

**The study on the effect of plant residue management
methods, Azolla and duck on weed characteristics, yield
and harvest index in integrated culture of rice
(*Oryza sativa*) with it's ratoon**

**M. Esmaili¹ H. Mobsser², H. Heidari-Sharif Abad³, N. A. Poor Roshan⁴ and
A. Eftekhari⁵**

Abstract

In order to study on the effect of plant residue management methods, Azolla and duck on weed control, yield and harvest index of native Tarom variety rice ratoon, a field experiment was conducted in factorial split based on randomized Complete block design (RCBD) with three replications. At ratoon crop, management of plant residue treatment (cutting at base, common regional harvest and lock-lodging methods) was main factor and Azolla at two levels (with and without) and duck also at two levels (with and without) were subfactors. Results revealed that lock-lodging and common regional harvest methods had highest and lowest weed Population respectively. Number, mean height and mean dry weight of weeds were also decreased by Azolla and duck. In this study, weeds *Cyperus difformis*, *Echinochola crus-gali* and *Typha latifoli* caused highest damage to ratoon crop. Maximum yield and harvest index were obtained in lock-lodging technology due to increased total number of produced tillers, number of panicle per square meter and total number of spikelets per spike. Duck was also increased grain yield due to mentioned parameters and high thousand grain weight. In this research, maximum rate of harvest index was obtained in integration of lock-lodging method with Azolla and duck.

Keywords: *Rice ratooning, Plant residue, Azolla and duck, Weed, Yield and harvest index*

1- M. Sc. Student of Islamic Azad University of Tehran-Science and research branch

2- Assistant professor of Islamic Azad University-Ghaemshahr Branch

3- Associate Professor of Islamic Azad University of Tehran Research and Science branch

4- M. Sc. Student of Islamic Azad University- Golbahar branch

5- M. Sc. of Agronomy

Effect of some conventional fungicides on control of broomcorn covered smut caused by *Sporisorium sorghi* in the field

S. Jamshidi¹ and A. Ghaffari²

Abstract

Broomcorn covered smut caused by *Sporisorium sorghi* Link is one of the most common endemic diseases of broomcorn fields in Miyaneh and Zanjan regions and imposes major losses in this crop every year. In order to study effect of some conventional fungicides for reduction or elimination of seed-born inoculum of the fungus by seed treatment, two experiments were conducted in the field. Seeds were mixed with teliospores as artificial infection (10g/kg) or used without mixing as natural infection and after treatment with carboxin thiram, benomyl, mancozeb, maneb and propiconazole (1.5 %) were sown. In harvest stage, the infected and healthy plants were counted and data were analyzed. The results indicated that there were significant differences between treatments. In artificial infection experiment, all treatments had significant difference with control, while in natural infection carboxin thiram treatment didn't indicate a significant difference with control. In both experiments, propiconazole, maneb and mancozeb were the most effective and carboxin thiram was the least effective on disease control. Maneb and mancozeb didn't have significant difference with propiconazole in both experiments. Benomyl application wont be suitable if propoiconazole, maneb and mancozeb are available.

Keywords: *Broomcorn, Covered smut, Sporisorium sorghi, Chemical control, Fungicide resistance*

1- Scientific board of Islamic Azad University-Miyaneh branch, Member of YRC, sojamsh59@yahoo.com

2- Islamic Azad University-Miyaneh branch

Evaluation of sorghum (*Sorghum bicolor*) and Egyptian clover (*Trifolium alexandrinum*) intercropping system

Y. Raei,¹ A. Javanshir² and K. Ghasemi-Golozani²

Abstract

One of the most important methods of sustainable agriculture and environmental conservation is intercropping. On this basis, a field study was carried out at research station of agricultural faculty, Tabriz University in 2003. The row-intercropping was used as a cropping pattern. Cultural pattern was replacement series. Treatments were arranged within Randomized Complete Block Design with three replications. Treatments comprised of pure stand of sorghum (T1), %75 sorghum+%25 Egyptian clover (T2), %50 sorghum+%50 Egyptian clover (T3), %25 sorghum+%75 Egyptian clover (T4), and pure stand of Egyptian clover. The results showed that pure stands of sorghum (12/225 t/ha) and Egyptian clover (3/309t/ha) had the highest and the lowest forage yields during season growth within three harvests. Among harvests, the second harvest had higher yield than other harvests. T2 had the greater LER (1.14) than other intercropping combinations. It was concluded that sorghum had more competitive effects on Egyptian clover, as Competitive effects of a plant sorghum was equal to 3.3 plants of Egyptian clover.

