Journal of Agronomy and Plant Breeding

Vol.10, No.1, 2014

" Abstracts "

In the name of God

Journal of Agronomy and Plant Breeding

Vol.10, No.1, 2014

ISSN:2008-8485

Published by:

Islamic Azad University- Karaj Branch

Address

Faculty of Agriculture and Natural Resources, Islamic Azad University, Karaj Branch

P.O.Box: 31485-313, Iran

Effect of different priming materials on germination and seedling growth of (*Nigella sativa* L.)

O. Akrami Nejad*[1] , M. Saffari[1], R. Abdolshahi[1],R. Amiri[2]

Abstract

In order to investigate the effect of priming on germination and characteristics of (*Nigella sativa* L.); an experiment was carried out in complete block design with 3 replication. Priming treatments were 3 levels of GA; (50, 100, 200 ppm), 3 levels of silisium (1, 1.5, 2%), 3 levels of humic acid (1, 1.5, 2%), and 3 levels of ascorbic acid (0.5, 1, 1.5 m.molar). Priming time for ascorbic acid was 10 hours; and priming time for other materials was 24 hours for (*Nigella sativa* L.) Germination percent and speed, mean time needed for germination, seedling shoot length and root length were evaluated in the experiment. It was observed that priming had significant effects on germination percent and speed, mean time, mean daily time, seedling shoot length; but on seedling root length. Hu had the highest Present of germination, main daily germination, speed germination and lowest main time germination seeds with 1.5 percent concentration. Also GA had the highest of shoot length with 100ppm concentration.

Keywords: Priming treatments, *Nigella sativa*, Humic acid, GA, Ascorbic acid, Silisium

1- Department of Agronomy, Shahid Bahonar University, Kerman, Iran
2- Department of Plant Protection, Shahid Bahonar University, Kerman, Iran
* Corresponding Author,s email: omidakrami122@yahoo.com

Effect of Modern Agriculture on Accumulation Rate of Heavy Elements (Fe, Cu, Zn, Mn, Pb, Cd and Ni) in Farming Soils of Moghan

T.Bahrampour*[1], A.R. Falah[2], H. Valizadeh[1] and Kh. Farhmandi[1]

Abstract

Today with the appearance of restless and modern agriculture and non- scientific use and abuse of agricultural fertilizers especially pesticides and chemical fertilizers have been popular in most agricultural regions of Iran especially in Moghan region. For this reason 127 samples were collected and induced from different farmland and nonfarmland of Moghan. The amount of Cu, Zn, Fe, Mn, Pb , Cd and Ni were measured by means of Atomic absorption. The results showed that there was a significant difference between farming soil and non farming soil naming Cu, Zn, Fe, Mn, Pb , Cd and Ni. The accumulation of Cu, Zn, Fe, Mn, Pb , Cd and Ni were 5, 3.5, 10, 14, 3, 20, 5 times as much in farm soils than non farm soils respectively. The possible reasons for this accumulations could be The abuse of fertilizers, pesticides and polluted water.

Keywords: Heavy metals, Soil, Fertilizers, pesticides, Pollutonts

1- Research Center of Agriculture and Natural Resources of Ardabil (Moghan), Ardabil, Iran
2- Assistant Prof., Soil and Water Research Institute
* Corresponding Author,s email: tahmineh1390@gmail.com

Effect of drought stress on yield and yield components on different forage corn hybrids

M. Hajibabaei*[1], F. Azizi[2], K. Zargari[1]

Abstract

In order to study the effect of drought stress on yield on some new forage corn hybrids, an experiment was conducted at the experimental field of Seed and Plant Improvement Institute of Karaj, in 2009. The experiment was carried out using split-plot in a randomized complete block design (CRBD) with three replications. The main plots consisted of three levels of irrigation regimes (irrigation after 70, 100 and 130 mm cumulative evaporation from evaporation pan class A) and sub-plots included 14 new corn hybrids. In this experiment dry fodder yield per hectare, leaf number, leaf area index, ear dry weight , leaf dry weight, stem dry weight, plant height, measured and calculated. The results showed that hybrid differences in terms of dry matter yield, plant height at 5% probability level and in terms of leaf number, leaf area index, ear dry weight was significant at 1% probability level, while among the hybrids studied significant differences in terms of leaf dry weight was observed. Also, all the traits of drought stress and react to their difference in different stress levels and leaf number in 1% probability level was significant. Increase irrigation of normal irrigation severe stress decreases dry yield respectively 44% percent were.

Key words: corn, drought stress, hybrid, dry fodder yield.

