

Table 2: Body weight and feed intake ($\bar{X} \pm SE$) of Inshas layers as affected by dietary dried alfalfa meal, chromium levels and their interactions during the different experimental periods.

Items	Body weight (g)				Feed intake (g/hen/day)				
	24 weeks	30 weeks	34 weeks	38 weeks	24-30 weeks	30-34 weeks	34-38 weeks	24-38 weeks	
<i>Dried alfalfa meal (%)</i>	NS	NS	NS	*	NS	*	NS	NS	
0	1137.97±10.57	1347.62±19.09	1352.43±37.14	1425.14±26.63 ^a	106.33±1.18	110.34±1.10 ^a	101.18±2.12	106.00±0.79	
5	1137.68±9.64	1350.96±29.81	1389.23±19.14	1449.80±14.85 ^a	107.01±1.82	106.34±0.60 ^b	102.56±0.80	105.55±0.74	
10	1135.53±9.61	1332.61±20.27	1368.85±15.71	1386.05±12.6 ^b	106.30±0.80	110.39±0.83 ^a	100.13±2.06	105.70±0.65	
<i>Cr / Kg diet (µg)</i>	NS	NS	NS	NS	NS	NS	*	*	
0	1128.82±9.51	1342.96±22.63	1406.12±23.60	1429.25±21.44	107.42±0.73	108.65±0.81	102.01±2.16 ^{ab}	106.23±0.66 ^a	
600	1144.00±14.80	1346.34±16.77	1352.17±36.30	1419.50±19.20	107.65±1.01	109.48±1.21	103.85±1.24 ^a	107.09±0.40 ^a	
1200	1127.44±12.29	1335.11±42.23	1348.69±33.73	1407.18±34.58	103.16±2.39	109.41±1.71	97.97±2.69 ^b	103.46±1.09 ^b	
1800	1147.98±6.59	1350.51±22.13	1373.71±22.18	1425.37±16.78	107.95±0.80	108.55±0.89	101.34±1.41 ^{ab}	106.23±0.46 ^a	
<i>Interaction effects:</i>									
Dried alfalfa meal (%)	Cr/Kg diet (µg)	NS	NS	*	**	NS	*	*	
0	0	1116.73±2.54	1370.27±22.85	1436.07±26.06 ^{ab}	1444.53±58.46 ^{ab}	106.83±0.86	109.85±0.84 ^{abc}	105.44±2.46 ^a	107.29±0.83 ^a
	600	1166.60±28.91	1403.80±19.16	1366.53±121.43 ^{ab}	1425.08±57.32 ^{ab}	106.16±2.97	111.84±3.17 ^{ab}	103.43±0.89 ^a	107.00±0.62 ^a
	1200	1130.87±28.37	1305.93±55.72	1271.87±84.92 ^b	1385.73±82.04 ^{ab}	101.68±0.87	113.32±1.13 ^a	91.43±4.91 ^b	102.08±1.42 ^b
	1800	1137.67±12.33	1310.47±25.13	1335.27±26.75 ^{ab}	1445.20±31.62 ^{ab}	110.64±0.40	106.35±0.86 ^{cd}	104.42±1.88 ^a	107.64±0.46 ^a
5	0	1158.47±17.50	1393.47±20.42	1451.80±32.89 ^a	1437.77±28.47 ^{ab}	107.73±1.13	106.94±1.04 ^{bcd}	101.85±1.41 ^a	105.83±0.61 ^{ab}
	600	1118.47±19.08	1333.39±12.94	1333.20±27.61 ^{ab}	1413.78±25.11 ^{ab}	108.63±0.49	107.64±0.33 ^{bcd}	101.69±2.31 ^a	106.36±0.58 ^a
	1200	1111.80±13.20	1308.45±122.79	1376.53±34.00 ^{ab}	1501.33±15.29 ^a	103.67±7.97	103.28±0.44 ^d	104.71±1.36 ^a	103.85±3.05 ^{ab}
	1800	1162.00±12.97	1368.53±42.14	1395.40±37.84 ^{ab}	1446.30±33.53 ^{ab}	108.04±0.24	107.52±0.37 ^{bcd}	101.99±1.30 ^a	106.16±0.25 ^{ab}
10	0	1111.27±10.32	1265.13±22.99	1330.50±23.90 ^{ab}	1405.43±29.19 ^{ab}	107.71±2.03	109.17±1.95 ^{abc}	98.73±6.07 ^{ab}	105.56±1.83 ^{ab}
	600	1146.93±29.07	1301.83±10.65	1356.77±3.09 ^{ab}	1419.67±21.81 ^{ab}	108.18±1.23	108.96±1.67 ^{abc}	106.42±2.55 ^a	107.90±0.76 ^a
	1200	1139.67±25.12	1390.93±29.70	1397.67±27.40 ^{ab}	1334.52±8.92 ^b	104.13±1.65	111.64±2.18 ^{ab}	97.76±4.08 ^{ab}	104.45±1.24 ^{ab}
	1800	1144.27±6.57	1372.53±47.57	1390.46±51.38 ^{ab}	1384.59±2.95 ^{ab}	105.17±0.23	111.78±0.67 ^{ab}	97.61±2.57 ^{ab}	104.90±0.64 ^{ab}

Means having different letters at the same column are differ significantly. * = (P<0.05), ** = (P<0.01); NS= Not significant

Table 3: Egg number and egg production ($\bar{X} \pm SE$) of Inshas layers as affected by dietary dried alfalfa meal, chromium levels and their interactions during the different experimental periods.

