THE EFFECT OF TRANSPLANTING AND SOME CULTURAL PRACTICES ON COTTON PRODUCTIVITY AND FIBER QUALITY IN FAYOUM REGION

THESIS

Submitted in Partial Fulfillment of the

Requirements for the Degree of

MASTER OF SCIENCE

IN AGRONOMY

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1998

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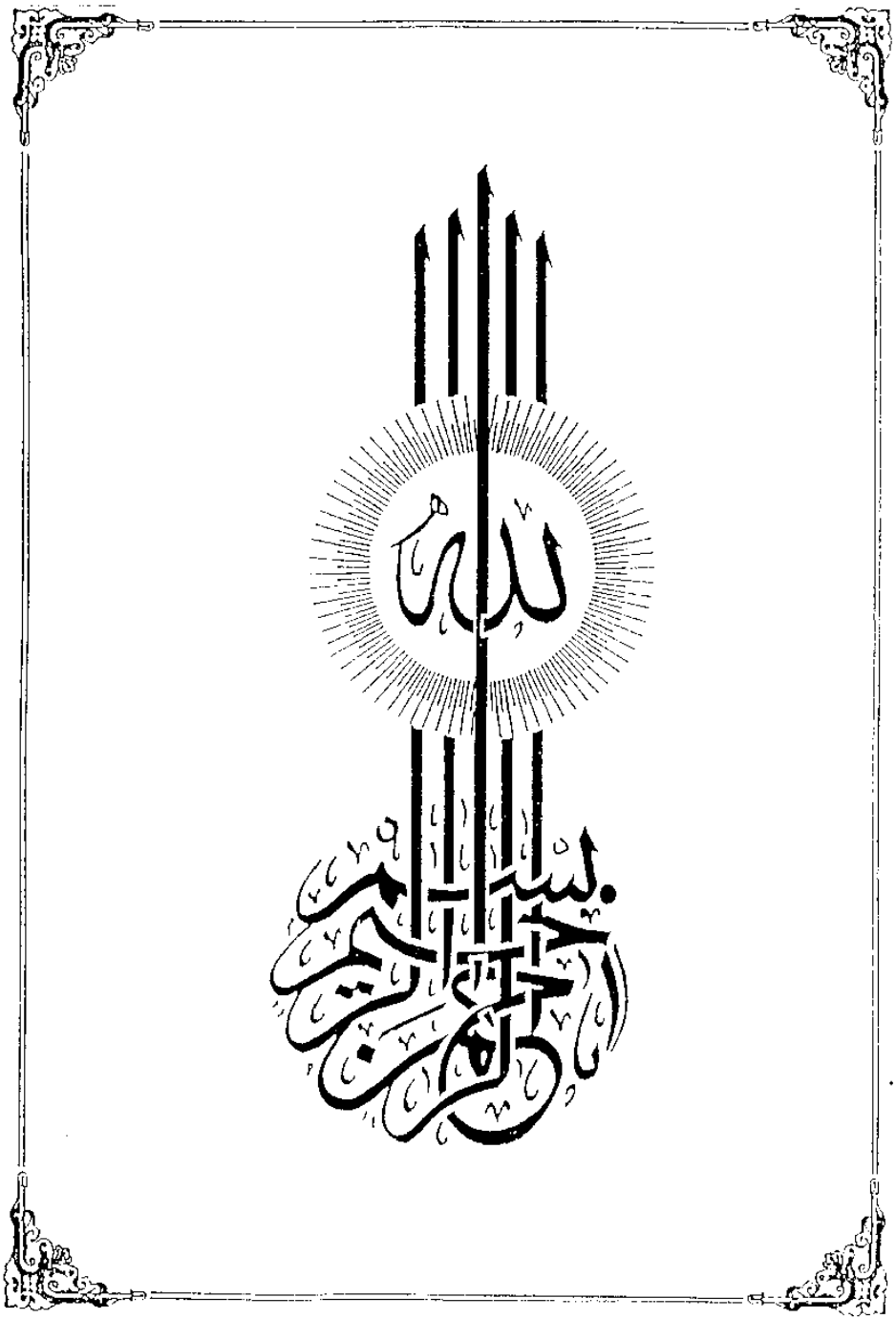