Keywords: Intercropping, Sorghum, Egyptian clover.

1- Assistant Professor of Agriculture and Plant Breeding Department of Tabriz University

2- Professors of Agriculture and Plant Breeding Department of Tabriz University

The effect of foliar application of complete fertilizer on yield and yield components of two potato's cultivars in Damavand

A. Roozbahani¹ and M. Armin²

Abstract

This study was carried out in 2003 in Damavand region to evaluate the effect of foliar application of complete fertilizer on yield and yield components of two potato's cultivars as factorial based on randomized complete block design (RCBD) with four replications. In this experiment, two cultivars (Agria and Ajax) and four times of complete fertilizer foliar application (no application, complete emergence, tuber formation and tuber formation and tuber filling) were used. The results showed that there wasn't a significant difference between cultivars except for weight of tubers per plant and total yield, which Agric was superior to Ajax. the results showed that there was a significant difference between foliar application at tuber formation and tuber-filling treatment with other treatments and foliar application at tuber formation and tuber-filling period produced higher yield. Finally, Planting superior cultivars like Agria and foliar application of complete fertilizer during tuber formation and tuber filling period were recommended in order to increasing potato yield in Damavand and similar regions.

Keywords: Potato. Solanum tuberosm, Foliar application, Complete fertilizer.

1- Scientific Board of Islamic Azad University-Roodhen Branch

2- Scientific Board of Islamic Azad University-Sabzevar Branch, Moh_armin@yahoo.com

Interaction of irrigation regimes and nitrogen sources on grain yield and water use efficiency of wheat

A. Annabi-Milani¹

Abstract

Nowadays increase of population and need for food and limitation of water resources have caused that the worth of this vital liquid to be cleared up more than ever. A field experiment was conducted at Tabriz plain during 1997-2000 to determination the water requirement of wheat and interaction between applied water and sources of N fertilizer on water use efficiency (WUE). The experiment was carried out in factorial randomized complete block design with four irrigation levels (I₁ to I₄) based on irrigation depth per cumulative pan evaporation (ID: CPE) ratios of 0.4, 0.6, 0.8 and 1.0 in combination with three sources of N (N₁ to N₃) comprising ammonium sulfate, urea and ammonium nitrate with four replications. Results indicated that there was significant difference between I₁ and other treatments on both biomass and grain yield, but there was no difference between I₂, I₃ and I₄. WUE was different between treatments significantly. Treatment I₁ producing 1.89 kgm⁻³ and treatment I₄ with 1.09 kgm⁻³ had maximum and minimum WUE respectively. Mean consumed water in three years (irrigation plus rainfall) for I₁ to I₄ was calculated to be 4556, 5776, 6685 and 7713 m³ha⁻¹ respectively. There were no significant differences between treatments in thousand kernel weight, harvest index (HI) and protein content of seeds. Sources of N had no significant effect on WUE and yield component except thousand kernel weight. Interaction of irrigation levels and N sources concerning yield components and WUE was not significant.

Keywords: thousand kernel weight, Class A evaporation pan, Evaporation, Harvest index (HI), Irrigation depth, Protein, Water requirement.