Items	Egg number (hen/period)				Egg production %				
	24-30 weeks	30-34 weeks	34-38 weeks	24-38 weeks	24-30 weeks	30-34 weeks	34-38 weeks	24-38 weeks	
<i>Dried alfalfa meal (%)</i>	NS	*	NS	*	NS	*	NS	*	
0	20.32±0.92	20.00±0.61 ^a	19.03±0.53	59.35±1.04 ^a	48.37±2.18	71.43±2.18 ^a	67.98±1.88	60.56±1.06 ^a	
5	21.33±1.03	20.88±0.43 ^a	19.35±0.43	61.57±1.21 ^a	50.79±2.45	74.58±1.53 ^a	69.11±1.54	62.82±1.23 ^a	
10	18.95±1.35	18.20±0.50 ^b	16.97±1.08	54.12±2.41 ^b	45.12±3.22	65.00±1.78 ^b	60.60±3.85	55.22±2.46 ^b	
<i>Cr/Kg diet (µg)</i>	*	NS	NS	NS	*	NS	NS	NS	
0	17.58±1.00 ^b	19.76±0.77	18.00±0.71	55.33±1.89	41.85±2.37 ^b	70.56±2.76	64.29±2.53	56.46±1.92	
600	19.84±1.32 ^{ab}	19.84±0.62	19.11±1.24	58.80±2.20	47.25±3.13 ^{ab}	70.87±2.21	68.25±4.43	60.00±2.25	
1200	22.33±1.23 ^a	18.82±0.77	17.73±0.92	58.89±2.51	53.17±2.92 ^a	67.22±2.73	63.33±3.30	60.09±2.56	
1800	21.04±1.25 ^{ab}	20.36±0.61	18.96±0.68	60.36±1.95	50.11±2.97 ^{ab}	72.70±2.19	67.70±2.43	61.59±1.99	
<i>Interaction effects:</i>									
Dried alfalfa meal (%)	Cr/Kg diet (µg)	*	*	NS	*	*	*	NS	*
0	0	18.73±1.39 ^{ab}	20.93±1.68 ^{ab}	18.53±1.38	58.20±2.09 ^{ab}	44.60±3.31 ^{ab}	74.76±6.01 ^{ab}	66.19±4.92	59.39±2.13 ^{ab}
	600	18.80±2.73 ^{ab}	19.67±0.13 ^{abc}	20.40±0.83	58.87±3.09 ^{ab}	44.76±6.50 ^{ab}	70.24±0.48 ^{abc}	72.86±2.97	60.07±3.15 ^{ab}
	1200	21.80±1.86 ^{ab}	17.73±0.77 ^{bc}	18.53±0.75	58.07±1.88 ^{ab}	51.90±4.42 ^{ab}	63.33±2.75 ^{bc}	66.19±2.68	59.25±1.92 ^{ab}
	1800	21.93±0.93 ^{ab}	21.67±0.55 ^a	18.67±1.29	62.27±0.57 ^a	52.22±2.22 ^{ab}	77.38±1.95 ^a	66.67±4.60	63.54±0.58 ^a
5	0	18.47±2.43 ^{ab}	20.93±0.37 ^{ab}	19.47±0.27	58.87±2.05 ^{ab}	43.97±5.80 ^{ab}	74.76±1.33 ^{ab}	69.52±0.95	60.07±2.10 ^{ab}
	600	21.47±1.44 ^{ab}	21.80±0.53 ^a	20.13±0.68	63.40±2.00 ^a	51.11±3.44 ^{ab}	77.86±1.89 ^a	71.90±2.42	64.69±2.04 ^a
	1200	23.60±1.22 ^a	20.87±1.19 ^{ab}	18.40±1.15	62.87±2.28 ^a	56.19±2.91 ^a	74.52±4.23 ^{ab}	65.71±4.12	64.15±2.32 ^a
	1800	21.80±2.65 ^{ab}	19.93±1.16 ^{abc}	19.40±1.21	61.13±3.54 ^a	51.90±6.30 ^{ab}	71.19±4.13 ^{abc}	69.29±4.31	62.38±3.61 ^a
10	0	15.53±0.94 ^b	17.40±0.20 ^c	16.00±0.90	48.93±1.80 ^b	36.98±2.24 ^b	62.14±0.71 ^c	57.14±3.22	49.93±1.84 ^b
	600	19.27±3.04 ^{ab}	18.07±0.88 ^{bc}	16.80±3.65	54.13±4.81 ^{ab}	45.87±7.23 ^{ab}	64.52±3.15 ^{bc}	60.00±13.02	55.24±4.90 ^{ab}
	1200	21.60±3.45 ^{ab}	17.87±1.38 ^{bc}	16.27±2.60	55.73±7.32 ^{ab}	51.43±8.21 ^{ab}	63.81±4.92 ^{bc}	58.10±9.28	56.87±7.47 ^{ab}
	1800	19.40±2.96 ^{ab}	19.47±1.25 ^{abc}	18.80±1.51	57.67±5.21 ^{ab}	46.19±7.05 ^{ab}	69.52±4.45 ^{abc}	67.14±5.41	58.84±5.31 ^{ab}

Means having different letters at the same column are differ significantly. * = (P<0.05); NS= Not significant

Table 4: Egg weight and egg mass ($\bar{X} \pm SE$) of Inshas layers as affected by dietary dried alfalfa meal, chromium levels and their interactions during the different experimental periods.

