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EFFECT OF PRUNING AND SPRAYING WITH HYDROGEN CYANAMIDE (H_2CN_2)) AND ETHREL ON BUD BREAK, YIELD AND FRUIT QUALITY OF FIGS

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ABSTRACT

This investigation was carried out during 2004 and 2005 growing seasons on 9 years old Sultani and Kadota fig trees grown in silty clay soil at the Horticultural Station Orchard of Seds, Beni-Suef Governorate, Egypt, to study the effect of two pruning regimes (90 or 180 bud/tree) alone or with the application of Hydrogen Cyanamide (dormex) or ethrel on bud burst (date and percentage), vegetative growth, advancing the harvesting of breba and main crops as well as fruit yield and quality of Sultani and Kadota fig trees. The data clearly showed that, retention of 180 bud/tree + ethrel at 1000 ppm gave the highest percentages of buds developed to vegetative growth and increased the main yield. Pruning to 90 bud/tree + ethrel at 1000 ppm increased the main yield and fruit T.S.S and total sugars content as compared with other treatments. This is true for two cultivars during both seasons. Pruning to 90 bud/tree + spraying with (H_2CN_2) at 3% resulted in advancing bud burst more than the other treatments. The average shoot length at 180 bud/tree + (H_2CN_2) at 3% was the longest one, while, 90 bud/tree produced the shortest shoots and observed the least % of buds developed to vegetative growth. Moreover, 90 bud/tree + (H_2CN_2) at 3% exhibited the highest leaves number/shoot, advanced date of bud burst and beginning the picking season, increased number of fruits/ tree, yield (kg.) and fruit characteristics (length, diameter & weight). Whereas, pruning at 180 bud/tree + (H_2CN_2) at 3% showed the highest leaves number/shoot and advanced fruit picking in both cultivars and seasons. As for both berba and main crops, generally, it can be clearly noticed that, Kadota fig trees were earlier and had heavier crop than Sultani.The obtained data also revealed that, pruning to 180 bud/tree treatment alone advanced the beginning of picking season of the main crop by about 4 days as compared with 90 buds/tree treatments. On the other hand, pruning to 90 bud/tree either alone or with the application of (H2CN2) at the lower concentration (1.5 %) delayed both breba and main crops of Sultani and Kadota cultivars during 2005&2006 seasons. However, the least number of fruits/tree of both breba and main crops was obtained from pruning to 180 buds/tree treatment.

INTRODUCTION

The fig tree (Ficus carica Risso) is a popular deciduous fruit in Egypt. The cultivated area of fig trees reached about 77227 feddans and fig production attained 160124 tons of fresh fruits according to the statistics of the Ministry of Agriculture (2004). Sultani fig is the most widely grown and could be considered the local standard cultivar for Egypt. Kadota figs were introduced to Egypt by Developing Agriculture Systems Project (1982). Pruning is one of the crucial management practices in the fig tree life (Brooks and Olmo, 1972). Khalil *et al.*, (1982) found that Sultani fig trees that were pruned lightly (pinched or heading back 1/3 length of the shoots) showed a

reduction in vegetative growth, increase in the yield and a reduction in syconia size compared to severely pruned trees (heading 1/2 or 2/3 of the shoot length or thinning).The Sultani severe pruning produces highly vigorous vegetative growth which competes with growing fruits for carbohydrates and other organic substances(Mohammed, 1987).The number of breba syconia was positively correlated with the length of bearing units (El-Khateeb, 1990). Notching had a more localized effect in activating old wood to produce syconia than pruning by tipping which increased the number of laterals and the number of syconia on its leaf axils than on old shoots (Sundarary, 1969 and Banoub, 1994). Application of hydrogen cyanamide greatly enhanced the percentage of bud burst, increased the vegetative growth, advanced picking and increased the yield of Sultani fig trees (Stino and El-Fakharani, 1995; Esmail 1996 and Pasqual *et al.*, 2003) and Shulman *et al.*, (1986) of apples, almonds, figs, grapevines, peaches and plums. Similarly, Gomaa and Stino working on apples (1990) found that, the longest shoots were obtained with 4% dormex as well as Klinac *et* al., (1991) on pears showed that, H2CN2 at 3% advanced onset of shoot extension. Hydrogen cyanamide has proven to be effective on dormancy and accelerates bud burst in grape vines, Jordan (1986), North (1989) and Petri (1989) in apple and (Wood, 1993 and Youssef *et al.*, 1994) in pecan. Ethylene is the simplest organic compound which affects plants; it is a natural product of plant metabolism and is active in trace amounts (Burg & Burg, 1966). Moreover, it was suggested by Edgerton & Blanpied (1968) that, the growth regulator action of ethephon was the result of stimulation of ethylene production in the tissues similar to that resulting from treatment with IAA. The present study is to detect the effect of two pruning regimes, dormex and ethrel on bud burst, vegetative growth, advancing the harvesting of the breba and main crops, quantity and quality of Sultani and Kadota fig trees.

