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EFFECT OF FERTILIZING INTEGRATED SYSTEM ON CANTALOUPE PLANTS IN NEWLY RECLAIMED SOIL .

Ragab, M. E.* ; E. E. El-gameely and G. Labeeb *****
Dept., Fac. of Agric., Mans. Univ., Egypt Economic Entomology *
Horticulture Dept., Fac. of Agric., Mans. Univ., Egypt **
Soils Dept., Fac. of Agric., Mans. Univ., Egypt ***

ABSTRACT

Two field experiments (2013- 2014) were conducted in Zaian region , Dakhlia governorate to study the effect of fertilizing integrated system (100 % organic, 50 % organic + 50 % mineral , 100 % mineral and local treatment) on yield , N, K, Na and nitrate content of cantaloupe plant .

The obtained results can be summarized in :

Fully mineral fertilization treatment achieve the highest fresh weight of leaves and 100 % organic give the lowest value . Using 100% organic fertilizer caused a reduction in fruit number amounted by 49.29 % compared with 50 % organic + 50 % mineral fertilization treatment. Relative yield of 100 % organic fertilization treatments amounted by 74.28 % compared with 100 % mineral fertilization treatment

In spite of a very little differences were found in rounded index of fruits as a result of applying the studied treatments 100 % organic fertilization treatments recorded the highest rounded index value ,0.996 . Fleshy part percentage and dry weight percentage of fleshy part of fruit negatively affected by mineral fertilization. 100% organic fertilization recorded85.94 % and 7.8 % for the same order of the same traits.

The highest values of N leave contents (2.050 % and 2.017 %) were obtained with treatments which receive higher amounts of mineral fertilizers and the lowest values (1.915 % and 1.985 %) were obtained with treatments which receive higher amounts of organic fertilizers. The treatments of 100 % organic fertilization and 50 % organic + 50 % mineral fertilization showed a sever reduction in N content of Cantaloupe stems.

cantaloupe stems have the highest concentration of potassium than that of the other parts, where fleshy part of fruit took the second order in this respect and leaves comes as a latest one . Full organic fertilizer treatments got the highest potassium concentration means of leaves. fleshy part of fruit contain a higher sodium content than that of leaves and stems , approximately 1.66 : 1.75 fold than that of leaves and 2.11: 2.54 fold than that of stems .

Cantaloupe stems contain the highest level free nitrate – N compared to leaves and fleshy part of fruits, where nitrate –n content of cantaloupe fruit fleshy part approximately amounted by one fifth of leaves free nitrate-N and one tenth of the stem free nitrate N. The calculated free nitrate content (fresh weight basis) of local, 100 % mineral , 50 % organic + 50 % mineral and 100 % organic fertilization treatment 117.95, 91.95, 88.75 and 94.30 ppm , respectively.

The threshold amount of fleshy part eatable of cantaloupe fruit according to the most acceptable daily intake of nitrate for adult normal person is 2.75 Kg and 2.20 Kg of organic produced cantaloupe and local produced cantaloupe under the conditions of this study .

Keywords: *Cucumis melo var. cantalupensis*; N content; K content; Na content and nitrate content

INTRODUCTION

Fleshy vegetables are an important source in human diet . In Egypt, plant growers added large quantities of mineral fertilizer to increase the outcome without any care to plant nutrition disturbance in plant. Plant nutrition disturbance led to accumulate some undesirable component in plant (nitrate content of some plant such as spinach with increasing the N application rate , Takebe et al.,1995) . The most acceptable dialy intake of nitrate is 3.7 mg NO_3 kg^{-1} of body weight (Hirondel and I, Hirondel 2001). Nowadays, Egypt enhance organic farming to produce vegetables, which did not deteriorate the nutrition balance in plant by using integrated fertilizing system . The European union regulation for organic production put threshold level of manure application of 170 Kg N ha^{-1}year $^{-1}$. This study aimed to evalute the effect of complety and partial replacment of mineral fertilizer with organic fertilizer on cantaloupe plant.

MATERIALS AND METHODS

Soil properties: A new reclaimed soil was chosen in Zaian region to verify the extent of the studied treatment on yield, n, P, K, Na and nitrate content of cantaloupe fruit , where soil must have to be unpolluted to produce organic crops, Ewa Rembialkowska, 2007. Table (1) reveals physical and chemical properties of used soil .

Table (1). Some Soil physical and chemical properties .

