Forming branches in the bean and its relation to yield

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Abstract: In this study was performed in the Research Station, Islamic Azad University of Ahvaz fact Southern city of Ahvaz in the geographic profile: latitude: '20 º 31 Longitude: '40 º 48 Altitude: 18 m and average rainfall: 256 mm. Experiment where climate is arid and semi arid and according to weather data Ahvaz 40 213.94 mm average annual precipitation, average annual temperature of 25.24, 32.94 Average annual maximum temperature, mean minimum degree Annual Heat 18.4 ° C is. Minimum temperatures in agricultural experiment 4.2 in January and maximum temperatures in September 52 have been reported. Some results of various investigations have shown that the number of branches with a yield direct positive correlation shows that, as the number of branches in the optimal density keeps the number of pods per unit area results in much desirable, is placed and yield increases examining this relationship in correlation bean plant (0.72 = r) was calculated and a direct positive relationship (but not too high) showed the cause of this is desirable density that can be used in seeding experiments were created with the low number of branches and their small share of production as the main stem pods to be .Applying 100 kg ha, correlation higher than the other two treatments, 50, 20 kg ha of nitrogen fertilizer showed (0.76 = r) and this is production of branches in high levels of nitrogen fertilizer .Split application of fertilizer in different periods together and showed no correlation in terms of average correlation coefficient of them (0.74= r), respectively. With the number of branches per plant FabaL correlation coefficient (0.69 = r) was calculated and a direct positive regression (but not too high) of it's offered .Applying more fertilizer in tests to increase the number of branches found significant spatial yield was increased. Among the figures of the number of digits Blessing had more branches that this figure will increase performance.
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1. Introduction

Lateral branches of the primary axis and the second part leaves during the vegetative stage II organogenesis occur. It should be noted that lateral buds before opening branches in bean seeds are present. The core, from which branches may appear, is the low number of leaves on branches that are formed, will be higher. Lower branches longer periods in vegetative stage and thus have contributed to the reproductive organs are formed. Although the region may grow side branches significantly differentiated show, but many buds opening in the side branches remain asleep. Bean sprouts probably sleep until after the phase II development continues. Morphology of lateral branches is a feature a variety of environmental conditions strongly influenced the development of particular factors that the delay is placed. (Short day length) cultivars generally have short branches or short legs are more long-legged figures are split (2, 11).

Although the branches forming the grains is an important factor, but as far as the competitive ability of crop compensation is related to the role will be responsible. For example, when a young is growing main stem terminal damage. The main meristem of pea grown cold suffered last spring. Lateral branches were formed rapidly. And within 12 days of frost plants 20 to 30 percent more leaf area than plants were damaged. In addition, total dry weight per plant varieties increased from 30 to 60 percent, four weeks after the cold damage frost plant dry matter is still 8 to 20 percent more of the plants had not seen (4) .

Period of rapid growth in terms of earliness beans varieties may vary. Daily increase in stem length and weight of dry peas and beans during this period was a significant increase to the range of temperature, light intensity, day length and other factors governing is depends gibberellins (6) .

If the terminal shoots bud differentiation (organogenesis end stage II) is to begin reproductive period of the reproductive period of pulses, usually immediately after its emergence begins. For example, according to Dear observations (Bean organogenesis stage II in 9 to 14 days after emergence begins) was cause reproductive period begins in early

differentiation pulses reproductive organs were much influenced by external factors will not(5) .

According to earlier flowering and formation of the first flowers on the axis of the lower leaves, has been observed that the reaction of bean to low temperature compared with the pea is more pronounced. Lower temperatures in the green stage, a positive effect on yield is and this apparently caused the growth meristem differentiation is higher reproductive organs. Low temperatures in the early stages of growth was caused physiological changes in plants is specific. These changes have produced positive effects. Here we can advice the theoretical basis for early planting is done will see. Among various bean species and sexes, are OK too are capable of wintering. These are real winter types (such as species such as winter cereals), but in comparison with species of spring, low temperatures they are causing delays flowering. For example, pea hybrid 329, which is winter, if the spring is 20 days compared with no spring types, 23 days earlier to flower. Reaction length of day, the day is long bean plant. Many researchers have demonstrated that most species take the day today are not very sensitive. This problem mainly applies to early figures. Here insensitivity to day length as compared to low temperature reaction to the whole growth period depends on the plant. Figures next day are very sensitive and under conditions of short days is that their development is slower and more branches and are shorter internodes is (4, 11 and 9) .

Tests conducted results in an interesting harvest; he noted that the shortening days 12 hours increased as the duration of emergence to flowering was.(8)

Similarly high sensitivity to short days in winter bean species in the UK respectively. Under short-day growth and differentiation apex is slower and because they are able to tolerate mild winters .

