5- SUMMARY AND CONCLUSION

The aim of this investigation was to find alternative trays to plastic trays for rice nursery, which ensure low costs with high efficiency.

Four components were investigated through out this study. They were defined as follows :

A- Finding alternative trays to plastic trays for rice nursery :

Two species of local woods were chosen, eucalypt and casuarina. The size of each specimen was 2.5 x 2.5 x 10 cm. Wooden specimens were dried at 105^0C in an oven for 24 hours. It was used 8 treatments of 3 specimens, 7 treatments were soaked in the oil for 7 different periods of one to seven weeks. The 8 th treatment was used as control,.i.e., without oil treatment. Each treatment soaked in water for the period of 21 days. Oil retained and water absorbed by wooden specimens were recorded for oil each one week and for water every 3 days.

B- Nursery experiment :

It was made the wooden trays with same dimensions like the plastic trays, after chosen the proper species of wood and the proper oil soaking period which ensure less absorbed water percentage. Two shapes of the wooden trays bottom were made

perforated and strips. The nursery experiment was carried out and was arranged in a randomized completely block design (RCBD) to study the influence of the oil treatment and the bottom shape for the wooden trays on the seedlings characteristics.

C- Field experiment :

The field experiment was carried out and arranged in a randomized completely block design (RCBD) to study the influence of the bottom for the wooden trays on the performance of the transplanter, i.e., missed and sloped hills (%) and then study the influence of treating wooden trays with oil on grain and straw yield.

D- Economical view :

The aim of the economical study to evaluate the mechanical transplanter system by using plastic trays and wooden trays comparing with the traditional transplanting system.

The nursery and field experiments were carried out in Meet El Deeba Kafr El- Sheikh Governorate. For all trays a rate of 200 g. seed (Giza 177) and 4- row walking transplanter was used.

The main results of the present study can be summarized as follows :

A- Finding an alternative system to plastic trays for rice nursery.

1- Absorbed water percentage without oil soaking (control treatment) :

Eucalypt recorded less absorbed water percentage than casuarina at seven water soaking periods from 3 to 21 days, for eucalypt were 32, 43.9, 52.9, 59.7, 64.8, 69.3 and 73.8 % and for casuarina were 46.2, 58.5, 70.3, 80.5, 88.2, 94.3 and 99.9 %, respectively.

2- Oil retention percentage :

Casuarina recorded more retained oil percentage than eucalypt at seven oil soaking periods from one to seven weeks for casurina were 12.3, 17.6, 23.4, 26.9, 29.3 30.1 and 30.1 % and for eucalypt were 9.4, 13.2, 20.3, 22.5, 23.3, 23.3, and 23.3 %, respectively.

3- Absorbed water percentage with oil soaking :

Eucalypt recorded less absorbed water percentage than casuarina at seven oil soaking periods from one to seven weeks and soaked all periods in water from 3 to 21 days. Such as at seven weeks oil soaking period and then soaked in water from 3 to 21 days. The absorbed water percentage for eucalypt were 5.7,

9.7, 13.1, 15.7, 17.1, 18.4 and 19.3 %, and for casuarina were 23.2, 29, 34.4, 39.3, 42.9, 46.3 and 48.7 %, respectively.

B- Nursery experiment :

1- Seedlings height (cm) :

Seedlings height were measured weekly for a period of three weeks. The results indicated that there is no significant difference between the three used trays for the all measuring period. The seedlings height for the plastic trays, perforated wooden trays and strips wooden tray, were 4.33, 4.42 and 4.39 cm. for the first week, 8.36, 8.34 and 8.32 cm. for the second week and were 13.12, 13.18 and 13.11 for the third week, respectively.

2- Root length (cm) :

Root length was measured after three weeks from sowing. The results indicate that there is no significant difference between the three used tray. The root length for the plastic tray, perforated wooden trays and strips wooden trays were 5.08, 5.09 and 5.07 cm, respectively.

3- Number of leaves/ seedling :

There is no significant difference between the three used trays. The number of leaves/ seedling for the plastic tray,

perforated wooden trays, and strips wooden trays, were 2.4, 2.3 and 2.3 leaves, respectively.

4- Dry weight of seedlings (mg.) :

There is no significant difference between the three used trays. The dry weight of seedlings for the plastic trays, perforated wooden trays and strips wooden trays were 22.3, 23.3 and 23.7 mg., respectively.

5- Seedlings density (seedlings/ cm2) :

The effect of the oil and the bottom shape on the seedlings density were not significant for the three used trays. The seedlings density for the plastic tray, perforated wooden tray and strips wooden trays were 7.3, 7.1 and 7.2 seedlings/ cm^2, respectively.

C-Field experiment

1- The missed and sloped hills percentage :

The effect of the bottom shape for the three used trays is not significant on the missed and sloped hills percentage, for the plastic trays, perforated wooden trays, and strips wooden trays were 13.89, 12.96 and 14.81 % for the missed hills percentage and were 6.48, 8.33 and 7.4 % for the sloped hill, percentage, respectively.

2- Grain and straw yield (t/ fed.) :

The effect of the oil treatment for the wooden trays is not significant on the grain and straw yield. Grain yield for the plastic trays and perforated wooden trays and strips wooden trays were 2.583, 2.646 and 2.821 t/ fed. and the straw yield was 3.255, 3.29, 3.325 t/ fed., respectively.

D- Economical view :

Mechanical transplanting recorded the lowest cost was 152.75 LE/ fed. by using wooden trays, followed by plastic trays and traditional transplanting where cost were 247.75 and 292 LE/ fed., respectively.

It is recommended to use eucalypt wood as alternative system to plastic trays with six weeks of the oil soaking period.