Physical properties		**Particle size distribution**			**Texture**				**Field capacity %**		**Bulk Density,g/cm^3**	
values	**Coarse sand %**	**Fine sand %**	**Silt %**	**Clay %**								
	44.35	48.8	4.55	2.22	Sandy soil				13.0		1.34	
Chemical properties	Av. N ppm	Av. P pp	Av. K pp	pH	E.C dS/m	Soluble cations meq/l in S.P.E				Soluble anions meq/l in S.P.E			
						Ca^{++}	Mg^{++}	Na^{+}	K^{+}	$Co3^{=}$	$HCO_3^{=}$	Cl^{-}	$SO_4^{=}$
Values	12.0	2.0	48.0	8.5	1.71	1.6	2.1	11.95	0.94	0.0	2.50	11.8	2.29

S.P.E =soil paste extract
Av.= available

Irrigation water properties: Agricultural drainage water from Baher yussri was used continuously for plant watering .

Organic fertilizer ; chicken manure was used as a sole source of organic fertilizer in the tow successive seasons. Total N, P as P_2O_5 and K as K_2O of used chicken manure were 1.867, 1.426 and 0.946 % .

Soil was plowed three time, leveled and ditched tow meter apart , treatments were distributed as a complete randomize block design with four replicates (tow successive seasons) . Each replicate of each treatment consists

of five ditches (ditch, 35 cm depth). Ditches of each replicate receive appropriate amount of chicken manure and damping with the soil, where the chicken manure become buried 20 cm depth . Heavy watering was done . Two weeks later (22 th of January), young Cantaloupe plant (*Cucumis melo var. cantalupensis*) seedlings (30 days old) were transplanting on the east side of the ditch .

Tunnels were hold on plant rows immediately after transplanting up to 30 th of march when it lift .

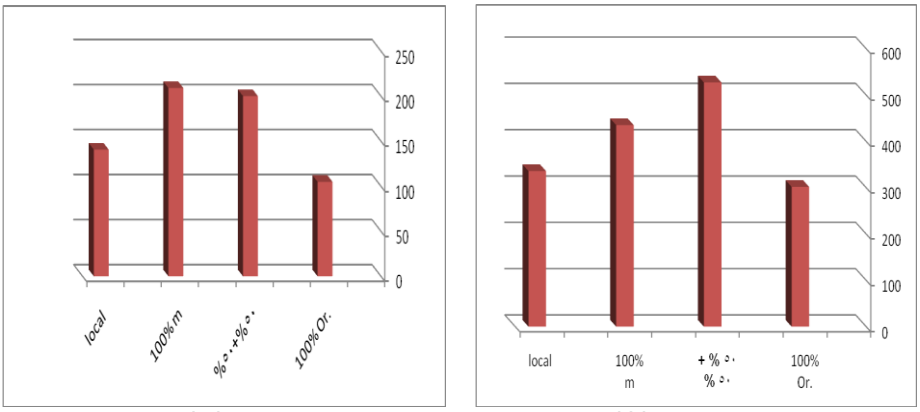
Watering was done using drip irrigation system with the same amount for all treatments . Appropriate amount of mineral fertilizers were added for. appropriate treatments with irrigation water, where a tap for each line was built in .On 15th of Marsh, vegetative samples were collected and translocated to lab where leaves and stems of each sample were separated and weighed . weighed portions of leaves and stems for each sample were dried and weighed and dry matter percentages were calculated . Dry matter of samples (.2 gm)were wet digested by mixture and amounted to be 100 ml . The digested product was used for N, P and K determination . On 5th of May the fruit yield of 20th plant cantaloupe were collected and conuted , fruit diameters were measured , Rounded index of fruit was calculated , Fleshy part percentage of fruit was measured and dry weight percentage of fleshy part of fruit wasdetermined .

Soil, chiken manure and plant analysis: Mechanical analysis and calcium carbonate were determined as described (Piper 1950).Organic matter content using Walkely's rapid titration method ,Total Nitrogen using Microkjelhal , Phosphours was estimated calorimetrically by using molibdenium blue method, Potassium was estimated flame photometricaly according to Jackson, 1967. The electrical conductivities of the soil paste extracts, Soil reaction, available N,Pand K were determined according to Black 1965 .Free Nitrate was determined according to the method described by Singh, 1988. Collected data of two seasons were subjected to combined statistical analysis according to Gomez and Gomez (1984)

RESULTS AND DISCUSSION

Table (2) : Yield and yield attributes of cantaloupe plant as affected by the studied treatments .

