

	**	*
drjawad58@yahoo.com .	-	-
.	-	-
()		
2009		
% 50 % 100		
100 % 50 0)		
1- .NPK (240:120:400)		50
		% 33.3
		(%)
% 0.56 % 4.87		
% 5.11 (% 33.3 + %33.3 + % 33.3)		% 4.47
(240 - 120 - 400)		% 4.62
- 400) (% 33.3 + %33.3 + % 33.3)		% 0.59
% 4.89 % 0.65 % 5.40		1- .NPK
		(240 - 120

(*Solanum tuberosum* L.)

.Solanaceas

) 1960

.(1989

تاريخ استلام البحث 2012 / 2 / 15 .

تاريخ قبول النشر 2012 / 5 / 20 .

البحث مستل من أطروحة دكتوراه للباحث الأول

; (2000) Mineeve .

(2000)Borisov

% 3 (2007)

Draga

% 4.60 0.36 4.43
4.27 1- NPK 240 80 320

% 5.51 0.32

% 4.35 0.33 4.43

(2007)

% 5

% 1.51 0.78 1.34
NPK 1- .NPK 600 240 200
0.94

% 1.10 0.93 1.46
% 1.20 0.55

K P N

40

Typic Torrifluent

2009

2009 24 2009 24 ()

(1)

(2)

(30-0)

(8.4)

RCBD

(1987) (0.8)²

1

1- 50

25

%50) (%50 + %50) %100 %100 %100
(%33.3 + %33.3+ %33.3) (%50 + %50) (%50 +

M₇ M₆ M₅ M₄ M₃ M₂ M₁ M₀

(240-120-400) (120-60-200)

.NPK¹⁻ S₂ S₁ S₀) (2006
 2009 10
 14 25 12-10
 N % 46
 K %41.5 P %20
 25 10 25

620 Spectrophotometer Microkjeldhal
 .(1980) Haynes Flamephtometer
 LSD (ANOVA)
 .(2001) SAS (RCBD)
 0.05

:

1. النتروجين

(3)
 4.87 % 8.6 10.7 M₃ % 4.78 M₇ %
 (% 4.40) M₀
 M₅ M₄ M₆
 % 4.62 S₁ S₂ % 5.11
 S₀ % 11.6 23.4
 .% 4.14

S₀M₇ % 5.4
 .% 3.80 S₀M₀ % 42

.1

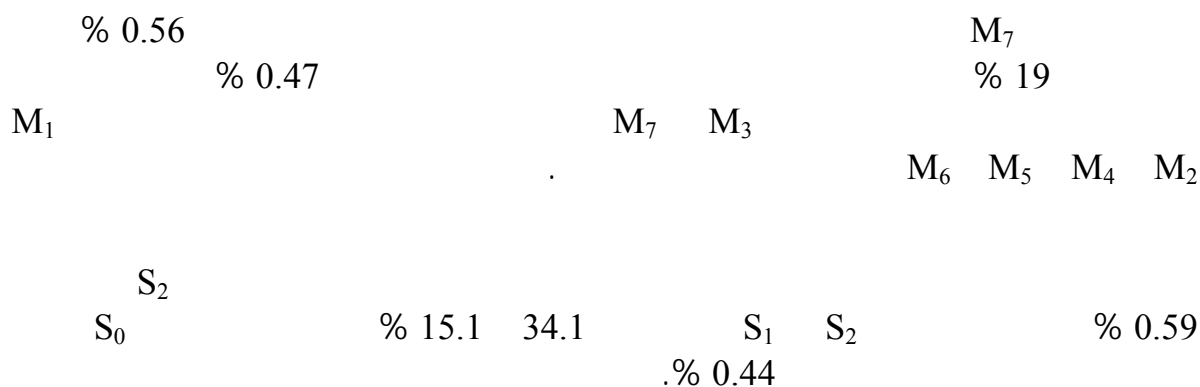
			1-	
34.6	29.5	34.7	5:1	
6.95	6.71	6.34	5:1	pH
212.1	250.0	210.3	1-	
123	145	122		
7.1	8.2	9.1		C/N
7.3	17.5	13.3	1-	
20	18	9		
41	32	36		

.2

-	7.5	1:1 pH	
1-	4.32	1:1 EC	
1-	27.7		
	0.9		
	240		
1-	25.6		
1-	282.3		
=	442.0		
=	275.7		
-	Loam		
3-	1.54		
1-	80.1		
	14.26		
	170		

2- الفسفور

(4)



جدول 3. تأثير مصدر السماد العضوي و التسميد المعدني في تركيز النتروجين في الاوراق في مرحلة النمو الخضري % .