Items	Egg weight (g)				Egg mass (g/hen)				
	24-30 weeks	30-34 weeks	34-38 weeks	24-38 weeks	24-30 weeks	30-34 weeks	34-38 weeks	24-38 weeks	
<i>Dried alfalfa meal (%)</i>	NS	NS	NS	NS	NS	*	NS	*	
0	40.99±0.53	45.55±1.02	45.39±0.58	43.98±0.53	834.86±42.52	911.39±35.32 ^a	864.28±27.26	2610.49±57.11 ^a	
5	40.40±0.48	43.96±0.46	44.85±0.42	43.07±0.41	864.65±48.13	918.39±22.79 ^a	867.31±19.11	2653.80±66.66 ^a	
10	40.23±0.53	43.64±0.55	45.25±0.67	43.04±0.44	763.93±59.81	794.58±24.72 ^b	769.84±52.41	2332.63±114.61 ^b	
<i>Cr/Kg diet (µg)</i>	*	*	NS	*	*	NS	NS	NS	
0	39.30±0.40 ^b	43.12±0.52 ^b	44.30±0.60	42.24±0.33 ^b	688.84±35.65 ^b	851.65±34.60	796.32±29.37	2333.82±68.37	
600	40.22±0.25 ^{ab}	44.20±0.55 ^{ab}	45.64±0.84	43.35±0.39 ^{ab}	798.68±54.41 ^{ab}	877.49±30.29	873.01±58.45	2551.08±103.07	
1200	41.51±0.71 ^a	44.49±0.39 ^{ab}	45.67±0.42	43.89±0.45 ^a	930.62±61.59 ^a	838.41±37.72	811.02±45.03	2588.98±124.20	
1800	41.15±0.64 ^a	45.73±1.43 ^a	45.05±0.63	43.98±0.75 ^a	866.45±54.59 ^{ab}	931.59±42.41	854.89±36.00	2655.35±101.70	
<i>Interaction effects:</i>									
<i>Dried alfalfa meal (%)</i>	<i>Cr/Kg diet (µg)</i>	*	*	NS	*	NS	*	NS	*
0	0	38.84±0.32 ^c	43.94±1.17 ^b	43.61±0.71	42.13±0.61 ^{bc}	727.98±57.60	919.47±75.58 ^{abc}	806.71±50.87	2449.98±63.36 ^{ab}
	600	40.59±0.38 ^{abc}	44.39±0.26 ^b	46.70±1.45	43.89±0.59 ^{abc}	765.12±117.62	872.97±9.08 ^{bc}	950.40±15.15	2584.12±141.50 ^{ab}
	1200	42.97±0.63 ^a	44.81±0.82 ^{ab}	46.25±0.75	44.67±0.73 ^{ab}	935.62±75.71	793.51±24.25 ^{bc}	857.71±44.44	2592.01±61.26 ^{ab}
	1800	41.58±1.00 ^{abc}	49.08±3.54 ^a	44.99±1.20	45.22±1.47 ^a	910.71±28.11	1059.60±48.63 ^a	842.29±76.96	2815.84±97.34 ^a
5	0	39.23±0.50 ^c	42.22±0.49 ^b	43.64±0.66	41.70±0.52 ^c	721.97±87.54	883.92±19.44 ^{bc}	849.75±24.03	2452.36±56.77 ^{ab}
	600	39.89±0.64 ^{bc}	43.79±1.00 ^b	44.17±0.18	42.62±0.56 ^{abc}	857.78±68.71	955.57±43.26 ^{ab}	889.44±32.84	2703.89±116.93 ^a
	1200	40.33±0.91 ^{abc}	44.81±0.26 ^{ab}	45.28±0.95	43.47±0.54 ^{abc}	954.07±69.68	935.60±58.09 ^{ab}	831.97±46.44	2733.48±111.14 ^a
	1800	42.17±1.05 ^{ab}	45.02±0.95 ^{ab}	46.32±0.54	44.50±0.84 ^{abc}	924.77±133.13	898.49±64.56 ^{abc}	898.09±52.21	2725.49±203.03 ^a
10	0	39.83±1.16 ^{bc}	43.19±0.94 ^b	45.64±1.41	42.89±0.52 ^{abc}	616.55±18.49	751.55±21.05 ^c	732.51±60.60	2099.13±86.83 ^b
	600	40.18±0.26 ^{abc}	44.42±1.54 ^b	46.04±2.13	43.55±0.87 ^{abc}	773.13±119.72	803.94±57.42 ^{bc}	779.20±179.33	2365.25±253.57 ^{ab}
	1200	41.22±1.74 ^{abc}	43.86±0.90 ^b	45.49±0.65	43.52±1.08 ^{abc}	902.16±185.06	786.13±77.56 ^{bc}	743.38±128.84	2441.43±384.30 ^{ab}
	1800	39.69±1.03 ^{bc}	43.10±1.39 ^b	43.83±1.22	42.21±1.18 ^{bc}	763.87±96.50	836.69±42.45 ^{bc}	824.28±73.65	2424.73±177.44 ^{ab}

Means having different letters at the same column are differ significantly.

