

# The International Conference of Agriculture and Food Safety

## Session (1)

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## **Using tetra-factorial computer model for study the status of some macro and micronutrients in soil and plants as affected by some natural soil conditioners**

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### **ABSTRACT**

Field experiments were conducted during the two successive seasons, summer season 2012 using maize plants (zea mays, three-way cross-321) and winter season (2012/2013) using wheat plants (Sakha 93 variety) at El-Gemmeiza Agricultural Research Station, El-Gharbia Governorate (Clay Loam Soil) to evaluate the effect and residual effects of some natural soil amendments, i.e., farmyard manure, sheep manure, rabbit manure and pigeon manure and their combinations on availability of some soil macro and micronutrients and chemical composition of maize and wheat plants grown in this soil. The experiments were conducted in a randomized complete block design with three replicates. Nineteen treatments having different (FYM), (SM), (RM) and (PM) ratios were used to cover all possible combinations of these amendments as well as control (untreated soil). The results were shown in tetrahedron forms using tetra-factorial computer model.

#### **The obtained results can be summarized as follows:**

- 1- All different treatments led to markedly increases in available NPK at the two soil depths in the two growing seasons.
- 2- Soil extractable metals (Fe, Zn, Mn and Cu) were increased with all treatments at the two soil depths in the two growing seasons.
- 3- The single effect of these amendments explains that RM has pronounced role on increasing Fe concentrations of soil. Thus, the decrease of effectiveness took the order: RM > FYM > SM > PM. While, FYM gave the promotion effect on Zn, Mn and Cu concentration of soil and the effectiveness took the order: FYM > PM > SM > RM.
- 4- Concentration and uptake of NPK in maize and wheat grains and straw were increased in the two seasons as a result of organic amendments addition.
- 5- Concentration and uptake of micronutrients in maize and wheat grains and straw were increased with all combinations of added natural amendments.
- 6- The concentrations of Mn and Cu in wheat grains and straw in the second season were less than them in the maize grains and straw in the first season, opposite trend was observed with Fe and Zn
- 7- Generally, it could be concluded that, it is more useful to use a mixture of different natural soil amendments (i.e., FYM, SM, RM and PM) to get a markedly improve the availability of macro and micronutrients to the plants. Accumulation of micronutrients in plant biomass was within the normal range and did not produce depressing effects on crop yields.
- 8- Further studies are needed to determine the long term accumulation of micronutrients in plants.

**Key words:** Tetrahedron, natural soil conditioners, farmyard manure (FYM), sheep manure (SM), rabbit manure (RM) and pigeon manure (PM).

## **Chemical studies on grown jojoba oils under Egyptian conditions**

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### **ABSTRACT**

This study conducted under authority of medicinal and aromatic plants Department, Horticulture Research Institute (HRI), Agricultural Research Center (ARC), Egypt, during the seasons of 2012, 2013 and 2014. The seeds randomly collected after growth (10 kg of each site) in the different Egyptian sites six are north (Sheikh Zuid, North Sinai Governorate (B1); Sarabium, Ismailia Governorate (B2) and Wadi Natrun, Behara Governorate (B3)) and south (Valley Asiouty, Assiut Governorate (B4); Siwa Oasis, Matrouh Governorate (B5) and Arab Beny Ghalb Region, Assiyut Governorate (B6)) of Egypt. This paper conducted to study the effect of environment different on the food ingredients and chemical of the seed oils, as well as determine the importance and extent of adaptation to different environments and identify the best addition to the effect of climatic factors and conditions of the soil in which the plants cultivated under Egyptian conditions. From the obtained data, the site (B6) and site (B5) showed the best results of oil components, followed by Sheikh Zoweyd North Sinai (B1) and Sarabium Ismailia Governorate (B2), followed by Wadi Natrun (B3) and Asiouty Valley- Assiut Governorate (B4).

**Keywords:** Jojoba oil, Jojoba hulls, Phenolic compounds, Extraction oil.

## **Use of foliar spray with GA<sub>3</sub>, NAA and urea to reduce navel orange fruits susceptibility to fruit flies**

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### **ABSTRACT**

Field and laboratory studies were designed to determine if foliar sprays with gibberellic acid (GA<sub>3</sub>), Naphthalene acetic acid (NAA) and urea could decrease the susceptibility of navel oranges (*Citrus sinensis*) fruits to infestation with peach fruit fly (PFF), *Bactrocera zonata* and Mediterranean fruit fly (MFF), *Ceratitis capitata* during (2013, 2014) seasons. In the field studies, the navel orange fruits sprayed with GA<sub>3</sub> and NAA were significantly less susceptible than untreated fruits to attack by PFF and MFF. But the fruits treated by urea weren't less susceptible than control plot. The GA<sub>3</sub>-treated fruit were significantly different from control plot, whereas the lowest percentages of infestation were noticed in case of treatment by concentration 40 ppm of GA<sub>3</sub> (2.22 % and 1.67 %) followed by the concentration of 20 ppm (3.89 % and 5.28 %), 10 ppm (5.83 % and 8.33 %) and 5 ppm (10.28 % and 14.17%) during the two successive seasons, respectively. The mean numbers of attacked navel orange fruits treated by concentrations of 5, 10, 20 and 40 ppm of NAA were significantly lower than control. These results were repeated during the 2<sup>nd</sup> season of study. The highest mean number of infested fruits was noticed in case of 1.5 % urea followed by 1 %, 0.5 % then 0.25 %. There were no significant differences among these treatments and control. Laboratory studies were achieved in 2014 year to confirm these findings by offering non infested navel orange fruits from GA<sub>3</sub>, NAA and urea treated fruits for the fruit flies (MFF and PFF) in the laboratory. The lower mean numbers of pupae and emerged adults of fruit flies per navel orange fruits were obtained in the fruits treated by GA<sub>3</sub>, NAA and urea than control.