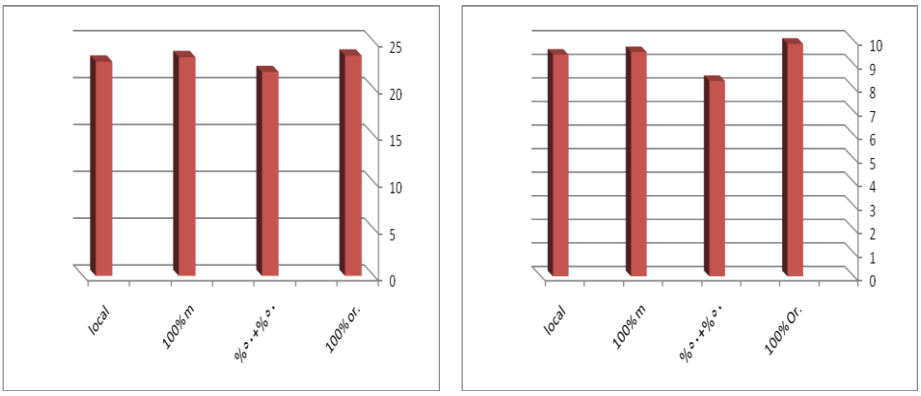
Treatment / parameter	100 % organic	50 % or. + 50 % min.	100 % min.	Local treat.	LSD
leaves fresh weight (relatively)	50.2	95.7	100.0	67.2	*3.241
Fresh weight of stems (relatively)	57.23	100	82.51	63.70	* 5.217
Dry matter percentage of leaves	23.51	21.77	23.35	22.87	ns
Dry matter percentage of stems	9.86	8.29	9.52	9.41	ns
Number of fruit /plant	3.93	2.86	4.93	2.5	* 0.191
weight of fruits/ plant (gm)	1380.18	2071.93	1680.16	1539.13	* 53.4
fruit diameter (cm)	29.31	29.22	30.58	28.25	*1.150
Rounded index of fruit	0.987	0.99	0.992	0.996	ns
Fleshy part percentage	84.81	84.31	85.81	85.94	* 1.18
Fleshy part dry weight percentage	7.69	7.23	7.43	7.8	*0.032



(a) (b)

Fig (1) : Relatively Fresh weight of leaves (a) and stems (b) as affected by the studied treatments .

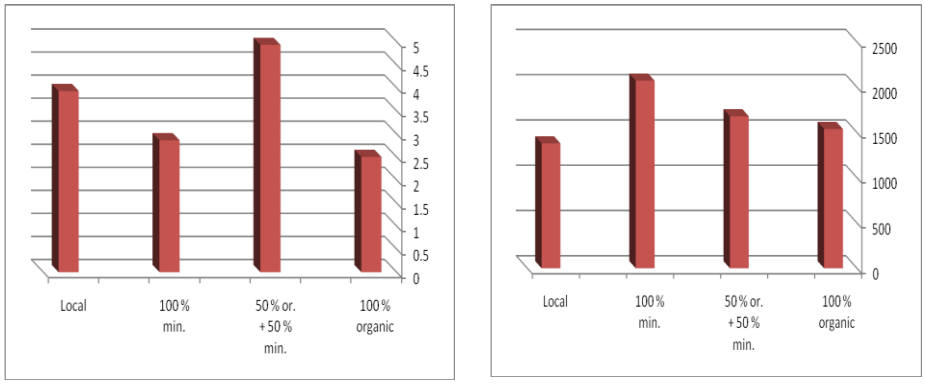
Data of Table (2) and Fig (1a) illustrate the leaves fresh weight as affected by the studied treatment . The treatment of 100% mineral fertilizer achieve the highest fresh weight of leaves , followed by 50 % mineral + 50 % organic treatment . The local treatment lie in the third order in this respect and 100 % organic give the lowest value . Regarding to stems fresh weight as affected by the studied treatment . the treatment of 50 % mineral + 50 % organic treatment achieve the highest fresh weight of and 100 % organic treatment give the lowest value . These results coincide with Mahmoud et al., 2009 results, They stated that cucumber yield was higher with 75% mineral N + 25% organic N treatments compared to other treatments.