* = (P<0.05);

NS= Not significant

Table 6: Egg specific gravity and egg shape index ($\bar{X} \pm SE$) of Inshas layers as affected by dietary dried alfalfa meal, chromium levels and their interactions during the different experimental periods.

Items	Egg specific gravity				Egg shape index				
	30 weeks	34 weeks	38 weeks	Average	30 weeks	34 weeks	38 weeks	Average	
<i>Dried alfalfa meal, (%)</i>	*	NS	NS	NS	NS	*	NS	NS	
0	1.105±0.002 ^a	1.098±0.002	1.106±0.002	1.103±0.001	76.04±0.51	74.81±0.59 ^{ab}	75.11±0.83	75.32±0.34	
5	1.100±0.002 ^b	1.100±0.002	1.104±0.002	1.101±0.001	76.38±0.73	75.96±0.49 ^a	75.66±1.09	76.00±0.52	
10	1.105±0.001 ^a	1.100±0.002	1.102±0.001	1.102±0.001	75.22±1.38	73.96±0.64 ^b	78.24±2.01	75.81±0.93	
<i>Cr/Kg diet (µg)</i>	NS	NS	*	*	NS	NS	NS	NS	
0	1.102±0.002	1.098±0.003	1.098±0.001 ^b	1.099±0.001^b	75.14±1.21	74.72±0.70	74.58±1.10	74.81±0.66	
600	1.104±0.001	1.099±0.002	1.104±0.002 ^{ab}	1.102±0.001^{ab}	75.53±0.95	75.26±0.62	75.62±1.05	75.47±0.58	
1200	1.104±0.003	1.101±0.002	1.106±0.002 ^a	1.104±0.001^a	77.18±1.31	75.16±0.63	76.18±0.82	76.17±0.57	
1800	1.103±0.002	1.099±0.002	1.107±0.003 ^a	1.103±0.001^{ab}	75.68±0.82	74.51±0.91	78.97±2.73	76.39±1.02	
<i>Interaction effects:</i>									
Dried alfalfa meal (%)	Cr/Kg diet (µg)	*	NS	**	*	NS	NS	*	NS
0	0	1.103±0.003 ^{ab}	1.093±0.002	1.099±0.003 ^b	1.098±0.001^b	75.67±0.23	75.10±0.78	74.21±0.67 ^{ab}	74.99±0.32
	600	1.104±0.003 ^{ab}	1.097±0.002	1.105±0.002 ^{ab}	1.102±0.001^{ab}	76.41±1.81	74.23±1.12	75.76±1.12 ^{ab}	75.46±0.62
	1200	1.109±0.006 ^a	1.102±0.004	1.105±0.001 ^{ab}	1.105±0.001^{ab}	75.84±1.39	75.11±1.09	76.42±2.42 ^{ab}	75.79±0.98
	1800	1.106±0.002 ^{ab}	1.099±0.001	1.116±0.006 ^a	1.107±0.002^a	76.24±0.62	74.82±2.10	74.04±2.32 ^{ab}	75.03±0.92
5	0	1.100±0.005 ^{ab}	1.104±0.006	1.098±0.004 ^b	1.100±0.003^{ab}	76.36±1.62	75.92±1.71	72.22±1.55 ^b	74.83±1.09
	600	1.103±0.001 ^{ab}	1.098±0.003	1.104±0.006 ^{ab}	1.102±0.002^{ab}	76.33±1.88	75.97±1.38	73.86±1.64 ^{ab}	75.39±1.43
	1200	1.099±0.004 ^{ab}	1.099±0.002	1.107±0.007 ^{ab}	1.102±0.002^{ab}	77.36±0.82	75.60±0.24	76.80±1.06 ^{ab}	76.59±0.50
	1800	1.097±0.003 ^b	1.098±0.003	1.107±0.003 ^{ab}	1.101±0.002^{ab}	75.48±2.00	76.36±0.41	79.76±1.76 ^{ab}	77.20±0.81
10	0	1.103±0.001 ^{ab}	1.096±0.004	1.099±0.001 ^b	1.099±0.002^b	73.37±3.54	73.14±0.54	77.32±2.26 ^{ab}	74.61±1.99
	600	1.105±0.001 ^{ab}	1.101±0.004	1.104±0.002 ^{ab}	1.103±0.001^{ab}	73.86±1.37	75.57±0.83	77.23±2.52 ^{ab}	75.56±1.27
	1200	1.105±0.002 ^{ab}	1.103±0.003	1.107±0.002 ^{ab}	1.105±0.002^{ab}	78.32±4.05	74.78±1.85	75.32±0.64 ^{ab}	76.14±1.60
	1800	1.106±0.004 ^{ab}	1.099±0.006	1.099±0.003 ^b	1.101±0.002^{ab}	75.33±1.84	72.37±1.13	83.10±7.73 ^a	76.93±3.08

Means having different letters at the same column are differ significantly. * = (P<0.05), ** = (P<0.01); NS= Not significant

Table 7: Yolk index and shell percentage ($\bar{X} \pm SE$) of Inshas layers as affected by dietary dried alfalfa meal, chromium levels and their interactions during the different experimental periods.

