Arab Univ. J. Agric. Sci., Ain Shams Univ., Cairo, 13(2), 471-480, 2005

IMPROVING CANINO APRICOT TREES PRODUETIVITY BY FOLIAR SPRAY WITH BORON, GA_3 AND ACTIVE DRY YEAST [30]

Hassan[1], H.S.A.; E.A.M. Mostafa[1] and Dorria M. Ahmed[1]

ABSTRACT

The present investigation was carried out during two successive seasons of 2002 and 2003 on Canino Apricot trees budded on seedlings rootstock at a private orchard located at El-Khatatba district, Menofia Governorate Egypt. Trees were sprayed at full-bloom stage with boron, GA_3 and active dry yeast at different concentration alone or in their combinations. Results showed that spraying Boron, GA_3 and active dry yeast either singly or in combination caused a remarked promotion in leaf mineral status, yield and fruit quality compared with control treatment Combined application solution of 400ppm Boric acid, 40ppm GA_3 and 2% active dry yeast at full bloom stage gave the best results with regard to the yield and fruit quality of Canino Apricot.

Key words: Boric acid, Gibberellic acid, Active dry yeast, Apricot cv. Canino, Fruit quality, Leaf mineral content.

INTRODUCTION

The name "Apricot" Comes from the Latin word "Praecoqum" which means early ripe. It is a number of the plum family (Rosacae) and has the botanical name "*Prunus armeniaca* L." it was mentioned that apricot was known in China three thousand year before Christ.

Total cultivated area reached about 20091 feddans the fruiting area is about 14800 feddans producing about 103070 tons according to Statistics of the Ministry of Agriculture in 2003.

Boron is an essential trace element required for optimal growth and development of higher plants. Boron is important in pollen germination and pollen tube growth resulting in successful fruit setting **(Stanle and Lichtenberg, 1963).**

Boron fertilizer increased B concentrations in flowers, promoted pollen germination, reduced the percentage of fall of flowers and fruits of apricots, increased the percentage of fertile fruits and thus increased yield. Therefore, B fertilizers may increased yield, particular when plant are grown on sandy soil with a low content of valiable B as shown by **Yogaratnam & Johnson 1982 and Nyomova & Brown 1997.**

Many investigators studied the role of GA_3 on fruit set and yield of pear trees and found a stimulating effect on number

1- Pomology Department, National Research Centre, El-Behoos St., Dokki, Cairo, Egypt

(Received September 9, 2004)
(Accepted November 20, 2004)

of fruits/tree and final yield **(Wertheim *et al* 1973; Antognozzi & Jackson 1975; Embleton *et al* 1973; Agusti *et al* 1982; Abou Raya *et al* 2000 and Mostafa *et al* 2001)** on pear trees.

The various positive effect of active dry yeast were attributed to its content of different nutrients, higher percentage of proteins, Large amount of vitamin B and natural growth hormones namly, cytokinins. Also application of active dry yeast is very effective in releasing CO_2 **(Ferguson *et al* 1987)** which improves net photosynthesis **(Ferguson *et al* 1987; Idso *et al* 1995; Hegab *et al* 1997; Mansour 1998; Attala *et al* 2000 and Eman *et al* 2002)**.

The present investigation was therefore undertaken to study the influence of spraying Boron, CA_3 and active dry yeast alone or in combination on leaf mineral status, yield and fruit quality of Canino Apricot trees grown under sandy soil.

MATERIAL AND METHODS

The present investigation was carried out during two successive seasons of 2002 and 2003 on Canino apricot trees budded on seedlings rootstock, at a private orchard located at EL-Khatatba district, Minufiya Governorate Egypt.

Trees were about 8 years old planted at 5 × 6 meter apart in sandy soil. The selected trees were disease free, uniform in shape and size, the trees were under drip irrigation system and received the normal cultural practices usually applied in commercial orchard.

