



**Table (3)** Effect of organic fertilizers sources and application method potassium humate on vegetative growth characters of sweet potato plants at 120 days after trans planting during seasons of 2014 and 2015.

Charact. Treat.	2014 season					2015 season				
	Vine length(cm)	No. of branches	No. of roots	D.W of shoot(g)	D.W of roots(g)	Vine length(cm)	No. of branches	No. of roots	D.W of shoot(g)	D.W of roots (g)
<i>Effect of organic fertilizers sources *</i>										
<b>1*</b>	139.44	6.78	3.44	214	84	138.56	7.11	3.89	208	78
<b>2</b>	150.33	8.67	3.78	249	89	152.67	8.89	4.00	260	93
<b>3</b>	156.00	9.56	4.11	259	102	159.11	8.78	4.22	271	105
<b>4</b>	168.33	10.44	4.78	268	118	171.00	10.67	4.33	385	120
<b>LSD<sub>0.05</sub></b>	<b>2.78</b>	<b>1.69</b>	<b>NS</b>	<b>7.59</b>	<b>2.62</b>	<b>3.18</b>	<b>1.79</b>	<b>NS</b>	<b>4.67</b>	<b>3.27</b>
<i>Effect of potassium humate application at the rate of (2 g/L)**</i>										
<b>With out**</b>	145.75	7.50	3.67	252	75	147.25	7.67	3.83	262	81
<b>(SA)</b>	154.58	8.92	4.08	276	99	156.33	9.08	4.17	277	101
<b>(FA)</b>	166.25	10.17	4.33	279	107	163.01	9.83	4.67	301	108
<b>LSD<sub>0.05</sub></b>	<b>2.10</b>	<b>1.01</b>	<b>NS</b>	<b>15.6</b>	<b>1.94</b>	<b>2.50</b>	<b>1.11</b>	<b>NS</b>	<b>10.7</b>	<b>2.59</b>

1: \* Recommended chemical fertilizers 2: 15 m<sup>3</sup>/fed. FYM/. 3: 15 m<sup>3</sup>/fed. Compost 4: 5 m<sup>3</sup>/fed .Chicken manure  
 \*\* with out (SA) soil application (FA) Foliar application

**Table (4).** Effect of interaction between organic fertilizers sources and application method potassium humate on vegetative growth characters of sweet potato plants at 120 days after trans planting during seasons of 2014 and 2015.

Charact. Treat.		2014 season					2015 season				
		Vine length(cm)	No. of branches	No. of roots	D.W of shoots (g)	D.W of roots (g)	Vine length(cm)	No. of branches	No. of roots	D.W of shoots (g)	D.W of roots (g)
1*	With out ** (SA) (FA)	131.33	6.0	3.33	191	79	128.33	6.33	3.67	182	71
		141.33	7.00	4.00	218	82	140.67	7.33	4.00	192	78
		145.67	7.33	4.33	234	91	146.67	7.67	4.33	202	87
2	With out (SA) (FA)	144.67	7.00	3.67	243	83	136.33	7.33	5.67	231	81
		151.67	9.00	3.67	267	89	154.00	9.00	4.33	253	94
		154.67	10.00	4.33	269	98	157.00	9.67	4.67	273	97
3	With out (SA) (F)	148.33	8.33	3.33	262	87	152.67	7.33	4.00	263	89
		156.33	9.00	3.67	263	107	157.67	9.33	4.33	271	108
		159.00	10.67	4.00	278	113	167.67	10.33	4.33	371	115
4	With out (SA) (FA)	154.67	9.00	4.00	312	109	161.33	9.33	4.33	362	105
		196.33	10.33	4.67	358	119	173.67	10.66	4.67	372	111
		177.33	12.67	5.67	409	126	180.33	12.00	5.33	418	118
<b>L.S.D at 0.05</b>		<b>4.2</b>	<b>NS</b>	<b>NS</b>	<b>13.82</b>	<b>3.88</b>	<b>5.01</b>	<b>NS</b>	<b>NS</b>	<b>7.98</b>	<b>5.18</b>

1: \* Recommended chemical fertilizers with out      2: 15 m<sup>3</sup> /fed. FYM/      3: 15 m<sup>3</sup> /fed. Compost      4: 5 m<sup>3</sup> /fed .Chicken manure      \*\*  
 (SA) soil application      (FA) Foliar application

**Table (5).** Effect of organic fertilizers sources and application method potassium humate on N, P and K content in different parts of sweet potato plants at 120 days after trans planting during seasons of 2014 and 2015.