Items	Yolk index				Shell %				
	30 weeks	34 weeks	38 weeks	Average	30 weeks	34 weeks	38 weeks	Average	
<i>Dried alfalfa meal (%)</i>	NS	NS	NS	NS	NS	NS	NS	NS	
0	46.77±1.00	43.00±1.12	44.38±0.95	44.72±0.35	13.31±0.30	12.01±0.26	13.39±0.40	12.91±0.19	
5	47.13±1.20	44.12±1.14	44.00±0.99	45.08±0.62	12.43±0.25	12.31±0.28	13.11±0.42	12.62±0.16	
10	48.82±1.30	43.33±0.93	45.11±1.35	45.75±0.62	13.04±0.27	12.31±0.34	12.72±0.24	12.69±0.18	
<i>Cr/Kg diet (µg)</i>	NS	NS	*	*	NS	NS	*	*	
0	48.03±0.78	45.19±1.28	46.60±1.49 ^a	46.61±0.72^a	12.48±0.37	11.87±0.43	12.16±0.26 ^b	12.17±0.19^b	
600	45.80±0.93	43.87±1.03	44.28±1.45 ^{ab}	44.65±0.38^{ab}	13.18±0.15	12.25±0.24	13.72±0.53 ^a	13.05±0.19^a	
1200	46.76±1.60	42.78±1.01	42.63±0.66 ^b	44.06±0.57^b	13.12±0.45	12.70±0.30	13.38±0.39 ^a	13.07±0.16^a	
1800	49.71±1.69	42.08±1.41	44.48±1.07 ^{ab}	45.42±0.54^{ab}	12.95±0.30	12.03±0.34	13.03±0.30 ^{ab}	12.67±0.12^{ab}	
<i>Interaction effects:</i>									
<i>Dried alfalfa meal (%)</i>	<i>Cr/Kg diet (µg)</i>	*	*	*	**	NS	NS	*	*
0	0	48.50±1.67 ^{ab}	43.31±1.93 ^{abc}	45.93±2.20 ^{ab}	45.91±0.48^{ab}	12.95±0.55	11.21±0.40	12.16±0.46 ^b	12.11±0.15^c
	600	44.91±1.66 ^b	46.07±1.85 ^{ab}	42.29±2.66 ^{ab}	44.42±0.77^{ab}	13.39±0.37	12.20±0.20	15.03±1.01 ^a	13.54±0.26^a
	1200	44.68±0.52 ^b	44.73±0.67 ^{ab}	42.94±1.12 ^{ab}	44.12±0.65^{ab}	13.84±1.07	12.74±0.76	13.18±0.18 ^{ab}	13.25±0.15^{ab}
	1800	49.00±2.87 ^{ab}	37.89±0.96 ^c	46.34±0.59 ^{ab}	44.41±0.70^{ab}	13.08±0.44	11.91±0.34	13.20±0.27 ^{ab}	12.73±0.25^{abc}
5	0	45.84±0.21 ^{ab}	47.95±2.41 ^a	45.33±3.16 ^{ab}	46.37±1.78^{ab}	12.31±0.85	13.00±0.95	11.98±0.66 ^b	12.43±0.54^{bc}
	600	48.36±0.92 ^{ab}	43.02±2.27 ^{abc}	42.55±1.46 ^{ab}	44.64±0.20^{ab}	12.86±0.14	12.02±0.45	13.13±0.96 ^{ab}	12.67±0.37^{abc}
	1200	46.99±4.57 ^{ab}	42.36±2.37 ^{abc}	42.05±1.85 ^{ab}	43.80±1.52^b	12.18±0.71	12.18±0.35	13.64±1.19 ^{ab}	12.67±0.33^{abc}
	1800	47.33±2.86 ^{ab}	43.15±1.46 ^{abc}	46.07±0.51 ^{ab}	45.51±1.09^{ab}	12.38±0.21	12.05±0.47	13.69±0.42 ^{ab}	12.71±0.13^{abc}
10	0	49.75±0.63 ^{ab}	44.31±2.05 ^{ab}	48.54±2.98 ^a	47.53±1.48^a	12.17±0.69	11.39±0.39	12.34±0.34 ^b	11.97±0.24^c
	600	44.14±1.33 ^b	42.52±0.75 ^{abc}	47.98±2.38 ^a	44.88±1.02^{ab}	13.28±0.15	12.54±0.64	12.99±0.39 ^{ab}	12.93±0.21^{abc}
	1200	48.61±2.37 ^{ab}	41.26±1.73 ^{bc}	42.89±0.51 ^{ab}	44.25±1.05^{ab}	13.33±0.16	13.19±0.36	13.33±0.55 ^{ab}	13.28±0.27^{ab}
	1800	52.79±3.16 ^a	45.22±2.53 ^{ab}	41.02±2.06 ^b	46.34±0.91^{ab}	13.37±0.76	12.12±1.03	12.20±0.50 ^b	12.57±0.29^{bc}

Means having different letters at the same column are differ significantly. * = (P<0.05), ** = (P<0.01); NS= Not significant

Table 8: Albumen and yolk percentages ($\bar{X} \pm SE$) of Inshas layers as affected by dietary dried alfalfa meal, chromium levels and their interactions during the different experimental periods.