MATERIALS AND METHODS

This investigation was carried out during 2004 and 2005 growing seasons on 9 years old Sultani and Kadota fig trees grown in silty clay soil at the Horticultural Station Orchard of Seds, Beni-Suef Governorate. The trees were planted at 2.5x 5 meters apart and received the same horticulture managements. They were vase trained. For this study, forty eight almost uniform trees were selected and divided into two groups (twenty four trees for each group). The first group was pruned to 10 bearers with 9 buds as a total of 90 bud / tree, while the second group was pruned to 20 bearers with 9 buds as total of 180 bud / tree. Pruning was practiced on mid December in both seasons. Ethrel and Hydrogen cyanamide (dormex) were sprayed on the first of January of both seasons at a concentration of 1000 ppm for ethrel (Ethephone; 2- Chloroethylphosphonic acid) and 1.5 % and 3 % for Hydrogen cyanamide (H_2CN_2) on the first and second groups.

The compound H_2CN_2 of the SKW (49% a.i.) was used as a source of hydrogen cyanamide. Each of the sixteen treatments was replicated three times (one tree for each replicate).Three trees of each pruning regime were untreated and left as control. The recorded data were as follows:

1-Date of bud burst.
2-The percentage of buds developed to vegetative growth was recorded from 10 tagged shoots per tree = (Number of buds developed to vegetative growth / total buds per tree) x 100.
3-Length of shoots (cm) at the end of the growing season and average number of leaves per shoot.
4-Date of beginning the picking season of both breba and main crops.
5-Number of harvested syconia from both breba and main fruits.
6-Syconium quality including average weight, height, diameter, acidity as gms. Malic acid / 100 ml. juice (A.O.A.C.1960), total soluble solids percentage (T.S.S) and total sugars in juice.

The complete randomized design was followed throughout the whole work. The data was subjected to analysis of variance according to (Snedecor and Cochran, 1972), using L.S.D. at level of 0.05 for comparing the average of treatments of this study.

RESULTS AND DISCUSSION

• **Bud burst and vegetative growth:**

The data concerning the effect of pruning and spraying with dormex and ethrel on bud burst date and vegetative growth of fig trees are shown in Table (1). It is evident that, both percentages of buds developed to vegetative growth and average shoot length were relatively higher in all 180 bud/tree than 90 bud/ tree applications. The later application caused earlier in date of bud burst compared with the other treatments. Also, it could be clearly noticed that, in both seasons date of bud burst of Kadota trees was earlier than the Sultani cultivar.

Moreover, data also indicated that, pruning to 90 bud/tree + spraying with (H_2CN_2) at 3% resulted in advancing bud burst more than the other treatments.

As for percentage of buds developed to vegetative growth, the data also declared that, application of 180 bud/tree + ethrel at 1000 ppm gave the highest percentages (71.29 & 68.90) and (58.63 & 60.31) for Sultani and Kadota cvs. during both seasons, respectively.

Referring to the average shoot length, the above mentioned data showed that, 180 bud/tree + (H_2CN_2) at 3% gave the longest one. On the other hand 90 bud /tree gave the shortest shoots and the least % of buds developed to vegetative growth. This is true in both cultivars during the first and second seasons.

It is worth of the study mention that, findings concerning the effect of pruning level and spraying with (H_2CN_2) on bud burst and vegetative growth are nearly similar to those of Khalil *et al* (1982); Banoub (1994) and Stino & El-Fakharani (1995).

In this respect, it was suggested that (H_2CN_2) stimulated the production of cytokinins in apple buds and may act as an initial of growth (North *et al.*, 1990). Also, application of (H_2CN_2) on grapevine buds resulted in a reduction of catalyses activity, while peroxides activity was generally unchanged (Shulman *et al.*, 1986).

