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LITHIUM AND PHEASANT AGGRESSION

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SUMMARY

Four hundred pheasants, 31 days old, divided into four groups, were used for the experiment. All birds were bred in the same extreme conditions and fed ad libitum with a standard pheasant diet supplemented with 0 (Contr.), 30g/100Kg (Treat. 1), 50g/100Kg (T2) and 70g/100Kg (T3) of Li_2CO_3 . Results showed that Li-integrated diets induced an increase of growth (live weights at 59d were 498, 489, 517 and 525 g for Control, T1, T2 and T3, resp.) and a significant reduction of % of tail-pecked birds at 45d and 59d (61% vs 12% and 94% vs 60% for Control and T1+T2+T3, resp.).

INTRODUCTION

Since lithium (Li) is an element which reduces aggression (1,5), we tested the possibility of its introduction into diets for intensively bred growing pheasants. In fact, when pheasants are transferred from darkened poultry houses to large flight pens, located in the open air, to develop their flying ability, the trimming of the upper beak and/or the "spectacles" and "visors" is necessary to control growing pheasant pecking-vice and therefore to have full-feathered birds at 8 weeks of age (2).

MATERIALS AND METHODS

Four hundred pheasants, 31 days old, divided into four groups, were used for the experiment. All birds were bred in the same extreme conditions (without any anti-pecking devices to discourage cannibalism and with a bird density of .30 square meters floor area per pheasant). The birds were fed ad libitum with a standard pheasant diet supplemented with 0 (Control), 30g/100Kg (Treatment 1), 50g/100Kg (T2) and 70g/100Kg (T3) of Li_2CO_3 . Every third day, live weight, number of pecked birds, intensity of pecking, length of remiges, length of tarsus-metatarsus, length of tail and Li plasma level were monitored.

Length of remiges, tarsus-metatarsus and tail were measured with callipers, from the alula to the longest primary remige, from the art. intertarsica to the ball of the sole and from the pygostyle to the longest rectrice, respectively.

Blood samples were obtained by venipuncture of v. cutanea ulnaris and allowed to settle (with eparine) overnight at 5°C. Plasma was obtained at 2,000 x g and, after aspirating the supernatant, Li levels were analysed by atomic absorption spectrophotometry. Feather pecking was scored from 0 (none) through 4 (severe), then transformed into percentage and codified (arc sine tr.) before statistical analysis.

RESULTS AND DISCUSSION

The effects of dietary treatment on the incidence of feather pecking, on growing and on Li-plasma levels are shown in Table 1 and 2. Li-integrated diets induced an increase of growth and a significant reduction of % of tail pecked birds at 45 and 59 d.

Li plasma levels decreased 31 d through 51 d on account of the reduction of Li-ingestion/Kg of L.W. and this fact may explain the increase in pecking-vice observed 31d through 59d.

CONCLUSION
Apart from the problem of meat and bone Li-residues (3,4), Lithium can be introduced in diets for growing pheasants to reduce their aggression-vice. However it must be used together with other anti-pecking devices and the Li-feed

Table 1. Pheasant performance.

	PERIOD (days)	CONTROL	T1	T2	T3
FEED INT.	31-45	37.2	40.3	36.8	37.4
	45-59	48.0	44.6	52.6	55.8
WEIGHT G.	31-45	10.3	11.4	9.9	10.6
	45-59	11.4	9.5	11.6	12.4
CON. EFF.	31-45	3.6	3.5	3.7	3.5
	45-59	4.2	4.7	4.5	4.5
Li ING.	31-45	0.0	1.2	1.7	2.6
	45-59	0.0	0.9	1.6	2.4

Table 2. Parameters monitored during the trial (est. means)

		PECKED BIRDS		PECKING INTENSITY		LH PLASMA LEVEL			
		LIVE REMIGES METATARSUS	TARSUS RECTRICES LENGTH	WING	TAIL				
		g	mm	%	%				
31 d									
CONT.	205	122	59.2	64.1	1	5	0	2	0.0
T. 1	195	122	57.1	64.9	6	6	2	2	0.0
T. 2	216	125	58.8	65.7	2	8	1	3	0.0
T. 3	202	124	57.5	63.2	4	4	1	1	0.0
45 d									
CONT.	349	155	69.2	69.5B	4	61A	4	25A	0.0A
T. 1	355	152	67.9	77.1A	3	18B	5	9B	0.2B
T. 2	355	154	69.1	70.9B	2	14B	3	3B	0.4C
T. 3	351	152	69.1	70.5B	2	6B	5	7B	0.6D
59 d									
CONT.	498A	184AB	79.9	65.1	5	94A	3	28A	0.0A
T. 1	489B	179B	78.5	70.6	8	73B	5	13B	0.1B
T. 2	517A	186A	80.1	74.5	2	43D	0	11B	0.3C
T. 3	525AB	184AB	79.8	66.3	6	64C	0	8B	0.4D

note: means bearing different letters are signif. different.

