



Comparison of Different Systems of Roe Deer (*C. capreolus*) Trophy Evaluation

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ABSTRACT

This study was conducted to determine best evaluation method for hunted roe deer. For the research purposes, trophy papers of 192 roe deer hunted in hunting ground Srpska Crnja in 2009 and 2010 were used. A comparison of trophy mass and CIC trophy value was carried out, as well as a comparison of mass and the trophies volume and a comparison of these two variables with an average length of the antlers and values of the aesthetic elements in order to determine whether the weight of antlers is good indicator of the value of the trophy. Where it was possible, a comparison of the commercial trophy value under the old and new system was carried out, in order to determine whether the same trophy costs the same in both systems, or which system is economically advantageous for the hunter. The results showed that the mass of trophies in most cases is a good indicator of the trophy value in CIC points. Thus, during hunting, focus should be on assessing the volume of antlers, since between volume and other indicators of the value of antlers there are stronger and more pronounced correlation than between the mass and these indicators.

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ÖZET

Bu çalışma, avlanan karacaların değerlendirilmesindeki en iyi metodun belirlenmesi amacıyla gerçekleştirilmiştir. Bu amaçla, Sırbistan av sahasında 2009-2010 yıllarında avlanmış 192 karacanın av formları kullanılmıştır. Avlanan hayvanların boynuz kütleleri ile CIC (Uluslararası Av ve Yaban Hayatı Koruma Konseyi) değeri arasındaki korelasyon kadar boynuzun kütlesi ve hacmi arasındaki korelasyon ile bu iki değişkenin boynuzların ortalama uzunlukları ve boynuz estetik unsurlarının boynuz değerinin tespitinde iyi bir belirteç olup olmadığı araştırıldı. Mümkün olduğu durumlarda, avcı için hangi modelin daha avantajlı olduğunun belirlenmesi için eski ve yeni sisteme göre boynuzun ticari değeri ile aynı boynuzun bu iki sisteme göre maliyet-fiyat karşılaştırması da yapıldı. Sonuçlar, boynuzun kütlelerinin değerlendirildiği çoğu durumda, CIC sistemindeki boynuz hacim puanlarına göre değerlendirilmesinin iyi bir indikatör olduğunu göstermiştir. Böylece, karaca boynuzlarının değerini belirleyen hacmi ve diğer belirleyicileri arasında, ağırlığa oranla daha güçlü korelasyon olduğundan, avcılık esnasında, boynuzların büyüklüğüne odaklanılması gerektiği söylenebilir.

Introduction

Since the ancient times, for a hunter the trophies symbolized the victory over prey, and also determined the status of a hunter showing his success. Trophy was used as the subject of magical protection. Trophy not presents only skill of a hunter, but also invokes success and protection in the future hunting or subject of trade. Over time, the importance of keeping the trophy has been changed. Three centuries ago, at the beginning of the Baroque period, the trophy became the hunt memory, not the object that served a specific purpose. Today, big game hunting is prestige activity (Naevdal et al., 2012).

Along with the commercialization of hunting during the 19th century, the interest in festivals and exhibitions of hunting trophies was growing. With the incessant need of every man to compete with other people, need for evaluating and comparing of hunting trophies had appeared. The medals and prizes were given for the special trophies, but a system of ranking and scoring was subjective, since there were no universal rules for evaluation. Soon there was a need for the creation of a single, international evaluating system. It was expected from the formula for trophy evaluating to be simple, quick to use, accurate, and to be clear. Namely, on the basis of points awarded to the trophy according to such formula, anyone who knew about the trophy could gain an idea of a trophy value without seeing it. To perceive the importance of this requirement from today's perspective, it should be noted that before the development of an unique system, the trophies were ranked as "weak", "strong", "capital", "high capital" and there were several evaluating systems that were in force at the one area, but not outside it.

The need for an unique trophy ranking at the global level led to the formation of CIC (International Council for Game and Wildlife Conservation) in 1930 and, after years of studying and harmonizing, at CIC meeting held on 1937 in Prague, the international formula for evaluating European trophy game was adopted (CIC-Red, 2014).

