EFFECT OF PLANTING DATE AND PHOSPHATIC FERTILIZER ON GROWTH AND YIELD OF (LUPINUS TERMIS L.) IN NOBA AREA

BY

Abo-Bakr Ahmed El-Sayed Amin

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By : Abo Bakr Ahmed El-Sayed Amin.

Approved by :

Prof. Dr. M. M. Mannai.

Prof. Dr. A. Abdel Gawad

Prof. Dr. T. B. Fayed

(Committee in Charge)

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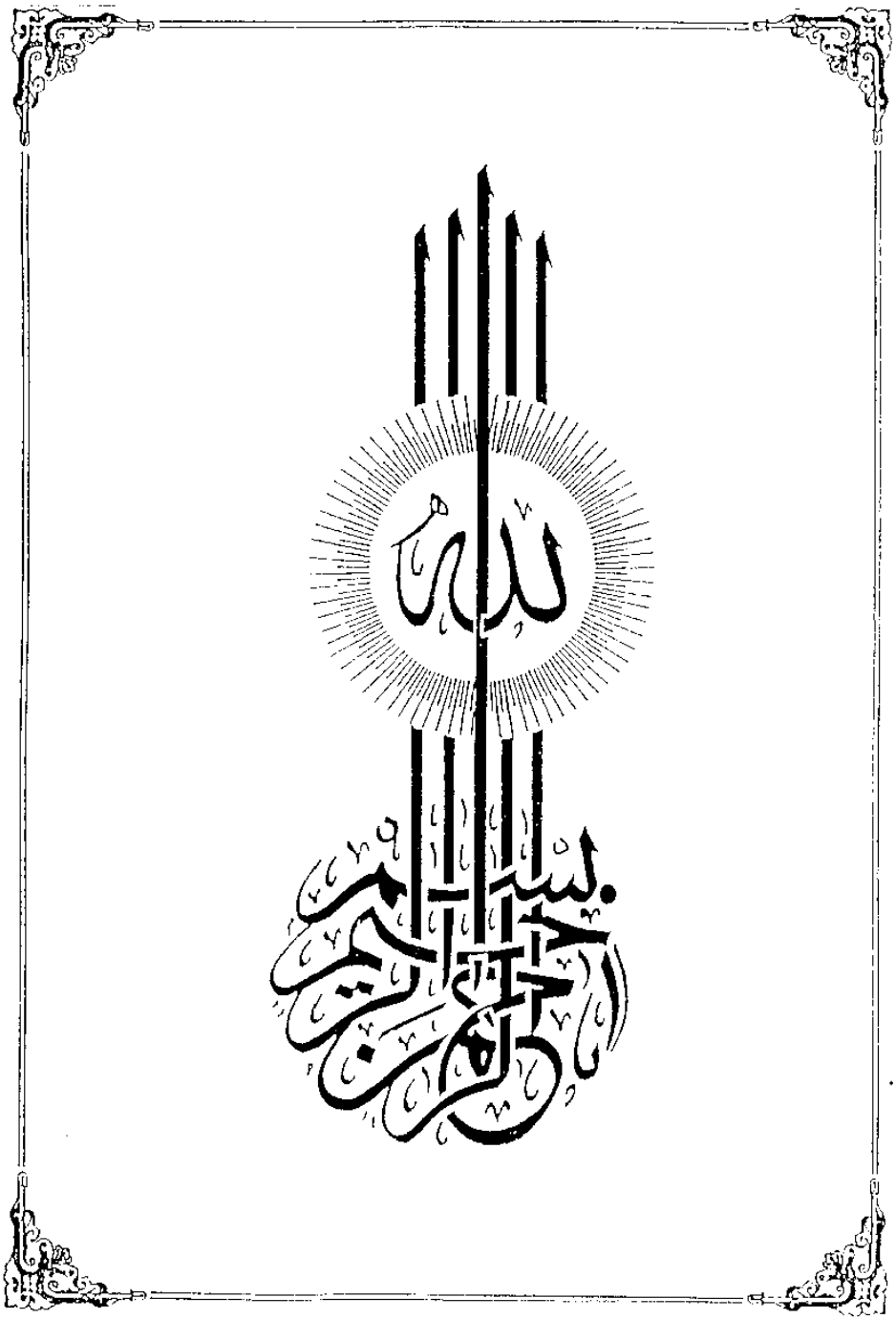

