response of faba bean (vicia faba, l.) and associated weeds to some cultural treatments

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Two field experiments were conducted at the Agricultural Research and Experimental Station, Faculty of Agriculture at Moshtohor, Kalubia Governorate. The aime of this study was to investigate the effect of some weed control treatments, plant density under two different cultural methods of planting. the soil texture was clay loam with ph 7.9 and 1.5 % organic matter. Giza 2 variety was sown in the two successive seasons 1985/86 andEach experiment included 30 treatments, which were the combination of 5 weed control treatments, 3 plant densities and two planting methods.Factors under study were :1. Method of planting; Afir (dry method) and Heraty (wet method).2. Plant densities; 280 000, 140 000 and 93000 plants/fed.3. Weed control treatments; Prometryne at 1.00 kg/fed., Terbutryne at 1.25 kg/fed., Topogard 50 % at 1.5 kg/fed., Hand-weeding. (twice) at 35 and 70 days from sowing and control (Un-weeded) treatments.The experiments were designed according to split-split-plot designe In four replications. Two planting methods were arranged at random in the main plots, three plant densities were assigned at random within the sub plot, whereas the weed control treatments were randomly distributed in the sub-sub-plots.Results could be summarized as follows:I. Effect of planting methods :1. Heraty (wet) method was effective in depressing weed densi ty, where it reduced number, fresh and dry weight of weeds than the afir (dry) method at 45 and 90 days from sowing.2. The number of absent hills of faba bean was not significantly affected by the two planting methods throughout the growing¬seasons.3. The studied growth characters of faba bean i.e., plant height, no. of branches, leaves and pods/plant, L.A.I. and dry weight of different parts of the plant were not significantly affected by planting methods throughout the growing season except the no. of branches/plant at 70 days and plant height and L.A.I. at 130 days from sowing.4. Differences in yield and its components due to planting methods were not statistically significant except the weight of 100seed where the heraty method gave the heavest value than the afir method.¬II. Effect of plant density :1. Increasing plant densities up to 280 000 plants/fed.decreased number, fresh and dry weight of weeds at 45 and 90 days from sowing. The lowest values were recorded by planting with 280000 as compared with the two densities (140 000 and 93000 plants/fed.).2. There is no difference in the number of absent hillsof faba bean due to the effect of the three different plant densities.3. The growth characters of faba bean namely; plant height, no. of branches, leaves and pods/plant and the dry weight of the different parts of plant significantly increased by decreasing plant density at the different periods of growth. The highest values were obtained with planting 93000 plants/fed. (low population), while the lowest were recorded at the high population of faba bean (280000 plants/fed.).On the other hand, plant height and LA.I. increased significantly by increasing plant density at the different stages of growth, i.e., 70, 100 and 130 days from sowing.¬4. Increasing plant population up to 280 000 plants/fed.caused a significant decrease in the seed yield/plant and its components, i.e., no. of pods, no. of seeds, pods and straw weight/plant except the weight of 100-seed.5. Seed, straw, biological and protein yields/fed. increased gradually and significantly with increasing plant density up to 280000 plants/fed. The increases due to planting 280000 and 140000 plants/fed. amounted to 50 and 24 % in seed yield, 73 and 29 % in straw yield, 62 and 27 % in biological yield and 45 and 24 % in protein yield (kg/fed.) as compared with the lowest population (93000 plants/fed.).III. Effect of weed control treatments:1. Chemical weed control treatments, namely, prometryne, terbutryne and

topogard as well as hand weeding treatment decreased the number, fresh and dry weight of weeds as compared with. the un-weeded treatment. The lowest number Q,f fresh and dry weight of weeds at 45 days from sowing was recorded by topogard at 1.5 kg/fed. treatment followed by prometryne at 1.0 kg/fed., terbutryne at 1.25 kg/fed. and hand weeding (twice). At 90 days from sowing the hand weeding treatment gave the lowest values of fresh and dry weight of weeds followed by topogard at 1.5 kg/fed. and prometryne at 1.0 kg/ fed.The depression values in fresh and dry weight of weeds at 90 days from sowing amounted to 89 and 90 % by hand weeding (twice) 78 and 77 % by topogard at 1.5 kg/fed., 70 and 67 % by prometryne at 1.0 kg/fed., and 56 and 55 % by terbutryne at 1.25 kg/fed ••2. AU chemical weed control, i.e., prometryne, topogardand terbutryne had no harmful effect on the germination of faba bean seeds.3. Plant height at different stages of growth was not significantly affected by all weed control treatments.On the other hand the number of branches, leaves and pods/ plant as well as L.A.I. were significantly affected by weed control treatments throughout the growing seasons except the number of- 88 -leaves at the late stage (130 days from sowing), All weed control treatments significantly increased the dry weight of different parts/ plants, i.e.; branches, leaves and pods as well as total plant than the control treatment at the different periods of growth. The increase in total dry weight of plant amounted to 27, 24-, 23, and 21 % by hand weeding (twice), topogard, terbutryne and prometryne treatments as compared with the uri-weeded one.4-. AU weed control treatments had a statisticaHy significant effect on the number of pods and seeds/plant, straw, pods and seed weight/plant. Hand weeding treatment gave the highest values of the mentioned characters followed by topogard, terbutryne and prometryne. On the contrary, the weight of l Ofl-seed did not affect by all weed control treatments.5. AlJ weed control treatments significantly increasedthe seed, yield, straw yield, biological yield and protein yield/fed. as well as the harvest index as compared with the control. Hand weeding treatment gave the greatest values of all mentioned characters foHowed by topogard treatment.Crude protein percentage was not significantly affected by weed control treatments under this investigation.IV. Effect of the interactions :1. The effect of the interaction between planting methods and plant density on number of leaves,and L.A.I. at 130 days from sowingwas statisticaIly significant, while this interaction had no significant effect on the other characters of weeds and faba bean plant. The greatest number of leaves/plant was obtained by low density (93000 plants/fed.) under heraty method, while the highest value of L.A.I. was resulted by planting 280000 plants/fed. under afir method.2. Significant effect of the interaction between plantingmethods and weed control treatments were observed on number of weeds/rn” at 45 and 90 days from sowing but this interaction had no significant effect on fresh and dry weight of weeds as well as all characters of faba bean plants. The lowest number of weeds was recorded by topogard treatment under heraty method at 45 days from sowing and heraty or afir methods at 90 days from sowing.3. Plant densities x weed control treatments interactionhad a significant effect on number and dry weight of branches, number and dry weight of leaves/plant, total dry weight of plant at 100 and 130 days from sowing, number and dry weight of pods at 130 days, number and weight of seeds and pods/plant at harvesting stage, as well as L.A.I. at 70 days from sowing, while the effect of this interaction on the other characters was not statisticaUy significant. The results indicate that topogard or hand weeding gave the greatestvalues of these characters under the lowest plant density, while the lowest values were obtained by all weed control treatments and un-weededooes when planting with 280000 plants/fed.4. The interaction between planting methods, plant densities and weed control treatments had a significant effect on plant heightand L.A.I. at 70 days from sowing as well as seed yield/fed., but the effect of this interaction on the other studied characters on both weeds and faba bean plants was not significant. Under afir methodand high plant density (280000 plants/fed.) topogard gave’ the tallestplant and the highest value of L.A.I.Concerning the seed yieldl led., results indicate that the highest seed yield was recorded by prometryne at the highest plant density under heraty method, whereas the lowest me was obtained by un-weededtreatment at low population and afir method.