

Table (1-a): Effect of cattle manure (CM) and Egyptian rock phosphate (ERP) on the herb fresh weight/plant (g) of *Artemisia dracunculus* L. in the 2004 and 2005 seasons

Egyptian Rock phosphat e (RP), kg/fed.	Cut															Grand Mean (ERP)		
	First					Second					Third							
	Cattle manure (CM), m ³ /fad.																	
	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (RP)			
First season (2004)																		
0	167.29	220.00	256.84	318.72	240.71	269.32	347.56	375.55	475.22	366.91	253.73	331.84	352.73	464.95	350.81	319.48		
25	213.46	351.07	448.41	451.98	366.23	331.62	454.25	573.27	659.83	504.74	324.84	444.73	559.07	644.82	493.37	454.78		
50	246.25	391.23	469.13	456.08	390.67	438.66	564.14	687.60	678.52	592.23	427.01	537.50	677.60	654.41	574.13	519.01		
Mean(CM)	209.00	320.77	391.46	408.93	332.54	346.53	455.32	545.47	604.52	487.96	335.19	438.02	529.80	588.06	472.77			
<u>LSD (0.05)</u>																		
ERP					16.151					16.321					15.825	15.111		
CM					14.998					14.144					13.974			
ERP x CM					10.989					11.283					11.944			
Grand Mean (CM)																		
Cattle manure (CM), m ³ /fad.																		
					0						20						40	
					296.91						404.70						488.91	
<u>LSD (0.05)CM</u>																13.108		
Second season (2005)																		
0	159.94	187.84	206.19	212.70	191.67	239.88	320.53	346.26	367.57	318.56	247.37	296.63	346.80	395.69	321.62	277.28		
25	184.37	252.49	299.15	345.65	270.42	311.26	389.08	469.82	524.61	423.69	286.59	355.99	448.39	458.30	387.32	360.48		
50	246.75	273.44	377.65	357.05	313.72	358.41	426.68	577.30	547.75	477.54	327.54	427.99	521.98	496.27	443.45	411.57		
Mean(CM)	197.02	237.92	294.33	305.13	258.60	303.18	378.76	464.46	479.98	406.60	287.17	360.20	439.06	450.09	384.13			
<u>LSD (0.05)</u>																		
ERP					15.319					15.419					14.385	14.278		
CM					13.140					13.229					12.200			
ERP x CM					10.275					10.453					10.395			
Grand Mean (CM)																		
Cattle manure (CM), m ³ /fed.																		
					0						20						40	60
					262.46						325.63						399.28	411.73
<u>LSD (0.05)CM</u>																13.193		

Table (1, b): Effect of cattle manure (CM) and Egyptian rock phosphate (ERP) on the herb dry weight/plant (g) of *Artemisia dracunculus* L. at the 2004 and 2005 seasons.

Egyptian Rock phosphate (ERP), kg/fed.	Cut															Grand Mean (ERP)
	First					Second					Third					
	Cattle manure, (CM) m ³ /fed.															
	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	
2004																
0	57.72	76.91	89.79	114.61	84.76	95.12	123.18	134.45	171.08	130.96	90.33	119.46	128.31	165.52	125.93	113.88
25	74.28	125.82	157.21	162.71	130.01	120.71	163.89	206.37	234.58	181.39	113.82	159.56	203.50	231.36	177.06	162.82
50	87.67	137.56	168.14	164.19	139.39	159.67	203.09	247.55	237.27	211.90	153.72	182.75	243.94	235.33	203.94	185.08
Mean(CM)	73.23	113.43	138.38	147.17	118.05	125.17	163.39	196.12	214.31	174.75	119.29	153.92	191.94	210.74	168.97	
LSD (0.05)																
ERP					9.725					10.422					10.054	11.881
CM					12.646					13.714					13.351	
ERP x CM					15.132					16.500					15.966	
Grand Mean (CM)																
Cattle manure (CM), m ³ /fed.																
0					20					40					60	
105.90					143.58					175.48					190.74	
LSD (0.05)CM	12.540															
2005																
0	54.12	66.50	73.40	77.68	67.93	86.26	115.39	122.44	131.30	113.85	90.34	102.40	125.96	138.49	114.30	98.69
25	64.53	87.46	102.31	118.90	93.30	111.93	140.07	169.70	191.80	153.38	105.92	132.43	160.34	165.72	141.10	129.26
50	82.42	91.60	124.63	121.40	105.01	130.46	155.48	208.29	198.94	173.29	118.96	152.36	190.00	180.64	160.49	146.26
Mean(CM)	67.02	81.85	100.11	105.99	88.74	109.55	136.98	166.81	174.01	146.84	105.07	129.06	158.77	161.62	138.63	
LSD (0.05)																
ERP					8.156					9.753					10.074	10.506
CM					10.245					11.866					11.344	
ERP x CM					12.471					13.056					12.658	
Grand Mean (CM)																
Cattle manure (CM), m ³ /fed.																
0					20					40					60	
93.88					115.96					141.90					147.21	
LSD (0.05)CM	11.522															

