



Response of Fodder Beet Plants Grown in a Sandy Soil to Different Plowing Conditions

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Abstract : The objectives of this research are to studying the effect of different soil moisture, soil depth at plowing, and different plowing speeds on growth, yield and quality of the fodder beet crop in new lands.. The field experiments were conducted during two successive seasons 2014 and 2015 in the experimental farm of National Research Centre at El-Nubaria area, El-Buhaira Governorate, Egypt. Three levels of soil moisture at plowing ($\theta_1=6.68$, $\theta_2=7.88$, $\theta_3=8.86\%$ w/w), two plowing speeds (Speed 1 = 1.78 km/hr and Speed 2 = 9.6 km /hr) and three plowing depth's (10, 20; 30 cm) were used. Data could be summarized as follows: The effect of soil moisture content at plowing, plowing speed, and plowing depth on growth, yield and quality of the fodder beet crop could be put in the following descending order: ($\theta_1>\theta_2>\theta_3$), (Speed2>Speed1) and (depth30>depth20>depth10 cm). The interaction among factors as follows: the maximum and minimum values of growth, yield and quality of the fodder beet crop were (significantly at 0.05 levels) recorded at $\theta_1 \times$ Speed2 \times depth30, and $\theta_3 \times$ Speed1 \times depth10, respectively. It could be concluded that use the conditions of moisture content at plowing $\theta_1=6.68\%$, plowing speed SP2= 9.6 km/hr and plowing D3=10cm were positive effects on fodder beet growth, yield and quality parameters. So it could be expected to maximize the productivity of fodder beet in further seasons and save consumptive fuel, driver salary, time and money by using soil moisture content 6.68% at plowing, speed plowing 9.6km/h and plowing depth 30 cm.

Key words: Speed, Moisture, Plowing, Depth, growth, yield, quality, fodder beet.

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