

BEEF CARCASS QUALITY IN ROMANIA (2006-2011)

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ABSTRACT

Total meat production is an important technical and economical indicator. It is assessed in every production unit and is expressed as the live weight of animals to be slaughtered or as the amount of meat in a carcass. In 2010, the share of young bulls slaughtered was 20.90% of the total bovines slaughtered in authorised slaughterhouses, i.e. 7.0% lower than in 2007. The largest share was that of cows, which points to export activities of live young bulls. The information are collected for bulletins of the Romanian Patronage of Meat and the Carcass Grading Commission. We can see that the quality of bovine carcasses slaughtered during the period analysed does not range within the upper limits of the EUROP objective evaluation system, which asks for the introduction of new subdivisions because of the lack of animals that match the categories "Excellent", "Very good" and "Good" after conformation. To improve the quality of carcasses, we need to improve the genetic material, to reduce uncontrolled exports of live animals and to develop a market for the purchase of live animals to be slaughtered in authorised slaughterhouses.

Keywords: bovines, carcasses, EUROP, meat

INTRODUCTION

As a result of applied technologies, the live weight of slaughtered bovines for meat worldwide is still low (only 360-380 kg), with appreciable variations between continents and countries: 450 kg in industrialised countries (U.S.A., Japan, Germany, England, France, etc.) and below 250 kg in underdeveloped or developing countries (south Asia and Africa) (PETCH, P. E., 2001, PETROMAN CORNELIA, 2010). It is obvious that increasing the size of animals upon slaughter with only 20% - which is completely possible – results in a comparable increase of the total meat production.

In Romania, body weight upon slaughter is 450 kg in young bulls and above 500 kg in adult animals (PETROMAN CORNELIA, BĂLAN IOANA, PETROMAN I., ORBOI MANUELA DORA, BĂNEȘ ADRIAN, TRIFU C., MARIN DIANA, 2009). According to the new trends, the live weight upon valorisation should be above 450 kg in young bulls and above 600 kg in adult animals which, compared to the present animal number, will lead to an increase with 34-35% of the valorisation availabilities with direct consequences on population consumption and export availabilities. After the establishment of the **European Economic Community**, the grading of the beef carcasses has been done according to two systems of evaluation (MOVILEANU G., 2008): *the E.U.R.O.P.A. System*, between 1975 and 1982, and *the E.U.R.O.P. System*, from 1982 until now.

The significance of the E.U.R.O.P. System is as follows:

- E = excellent carcass (meat breeds);
- U = very good carcass (of which 18% are ensured mixed breeds and dairy breeds);
- R = good carcass (of which 50% are ensured mixed breeds and dairy breeds);
- O = fairly good carcass;
- P = poor carcass.

The E.U.R.O.P. System focuses on two criteria: *level of development of the muscles* (particularly of the round profile and of the volume of the loins and shoulders muscles which determine the muscle class of the carcass) and *level of development of the fat* (particularly the cover fat and the fat in the abdominal and pelvic cavity which determine the fat class of the carcass) (MOVILEANU G., 2008., TRIFU C., PETROMAN I., PETROMAN CORNELIA, MARIN DIANA, IVU MARCELA, PET I., POPESCU JANINA, PÂRVU M., 2011).

Adult beef carcasses are classified according to the EUROP System, as follows

- carcasses of uncastrated young male animals of less than two years of age;
- carcasses of other uncastrated male animals;
- carcasses of castrated male animals;
- carcasses of female animals that have calved;
- carcasses of other female animals.

The distinction between the first two categories is made starting with April 2002, depending on the birth date. At present, the distinction is made through evaluation of ossification as follows: the carcasses of young not castrated males aged below 2 years differ from the carcasses of young not castrated males through the level of ossification of the apophysis of the dorsal vertebrae (the cartilage extremities of the spinal apophysis of the first 9 dorsal vertebrae should not be ossified) (MOVILEANU G., 2008, PETROMAN I., 2007)

MATERIAL AND METHOD

The present scientific approach aimed at classifying slaughtered beef carcasses in quality classes in authorised slaughter houses in accordance with the EUROP System of grading of carcasses. The information was collected through the common ways through which operators in the field report how things work and the issues they have to face (information bulletins of the Romanian Patronage of Meat and the Carcass Grading Commission).

