

CATTLE PRODUCTION – CURRENT SITUATION AND FUTURE DIRECTIONS OF DEVELOPMENT IN REPUBLIC OF SERBIA **

**S. Aleksić^{1*}, M. M. Petrović¹, Lj. Sretenović¹, V. Pantelić¹,
D. Tomašević¹, D. Ostojić-Andrić¹**

¹Institute for Animal Husbandry, Belgrade-Zemun, Serbia

*Corresponding author, e-mail saleksic@mail.com

**Plenary invited paper. Research financed by the Ministry of Science of Republic of Serbia, Project TR6887 B

Abstract: Number of heads of cattle in the last 11 years is constantly decreasing. In this period, number of cattle is reduced by 18%. Number of cows and pregnant heifers reduced by 14%. Data indicate that at the end of 2006 1,096.000 heads of cattle were registered. It should be pointed out that number of cows and pregnant heifers of 710.000 heads at the end of 2006 which are included in reproduction represent the future of Serbian cattle production in future. Dominant breeds are Domestic Spotted and Simmental cattle, participating by about 70% in total number, then crossbreds of Domestic Spotted and Simmental and Busha cattle participating with about 25%, and about 5% goes to Black and Red-White cattle of European White-Black and Holstein races. Production of cow's milk is in slight constant increase. This can be explained by increased production of milk per cow. Genetic progress in milk traits was achieved by utilization of progeny tested bulls on milk and increased scope of artificial insemination of cows and heifers. Production of meat is in constant decrease which is consequence of reduction of total number of cattle as well as insufficient number of slaughterhouses with EU certificate. Of total quantity of produced meat, in Central Serbia 69.000 t and in Vojvodina 21.000 t of meat is produced. Starting from the current situation in cattle production, and on basis of previous practice, domestic and international, and development of cattle breeding, fast and efficient transformation of cattle production is necessary, enlargement of agricultural farms and forming of specialized farmers for production of meat and milk. Systems of certification and registration which would increase the product value should be introduced on specialized farms. Milk produced in this way can have added value on the market through special dairy products (hard cheeses, semi hard cheeses, white-soft cheeses and milk beverages). Agricultural households/farms specializing in meat

production have objective – production of beef for domestic needs and export. Future of export of Serbian meat is first of all in production of beef of high quality which complies with demands of specific markets (Italy, Greece, etc.).

Key words: cattle, breeds, milk, meat, EU Regulations

Introduction

Cattle production is important branch of livestock production in Republic of Serbia. Current situation in cattle production is not satisfactory in regard to the production per head and number of heads which has been constantly decreasing in recent years (*Aleksić et al.*, 1997). Our country, although without developed cattle breeding, has been traditional exporter of beef, meat products and fattening young cattle into many countries, even the most developed ones, for instance Italy and Greece. Export of beef was in expansion prior to Italy (1974) and Greece (1980) entering the EEC. For instance, in year 1974, we exported 50.500 t/annually on Italian market, i.e. in 1980 51.310 t (*Aleksić et al.*, 2005) and there were 24 registered slaughterhouses with EEC certificate. Today, there are only 4 slaughterhouses with EU certificate, and approved export quota of close to 10.000 t of beef we can not realize. Total production of milk is 1,602.000.000 l. Cattle production is expected to provide high quality products for export, primarily beef and quality cheeses with defined origin and quality.

Cattle production in Republic of Serbia – current situation

Based on official statistical data, current situation in cattle production is considered as unfavourable (Bureau of Statistics of Republic of Serbia). Number of heads of cattle has been constantly decreasing over the last 11 years. In this period, number of cattle is reduced by 18%, and number of cows and pregnant heifers by 14%. Data on number and categories of cattle also indicate considerable reduction, so category of cattle at the age of 1 to 2 years has been reduced by 24.5%, and number of calves by 29.2%. Data show that at the end of 2006 1,096.000 heads of cattle were recorded. It should be pointed out that number of cows and pregnant heifers of 710.000 heads at the end of 2006 which are included in reproduction represent the future of Serbian cattle production in future.

Table 1. Number of heads of cattle according to categories in Republic of Serbia in last 11 years

Year	Cattle	Cows and pregnant heifers	Heifers 1 to 2 years old	Category from 3 to 12 months
1996	1.335.000	827.919	91.215	211.111
1997	1.318.000			
1998	1.280.000			
1999	1.283.000			
2000	1.246.000	817.358	93.860	158.082
2001	1.162.000			
2002	1.128.000			
2003	1.112.000			
2004	1.102.000			
2005	1.079.000	720.559	68.946	149.528
2006	1.096.000	710.000	-	-
Index	82	85.7	75.5	70.8

Of total number of cattle in 2005, 866.681 heads (80.3%) were in Central Serbia and in Vojvodina 212.339 heads or 19.7%.

