V. SUMMARY AND CONCLUSION

The present study was carried out during two successive 1998 and 1999 seasons. This work was undertaken to evaluate 5 Pecan varieties i.e Wichita, Western Schelly, Cherokee, Sioux and Mohawk, were grown at Expt. Res. St. of EL-Kheiria Barrage Belong to Ministry of Agriculture in Qalubia Governorate.

This evaluation included phynological phases, leaf mineral content, vegetative growth, floral characteristics, fruit set fruiting and both fruit physical and chemical characteristics. Data obtained could be summarized as follows:

(1) Phynological phases

The obtained results showed clearly a varietal difference of bud burst. Hence Wichita variety ranked first as the earliest one while Mohawk variety came latest in this respect.

The flowering started earlier in second season (April 15th - April 20th) as compared to first one 1998 (April 19th - April 28th). Cherokee variety was the earliest one in fruit set (May 5th and May 4th in 1998 and 1999 seasons respectively). While the latest one in this respect was Western Schelly May 18th). The average periods from flowering till fruit set ranged from 23 to 27 days.

The earliest variety in harvesting date had Western Schelly (October 2th), while the latest one had Sioux variety October 27th. Average period from fruit set to harvesting date ranged from 145 in Western Schelly to 171 days in Sioux variety. Moreover the average

period from bud burst to harvesting date was 189 days for Western Schelly, 197 in Cherokee, 205 in Sioux and 208 days in Wichita.

(2) Seasonal changes of leaf mineral content

(2-1) Nitrogen content

The obtained results clearly showed that early samples collected in May and June were generally the richest in their N% content comparing with late samples at July and August, the differences between samples were significant. It means that leaf N percentage decreased as the growing season advanced. Moreover the leaf N content was less than normal range for producing normal yield.

(2-2) Phosphorus content

There was a varietal differences in leaf phosphorus percentage. Concerning the sampling late, it was quite evident to be noticed that there was noticeable variation between sampling dates. However the leaf P content was within the adequate range for normal producing .

(2-3) Potassium content

The obtained data showed a varietal differences in their potassium content. The leaf sampling date did not affect its potassium level, these data also indicate that the leaf content of K% was lower than adequate level for producing good yield.

(2-4) Calcium content

The leaf calcium content was increased as the growing season was advanced. Moreover concerning the samples collected on July

and August, data showed that leaf calcium content of all studied varieties was at the desired calcium level .

(2-5) Magnesium content

The obtained data showed a variation between studied varieties in its magnesium percentage. Nevertheless variation in this respect in respires to sampling dates was so small to be significant. Generally the leaf magnesium content was at the desired level efficient for producing a normal crop.

(2-6) Zinc content

The leaf zinc content as ppm significantly increased from May up to July then decreased in samples collected at August. Also there are a varietal differences in this respect. However the obtained results revealed that leaf zinc content was within the normal range (50 to 100 ppm).

(2-7) Iron content

The leaf iron content varied greatly between varieties. Moreover the leaf iron content as ppm was increased as the growing season advanced up to July then decreased in August sample. However the leaf iron content in studies varieties were within the normal range (50 to 300 ppm).

(3) Shoot growth and leaf characteristics

There was a significant varietal difference in shoot, petiole, rachis length and number of leaflets of leaf. The shoot growth rate was more pronounced during the period from April 15th up to May 1st in the first season, while in the second season from May 1st up

to 31th, after this the growth rate was gradually decreased up to June 15th in which the growth was stopped.

(4) Blooming characteristics

Coincidence between pollen shedding and female flower receptivity in varieties under study. It means that the varieties under study belong to monogamy varieties. The obtained data revealed that the average percentage of germinated was low and ranged from 46% in Western Schelly to 55% in Cherokee variety.

(5) Fruit set and fruiting

The initial percentage fruit set of the studied varieties ranged from 85 to 97.14 % during the two season of study. This is mean that the four studied varieties was high. Moreover Mohawk variety did not flower during the two seasons of study. The final fruit set (fruiting) varied also in different varieties. It ranged from 42.5 to 66.67% for studied varieties during the two seasons of study.

(6) Fruit yield

There was a varietal significant difference in yield, Cherokee variety had the highest nut yield (10.8 Kg/tree and 1814.40 Kg/feddan), followed in a descending order by Western Schelly (9.70 Kg / tree and 1629.60 Kg/feddan), Wichita (7.45 Kg/tree and 633.25Kg/feddan) and the lowest one in this respect had Sioux variety (9.7 kg / tree and 407.40 Kg / feddan).

(7) Physical characteristics

The largest fruits were obtained from Wichita and Cherokee varieties, while the smallest one had Sioux and Western Schelly, consequentially the heaviest nut weight varieties (Wichita and

Cherokee), had the lower number of nuts per kilogram. The reverse was true with both Sioux and Western Schelly varieties.

(8) Kernel chemical content

The average of two seasons showed that Cherokee and Western Schelly variety had the highest oil content 75.70% and 75.0 % respectively, while the lowest one in this respect was Wichita (68.50%). Wichita had the highest carbohydrate content (17.88%) on the contrary Sioux was the lowest one in this respect (13.57%). The protein % varied from 7.42 in Wichita to 9.31 % in Sioux variety.

(9) Kernel mineral content

The average kernel phosphorous % ranged from 0.30 % in Cherokee variety to 0.57 % in Sioux variety, potassium percentage varied from 0.42 % in Western Schelly to 0.64 % in Wichita variety, calcium was ranged from 0.90 % in Wichita variety to 1.1 % in Cherokee, while magnesium kernel content was higher in Sioux variety (0.85 %) and lower in Wichita variety (0.61 %). The highest zinc content as ppm had Cherokee variety (81.6 ppm), on the other hand Wichita variety had the lowest zinc (71.2 ppm). The average kernel iron content as ppm varied from 244.5 ppm in Western Schelly to 281.5 ppm in Sioux.

From the previous results we may conclude that Cherokee and Western Schelly varieties were recommended to grow in Egypt for his high yield with good quality.

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