For the evaluation of the roe deer (*Capreolus capreolus*) trophy, five proposals were submitted, from which Bieger's formula was adopted, with the remark that it was a temporary formula, that further improvement was needed. This formula remained in use - as temporary, for seven decades. The reason for the temporary nature of this formula lies in the discrepancy of hunters and hunting experts about which was the most important element of assessment - the aesthetic value, the length of antlers, or trophy largeness. According to Bieger's system, mass and volume provide about 75% of the value of trophy, while the length of antlers and aesthetic elements participate with only 25% of the value. It also points out that the roe deer antlers are often uneven in appearance and until today it has not established a system of rules by which the trophy of specific form would be declared as an irregular -can be evaluated or abnormal- can't be evaluated (Anonymous, 2014a,b).

CIC system is different from other international systems for the evaluation of the trophy by two items- it takes into account the weight of the roe deer trophy, fallow deer and red deer, and enables assigning of points

for the beauty of the trophy, or rejection of points due to lack on the trophy, so it has a bad reputation outside Europe. As the main objections to the CIC system stand out (Anonymous 2014b):

- Assigning of points for the trophy coloration: trophy colour depends on the time of year and habitat, and in no way indicates the "quality" of animals, moreover, trophy coloration can be corrected artificially after shooting;
- Range, which (except in extreme cases) also does not indicate the biological quality of specimens and do not present an artificial measure that only shows what the formula framers thought it would be desirable for aesthetically trophy and what would not;
- Mass, which presents a purely technical measure – there is no way to, among two trophies of the same volume and different masses, experience the one with the greater mass as engrossing. Also, the trophy mass can be easily manipulated by wetting the trophy before the measurement.

Criticism of the CIC system and the need to change the evaluating system came from the social changes and changes of hunting experience. At the present time it is necessary to put emphasis on the appropriateness of hunting, the ability of hunters and hunting manager to manage wildlife in a manner that will maintain or cause an increase in number of wild animals and thereby contribute the improvement of quality and zoo technical characteristics of the population and the improvement of living conditions of animals. CIC system in its present form provides a good overview of which the trophy is "better, stronger and more beautiful" and promotes competition among the hunters for such trophies. Many antihunters organisations, and also the society, under their influence, do not look that favourably. A trophy was and remains the memory of the hunt, while the value of the trophy is less important nowadays. Therefore, CIC is under pressure to revise its evaluating system to maintain new scientific knowledge concerning the more successful management of the game fund and to expel the subjective elements from the evaluation formula. For now, CIC has accepted the introduction of animal age in the evaluating system.

To quicken the payment process of trophies in Serbia from 2007/08, there is the system by which the payment takes into account only the mass of trophies. While this system certainly enables assessment of the commercial value of the trophy in field conditions and requires only a sufficiently accurate scale, the question arises if the trophies evaluation by weight is in accordance with the set out principles of evaluating animals according to many others properties except trophy values, but in what direction the market relations move - whether hunters now pay for their trophies more or less than under the old system? We should consider the economic value of wildlife for each hunting ground and its users, because the money from the trophy (with memberships, if it is not a commercial hunting), directly and indirectly, maintain and support each hunting ground.

The aim of this study is to determine whether the commercial evaluation of the trophy based on the weight is adequate replacement for the previously used evaluating system for trophy according to CIC formula.

Materials and Methods

For research needs, the trophy papers of 192 roe deer hunted in hunting ground "Srpska Crnja" in 2009 and 2010 were used.

Of these, 130 (67.7%) has all the measurement elements, while, in the remaining 62 trophies (32.3%) for 47 trophies (74.60%) weight was already measured and other 16 trophies (25.36%) were without a single measuring element.

Software packages Statistica 10 and XLSTAT 7.5.2. were used for statistical analysis of the data.

Results and Discussion

First it was tested whether the characteristics that will be examined on the level of the entire sample are corresponding to the normal distribution.

Weight distribution in the entire sample does not visually correspond to the normal distribution (by calculating it was determined the normal distribution was with an accuracy of 99%): there is the low participation of the trophies with very low weight, a larger share of the trophies to 230 grams and the increased participation of the trophy heavier than 400 grams. This situation, however, can be interpreted in a different way: the animals below a certain weight of antlers are not hunted; the "average" buck hunting is increased (which is in accordance with the economic situation of the majority of local hunters); the number of hunted animals in the medal is above average and the hunting area has a higher percentage of "trophy" animals than it would be expected. Further examination of normality in the distribution of sub-trophies (Figure 2) shows that the distribution of all tested parameters in subgroups still fits to a normal distribution, with the exception of the weakest sub-trophies by CIC points, where only two trophies had not automatically assigned value of 50 CIC points (Figure 3).

