

Effect of planting date on yield and yield components of sesame cultivars in Miyaneh region, Iran

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Abstract

This study was conducted to evaluate the effect of three planting dates (20 June, 6 and 21 July) on yield and yield components of five sesame cultivars (Moghan17, Naz, Karaj1, Behbahan, and Yekta) in Miyaneh agricultural research station in three replications. Dry weight of different organs of plant, and morphological attributes like as capsule numbers, 1000 kernel weight, protein percentage, yield and yield components was measured in a RCBD base factorial design. There was significant differences among cultivars and planting dates on capsule numbers, protein percentage, biomass, and grain yield of sesame cultivars. The highest yield belonged to Yekta and the least one belonged to Naz cultivar. The first planting date (20 June) also showed higher yield than others did. Based on the results, planting of Yekta cultivar at first planting date could be recommended in Miyaneh and similar climatic regions.

Keywords: Planting date, Cultivar, Yield, Sesame, Miyaneh

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Study of inbreeding in apiaries of Miyaneh region, Iran

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Abstract

Inbreeding causes harmful effects on different characteristics of honey bee colonies such as honey production. In order to study of inbreeding rate in apiaries of Miyaneh region, %5 of modern hives were choosed and scales and standard Langerstrot combs were used according to Rotner method. Bee population was recorded and free of brood cells were considered as inbreeding index. Honey production was also measured by weighting the hives. inbreeding rate was estimated as 15.05%. results showed that there were no significant differences between inbreeding rate of several bee populations in Miyaneh region. Inbreeding percent was 9.22%, 10.93% and 23.48% for Kandowan, Torkmanchai and Kaghazkonan areas, respectively. Mean honey production per hive was also 11.9 kg. According to this study there were significant negative relationship between inbreeding and honey production ($r = -0.57$, $P = 0.039$) in apiaries of Miyaneh region of Iran.

Keyword: Honey bee, Inbreeding, Honey production, Apiaries

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Effect of end season water stress on yield of nine rice cultivars and promising lines based on drought evaluation indices

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Abstract

This research was carried out to determine the effect of end season water stress on yield of nine cultivars and promising lines by using drought evaluation indices in Miyaneh region of Iran. A split plot experiment was conducted based on randomized complete block design (RCBD) with four replicates. Five drought evaluation indices including MP, GMP, TOL, STI and SSI were calculated. Results showed that there were significant differences among cultivar's yield. Saleh, 830, Local 2nd and Hybrid cultivars or lines produced higher yield than their group mean. Cultivar Hassan sarayi produced higher yield than stress condition mean, but line 841 showed lesser yield than stress condition mean. In control condition, line 840 produced higher yield than group mean, but in stress condition produced low yield. Hashemi, Local 1st and 841 produced low yield in both conditions. Highest STI belonged to Saleh, 830 and Local 2nd as 1.5, 1.26, and 1.02, respectively. Based on GMP, Saleh was a high tolerant cultivar (8444 kh/ha). However, Hashemi was more tolerant than Saleh based on SSI and TOL and Saleh showed higher tolerance by MP. Y_s and Y_p correlation coefficients comparison with drought evaluation indices pointed that MP, GMP, and STI, had higher correlation with two conditions and were assumed as the best drought evaluation indices for screening tolerant and susceptible rice genotypes. By these indices, Saleh was the most tolerant cultivar and 830 was the second one.

Keywords: Water stress, Yield, Rice, Drought evaluation indices.

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Investigation on the trend and effective factors on export of sweet root and cumin medicinal plants in Iran

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Abstract

The main objective of this study was to analysis the export trend of sweet root and cumin and to determine factors affecting their export over 1981-2003. Exported amount of cumin revealed a growth, accompanied with fluctuations. In the case of sweet root, however, export growth was less important with more fluctuations than that of cumin. Based on estimated results, it was revealed that exchange rate and domestic - world price ratio of cumin had a positive significant effect on it's export and one percent increase in the value of the above variables will resulted in 1.8 and 1.1 percent growth in cumin export, respectively. Findings also showed that domestic – world price ratio of sweet root, GDP and exchange rate had a positive significant effect on sweet root export. Like the cumin, it was expected that one percent increase in the mentioned variables will raise the sweet root export 1.05, 3.2 and 0.84 percent, respectively.

Keywords: Medicinal plants, Sweet root, Cumin, Export

Population fluctuations of broom corn aphid specific predators in Miyaneh region, Iran

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Abstract

Aphids are the most important pests of broom corn, *Sorghum cernuum*, in Miyaneh region and chemical pesticides are severally used for plant protection by farmers regardless to beneficial insect's activity. With respect to the importance of conservation strategy of natural enemies in integrated pest management programs, aphid specific predators including lady beetles, flower flies and lacewings were collected and identified and their population fluctuation were compared to that of host aphids. Collection of predators was done by sweep net and visiting aphid colonies. The flower fly *Sphaerophoria scripta*, lacewing *Chrysoperla carnea*, and five species of lady beetles including: *Coccinella septempunctata*, *C. undecimpunctata*, *Hippodamia variegata*, *Scymnus* cf. *frontalis* and *Propylea quatuordecimpunctat* were collected from greenbug, *Schizaphis graminum* and maize leaf aphid, *Rhopalosiphum maidis* colonies. Synchronization and positive correlation of greenbug and flower fly populations was observed due to host specificity of *Sphaerophoria scripta*. Among lady beetles, *Scymnus* cf. *frontalis* was the most frequent and important species due to oviposition on broom corn and it's population showed positive significant correlation with that of maize leaf aphid. However adult lacewing *Chrysoperla carnea* is a carbohydrate feeder and did not lay any egg on the field, and so it had not any role in controlling aphid populations of broom corn.

