Table (3). Effect of injection with gibberellic acid (GA3), royal jelly (RJ) and their mixtures on productive performance for Matrouh hens from 24-36 weeks of age.

Traits / Treatments	Body weight changes (g)	Feed intake (g)	Feed conversion (g. / hen/ day)	Egg production (%)	Egg weight (g.)	Egg mass (g./hen)	Viability (%)
Control	178.16±24.0[b]	103.13±1.61[b]	4.49±0.05[a]	54.26±0.68[c]	44.39±0.59	24.09±0.59[c]	79.17
100 µg GA3/ kg BW	280.25±18.08[a]	104.36±0.9[b]	3.99±0.06[bc]	60.22±0.72[ab]	47.46±1.31	28.57±0.77[a]	83.33
200 µg GA3 / kg BW	293.87±23.67[a]	105.14±1.62[b]	3.78±0.16[c]	63.23±0.99[a]	47.03±0.95	29.73±0.59[a]	91.67
50 mg RJ /kg BW	242.25±16.83[a]	108.16±2.27[a]	4.40±0.06[a]	56.29±0.66[c]	45.85±0.59	25.80±0.08[bc]	87.5
100 mg RJ /kg BW	249.55±23.86[a]	112.12±1.00[a]	4.47±0.05[a]	55.97±0.34[c]	46.33±0.23	25.93±0.23[bc]	91.67
50 µg GA3+ 25 mg RJ /kg BW	270.00±16.32[a]	106.88±1.58[a]	4.32±0.11[a]	56.96±0.76[bc]	45.29±0.49	25.80±0.58[bc]	91.67
100 µg GA3+ 50 mg RJ /kg BW	261.14±21.78[a]	107.4±1.22[a]	4.22±0.15[ab]	57.24±2.50[bc]	46.54±0.29	26.62±1.00[b]	91.67
Sig.	*	*	**	**	NS	**	NS

A, b ,c Means having different letters in the same column, differ significantly($P<0.05$).

* = ($P<0.05$); ** = ($P<0.01$) and NS= Not significant.

Table (4). Effect of injection with gibberellic acid (GA3), royal jelly (RJ) and their mixtures on productive performance for Matrouh hens during experimental period.

Traits / Treatments	Fertile eggs (%)	Hatchability /Total eggs (%)	Hatchability/ fertile eggs (%)	Chick weight at one day (g)
Control	75.93±2.40^{c}	64.82±3.21^{d}	85.27±2.08	31.83±0.33^{c}
100 µg GA3/ kg BW	83.34±1.86^{ab}	75.00±0.93^{ab}	90.16±2.52	33.26±0.29^{ab}
200 µg GA3 / kg BW	85.19±1.52^{a}	77.78±2.62^{a}	91.31±2.51	33.97±0.20^{a}
50 mg RJ /kg BW	83.59±2.47	72.74±2.32^{abc}	87.14±2.95	33.30±0.46^{ab}
100 mg RJ /kg BW	84.26±1.78^{ab}	73.15±1.78^{abc}	86.85±1.72	32.03±0.45^{bc}
50 µg GA3+ 25 mg RJ /kg BW	77.78±2.62^{bc}	67.60±1.78^{cd}	87.03±1.93	32.68±0.32^{abc}
100 µg GA3+ 50 mg RJ /kg BW	81.49±1.52^{abc}	68.52±2.40^{bcd}	84.08±2.29	32.14±0.70^{bc}
Sig.	*	**	NS	*

A, b ,c Means having different letters in the same column, differ significantly($P<0.05$).
* = ($P<0.05$); ** = ($P<0.01$) and NS= Not significant.

Table (5). Effect of injection with gibberellic acid (GA3), royal jelly (RJ) and their mixtures on some hormones concentration for Matrouh chicks at the end of experimental period.

Traits / Treatments	Hens treated			Cocks treated		
	Estrogen (pg/ml)	FSH (ng/ml)	LH (ng/ml)	Testosterone (ng/ml)	FSH (ng/ml)	LH (ng/ml)
Control	182.17±14.87^{b}	2.06±0.09^{b}	1.80±0.08^{c}	2.51±0.18^{c}	0.60±0.07^{b}	0.85±0.09^{c}
100 µg GA3/ kg BW	253.34±15.68^{a}	2.80±0.18^{a}	2.50±0.19^{a}	3.32±0.11^{ab}	1.00±0.12^{a}	1.36±0.11^{a}
200 µg GA3 / kg BW	259.17±13.61^{a}	2.73±0.21^{a}	2.43±0.22^{ab}	3.51±0.06^{a}	1.08±0.12^{a}	1.31±0.13^{ab}
50 mg RJ /kg BW	200.17±11.00^{b}	2.07±0.18^{b}	1.83±0.17^{c}	3.03±0.20^{ab}	0.63±0.08^{b}	0.85±0.14^{bc}
100 mg RJ /kg BW	195.67±15.62^{b}	2.12±0.14^{b}	1.87±0.15^{c}	3.20±0.18^{ab}	0.64±0.09^{b}	0.93±0.15^{bc}
50 µg GA3+ 25 mg RJ /kg BW	189.17±9.33^{b}	2.25±0.20^{ab}	1.92±0.21^{bc}	2.99±0.16^{b}	0.64±0.10^{b}	0.89±0.15^{c}
100 µg GA3+ 50 mg RJ /kg BW	192.84±14.96^{b}	2.33±0.24^{ab}	1.82±0.19^{c}	3.00±0.13^{b}	0.65±0.14^{b}	0.95±0.12^{bc}
Sig.	**	*	*	**	*	*

A, b ,c Means having different letters in the same column, differ significantly($P<0.05$).
* = ($P<0.05$) and ** = ($P<0.01$).