(a) (b)

Fig (2): Dry matter percentage of leaves(a) and stems (b) as affected by the studied treatments

Data of Table (2) and fig (2a and b) illustrate leaves and stems dry weight percentage as affected by the studied treatment . little and non significant diferences were found between treatment means .

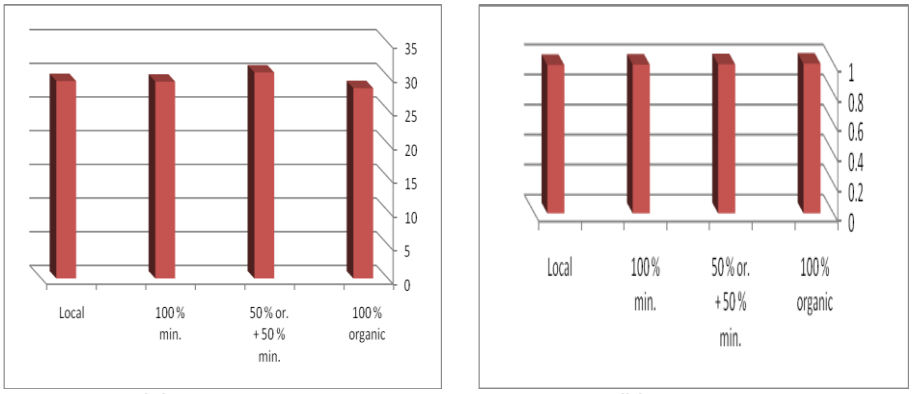


(a) (b)

Fig (3): Number of fruit /plant (a) and weight of fruits/ plant (b) as affected by the studied treatments .

Table and fig . The treatment of 50 % organic + 50 % mineral achieved the highest value of fruit number /plant (4.93) . using 100% organic fertilizer caused reduction amounted by 49.29 %. 100 %mineral fertilizer recorded 58.012 % of that obtained by treatment of 50 % organic + 50 % mineral fertilizer , where local treatment caused 20.284 % only compared with the same treatment .

Regarding to yield, the studied treatments took descending order as fellow 100 % mineral fertilizer , 50 % organic + 50 % mineral , 100 % organic and local treatment . the relative yield amounted by 100 %, 81.92 % , 74.28 % and 66.61 % , respectively . These result are in agreement with that of Ewa Rembialkowska, 2007.

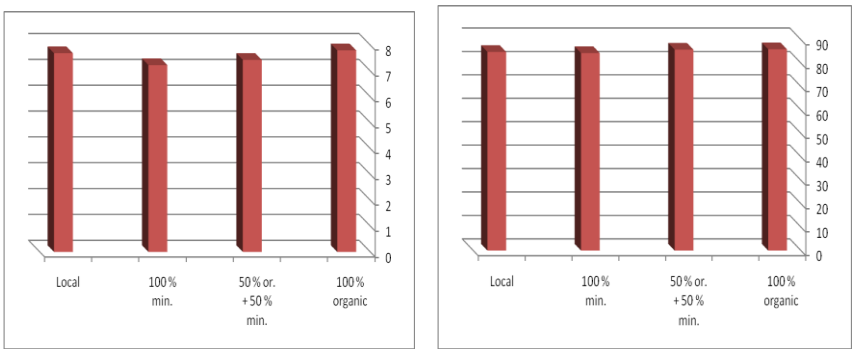


(a) (b)

Fig (4): fruit diameter (a) and Rounded index(b) as affected by the studied treatments .

Data presented in Table(3)and Fig (4 a) reveal that the highest fruit diameter was obtained with 50 % + 50 % treatment, 30.53 cm , where the lowest one was obtained with 100 % organic fertilization treatment , 28.25 cm . the difference between the brevious treatments in that trait is significant . Non significant differences was found in fruit diameter between local and 100 % mineral fertilization treatments.

Data declared in Table(3) and Fig (4b) pointed out that in spite of a very little differences were found in rounded index of fruits as a result of applying studied treatments, 100 % organic fertilization treatments recorded the highest rounded index value ,0.996 .



(a) (b)

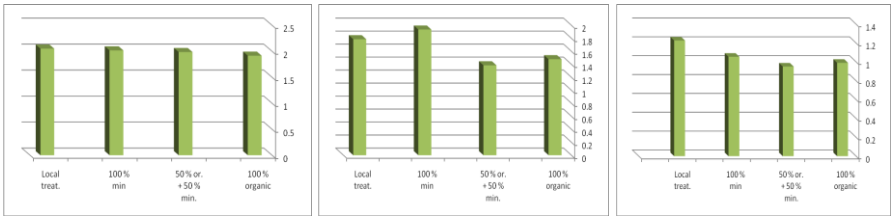
Fig (5): Fleshy part percentage of fruit (a) and dry weight percentage of fleshy part of fruit (b) as affected by the studied treatments .