content must be changed during pheasant growth to avoid a decrease of Li plasma levels, due to the reduction of daily food int./L.W. relationship.

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EL LITIO Y LA AGRESIVIDAD EN EL FAISAN

Puesto que el litio(Li) es un elemento que reduce la agresividad, hemos estudiado la posibilidad de su introducción en la dieta de faisanes en desarrollo. Se emplearon 400 faisanes de 31 días de edad divididos en 4 grupos. Todos criados en las mismas condiciones y alimentados *ad libitum* con una dieta standard para faisanes integrada con Li_2CO_3 en dosis respectivamente de 0, 30, 50 y 70g/100Kg respectivamente para los grupos C, T1, T2, T3. Los resultados demuestran que las dietas integradas con litio inducen un aumento en el crecimiento (peso en pie a 59 días era respectivamente para C, T1, T2, T3 de 498, 489, 517 y 525g) y una significativa reducción del porcentaje de animales con cola despumada ya sea a 45 que a 59 días de edad: 61%vs12% y 94%vs60% respectivamente entre C vs T1+T2+T3.

LITHIUM UND AGGRESSIVITÄT DES FASANS

Da Lithium ein Element ist das die Aggressivität reduziert studierten wir die Möglichkeit seiner Einführung in die Fütterung für die Zuchtfasane. Vierhundert Fasane, 31 Tage alt, wurden in gleicher Weise intensiv aufgezüchtet. Alle Geflügel wurden *ad libitum* mit einem Standardfutter für Fasane gefüttert. Dem obigen Futter wurden bei der Kontrolle 0, bei dem 1. Versuch 30; bei dem 2.V. 50 und bei dem 3.V. 70g/100Kg Li_2CO_3 hinzugefügt. Die Ergebnisse zeigten, dass die Fütterung mit hinzugefügtem Lithium das Wachstum der Fasane erhöhte (die Lebendmasse war am 59. Tage bei der K. 498, beim 1.V. 489, beim 2.V. 517, beim 3.V. 525g). Es ergab sich eine bemerkenswerte Prozent-Vermindeung der gepickten Vögel; die am 45. und am 59. Tag untersucht wurden (61% vs 12% und 94% vs 60% bei K. vs 1.+2.+3.V.).

LE LITHIUM ET LE PICOTAGE CHEZ LE FAISAN

On a élevé dans les mêmes conditions 400 faisans, âgés de 31 jours, divisés en 4 groupes, et ils ont été nourris *ad libitum* par une diète standard additionnée avec 0, 30, 50 et 70g/100Kg de Li_2CO_3 respectivement pour le group C, T1, T2, T3. Les résultats ont montré que les diètes contenant Li ont provoqué une augmentation de l'accroissement corporel (le poids vif à 59 j a été 498, 489, 517 et 525 g pour le C, T.1, T.2 et T.3 respect.) et une réduction significative du pourcentage des oiseaux picotés à 45 jours et à 59 jours (61% vs 12% et 94% vs 60% pour le C et T.1+T.2+T.3 respect.).

ЛИТИЙ И АГРЕССИВНОСТЬ ФАЗАНА

Так как литий(Li) элемент который уменьшает агрессивность, мы исследовали возможность ввести его в дачи молодых фазанов. 400 фазанов, 31 день, были употребленных для опыта; все птицы разведены при одинаковых крайних условиях и накормлены по усмотрению дачей для фазанов дополненной 0(контроль), 30(1ый уход), 50(2ой уход) и 70г/100Кг(3ий уход) Li_2CO_3 . Результаты доказали, что прибавка лития причиняет увеличение роста [живой вес в 59 дней был 498 (к), 489 (1. у.), 517 (2. у.), 525 (3. у.)] и значительное уменьшение процента птиц с испорченным хвостом в 45 г [61%(к), 12%(уходы)] и в 59 г [94%(к) и 60%(ух.)].

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