A completely randomized block design was used where the following treatments were involved:

1- Control (untreated trees).
2- Spraying boric acid solution at 200 ppm.
3- Spraying boric acid solution at 400 ppm.
4- Spraying GA_3 solution at 20 ppm.
5- Spraying GA_3 solution at 40 ppm.
6- Spraying Active dry yeast solution at 1%.
7- Spraying Active dry yeast solution at 2%.
8- Spraying solution of Boric acid at 200 ppm + GA_3 20 ppm + active dry yeast at 1%.
9- Spraying solution Boric acid at 400 ppm + GA_3 40 ppm + active dry yeast at 2%.

Dry yeast was activated by dissolving the definite amount in worm water (38°C), adding sugar at the same rate and kept over night for nearly 12 hours before spraying.

Dry yeast contained 34.85% protein, 7.55% ash, 6.54% glycogen, 2.9% fats and 4.92% cellulose.

All treatments were replicated three times where one tree per each treatment was sprayed at full bloom in each season with solution till run off.

Triton B as a wetting agent at 0.1% concentration was added to all the spraying solutions as well as tap water in the control. During both seasons data were recorded for the following parameters:

1- Leaf mineral status

In early June of each season samples of twenty leaves from middle part of shoot (according to **Chuntanaparb and Cummings (1981)** were selected at random from each replicate, weighed

grounded and finally digested to determine the percentage of N, P and K according to **Wilde *et al* 1985.** Determination was carried out on dry weight basis.

2- Yield

The yield expressed as weight of fruit/ tree attained the harvest stage at the end of May was determined in both seasons.

3- Fruit physical and chemical characteristics

3.1. Fruit physical characteristics

Sample of 20 mature fruits were taken from each replicate tree of each treatment and the following characteristics were determined:

1. Average fruit weight (gm).
2. Average fruit volume (cm^3).
3. Specific grafity (gm/cm^3).
4. Average fruit length and diameter (cm).
5. Fruit shape index (L/D).
6. Fruit firmness was determined as $Lb/inch^2$ by using a Magness Taylor pressure tester 5/16 inch. Plunger.

3.2. Fruit chemical characteristics

1. Total soluble solids of fruit Juice (TSS%) was measured by using a hand refractometer **(A.O.A.C 1985)** .
2. Fruit acidity the percentage of total acidity in fruit juice was determined as malic acid according to **(A.O.A.C 1985).**
3. Total soluble solids / acid ratio: was calculated.

Statistical analysis

The obtained data were subjected to analyses of variance and Duncan multiple range test used to differentiate means **(Duncan, 1955).**

RESULTS AND DISCUSSION

1- Leaf N, P and K contents

It is evident from the data in Table (1)that single or combined application of 200 or 400 ppm boric acid, 20 or 40 ppm GA_3 and 1 or 2% active dry yeast, significantly improved leaf Nitrogen percentage compared with the control in both seasons.

The promotion occurred was coincided with the increase in the concentrations of the three studied materials. Combined applications of the three investigated materials were preferable than single application of each. The highest N percentage were obtained with spraying boric acid at 400 ppm + GA_3 at 40 ppm + 2% active dry yeast in the two seasons.

Concerning phosphorus percentage in leaves; results in Table (1) revealed that different treatments tended to increase P content in the leaves as compared with control. The increment in phosphorus% developed insignificant between treatments in both seasons.

As for potassium% in leaves, results in Table (1) cleared that it was significantly affected by different treatments as compared with the control. The highest K% in leaves were recorded by spraying trees with boric acid at 200 ppm + GA_3 at 20 ppm + 1% active dry yeast in both seasons.

Table 1. Effect of foliar spraying with Boric acid, GA_3 and active dry yeast on leaf mineral status of Canino Apricot trees during 2002 and 2003 seasons.