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INTRODUCTION

The teremendous increase in the Egyptian population brings a massive pressure on the Government to redistribute the people out of the Nile Vally. However most of the Nation's population is concentrated in only 4.6 % of country's land area i.e. the areable land about 6 million faddans). Therefore, new reclaimed desert areas should be added to the cultivated land namely : the new Vally, the high Dam lack bank's and some promissing areas which could be cultivated in Sinia peninsula, to meet the increasing needs for food. Leguminous plants amoung which Egyptian Lupin are successfully used as reclaiming crops in such soils, because of its ability to fix atmospheric nitrogen. So soil nitrogen, organic carbon, and improve of soil structure are achieved by growing legumes in newly reclaimed soils. However, Lupin plant is used also in the light textured soil as green manure, and the crop is considered a good source of diatary protein. However, planting date and phosphorus fertilization are among the most important factors affecting seed yield of Lupin crops.

Therefore, the present investigation was designed to illucidate the effect of planting date and phosphatic fertilizer on growth and yield of (Lupinus

termis L.) variety Giza (2), under a very vast area on the ditch bank of the High Dam Lake Kalabsha, this is to open the way and furnish applicable data to cultivate such areas.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

The literature dealing with the effect of planting date, and phosphorus fertilization on growth and yield of Egyptian Lupin (*Lupinus termis* L.) and other legume crops will be reviewed under the following topics :

A. Effect of planting date :

Ali (1969), reported that the highest seed yield of field bean (*Vicia faba* L.) in Egypt was obtained from sowing during the first three weeks of November and yield and its components were decreased by delaying sowing. He also reported that the best yield of seed was obtained by harvesting on April 24th.

Maher (1969), on faba bean, found that the number of pods per plant and straw yield were decreased with delay in planting dates. He showed that seed yield per faddan was significantly affected by the earlist planting dates. The same author (1969), mentioned that the number of branches per plant decreased with delay in planting dates. Sharma (1970), showed that the optimum sowing period for lentil in India was the first fourt nights of October and any delay reduced

yield to a considerable extent. On the other hand, Salih et al. (1973), reported that the highest seed yield of bean was 1.0 - 1.7 t/ha. for October sowing and declined steeply for sowing in November and December. Also, seed yield/plant was positively correlated with number of pods.

Withers (1973), in Newzealand, on Lupinus angustifolius and Lupinus lutes cv. mentioned that number of flowers and pods and seed yields/plant declined with delay in sowing from 3rd August to 22nd September. While the seed yield increased for sowing on 25th October. In Egypt; Hakam and Ibrahim (1974), on Vicia faba, found that the Optimum sowing date ranged from 15 October to 1 November. Whereas, it ranged from 1 November to 15 November for lentils in Upper Egypt.

Goulden (1976), on Lupinus angustifolius, found that autumn sowing produced the highest yields (3.45 - 4.85 t. seed/ha.) and yield component analysis, whereas number of seeds/pod and 100-seed weight were not been generally affected by date of sowing. Autumn sowing greatly increased the number of lateral shoots.

Garside (1977), found that the maximum seed yield was obtained when sown on 17th September of Lupinus

angustifolius. Whereas Abdallah et al. (1977), on lentil showed that sowing date had a significant effect on yield and its components. The highest seed yield was obtained by sowing during the period from 4 to 19 November. While, seed and straw yields were decreased with delay in sowing date. Upadhaya and Saharia (1977), sown lentil (Lens esculenta) in mid or end November, or mid December. They indicated that average seed yields were decreased with delay in sowing date.

