

Interference of wild oat (*Avena ludoviciana*) on more and less competitive wheat cultivars: Yield and yield components

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Abstract

A field experiment was conducted at the research station of plant pest and disease research Institute of Karaj, during 2003-2004 growing season. The aim was to investigate Interference of wild oat (*Avena ludoviciana*) on Yield and yield components of more and less competitive wheat cultivars. The experiment was arranged as a factorial experiment based on randomized complete block design (RCBD) with 4 replicates. Experimental factors were Rooshan (as less competitive) and Niknejad (as more competitive) wheat varieties, 3 wheat densities including recommended, recommended+25% and recommended+50% (300, 375 and 450 plants m⁻² for Rooshan and 400, 500 and 600 plants m⁻² for Niknejad resp.) and 4 wild oat densities (0, 25, 50, and 75 plants m⁻²). The results showed that Niknejad was the most competitive cultivar and Rooshan was the least competitive one in different levels of wild oat density. As wild oat density increased, yield of wheat decreased and the rate of yield decline was higher in Rooshan in comparison to Niknejad. Higher densities of wheat decreased yield losses. The presence of wild oat in wheat fields reduced fertile tiller, number of spike, seed per spike, seed per square meter and weight of 1000 seeds. Recommended and recommended+25% was optimum densities in Rooshan and Niknejad, respectively, when Wild oat interference.

Keywords: *Wheat, Wild oat, Competition ability, plant density, yield loss, Avena ludoviciana*

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Assessment of barley seeds chemical treatments with some conventional fungicides on barley strip controlling

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Abstract

In order to evaluation of conventional fungicides effect on barley strip disease controlling, infected barley seeds of PropStar variety were collected from Achachy region barley fields located in Miyaneh, Iran and their infection percentage has been determined about 72% by culture plate test method. An experiment was conducted in greenhouse conditions for evaluation of 0.5, 1 and 2 % of Carboxin 75WP, Carboxin-tiram 75WP, Tilt 250EC, Carbendazim 60WP, Rovral-TS 52.5WP, Benomyl 50WP, Diniconazole 2WP, Difeniconazol 3DS, Maneb 80WP and Mancozeb 80WP on seed viability, as completely randomized design with 4 replications. The results revealed that all treatments didn't have significant difference with control rather than Tilt and 2% of Carboxin-tiram. Another experiment was conducted as randomized complete block design with 3 replications in field condition. After seed treatments with recommended doses of above fungicides, 100 seeds was sown in a 10 m rows with 1 cm intervals in each plot. Plant infection percentages were calculated and analysis of variance and mean comparisons with Duncan's multiple range test in 5% probability showed that Benomyl and Carbendazim had no effect on disease controlling. Also, other fungicides had significant difference with control and all of them can be recommended for field applications. However the most effective fungicides were Rovral-TS and Mancozeb and Maneb and Difeniconazole had the least effect on the disease, statistically.

Keywords: Barley strip, Pyrenophora graminea, Chemical control, seed treatment

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Effect of replacing dietary levels of soybean meal with rapeseed meal on broiler chicks

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Abstract

An experiment was conducted in order to study the effect of replacing soybean meal with rapeseed meal on performance, organs weight, blood biochemical parameters, methabolisable energy, and glucosinolates and erucic acid rate as a completely randomized design with 6 dietary treatments, 4 replicates with 15 bird in each replication. Three hundred and sixty one-day-old female Cobb hybrid broiler chicks were used. Methabolisable energy, glucosinolates and erucic acid content of meal were determined. rapeseed meal was replaced instead of soybean one with the levels of 0 (control), 20, 40, 60, 80 and 100 percent. In all of the diets, 0.05 percent multi enzyme (Kemin[®]) was used. Feed intake, body weight gain and feed conversion ratio were determined at the days 0-21, 21-49 and in the whole period. Moreover the values of relative weight of liver, pancreas, ingluvies, gizzard, serum concentrations of triiodothyronine and thyroxine were determined at 49 days of age. Sas software and Duncan's test was used for analysis of variance and comparison of means, respectively. Chemical analysis of meal showed that the amount of the aliphatic glucosinolate and erucic acid of rapeseed were higher than the amount of that in canola meal. The feed conversion ratio of 60, 80 and 100 percent replacement were statistically different ($P < 0.01$) from the control, 20 and 40 percent treatments. The results of statistical analysis indicated that there was no significant effect of rapeseed meal levels on relative weight of gizzard, ingluvies and pancreas, but significant effect on relative weight of heart and liver in 80 and 100 percent treatments was seen ($P < 0.05$). The lowest blood serum concentration of triiodothyronine and thyroxine hormone in chicks were observed at 80 and 100 percent treatments ($P < 0.01$). The results also showed that 40% of soybean meal can be replaced with rapeseed one in the broiler chick diets, but improving of meal quality is necessary for higher levels of replacement.