Table (1): Date of bud burst and some vegetative growth parameters of fig trees as affected by pruning level and spraying with (H_2CN_2) and ethrel during 2004 and 2005 seasons

Treatments	Sultani						Kadota					
	Date of bud burst		% of buds devel. to veg. growth		Average shoot length (cm)		Date of bud burst		% of buds devel. to veg. growth		Average shoot length(cm)	
	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005
90 bud/tree	15/3	10/3	60.51	52.81	40.95	39.17	3/3	28/2	37.56	41.93	53.13	52.54
90 bud/tree + (H_2CN_2) at 1.5%	9/3	6/3	62.68	58.16	46.55	43.06	28/2	27/2	42.31	47.95	56.11	55.76
90 bud/tree + (H_2CN_2) at 3 %	8/3	2/3	65.65	61.58	53.51	49.00	27/2	25.2	52.61	56.09	59.38	61.57
90 bud/tree + ethrel at1000 ppm	4/3	5/3	63.79	56.47	48.87	46.05	27/2	26/2	44.01	51.63	55.09	57.46
180 bud/tree	17/3	11/3	62.68	57.95	45.74	45.94	6/3	2/3	39.65	51.33	54.71	55.74
180 bud/tree + (H_2CN_2)at 1.5%	9/3	7/3	66.04	58.44	46.85	48.59	5/3	1/3	51.59	55.00	57.14	57.33
180 bud/tree + (H_2CN_2) at3%	8/3	4/3	67.73	61.26	58.52	53.87	2/3	26/2	53.57	56.78	63.15	65.82
180 bud/tree + ethrel at1000 ppm	8/3	5/3	71.29	68.90	49.06	50.51	2/3	28/2	58.63	60.31	55.03	61.64
L.S.D at 0.05			2.23	3.18	3.15	2.84			2.87	2.60	2.32	1.33

L.S.D : Least Significant Difference at 0.05 level.

The effect of ethrel on bud burst was previously investigated by Williams (1970) on apple, Esmail (1979) and (Sweidan *et al.*, 1981) on Amilla persimmon trees; they found that, bud burst percentages significantly increased by ethephon treatments than the control.

Leaf number and date of picking:

Data dealing with average number of leaves /shoot and date of beginning the picking seasons of fig trees are presented in Table (2). It is easy to say that, in both studied cultivars the highest leaf number per shoot was produced by application of (H_2CN_2) at 3% and pruning to 90 or 180 bud/tree over the other treatments. While, the lowest no. of leaves/shoot was obtained by pruning to 90 bud/tree during both seasons.

In regard to date of beginning the picking season, generally, it can be clearly noticed that, both berba and main crops of Kadota fig trees were picked earlier than Sultani crop. This is true in 2005 and 2006 seasons.

Moreover, it is quite evident that pruning 180 bud/tree or 90 bud/tree in combination with (H_2CN_2) at 3% significantly advanced fruit picking as compared with other applications in both cultivars during 2005 & 2006 seasons.

The obtained data also revealed that, pruning to 180 bud/tree treatment alone advanced the beginning of picking season of the main crop by about 4 days as compared with 90 buds/tree treatment.

On the other hand, pruning to 90 bud/tree either alone or with the application of (H2CN2) at the lower concentration (1.5 %) delayed both breba and main crops of Sultani and Kadota cultivars during 2005&2006 seasons.

Similar results concerning the effect of pruning level or spraying with (H2CN2) on hastened ripening were obtained by Mc.Coll (1986) on grapevine, Stino & El-Fakharani (1995) and Banoub (1994) on Fig and Wood (1993) and Youssef *et al.*, (1994) on pecan.

- **Yield and fruit quality**

From the obtained data in Tables (3) and (4), it can be safely said that, 90 bud/ tree + (H_2CN_2) at 3% application clearly increased the number of fruits/tree in breba crop (6.83 & 6.13) and (48.23 &42.57) in both Sultani and Kadota cvs during the studied seasons, respectively. In addition, the data indicated that application of 180 bud/tree + ethrel at 1000 ppm was superior in increasing the main crop fruits number per tree (701.3 & 637.0) for Sultani cv. and (676.3 & 610.3) for Kadota cv. as compared with other treatments throughout the two seasons of study. However, the least no. of fruits/tree of both breba and main crops was obtained from pruning to 180 buds/tree treatment.

As for the main fruit weight (gm), it is clear that, generally all treatments in Kadota trees had heavier crop as compared with Sultani crop in both 2005 and 2006 seasons. The data also indicated that, application of 90 bud/tree + (H_2CN_2) 3% treatment showed a significant increase over the other treatments.

While, pruning to 180 bud/ tree treatment alone was the least effective treatment in this concern for both cultivars during 2005 and 2006 seasons.