Treatments	N%		P%		K%	
	2002	2003	2002	2003	2002	2003
Control	1.96^{c}	1.93^{d}	0.17	0.18	2.30^{g}	2.33^{e}
Boric acid at 200 ppm	2.60^{b}	2.63^{c}	0.19	0.20	2.46^{f}	2.43^{de}
Boric acid at 400 ppm	2.66^{b}	2.73^{bc}	0.20	0.20	2.56^{ef}	2.63^{cd}
GA_3 at 20 ppm	2.83^{ab}	2.86^{abc}	0.20	0.20	2.66^{de}	2.73^{c}
GA_3 at 40 ppm	2.93^{a}	2.96^{ab}	0.21	0.21	2.76^{cd}	2.76^{bc}
Active dry yeast 1 %	2.76ab	2.96ab	0.22	0.22	2.90ab	2.83abc
Active dry yeast 2 %	2.76^{ab}	2.96^{ab}	0.22	0.22	2.90^{ab}	2.83^{abc}
Boric acid 200 ppm + GA_3 20 ppm + yeast 1%	2.93^{a}	3.03^{a}	0.23	0.23	3.00^{a}	3.03^{a}
Boric acid 400 ppm + GA_3 40 ppm + yeast 2%	2.96^{a}	3.06^{a}	023	0.23	2.96^{ab}	3.00^{ab}

Means having the same letters (s) in each column are insignificantly differ at a level of 5%

2- Yield

Data presented in Table (2) cleared that yield as weight (kg) of fruits per tree was significantly affected by different treatments than that of control in the two seasons. The highest yield were recorded from trees sprayed with Boric acid at 400 ppm + GA_3 at 40 ppm + active dry yeast at 2% in both seasons. Meanwhile, the lowest yield was recorded from the control treatment trees.

3- Fruit physical and chemical characteristics

3-1- Fruit characteristics

It is evident from the data given in Table (2) that fruit weight and volume were significantly increased by different treatments as compared with the control trees, during both seasons of such study. The heaviest and largest fruit was obtained by spraying boric acid at 400 ppm + GA_3 at 20 ppm + active dry yeast at 2%

Table 2. Effect of foliar spraying with Boric acid, GA_3 and active dry yeast on yield, fruit weight, fruit volume and specific grafity of Canino Aprioct trees during 2002 and 2003 seasons.

Treatments	Yield kg/tree		Fruit weight (gm)		Fruit volume (cm^3)		Specific grafity	
	2002	2003	2002	2003	2002	2003	2002	2003
Control	23.45^{f}	22.80^{c}	26.89^{d}	25.10^{c}	26.87^{e}	24.83^{d}	0.99	1.00
Boric acid at 200 ppm	29.01^{cd}	26.91^{b}	30.27^{c}	29.71^{b}	29.44^{de}	27.50^{cd}	1.02	1.07
Boric acid at 400 ppm	30.84^{ab}	29.02^{a}	29.39^{cd}	32.29^{b}	30.55^{cd}	31.67^{bc}	0.96	1.02
GA_3 at 20 ppm	27.77^{de}	26.40^{b}	29.53cd	32.47^{b}	28.89^{de}	32.50b^{c}	1.01	0.99
GA_3 at 40 ppm	29.43^{bc}	28.92^{a}	33.55^{ab}	38.97^{a}	33.60^{b}	39.17^{a}	1.02	1.03
Active dry yeast 1%	27.30^{e}	26.14^{b}	31.57^{bc}	32.88^{b}	31.53^{bcd}	32.50bc	0.99	1.20
Active dry yeast 2%	29.09^{cd}	28.59^{a}	32.00^{bc}	31.60^{b}	33.20^{bc}	32.50b^{c}	0.96	0.97
Boric acid 200 ppm + GA_3 20 ppm + yeast 1%	30.18^{abc}	29.11^{a}	32.47^{bc}	33.02^{b}	32.27^{bc}	33.33^{b}	1.00	0.98
Boric acid 400 ppm + GA_3 40 ppm + yeast 2%	30.98^{a}	29.27^{a}	35.73^{a}	38.20^{a}	36.33^{a}	42.00^{a}	0.98	0.89

Means having the same letters (s) in each column are insignificantly differ at a level of 5%

in both seasons. The values were (35.73, 38.2gm) for fruit weight and (36.33, 42.0 cm^3) for fruit volume in the first and second seasons, respectively. On the other hand control treatment gave the lowest fruit weight and volume since they were (26.89, 25.1 gm) and (26.87 – 24.83 cm^3) in both seasons, respectively.

