Study Regarding the Correlation between Body Mass and spur Length in Hunting Pheasant (males), in November

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Abstrac
This work presents a study on the correlation between body mass and spur length in November 2009.November is the month when the pheasant hunting begins. The structure per ages of pheasant cocks is not well known, but we may consider that over 80% are pheasants eclosed during the current year, from the first, second or the third mating, so that the body mass and spur length were different according to age.

Keywords: body mass, correlation, pheasant cocks, spur length

1. Introduction

The study was ucerne ted on 73 Săcălaz hunting fund Timiş county. 73 Săcălaz hunting fund is situated in the West of Timişoara. It is delimitated in south by the Bega river, in East by Timişoara, in West and North by agricultural roads. The Bega Veche and Niarad water this area and there are a lot of other drain canals. The hunting fund is a plain containing arable areas and grazing fields. Wheat, maize, barley, sun-flower, ucerne and vegetables are cultivated on smaller plots while large arable areas remain uncultivated. Mild winters, rainy springs and arid autumns and summers characterize the climate.

2. Materials and methods

The study was carried out on a number of 15 pheasant cocks; in each case, we weighed body mass and measured spur length, then we calculated the mean body mass and the mean spur length. We also determined the standard deviation of the two elements studied.
We determined the correlation between body mass and spur length and established the correlation coefficient and its mean error. We applied the „t" test to determine the significance.

.3. Results and discussion

The correlation coefficient represents a synthetic index that measures the relationship between two characteristics and relies on the relationship existent between the deviations of each variant, compared with their mean per group, for each series taken separately.

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Table 1. Correlation between body mass and spur length

No c	Body weight (kg)	Spur length (mm)	Deviation from the arithmetic mean		Quadrate of deviations		Products of deviations	
	X	Y	$X-\bar{X}$	$Y-\bar{Y}$	$\left(X-\bar{X}\right)^2$	$\left(Y-\bar{Y}\right)^2$	$\left(X-\bar{X}\right)\left(Y-\bar{Y}\right)$ +	-
1	1.490	6	-0.09	-2.34	0.0081	5.48	0.21	
2	1.491	9	-0.089	0.66	0.0080	0.44		-0.06
3	1.495	8	-0.085	-0.34	0.0073	0.12	0.03	
4	1.500	7	-0.08	-1.34	0.0064	1.80	011	
5	1.520	8	-0.06	-0.34	0.0036	0.12	0.02	
6	1.550	8	-0.03	-0.34	0.0009	0.12	0.01	
7	1.560	7	-0.02	-1.34	0.0004	1.80	0.03	-
8	1.590	5	0.01	-3.34	0.0001	11.16		-0.04
9	1.600	9	0.02	0.66	0.0004	0.44	0.02	
10	1.610	14	0.03	5.66	0.0009	32.04	0.17	
11	1.615	11	0.035	2.66	0.0013	7.08	0.10	
12	1.625	6	0.045	-2.34	0.0021	5.48		-0.11
13	1.630	8	0.050	-0.34	0.0025	0.12		-0.02
14	1.700	9	0.120	0.66	0.0144	0.44	0.08	
15	1.720	10	0.140	1.66	0.0196	2.76	0.24	
$n=15$	$\bar{x}=1.58$	$\bar{y}=8.34$			$\sum x^2=0.076$	$\sum y^2=69.4$	$\sum=1.02$	$\sum=0.23$
							$\sum xy=0.79$	

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Standard deviation calculation

$$\tau_x=\sqrt{\frac{\sum\left(x-\bar{x}\right)^2}{n}}=\sqrt{\frac{0076}{15}}=\sqrt{0.0051}=0.07\text{kg}$$

$$\tau_y=\sqrt{\frac{\sum\left(y-\bar{y}\right)^2}{n}}=\sqrt{\frac{69.4}{15}}=\sqrt{4.36}=2.15\text{mm}$$

Correlation coefficient calculation

$$r=\frac{\sum xy}{\sqrt{\sum x^2\cdot\sum y^2}}=\frac{0.79}{\sqrt{0.076\cdot 69.4}}=\frac{0.79}{\sqrt{5.28}}=\frac{0.79}{2.29}=0.35$$

Calculation of correlation coefficient's mean error

$$e_r=\pm\frac{1-r^2}{\sqrt{n}}=\frac{1-0.35^2}{\sqrt{15}}=\frac{1-0.13}{3.87}=\frac{0.87}{3.87}=\pm 0.23$$

$r=0.35\pm 0.23$

„t" value calculation

$$t=\frac{r\sqrt{n-2}}{\sqrt{1-r^2}}=\frac{0.35\cdot\sqrt{13}}{\sqrt{1-0.1225}}=\frac{0.35\cdot 3.6}{\sqrt{0.88}}=\frac{1.26}{0.94}=1.34$$

4. Conclusions

1. The standard deviation from the body weight mean was 0.07 kg.
2. The standard deviation from the spur length mean was 2.15 mm.
3. The correlation coefficient of 0.35 in the case of a study on 15 individuals, is insignificant

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