RESULTS AND DISCUSSION

In Romania, there is fluctuation of the number of beef carcasses classified between 2007 and 2011, as shown in *Figure 1* below. We can see that during the period analysed, they classified beef carcasses whose warm weight was ≥ 100 kg (warm weight – 2% ≥ 98 kg), with beef carcasses whose warm weight was ≥ 70 kg being classified starting with 2010.

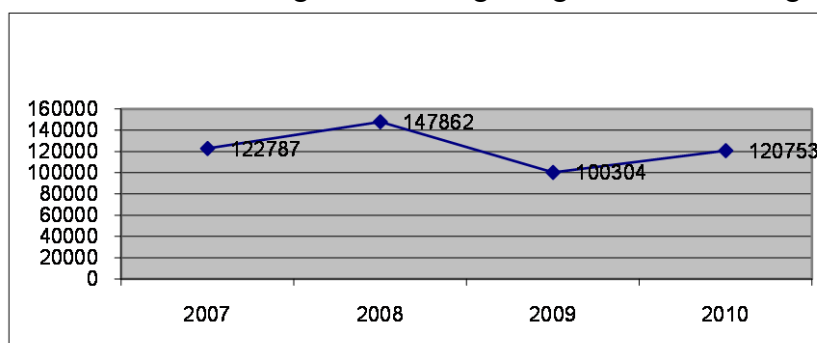


Figure 1. Number of bovine carcasses classified in Romania (2007-2011)

The distribution of classified carcasses during the period analysed is shown in *Figure 2* below. We can see that, in 2010, the share of slaughtered young bulls was 20.90%, while in 2007 it was 27.90%. The largest share was that of cows (52.60% in 2008 and 54.90% in

2009), which points to live exports of young bulls; as for the grading, the largest share was that of reconditioned cows which are not subjected to export.

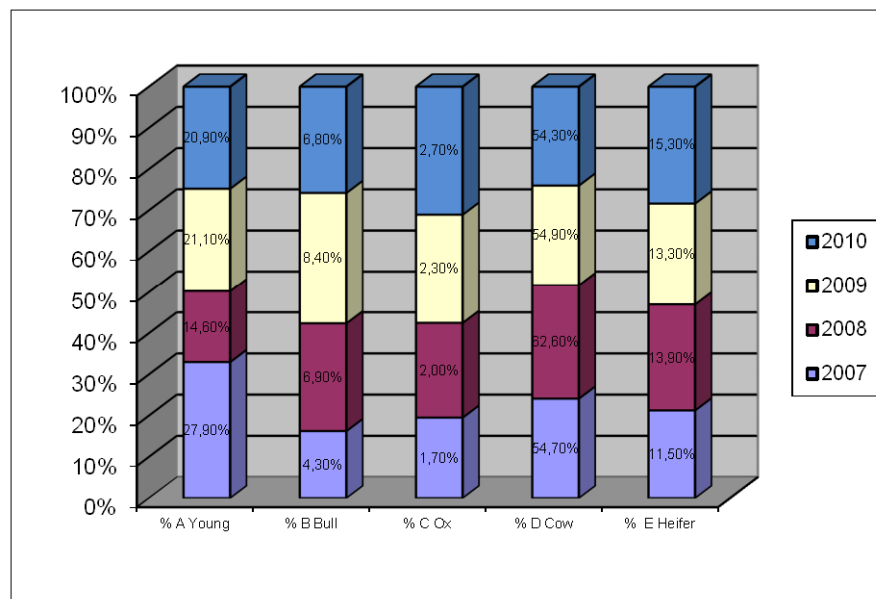


Figure 2. Distribution of carcass categories

Conformation describes the carcass profile and particularly its main parts (round, back, shoulder). If there are differences between two semi-carcasses, the grading should be done depending on the best semi-carcass.

According to European legislation, carcasses can be classified into 5 classes (*Table 1*).