Specific grafity was not affected significantly by different treatments and there was no constant trend due to different treatment in the two seasons.

3- Fruit dimension, shape index and firmness

Data in Table (3) revealed that, fruit length was not affected significantly by different treatments in the first season. Meanwhile, in the second one treatments

Table 3. Effect of foliar spraying with Boric acid, GA_3 and active dry yeast on fruit length, fruit width, fruit shape index and fruit firmness on Canino Apricot trees during 2002 and 2003 seasons.

Treatments	Fruit length (cm)		Fruit width (cm)		Fruit shape index		Fruit firmness Lb/inch^2	
	2002	2003	2002	2003	2002	2003	2002	2003
Control	3.67	3.35^{c}	3.60^{c}	3.33^{c}	1.01	1.00	12.17^{c}	13.17^{c}
Boric acid at 200 ppm	3.77	3.70^{abc}	3.78^{b}	3.58^{b}	0.99	1.03	14.67^{b}	15.50^{a}
Boric acid at 400 ppm	3.77	3.67^{abc}	3.82^{ab}	3.65^{ab}	0.98	1.00	15.83^{a}	16.03^{a}
GA_3 at 20 ppm	3.77	3.65^{abc}	3.77^{bc}	3.67^{ab}	0.99	0.99	15.77^{a}	15.87^{a}
GA_3 at 40 ppm	3.83	4.00^{a}	3.94^{a}	3.86^{a}	0.96	1.03	15.53^{a}	15.90^{a}
Active dry yeast 1%	3.69	3.58^{bc}	3.667^{bc}	3.70^{ab}	1.00	0.96	14.67^{b}	14.83^{b}
Active dry yeast 2%	3.82	3.52^{bc}	3.66^{bc}	3.51^{bc}	1.04	0.99	14.60b	14.63^{b}
Boric acid 200 ppm + GA_3 20 ppm + yeast 1%	3.80	3.75^{ab}	3.76^{bc}	3.58^{b}	1.00	1.04	14.40^{b}	14.43^{b}
Boric acid 400 ppm + GA_3 40 ppm + yeast 2%	3.68	3.73^{ab}	3.80^{ab}	3.75^{ab}	0.96	0.99	14.67^{b}	14.80^{b}

Means having the same letters (s) in each column are insignificantly differ at a level of 5%

significantly affected fruit length The highest fruit length were recorded by spraying GA_3 at 40 ppm since it was 3.83, 4.0 cm in both seasons, respectively.

As fruit diameter, results in the same Table cleared that, all treatments had increased fruit diameter as compared with the control in the two seasons.

Spraying GA_3 at 40 ppm showed the highest fruit diameter (3.94cm in the first season and 3.86cm in the second one).

Fruit shape index (L/D) ratio was not affected significantly by different treatments and there was no clear trend developed for treatments in both seasons of study.

Fruit firmness values in Table (3) proved that all treatments significantly increased fruit firmness in the two seasons when compared with the control. However, spraying boric acid at 400 ppm recorded the highest fruit firmness followed by GA_3 at 20 or 40 ppm in the first

and second seasons, respectively. On the other hand, control treatment recorded the lowest fruit firmness value, during both seasons of such study.

Fruit chemical characteristics

Total soluble solids%

Data presented in Table (4) show that all treatments affected significantly TSS% in fruit juice in both seasons as compared with those of the control. The highest TSS% was obtained by spraying trees with boric acid at 400 ppm in both seasons. Meanwhile, the lowest TSS% was recorded due to control treatment.