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Table (6). Effect of dietary supplementation of gibberellic acid, royal jelly and their mixtures on semen quality of Matrouh cocks at the end of the experimental period.

Traits / Treatments	Ejaculate volume (ml)	Hydrogen-ion concentration (pH)	Sperm motility (%)	Dead spermatozoa (%)	Sperm abnormalities (%)	Sperm cell concentration (X 10^9/ml)	Acrosomal damage (%)
Control	0.25±0.03	7.19±0.12	80.00±2.89^{b}	13.75±1.25^{a}	10.25±0.48^{a}	3.29±0.30^{b}	9.00±1.09^{a}
100 µg GA3/ kg BW	0.43±0.08	7.19±0.12	87.50±3.23^{ab}	7.50±1.05^{bc}	6.25±0.63^{d}	4.53±0.23^{a}	5.00±0.92^{bc}
200 µg GA3 / kg BW	0.45±0.07	7.18±0.12	92.50±1.45^{a}	6.25±1.04^{c}	5.75±0.48^{d}	4.68±0.26^{a}	3.75±0.86^{c}
50 mg RJ /kg BW	0.38±0.05	7.30±0.13	85.00±3.54^{ab}	10.50±1.56^{abc}	9.50±0.65^{ab}	4.00±0.33^{ab}	5.50±0.96^{bc}
100 mg RJ /kg BW	0.38±0.05	7.50±0.21	86.25±1.25^{ab}	11.75±1.44^{ab}	8.50±0.29^{bc}	3.85±0.26^{ab}	7.50±1.05^{ab}
50 µg GA3+ 25 mg RJ /kg BW	0.30±0.05	7.50±0.21	91.25±2.40^{a}	8.25±1.66^{bc}	6.50±0.29^{d}	4.38±0.36^{a}	5.00±0.82^{bc}
100 µg GA3+ 50 mg RJ /kg BW	0.45±0.07	7.30±0.13	90.00±2.05^{a}	9.75±1.32^{abc}	7.00±0.71^{cd}	4.48±0.36^{a}	5.50±1.05^{bc}
Sig.	**NS**	**NS**	*	*	**	*	*

A, b ,c Means having different letters in the same column, differ significantly($P<0.05$).

* = ($P<0.05$); ** = ($P<0.01$) and NS= Not significant.

Table (7). Inputs- output analysis and economical efficiency (%) of laying hens reared during summer season at the end of the experimental period.

Traits / Treatments	Control	100 µg GA3/ kg BW	200 µg GA3 / kg BW	50 mg RJ /kg BW	100 mg RJ /kg BW	50 µg GA3+ 25 mg RJ /kg BW	100 µg GA3+ 50 mg RJ /kg BW	Sig. test
Egg number	45.57	50.58	53.11	47.28	47.01	47.84	48.08	
Price/egg (LE)	1.30	1.30	1.30	1.30	1.30	1.30	1.30	
Total revenue hen (LE)	59.24	65.75	69.05	61.46	61.11	62.19	62.51	
Total feed intake/ hen(kg)	8.66	8.77	8.83	9.09	9.42	8.98	9.02	
Price/Kg feed (LE)	4.75	4.75	4.75	4.75	4.75	4.75	4.75	
Total feed cost/ hen (LE)	41.15	41.64	41.95	43.15	44.73	42.64	42.85	
Cost of hen treated (LE)	3.00	4.87	6.75	5.02	7.04	4.95	6.89	
Total cost hen (LE)	44.15	46.51	48.70	48.17	51.77	47.59	49.74	
Net revenue/hen (LE)	15.09 ^{b}	19.24 ^{a}	20.35 ^{a}	13.28 ^{bc}	9.34 ^{c}	14.60 ^{b}	12.76 ^{bc}	**
Economical efficiency (E.Ef.),%	34.19 ^{b}	41.38 ^{a}	41.78 ^{a}	27.58 ^{bc}	18.03 ^{c}	30.69 ^{b}	25.66 ^{bc}	**
Relative E.Ef.	100.00	121.02	122.19	80.65	52.74	89.75	75.04	

A, b ,c Means having different letters in the same row differ significantly($P<0.05$).

** = ($P<0.01$).

The price of (ml) Gibberellic acid (GA3) =2.50 LE/Kg . The price of (gm) Royal Jelly (RJ) = 12.0 LE/Kg.

Net revenue/hen (LE) = Total revenue - Total cost/hen, EEF= Net revenue/hen(LE) / Total cost/hen (LE)