Table (4) N, P, K, Na and free nitrate content of vegetative portions as affected by the studied treatments

Treatment / parameter	Local treat.	100 % min.	50 % or. + 50 % min.	100 % organic	LSD
N percentage of leaves	2.05	2.017	1.985	1.915	ns
N percentage of stems	1.785	1.934	1.383	1.477	* 0.18
N percentage of fruit	1.227	1.055	0.951	0.991	* 0.091
K percentage of leaves	1.999	1.726	1.764	2.305	* 0.23
K percentage of stems	3.004	3.747	3.889	4.142	* 0.16
K percentage of fruit	2.667	2.497	2.673	2.635	* 0.101
Na percentage of leaves	.0.737	0.759	0.722	0.735	ns
Na percentage of stems	1.666	1.605	1.832	1.659	ns
Na percentage of fruit	1.004	0.941	1.045	0.945	ns
Free nitrate of leaves	1470	1411	1244	815.9	*40.6
Free nitrate of stems	4822	3946	3287	3102	* 67.2
Free nitrate of fruit	306.8	254.3	239.0	241.9	*4.41

Data showed in Table (3) and Figs (5 a and b) reveal that, fleshy part percentage and dry weight percentage of fleshy part of fruit negatively affected by mineral fertilization and vice versa regarding to organic

fertilization under the study.100 % mineral fertilization treatment recorded 84.31 and 7.23 % for Fleshy part percentage and dry weight percentage of fleshy part of fruit, on the other hand 100% organic fertilization recorded85.94 % and 7.8 % for the same order of the same traits . These results are in coinside with that of Ewa Rembialkowska, 2007 , who concluded that organic crops contain more dry matter and Abd El-Hameed et al., (2003) they showed that compost amendments increased dry matter yield of bean plants.



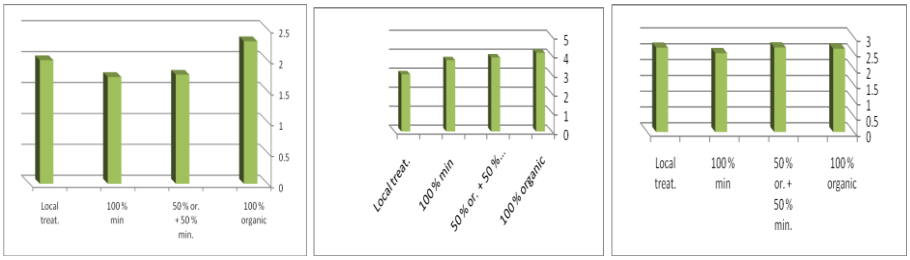
(a) leaves (b) Stems (d) Fruit

Fig (6) N content of Cantaloupe plant portions as affected by the studied treatments .

Tabulated data (Table 3 and Fig6a) outlined that N content of Cantaloupe leaves did was not significantly affected by the studied treatments . The N content under the study ranged from 1.915 % to 2.050 % .The highest values of N leave contents (2.050 % and 2.017 %) were obtained with treatments which receive higher amounts of mineral fertilizers (local and 100 % mineral fertilizer treatments) . The lowest values of N leave contents (1.915 % and 1.985 %) were obtained with treatments which receive higher amounts of organic fertilizers (100 % organic and 50 % mineral + 50 % organic fertilizer treatments).

N content of Cantaloupe stems as it plotted in Fig (6b) is significantly affected by the treatment under the study . the treatments of 100 % organic fertilization and 50 % organic + 50 % mineral fertilization showed a sever reduction in N content of Cantaloupe stems than that of local and 100 % mineral fertilizer treatments in comparable with N content of cantaloupe leaves trend .These results are in accordance with that of Salunkhe and Desai,1988 : and Mozafar ,1993 If there is more nitrogen than the plant can handle through increased protein production , the excess is accumulated as nitrate and stored predominantly in the green leafy part of the plant .