Keyword: *Broiler, Performance, Rapeseed meal, Soybean, glucosinolate, erucic acid*

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Biology and population fluctuation of broom corn aphids in Miyaneh region, Iran

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Abstract

Broom corn is one of the most important crops in Miyaneh region, Iran. Aphids are major pests of the crop and farmers use different chemicals to their control in several times. In this research, broom corn aphids were collected and identified. Population fluctuation of the aphids was also investigated by weekly sampling and their biological characteristics were studied using leaf cages. The results revealed that, there were two species including *Schizaphis graminum* and *Rhopalosiphum maidis* in broom corn fields. Population peak of *S. graminum* (mean number of 10.725 aphids per tiller) was observed in June and decreased rapidly in July. *R. maidis* appeared later than *S. graminum*, but it was the most injurious aphid species of broom corn during all growing season. *R. maidis* population and its honeydew covered some plants and caused necrosis so that its number reached more than 1000 aphids per tiller. Mean number of this species reached to 114.75 aphids per tiller and then decreased rapidly. In laboratory studies, mortality rate of *S. graminum* and *R. maidis* on broom corn leaves was relatively low (3.2 and 5.6 percent). Nymphs of both species matured in less than 10 days. Mean longevity and mean fertility of mentioned aphid species was 28.2 and 32.6 days and 41.84 and 49.7 nymphs per female respectively. Mean generation time of *S. graminum* and *R. maidis* was also 11.3 and 10.9 days respectively.

Keywords: *aphid, broom corn, population fluctuation, biological characteristics, longevity, fertility, generation time*

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Investigation on the genetic structure of *Gnomonia leptostyla* populations by PCR-RFLP in Azarbajejan-e-Sharqi, Iran

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Abstract

Gnomonia leptostyla (Fr.) Ces. et de Not., the teleomorph of *Marssonina juglandis* (Lib.) Magn., is the causal agent of the walnut anthracnose, a wide spread disease in almost all the walnut growing areas and causes severe damages particularly in the north of Iran such as Kermanshah, Azarbajejan, Khorasan and Karaj regions. Sampling was conducted from several areas of Azarbajejan-e-Sharqi province during 2005-2006. 60 Fungus isolates were isolated from samples and cultured as streaked single spore on OMA. Molecular techniques based on PCR-RFLP applied to investigate the genetic variability of *G. leptostyla*. Total DNA was isolated from mycelial powder by rapid mini-preparation method. A region of 60 isolates coding for the small-subunit ribosomal RNA (SrDNA-18s) and the internal transcribed spacer (ITS) were amplified and analyzed by restriction enzyme digestion. The results of PCR-RFLP showed no polymorphism either in length or in pattern among all the isolates tested.

Keywords: *Walnut Anthracnose, Gnomonia leptostyla, Genetic variation, Ribosomal DNA, ITS*

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Study on grooming and removing hygienic behaviors of honey bee colonies in Azarbayjan-e-Sharqi, Iran.

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Abstract

Ectoparasitic mite, varroa, is one of the most destructive pests of honey bee. Because of the disadvantages of using chemical treatments in mite-infested colonies, the use of non-chemical methods such as: biological and genetical controls have been taken into consideration. Hygienic behaviors are well known as suitable genetic control method. Hygienic behavior is involved removing and grooming. This behavior differs from race to race. In this study, grooming and removing behavior of Azarbayjan-e-Sharqi honey bee populations against varroa were examined. 50 honey bee colonies with young queens from 5 areas of the province (Ahar, Shabstar, Tabriz, Maragheh and Miyaneh) were chosen randomly and uniformed from the view point of parameters including adult and larvae population, honey and pollen storages and frame numbers. To determine removing rate, freeze-killed brood was placed into colonies and number of removed cells counted every 24h. Grooming behavior was measured by placing greasy plastic sheets on the bottom board of hives and the number of fallen mites counted every 48h. Data analyses showed that average removal of freeze-killed pupa in hole province was 79.84% per colony in 48 hour and average fallen mites was 52.04 mite per colony in 96 hour. ANOVA showed that there was significant difference between colonies of different regions from view point of removing but colonies of different regions had no differences in grooming. This results suggested that Azarbayjan-e-Sharqi honey bee colonies can resist against varroa by grooming and removing and this factors can be considered in selection and breeding programs.