Walton (1977), in Australia on Lupinus angustifolius reported that the effect of later sowing on seed yield was as marked, but only when it was delayed until July.

Shalaby and Mohamed (1978) on Vicia faba found that the maximum seed yield was obtained by planting on 8 November and crude protein yield was decreased with delay in sowing. While, the straw yield was increased with delay in sowing.

Icarda's off-Station experimentation (1980) mentioned that sowing 1 month earlier than normal increased seed and straw yields of lentile from 0.64 and 1.60 to 1.09 and 2.67 t/ha., respectively. While Bunting (1981), sown (a) Lupinus albus cv. Kiev and (b) L. angustifolius

cv. Unicrop at 12-day intervals from 13 March to 18 April. The earliest sowing yielded least. He found that the highest seed yield of (a) (2.9 t/ha)was obtained from sowing in late March or early April and that of (b) (2.2 t/ha.) from the April sowing. Humied and Haddad (1981), observed that maximum seed yield was obtained from the earlist planting date, while, the late sowing did not affect yield of lentil of the local cv.

Pandey(1981), sown Vicia faba cv. Biharal on 7 dates between 30 October and 30 January. He found that the number of days to flowering, days to maturity and biomass accumulation decreased with delay in sowing. Also, seed yield was maximum when sown on 30 October and was reduced greatly with delay in sowing beyoned 30 November. Ahlawat et al. (1982), sown lentil on 3 dates. They reported that average seed yields decreased with delay in sowing from 1 to 15 and 30 December. Boundy et al. (1982), on Lupinus angustifolius and Lupinus albus found that delay in planting date reduced dry matter production, seed yield and yield components and lateral branches, but the earliest in sowing date increased total yield components.

Salih (1982) on Vicia faba indicated that seed

yield decreased with delay in sowing from 15 October to 14 November from 3.33 to 1.04 t/ha. He found also that the 1000-seed weight, number of pods/plant and number of seeds/pod were greater at the earlier sowing date. Singh and Saxena (1982) on lentil reported that seed yield decreased with delay in sowing from 30 November and 15 December sowing was 1.69 and 1.55 t/ha., respectively. Walton (1982) concluded that maximum lupin seed yield was obtained by the earliest sowing date, but delaying sowing date decreased growth and yield.

Krarup (1983), on faba bean observed that delay in sowing date reduced fresh yield , fresh pod weight and dry matter and seed yield. Dry matter decreased from 8.92 t to 2.71 t/ha, and seed yield from 2.75 to 0.76 t/ha.

In Egypt, Salih and Ageeb (1983), studied the effect of planting date on yield of (Vicia faba). They found that seed yield decreased with delay in sowing. The same authors (1983) showed that sowing on 25 October. produced a seed yield of 1019 kg, compared with 743 kg obtained by sowing on 24 November. The 1000-seed weight, number of pods/plant and number

of seed/pod were also greater at the earlier sowing date, while 1000-seed weight, and number of seeds/ pod were unaffected by increasing sowing rate.

B. Effect of Phosphorus Fertilization :

Higazy (1968), found an increase in broad bean seed yield by increasing calcium superphosphate from 200 to 400 kg/fad. Mascarenhas et al. (1969), found that seed yield of bean (Phaseolus vulgaris L.) linearly responded to P fertilizer. The highest seed yield was obtained with 100 kg P_2O_5/ha. and P increased the contents of P,K and Ca in the seed.

In Egypt,Shalaby and Khalil (1970), reported that the seed yield of field beans responded significantly to calcium superphosphate and the economic rate was 200 kg/faddan. Moreover, Asif (1971), reported that application of nitrogen generally increased pod yields, but applied P K fertilization level increased the contents of N,P and K in the plant bean (Phaseolus vulgaris L.). Comarovschi (1971), stated that application of 32 kg N + 46 kg P_2O_5/ha. increased seed yield of white and blue Lupins by 16-20 % compared to the control (without fertilizers).