Illustrated data of Table 3 and Fig (6c) clearly outlined that the lowest N content of cantaloupe plant portion is fruit . The N content of fruit fleshy part compared to N content of cantaloupe leaves represent 51.75, 47.91, 52.31 and 68.74 %for 100 % organic , 50 % organic + 50 % mineral , 100% mineral and local treatment fertilization , respectively . N A further trend indicated that the quantity of protein may be less but the quality may be better in organic crops than in conventional crops .

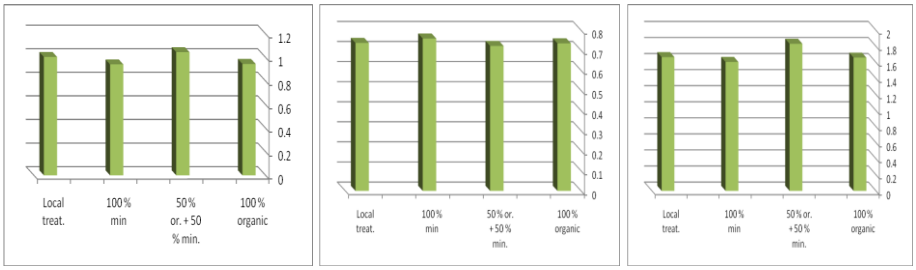


(a) leaves (b) Stems (d) Fruit

Fig (7) K content of Cantaloupe plant portions as affected by the studied treatments .

Data of Table 3 and Fig (7 a, b and c) reveal that cantaloupe stems have the highest concentration of potassium than that of the other parts . Fleshy part of fruit took the second order in this respect and leaves comes as a latest one .

Data also reveal that the studied treatments significantly affected K content of each plant portion . Full organic fertilizer treatments got the highest potassium concentration means of leaves (2.305 with 15.31, 33.35 and 30.67 %increase than that of local, 100 % mineral and 50 % organic + 50 % mineral treatment means, respectively) and stems (4.142 %), where 50 % organic + 50 % mineral fertilizer treatmentgot the highest potassium concentration of fleshy fruit part(2.673 % , Potassium content of local , 100% mineral and 100 % organic were lesser by 0.22 , 7.05 % and 4.79 % , respectively). Similar results were found by Virginia Worthington , M.S., Sc.D., C. N.. S.2001, where around 10 % increase in potassium content in organic crops , she found.

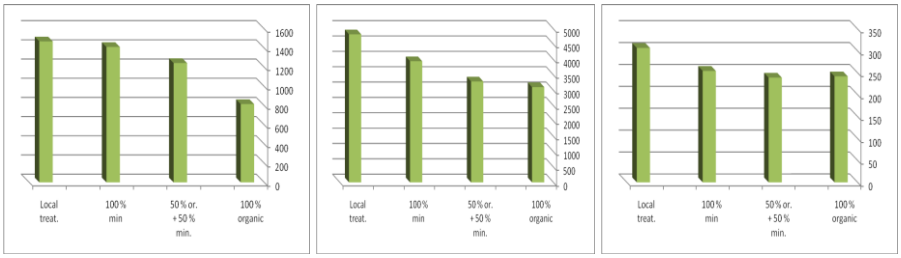


(a) leaves (b) Stems (d) Fruit

Fig (8) Na content of Cantaloupe plant portions as affected by the studied treatments .

Data of Table 3 And Fig (8 a, b and c) pointed out that fleshy part of fruit contain a higher sodium content than that of leaves and stems , approximately 1.66 : 1.75 fold than that of leaves and 2.11: 2.54 fold than that of stems .

In general the treatment under the study did not significantly affect Na content of each leaves, stems and fleshy fruit part . Inspit of non significant effect of the treatment under the study, 50 % organic + 50 % mineral fertilization treatments have a higher sodium mean content (1.832 %) .). Similar results were found by Virginia Worthington , M.S., Sc.D., C. N.. S.2001 where around 15 % increase in potassium content in organic crops



(a) leaves (b) Stems (d) Fruit

Fig (9) Free nitrate of fruit content of Cantaloupe plant portions as affected by the studied treatments .