It is noticeable a higher percentage of hunting by CIC trophy system of weaker and trophy very strong animals.

Any further testing at the level of the whole sample is certainly not appropriate, as obtained results would be too general. Therefore, the trophies are classified into groups, where they are sorted by weight, volume and CIC points (Table 1).

The division by weight is based on the approximate table of ratio of the trophy weight and the values in the CIC points made by the Hunting Association of Serbia by Act 946-4/06 and recommendations of the British Association for Shooting and Conversation - BASC (Anonymous 2014c), customized to the available data.

The division by volume is done in intervals of 50 cm³, with a note that BASC states that expected approximate volume of trophies for the bronze medal is over 150 cm³, for silver over 165 cm³ and for gold over 200 cm³.

The division based on CIC points is done according to the criteria for the medals award - gold, silver, bronze, and trophies out of medal which are divided into stronger (70 points), medium (between 50 and 70 points) and weak (up to 50 points).

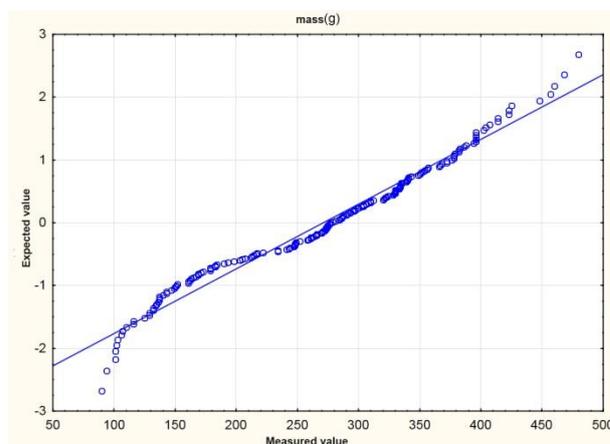


Figure 1 Review of matches of the trophies weight in the sample with the line of normal distribution

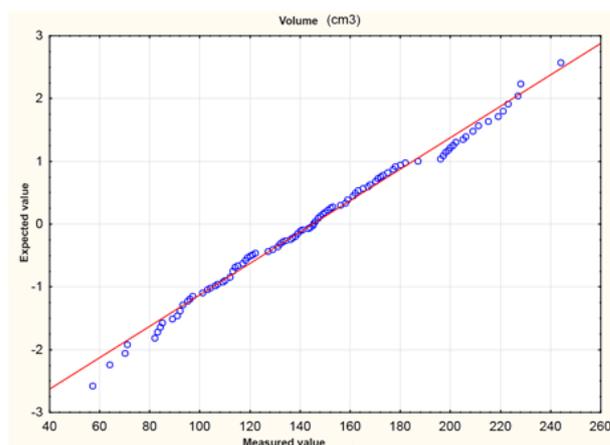


Figure 2 Review of matches of trophy volume in the sample with the line of normal distribution

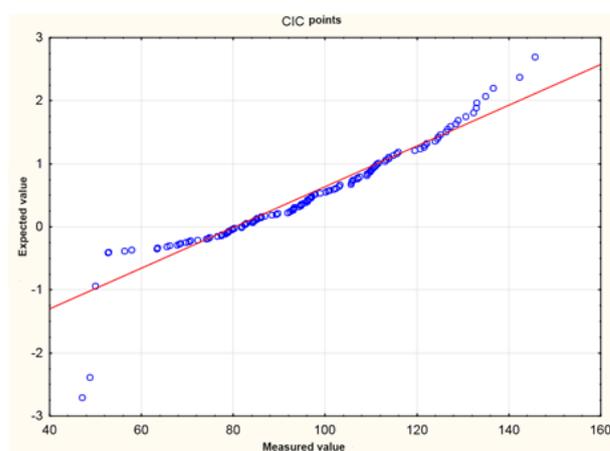


Figure 3 Review of matches of CIC trophy value in the sample with the line of normal distribution

