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Energy use efficiency: A case study from South Mediterranean seacoast, Egypt

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Optimizing the implementation of energy used in agriculture is an important objective in the “Climate Action and Renewable Energy Package” adopted by Kyoto Protocol. Therefore, studying the management of different cropping systems represents a good method to optimize input requirements, yield and net energy supply. The aim of this paper is to compare the energy use of existing cropping system with optimizing cropping system after apply laser land leveling, located in South Mediterranean seacoast, Egypt. The system is cultivated under two different management intensities: a conventional system (CS) and a low input system (LIS) after laser land leveling. Crop cultivation in old and new land of Lower Egypt takes place during winter season. The implementation of energy use efficiency did not disturb the total crop acreage, but shifted from crop to crop. However the production cost, energy input, greenhouse gases (GHG) emission and absolute risk reduced. Furthermore, total labor wages increased in the one zone of old and new land of Lower Egypt. In addition, crop revenue, net profit and internal rate of return for this season in that zone of old and new land of Lower Egypt increased compared to the existing ones. There is an urgent need to change the existing cultivation and to regulate the allocation of water irrigation, land and energy optimally, which could prevent further deterioration of socioeconomic in this zone of old and new land of Lower Egypt.

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Impact of seed pre-treatments on vegetable crop productivity: A case report

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Seed preparation is an initial practice in crop production and many useful seed pretreatments have been reported depending on the crop species and the purpose. The current study presents results obtained for hydro-priming treatments and germinating seed chilling or seed presoaking in salicylic acid solution utilized in different vegetable crops. In cauliflower (*Brassica oleracea* L. var. botrytis) cv El-Soultani, the greatest number of leaves/plant and the highest curd weight and total curd yield were produced by plants from seeds imbibed in water for 6 h and subjected to chilling at 4-5°C for 15 d. The increase in the total curd yield ranged from 74 to 77% relative to control treatment. The visible curd for this treatment was also earlier by 7 d. Second to this treatment was the seeds imbibed and subjected to chilling at 4-5°C for 10 d. The seeds imbibed for 6 h, air dried and stored for 10 d came in the third order. In cucumber (*Cucumis sativus* L.), among the studied salicylic acid (SA) concentrations, 0.07mM and 0.18mM elevated both chlorophyll a and chlorophyll b contents, increased the number of female flowers per cucumber plant, the plant stem diameter and the leaf number per plant. Total fruit yield, in particular, was the highest (38.2% higher as compared to the control) using 0.18 mM SA. In pumpkin (*Cucurbita* spp. L), imbibed seed chilling at 4-5°C for 15 d induced flowering in recalcitrant cvs (qualitative effect) while it enhanced crop productivity in the ready to flower cvs (quantitative effect). It is concluded that considerable crop enhancement can be achieved by simple and environment friendly seed pre-sowing treatments at no substantial added production cost.

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