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EFFECT OF ORGANIC COMPOST AND MINERAL N FERTILIZERS APPLIED INDIVIDUALLY OR IN DIFFERENT COMBINATION RATES ALONG WITH SEAWEED EXTRACT ON VEGETATIVE GROWTH, TUBER DEVELOPMENT, DRY WEIGHT AND GROWTH ANALYSIS OF POTATO PLANTS.

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ABSTRACT:

This investigation was carried out at the Experimental Farm of the Fac. Agric., Minoufiya Univ., Shibin El-Kom, Egypt during the summer seasons of 2008 and 2009 to study the effect of two organic composts e.g. zoological and botanical ones and mineral fertilizers at a rate of 120 kg N/fed., individually or in different combination rates along with or without seaweed extract on vegetative growth, tuber development, dry weight production and growth attributes. A complete randomize block design with 3 replicates was used. It is important to point out that the application of zoological compost in different combination rates with inorganic fertilizer was much better than applying of botanical one and the using of seaweed extract with them in tries combinations were the most effective treatments comparing with other ones. The obtained results indicated that fertilization with any of the used fertilizers either alone or in mixture forms with or without foliar spray with seaweed extract significantly augmented vegetative growth, tuber development, dry weight of different plant organs and plant growth analysis. Whereas the application of fertilizer mixture of 25 % of mineral nitrogen + 75 % zoological compost + foliar spray with seaweed extract was the most effective treatment followed by that of 50 % of mineral nitrogen + 50 % zoological compost + foliar spray with seaweed extract then 50 % of mineral nitrogen + 50 % botanical compost + foliar spray with seaweed extract, respectively.

Key words: Potato, mineral N-fertilizer, zoological-, botanical compost, seaweed extract, plant growth, tuber d

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DETERMINATION OF IRRIGATION WATER REQUIREMENTS OF FIELD GROWN TOMATO USING CLASS A PAN EVAPORATION

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ABSTRACT:

The effect of different irrigation water amounts on tomato vegetative growth, yield and yield components, water use efficiency and plant minerals composition was studied in 2005 and 2006 in field conditions. Treatments consisted of four irrigation water amounts i.e., 50, 75, 100 and 125% times of class A pan evaporation value. The results indicated that increasing irrigation water amounts from 50 to 125% of class A pan value gradually increased plant vegetative growth i.e., plant height, number of branches / plant, number of leaves / plant, leaf area / plant and dry weights of different plant organs. However, irrigating tomato plants with the lowest ratio of class A pan (50%) gave the highest value of specific leaf weight and the deepest roots only, when measured at later growth stage (85 days after transplanting). Although, irrigation of tomato with 125% of class A pan gave the highest total and marketable yields, this particular treatment showed the lowest ratio of marketable yield / total yield. Such results also indicated that the marketable yield obtained by irrigation tomato with 100% in both seasons and that obtained by irrigation with 75% of class A pan value in one season did not significantly differ than marketable yield obtained when the highest ratio (125%) of A pan value was used. This may suggests that using amounts of water in irrigation equal or even lesser than that of 100% of class A pan value could be used successfully in irrigation tomato without severe reduction in yield. Fruits produced from plants received the lowest and moderate amounts of water i.e., 50 and 75% of class A pan showed the highest TSS, vitamin C and dry matter contents.

Key words: class A pan evaporation, tomato yield, water use efficiency, amount of irrigation water, fruit quali