Charact. Treat.	2014 season						2015 season					
	Shoot			Root			Shoot			Root		
	N%	P%	K%	N%	P%	K%	N%	P%	K%	N%	P%	K%
<i>Effect of organic fertilizers sources *</i>												
1*	2.19	0.308	2.32	1.22	0.250	1.87	2.16	0.319	2.22	1.12	0.262	1.45
2	2.48	0.388	2.43	1.23	0.290	1.96	2.59	0.394	2.36	1.24	0.302	1.57
3	2.73	0.403	2.45	1.27	0.340	1.91	3.14	0.409	2.57	1.35	0.366	1.81
4	3.79	0.373	2.66	1.37	0.364	1.94	4.05	0.386	2.60	1.49	0.338	1.97
LSD <sub>0.05</sub>	<b>0.28</b>	<b>0.02</b>	<b>0.06</b>	<b>0.04</b>	<b>0.03</b>	<b>0.05</b>	<b>0.15</b>	<b>0.03</b>	<b>0.10</b>	<b>0.04</b>	<b>0.02</b>	<b>0.05</b>
<i>Effect of potassium humate application at rate (2 g/L)**</i>												
<b>With out **</b>	2.43	0.331	2.36	1.211	0.277	1.75	2.52	0.344	2.42	1.24	0.283	1.55
<b>( SA )</b>	2.91	0.372	2.47	1.254	0.313	1.96	3.03	0.382	2.55	1.32	0.320	1.86
<b>( FA )</b>	3.06	0.401	2.70	1.344	0.344	2.05	3.38	0.411	2.64	1.34	0.348	1.99
LSD <sub>0.05</sub>	<b>0.27</b>	<b>0.01</b>	<b>0.05</b>	<b>0.03</b>	<b>0.02</b>	<b>0.04</b>	<b>0.14</b>	<b>0.018</b>	<b>0.09</b>	<b>0.03</b>	<b>0.01</b>	<b>0.04</b>

1: \* Recommended chemical fertilizers 2: 15 m<sup>3</sup>/fed. FYM/ 3: 15 m<sup>3</sup>/fed. Compost 4: 5 m<sup>3</sup>/fed. Chicken manure

\*\* with out (SA) soil application (FA) Foliar application

**Table (6).** Effect of interaction between organic fertilizers sources and application method potassium humate on N, P and K content in different parts of sweet potato plants at 120 days after trans planting during seasons of 2014 and 2015.

Charact. Treat.		2014 season						2015 season					
		Shoot			Root			Shoot			Root		
		N%	P%	K%	N%	P%	K%	N%	P%	K%	N%	P%	K%
1	<b>With out ** ( SA ( FA )</b>	1.99	0.277	2.29	1.15	0.207	1.79	1.85	0.273	2.23	1.17	0.217	1.57
		2.18	0.300	2.53	1.19	0.257	1.87	2.29	0.333	2.38	1.22	0.250	1.77
		2.40	0.347	2.75	1.31	0.287	1.96	2.33	0.350	2.59	1.28	0.320	1.86
2	<b>With out ( SA ( FA )</b>	2.24	0.333	2.38	1.16	0.263	1.74	2.42	0.370	2.42	1.19	0.277	1.63
		2.54	0.393	2.53	1.21	0.280	2.01	2.64	0.390	2.55	1.23	0.323	1.79
		2.67	0.407	2.69	1.30	0.327	2.14	2.72	0.423	2.63	1.28	0.307	1.99
3	<b>With out ( SA ( F )</b>	2.39	0.347	2.41	1.22	0.313	1.72	2.80	0.370	2.44	1.33	0.293	2.11
		2.78	0.420	2.60	1.24	0.350	1.94	2.99	0.397	2.59	1.37	0.350	1.76
		2.89	0.443	2.67	1.35	0.357	2.07	3.64	0.417	2.71	1.35	0.373	1.89
4	<b>With out ( SA ( FA )</b>	2.94	0.357	2.33	1.31	0.323	1.74	3.07	0.363	2.54	1.27	0.343	1.81
		3.51	0.377	2.63	1.38	0.363	2.02	4.25	0.410	2.68	1.37	0.357	2.03
		<b>3.89</b>	<b>0.407</b>	<b>2.71</b>	<b>1.43</b>	<b>0.407</b>	<b>2.04</b>	<b>4.47</b>	<b>0.453</b>	<b>2.73</b>	<b>1.43</b>	<b>0.399</b>	<b>2.12</b>
<b>L.S.D at 0.05</b>		<b>0.54</b>	<b>0.02</b>	<b>0.10</b>	<b>0.06</b>	<b>0.04</b>	<b>0.08</b>	<b>0.28</b>	<b>0.04</b>	<b>0.18</b>	<b>0.06</b>	<b>0.02</b>	<b>0.08</b>

1: \* Recommended chemical fertilizers 2: 15 m<sup>3</sup>/fed. FYM/ 3: 15 m<sup>3</sup>/fed. Compost 4: 5 m<sup>3</sup>/fed .Chicken manure  
 \*\* with out (SA) soil application (FA) Foliar application