Table 1 Trophy distribution according to given parameters

Parameters	Weight (g)	n	Volume (cm ³)	n	CIC points	n
Group	430+	(5)	200+ (15)		130+ (8)	
	405.00-429.99	(6)	150.00 - 199.99 (42)		115.00 - 129.99 (16)	
	370.00-404.99	(20)	100.00 - 149.99 (56)		105.00 - 114.99 (24)	
	180.00-369.99	(39)	50.00 - 99.99 (18)		70.00 - 105.00 (66)	
	under 179.99	(14)	/		50.00 - 69.99 (13)	
Total	/	84	/	131	do 49.99 (65)	192

Table 2 Correlation (Pearson) for trophies sorted by the weight (g)

Correlation		Group			
		430+(gold)	405-429.99 (silver)	370-404,99 (bronze)	180,00-369,99 (70+)
Weight-volume		58.20%	17.58%	25.61%	79.92%
CIC points	w	94.88%	30.84%	32.14%	76.42%
	V	76.53%	96.40%	96.35%	87.63%
% points for beauty	w	-36,70%*	-24.11%	-11.89%	3.86%
	V	39.40%	20.87%	8.08%	-2.94%
Length of antlers	m	94.26%	21.36%	-39.06%	47.46%

Table 3 Correlations (Pearson) for trophies sorted by volume (cm³)

Correlation		Group			
		200+(gold)	150-199.99 (silver)	100-149.99 (bronze)	50-99.99(weak)
		n	n	n	n
Weight-volume		15.32%	51.64%	44,46%*	65.62%
CIC points	w	75.38%	48.50%	61.02%	58.38%
	V	59.55%	57.70%	79.03%	60.21%
% points for beauty	w	-5.40%	9.08%	12.54%	27.14%
	V	7.26%	4.42%	9.16%	30.44%
Length of antlers	w	38.90%	11.86%	18.47%	38.77%
	V	34.70%	30.40%	38.36%	33.61%

*: Large impact of aberrations on the result

Problem occurred during trophies categorization that are not capital, for work purposes. Popular hunting division (that consider trophies as weaker if they have less than 70 CIC points, medium if they are between 70 and 90 CIC points and stronger if they have 90 and more CIC points) has no corresponding equivalent in the categorization based to the weight. However, in the CIC system limit of 90 points is on 75% of the range from 70 to 104.99 CIC points, so the equivalent principle is applied to the weight. Based on this, the weight medium range of the trophies is 180-288 grams, and strong from 290.00 to 369.99 grams, while the weak trophies are lighter than 180 grams. Division of the weight range from 180.00 to 369.99 grams was used in the examination of the economic aspects of various systems of economic evaluation of the trophies, while in other studies, for better clarity, a group of the trophies outside the medals is regarded as unique.

Within groups sorted by weight, volume and number of CIC points, the correlation of weight (w, g) and volume (V, cm³) was examined, as well as the individual correlation between weight and volume of the trophy with the number of CIC points, the average length of antlers and the percentage shares of the number of points for beauty in CIC points.

Table 2 presents the results of testing for trophies sorted by weight. Hypotheses in all research were tested by significance level of 0.05. The results marked with (*)

indicate a large impact of aberrations on the result. Statistically significant correlations are in bold.

A very strong correlation between the trophy weight and the CIC points (weight-CIC) is noted and the trophy weight and the antler length (length-weight) only at the strongest, while at the silver and the bronze trophies correlation between weight-CIC and weight-length is stronger if comparison is done with a volume of trophies. A negative correlation between the weight-beauty at golden trophy is also noted - it could be concluded that the massive trophies are aesthetically less satisfying than less massive. Results of the strongest trophies are too scattered (and with too few cases) for observing the trend on the graph, while at the bronze and silver trophies the trend is apparent (Figure 4 and 5).

Statistical tests for trophies grouped according to the volume gave the following results (Table 3)

Except for the gold trophy, the volume shows a higher degree of correlation with the total number of CIC points than the weight. The low level of correlation indicates that in a group of golden trophy during hunting can't evaluate the weight based on the beauty and size (the trophy volume and the antlers length) of the trophy.

Weight-volume correlation at the bronze trophies is not strong because of three different variations, which "ironed" the result. On the following graph (Figure 6) differences are marked and free estimates of the revised position of the line that determines the coefficient of the

correlation if aberrant results are excluded from the study. Such corrected correlation coefficient (shown with a thicker line) is closer to the correlation coefficient weight-volume from the neighbouring groups.