1- Department of Agronomy, Varamin-Pishva Branch, Islamic Azad University, Varamin, Iran
2- Seed and Plant Research Institute of Karaj, Karaj, Iran
*Corresponding Author,s email: Hajibabaee_m@yahoo.com

Comparison between basin and alternating irrigation and its effect on yield and yield components of rice

R. Hosseini Monfared[1] , M. Sharifi[2]*,S. Paydar[2], M. Safarpoor Shorbakhlo[2]

Abstract

In order to comparison between basin and alternating irrigation and it ;s effect on yield and yield components of rice (Champa Ghasrodashti) and optimization water consumption, an experiment in accomplished in 2010 in region Marvdasht. The effect of basin irrigation and alternating irrigation with period irrigation 2,4,6 and 8 day evaluated by randomized completed blocks designs with 4 repeats. The result showed that number of tiller increased by increasing period irrigation growth rate of weeds in alternation irrigation was more than the basin irrigation and growth of Echino Chola was more than basin irrigation. The rate of consumptive water between alternation irrigation and basin irrigation was significant ($p \leq 0.01$). Amount of water consumptive in alternation irrigation by 8 day period, compared of basin irrigation decreased 39.4m3/100m2of field and different performance alternation irrigation by 8 days period and basin irrigation was not significant. Other factors of experiment including weight 1000 seeds, number of panicle and number of seeds in panicle weres not significant.

keywords: Alternating irrigation, Basin irrigation, Period irrigation, Rice

1-Department of Agronomy, Arsenjan Branch, Islamic Azad University, Fars, Iran
2- Fars Agricultural and Natural Resources Research Center of Fars, Fars, Iran
*Corresponding Author,s email: sharifi_m2002@yahoo.com

Effects of different levels of nitrogen fertilizer and seaweed Sargassum on yield and yield components of maize single cross 704

F.Khoddam[1*], A. Kashani[1], F. Paknejad[1], G. Rafiee[2]

Abstract

In this study to assess the Effects of different levels of nitrogen fertilizer and seaweed Sargassum on yield and yield components of maize single cross 704. The experimental conducted in form of split plot in based of randomized complete block design with three replications in Islamic Azad University Agricultural Research Station in 1389. Main plots consisted of four levels of nitrogen fertilizer, respectively: zero, 100, 200 and 300 kg N ha urea and 4 levels of algae, respectively: zero, 250, 500 and 750 kg ha subplots in the form was considered. The results of the analysis of variance showed that application of nitrogen fertilizer and algae levels on corn in most traits measured in the level of one percent ($p<0.01$). was significant. Plant algae bio-fertilizer on traits such as grain yield, biological yield, plant height and significant impact on the level of harvest index was one percent indicated and on the total number of seeds per ear and ear-level 5% ($p<0.05$) impact of abortion meaning and impact on grain weight was. The highest seed yield/ha with 9.7 tons of fertilizer application to 750 kg of algae in the ha. Comparison of average interaction of algae and manure nitrogen fertilizer application indicated 750 kg/ ha nitrogen fertilizer application in algae and 300 kg/ ha seed yield with the highest rate of 6.10 tons per hectare and harvest index 9.43 percent, the highest rate is indicated.

Keywords: Sargassum algae, nitrogen fertilizer, maize single cross 704, yield and yield components

1- Department of Agronomy and Plant Breeding, Karaj Branch, Islamic Azad University, Karaj, Iran
2- Department of Fisheries and Natural Resources, University college of Agriculture and Natural Resources University of Tehran, Karaj, Iran
*Corresponding Author,s email: khodamf@yahoo.com

Effect of organic fertilizers on the yield and yield components of spring wheat under drought stress

H. Souri[1], Gh. Akbari[2], B. Azadegan[2], I. Allahdadi[2], M. Sadeghi-Shoae[3], M. Ebadi[4], A. Allah Mousavi Boogar*[5]

Abstract

The present study aimed to evaluate the effect of organic fertilizers on growth and yield of spring wheat under deficit irrigation conditions in the Agricultural Research Station located in the city Pakdasht Aboureyhan Tehran University in Tehran during the crop year was 90-1389. To test the split plot design in randomized complete block design with three replications. Main stress irrigation, in three levels (no irrigation at flowering stage (a1), grain filling (a2) and normal irrigation area (a3)) and the operating subsidiary in four levels (15 tons of compost fungus 15 tons of manure (b1) 60 kg of nitrogen fertilizer net 15 tons of manure (b2), 60 kg of nitrogen fertilizer net 15 tons of compost fungus (b3) and 120 kg of pure nitrogen (b4) respectively. In this experiment, the treated water irrigation on the weight of biological function seed, grain number per spike, number of spikelets per spike, harvest index, seed weight and number of fertile spikelets per spike had a significant effect. fertilizer treatments on weight and biological yield, grain number per spike, number of spikelets per spike, harvest index, number of spikes per square meter, grain weight and number of fertile spikelets per spike had a significant effect. use of organic fertilizers in terms of environmental stress, especially drought stress causes stress effects can be reduced and plant show better performance. Organic fertilizers improve soil properties, especially soil moisture holding capacity to create aggregate, helps increase the amount of moisture available to plants. use a combination of organic and chemical fertilizers can be negative effects of fertilizers reduce chemical.

