BOOK OF ABSTRACTS

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P187

Effects of winter cover crops in a reduced tillage cropping system on PGPRs activities and soil N levels in simultaneous application of organic manures in a low input production system of *Cucurbita pepo* L.

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In recent years, in order to enhance the health of agroecosystems, concerns for ecological inputs especially to produce medicinal plants, has increased. In order to evaluate effects of winter crops on PGPRs activities and soil nitrogen content in simultaneous application of organic manures and biological fertilizer in a low input production system of Cucurbita pepo under minimum tillage condition, a split split plot experiment based on RCBD design with three replications was conducted in 2009-10 growing season in Research Farm of Ferdowsi University of Mashhad, Iran. Four different types of organic manures (cow, sheep, chicken and vermicompost) plus control, inoculation and no-inoculation with nitroxin (as biological fertilizer containing of Azotobacter sp., Azospirillum sp.) and cultivation and no-cultivation of winter cover crops (Lathyrus sativus and Trifulium resopinatum), assigned to main plots, sub plots and sub-sub plots, respectively. The results showed that all organic manures except the chicken manure, increased the fruit yield, compared to control. Inoculation with nitroxin and cover crop cultivation resulted in increased fruit number and fruit yield, respectively, meanwhile improved soil nitrogen content was happened. Simultaneous application of vermicompost and nitroxin, increased significantly seed yield compared to single use of these factors. In both condition of cultivation and no-cultivation of winter crop, all organic manures increased seed proyein content, compared to control. The triple interaction effect of treatments was significant as the best result of vermicompost application resulted when simultaneously applied with cover crop and nitroxin. The effects of organic manures and cover crops on soil EC and pH were not significant, but nitroxin reduced soil pH amount of 0.6. Soil EC showed a positive linear correlation with soil pH. In general, the results showed simultaneously application of organic manures, a biological fertilizer and winter cover crops resulted in beneficial interactions, moreover improved soil fertility and finally produced an optimum, healthy and agrochemicals-free yield of summer squash in a low input and ecofriendly cropping system aligned with long term guidelines of sustainable agriculture.

P188

The effects of winter cover crops and plant growth promoting rhizobacteria on fertility of soil and crop yield in an organic production system of *Ocimum basilicum*

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Sustainable agriculture systems emphasized on the on-farm inputs likes use of biofertilizers, crop rotation and cover crops. This experiment was conducted in a split plots arrangement with two factors based on randomized complete block design with three replications during years 2009-2010, at Research Farm of Ferdowsi University of Mashhad. The main factor consisted of cultivation and no cultivation of cover crops in autumn. The sub factor was biofertilizer application with four levels, included 1-Nitroxin (containing *Azotobacter* spp. and *Azospirillum* spp.), 2-Biophosphorous (*Bacillus* sp. and *Pseudomonas* sp.), 3-Nitroxin + Biophosphorous and 4-Control. The results showed that most characteristics, e.g. seed yield and harvest index were increased with no cover crop cultivation. However in control treatment, the biological yield, seed yield and harvest index were more than biofertilizeres treatments, as Nitroxin and biophosphorous ranked after the control. Amongst the biofertilizers, biophosphorus had the most positive effects. The maximum grain weight was obtained from Nitroxin + Biophosphorous treatment. The interaction effects of biofertilizer and cover crops were significant among some characteristics. The results showed that the interaction between biofertilizers and no cover crop cultivation was significant, as use of the biofertilizers especially nitroxin and biophosphorous in no cover crop condition increased the amounts of biological yield and seed yield.