As for total acidity% of fruit juice it was decreased significantly by different treatments as compared with those the control. The lowest total acidity% (fruit juice was recorded when trees were spraying with active dry yeast at 1% in both seasons. While the highest total acidity% was recorded for the control treatment since it was 2.03% in both seasons.

Table 4. Effect of foliar spraying with Boric acid, GA_3 and active dry yeast on TSS%, acidity% and TSS/acid ratio of Canino Apricot trees during 2002 and 2003 seasons.

Treatments	TSS%		Acidity %		TSS/acid	
	2002	2003	2002	2003	2002	2003
Control	14.43c	14.17c	2.03a	2.03a	7.10b	6.98c
Boric acid at 200 ppm	15.63a	15.77a	1.89bcd	1.91bc	8.26a	8.24a
Boric acid at 400 ppm	16.03a	16.00a	1.89bcd	1.92bc	8.45a	8.30a
GA_3 at 20 ppm	14.90b	14.90b	1.94bc	1.96b	7.68ab	7.59b
GA_3 at 40 ppm	15.03b	14.97b	1.95b	1.96b	7.71ab	7.63b
Active dry yeast 1%	15.60a	15.73a	1.86d	1.89c	8.37a	8.29a
Active dry yeast 2%	15.80a	15.87a	1.92bcd	1.90bc	8.23a	8.34a
Boric acid 200 ppm + GA_3 20 ppm + yeast 1%	15.70a	15.87a	1.88cd	1.91bc	8.35a	8.31a
Boric acid 400 ppm + GA_3 40 ppm + yeast 2%	15.80a	15.87a	1.92bcd	1.90bc	8.21a	8.34a

Means having the same letters (s) in each column are insignificantly differ at a level of 5%

Regarding the TSS/acid ratio, it was affected significantly by different treatments. The highest TSS/acid ratio was recorded by spraying boric acid at 400 ppm in the first season, while spraying active dry yeast at 2% alone or in combination with boric acid at 400 ppm + GA_3 at 40 ppm recorded the highest TSS/acid ratio in the second seasons.

DISCUSSION AND CONCLUSIONS

The general positive effects of applying active dry yeast on growth, nutritional status of trees and productivity could be attributed to its content of different nutrients, higher percentage of proteins, large amount of vitamin B and the natural plant growth hormone mainly cytokinins. In addition, application of active dry yeast was very effective in releasing CO_2 which reflected on improving net photosynthesis **(Larson *et al* 1962; FAO, 1971; Ferquson *et al* 1987 and Idso *et al* 1995).**

The same authors suggested that various positive effects of applying active dry yeast on growth, nutritional status of trees and productivity could be attributed to is content of different nutrients and higher values of vitamins, specially vitamin B which plays a key role in improving growth and controlling the incidence of fungi diseases. In addition, respect active dry yeast was found to improve the nutritional status, yield and fruit physical and chemical properties of Anna apple trees **(Mansour, 1998).** Moreover, **Attala *et al* 2000** found that applying dry yeast as a biostimulant at the rate 2.48 gm/L had a beneficial effect on fruit set and fruit drop which had an impact on yield and fruit quality of Le conte pear trees.

The positive effect of GA_3 on weight and volume of pear fruit in the same line with those obtained by **Higazi *et al* 1983.**

In additions, **Abou Raya *et al* 2000** found that pear trees sprayed with 10 ppm GA_3 at full bloom increased fruit weight and size. In this respect **Mostafa *et al* 2001** found that spraying Le conte pear trees with 50 ppm GA_3 increased N, P and K in leaves, increased yield and improved fruit quality as well as **(**weight, volume, dimensions and TSS.

Moreover, Boron is important in pollen grain germination and pollen tube growth resulting in success full fruit setting **(Stanle and Lichtenberg, 1963).**

In addition, **Yang *et al* 1999** found that apricot trees fertilization with boron promoted pollen germination increased the fertility percentage and this increased yield. In this respect **Eman *et al* 2002** found that boric acid at 0.1% spray on Annona flowers increased percentage of fruit set and retention, and significantly increased fruit quality.