Key words: irrigation stress, proline, manure, compost, mushroom button and spring wheat.

1- M.S student of Tehran University, College of Agriculture, Mamaznd, Iran
2- Associate of Tehran University , College of Agriculture, Mamaznd, Iran
3-Department of Agronomy, Karaj Branch, Islamic Azad University, Karaj, Iran
4- Graduated of Tehran University, College of Agriculture, Karaj, Iran
5- PhD student in Crop Ecology of Lorestan University, Khorramabad, Iran
*Corresponding Author,s email: amin.mosavi.89@gmail.com

Study of yield and yield components of lentil varieties under different water stress

S. Sayfzadeh[1]*, A.Koohi ghooshkhane[1], J. Bbaei-Aghdam[1], M. Hanifi[1]

Abstract

To evaluate the yield and yield components of lentil varieties under different water stress, an experiment was conducted in research farm of agriculture faculty of Islamic Azad university of Takestan Branch as split plot based on Randomized Complete Block Design (RCBD) with three replications during 1389-90. The treatments included four irrigation levels: I1: normal irrigation (as control), I2: cut of irrigation in stem formation phase for 20 days, I3: cut of irrigation in flowering phase for 20 days, I2: cut of irrigation in seed filling period for 20 days as the major factor and four lentil varieties (V1: Kimia, V2: Sabz-e-Kohin, V3: Local of Zanjan and V4: Gachsaran) as the minor factor. The results indicated that irrigation and variety treatments had significant effect in 1% propability level on all of traits. Interaction effect was significant on grain yield and pod number per square meter in 1% propability level. I2, I3 and I4 treatments led to decrease in pod and seed number per plant and square meter, 1000- seed weight and seed yield. The greatest seed yield related to I1 (1263.02 Kg. ha-1) and then I4 (1160.18 Kg. ha-1) treatments. The greatest seed yield related to V4 (1027.86 Kg. ha-1) and then V1 (964.34 Kg. ha-1) treatments. I1V4 (1441.27 Kg. ha-1) and then I1V1 (1335..69 Kg.ha-1) and I4V4 (1285.82 Kg.ha-1) interaction treatments had the highest seed yield. The greatest pod number per square related to Kimia variety. The greatest 1000-seed weight related to Gachsaran variety.

Key words: Lentil, Drought stress, Yield, Yield components

1- Department of Agronomy, Takestan Branch, Islamic Azad University, Qazvin, Iran
*Corresponding Author,s email: saeedsayfzadeh@yahoo.com

Drought Tolerance Study in Canola (*Brassica napus* L.) Using Drought Tolerance Indices

A. Bakhtiari Gharibdoosti[1], K. Mostafavi[2]*, A. Mohammadi[3], M. Firoozi[4]

Abstract

In order to investigation of drought stress effect on yield and yield components in canola cultivars and identification of drought tolerant cultivars, an experiment was conducted in research field of agriculture faculty in Islamic Azad University- Karaj branch in 2009-2010. Ten canola varieties in a Randomized Complete Block Design with three replications investigated under normal and stress conditions. Analysis of variance indicated significant differences between genotypes for all traits except lateral branch and weight of hundred kernels. The highest kernel yield in normal experiment was for Likord and Hyola308 cultivars 875.7 and 820.1 grams per square meter respectively. The highest kernel yield in stress experiment was for Likord and Sarigol cultivars 287.88 and 242.65 grams per square meter respectively. Stress Tolerance including Mean Productivity, Geometric Mean Profitability, Tolerance index and Harmonic average were capability to revealed cultivars with high yield potential and drought tolerant and known as best tolerance indices. Base these indices the best cultivar was Likord. Base biplot graph Likord and Zarfam cultivars were the best tolerant and Modena, Okapi, Hyola401 and Hyola308 were the high susceptible cultivars to drought stress.