المتوسط	التسميد المعدني			التسميد العضوي
	S ₂ 240 - 120 - 400	S ₁ 120 - 60 - 200	S ₀ 0 - 0 - 0	
4.40	5.00	4.40	3.80	M ₀ بدون اضافة مادة عضوية
4.47	5.06	4.51	3.86	M ₁ 100 % أبقار
4.51	5.07	4.54	3.95	M ₂ 100 % أغنام
4.78	5.22	4.76	4.36	M ₃ 100 % دولجن
4.61	5.06	4.58	4.21	M ₄ 50 % أبقار + 50 % أغنام
4.65	5.07	4.65	4.25	M ₅ 50 % أبقار + 50 % دولجن
4.69	5.07	4.68	4.32	M ₆ 50 % أغنام + 50 % دولجن
4.87	5.40	4.84	4.37	M ₇ 33.3 % أبقار + 33.3 % أغنام 33.3+ % دولجن
	5.11	4.62	4.14	المتوسط
L.S.D	M	S	M×S	
(0.05)	0.09	0.05	0.16	

جدول 4. تأثير مصدر السماد العضوي والتسميد لمعدني في تركيز الفسفور في الاوراق في مرحلة النمو الخضري %.

المتوسط	التسميد المعدني			التسميد العضوي
	S ₂ 240 - 120 - 400	S ₁ 120 - 60 - 200	S ₀ 0 - 0 - 0	
0.47	0.54	0.49	0.39	M ₀ بدون إضافة مادة عضوية
0.50	0.58	0.50	0.44	M ₁ 100 % أبقار
0.51	0.59	0.50	0.45	M ₂ 100 % أغنام
0.54	0.63	0.53	0.48	M ₃ 100 % بولجن
0.51	0.59	0.51	0.45	M ₄ 50 % أبقار + 50 % أغنام
0.51	0.61	0.51	0.44	M ₅ 50 % أبقار + 50 % بولجن
0.52	0.59	0.53	0.46	M ₆ 50 % أغنام + 50 % بولجن
0.56	0.65	0.55	0.48	M ₇ 33.3 % أبقار + 33.3 % أغنام + 33.3 % بولجن
	0.59	0.51	0.44	المتوسط
L.S.D	M	S	M×S	
(0.05)	0.03	0.01	0.05	

S₀M₀ % 66.7 % 0.65 S₂M₇
 .% 0.39

.3

(5)

M₇ % 9.8 M₂ M₁ %4.47 % 4.07 M₀
 % 4.28 S₀ S₂ S₁ % 4.62 % 10.6 19.4 % 3.87
 % 36.6 S₂M₇ % 4.89 S₀M₀
 .% 3.58

(5 4 3)

جدول 5. تأثير مصدر السماد العضوي والتسميد المعدني في تركيز البوتاسيوم في الاوراق في مرحلة النمو الخضري %

المتوسط	التسميد المعدني			التسميد العضوي
	S ₂ 240 - 120 - 400	S ₁ 120 - 60 - 200	S ₀ 0 - 0 - 0	
4.07	4.47	4.16	3.58	M ₀ بدون اضافة مادة عضوية
4.14	4.50	4.16	3.76	M ₁ 100 % أبقار
4.16	4.56	4.25	3.69	M ₂ 100 % أغنام
4.39	4.77	4.37	4.04	M ₃ 100 % دواجن
4.22	4.50	4.31	3.85	M ₄ 50 % أبقار + 50 % أغنام
4.28	4.59	4.31	3.95	M ₅ 50 % أبقار + 50 % دواجن
4.34	4.74	4.31	3.98	M ₆ 50 % أغنام + 50 % دواجن
4.47	4.89	4.40	4.30	M ₇ 33.3 % أبقار + 33.3 % أغنام 33.3+ % دواجن
	4.62	4.28	3.87	المتوسط
L.S.D	M	S	M×S	
(0.05)	0.13	0.08	0.24	

Mooleki)

(1999 Dahama)

(2004

Brown)

(2000 Marha)

(1995 Tomar)

(1965

(2001 Marin) Siderophere

$$\% 33.3 \quad M_7 \quad (\quad \%100) M_3 \quad (\quad)$$

1982)Widjajanto

() ; (2003) Sharif-Hossain ; (1999) Bandisi Arisha ; (1994) Arisha ; (2007) ()

NPK

NPK
S₁ 1- .NPK (240 - 120 - 400) S₂ 1- .NPK (120 - 60 - 200)
NPK

; 1992 Rohricht)

NPK

.(2000 Mineeve ; 1995 Shehata

1- . 50 (% 33.3 + %33.3 + % 33.3)
1- 240:120:400

.2007 .

. 88. - .

NPK

.2006 .

. 118. .

(K N) .2007 .

.1987.

.37 -33 /

.1989 .

