Effect of some agriculture treatments on yield productivity of squash

Seham Mahmoud Mohamed Ali

Two field experiments were conducted at the Farm of Faculty of Agriculture, Moshtohor, Zagazig University. The first experiment (summer experiment) was performed to evaluate the productive characteristics of three squash cultivars that fertilized through five systems. The second dealt with the effect of seed vernalization and fertilization system on two squash cultivars at winter (winter experiment).The summer experiment was conducted during 1998 and 1999 seasons, March. The winter experiment was sown at 1998/1999 and 1999/2000 seasons, October.Summer experiment (Experiment one):It included 15 treatments which were combinations of three squash cultivars (Obodas hybrid, Arlika hybrid and Eskandarani) and five fertilization systems (100% mineral fertilizers, 100% biogas fertilizer + salicylic acid (SA). sprays, 50% mineral fertilizer + 50% biogas + salicylic acid, 100% biogas + garlic extract, 50% mineral fertilizer + 50% biogas + garlic extract, 100% means 60 kg N/feddan). Treatments were arranged in split plot design where cultivars were located in the main plot and those of fertilization were put in sub plots. Vegetative growth characteristics, leaves photosynthetic pigments, plant chemical constituents, flowering behaviour, early and total yield and fruit quality were studied.81 Summary and ConclusionsResults revealed the following:1-Obodas cultivar had the highest plant height and Arlika had the lowest number of branches, plant fresh weight, plant dry matter, leaf area and number of branches. Eskandarani had the highest stem diameter.The effect of 100% biogas fertilizer plus garlic extract was the best on plant vegetative growth which followed by 100% biogas plus SA.2-Leaves chlorophyll a, b and a+b were in general higher in Arlika cultivar compared to the other two cultivars.The effect of 100% biogas fertilizer + garlic extract and 100% biogas + SA had nearly similar effect on chlorophyll content. Such fertilization systems increased leaves chlorophyll more than the other systems in general.3-Plant foliage P and K did not differ between the tested cultivars but plant N was greater in Arlika ciiltivar in We first season and in Obodas in the second season.The tested systems of fertilization differed in their effect between seasons on plant N, P and K.4-Flowering behaviour of the three cultivars was the same. However, Eskandarani tended to contain lower number of females.Fertilization systems had nearly similar effect. However, the 100% biogas + SA, 50% mineral fertilizer + 50% biogas fertilizer + garlic extract tended to increasing the number of females.5-Early and total squash yield was the best with Arlika cultivar and the effect of 100% biogas fertilizer plus garlic was the bestfollowed by 100% biogas + SA and 50% mineral fertilizer + 50% biogas + garlic extract which had nearly similar effects.6-Fruit physical characteristics differed between cultivars. Obodas tended to have the highest fruit weight, Arlika tended to have the highest fruit length. The 100% biogas fertilizer + garlic extract and 100% biogas + SA tended to increase fruit length, weight, diameter, and dry matter.7-Fruit chemical constituents differed between cultivars and between fertilization systems especially between seasons.ConclusionUnder the experimental condition focusing the attention to the yield as the most important characteristic, the most productive cultivar was Arlika and the most pronouncing fertilization system was that contained 100% biogas fertilizer + garlic extract, followed by both 100% biogas + SA and 50% mineral fertilizer + 50% biogas + garlic extract.Winter experiment (Experiment two):It included 12 treatments which were combinations of two squash cultivars (Eskandarani and Arlika hybrid), two vernalization treatments (non-vernalized and vernalized) and three fertilization systems (100% biogas fertilizer, 50% biogas +

50% mineral fertilizer and 100% mineral fertilizer) (100% means 60 kg N/feddan). Treatments were arranged in split-split plot design where varieties were put in the main plot, vernalization in the sub-plots and fertilization system in the sub-sub-plots., Vegetative growth83 Summary and Conclusionscharacteristics, plant chemical constituents, flowering behaviour, early and total yield and fruit quality were studied.Results revealed the following:1 Eskandarani cultivar had more vegetative growth characteristics than Arlika, however leaf area was insignificantly different between such cultivars.Vernalization effect was detected in one season in most vegetative growth parameters and its positive effect was found in stem diameter, leaf area, number of leaves, plant fresh weight and plant dry weight.The first fertilization system (100% biogas) increased plant vegetative growth in both seasons more than the 50% biogas + 50% mineral fertilizer than 100% mineral fertilizer.2-Arlika cultivar contained more photosynthetic pigments than Eskandarani. Vernalization tended to increase photosynthetic pigments regardless the insignificant differences in chlorophyll a in the first season and in chlorophyll b in both seasons.The 100% biogas fertilizer increased photosynthetic pigments more than the 50% biogas + 50% mineral' fertilizer than 100%mineral fertilizer.3-Foliage N and P were nearly similar between cultivars but K showed different trends in both seasons. Vernalization tended to increase foliage N in the first season and K in the second. Biogas treatment tended to increase foliage N, P and K followed by 50% biogas + 50% mineral fertilizer which in turn followed by 100% mineral fertilizer. 4-Male and female flowers. number was higher with Arlika than Eskandarani, however the sex ratio was higher with Eskandarani cultivar.Vernalization increased number of female flowers and sex ratio.The 100% biogas fertilizer increased the number of male and female flowers in general followed by the 50% biogas + 50% mineral fertilizer which intern followed by the 100% mineral fertilizer.5-Arlika cultivar showed higher early and total yield than Eskandarani reflecting the power of the hybrid tested. Vernalization increased early and total yield. The 100% biogas fertilizer resulted in more early and total yield more than the second fertilizer, more than the third (100% mineral fertilizer).6-The effect of cultivars on fruit weight, diameter and length was not significant in the second season and that of fruits dry weight was insignificant in both seasons.Vernalization increased fruit weight in the first season, fruit diameter in both seasons and fruit length in the first season.The 100% biogas fertilizer increased all physical parameters than the second than the third (100% mineral fertilizer).7-Eskandarani cultivar fruits contained more carbohydrates and lower Pb in both seasons compared to Arlika. Eskandarani fruits contained more TSS and N and lower P in one season compared to Arlika. Fruits of both cultivars contained nearly similar fibers, K and Cu.85 Summary and ConclusionsSeed vernalization increased fruits carbohydrates, K and decreased Pb in both seasons and increased fruits fiber and TSS in one season. It had no effect on fruits N, P and Cu.The 100% biogas fertilizer increased fruits chemical constituents in general with no response on Pb compared to the other fertilizers.Arlika cultivar as compared to Eskanclarani showed lower vegetative growth, higher photosynthetic pigments, better flowering behaviour and better yield along with differences in most of physical and chemical characteristics.Vernalization had positive effect generally. Fertilization systems showed that the 100% biogas fertilizer had better response than 50% biogas + 50% mineral fertilizer, more than 100% mineral fertilizer.