Keywords: Canola, Drought stress, Tolerance Indices

1- Department of Agronomy and Plant Breeding, Karaj Branch, Islamic Azad University, Karaj, Iran
2- Department of Agronomy and Plant Breeding, Karaj Branch, Islamic Azad University, Karaj, Iran
3- Department of Agronomy and Plant Breeding, Karaj Branch, Islamic Azad University, Karaj, Iran
4- Department of Agronomy and Plant Breeding, Birjand Branch, Islamic Azad University, Birjand, Iran
*Corresponding Author,s email: mostafavi@kiau.ac.ir

Evaluation of salinity tolerance in wheat recombinant inbred lines using salinity stress tolerance indices

B. Masoudi[1]*, E. Majidi Hervan[2], M. Mardi[2], M. R. Bihamta[3], M. R. Naghavi[3], B. Nakhoda[2], A. Amini[6], S. M. T. Tabatabaei[5], M. H. Dehghan[5], M. Kazemi Alamuti[2], M. Farsi[2], and L. Karimi Farsad[2]

Abstract

In order to determine response of wheat recombinant inbred lines to salt stress, a study conducted with 319 bread wheat recombinant inbred line (RIL F7) derived from a cross between Roshan cultivar (salt tolerant) and Falat cultivar (salt sensitive), with their parent and 3 check (Arg, Bam and Kavir) were studied in an alpha lattice design with 2 rep and two location (normal and salt affected) in Yazd during 2012. In order to evaluation of inbred lines to salinity tolerance, 8 indices including SSI, TOL, MP, GMP, Harm, STI, SDI and MSTI were calculated based on inbred lines yield in normal and stress environments. Correlation analysis show that MP, TOL, STI and GMP had highest correlation coefficient with seed yield in normal condition, while Harm, MSTI, GMP, STI and MP had highest correlation coefficient with seed yield in stress condition. Principal component analysis for salinity tolerance indices identify two components, first component called yield stability and tolerance to salinity stress, the second component called sensitivity to salt stress and yield potential. MP, GMP and STI were the best indices for identifying superior lines. Using biplot of two first principal components, inbred lines 313, 164, 151, 5, 33, 41, 115, 117, 42, 20, 107 and 132 were identified with high seed yield and salt tolerance.

Keywords: Wheat, Salt stress, Salinity tolerance indices

1- Ph.D. student, Department of plant breeding, Science and Research Branch, Islamic Azad University, Tehran, Iran.
2- Agricultural Biotechnology Research Institute of Iran (ABRII), Karaj, Iran.
3- Department of plant breeding, The University of Tehran, Karaj, Iran.
4- Faculty member, Seed and Plant Research Center of Karaj, Iran
5- Agricultural and Natural Resources Research Center of Yazd, Iran
*Corresponding Author,s email: bmasoudi@gmail.com

Physiological effects of water deficit stress on seed yield, antioxidants activities and lipid peroxidation in soybean cultivars (*Glycine max*)

H. Masoumi[1]*, D. Habibi[2], F. Darvish[3], J. Daneshian[4], Gh. Nourmohammadi[3], A. Pourtaghi[3]

Abstract

In the water deficit stress, free radicals of oxygen increase that can be harmful because of its oxidative and destructive effects on the metabolism of plants. Therefore, field experiments were conducted in 2008-2009- and 2009-2010 to determine the effect of water deficit on the agronomical, physiological and biochemical properties of soybean cultivars. The experimental design was randomized complete block in a split plot arrangement with four replications. Irrigation treatments were (S1, 50; S2, 100 and S3, 150 mm evaporation from the Class "A pan" evaporation) and cultivars were (L17, Clean, T.M.S, Williams×Chippewa and M9). Results showed that, water deficit stress increased antioxidant activities (SOD and GPX), ABA content and lipid peroxidation (MDA content). Of course, the content of antioxidant enzymes were more at moderate than extreme water deficit (S2>S3>S1). Furthermore, Water deficit decreased number of pods per plant, total dry weight (TDW) and seed yield in all of cultivars. Among cultivars, L17 and Williams×Chippewa produced the highest seed yield at the optimum condition of irrigation and both water deficit stress levels, respectively. Assessment of correlation results indicated that, there was a positive and significant correlation among SOD and ABA content with seed yield in both water deficit stress levels, too.

Keywords: Abcisic acid, Drought, Malondialdehyde, Oxidative stress.

1- Department of Agronomy, Djame Iran Consulting Engineering. Tehran, Iran.
2- Department of Agronomy, Karaj Branch, Islamic Azad University, Karaj, Iran.
3- Department of Agronomy and Plant Breeding, Science and Research Branch, Islamic Azad University. Tehran, Iran.
4- Seed and Plant Improvement Institute, Department of Oilseed crops, Karaj, Iran.
*Corresponding author; Email; Masoumi_hassan118@yahoo.com