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ABSTRACT

It has become widely recognized that transplanting cotton seedlings would provide ample time to grow a preceding winter crop successfully without much delay in growing cotton. The objective of the present study is to investigate the effect of transplanting cotton seedlings together with two major culture practices i.e. nitrogen fertilization and plant topping on growth , earliness, yield, seed characters and fiber quality properties. The study was carried out at the farm of the Faculty of Agriculture, El- Fayoum ,Cairo University, during 1995 and 1996 seasons. The studied variables were arranged in split- split plot design with five replications. Methods of planting were alloted to the main plot, nitrogen levels to the sub-plot and plant topping to the sub- sub plot. The cotton variety in this study was Giza 75. The obtained results can be summarized as follows:

Plants grown by transplanted seedlings showed significant lower values for the characters i.e. number of survival plants / plot, number of fruiting branches/plant, plant height, node number of the first sympodium, days to first flower appearance, days to first boll opening, percentages of first picking, boll weight, number of bolls / plant, number of open bolls/plant, yield of seed cotton per plant and per feddan, lint and seed indices and fiber properties, as compared to plants resulted from seed planting method.

- Key words: Cotton transplanting, nitrogen fertilization , plant topping .

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REVIEW OF LITERATURE

The pertinent literature deals with the studies conducted to investigate the effect of transplanting, nitrogen fertilizer and topping on cotton plant growth, yield and yield components, besides fiber quality characters, that literature will be presented according to the three following headings:

1- Transplanting

A- Growth and flowering characters:

A-1: Percentage of survival plants/plot:

Christidis (1962) in Greece as well as **Abbas (1981)** , **El-Zaree (1981), Radwan (1988), Imam (1991), El-Sayed (1992), El-Agroudy and Imam (1994a) and Hamed (1995)** , in Egypt, showed that, percentage of survival hills was significantly higher in case of direct seeding as compared with transplanting seedlings while **Helal (1986)** and **El-Shazly (1992)** found that, the character was positively affected by transplanting compared with direct seeding.

A-2: Number of fruiting branches/plant:

El-Zaree (1981), Imam (1991), El-Shazly (1992), Yasseen (1992), Yasseen (1993), Abou-Zaid *et al.* (1995) and Yasseen *et al.* (1995), reported that, number of fruiting branches per plant significantly greater in favour of transplanting compared with seed planting. On the

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contrary, **Radwan (1988), El-Sayed (1992) and Hamed (1995),** in Egypt, working on *Gossypium barbadense* cotton demonstrated that, the character was positively and significantly affected under seeding method. However, **Tantawy (1994),** found that, number of fruiting branches per plant was not significantly affected by methods of planting ordinary seed planting and transplanting.

A-3: Plant height at harvest:

Bodade (1965), in India , Imam (1991) El-Sayed (1992), El-Agroudy and Imam (1994a), Hamed (1995) and Yasseen *et al.* (1995) in Egypt, reported that, plant height showed higher values in transplanting than those obtained from seed planting. In the meantime, **Abbas (1981)** in Egypt, found that, transplanting cotton in about mid of April using 20 days old seedling gave taller plants as compared with late transplanting (April 30). On the other hand, **El-Shazly (1992)** pointed out that, transplanting increased significantly internode length, while plant height and number of internodes decreased by transplanting compared with seed planting method. In contrast, **El-Zaree (1981) and Abbas *et al.* (1983)** found that, the differences between transplanting and seed planting were not significant regarding plant height. While **Tantawy (1994),** showed that, plant height was positively affected in direct seedling method.

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B- Earliness characters:

B-1: Node number of first sympodium:

In Egyptian cotton (*Gossypium barbadense* L) **Radwan (1988), El-Sayed (1992) , El-Shazly (1992), Tantawy (1994) and Hamed (1995)** found that, the first fruiting node initiated at a significantly lower node in transplanting method compared with the normal seed planting. On the other hand, **Imam (1991) El-Agroudy and Imam (1994a) and Hamed (1995)** reported that, the first sympodium was at higher nodes on the main stalk of transplanted cotton plants.

B-2: Days to first flower appearance:

Christidis (1962), in Greece, El-Agroudy and Imam (1994a), in Egypt, found that, transplanting of cotton plants either (*Gossypium hirsutum*) or (*Gossypium barbadense*) induced early flowering, while **El-Shazly (1992), Yasseen (1992), Hamed (1995) and Radwan *et al.* (1995),** indicated that, transplanting delayed days to first flower appearance.

B-3: Days to first boll opening:

Christidis (1962), stated that, transplanted cotton is much earlier than cotton sown by seeding where the differences ranged between 5.2-14.5 days. Also, **Imam (1991) and El-Sayed (1992),** in Egypt, revealed that, number of days to first boll opening was shorter than that obtained

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