Effect of irrigation on the yield of mungbean cultivars

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Abstract : In order to study the effect of irrigation on yield quality and quantity and morphological characteristics of mungbean, pilot in the summer 2010 on a farm located in the city *HAMIDIH* using factorial design in randomized complete block with four replications. In this experiment four levels of irrigation 7, 10, 13, and 16-day and three local varieties, and the essence of radiation were studied and evaluated .During different stages of plant growth with eight times the level of field sampling of shoot dry weight, leaf dry weight, and pod dry weight, seed dry weight and leaf area was measured at physiological maturity was produced yield . Studies showed the best yield cultivar associated with the essence of seven-day irrigation (3328 kg ha) was. And most of the biological function associated with a 7 day gem varieties and irrigation amount was 9273 kg ha maximum harvest index to local varieties and 10 days irrigation amount was 49 percent .The results showed that the most appropriate gem varieties and cultivars 7 days irrigation is the most appropriate irrigation. Because the highest grain yield, biological yield the most won**.** . Journal of American Science 2011; 7(7): 86-90].(ISSN: 1545-1003). http://www.americanscience.org.

Key words: mungbean, irrigation, yield

1. Introduction

Increase crop yield of essential community needs to coordinate with today's world population is increasing. World population rate 1.6 to 1.7 percentages is growing each year and thus 90 million people are added to agricultural consumers. Over these 90 percent of the population growth in developing countries where food supply shortages already have been suffering is concerned. This means that food production must be increased constantly to social disharmony and human food shortages in many parts of the world to prevent (20)

1.1. Humidity

Mungbean plants often limited rainfall and the use of residual soil moisture to grow. This plant needs as the plant or as a main area with a short rainy season to be planted. Vetch is relatively resistant to drought and the growing season should coincide with periods of heavy precipitation is. Vetch water was requirement of about 410 mm or 3.2 mm a day with an average growing season for plants 60 to 70 days. The most sensitive growth period is the flowering stage of water shortage (20).

1.2. Treatment effects of drought stress on yield of mungbean

The best time to irrigate during flowering in mungbean has announced.

Searchers in his review in 2008 on the interaction of organic blue and potassium application on yield of mungbean did announced that water stress reduced growth and thus reduce the yield is (3) while the period of flowering and maturity in terms of moisture stress in compared with full irrigation is short term (6)

Sngakara (2001) stated that the research of water stress on the major environmental stresses limiting growth and yield are Hakan lbs (1994) also found that the experimental water stress, reduced yield in mungbean (21)

Ahmadi 2005 reported that the experiment was carried out, plants and plant sanctuary located in rainfed areas compared to irrigated plants earlier stage of proceedings entered in the shorter growing period and thus lower yield were produced (1). mungbean yield under the influence of drought stress is reduced.

Research found that the amount of carbohydrate affect yield and reduced drought stress.

1.3. Cultivar effects on economic yield

Aphiphan, pookpakdi et al. 1983, reported that during its review differences between genotypes of mungbean due to increased material flow photosynthetic organs is generating economic yield (4) .

They also expressed the difference in yield characteristics and genotypes are related to their genetic differences .

Research on the row spacing and irrigation cut announced on mungbean genotypes with increased drought decreased yield.

Experiment on its moisture stress on growth yield and wax bean genotypes had taken place between t Ahmadi, A. and A. Siosemardeh. 2005he cultivar announced in terms of levels there was a significant difference in yield, so that the cultivar COS16 and Tylor had the highest yield .

The effect of irrigation levels on yield and yield of soybeans had been received between the yields of soybean cultivars, significant differences exist .

A study entitled Comparison of different varieties of mungbean varieties to yield a significant amount in terms announced.

2. Material and Method

2.1. Profile geographic and climatic conditions

This test on a farm located in the city HAMIDIH summer 1389 with the following geographic profile was:

Latitude: 31 degrees 33 minutes elevation are higher sea: 13 m, Geographic: 48 degrees and 10 minutes Average Annual Rainfall: 248.5 mm

Fig1. Exit seedling

2.2. Pilot project specification and plan

The study used a factorial experiment in randomized complete block design with four replications that were tested factors including irrigation 4 levels include:

I1 = 7 days
I2 = 10 days
I3 = 13 days
I4 = 16 days

The second factor includes the three varieties cultivated varieties were implanted:

V1 = LOCAL
V2 = PARTOV
V3 = GOHAR

2.3. Estimate final yield the final harvest area

In the final harvest of mungbean plant value of a square unit area, plants were collected and measured the dry weight of pods in plant counting, number; number of seeds per pod and yield were calculated according to the formula.

$$u = \frac{K.L.Z.A}{10^5}$$

U = grain yield
K = number of plants in meter square
L = average number of pods plant
Z = average number of seeds per pod
A = grain weight in grams

Fig2. Trifoliate stage of a mungbean

3. Result

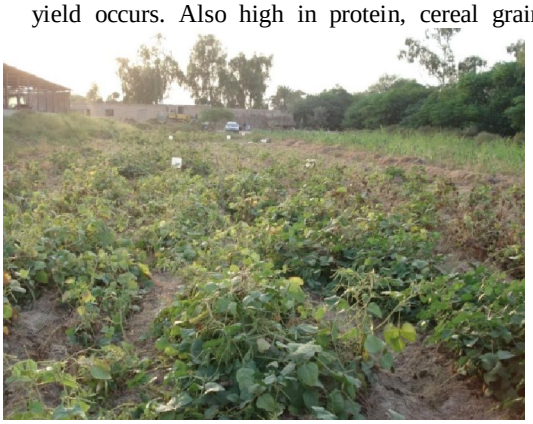
3.1. Check component manufacturing plant

3.1.1. Yield

Compared with cereals, grains have a lower yield. Pulses in all three processes to reduce operating yield: breathing light, nitrogen fixation and photosynthesis relationships. Light respiration in the light occurs and 30 percent of all cereal production to photosynthetic consumption brings. Symbiotic relationship between nitrogen fixing plants produce about 10 percent of the potential to reduce grain.

Fig3: pod Phase vetch

Consequently, to produce a certain amount of protein compared with starch and more energy is consumed in the process only if grains lower grain yield occurs. Also high in protein, cereal grains



may cause early protein remobilization from leaves to seeds and leaves in these conditions the capacity for photosynthesis decreases.

Fig4: View of the farm harvest

3.2. Effect of irrigation on yield

The analysis of variance of data indicates a significant difference in the level of one percent on yield. Among the irrigation treatments I1 treated with 2953 kg ha I4 treated with the highest and lowest 1296 kg ha grain yield were produced.

Stress, especially in the growing stage, reduces the capacity of the source plants for the source and sink is forced to balance the number of flowers and pod production to reduce the stress that can handle grain filling period and also reduced and the final yield is reduced. The results also

corroborated from other reviews to reduce grain yield is affected by drought.

Fig5: mungbean harvest

Fig6: Vegetative phase

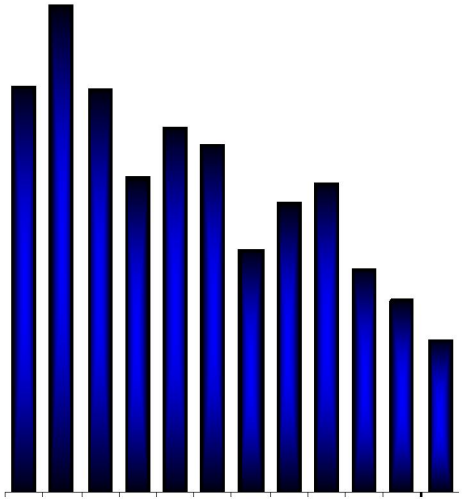
3.3. Cultivar effect on grain yield

Variance table showed a significant cultivar effect on grain yield has not. Among the varieties evaluated in this test, the digit rays with 2279 kg/ha produced the highest grain yield between genotypes of mungbean has increased the flow from the photosynthetic organs are functioning and productive as possible LAI is more and more dry matter accumulation result will yield more.

3.4. Irrigation interaction variety on grain yield

Yield in percent probability level affected irrigation and cultivar interactions were. Comparisons with related average showed that treatment with 3328 kg ha I1v2 and I4v3 treated with 1043 kg ha respectively the highest and lowest

grain yield were produced. Since the yield of yield in the full irrigation treatments to the highest amount they were consequently yield the maximum amount in your conditions are. Because while reducing the rate of growth period and impaired



photosynthesis and carbon dioxide fixation is reduced yield.

Fig7: Effect irrigation on Yield

Fig7: Effect interaction irrigation × cultivar on Yield

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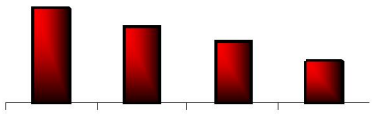

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