Items	Albumen %				Yolk %				
	30 weeks	34 weeks	38 weeks	Average	30 weeks	34 weeks	38 weeks	Average	
<i>Dried alfalfa meal (%)</i>	NS	NS	*	NS	NS	NS	*	*	
0	57.06±0.51	57.22±0.57	54.17±0.92 ^b	56.15±0.45	30.05±0.53	30.82±0.35	32.80±0.86 ^a	31.22±0.41^a	
5	57.76±0.67	57.28±0.72	56.31±0.76 ^a	57.12±0.46	29.38±0.47	30.35±0.72	30.23±0.67 ^b	29.99±0.41^b	
10	56.95±0.79	57.57±0.66	56.15±0.66 ^{ab}	56.89±0.56	30.02±0.69	30.12±0.59	31.14±0.62 ^{ab}	30.42±0.48^{ab}	
<i>Cr/Kg diet (µg)</i>	NS	*	*	*	NS	NS	*	*	
0	58.72±0.80	58.82±0.73 ^a	57.89±0.57 ^a	58.48±0.45^a	31.01±0.60	31.23±0.60	32.95±0.94 ^a	31.73±0.52^a	
600	56.35±0.64	56.55±0.60 ^b	53.37±1.03 ^c	55.42±0.49^c	29.47±0.67	30.88±0.75	32.13±0.95 ^{ab}	30.83±0.42^{ab}	
1200	57.03±0.95	56.27±0.73 ^b	54.85±0.69 ^{bc}	56.05±0.36^{bc}	29.08±0.68	29.46±0.62	30.15±0.80 ^b	29.56±0.49^b	
1800	56.92±0.38	57.78±0.64 ^{ab}	56.05±0.81 ^{ab}	56.92±0.43^b	29.70±0.55	30.15±0.56	30.32±0.56 ^b	30.05±0.35^b	
<i>Interaction effects:</i>									
<i>Dried alfalfa meal (%)</i>	<i>Cr/Kg diet (µg)</i>	NS	*	*	*	NS	NS	*	*
0	0	58.16±1.23	57.68±1.16 ^{ab}	57.01±1.24 ^{ab}	57.62±0.85^{abc}	31.88±0.79	31.47±0.51	34.06±1.01 ^a	32.47±0.50^a
	600	57.47±0.51	57.65±0.95 ^{ab}	51.27±1.88 ^c	55.47±0.96^{bc}	29.13±0.86	30.15±0.75	33.70±2.77 ^a	30.99±1.13^{abc}
	1200	55.88±1.55	56.69±1.23 ^{ab}	54.23±1.43 ^{abc}	55.60±0.61^{bc}	30.28±1.24	30.57±0.81	32.60±1.30 ^{ab}	31.15±0.53^{abc}
	1800	56.71±0.21	56.86±1.69 ^{ab}	54.15±1.85 ^{abc}	55.91±0.94^{bc}	28.89±0.69	31.10±0.80	30.83±1.67 ^{ab}	30.28±0.75^{abc}
5	0	58.38±0.32	58.98±0.62 ^{ab}	58.66±1.11 ^a	58.68±0.16^a	30.21±0.65	31.23±1.91	32.65±2.05 ^{ab}	31.36±1.18^{ab}
	600	55.81±1.19	55.53±1.46 ^b	53.96±1.67 ^{bc}	55.10±0.82^c	28.57±1.60	32.33±1.73	30.53±0.44 ^{ab}	30.48±0.09^{abc}
	1200	59.25±2.05	55.49±1.48 ^b	55.83±1.62 ^{ab}	56.86±0.32^{abc}	28.76±0.33	29.00±0.50	28.20±0.15 ^b	28.66±0.22^c
	1800	57.62±0.91	59.13±0.56 ^{ab}	56.78±0.63 ^{ab}	57.84±0.48^{ab}	29.99±0.80	28.82±0.17	29.53±0.21 ^{ab}	29.45±0.37^{bc}
10	0	59.62±2.34	59.81±1.88 ^a	58.01±0.70 ^{ab}	59.15±1.01^a	30.95±1.60	30.98±0.62	32.15±2.10 ^{ab}	31.36±1.11^{ab}
	600	55.78±1.49	56.48±0.34 ^{ab}	54.87±1.74 ^{abc}	55.71±1.10^{bc}	30.70±0.93	30.17±1.24	32.18±0.66 ^{ab}	31.02±0.89^{abc}
	1200	55.96±0.77	56.64±1.48 ^{ab}	54.50±0.52 ^{abc}	55.70±0.78^{bc}	28.21±1.65	28.80±1.66	29.65±0.94 ^{ab}	28.89±0.84^{bc}
	1800	56.42±0.65	57.36±0.51 ^{ab}	57.21±1.11 ^{abc}	57.00±0.42^{abc}	30.21±1.41	30.52±1.28	30.58±0.65 ^{ab}	30.44±0.69^{abc}

Means having different letters at the same column are differ significantly. * = (P<0.05); NS= Not significant

Table 9: Reproductive performance ($\bar{X} \pm SE$) of Inshas layers as affected by dietary dried alfalfa meal and chromium levels and their interactions during the experimental periods from 30 to 38 weeks of age.