Table (2): **Average number of leaves and date of beginning the picking season of breba and main crops of fig trees as affected by pruning level and spraying with (H_2CN_2) and ethrel during 2004 and 2005 seasons.**

Treatments	Sultani						Kadota					
	Leaves number / shoot.		Date of the beginning of picking season				Leaves number / shoot		Date of the beginning of picking season			
			Breba crop		Main crop				Breba crop		Main crop	
	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005
90 bud/tree	13.74	10.86	25/6	26/6	25/7	7/8	14.72	12.46	25/5	1/6	20/6	26/6
90 bud/tree + (H_2CN_2)at 1.5%	15.41	13.48	25/6	25/6	22/7	3/8	15.50	13.76	24/5	25/5	15/6	20/6
90 bud/tree + (H_2CN_2) at 3 %	18.76	16.64	20/6	22/6	15/7	28/7	19.75	17.81	22/5	20/5	10/6	15/6
90 bud/tree + ethrel at1000 ppm	15.28	14.16	22/6	25/6	18/7	2/8	16.24	14.65	24/5	22/5	15/6	18/6
180 bud/tree	15.81	12.30	22/6	28/6	20/7	3/8	16.08	12.73	24/5	1/6	17/6	22/6
180 bud/tree + (H_2CN_2)at 1.5%	16.95	14.60	22/6	25/6	15/7	3/8	16.40	15.86	22/5	28/5	17/6	20/6
180 bud/tree + (H_2CN_2) at3%	20.55	18.53	20/6	22/6	12/7	30/7	21.06	19.79	20/5	25/5	8/6	15/6
180 bud/tree + ethrel at1000 ppm	16.65	15.52	20/6	25/6	15/7	2/8	16.59	16.26	20/5	25/5	15/6	18/6
LSD at 0.05	1.00	1.33					1.69	1.55				

L.S.D : Least Significant Difference at 0.05 level.

Table (3): Number of fruits / tree and main fruit weight of fig trees as affected by pruning level and spraying with (H_2CN_2) and ethrel during 2004 and 2005 seasons .

Treatments	Sultani						Kadota					
	Number of fruits/tree				Main fruit weight (gm)		Number of fruits/tree				Main fruit weight (gm)	
	Breba crop		Main crop				Breba crop		Main crop			
	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005
90 bud/tree	3.87	3.93	380.0	323.0	40.01	40.42	22.63	28.00	309.7	324.0	56.97	55.93
90 bud/tree + (H_2CN_2)at 1.5%	4.60	4.67	516.7	480.3	43.32	43.47	40.90	37.97	332.7	423.7	58.20	58.42
90 bud/tree + (H_2CN_2) at 3 %	6.83	6.13	590.7	590.5	56.70	56.57	48.23	42.57	479.3	578.0	65.43	65.60
90 bud/tree + ethrel at1000 ppm	5.27	5.20	666.7	632.7	51.93	53.43	52.31	58.00	564.0	619.3	61.05	61.22
180 bud/tree	2.07	3.67	320.7	332.7	33.08	38.37	16.61	16.73	296.0	308.7	53.97	54.64
180 bud/tree + (H_2CN_2)at 1.5%	2.30	4.23	487.3	504.3	38.95	45.81	40.20	20.43	387.7	443.0	55.17	58.00
180 bud/tree + (H_2CN_2) at3%	4.97	4.50	603.0	606.0	49.81	53.37	57.80	27.00	582.0	538.7	59.72	62.11
180 bud/tree + ethrel at1000 ppm	5.70	5.83	701.3	637.0	48.36	55.84	36.36	37.90	676.3	610.3	62.16	64.03
LSD at 0.05	0.99	0.58	72.59	49.12	2.85	2.68	7.12	6.22	45.15	34.99	3.55	1.87

L.S.D: Least Significant Difference at 0.05 level.

Table (4): Main yield, fruit length and diameter of fig trees as affected by pruning level and spraying with (H_2CN_2) and ethrel during 2004 and 2005 seasons.