**Table (7).** Effect of organic fertilizers sources and application method potassium humate on yield and its components of sweet potato at harvesting during. Seasons of 2014 and 2015

Charact. Treat.	2014 season							2015 season						
	No. of tuber roots	Average tuber root (g)	Yield plant (g)	Marketable (ton)	Num marketable (ton)	Culls (ton)	Total yield (ton)	No. of tuber roots	Average tuber root (g)	Yield plant (g)	Marketable (ton)	Num marketable (ton)	Culls (ton)	Total yield (ton)
<i>Effect of organic fertilizers*</i>														
<b>1*</b>	3.44	126.1	433.7	6.505	2.771	1.627	10.842	3.89	106.5	414.2	6.730	1.553	2.071	10.355
<b>2</b>	3.78	129.4	489.1	7.948	3.057	1.222	12.228	4.00	118.1	472.3	7.793	2.125	1.889	11.807
<b>3</b>	4.11	138.9	570.9	9.996	3.140	1.142	14.280	4.22	122.7	517.7	8.395	2.291	2.035	12.719
<b>4</b>	4.78	127.7	610.4	11.445	3.052	0.763	15.260	4.33	139.5	603.9	11.323	2.265	1.418	15.098
<b>LSD<sub>0.05</sub></b>	N S	2.21	5.17	2.46	1.05	0.902	2.43	N S	1.92	4.35	1.56	0.801	0.891	2.375
<i>Effect of potassium humate application at rate (2 g/L)**</i>														
<b>With out **</b>	3.67	120.3	441.5	6.843	2.428	1.766	11.037	3.83	106.5	460.3	6.900	1.725	2.875	11.500
<b>( SA )</b>	4.08	125.2	511.3	8.948	2.566	1.278	12.783	4.17	118.1	511.4	9.333	2.173	1.279	12.785
<b>( FA )</b>	4.25	137.8	585.5	10.978	2.911	1.473	14.637	4.67	123.6	577.3	10.535	2.453	1.443	14.433
<b>LSD<sub>0.05</sub></b>	N S	<b>1.53</b>	<b>14.49</b>	<b>0.78</b>	<b>0.77</b>	<b>0.122</b>	<b>2.751</b>	N S	<b>3.50</b>	<b>11.67</b>	<b>0.114</b>	<b>0.121</b>	<b>0.211</b>	<b>1.695</b>

1: \* Recommended chemical fertilizers 2: 15 m<sup>3</sup>/fed. FYM/ 3: 15 m<sup>3</sup>/fed. Compost 4: 5 m<sup>3</sup>/fed .Chicken manure

\*\* Without (SA) soil application (FA) Foliar application

**Table (8).** Effect of interaction between organic fertilizers sources and application method humate potassium on yield and its components of sweet potato at harvesting during seasons of 2014 and 2015

Charact. Treat.		2014 season							2015 season						
		No. of tuber roots	Average tuber root (gm)	Yield plant (gm)	Marketable	Num marketable	Culls	Total Yield (ton)	No. of tuber roots	Average tuber root (gm)	Yield plant (gm)	Marketable	Num marketable	Culls	Total yield (ton)
1*	With out**	3.13	129.8	406.33	6.095	1.523	2.539	10.157	3.67	157.3	377.33	5.660	1.415	2.358	9.433
	(SA)	4.00	108.2	432.67	7.031	2.380	1.406	10.817	4.00	101.5	406.00	6.187	2.133	1.830	10.150
	(FA)	4.33	106.7	462.00	7.853	2.426	1.271	11.550	4.33	106.1	459.25	7.040	2.325	2.115	11.480
2	Without	3.37	122.5	449.67	6.522	2.923	1.798	11.243	4.67	95.5	446.00	6.691	2.119	2.340	11.150
	((SA)	3.67	132.0	484.33	7.255	3.027	1.824	12.106	4.33	113.5	491.67	7.376	1.844	3.073	12.293
	(FA)	4.33	123.2	533.33	8.933	2.933	1.467	13.333	4.67	106.9	499.33	7.615	1.873	2.995	12.483
3	Without	3.33	155.8	518.67	7.913	3.114	1.946	12.973	4.00	114.6	458.33	6.874	1.718	2.864	11.456
	(SA)	3.67	156.2	573.33	8.400	3.200	1.734	13.334	4.33	118.1	511.33	7.986	2.045	2.749	12.780
	(F)	4.00	152.9	611.67	9.603	3.153	1.577	14.333	4.33	134.7	583.33	8.896	2.037	2.650	13.583
4	Without	4.00	137.8	551.33	9.180	2.835	1.485	13.500	4.33	133.6	578.33	8.074	2.019	3.364	13.457
	(SA)	4.67	129.6	605.00	9.609	2.933	1.241	13.783	4.67	136.3	636.67	9.461	2.237	3.281	14.916
	(FA)	5.67	110.2	625.00	10,133	3.781	1.209	15.123	5.33	122.9	665.00	10.841	3.275	1.260	15.376
<b>L.S.D at 0.05</b>		<b>N S</b>	<b>3.06</b>	<b>8.98</b>	<b>3.56</b>	0.74	0.44	3.50	<b>N S</b>	<b>2.48</b>	<b>7.34</b>	<b>1.76</b>	0.242	0.422	3.39