2. Material and Method

Characteristics and test design plan map

Research project as a split plot experiment in randomized block design with four replications at the research farm, Islamic Azad University of Ahvaz in southern city of Ahvaz were executed. The main treatment consists of four cultivars of bean plant is that the four varieties include: V_1= BARAKAT, V_2= ZOHREH, V_3= SHAMI and V_4= JAZAYERI and secondary treatment three levels of nitrogen fertilizer (N0 = 20 N_1 = 40, N_3 = 80 kg / ha) were studied.

Statistical calculations

On all results, analysis of variance was followed by Duncan's test, comparison was done and the results are presented as tables with charts, Excel 2000 Plant growth analysis was performed with SAS computer program for agriculture and mini tab and estimates were calculated.

3. Result

Yield correlation with the number of branches

Some results of various investigations have shown that the number of branches with a yield direct positive correlation shows that, as the number of branches in the optimal density keeps the number of pods per unit area results in much desirable, is placed and yield increases. examining this relationship in correlation bean plant (0.74 = r) was calculated and a direct positive relationship (but not too high) showed the cause of this is desirable density that can be used in seeding experiments were created with the low number of branches and their small share of production as the main stem pods to be .

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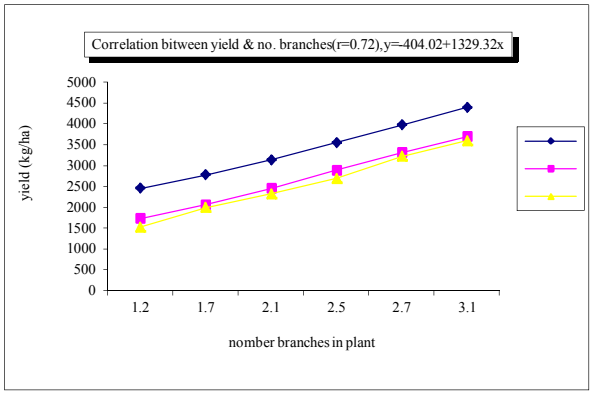

Fig 1. Correlation with the number of branches yield different levels of nitrogen fertilizer

Split application of fertilizer in different periods together and showed no correlation in terms of average correlation coefficient of them (0.74=r), respectively.

Table 1: Comparison of mean grain yield in bean cultivars (Kg / ha)

Treatment	Mean	Duncan
V_1	4880	A
V_4	4236	B
V_2	4200	B
V_3	3998	C

Research results of Baker and Lewis (2001) has shown that the number of branches that grow from the base of the plant yield a direct and positive correlation indicates a reason for the increased density and filling the field of vegetation considered Finally, the number of pods per hectare increases (1). With the number of branches per plant FabaL correlation coefficient (0.69=R) was calculated and a direct positive regression (but not too high) of it's offered .

Table 2: Comparison of average grain yield In different amounts of nitrogen fertilizer (Kg / ha)

Treatment	Mean	Duncan
N_3	5120	A
N_2	5114	A
N_1	4875	B

Applying more fertilizer in tests to increase the number of branches found significant spatial yield was increased. Among the figures of the number of digits Blessing had more branches that this figure will increase performance .

Table 3: comparison of levels of interaction of N rate and bean cultivars on yield (Kg / ha)

Treatment	Mean	Duncan
V_1N_3	5001	A
V_2N_3	4998	A
V_4N_3	4997	A
V_3N_3	4995	A
V_2N_2	4850	AB
V_4N_2	4650	B
V_1N_1	4521	BC
V_2N_1	4320	C
V_4N_1	4320	C
V_3N_3	4200	CD
V_3N_2	4001	D
V_3N1	3994	D

ANOVA table of significant treatments by applying different amounts of nitrogen fertilizer and bean varieties and their interactions on yield showed Duncan test showed that among the varieties cultivated varieties blessed with the highest yield was obtained with 4880 kg per hectare and other varieties yield much less demonstrated.

Duncan test showed that different amounts of nitrogen fertilizer, causing changes in grain yield and fertilizer treatments were the highest average yield High yield in the treatments 80 , 40 probably due to supply fertilizer starter needed for plant growth in early stages yet stabilized biological nitrogen begin has not need for fertilizer N had to be able to level green field increases to photosynthesis more to do this The higher LAI in the amount of treatments with mean 3.7 which leads to higher dry matter accumulation was visible in the cause of dry matter allocation to seeds is more dry matter accumulation also increased in these treatments, in line with the high value of the CGR the two treatments as the average from 19.25 to 18 g m is the day that treatment was higher. But the treatment was 20 kg/ha N caused no starter fertilizer supply and plant growth and leaf area index slowly increased in value resulting from the period of plant growth by not fully cover the field has decreased during the process of dry matter accumulation Finally, yield is reduced, although after approximately 30 days of biological nitrogen fixation and began somewhat by the need to have the plant but the initial amount of 20 kilograms of fertilizer per hectare is low for a starter

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