Treatments	Sultani						Kadota					
	Main yield (kg)		Fruit diameter (cm)		Fruit length(cm)		Main yield (kg)		Fruit diameter (cm)		Fruit length(cm)	
	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005
90 bud/tree	15.24	13.05	4.09	3.96	6.46	6.16	16.84	18.10	4.65	4.39	6.06	5.71
90 bud/tree + (H_2CN_2)at 1.5%	22.39	20.88	4.19	4.26	6.08	6.05	19.38	24.74	4.89	4.75	6.38	6.07
90 bud/tree + (H_2CN_2) at 3 %	33.52	33.38	5.02	5.26	6.75	6.38	31.36	37.91	5.44	5.54	6.49	6.22
90 bud/tree + ethrel at1000	34.65	33.78	4.91	4.96	6.32	5.97	34.39	37.93	4.79	4.95	5.98	5.83
180 bud/tree	10.59	12.78	3.77	3.56	5.51	5.53	16.74	16.86	4.89	4.53	5.91	5.38
180 bud/tree + (H_2CN_2)at 1.5%	18.97	23.11	4.14	4.24	6.43	5.56	21.40	25.69	4.82	4.84	6.30	5.64
180 bud/tree + (H_2CN_2) at3%	30.03	33.84	4.88	5.04	6.67	5.66	36.11	34.49	5.23	5.22	5.60	5.29
180 bud/tree + ethrel at1000	33.93	34.05	4.38	4.74	6.50	5.90	40.39	37.92	4.88	5.21	6.06	5.90
LSD at 0.05	4.12	3.49	0.53	0.25	0.58	0.40	2.80	2.04	0.44	0.30	NS	0.53

L.S.D: Least Significant Difference at 0.05 level.

In regard to main yield (kg), the data clearly revealed the superiority of pruning 180 bud/tree + ethrel at 1000 ppm (33.93, 34.05 & 40.39, 37.92 kg/tree) or 90 bud/tree in combination with ethrel at 1000 ppm treatments (34.65, 33.78&34.39, 37.93 kg/tree), while, pruning either 180 bud/tree (10.95, 12.78 & 16.74, 16.86kg/tree) or 90 bud/tree (15.24, 13.05 & 16.84, 18.10) without any applications showed the lowest records in both Sultani and Kadota cvs. during the studied seasons, respectively .

Referring to fruit diameter and length (cm), the data revealed that, 90 bud/tree + (H_2CN_2) at 3% was more pronounced than the other treatments in both cultivars and seasons.

The beneficial effect of pruning and spraying with (H_2CN_2) on fruit yield and quality was pointed out by Shulman *et al.* (1986) on different fruit trees; and Banoub (1994); Stino & El-Fakharani (1995), Esmail (1996) and Mostafa (1998) on fig trees. Moreover, advancing bud opening led to prolonging vegetation season which apparently enhanced length, consequently, number of fruits and yield /tree.

- **Chemical fruit characters:**

Data obtained in the present study of T.S.S, acidity and total sugars are shown in Table (5). Results revealed that, application of 90 bud/tree + ethrel at 1000 ppm resulted in increasing the fruit T.S.S and total sugar contents as compared with other treatments. This is true for two cultivars in the two studied seasons. Similar response was previously noticed by Esmail, (1979) and Sweidan *et al.* (1981) on persimmon they found that, the highest concentration of ethrel (1000 ppm) increased fruit sugar content.

In respect to fruit acidity, it is quite evident that the highest increment was noticed in 180 bud/tree treatment.

As a conclusion, pruning to 90 bud/ tree + Hydrogen Cyanamide (dormex) at 3% application could be recommended for vegetative growth enhancement, advancement and increasing yield and improving fruit quality characteristics of fig trees (Kadota & Sultani cvs.) under the same conditions of this study.

Table(5): Chemical fruit characters of fig trees as affected by pruning level and spraying with (H_2CN_2) and ethrel during 2004 and 2005seasons.

Treatments	Sultani						Kadota					
	T.S.S %		Acidity%		Total sugars%		T.S.S%		Acidity%		Total sugars%	
	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005	2004	2005
90 bud/tree	16.53	18.43	0.343	0.326	17.88	19.78	18.69	19.26	0.255	0.313	19.59	19.92
90 bud/tree + (H_2CN_2)at 1.5%	17.26	19.33	0.336	0.325	19.90	21.63	18.84	20.16	0.276	0.255	20.81	22.48
90 bud/tree + (H_2CN_2) at 3 %	18.99	20.34	0.340	0.316	21.89	24.00	20.70	21.47	0.219	0.223	23.31	24.01
90 bud/tree + ethrel at1000 ppm	19.64	21.70	0.279	0.312	23.55	25.26	21.71	21.85	0.221	0.225	24.92	25.42
180 bud/tree	14.19	14.69	0.358	0.339	15.77	17.25	15.79	17.46	0.280	0.282	18.96	19.09
180 bud/tree + (H_2CN_2)at 1.5%	15.12	15.92	0.351	0.320	19.06	20.33	16.60	18.27	0.228	0.278	20.11	20.15
180 bud/tree + (H_2CN_2) at3%	16.37	18.12	0.334	0.282	21.16	21.77	17.80	20.08	0.226	0.227	23.08	21.96
180 bud/tree + ethrel at1000 ppm	19.73	20.36	0.323	0.311	22.06	22.43	19.40	21.25	0.228	0.228	23.91	24.18
LSD at 0.05	2.16	0.93	0.022	0.028	1.61	1.50	1.20	1.07	0.061	0.069	0.75	1.11

