher than its sole cultivation and this was also true for proso. With increasing in ratio of grass pea in both intercropping of nutritified and proso millet, the CP was increased. The best cultivation ratios for protein were (75% + 25%) and (50% +50%) of grass pea and nutritified. The highest LER belonged to treatments of 75% green pea + 25% nutritified millet (proso millet). Increasing grass pea in row intercropping with nutritified led to an increase in LER. It was true for proso only when more than 50% of that was replaced with grass pea. Finally, it can be concluded that the intercropping of 75% green pea + 25% nutritified millet resulted in increase in the quality and quantity of forage yield.

Key words: Crude protein, Mineral uptake, Aggressivity, Land equivalent ratio, Competition ratio



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