Table 2. Production of milk and meat in Republic of Serbia in the last 11 years

Year	Milk (000 l)	Meat (t)
1995	1.436.649	104.000
1996	1.469.113	103.000
1997	1.524.417	92.000
1998	1.613.580	97.000
1999	1.644.319	97.000
2000	1.566.323	104.000
2001	1.576.428	93.000
2002	1.579.704	97.000
2003	1.576.375	95.000
2004	1.579.031	93.000
2005	1.602.000	90.000
Index	111.5	86.5

Production of cow milk is in slight increase. This can be explained by increased production of milk per cow. Genetic progress in milk traits was achieved by utilization of progeny tested bulls on milk and increased scope of artificial insemination of cows and heifers.

Production of meat is in constant decrease which is consequence of reduction of total number of cattle as well as insufficient number of slaughterhouses with EU certificate. Of total quantity of produced meat, in Central Serbia 71000 t and in Vojvodina 22.000 t of meat is produced.

Race composition

Cattle breeding: Dominant races are Domestic Spotted and Simmental cattle, participating by about 70% in total number, then crossbreds of Domestic Spotted and Simmental and Busha cattle participating with about 25%, and about 5% goes to Black and Red-White cattle of European White-Black and Holstein races. Breeding of animals of combined production capacities on small farms in a small number corresponds to various and moderately intensive conditions which are dominant on these farms. Production capacities of animals are varied, from weak and moderate to good in smaller number of farms. The cattle quality is improved in farms which use quality bulls and insemination. Production capacities of cattle are not completely used, both for milk and meat, because of a number of limitations and weaknesses either in production or in the placement of final products (Petrović *et al.* 2003).

Future directions of development of cattle production in Republic of Serbia

Because of the natural resources, soil, climate and water, cattle production and its development have great potential in total livestock production. Over 700.000 farms are engaged in this production which is 55% of total number of agricultural households/farms in Republic of Serbia. Future development of cattle production should be based on organization of sustainable and efficient cattle production which can be competitive on other markets, and contribute to increase of profitability, providing of food of animal origin, and satisfy the consumer demand in regard to food safety and quality, and is in function of environment protection.

Developed countries are facing the trend of increase of food production, and at the same time population of consumers is decreasing, which is reflected on the market as permanent lowering of prices. Starting from the current situation in cattle production, and on basis of previous practice, domestic and international, and development of cattle breeding, fast and efficient transformation of cattle production is necessary, enlargement of agricultural farms and forming of specialized farmers for production of meat and milk.

1. Farms (farmers) specializing in milk production

Specialized farms for milk production have one objective – production of milk complying with standards relating to % of milk fat, % of milk

proteins and especially relating to bacterial suitability of milk. Systems of certification and registration which would increase the product value should be introduced on specialized farms (*Petrović et al.* 2002, 2003). Milk produced in this way can have added value on the market through special dairy products (hard cheeses, semi hard cheeses, white-soft cheeses and milk beverages). The only remaining is the issue of small scale farmers with 15 l or less delivered milk daily, which are over 57% of total delivered milk. These are mainly old households which need to be integrated into system of specialized farms.

2. Farms (farmers) specializing in meat production

Specialized farms for production of meat have objective – production of beef for domestic market and export. Future of export of Serbian meat is first of all in production of beef of high quality and complying with standards of specific market. In our country, recently, a need for fast improvement of production of meat from Domestic Spotted cattle is present. In order to improve the quality of calves for fattening beside semen of Simmental bulls for insemination of cows and heifers, also semen of French fattening bulls, Charolais and Limousine should be used. Based on research results, crosses of F1 generation exhibited positive effects in regard to gain (*Čobić et al.* 1990., *Aleksić et al.* 1998.), carcass quality (*Aleksić et al.* 1998) and meat quality (*Aleksić et al.* 2001)

In this sense and based on our previous experiences and practice in production of beef for known buyers and according to their demand, there are three groups:

Export to traditional Italian markets

Italian market demands top quality of beef. Especially the most developed region of Italy – Toscana, where meat of so called "baby beef" quality is demanded. That is meat originating from cattle of age up to one year and average live body mass of 450 kg for males, and 400 kg for heifers.