Table 4 shows the correlations for trophies sorted by the number of CIC points.

The first thing that strikes the eye is the strangeness and statistical significance of the correlation volume-CIC compared to the correlation mass-CIC, except for the "gold" trophy, the difference in strength between these two correlations is almost 20% and it is statistically significant in bronze and silver trophies and with the trophies near the capital. At the strongest trophies, mass and volume are negatively correlated. It is not statistically significant, but the decreasing trend, examining the graph, may be noted.

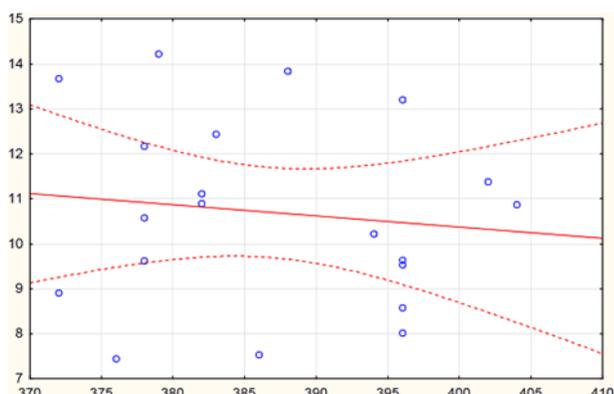


Figure 4 The negative trend weight-beauty in silver trophies

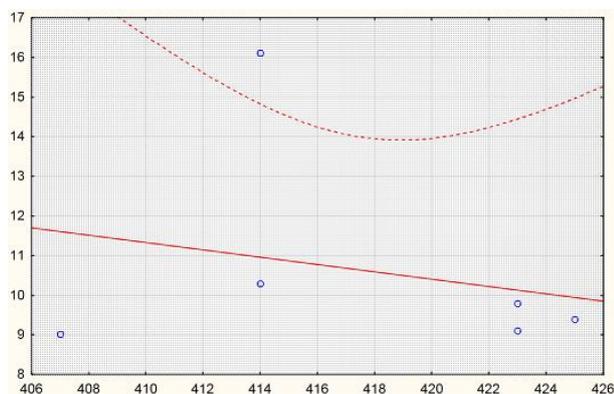


Figure 5 The negative trend weight-beauty in bronze trophies

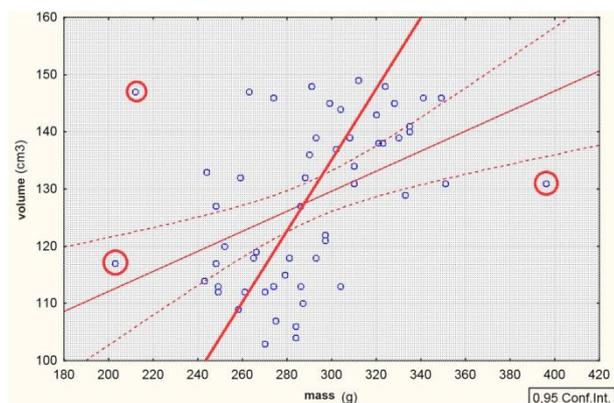


Figure 6 Correlation of weight-volume for group of trophies for volume from 100.00 – 149.99 cm³

By calculating based on data obtained from the table 5, the difference is obtained in the density of bone in gold trophies according to CIC and according to weight 12.33% and silver 3.86%. In other categories, the differences are less evident: 1.38%, 1.00% and -1.69%.

From this comparison it is noted that the average gold trophy from the CIC system is lighter than the gold trophy from the new system, that is, the average gold trophy according to CIC system is 12.33% voluminous (and therefore larger) than the average golden trophy with the same weight from the new system, because it has a lower density. The same can be said for the silver trophy. However, to make reliable conclusions a larger sample of trophies in medals would be needed.

The negative correlation between the trophy weight and antlers length is observed at the silver and weak trophies, while at the bronze trophies the result is aberrations.

