

EFFECT OF PLANT DENSITY AND POTASSIUM FERTILIZER ON YIELD AND ITS QUALITY OF SOME FLAX GENOTYPES UNDER SANDY SOIL CONDITIONS

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ABSTRACT

Two field experiments were carried out at Ismailia Agric. Res. Station Farm, Ismailia Governorate, Agric. Res. Center (A.R.C.), Egypt during the two successive seasons of 2004/05 and 2005/06 to study the effect of three plant densities *i. e.* 1500, 1750 and 2000 seeds/m² and three potassium levels 24, 48, and 72 kg of k₂o/fad.on the flax genotypes namely Belinka, Sakha1 and S. 2465/3 regarding straw and seed yields in addition to their related characters and the interrelationships among different traits under sandy soil conditions.

Results obtained can be summarized as follow:

1- Belinka variety significantly surpassed the other flax genotypes which produced the highest values of total and technical length per plant, fiber yield per fad, fiber length, fiber percentage and fiber fineness, while Sakha1, variety produced the highest values of straw yield per plant, straw yield per fad. and biological yield per fad. However, the promising strain 2465/3 produced the highest values of main stem diameter, fruiting zone length, number of fruiting branches per plant, number of capsules per plant, number of seeds per capsules, 1000-seed weight, seed yield per plant as well as per fad, seed oil percentage and oil yield per fad.

2- There was a significant increment with increasing plant densities from 1500 seeds up to 2000 seed/m² in most characters studied of straw and seed yields, but stem diameter, straw yield per plant, fruiting zone length, number of fruiting branches per plant, number of capsules per plant, number of seeds per capsule, seed yield per plant and seed oil percentage were decreased significantly as plant density increased. This was true in the two seasons.

3- Applying of potassium fertilizer levels caused significant increase for straw and seed yield characters except with fiber fineness and fruiting zone length which tended to decrease gradually with increasing potassium level.

4- Straw yield per fad. correlated positively and highly significant with straw yield per plant, fiber yield per fad., fiber length, seed yield per fad., oil yield per fad. And 1000-seed seed weight. The correlation coefficient values between seed yield per fad. and each of oil yield per fad., 1000-seed weight and number of capsules per plant were significant and positive.