Table (2, a): Effect of cattle manure (CM) and Egyptian rock phosphate (ERP) on the fresh herb yield/faddan (ton) of *Artemisia dracunculus* L. at the 2004 and 2005 seasons.

Egyptian Rock phosphat e (ERP), kg/fed.	cut															Grand Mean (ERP)	
	First					Second					Third						
	Cattle manure, (CM) m ³ /fad.																
	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)		
	2004																
0	1.405	1.848	2.157	2.677	2.022	2.262	2.920	3.155	3.992	3.082	2.131	2.787	2.963	3.906	2.947	2.684	
25	1.793	2.949	3.767	3.797	3.076	2.786	3.816	4.815	5.543	4.239	2.729	3.736	4.696	5.416	4.144	3.820	
50	2.085	3.286	3.941	3.831	3.286	3.685	4.739	5.776	5.700	4.975	3.587	4.515	5.692	5.497	4.823	4.361	
Mean (CM)	1.761	2.694	3.288	3.435	2.795	2.911	3.825	4.582	5.078	4.099	2.816	3.679	4.450	4.940	3.971		
LSD (0.05)																	
ERP					0.743					0.832					0.784	0.847	
CM					1.630					1.824					1.759		
ERP x CM					1.060					1.289					1.118		
	Grand Mean (CM)																
	Cattle manure (CM), m ³ /fed.																
	0				20				40				60				
	2.496				3.399				4.107				4.484				
LSD (0.05)CM																	
	2005																
0	1.343	1.578	1.732	1.787	1.610	2.014	2.692	2.909	3.088	2.676	2.078	2.492	2.913	3.324	2.702	2.329	
25	1.549	2.121	2.513	2.904	2.272	2.614	3.268	3.947	4.407	3.559	2.407	2.990	3.767	3.850	3.254	3.028	
50	2.073	2.297	3.172	2.999	2.635	3.011	3.584	4.849	4.601	4.011	2.751	3.595	4.385	4.169	3.725	3.457	
Mean (Cm)	1.655	1.999	2.472	2.563	2.172	2.546	3.181	3.902	4.032	3.415	2.412	3.026	3.688	3.781	3.227		
LSD (0.05)																	
ERP					0.639					0.769					0.712	0.763	
CM					1.545					1.637					1.630		
ERP x CM					1.082					1.235					1.166		
	Grand Mean (CM)																
	Cattle manure (CM), m ³ /fed.																
	0				20				40				60				
	2.204				2.735				3.354				3.459				
LSD (0.05)CM																	
	1.035																

Table (2, b): Effect of cattle manure (CM) and Egyptian rock phosphate (ERP) on the dry herb yield/faddan (ton) of *Artemisia dracunculus* L. at the 2004 and 2005 seasons.