By summing the previous results, we get the following:

In the system of trophy evaluation by weight,

- Extremely strong correlation exists only between the weight, CIC points and antler length and only in the category of golden roe deer, while strong correlation exists between three parameters in the roe deer category from 70 to 104.99 CIC points - in other categories, the correlation is weak and it is not statistically significant,
- The correlation between the weight and the beauty points is negative or almost non-existent in all categories, none of these correlations are not statistically significant, but there is a trend that the trophies are becoming less aesthetic acceptable with weight increasing;

The trophy system of evaluation by volume,

- statistically significant correlations of the medium strength between the weight and the volume exist in all categories except for the gold trophy, where this correlation was not noticed,
- the number of CIC points is in the medium to strong correlations with the weight and volume in all categories, with both statistically significant correlation in the group of silver and bronze, while in the group of golden statistically significant only correlation mass-CIC,
- except for the golden trophy, CIC-volume correlation is stronger than the CIC-weight correlation,
- share of points for beauty and antlers length don't have specific correlation with the weight and the volume of the trophy

In the system of trophy evaluation according to CIC,

- Weight-volume correlation is negative in the group of golden and bronze and it is statistically significant and middle strong in the trophies group of 70.00 to 104.99 CIC points,
- CIC-volume correlations are markedly stronger than the correlation between weight-CIC in all groups,
- Correlations beauty-weight and beauty-volume are significantly larger than in other sorting systems and only statistically significant correlation are present here.

When the data of the trophy is sorted based on a weight and CIC points, we get the following averages for trophies in medals. The price of the trophy according to CIC points is calculated based on the official price list of

the Hunting Association of Serbia for hunting 2006/2007 and the price per weight based on the official price list of the Hunting Association of Serbia for hunting 2007/2008.

Table 4 Correlations (Pearson) for trophies sorted by CIC (points)

Correlation		Subgroup					
		130+	115.00-129.99	105.00-114.99	70-105	50.00-69.99	to 49.99
Weight-volume		-68.01%	39.53%	-17.49%	50.74%	25.22%	96.82%
CIC points	w	27.51%	56.15%	37.83%	64.38%	37.19%	65.89%
	V	35.32%	81.95%	59.17%	87.11%	65.54%	52.37%
% points for beauty	w	26.28%	19.52%	45.54	14.90%	4.48%	/
	V	19.52%	47.15%	50.30%	3.81%	2.11%	/
Length of antlers	w	26.65%	-28.68%	-1,70%*	21.61%	-37.87%	72.67%
	V	25.55%	6.49%	3.15%	26.62%	5.67%	64.43%

Table 5 Density of bone in different trophy groups

Ratio w/V	Gold	Silver	Bronze	Out of medal	
				Stronger (90.00 - 104.99 CIC)	Medium (70.00 - 89.99 CIC)
	n	n	n	n	n
CIC	1.99		2.17	2.196	2.33
Weight	2.27	2.07	2.14	2.174	2.37

Table 6 Economic parameters of trophies in medals in different systems

Category	By the system	NT	AWT	AVT	ACT	ANP
Gold	Weight	5	462.60	204.40	1164.20	132.93
	CIC	8	435.25	220.75	2125.84	136.01
Silver	Weight	7	415.71	204.14	810.00	127.71
	CIC	17	384.88	194.18	979.79	122.76
Bronze	Weight	19	385.79	183.89	614.84	117.59
	CIC	23	359.82	166.29	521.74	109.41

NT: Number of trophies, AWT: Average weight of trophies (g), AVT: Average volume of trophies (cm³), ACT: Average cost of trophies (€), ANP: Average number of CIC points

Price correction in the current price list (2013/14) was done only for the lowest category of trophies, while for the trophies in medals is all the time unchanged.

From this table it can be noted the following:

- The volume of trophies is greater in the category of golden roe deer evaluated according to CIC,
- The average number of CIC points in the category of golden roe deer is higher than in roe deer evaluated in the classical way,
- The average price of the trophies in the category of gold and silver buck is evaluated in the classical way,
- Aggregate trophies price evaluated according to the classical system is higher, while in the category of gold and silver buck that difference is drastic.

It can be concluded that with the transition to a new payment system, the hunting ground, or the user of the hunting ground, is at a loss. However, to make such a conclusion safer, it would be necessary to conduct a comparison on a larger sample of trophies in medals.

The same comparison for the trophies that are not in medals is given in Table 7, but the observation do not include the trophies weaker than 70 CIC points and the trophies that had incomplete data on the trophy list (these two categories were generally folded). The higher values are thickened, while statistically significant values are used.