From the abovementioned results it could be concluded that Canino Apricot trees grown under sandy soil conditions greatly respond to foliar spraying with boric acid at 400 ppm in combination with GA_3 at 40 ppm + active dry yeast at 2% once at full bloom, where it increased N, P and K% in the leaves in both seasons, increased yield (kg/tree), and improved fruit weight and volume.

REFERENCES

Abou Raya, M.S.; E.A.M.; Mostafa; M.M.M. Abd EL-Migeed and M.M.S. Saleh, (2000). Effect of Paclobutrazol and GA_3 foliar sprays on mineral content, yield and quality of "Le Conte" pear trees grown under Rafah conditions ***Assuit J. Agric. Sci., 31 (2): 39 – 48, Egypt.***

Agusti, M.F.; M. Garcia and J.L. Guardiola (1982). Gibberellic acid and fruit set in sweet orange. ***Scientia Hort., 17: 257–264.***

Antognozzi, E. and J.E. Jackson (1975). The effect of orthonil and GA_3 on fruiting in the cv. Conference pear. Rivistadella ortofloro frullico Hura Italian. 59 (1) 1 – 9 ***[C.F. Hort. Abst. 45 : 169).***

A.O.A.C. (1985). ***Official Methods of Analysis. pp. 490-510.*** Association of Official Analytical Chemists. Washington, D.C.

Attala, Eman S.; Amal M. El-Seginy and G.T Eliwa (2000). Response of Le Conte pear trees to foliar applications with active dry yeast**.** ***J. Agric. Sci. Mansoura Univ., 25(12): 8005–8011, Egypt.***

Chuntanaparb, N. and G. Cummings, (1981). Seasonal trends in concentration of Nitrogen. Phosphorus, Potassium, Calcium and Magnesium and peach. ***J. Amer. Soc. Hort. Sci., 79: 6933-6936.***

Duncan, D.B. (1955). Multiple range and multiple "f" tests. ***Biometrics, 11: 1–42.***

Eman A.A. Abd El-Moniem, Sanaa Ebeed; A.M. Gomaa and R.G. Stino (2002). Effect of spraying with boric acid, GA_3, Amactone, activated yeast and sucrose on Abd El-razik Annona fruit set, and quality. ***Zagazig J. Agric Res. 29 (5): 1579–1590, Egypt.***

Embleton, T.W.; W.W. Jones and C.W. Coggins, Jr. (1973). Aggregate effect of nutrients and Gibberellic acid on "Valencia" orange crop value. ***J. Amer. Soc. Hort. Sci., 98, (3): 281–285.***

F.A.O. (1971). ***FAO Production Year Book, 446 pp.*** Food and Agr. Organization of united Nation FAO, Rome, Italy.

Ferguson, J.J.; W.T. Avigne; L.H. Allen and K.E. Koch. (1987). Growth of CO_2 enriched sour orange seedlings treated with gibberellic and cytokinins. ***Proc. Florida state Hort. Soc. 99: 37–39.***

Hegab, M.Y.; F.F. Ahmed and A.H. Ali (1997). Influence of spraying active dry yeast on growth and productivity of Valencia orange trees (C*itrus sinensis*). ***Proc. Of the 1st Sci. Conf. of Agric Sci. Fac. Agric., Asssiut Univ. Vol. 1: 73–85, Egypt.***

Higazi, A.M.; M.H. El-Hagah; S.Z. EL-Naggar and A.A. Kassem (1983) Physico-chemical characters of Le-Conte pear fruits in relation to gibberellic acid effects. ***Minufiya, J. Agric. Res. 7: 281–292, Egypt.***

Idso S.B.; K.E. Idos and K.K. Hoober (1995). Effect of atmospheric CO_2 enrichment of foliarmethanol application on net photosyne- thesis of sour orange trees (C*itrus aurantium*) leaves. ***Amer. J. Botany 82 (1) : 26 – 30.***