Table 1. Evaluation of carcasses based on conformation

Conformation	Round, back, shoulder	Upper and lower part	Class
E – Excellent All profiles convex to super-convex; exceptional muscle development	Round: very rounded Back: wide and very thick, up to the shoulder Shoulder: very rounded	Topside spreads very markedly over the symphysis (<i>symphysis pelvis</i>) Rump very rounded	E
U – Very good Profiles on the whole convex; very good muscle development	Round: rounded Back: wide and thick, up to the shoulder Shoulder: rounded	Topside spreads very markedly over the symphysis (<i>symphysis pelvis</i>) Rump very rounded	Subdivided into: U+ higher level -U lower level
R – Good Profiles on the whole straight; good muscle development	Round: well-developed Back: still thick but less wide at the shoulder Shoulder: fairly well-developed	Topside and rump are slightly rounded	R
O – Fair Profiles straight to concave; average muscle development	Round: average development to lacking development Back: average thickness to lacking thickness Shoulder: average development to almost flat	Rump: straight profile	Subdivided into: O+ higher level -O lower level
P – Poor All profiles concave to very concave; poor muscle development	Round: poorly developed Back: narrow with bones visible Shoulder: flat with bones visible		Subdivided into: P+ higher level -P lower level

Source: MOVILEANU G. (2008) *Clasificarea și inspecția carcaselor de porcine, taurine și ovine conform UE*, Editura Ceres București

In Romania, they used, until 2010, only five conformation classes (E, U, R, O, P), but after 2010, they use also subdivisions (O+, O-, P+, P-).

The grading of carcasses for the class A after conformation and fat is shown in *Figure 3*. In the higher classes, the share of carcasses classified in the A class, carcasses of young uncastrated males, ranges between 0.89% class E (where muscle development is exceptional, the round is rounded, the back is wide and thick, the shoulder is rounded), and 4.79% class R (where profiles are generally straight, and muscle development is good).

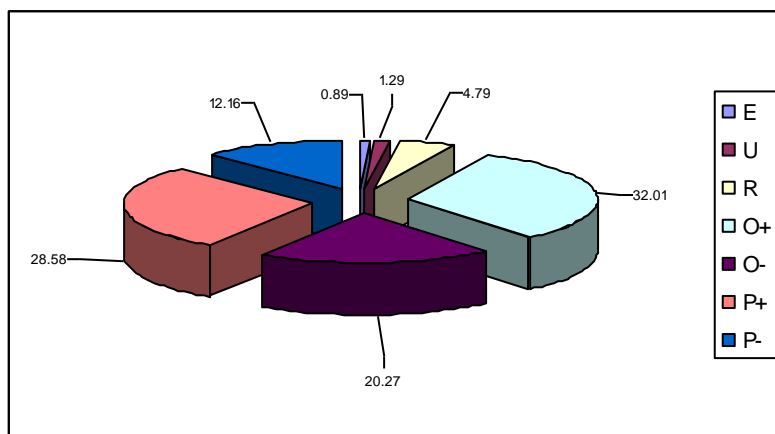


Figure 3. A category carcasses

In the category B, uncastrated males, the largest share belongs to the lower class O+ (37.61%), followed by the other lower classes (*Table 2*). In this class, there are carcasses with straight to concave profiles and medium muscle development. The round is medium developed, the back is thick to medium thick, the shoulder is almost flat and the croup is straight. In class E we classified only 6 carcasses, i.e. 0.07%.

Table 2. Grading of carcasses in class B after conformation

Conformation	Number	Percentage of the total	Mean weight
E	6	0.07	434.88
U	76	0.93	412.01
R	539	6.58	357.74
O+	3,079	37.61	282.64
O-	1,717	20.97	240.75
P+	1,932	23.60	210.10
P-	838	10.24	179.17
TOTAL	8,187	100	252.40

To note that, in the C category (carcasses of castrated males) there was no E quality class carcass and 6 carcasses of the U class, which represents 0.19% of the carcasses of castrated males (*Figure 4*). In class U, we classified after conformation carcasses whose profiles were, generally, convex and with very good muscle development. The animals have a rounded round, a wide and thick back up to the shoulder, and a rounded back as well as the croup.