As it is plotted in Table 3 and Fig (9 a, b and c) stem part of cantaloupe contain the highest level free nitrat – N compared to leaves and fleshy part of fruits. Free nitrate –N content of stems reached 4822, 3946, 3287,and 3102 ppm (dry matter basis) with the applied treatment of local, 100 % mineral , 50 % organic + 50 % mineral and 100 % organic fertilization, respectively . Nitrate –N content of stems of 100 % organic , 50 % + 50 % mineral represent 64.33 %and 68.17 %of that of local treatment . full mineral fertilization treatment mean of free nitrate –N amounted by 1.2 and 1.27 fold of that of 50 % organic + 50 % mineral and fully organic fertilization treatment means . These results confirm Wang and Li (2007), They reveal that Different organs had different amount in nitrate – N accumulation , and it is found that nitrate concentrations were much higher in stems and petioles than in blades at any N rates. Breimer, 1982 outlind similar result of Wang and Li (2007), within spinach plant Nitrate content s were higher in petioles and older leaves.

These results are in accordance with that of Salunkhe and Desai, 1988 : and Mozafar ,1993 If there is more nitrogen than the plant can handle through increased protein production , the excess is accumulated as nitrate and stored predominantly in the green leafy part of the plant .

Significant differences were found in free nitrate-N content of leaves due to applying the studied treatments. Free nitrate-N of fully organic fertilization treatment mean is 815.9 ppm (dry matter basis) ,amounted by 44.5 % reduction compared with that of local treatment, while 50 % organic + 50 % mineral treatment caused 15.37 % in the same parameter compared with the same treatment .

Free nitrate –n content of cantaloupe fruit fleshy part approximately amounted by one fifth of leaves free nitrate-N and one tenth of the stem free nitrate N.

Free nitrate – N of fleshy part of cantaloupe of the studied treatments were 241.9, 239.0, 254.3and 306.8ppm, dry matter basis , the lowest values (241.9 and 239.0) were a companied with 50 % organic + 50 % mineral and full organic fertilization treatments (no significant difference was found between these two treatment means).

Indeed , the vegetable organs can be lister by decreasing nitrate content as follows : leaves > stems > fruit (Pietro Santamaria, 1999 Meah et al., 1994) .

Higher value of free nitrate – N (306.8ppm) was recorded with local treatments

Regarding to free nitrate-N content of fleshy part of cantaloupe fruit, it can be calculated with multiplying the free nitrate –N content (dry matter basis) with fleshy part dry weight percentage and divided the result by 100 . The calculated free nitrate -N content 23.59, 18.39, 17.75 and 18.86 ppm for of local, 100 % mineral , 50 % organic + 50 % mineral and 100 % organic fertilization treatment, respectively . The previous amount represent 117.95, 91.95, 88.75 and 94.30 ppm nitrate for the same order of treatments. Similar results were obtained by Rembialkowska et al ,2000, who reveal that, the nitrate content of organic crops was 49 % that of convetial crops

The threshold amount of fleshy part eatable of cantaloupe fruit according to the most acceptable daily intake of nitrate (3.7 mg NO_3 / kg of body weight) the adult normal person (70 Kg as a body weight) is 2.75 Kg and 2.20 Kg of organic produced cantaloupe and local(commercial produced cantaloupe) under the conditions of this study .

CONCLUSION & RECOMMENDATION

From results we can concluded that completely organic farming reduce total yield and marketing yield quality but the edible part of plant is more healthy for human

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REFERENCES

Abd El-Hameed, A. M.; M. R. Mohamed and S. H. Sarhan (2003). Effect of micronutrients application on growth, yield and mineral composting of broad bean on saline soil. J. Agric. Sci. Mansoura Univ., 3: 211-217.

Agriculture. Agriculture J Sci Food Agric 87:2757–2762 and EC regulation. J Sci Food Agric 86:10–17 .

Black, C. A. (1965). Method of soil and water analysis. Part 2 : Madison, Wisconsin, USA.

Ewa Rembiałkowska (2007). Review. Quality of plant products from organic agriculture . Journal of the science and food agric.78 pp:2757-2762

Gomez, K. A. and A. A, Gomez (1984). Statistical Procedure for Agriculture Research 2nd . Ed., John wiley and Sons.

Hirondel, J. I. and J. L. I'Hirondel (2001). Nitrate and man, Toxic, Harmless or beneficial. Centre Hospitalier Universitaire de Caen, France.

Jackson, M. L. (1967). "Soil Chemical Analysis. Prentice". Hall of India, New Delhi.

Mahmoud, E.; A.Nasser; Paul, R.; Akkal-Corfini, N. ; and Abd El-Rahman – Lamyaa (2009). Effects of different organic and inorganic fertilizers on cucumber yield and some soil properties. World J. Agric. Sci., 5 (4): 408-414.