L.S.D. : Least Significant Difference at 0.05 level.

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تأثير التقليم والرش بسينامين الهيدروجين والإ يثريل على تفتح البراعم وإنتاج وجودة ثمار التين

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تم إجراء هذاالبحث أثناء موسمى نمو ٢٠٠٤ و ٢٠٠٥ على أشجار التين السلطانى والكادوتا المنزرعة فى أرض طميية فى محطة البحوث الزراعية بسدس فى محافظة بنى سويف. وذلك بهدف دراسة تأثير مستويين تقليم (٩٠ و١٨٠ برعم/شجرة) منفردة أو بالإضافة الى سينامين الهيدروجين (دورمكس) أو الإيثريل على تاريخ ونسبة تفتح البراعم والنمو الخضرى وتبكير الجمع للمحصول البونى والمحصول الرئيسى وكذا كمية وجودة الثمار.

وأوضحت النتائج أن التقليم إلى ١٨٠برعم/شجرة + الإيثريل (١٠٠٠جزء فى المليون) أعطى أعلى نسبة تطور للبراعم نحو النمو الخضرى وزيادة الإنتاج ومحتوى كل من المواد الصلبة الذائبة والسكريات الكلية بالمقارنة بالمعاملات الأخرى فى كلا موسمى الدراسة. كما أدى التقليم للأفرع إلى ٩٠ برعم/شجرة + الرش بالدورمكس (٣%) الى تفتح البراعم أكثر من المعاملات الأخرى. أما بالنسبة لطول نمو الأفرع فإن تقليم الأفرع الى ١٨٠ برعم/شجرة + الدورمكس (٣%) أعطى أطول نموات فى حين التقليم حتى ٩٠ برعم بمفرده أعطى أقل نمو للأفرع وأقل تطور فى نسبة البراعم نحو النمو الخضرى. علاوة على ان التقليم للأفرع حتى ٩٠ برعم + الرش بالدورمكس (٣%) أعطى أكثر عدد أوراق على الفرع، كما أدى الى التبكير فى تفتح البراعم وبداية الجمع وزيادة عدد الثمار/شجرة والإنتاج (كجم/شجرة) والصفات الثمرية (طول وعرض ووزن الثمرة). كما أن تقليم الأفرع الى ١٨٠ برعم/شجرة + الدورمكس (٣%) أعطى أكثر عدد أوراق على الفرع وبكر فى جمع كلا من صنفى التين تحت الدراسة فى كلا الموسمين. أما بالنسبة للمحصول البونى والمحصول الرئيسى عامة ، فإنه قد لوحظ أن صنف الكادوتا كان أكثر تبكيراً وأعلى محصولا من السلطانى. وكذا معاملة التقليم حتى ١٨٠ برعم/شجرة بمفردها أدى الى تبكير جمع المحصول الرئيسى بحوالى ٤ أيام مقارنة بتقليم الأفرع حتى ٩٠ برعم/شجرة. ومن ناحية أخرى فإن معاملة التقليم حتى ٩٠ برعم/شجرة + الدورمكس (١,٥%) ادى الى تأخير كل من المحصول البونى والمحصول الرئيسى لكل من صنفى الكادوتا والسلطانى فى كلا موسمى النمو ٢٠٠٥ و٢٠٠٦. ومع ذلك فإن التقليم حتى ١٨٠ برعم/شجرة أدى الى تقليل عدد الثمار/شجرة الى الحد الأدنى لكلا محصولى التين البونى والرئيسى.

وبناءً على ذلك فإنه يمكن أن ينصح بالتقليم للأفرع حتى ٩٠ برعم + الرش بالدورمكس (٣%) أو الإيثريل (١٠٠٠جزء فى المليون) للتبكير فى تفتح البراعم وبداية الجمع وزيادة عدد الثمار/شجرة والإنتاج (كجم/شجرة) والصفات الثمرية.