It can be noticed that in the group of stronger trophies, on a repayment by weight, better trophies get for less money, while in the weaker group of trophy this relationship is economically more rational: charging by weight get worse and cheaper trophies, while paid according to CIC get better and more expensive trophies.

Explanations:

"weight" - a system where is the payment criteria is the weight;

"CIC" - a system where is the payment criteria is CIC points.

$V/m - \text{cm}^3/\text{g}$, bigger is better.

In the system of charging by weight,

$\text{Prices}_M/w - \text{€}/\text{g}$ - bigger is more expensive.

$\text{Prices}_M/V - \text{€}/\text{cm}^3$ - bigger is more expensive.

In the system of payment according to CIC,

$\text{Price}_C/w - \text{€}/\text{g}$ - bigger is more expensive.

$\text{Price}_C/\text{€} - V/\text{cm}^3$ - bigger is more expensive.

In all categories is the gram, thus, the cubic centimetre of the trophy is more expensive if you are charged by weight. When taken into account that the prices of the trophy are significantly higher if the number of CIC points (Table 6) calculates the price, this seems paradoxical.

In the category of gold and silver trophies, paid according to the CIC system, the ratio of weight-volume is such that per weight unit you get bigger volume of the trophy than the trophy repayment per weight.

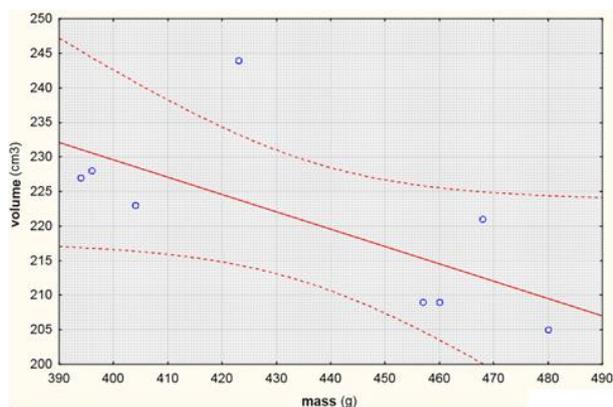


Figure 7 The negative correlation between the weight and volume of the trophy over 130 CIC points

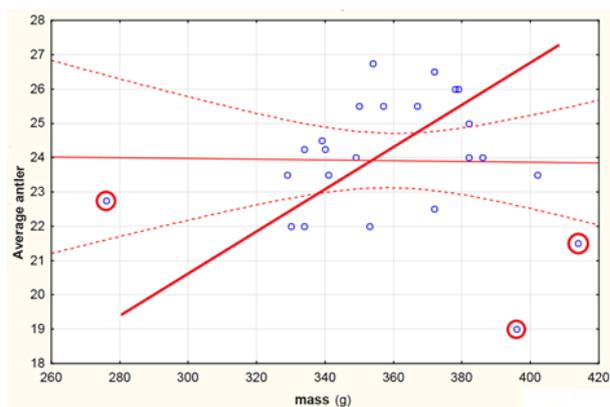


Figure 8 Correlation and correction of aberration weight-volume for subgroup trophies from 105.00 to 114.99 CIC points

Table 7 Economic parameters of trophies out medals by different systems

Weight/Number of CIC points	NOT	AWT	AVT	ACT	ANP	NT
290-369.99 / 90-104.99	Weight	50	325.72	151.36	300.64	100.05
	CIC	31	316	144.58	375.8	96.88
180-288 / 70-89.99	Weight	46	252.87	109.65	126.08	75.14
	CIC	35	263.82	116.16	212.85	80.79

NOT: Number of trophies, AWT: Average weight of trophies (g), AVT: Average volume of trophies (cm³), ACT: Average cost of trophies (€), ANP: Average number of CIC points

Table 8 Comparison of parameters weight/volume/price for trophies in medals sorted by different billing systems

Category	Distributed by	V/w	Cost _M /m	Cost _M /V	Cost _C /m	Cost _C /V
Gold	Weight	0.442	2.513	5.7	3.95	8.88
	CIC	0.511	2.185	4.423	4.887	9.615
Silver	Weight	0.491	1.95	4.03	3.46	6.75
	CIC	0.507	1.583	3.197	2.532	5.014
Bronze	Weight	0.477	1.59	3.41	2.26	4.55
	CIC	0.465	1.298	2.881	1.459	3.147

Table 9 Comparison of parameters weight/volume/price for trophies out of medals sorted by different billing systems.