1: \* Recommended chemical fertilizers 2: 15 m<sup>3</sup>/fed. FYM/ 3: 15 m<sup>3</sup>/fed. Compost 4: 5 m<sup>3</sup>/fed .Chicken manure

\*\* Without (SA) soil application (FA) Foliar application

**Table (9).** Effect of organic fertilizers sources and potassium humate on Storage root quality of sweet potato plants during seasons of 2014 and 2015.

Charact. Treat.	2014 season					2015 season				
	TSS (%)	Reducing suger (%)	Non reducing (%)	Total suger (%)	Carbohydrates (%)	TSS (%)	Reducing suger (%)	Non reducing (%)	Total suger (%)	Carbohydrates (%)
<b>Effect of organic fertilizers*</b>										
1*	5.83	6.2	2.4	8.6	71	5.54	6.3	2.5	8.8	72
2	6.30	6.6	3.3	9.9	73	6.37	6.7	3.0	9.7	73
3	6.37	7.1	3.0	10.1	73	6.47	7.1	3.1	10.2	74
4	6.69	7.5	3.4	10.9	74	6.91	7.4	3.3	10.7	75
LSD <sub>0.05</sub>	0.33	0.24	0.45	0.32	2.07	0.44	0.37	0.28	0.23	1.59
<b>Effect of potassium humate application at rate (2 g/L)**</b>										
with out**	5.8	6.1	2.5	8.6	70	5.87	6.2	2.6	8.8	72
( SA)	6.4	7.0	2.95	9.95	73	6.39	7.2	3.1	10.3	74
( SF )	6.68	7.4	3.5	10.9	76	6.71	7.3	3.3	10.6	77
LSD <sub>0.05</sub>	0.24	0.18	0.33	0.24	1.56	0.29	0.27	0.21	0.14	1.17

1: \* Recommended chemical fertilizers 2: 15 m<sup>3</sup> /fed. FYM/. 3: 15 m<sup>3</sup> /fed. Compost 4: 5 m<sup>3</sup> /fed .Chicken manure

\*\* Without (SA) soil application ( FA) Foliar application



**Table (10).** Effect of interaction between organic fertilizers sources and potassium humate on Storage root quality of sweet potato at harvesting during seasons of 2014 and 2015.

Treatments		2014 season					2015 season				
		TSS (%)	Reducing suger (%)	Nun reducing (%)	Total suger (%)	Carbo hydrate (%)	TSS (%)	Reducin g suger (%)	Nun reducin g (%)	Total suger (%)	Carbohy - drates (%)
1*	<b>With out**</b>	5.6	5.5	2.3	7.8	69	5.1	5.8	2.22	8.02	71
	( SA)	5.9	6.4	2.4	8.8	73	5.6	6.5	2.63	9.13	73
	( SF)	6.0	6.7	2.5	9.2	74	6.1	6.6	2.7	9.3	75
2	<b>With out</b>	5.7	6.2	2.5	8.7	71	6.2	6.2	2.7	8.9	74
	( SA)	6.4	6.7	2.7	9.4	72	6.4	6.8	3.0	9.8	75
	( SF)	6.5	6.9	3.5	10.4	75	6.6	7.1	3.3	10.4	76
3	<b>With out</b>	5.9	6.3	2.6	8.9	69	6.2	6.1	2.8	8.9	71
	( SA)	6.4	7.2	3.0	10.2	73	6.4	6.5	4.2	10.7	74
	( SF)	6.8	7.6	3.5	11.1	77	6.8	7.5	3.4	10.9	76
4	<b>With out</b>	5.8	6.5	2.7	9.2	72	6.1	6.3	2.9	9.2	74
	( SA)	6.9	7.8	3.7	11.5	74	7.2	7.5	4.0	11.5	75
	( SF)	7.1	8.3	3.7	12	77	7.6	7.9	3.7	11.6	79
<b>L.S.D at 0.05</b>		0.48	0.36	0.66	0.48	3.12	0.58	0.54	0.42	0.28	2.34

1: \* Recommended chemical fertilizers 2: 15 m<sup>3</sup>/fed. FYM/. 3: 15 m<sup>3</sup>/fed. Compost 4: 5 m<sup>3</sup>/fed .Chicken manure

\*\* Without

(SA) soil application (FA) Foliar application