Larson, P.; A. Herbo; S. Klongson and T. Ashein (1962). On the biogenesis of some compounds in *Acetobacter xyliam*. ***Physiol. Plant. 15 : 552 – 565.***

Mansour, A.E.A. (1998). Response for Anna apple to some biofertilizers. ***Egypt. J. Hort. 25 (2): 241–251.***

Ministry of Agric. A.R.E. (2003). Acreage and total production of Agric. Crops in A.R.E. ***Bull. Agric. Econ. and Statistics (In Arabic), p. 298.***

Mostafa, E.A.M.; M.M.S. Saleh and M.M.M. Abd-El-Migeed (2001). Improving Le Conte pear trees productivity by spraying GA_3 and sucrose. Arab Univ. **J. Agric. Sci. Cairo, 9, (1): 373 – 385.**

Nyomova, A.M.S. and P.H. Brown (1997). Fall foliar applied boron increases tissue boron concentration and nut set almond. **J. Amer. Soc. Hort. Sci. 122 : 405 – 410.**

Stanle, R.G. and E.A. Lichtenberg (1963). The effect of various boron compounds on *in vitro* germination of pollen. ***Physiol. Plant. 16 : 337–346.***

Wertheim, S.J.; F. Nijssee and M.L. Joossee (1973). Attention for gibberellin spraying. **Fruitteelt, 63 (16): 413. (C.F. Hort. Abst. 43: 7461).**

Wilde, S.A.; R.B. Corey; J.G. Lyer and G.K. Viogt (1985). ***Soil and Plant Analysis for Tree Culture 3rd Ed. pp. 93–116.*** Oxford, IBH Publishing Co, New Delhi.

Yang-Xiaoling; Bao-Shidan; Yang-XL and Bao-sd. (1999). Effect of boron fertilizer on flower and fruit drop of apricots. ***Pedosphere 1999: 9(4): 363–368.***

Yogaratnam, N. and D.S. Johnson (1982). The application of foliar sprays containing nitrogen, magnesium, zinc and boron to Apple trees. 11. Effect on the mineral composition and quality of the fruit. ***J. Hort. Sci. 57: 159–164.***

مجلة اتحاد الجامعات العربية للدراسات والبحوث الزراعية، جامعة عين شمس، القاهرة ، 13(2)، 471-480، 2005

تحسين انتاجية أشجار المشمش صنف كانينو بالرش بالبورون والجبرالين والخميرة الجافة النشطة

[30]

حسن سيد أحمد حسن[1] – عصام أحمد محمد مصطفى[1] – درية محمد أحمد[1]

1- قسم بحوث الفاكهة – المركز القومى للبحوث – شارع البحوث – الدقى – القاهرة – مصر

تم إجراء هذه الدراسة خلال موسمى 2002 ، 2003 على أشجار مشمش صنف كانينو مطعومة على آصل المشمش البلدى فى مزرعة خاصة تقع فى زمام منطقة الخطاطبة – محافظة المنوفية.

وفيها تم رش الأشجار فى مرحلة الأزهار الكامل بالبورون وحمض الجبريليك وكذلك الخميرة الجافة النشطة بتركيزات مختلفة منفردة أو فى مخاليط ولقد أظهرت النتائج المتحصل عليها أن الرش الفردى أو المشترك بالبورون وحمض الجبريليك والخميرة الجافة النشطة قد أدى إلى تحسين محتوى الورقة من العناصر والمحصول وجودة الثمار وذلك بالمقارنة بعدم الرش.

وكانت أفضل النتائج بالنسبة للمحصول وجودة الثمار لصنف المشمش كانينو هى الرش بمخاليط من حمض البوريك بتركيز 400 جزء فى المليون مع حمض الجبريليك بتركيز 40 جزء فى المليون مع الخمير الجافة النشطة بتركيز 2% فى مرحلة الإزهار الكامل.

تحكيم: ا.د محمد أبورواش علي بدر
ا.د بطرس نصر بطـرس