Keywords: Broom corn, Aphid, Predator, Population fluctuation, Lady beetle, Flower fly, Lacewing

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Study of morphological traits and their relations with yield in 16 promising lines of rice (*Oryza sativa* L.)

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Abstract

In order to study of morphological traits of promising rice lines, a field experiment was conducted at Dashtenaz research station of agricultural and natural resource center of Mazandaran province, Iran, based on randomized complete block design with 16 promising lines with three replications during 2005. Some morphological traits such as plant height, tiller numbers and stem diameter were measured for 10 day intervals and other traits were measured at flowering stage. Results showed significant differences of studied rice lines at all morphological traits, except tiller numbers. Stem diameter had a positive significant correlation with grain yield. Plant height and stem diameter had also a positive and significant correlation with flag leaf. Number of flag leaf veins had a positive and significant correlation with stipule length, and plant height had a negative significant correlation with flag leaf chlorophyll content. Line no. 14 (IR67406-6-3-2-3) produced maximum grain yield (9983 Kg/ha) with the highest value of flag leaf chlorophyll content and stem diameter, and lowest value of plant height and peduncle length, and could be recommended as a promising line for future research programs and further agronomic practices under similar climatic conditions.

Keywords: Morphological traits, Rice, *Oryza sativa*, Yield

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Study of genetic diversity of high and low molecular weight glutenins in wheat landraces of Zanzan region, Iran

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Abstract

In order to evaluate genetic diversity of wheat landraces of Zanzan region of Iran by the electrophoresis of seed storage proteins, 30 accessions from this area were provided from national plant gene bank of Iran in Karaj. Electrophoresis of high molecular weight (HMW-GS) and low molecular weight (LMW-GS) glutenins was undertaken by SDS-PAGE with sequential extraction. For HMW-GS, three tetraploid accessions including TN-11372, TN-11734 and TN-11743 were identified which did not contain any alleles of Glu-D1 locus. In Glu-A1 locus, 83.33% of the landraces had null allele and 16.67% of them had subunit 2*. In Glu-B1 locus, subunits 7+8 had highest frequency (36.67%) and alleles 13+16 and 21 showed lowest frequency (3.33%). One exceptional subunit related to this locus was characterized in accession TN-11384 which named 6*. In Glu-D1 locus, subunits 2+12 were identified in 77.78% of accessions and subunits 3+12 were characterized in other accessions. In Glu-3 locus, 12 LMW subunits were observed with different mobilities and genetic diversity index (H) was 0.844. The high diversity characteristics of seed storage proteins may be useful in identification of varieties and ploidy levels and determining bread making quality in order to improving wheat quality characteristics.

Keywords: Electrophoresis, Genetic diversity, High and low molecular weight glutenins, Wheat landraces.

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Effects of red root pigweed, *Amaranthus retroflexus* L. interference times on yield of cowpea, *Vigna unguiculata* L.

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Abstract

Red root pigweed is the third dicotyledonous dominant weed of crops in the world from view point of yield loss. In order to quantify the interaction of cowpea yield to different times of red root pigweed (RP) interference, an experiment was conducted at research field of Islamic Azad University of Tabriz, Iran, based on randomized complete block design with three replications. The treatments were RP interference times (2, 4, 6, 8, 10 weeks after cowpea emergence), full season interference and weed free plot as control. In all treatments, RP was seeded immediately after cowpea planting and removed after treatment levels. Analysis of variance indicated that effect of treatments on all traits was significant. The highest (79%) and the lowest (25%) green cover percentages were measured at flowering stage in weed free, and full season interference treatments, respectively. Cowpea biomass in weed free plot (3895 kg ha⁻¹) was similar to treatment of two weekly RP interference in early growth stage of cowpea (3889 kg ha⁻¹). With increasing RP interference time, pod numbers in each plant decreased more than other traits. The highest reduction in thousands seed weight (70.13%) compared to control was observed in full season RP interference. Crop yield in full season RP interference treatment decreased up to 98.49% compared to control. With considering of maximum acceptable yield loss (10%) and results of this research, interference time of RP must not be longer than 4 weeks in early growth stage of green bean.

Keywords: Cowpea, Interference, Red root Pigweed, Yield.

Allelopathic effects of *Convolvulus arvensis* on wheat (*Triticum aestivum* L.) germination and growth

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Abstract

Because of abundance and importance of *Convolvulus arvensis* in wheat fields, an experiment was conducted as factorial with three replicates in 2007. Treatments were extract of *Convolvulus arvensis* (factor A) at five levels including leaf, shoot, root, and flower extracts and a control, and different concentrations of extracts (factor B) at 4 levels of 1:5, 1:10, 1:15, and 1:20. Results of analysis of variance showed significant effect of main factors and interactions on all attributes. All weed extracts decreased germination components but root extract showed highest prohibition. Extracts of root and other parts of weed at 1:5 concentration inhibited germination at all. Leaf extract decreased radicle and plumule length, seedling dry weight, germination percentage and velocity as 99.41, 96.98, 100, 98.64, and 62.74%, respectively. Results of green house studies showed significant effect of some main factors and interactions on traits. In low concentration, leaf extract and in high concentration, root extract showed higher effect on studied attributes. Increasing extract concentration from 1:20 to 1:5, significantly decreased all attributes. Decreasing rate of plant height, spike length, leaf number, peduncle length, seed number, TKW, and yield in 1:5 concentration compared to control were 56.99, 50.44, 70.86, 62.4, 76.17, 94.66, and 99.01%, respectively. It was concluded that *Convolvulus arvensis* significantly decreased germination, growth and yield of wheat due to producing allelopathic chemical materials

Keywords: Allelopathy, *Convolvulus arvensis*, Germination, Growth, Yield, Wheat

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