Arisha, H. M. E. 1994. Effect of nitrogen fertilizer level and frequent of application on growth, yield and tuber quality of potato under reclaimed soil zigzag. *J. of Agric. Res.* 21(3-6):925-934.

Arisha, H. and A. Bandisi. 1999. Effect of mineral and organic fertilizers on growth, yield and tuber quality of potato under sandy soil conditions zigzag *J. Agric. R.* 26(2):391-409.

Brown, M. E., R. M. Jakson and S. K. Burlingham. 1965. Effect of Azotobacter on plant growth. Report Rothamstid Expt. Sta. 196

Borisov, V. A. 2000. The Ecologically safe and Environmentally Friendly Fertilizing system. *J. potato and Vegetables.* No5, 19-23.

Dahama. A. K. 1999. Organic farming for sustainable agriculture. *Agro Bola nice. Daryagun.* New Delhi.

Haynes, R. J. 1980. A Comparison of two modified Kjeldhal digestion techniques for Mulite-element plant analysis with conventional wet and dry ashing methods comm. *Soil. Sci. Plant Analysis.* 11(5):459-467.

Marha, G. V. Sandera. B. Jaime and M. Partrcia. 2000. Isolation of Entrobacteria, Azotobacter and Pseudomonas sp. Producers of IAA and Siderophors from Clombian rice rhizoshere. *Rev. Aner. J. Microbial.* 42:171-176.

Marin, A., L. J. Lirmann, S. L. Brantley and V. Lebron. 2001. The release of Fe and Mo from silicates by Azotobacter vinelandii. *Seventh annual V. M. Gold Schmidt Conf. USA.*

Mineeve, V. A. B. Debretseni, and T. Mazurt. 2000. Biological farming and mineral fertilizers. *Mascovu , kolos.* 415 P(in Russian).

- Mooleki, S. P, J. J. Schoenau and J. I. Charles. 2004. Effect of rate frequency of feedlot manure on Soil nitrogen availability. *Soil. Sci.* 84:199 - 210.
- Rohricht, C. 1992. Investigations on the effectiveness of mineral phosphorus fertilizers in potato production. *Bodenkulture.* 43:1. 55 – 63.
- Sharif-Hossain, A. B. M., M. A. Hakim and Justus. M. Onguso. 2003. Effect of manure and fertilizers on the growth and yield of Potato, *Pakistan Journal of Biological Sciences.* 6 (14) :1243 -1246.
- Shehata. S.A. and G. A. Bakeer. 1995. Effect of Irrigation methods and nitrogen level on potatoes in sandy soil. *3rd conf. of MirSoci. of Agric. Eng.*
- Tomar, R. K. S., K. N. Namedeo, J. S. Raghu and K. P. Tiwar. 1995. Effect of Azotobacter and plant growth regulators on productivity of Wheat (*Triticum aestivum*) in relation to fertilizer application. *Indian. J. Agric. Sci.* 65(4):256-259.
- Widjajanto, B. D. and Widode. 1982. The effect of farmyard manure and nitrogen fertilizer and production of potato. *Buletin penelitan Horticulture,* 9(3) :727-34(*C.F. Field Crop Abst.*, 39:4516,1983).

EFFECT OF ORGANIC AND MINERAL FERTILIZATION ON CONCENTRATIONS OF N, P AND K AT LEAVES OF POTATO

Jawad T. Mahmood * Hameed K. AL.Salmani Ismeal K. Al-Samerria

*College of Agriculture – Baghdad University- Drjawad58@yahoo.com

ABSTRACT

A Field experiment was Conducted in a private Field at Al- Latifiya, on a Loamy soil at autumn season 2009, to study the effect of (Cow, sheep and chicken residues at levels of 100%, 50% and 33.3% of recommended quantity which was 50 T.ha⁻¹ of each source of residues. Three levels of mineral fertilizers were used, Which were (0, 50 % and 100 %) Of recommended fertilizers which were (240: 120: 400) Kg NPK.ha⁻¹ respectively, on the concentrations of N, P and K at leaves in vegetative growth,. A Randomized complete block design (RCBD) was used at three replications, total yield was determined, The results showed that: A significant incensement in N, P and K concentration (4.87, 0.56 and 4.47%) respectively for the treatment (33.3 % cow, 33.3 % sheep and 33.3 % chicken) residues. Concentrations of N, P and K were (5.11, 0.59 and 4.62 %) when mineral fertilizers were used at rates of (240 – 120 – 400) Kg NPK.ha⁻¹. The concentrations of N, P and K of the interaction between above organic and mineral fertilizers gave high concentrations of N, P and K at leaves which were (5.40, 0.65 and 4.89 %) respectively.

Key words : Organic , Mineral , Vegetative , Potato .