Meah MN, N, Harrison and A, Davis (1994) Nitrate and nitrite in foods and the diet. Food Add Contam 11:519–532.

Mozafar A(1993) Nitrogen fertilizers and the amount of vitaminsin plants: A review. J Plant Nutr;16:2479–2506.

Pietro Santamaria(1999).A Review Nitrate in vegetables: toxicity, content, intake. Quality of plant products from organic. 7(2) : pp. 161–173

Piper, C.S. (1950). "Soil and plant analysis." Inter. Sci. Pub., Inc. New York, 360-370.

Salunkhe DK, Desai BB.(1988) Effects of agricultural practices,handling, processing, and storage on vegetables. In:Karmas E, Harris RS, eds.Nutritional Evaluation ofFood Processing. New York: AVI Publishing Co,:23–71.

Singh, J.P.(1988).A Rapid Method for Determination of Nitratein Soiland Plant Extracts. Plant and Soil,110 :137-139 .

T. Breimer (1982). Environmental factors and cultural measures affecting the nitrate content in spinach. Fertilizer research 3(3): pp 191-292.

Takebe, M.; T. Ishihara; K. Matsuno; J. Fujimoto and T. Yoneyama (1995). Effect of nitrogen application on the contents of sugars, ascorbic acid, nitrate and oxalic acid in spinach (Spinacia oleracea L) and komatsuna (*Brassica compestris L*.). Japanese J. Soil Sci. Plant Nutr., 66: 238-246.

Virginia Worthington, M.S., Sc.D., C.N.S.(2001). Nutritional Quality of Organic Versus Conventional Fruits, Vegetables, and Grains. The Journal Of Alternative And Complementary Medicine

Zhaohui Wanga & Shengxiu Lia*(2007). Effects of Nitrogen and Phosphorus Fertilization on Plant Growth and Nitrate Accumulation in Vegetables. Pp 539-556

تأثير نظام التسميد التكاملى على نبات الكانتلوب فى الأراضى حديثة الإستصلاح

محمد السيد رجب * , السيد ابراهيم الجميلى ** و جمعه لبيب أحمد ***
قسم الحشرات إقتصاديه – كلية الزراعه – جامعة المنصوره *
قسم الخضر – كلية الزراعه – جامعة المنصوره **
قسم الأراضى – كلية الزراعه – جامعة المنصوره ***

أقيمت تجربتان حقليتان عامى ٢٠١٣ و ٢٠١٤ فى منطقة زيان بمحافظة الدقهلية لدراسة تأثير التسميد التكاملى على المحصول والمحتوى النيتروجينى والبوتاسي والصوديومى والنتراتى لنبات الكانتلوب وكان من أهم النتائج المتحصل عليها مايلى :

- حقق التسميد المعدنى الكامل أعلى وزن لأوراق النبات الطازج والتسميد العضوى الكامل حقق أقل قيمه لذلك المقياس من مقاييس النمو . المحصول النسبى من الثمار لمعاملة التسميد العضوى ٧٤.٢٨ % من محصول معاملة التسميد المعدنى .
- بالرغم من الإختلافات البسيطه فى معامل الإستدارة بين المعاملات إلا أن معاملة التسميد العضوى الكامل حققت أعلى قيمه لمعامل الإستداره (0.996,). بلغت نسبة اللحم فى الثمار٨٥.٩٤ % ونسبة المادة الجافة فى اللحم ٧.٨ % لمعاملة التسميد العضوى الكامل .
- التسميد العضوى الكامل تسبب فى نقص المحتوى النيتروجينى للسيقان بدرجة كبيرة عن التسميد المعدنى .
- التسميد العضوى الكامل حقق أعلى تركيز للبوتاسيوم فى الأوراق
- محتوى السيقان من النترات الحره أعلى بكثير من محتوى الأوراق والثمار .ومحتوى الجزء اللحمى لثمار الكانتلوب الناتج من معاملة التسميد العضوى الكامل ٩٤.٣ جزء فى المليون مقابل ١١٧.٩٥ جزء فى المليون للكانتلوب الناتج من معاملة التسميد المعدنى الكامل .
- يمكن للشخص البالغ من الوزن ٧٠ كجم أن يتناول ٢.٧٥ كجم من الكانتلوب المنتج عضويا مقابل ٢.٢٠ كجم من الكانتلوب المنتج باستخدام ١٠٠ % الأسمدة المعدنية .