

PRODUCTION OF BEEF CARCASS ACCORDING TO CONSUMERS DEMANDS

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Introduction

The future of meat export in Serbia lies in the production of meat of such a quality that meets the demands of a target market. In this regard, on the basis of our previous experience and production of beef for already known customers as well as according to their demands, the markets could be divided into two of the following groups: Italian and Greek market. A prerequisite for any kind of beef export is: identification and registration of all heads of cattle in the territory of the Republic of Serbia, application of international standards of control and monitoring of the production process and application of EU regulations relating to animal welfare (Official Journal C 340, 1997). Besides these mentioned prerequisites it is also necessary to provide a quality fattening material, that is, female calves for the production of the meat type called "baby beef". Baby beef fattening means that the duration of fattening is 11.5 months and during that time realised body weights of females should be 455kg, and of males 530 kg. For the Greek market, both females and males are produced, and as regards the way of processing a standard medial dissection is demanded. For Italian market, especially, the meat from female cattle not older than 11.5 months is required. This same market requires the cutting of the carcass to be performed by the so called Milanese cut. Contrary to increasing demands for animals intended for fattening, there is a decline in the number of calves and young cattle (Republic Bureau of Statistics, 2005). One way to ensure fast and efficient production of quality calves for fattening is the application of the method of industrial crossing of Domestic Spotted breed of lower production traits (Aleksic *et al.*, 1995).

Materials and Methods

In Serbia, there are several big companies engaged in production and export of beef. Technology of production is the same in all of them. Production of fattening calves is organised on farms of their subcontractors. After calving, at the age of 50–70 days, the calves are bought from subcontractors and placed into fattening facilities. Young cattle are fattened in the free housing system with a capacity of 500–1500 animals per cycle. Feeding and health care of fattening young cattle is under the constant supervision of experts of the companies engaged in meat export. For the Greek market, both male and female animals are used and as regards the way of processing a standard medial dissection is demanded. Cutting of the carcass along the spine is a classical, long-standing internationally accepted method of carcass cutting into two halves (Codex Committee on Meat and Meat Products, 1965). The halves are beheaded and spinal cord removed. As regards quality, the carcass of good conformation and low content of fat tissue is in demand. Especially for the Italian market, the meat of young cattle from female animals not older than 11.5 months is required as well as the cutting of carcass by the so-called Milanese cut. The cutting of the carcass "baby beef Milanese" is performed in two phases. The first phase is standard cutting of beef carcass along the spinal column into two halves. The second phase of cutting is the production of a commercial unit of "baby beef Milanese". For the production of "baby beef Milanese" conventionally obtained halves of beef carcasses are used. A hind part of carcass half is separated along the 5th or 6th rib at a right angle onto the spine, then cutting parallel to the spine, the belly of the carcass is separated without the hind shank. Regarding meat quality, light red colour, equal marbling, fat tissue of white to light yellow colour and good covering of the carcass by fat tissue is required. A trial included 60 heads of cattle, 30 heifers and 30 young bulls, slaughtered at the age of 11.5 months. A carcass yield was calculated in relation to animal live weight. The yield of Milanese and front quarter was calculated in relation to animal live weight.

Results and Discussion

Purchasing of the cattle was organised in a way that the prices per kg of live weight were variable and depended on market supply and demand. The prices of fattened young cattle and carcasses were relatively stable. Table 1 shows the values of studied traits of Simmental male cattle. On the basis of economic parameters presented in the table it can be seen that market value of live weight prior to slaughtering is EUR 954,00. After slaughtering market value of carcass processed by standard cut increases by 1,5%. The transport and slaughter costs are covered by the income realised from the skin and giblets. Due to the small difference (1.5%) the state supports the export by 20% per kg of carcass.

Table 1: Average values and prices per kg for male cattle (n=30).

Male cattle	Average values	Price per kg (EUR)	Total (EUR)
Live weight on 65 day	147,5	2,95	435,13
Live weight on 337 day	530,00	1,80	954,00
Daily gain during fattening, g	1406,00	-	
Warm carcass weight, kg	307,40	3,15	968,31
Carcass yield, %	58,00	-	

In Table 2 we can see that the market value of cattle prior to slaughter of EUR 773,50 increased after slaughtering by 2,98%. By further processing of the same carcass into "baby beef Milanese", this value increased by 5,43%. The state supports the export of Milanese by 20%.

Table 2: Average values and prices per kg for female cattle (n=30).

Female cattle	Average value	Price per kg (EUR)	Total (EUR)
Live weight on 65 day, kg	130,50	2,61	340,61
Live weight on 337 day, kg	455,00	1,70	773,50
Daily gain during fattening, g	1171,00	-	
Warm carcass weight, kg	252,80	3,15	796,32
Carcass yield, %	55,47		
Weight of Milanese, kg	96,62	4,40	425,13
Yield of Milanese, %	21,20		
Weight of front quarter, kg	156,16	2,50	390,40
Yield of front quarter, %	34,27		
Milanese +front quarter, kg	252,78		815,53

Due to increasing pressure on the producers to produce the meat from heifers called "baby beef" farmers are forced to fatten quality female heads instead of using them in further reproduction aimed to improve the genetic potential of the Simmental breed. Because of the reduced supply of fattening calves, as well as the lower quality, there is a need for new ways and methods for improvement of the production of beef. Based on obtained research results we can recommend the method of industrial crossing with French fattening breeds which can include 20-25% breeding females of total population of Domestic Spotted breed (Aleksic *et al.*, 1997). In the same time, the quality of meat of crossbreeds of F1 generation can fully meet all demands of consumers, especially those (Italy and Greece) who are traditionally the importers of our beef (Miscević *et al.*, 2000).

Conclusion

Taking into consideration the demands of developed countries for the import of quality beef meat, the Republic of Serbia must in the future, in a fast and efficient way, provide sufficient quantities of meat of high quality. In Serbia there are about 750,000 cows and heifers. Domestic Spotted cattle of Simmental type makes up 50%, Domestic Spotted of lower production traits makes up about 40% while the remaining 10% are other breeds and crossbreeds. One of the methods for fast and efficient production of quality calves for fattening is the application of industrial crossing of Domestic Spotted cattle of lower production traits (40% of total population) with French fattening breeds.

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