1- Scientific Board of Soil and Water Department of Natural Resource and Agriculture Research Center of Azarbajejan-E-Sharqi, a_o_milani@yahoo.com

Application of different cases of Hargreaves-Samani and Jensen- Haise methods for estimating alfalfa reference crop evapotranspiration in Isfahan

P. Najafi¹

Abstract

Estimation of the actual evapotranspiration rate is very important for designing irrigation systems, storage construction and water conveyance structures. Many methods have been developed for estimating reference crop evapotranspiration. Most of these methods need different climatic parameters, but providing all of the necessary data for ET_0 is not always available and if provided, these data may not be completely correct. Therefore some methods have developed to estimate ET_0 using minimum data such as Hargreaves-Samani and Jensen-Haise methods. In this research four different cases of each two mentioned methods were compared on the basis of lysimetric data of alfalfa reference crop, obtained from climatic and agricultural research station of kabutarabad, Isfahan. The results revealed increased precise evaluation of evapotranspiration rate of alfalfa reference crop up to 15 percent using Samani-Pressarakly equation for calculating extra terrestrial radiation. In addition, mentioned cases had higher correlation coefficients than others so that average maximum absolute relative error (MART) decreased to 9 percent due to improving the main equations with linear regression. Consequently, the results showed that there was no significant differences between Allen and Samani-Pessarakly equations for evaluating Hargreaves-Samani equation coefficients.

KeyWords: reference crop evapotranspiration, alfalfa, Hargreaves-Samani, Jensen-Haise, Extraterrestrial radiation, Hargreaves-Samani coefficient.

1- Assistant Professor of Agriculture College of Islamic Azad University-Khorasgan Branch, Isfahan, p-najafi @ khuisf. ac.ir

Study on effect of Indole Butyric Acid (*IBA*) and Naphthalene Acetic Acid (*NAA*) on rooting of cutting of *Camellia* (*Camellia japonica* L.)

D. Hashemabadi¹ and Sh. Sedaghatoor¹

Abstract

Camellia (*Camellia japonica* L.) is slow growing and evergreen shrub that has planted for landscaping and beautiful cut flowers. Cutting is the easiest and cheapest method for camellia propagation but camellia cuttings is hard-rooting and need to special treatments. In this experiment, auxin using treatments are studied. The experiment was conducted in factorial experiment based on complete randomized block design with two factors (four *IBA* levels and four *NAA* levels) in three replication and rooting percent, root dry weight, root length, tallest root length and root numbers were studied. Obtained results showed insignificant differences ($P < 0.01$). Among treatments, 4000 mg.l^{-1} *IBA* produced the most root numbers and 4000 mg.l^{-1} *IBA* + 2000 mg.l^{-1} *NAA* produced tallest roots. Among *IBA* levels, 4000 mg.l^{-1} produced most root percent, while 2000 mg.l^{-1} *IBA* + 2000 mg.l^{-1} *NAA* was the most effective treatment.

Keywords: *Camellia*, *Rooting*, *IBA*, *NAA*

1- Scientific Boards of Horticulture Department of Islamic Azad University-Rasht Branch

Evaluation of the possibility of forage sorghum production in saline condition with CaCO₃ application

M. Yarnia¹

Abstract

Saline water and soil area's extent every year and forage need is going up. Forage sorghum has a high potential for yield and Ca²⁺ has an important role in plant tolerance to salinity. For determining Ca²⁺ level effects on sorghum tolerance to salinity in different growth stages, an experiment was conducted in greenhouse. Two forage sorghum cultivars (KFS₃ and Jumbo) were evaluated in five water salinity levels (0, 50, 100, 150 and 200 mM NaCl) and four levels of CaCO₃ (0, 50, 100 and 150 kg/ha) in perlite filled pots in 3 replicates. Increasing salinity decreased plant height, leaf area, leaf, stem, shoot and root dry weight, biomass, shoot/root ratio, leaf ratio and leaf/stem ratio, but increasing CaCO₃ applying increased plant height, leaf area, shoot/root ratio, leaf/stem ratio in all salinity levels in cultivars. Applying CaCO₃ helped cultivars to improve shoot dry weight and biomass. Increasing rate in all attributes except plant height and leaf area in KFS₃ was higher than Jumbo. KFS₃ had higher potential than Jumbo to revenue Ca⁺ in non-saline condition. Forage yield increased in saline condition with CaCO₃ in comparison to without so that 72% and 112% increased in KFS₃ and Jumbo, respectively. This showed that applying CaCO₃ could improve forage yield in saline condition.

Keywords: Saline condition, CaCO₃, Jumbo, KFS₃, Yield.

1- Assistant Professor of Islamic Azad University-Tabriz Branch