Egyptian Rock phosphate (ERP), kg/fed.	Cut															Grand Mean (ERP)
	First					Second					Third					
	Cattle manure, (CM) m ³ /fad.															
	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	
2004																
0	0.485	0.646	0.752	0.963	0.712	0.799	1.035	1.129	1.437	1.100	0.759	1.004	1.079	1.390	1.058	0.957
25	0.624	1.057	1.321	1.367	1.092	1.014	1.377	1.734	1.970	1.524	0.956	1.340	1.709	1.943	1.487	1.368
50	0.736	1.156	1.412	1.379	1.171	1.341	1.706	2.079	1.993	1.780	1.291	1.535	2.049	1.977	1.713	1.555
Mean(CM)	0.615	0.953	1.162	1.236	0.992	1.051	1.373	1.647	1.800	1.468	1.002	1.293	1.612	1.770	1.419	
LSD (0.05)																
ERP					0.241					0.312					0.305	0.266
CM					0.435					0.522					0.470	
ERP x CM					0.642					0.775					0.753	
Grand Mean (CM)																
Cattle manure (CM), m ³ /fed.																
0					20					40					60	
0.889					1.206					1.474					1.602	
LSD (0.05)CM																0.525
2005																
0	0.455	0.559	0.617	0.653	0.571	0.725	0.969	1.028	1.103	0.956	0.759	0.860	1.058	1.163	0.960	0.829
25	0.542	0.735	0.859	0.999	0.784	0.940	1.177	1.425	1.611	1.288	0.890	1.112	1.347	1.392	1.185	1.086
50	0.692	0.769	1.047	1.020	0.882	1.096	1.306	1.750	1.671	1.456	0.999	1.280	1.596	1.517	1.348	1.229
Mean(CM)	0.563	0.688	0.841	0.891	0.746	0.920	1.151	1.401	1.462	1.233	0.883	1.084	1.334	1.357	1.164	
LSD (0.05)																
ERP					0.211					0.346					0.330	0.354
CM					0.255					0.386					0.354	
ERP x CM					0.338					0.574					0.551	
Grand Mean (CM)																
Cattle manure (CM), m ³ /fed.																
0					20					40					60	
0.789					0.974					1.192					1.237	
LSD (0.05)CM																0.375

Table 3. Effect of cattle manure (CM) and Egyptian rock phosphate (ERP) on the essential oil (%) of *Artemisia dracunculus* L. at the 2004 and 2005 seasons.

Egyptian Rock phosphate (ERP), kg/fed.	Cut															Grand Mean (ERP)
	First					Second					Third					
	Cattle manure, (CM) m ³ /fad.															
	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	
<u>2004</u>																
0	0.87	0.99	1.01	1.03	0.98	1.01	1.06	1.09	1.13	1.07	0.98	1.03	1.04	1.06	1.03	1.03
25	0.99	1.07	1.11	1.13	1.08	1.04	1.21	1.23	1.25	1.18	1.02	1.11	1.15	1.16	1.11	1.12
50	1.01	1.08	1.15	1.14	1.10	1.15	1.22	1.28	1.26	1.23	1.09	1.13	1.19	1.17	1.15	1.16
Mean(CM)	0.96	1.04	1.09	1.10	1.05	1.07	1.16	1.20	1.21	1.16	1.03	1.09	1.13	1.13	1.10	
<u>LSD (0.05)</u>																
ERP					0.064					0.095					0.074	0.091
CM					0.055					0.088					0.073	
ERPx CM					0.077					0.104					0.092	
<u>Grand Mean (CM)</u>																
Cattle manure (CM), m ³ /fed.																
0					20					40					60	
1.02					1.10					1.14					1.15	
<u>LSD (0.05) CM</u>	0.075															
<u>2005</u>																
0	0.82	0.94	0.98	1.01	0.94	0.97	1.04	1.06	1.09	1.04	0.90	0.97	1.00	1.03	0.98	0.99
25	0.88	1.02	1.08	1.11	1.02	1.04	1.12	1.18	1.20	1.14	0.91	1.05	1.10	1.14	1.05	1.07
50	1.00	1.05	1.14	1.12	1.08	1.10	1.15	1.25	1.22	1.18	1.02	1.09	1.17	1.16	1.11	1.12
Mean(CM)	0.90	1.00	1.07	1.08	1.01	1.04	1.10	1.16	1.17	1.12	0.94	1.04	1.09	1.11	1.05	
<u>LSD (0.05)</u>																
ERP					0.058					0.086					0.060	0.088
CM					0.065					0.078					0.069	
ERPx CM					0.068					0.102					0.082	
<u>Grand Mean (CM)</u>																
Cattle manure (CM), m ³ /fed.																
0					20					40					60	
0.96					1.05					1.11					1.12	
<u>LSD (0.05)CM</u>	0.062															

Table 4. Effect of cattle manure (CM) and Egyptian rock phosphate (ERP) on the essential oil yield/plant (ml) of *Artemisia dracunculus* L. at the 2004 and 2005 seasons.