Mass/Number of CIC points	By system	V/m	Cost _M /w	Cost _M /V	Cost _C /w	Cost _C /V
290-369.99 / 90-104.99	Weight	0.464	0.908	1.967	1.289	2.755
	CIC	0.461	0.839	1.897	1.197	2.604
180-288 / 70-89.99	Weight	0.435	0.491	1.168	0.757	1.695
	CIC	0.434	0.543	1.28	0.813	1.871

Table 10 The cost differences between the two systems of payment

Category	Difference in price	In favor of system	
Gold	82.56%	CIC	
Silver	20.96%	CIC	
Bronze	17.84%	weight	
Out of medal	Stronger	25%	CIC
	Weaker	68.83%	CIC*

In the category of golden trophy, it can be seen follows:

- In the system of charging according to weight, the price per gram of trophies and weight-volume ratio are not homogeneous (not statistically significant).
- In the system of charging according to CIC, weight-

volume ratio, and all the price / parameter ratio are equal.

- Based on these data, charging system according to CIC category in the gold medals category is better for hunting grounds, and the trophies price is equal to the weight and volume of the trophy.

In the category of silver trophies:

- In the system of charging by weight, the parameters are equal, while the ratio of weight-volume is not uniform (in the payment system according to CIC, weight-volume ratio is uniform).

In the category of bronze trophy:

- In the system of charging by weight, volume-weight ratio and all the price-parameter relations are equal and even greater than on repayment according to CIC.

With trophies out of medals, it is noted that the ratio of weight-volume is very similar in both categories and in both the charging system, while the price per weight unit and volume bigger at stronger trophy in the charging system according to weight, and at the weaker trophy in the charging system according to CIC points.

In the system of trophy evaluation according the weight:

- The average weight of the trophy is bigger except for the gold trophy,
- The average trophy volume is bigger except for the weakest and gold trophies,
- The average number of CIC points is higher in the category of silver, bronze and stronger trophies out of the medals.

In the trophy system of evaluation according to CIC points:

- The average trophies volume is higher in gold (statistically significant) and the weakest trophy,
- The average number of CIC points is higher in the gold and the weakest trophy.

In this way, the trophy charging according to weight is preferred in silver, bronze and trophy to a medal, while the trophy charging according to CIC points is more valid at the weaker trophies. The situation is to some extent unclear at the golden trophy, where the new system provides more massive and the old one more voluminous-bigger trophies, where the largeness is easily seen, while it is necessary to measure the weight. A more numbers of gold medal trophies should examined to determine whether the observed differences are the rule and these results are obtained due to the small number of observed trophy.

However, the look at the financial outcome of the trophy charging according to these two systems suggests that serious revision of the system is needed.

Thus, under the new system of charging, hunters in Serbia all the trophies except the trophy in bronze medal (and, more recently, the weakest trophies) pay much less than under the old system. This price imbalance has already shown by Ristic et al. (2011.), when they pointed that the difference in buck price in gold medal in Serbia and Hungary is 83.45%. The price difference is different from the one shown in Table 10 for 0.89%.

Conclusion

Comparison of correlation was done on the trophies sorted by the number of CIC points, weight and volume, as another precise (and unchangeable) measurement. Based on a comparison of strength and significance of the

correlation, the weight is better parameter for evaluating the overall quality of trophies only in the category of golden roe deer trophy, while in all other categories the volume is better parameter. The situation is similar with the trophy sorted by volume. Finally, at the trophies sorted by the number of CIC points, the volume shows as much better parameter for evaluating the overall quality of trophies than the weight in all trophy categories. On the basic of these results it can be concluded that, if the evaluating of the price and quality must be done according to one parameter for simplifying of the measuring process, then the volume is better parameter than the weight, with the possible exception of the trophy in the gold medal.

Based on shown results, it can be concluded that the weight in most cases is a good indicator of the value of the trophy in CIC points, and that during hunting it should be focused on evaluating of the antlers volume, since between volume and other indicators of the value of antlers have stronger and more pronounced correlations than between the weight and these indicators. With additional tests on large number of trophies of all categories, it should be evaluated whether the volume could be even better indicator of the universal values than the weight and whether it would be the fairest to charge the trophy based on the volume.

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