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In order to evaluate of plant density and different levels of nitrogen on competition Intra and Inter species of common Bean (*Phaseolus vulgaris* L.) with the weeds an experiment in split-split and based on a completely randomized blocks with three replications at the Research Farm of Ferdowsi University of Mashhad in 2013. Different levels of nitrogen as the main factor in three levels of (0, 75 and 150 kg per hectare) and density, as well as a secondary factor in 4 levels of (20, 30, 40 and 50 (The optimum density) plants per square meter) with a fixed row of 50 cm and two levels of (with and with out weeds control) were considered as the secondary factors. Destructive and non-destructive sampling was done on these treatments. The width of the quadrates were 50 cm and their length varied depending on the density so that each was containing 4 plants. Weed were counted based on their species and dry weight as well as leaf surface of each species was measured separately. Then, in order to investigate competition and estimate the competition coefficients within and between species of each species, multiple linear regression functions were fitted between density, dry weight and relative leaf area as the independent variables and weight of a single plant, the reciprocal plant weight and the natural logarithm of each weed plant or *Phaseolus vulgaris* L. as the dependent variable. It was found that the reciprocal weight of the plant (as the dependent variable) and dry weight (as the independent variables) have the highest correlation to estimate performance and competitive coefficients. The results of this study have indicated that in non-application of nitrogen, *Amaranthus* sp., *Chenopodium album* L., *Porrtulaca oleracea* L. had a positive effect and *Echinochloa crus-galli* L. and *Solanum nigrum* L. had a deterrent effect on the growth of *Phaseolus vulgaris* L. With the increase in the amount of nitrogen to 75 kg per hectare, only *Amaranthus* sp., had a deterrent effect and other weeds had a positive effect on the growth of *Phaseolus vulgaris* L. With by increasing in the amount of fertilizer to 150 kg, *Chenopodium album* L., *Solanum nigrum* L. and *Porrtulaca oleracea* L. had a positive effect and *Amaranthus* sp. and *Echinochloa crus-galli* L. had a deterrent effect on the single plant weight of *Phaseolus vulgaris* L. This difference in the reaction of weeds is probably related to the species and the differences in nitrogen uptake. The highest seed yield with control of weeds observed in the level of 150 kg per hectare and a density of 50 plants per square meter and with out weeds control in non-application of nitrogen and a density of 50 plants per square meter. Also, the highest amount of dry matter in the treatment of with and with out were respectively observed at 150 kg and the non-application of nitrogen and a density of 50 plants per square meter. the highest amount of leaf area index in the treatment of with and with out were respectively observed at 150 kg and the non-application of nitrogen and a density of 50 plants per square meter.

Keywords: Multiple linear regression functions, Competition within and between species, Reciprocal plant weight, Dry weight