Keywords: Honey bee, Hygienic behavior, Grooming, Removing

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Effects of potassium sulfate (K₂SO₄) on quantity and quality of AGRIA and SATINA potato cultivars in miyaneh region, Iran

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Abstract

In order to survey of various amounts of potassium sulfate fertilizer and its effect on quantity and quality of potato Agria and Satina cultivars, an experiment was conducted in the educational-researching farm of Islamic Azad University, Miyaneh branch in 2004 growing season. The experiment design was factorial based on randomized complete block design with 24 treatments and 3 replications. The experimental plots were including 1st treatment i.e. NP (conventional application), the 1st treatment + 50 kg/ha of K₂SO₄, 1st treatment + 100 kg/ha of K₂SO₄, and 1st treatment + 150 kg/ha of K₂SO₄. The cultivation, husbandry and harvesting stages were conducted according to recommended standard methods. During the experiment and after harvesting, quantitative and qualitative indexes were recorded and measured. The indexes such as final number of the main and lateral stems (FS), plant height (H), number of tuber (NT), dry weight of tuber (DWT), wet weight of tuber (WWT), dry plant weight (DPW), wet plant weight (WPW), tuber nitrogen (TN) and Tuber protein (TP) were measured. Data were analyzed by Excel, MSTATC and SAS. According to ANOVA table, the main effect of genotype, fertilizer treatment and also interaction between fertilizer * genotype on growth indexes and yield in 0.01 probability were significant, but the Agria and Satina was different in view point of fertilizer responding. In the other word, a certain fertilizer treatment is needed for each cultivar and we can not consider the same fertilizer treatment for all cultivars. The most suitable fertilizer treatment for both cultivars was the 4th treatment (1st treatment + 150 kg/ha K₂SO₄) in Miyaneh region condition, but totally Agria had advantages in dry and wet weight and other indexes than Satina.

Keywords: Potato, Solanum tuberosum, K₂SO₄, Yield index, Satina and Agria.

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Determination of the economic threshold of damage of red root pigweed (*Amaranthus retroflexus* L.) in green bean (*Phaseolus vulgaris* L.) field

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Abstract

In order to determine the economic threshold of damage of red root pigweed (RP) in green bean, a two years experiment was conducted in agricultural research station of Islamic Azad University of Tabriz, Iran, based on a randomized complete block design with three replications. The treatments were RP interference times at 2, 4, 6, 8, 10 weeks after green bean emergence until late growth season (GBE); full season interference (FSI) and control weed free plot. Data were analyzed with Mstatc software and Duncan's test was used for mean comparison. Results showed that the above ground biomass and yield of green bean in control plot was similar to treatment of weed interference at 10 weeks after GBE. Yield loss in FSI was 67.36% in comparison to control. RP emergence at density of 8 plants-m⁻¹ of row at early 6 and 8 weeks of green bean growth stage to later, was caused 21.5% and 6.2% yield loss, respectively, in comparison to control. With attention to 10% maximum permissible yield loss in green bean, RP must be controlled, if it was emerged within a period of 6 weeks of early green bean growth stage and economic threshold of damage of RP at studied density level was determined until 6 weeks of early green bean growth stage.

Keywords: *economic threshold, red root pigweed, full season interference, yield loss, green bean.*

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Globalization and it's effect on agricultural economy of Iran: Case study on *Cumminum cyminum*

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Abstract

In order to determine the effect of globalization on agricultural economy of Iran, exporting supply, domestic supply and domestic demand functions of *Cumminum cyminum* was studied during 1981-1999. The results revealed that globalization trend had positive effect on domestic supply and increased domestic production of *Cumminum cyminum*. However it had negative effect on domestic demand and decreased domestic consumption of the crop. Globalization index had also positive effect on exporting supply of *Cumminum cyminum* and indicated that it was responsible in increasing of the mentioned crop export.

Keyword: Globalization, Globalization Index, Supply, Demand, Export, Economy, *Cumminum cyminum*

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