Egyptian Rock phosphate (ERP), kg/fed.	Cut															Grand Mean (ERP)
	First					Second					Third					
	Cattle manure, (CM) m ³ /fed.															
	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	
	<u>2004</u>															
0	1.64	2.27	2.67	3.37	2.49	2.72	3.70	4.09	5.39	3.98	2.22	3.35	3.48	4.79	3.46	3.31
25	2.17	3.90	5.17	5.26	4.13	3.46	5.48	7.07	8.25	6.07	3.23	4.74	6.19	7.31	5.37	5.19
50	2.71	4.42	5.60	5.34	4.52	5.03	6.62	8.82	8.57	7.26	4.30	5.75	7.82	7.50	6.34	6.04
Mean(CM)	2.17	3.53	4.48	4.66	3.71	3.74	5.27	6.66	7.40	5.77	3.25	4.61	5.83	6.53	5.06	
<u>LSD (0.05)</u>																
ERP					1.030					1.058					1.046	1.076
CM					1.071					1.094					1.083	
ERPx CM					2.043					2.196					2.169	
	<u>Grand Mean (CM)</u>															
	Cattle manure (CM), m ³ /fed.															
	0				20				40				60			
	3.05				4.47				5.66				6.20			
<u>LSD (0.05) CM</u>	1.246															
	<u>2005</u>															
0	1.21	1.80	2.08	2.20	1.82	2.32	3.34	3.57	3.99	3.31	2.02	2.78	3.41	3.98	3.05	2.73
25	1.68	2.68	3.32	3.94	2.91	3.23	4.34	5.56	6.26	4.85	2.53	3.62	4.84	5.03	4.01	3.92
50	2.52	2.99	4.43	4.11	3.51	3.95	4.92	7.22	6.63	5.68	3.29	4.49	5.95	5.53	4.82	4.67
Mean(CM)	1.80	2.49	3.28	3.42	2.75	3.17	4.20	5.45	5.63	4.61	2.61	3.63	4.73	4.85	3.96	
<u>LSD (0.05)</u>																
ERP					0.623					0.787					0.440	0.863
CM					1.055					1.093					1.076	
ERPx CM					1.187					1.294					1.120	
	<u>Grand Mean (CM)</u>															
	Cattle manure (CM), m ³ /fed.															
	0				20				40				60			
	2.53				3.44				4.49				4.63			
<u>LSD (0.05) CM</u>	1.088															

Table 5. Effect of cattle manure (CM) and Egyptian rock phosphate (ERP) on the essential oil yield/faddan (litres) of tarragon (*Artemisia dracunculus* L.) in the 2004 and 2005 seasons.

Egyptian Rock phosphate (ERP), kr/fed.	Cut															Grand Mean (ERP)	
	First					Second					Third						
	Cattle manure, (CM) m ³ /fad.																
	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)		
	2004																
0	13.776	19.068	22.428	28.308	20.895	22.848	31.080	34.356	45.276	33.390	18.648	28.140	29.232	40.236	29.064	27.783	
25	18.228	32.760	43.428	44.184	34.650	29.064	46.032	59.388	69.300	50.946	27.132	39.816	51.996	61.404	45.087	43.561	
50	22.764	37.128	47.040	44.856	37.947	42.252	55.608	74.088	71.988	60.984	36.120	48.300	65.688	63000	53.277	50.736	
Mean(CM)	18.256	29.652	37.632	39.116	31.164	31.388	44.240	55.944	62.188	48.440	27.30	38.752	48.972	54.880	42.476		
<u>LSD (0.05)</u>																	
ERP					9.656					10.521					9.872	10.433	
CM					10.513					12.292					11.384		
ERPx CM					11.508					13.627					13.139		
	Grand Mean (CM)																
	Cattle manure (CM), m ³ /fed.																
	0					20					40					60	
	25.648					37.548					47.516					52.061	
<u>LSD (0.05) CM</u>	10.846																
	2005																
0	10.164	15.120	17.472	18.480	15.309	19.488	28.056	29.988	33.516	27.762	16.968	23.352	28.644	33.432	25.599	22.890	
25	14.112	22.512	27.888	33.096	24.402	27.132	36.456	46.704	52.584	40.719	21.252	30.408	40.656	42.252	33.642	32.921	
50	21.168	25.116	37.212	34.524	29.505	33.180	41.328	60.648	55.692	47.712	27.636	37.716	49.980	46.452	40.446	39.221	
Mean(CM)	15.148	20.916	27.524	28.700	23.072	26.600	35.280	45.780	47.264	38.731	21.952	30.492	39.760	40.712	33.229		
<u>LSD (0.05)</u>																	
ERP					6.211					8.744					8.153	8.754	
CM					7.864					9.613					10.824		
ERPx CM	9.489								10.764				10.310				
	Grand Mean (CM)																
	Cattle manure (CM), m ³ /fed.																
	0					20					40					60	
	21.233					28.896					37.688					38.892	
<u>LSD (0.05) CM</u>	7.138																