Items	Fertility of eggs %				Hatchability/Total eggs %				Hatchability/Fertility of eggs %				
	30 weeks	34 weeks	38 weeks	Average (30-38weeks)	30 weeks	34 weeks	38 weeks	Average (30-38weeks)	30 weeks	34 weeks	38 weeks	Average (30-38weeks)	
<i>Dried alfalfa meal, %</i>	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
0	92.30±0.76	92.43±0.89	93.30±0.70	92.68±0.51	76.47±1.29	77.24±1.60	78.25±0.69	77.32±0.81	86.36±0.58	84.90±1.16	85.61±0.90	85.62±0.58	
5	92.67±0.74	92.07±0.67	92.51±0.61	92.42±0.45	75.67±1.56	76.79±1.53	78.83±0.74	77.10±0.85	85.94±1.06	84.56±1.32	85.91±0.91	85.47±0.61	
10	90.77±1.15	91.17±1.16	92.32±0.60	91.42±0.57	74.96±1.23	75.41±1.34	77.94±0.71	76.10±0.81	85.14±0.96	83.96±1.03	84.91±0.88	84.67±0.58	
<i>Cr/Kg diet (µg)</i>	NS	NS	*	NS	NS	NS	*	NS	NS	NS	*	NS	
0	91.20±0.92	91.17±1.18	90.64±0.60 ^b	91.00±0.65	74.93±0.96	75.54±0.91	76.30±0.81 ^b	75.59±0.58	85.14±1.24	84.01±1.10	83.05±0.87 ^b	84.07±0.53	
600	91.93±0.92	91.98±0.77	93.12±0.62 ^a	92.34±0.45	75.49±1.75	76.54±1.86	79.06±0.58 ^a	77.03±0.94	86.11±0.90	84.42±1.15	85.51±0.72 ^{ab}	85.35±0.46	
1200	92.14±1.11	92.16±1.12	93.59±0.42 ^a	92.63±0.48	76.12±1.99	76.78±2.46	79.49±0.40 ^a	77.47±1.41	86.15±1.04	84.66±1.36	86.82±1.18 ^a	85.88±0.81	
1800	92.39±1.35	92.25±1.25	93.49±0.82 ^a	92.71±0.71	76.25±1.54	77.06±1.44	78.51±0.98 ^{ab}	77.28±0.64	85.85±0.98	84.80±1.80	86.53±0.86 ^a	85.73±0.78	
<i>Interaction effects:</i>													
Dried alfalfa meal%	Cr/Kg diet (µg)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
0	0	91.65±2.65	91.67±1.60	91.00±1.30	91.44±1.72	75.56±1.86	76.47±1.57	76.95±0.81	76.32±0.92	85.91±1.23	84.61±1.21	83.33±1.26	84.62±0.41
0	600	92.00±1.52	92.83±1.50	93.67±1.98	92.83±0.87	76.00±2.78	77.50±3.81	79.33±1.28	77.61±1.11	86.91±0.56	84.91±2.03	85.47±1.17	85.76±0.92
0	1200	92.45±1.67	92.57±2.71	94.40±0.73	93.14±0.85	77.03±3.76	77.33±5.72	80.00±0.70	78.12±3.05	86.48±2.01	85.00±3.04	86.89±2.48	86.12±2.21
0	1800	93.11±0.27	92.67±2.23	94.14±0.94	93.31±0.41	77.29±3.21	77.67±2.43	76.71±1.92	77.22±1.44	86.14±1.12	85.07±3.81	86.74±2.14	85.98±0.85
5	0	91.67±1.38	91.38±1.11	90.67±0.37	91.24±0.76	75.00±2.15	76.14±2.19	76.28±1.03	75.81±1.32	85.17±2.77	83.92±2.87	83.21±1.99	84.10±1.20
5	600	93.33±1.31	92.11±1.46	92.90±0.49	92.78±0.68	75.55±3.51	76.78±4.33	79.38±0.95	77.24±1.96	86.14±2.93	84.52±2.37	86.00±1.68	85.55±0.73
5	1200	92.62±1.52	92.33±2.05	93.14±0.67	92.70±0.94	76.33±4.86	77.00±4.19	79.67±0.90	77.67±2.81	86.33±2.09	84.81±2.18	87.24±2.41	86.13±1.54
5	1800	93.07±2.29	92.45±1.39	93.33±2.23	92.95±1.22	75.81±3.53	77.24±3.18	80.00±2.18	77.68±1.20	86.11±1.92	85.00±4.39	87.19±0.54	86.10±1.61
10	0	90.29±0.75	90.45±3.53	90.26±1.52	90.33±1.08	74.23±1.63	74.00±0.95	75.67±2.42	74.63±0.84	84.33±2.91	83.50±2.10	82.61±1.84	83.48±1.18
10	600	90.46±2.01	91.00±1.37	92.79±0.51	91.42±0.72	74.92±4.05	75.35±2.65	78.47±1.09	76.25±2.23	85.29±0.50	83.83±2.42	85.05±1.31	84.72±0.90
10	1200	91.33±3.02	91.57±1.78	93.24±0.78	92.05±0.92	75.00±2.96	76.02±4.67	78.82±0.46	76.61±2.44	85.64±2.12	84.16±2.80	86.33±2.16	85.38±0.66
10	1800	91.00±3.88	91.64±3.42	93.00±1.39	91.88±1.96	75.67±2.18	76.28±2.87	78.81±0.55	76.92±1.15	85.29±2.53	84.33±2.25	85.67±1.85	85.10±1.90