**Key words:** GA<sub>3</sub>, NAA , urea, orange fruits , fruit flies

## **Effect of intercropping of some winter crops with sugar beet under different nitrogen fertilizer on yield and its components**

**Zen El-Dein, A.A.M.**

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### **ABSTRACT**

Tow field experiments were carried out at Etay EL-Baroud Agriculture Research Station, Behaira Governorate, Egypt during the two successive growing seasons (2012/2013 and 2013/2014) to impact of intercropping sugar beet with some winter crops, i.e. wheat, faba bean and flax under four levels of N fertilizer, i.e. N1 (60 Kg N / fed of sugar beet and without N for each crop intercropped with sugar beet), N2 (60 Kg N / fed of sugar beet and 50% N fertilizer of recommended by density for each crop intercropped with sugar beet), N3 (60 Kg N / fed. of sugar beet and 75% N fertilizer of recommended by density for each crop intercropped with sugar beet) and N4 (60 Kg N / fed. of sugar beet and 100% N fertilizer of recommended by density for each crop intercropped with sugar beet). A split plot design was used will three replication. The obtained results could be summarized as follows. Data indicated that yield and its components of sugar beet were affected significantly with intercropping. Sugar beet had the highest values in characters and quality when intercropped with faba bean, while sugar beet with flax had the lowest values in all with nitrogen levels fertilizer. Root characters and root yield/fed increased by N levels up to the N3, but sucrose% and TSS% increased by increasing N level up to N2. Interaction between intercropping and nitrogen fertilizer had significant effect on all studied traits of sugar beet except for root diameter. On the other hand, grain yield / plant and grain yield /fed increased significantly up to the N4, when wheat intercropped with sugar beet .Also, faba bean plants response to intercrop with sugar beet, were number of pods / plant, seed yield / plant and seed yield /fed showed significantly differences, number of pods/plant and seed yield/fed significantly increased with increasing nitrogen level up to (N4).Most studied characters of flax, were significantly affected when intercropped with sugar beet and also, nitrogen levels had significant effects on all studied characters except, seed yield / fed., plant height and 1000-Seed weight and increased by increasing nitrogen level up to the N4. The highest value of LER and total income were obtained when sugar beet intercropped with faba bean and fertilizer by the N3 (1.48 and 14574.40) respectively. Relative crowding coefficient in all intercropping of both components exceeded the unit indicating that yield advantage of both components was higher than the expected, except for in case intercropped sugar beet with flax when applied N1 level. Data on aggressivty indicated that faba bean, wheat and flax ware the dominant crops and sugar beet was the dominated.

**Keywords:** winter crops, sugar beet, nitrogen fertilizer, yield

## **Effect of intercropping and nitrogen fertilizer on yield and its components of soybean, sesame and cowpea with maize.**

**Zen El-Dein, A.A.M.**

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### **ABSTRACT**

Two field experiments were conducted at Zarzoura Experimental station in El-Beheira Governorate, during 2012 and 2013 seasons, to study the effect of intercropping some crops, i. e. soybean, sesame and cowpea with maize under three levels of nitrogen fertilizer, i. e. 25% less than the recommended dose (N1), the recommended dose (N2) and the recommended dose plus 25% of the recommended dose for the two crops of each combination (N3). Intercropping patterns were two ridges of maize and two ridges of the other intercropped (50%: 50%). Results showed that intercropping had significant effects on all characters of maize except plant height, ear height, and number of grains / row. The results indicated that intercropped treatments with sesame gave the highest values of ear characters, 100-Grain weight and grain yield / feddan.

The results also showed that ear characters, 100-Grain weight and grain yield / feddan were significantly affected with nitrogen fertilizer rates, the highest values of ear characters and grain yield / feddan with recommended N application in maize solo planting. The results indicated that number of rows / ear, 100- Grain weight and grain weight / ear were significantly affected by the interaction between intercropping and fertilizer rates, the highest values were intercropped maize with sesame under application N fertilizer (N2).

Results indicated that monoculture crop had the highest values of intercropping crops, but nitrogen levels were not significantly except number of branches / plant and number of capsules / plant of soybean and sesame respectively, while cowpea as a fodder crop effected significantly by nitrogen levels and increased by increasing nitrogen fertilizer up to the high level (N3). The highest LER was obtained when maize was intercropped with sesame.

**Keywords:** nitrogen fertilizer, yield, soybean, sesame cowpea maize.

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