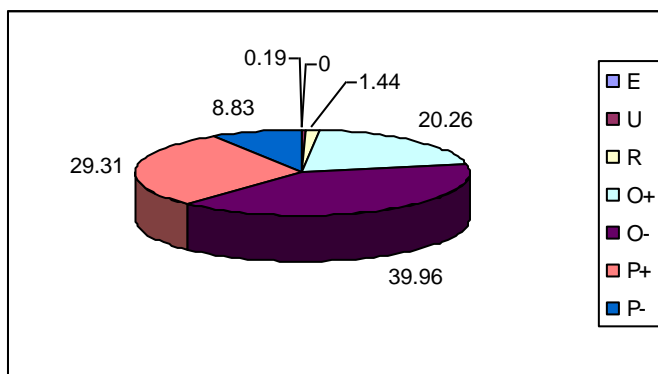


Figure 4. C category carcasses

In the D category (carcasses of females that farrowed), the share of classified carcasses was below 1% of the higher categories, which points to the fact that they slaughtered mainly dairy cows with lower features of the carcasse and in a critical state because of impediments during parturition (Figure 5).

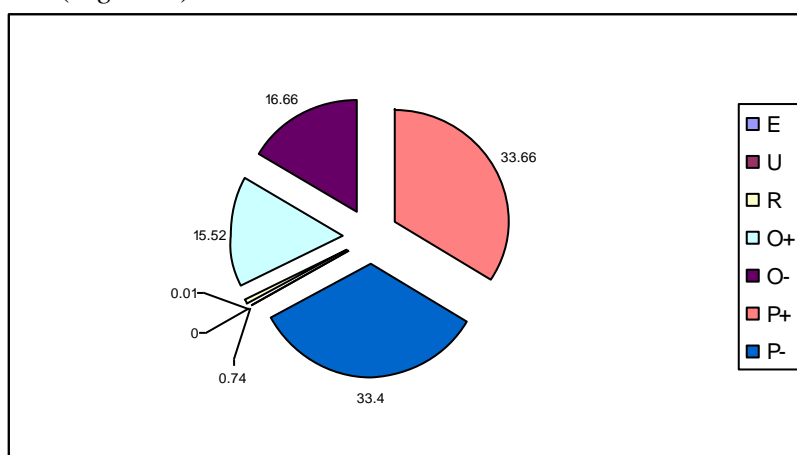


Figure 5. D category carcasses

In the E category (carcasses from other females), the largest share was that of lower categories P+ and P- (i.e., 37.86% and 18.16%, respectively), which points to the lack of specialisation of the breeds and hybrids for beef (Figure 6).

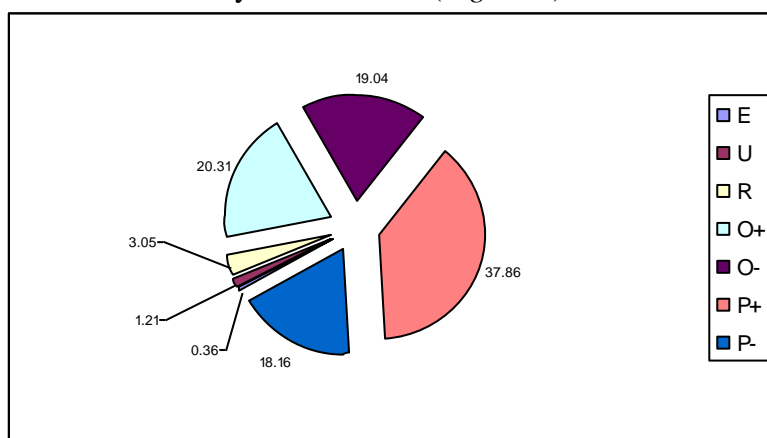


Figure 6. E category carcasses

The P class includes animals that, after conformation, have all profiles concave to very concave, with poor muscle development. Bovines classified have a carcasse with a poorly

developed round, with a narrow back, with visible bones, with flat and visible shoulder, and that are considered poorly featured for beef production.

CONCLUSIONS

We can see that the quality of bovine carcasses slaughtered during the period analysed does not range within the upper limits of the EUROP objective evaluation system, which asks for the introduction of new subdivisions because of the lack of animals that match the categories “Excellent”, “Very good” and “Good” after conformation.

To improve the quality of carcasses, we need to improve the genetic material, to reduce uncontrolled exports of live animals and to develop a market for the purchase of live animals to be slaughtered in authorised slaughterhouses.

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