Table 6. Effect of cattle manure (CM) and Egyptian rock phosphate (ERP) on the components (%) of the essential oil of *Artemisia dracunculus* L. at the 2004 and 2005 seasons.

Egyptian Rock phosphate (ERP), kg/fed.	The components (%)														
	Limonene (Li)					Estragole (Es)					Anethol (A)				
	Cattle manure, (CM) m ³ /fad.														
	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)
0	27.289	21.525	12.999	29.018	22.708	25.093	21.585	21.066	7.115	18.715	11.657	8.500	8.075	9.330	9.391
25	32.629	34.731	34.737	33.956	34.013	18.855	19.519	21.251	20.003	19.907	9.598	10.243	8.992	10.478	9.828
50	22.003	21.199	24.964	26.868	23.759	19.791	16.184	20.137	20.588	19.175	12.832	10.405	17.722	12.657	13.404
Mean(CM)	27.307	25.818	24.233	29.947	26.826	21.246	19.096	20.818	15.902	19.266	11.362	9.716	11.596	10.822	10.874
	Ocimene (Oc)					Total (Li+Es+A+Oc)					Other components				
0	7.218	5.045	8.239	5.011	6.378	71.257	56.655	59.379	50.474	59.441	28.743	43.345	40.621	49.526	40.559
25	6.695	4.590	3.938	7.684	5.727	69.777	69.083	68.918	72.121	69.975	32.223	30.917	31.082	27.879	30.525
50	7.510	5.604	4.392	6.604	6.028	62.136	53.392	67.215	66.717	62.365	37.864	46.608	32.785	33.283	37.635
Mean(CM)	7.141	5.080	5.523	6.433	6.044	67.723	59.710	65.171	63.104	63.927	32.943	40.290	34.829	36.896	36.240

Table 7. Effect of cattle manure (CM) and Egyptian rock phosphate (ERP) on the total carbohydrates(% of dry matter) in the herb of *Artemisia dracunculus* L. at the 2004 and 2005 seasons.

Egyptian Rock phosphate (ERP), kg/fed.	cut															Grand Mean (ERP)
	First					Second					Third					
	Cattle manure, (CM) m ³ /fad.															
	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	0	20	40	60	Mean (ERP)	
2004																
0	11.35	13.20	15.15	16.20	13.98	13.00	14.90	15.35	16.65	14.98	12.70	14.20	15.00	16.35	14.56	14.51
25	13.35	15.75	17.00	18.00	16.03	14.75	16.75	17.80	18.75	17.01	14.00	16.50	17.75	18.25	16.63	16.56
50	14.60	16.30	18.60	18.35	16.96	16.00	17.50	19.55	19.00	18.01	15.00	17.20	19.30	18.70	17.55	17.51
Mean(CM)	13.10	15.08	16.92	17.52	15.66	14.58	16.38	17.57	18.13	16.67	13.90	15.97	17.35	17.77	16.25	
Grand Mean (CM)																
Cattle manure (CM), m ³ /fed.																
	0					20					40					60
	13.86					15.81					17.28					17.81
2005																
0	11.00	13.90	14.20	15.35	13.61	12.50	14.20	14.80	15.75	14.31	12.20	14.00	14.75	15.50	14.11	14.01
25	12.35	14.75	15.50	16.20	14.70	13.25	15.55	16.90	17.00	15.68	12.90	15.20	16.30	16.75	15.29	15.22
50	13.25	15.00	17.25	16.55	15.51	13.80	16.00	18.35	17.55	16.43	13.75	15.80	17.90	17.20	16.16	16.03
Mean(CM)	12.20	14.55	15.65	16.03	14.61	13.18	15.25	16.68	16.77	15.47	12.95	15.00	16.32	16.48	15.19	
Grand Mean (CM)																
Cattle manure (CM), m ³ /fed.																
	0					20					40					60
	12.78					14.93					16.22					16.43