

**EFFECT OF DIFFERENT COMBINATIONS OF ORGANIC AND INORGANIC MATERIALS  
ON QUANTITY OF INTERCROPPING CLIMBING BEAN WITH MAIZE IN ARAK**Leila Jahanban<sup>1</sup>, M.R. Davari<sup>1</sup>, M. Mirzakhani<sup>2</sup><sup>1</sup>: Department of Agriculture, Payame Noor University, IR of Iran<sup>2</sup>: Department of Agronomy, Farahan Branch, Islamic Azad University, Farahan, Iran  
*leilajahanban@yahoo.com***ABSTRACT**

Intercropped crops represent an important production system in crop production, especially maize/climbing bean mixture due to its high content of protein in bean seeds for human diet, and producing silage for ruminants. Due to high crude protein value and increased nitrogen digestibility for ruminants compared to maize silage (Anil et al., 2000), maize/climbing bean silage may be an important source of proteins for ruminants. Important benefits in intercropping cereals with legumes are as follows: efficient competition of cereals with weeds, improved soil structure, reduced loss of plant nutrients, less damage of plants to pathogens and insects (Herrmann, 1993), and more available nitrogen due to nitrogen fixation with legumes, with up to 84% of nitrogen may be derived from fixation by climbing bean. A field experiment was conducted at Paradise educational field of Payame Noor University, Arak branch, during crop cycle of 2012. The experiment was laid out in a randomized complete block design with three replications. Treatments consisted of ten combinations of different organic materials, biofertilizers and fertilizers [control (without any fertilizers); chemical fertilizer control (equivalent to 75 kg nitrogen, 50 kg phosphorus and 27 kg potassium); farmyard manure or FYM (equivalent to 75 kg N ha<sup>-1</sup>); vermicompost or VC (equivalent to 75 kg N ha<sup>-1</sup>); FYM (50% of nitrogen) + VC (50% of nitrogen) + biofertilizer (equivalent to 2 kg Nitroxin ha<sup>-1</sup>); FYM (50% of nitrogen) + VC (50% of nitrogen) + bioregulator (equivalent to 2 kg Kelpak ha<sup>-1</sup>); FYM (50% of nitrogen) + Urea (50% of nitrogen) + bioregulator (equivalent to 2 kg Kelpak ha<sup>-1</sup>) + biofertilizer (equivalent to 2 kg Nitroxin ha<sup>-1</sup>); VC (50% of nitrogen) + Urea (50% of nitrogen) + bioregulator (equivalent to 2 kg Kelpak ha<sup>-1</sup>) + biofertilizer (equivalent to 2 kg Nitroxin ha<sup>-1</sup>); FYM (25% of nitrogen) + Urea (25% of nitrogen) + Urea (50% of nitrogen) + bioregulator (equivalent to 2 kg Kelpak ha<sup>-1</sup>) + biofertilizer (equivalent to 2 kg Nitroxin ha<sup>-1</sup>); FYM (35% of nitrogen) + VC (35% of nitrogen) + Urea (30% of nitrogen) + bioregulator (equivalent to 2 kg Kelpak ha<sup>-1</sup>) + biofertilizer (equivalent to 2 kg Nitroxin ha<sup>-1</sup>)]. For biofertilizers, *Azotobacter* and *Azospirillum* were used. Application of biofertilizers and bioregulators together with combination of bulky organic manure and fertilizer significantly increased seed per pod, pod per plant and 100 grain weight of climbing bean. Inoculation of *Azotobacter* + *Azospirillum* with bioregulator (herbal extracts) and different combination of fertilizers resulted in highest increase in climbing bean grain yield over other treatment except chemical fertilizer.

**Keywords:** Biofertilizer, bioregulator, corn, fertilizer and manure**REFERENCES:**

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