Means having different letters at the same column are differ significantly (P<0.05).

NS= Not significant

Table 10: Lipids and cholesterol in blood serum, yolk and liver ($\bar{X} \pm SE$) of Inshas layers as affected by dietary supplementation of chromium, dried alfalfa meal levels and their interactions at 38 weeks of age.

Items	Blood serum (mg/100 ml)		Yolk (mg/g)		Liver (mg/g)		
	Lipids	Cholesterol	Lipids	Cholesterol	Lipids	Cholesterol	
<i>Dried alfalfa meal, %</i>	*	*	*	*	*	*	
0	1427.93±18.97 ^a	150.27±2.70 ^a	321.89±3.62 ^a	14.79±0.30 ^a	257.65±3.14 ^a	148.66±2.67 ^a	
5	1384.89±14.16 ^{ab}	140.50±2.51 ^b	316.46±2.32 ^b	14.19±0.21 ^b	253.37±1.82 ^b	143.97±2.38 ^b	
10	1352.83±17.14 ^b	134.24±3.13 ^c	311.77±2.45 ^c	13.81±0.23 ^c	249.55±2.15 ^c	141.74±1.95 ^b	
<i>Cr/Kg diet (µg)</i>	NS	*	*	*	*	*	
0	1410.19±15.33	147.70±3.03 ^a	320.06±2.54 ^a	14.97±0.30 ^a	258.14±3.41 ^a	150.19±3.09 ^a	
600	1396.95±24.03	142.17±3.79 ^{ab}	317.31±4.86 ^{ab}	14.37±0.31 ^b	254.59±3.18 ^b	145.00±2.60 ^{ab}	
1200	1380.29±22.60	139.59±4.06 ^b	315.51±3.26 ^{ab}	13.95±0.23 ^c	252.11±2.83 ^{bc}	142.79±2.62 ^b	
1800	1366.76±24.09	137.22±4.13 ^b	313.94±3.18 ^b	13.75±0.26 ^c	249.25±1.74 ^c	141.19±2.38 ^b	
<i>Interaction effects:</i>							
Dried alfalfa meal, %	Cr/Kg diet (µg)	NS	*	NS	*	NS	NS
0	0	1450.26±3.10	156.82±0.80 ^a	325.51±1.26	15.99±0.40 ^a	263.15±7.46	155.15±6.28
	600	1440.34±52.05	151.11±6.19 ^{ab}	322.63±13.04	14.92±0.63 ^{ab}	260.19±8.01	150.15±5.28
	1200	1420.17±48.12	148.01±5.25 ^{abc}	320.18±7.24	14.22±0.24 ^b	256.26±6.89	145.09±5.44
	1800	1400.94±46.51	145.12±7.47 ^{abc}	319.23±7.23	14.02±0.36 ^b	251.01±2.97	144.27±4.71
5	0	1410.16±4.54	146.21±0.40 ^{abc}	318.92±5.10	14.71±0.20 ^{ab}	258.13±5.12	148.91±6.69
	600	1390.27±39.82	141.26±5.81 ^{abc}	317.11±6.69	14.22±0.48 ^b	253.39±2.60	143.11±4.90
	1200	1375.51±34.46	138.73±6.79 ^{abc}	315.56±4.32	14.01±0.54 ^b	251.87±3.22	143.25±4.35
	1800	1363.61±31.81	135.81±5.46 ^{bc}	314.24±4.74	13.82±0.39 ^b	250.08±3.38	140.62±4.31
10	0	1370.15±34.41	140.06±6.12 ^{abc}	315.76±5.03	14.22±0.08 ^b	253.13±5.72	146.50±3.22
	600	1360.25±31.63	134.13±5.23 ^{bc}	312.18±6.41	13.96±0.54 ^b	250.19±4.95	141.75±3.00
	1200	1345.19±34.71	132.03±7.71 ^{bc}	310.79±5.85	13.62±0.43 ^b	248.21±4.71	140.03±5.23
	1800	1335.73±52.16	130.74±8.10 ^c	308.35±4.09	13.42±0.68 ^b	246.66±3.26	138.68±4.41

Means having different letters at the same column are differ significantly (P<0.05). NS= Not significant.