Consumers are especially interested in meat of "baby beef" quality originating from high quality female cattle (*Aleksić et al.* 2005).

In regard to the quality of meat light pink colour is demanded, equal marbling and fat tissue of white to light yellow colour. Also, in regard to processing, so called »Milan cut« is in demand, and cut quarters. Flat cut quarters can be marketed only in limited quantities which further confirms the choosiness of this market.

Export to traditional markets in Greece

Greek market as traditional importer of our meat demands meat obtained

by slaughtering bulls of over 500 kg of live body mass and carcass weight of over 250 kg. In regard to processing, flat cut quarters or carcasses are demanded. In regard to quality, there is demand for carcasses of good conformation and covering with fat tissue (*Aleksić et al. 2005*).

Other markets

Other markets include marketing of young beef and beef first of all on markets of former Yugoslav republics and Near and Middle East countries. Demands of these markets relate to necessary traditional-religious slaughtering methods. In regard to meat quality, quality traits characteristic for Italian and Greek markets are not insisted upon here (*Aleksić et al. 2005*).

Today, also, there is great interest of our farmers and slaughter industry to return to markets of EU countries, but serious obstacle is still no application of EU Regulations relating to conditions of livestock rearing on farms, transport and depot conditions, as well as slaughtering method.

Prerequisite for any export of beef is:

1. Identification and registration of cattle on territory of Republic of Serbia.
2. Application of international standards in control of monitoring of production process.
3. Application of EU regulations relating to animal welfare.

Identification and registration of all cattle on territory of the Republic of Serbia. Ministry of Agriculture issued in 2004 Regulation on identification and record keeping on identified cattle (Regulation, 2004). So, one of the important prerequisites for export of beef is fulfilled.

Implementation of international standards of control of monitoring of production process includes first of all monitoring and implementation of HACCP (Hazard Analyzed Critical Control Point), GMP (Good Manufacturing Practice), GVP (Good Veterinarian Practice).

Application of EU Regulations relating to animal welfare «Protocol on animal welfare and protection - OJ 340/97»

Application of EU Regulations relating to welfare of all animals on farm (OJ L323/78, OJ L221/98, OJ L019/2000,) especially calves, Directives relating to minimum space provided (OJ L340/91, OJ L025/97, OJ L076/97)

Application of EU Regulations relating to welfare of all animals during transport (OJ L340/91, OJ L148/95, OJ L0174/97, OJ L052/98, OJ L082/98)

Application of EU Regulations relating to welfare of all animals in slaughterhouse depot and slaughtering method (OJ L137/98, OJ L340/93)

GOVEDARSKA PROIZVODNJA – STANJE I BUDUĆI PRAVCI RAZVOJA U REPUBLICI SRBIJI

*S. Aleksić, M. M. Petrović, Lj. Sretenović, V. Pantelić, D. Tomašević,
D. Ostojić-Andrić*

Rezime

Na osnovu zvaničnih statističkih podataka stanje u govedarstvu se ocenjuje kao nepovoljno. Broj grla poslednjih deset godina konstantno opada. U ovom periodu broj goveda je smanjen za 18%. Dok je broj krava i steonih junica smanjen za 14,3%. Podaci o brojnom stanju i kategorijama goveda takodje ukazuju na značajno smanjenje, tako da kategorija junadi od 1-2 godine je smanjen za 24.5% dok broj teladi je smanjen za 29.2%. Podaci pokazuju da je na kraju 2006. godine evidentirano 1,096.000 grla goveda. Posebno treba imati u vidu da broj krava i steonih junica od 710.000 grla na kraju 2006. godine koja ulaze u reprodukciju predstavljaju budućnost srpske govedarske proizvodnje u narednom periodu. Dominantne rase su domaća šarena i simentalaska rasa, sa učećem od oko 70% u ukupnom broju goveda, zatim melezi goveda domaće šarene i simentalске rase i buša goveda sa oko 25%, i 5% čine crno-bela goveda i crvenop-bela goveda evropskih crno-belih i holštajn rasa. Proizvodnja kravljeg mleka je u blagom stalnom porastu. Ovo se može objasniti povećanom proizvodnjom mleka po kravi. Genetski napredak u osobinama mlečnosti postignut je korišćenjem progeno testiranih bikova na mleko i povećanom obimu veštačkog osemenjavanja krava i junica. Proizvodnja mesa je u stalnom opadanju što je posledica opadanja ukupnog broja goveda kao i nedovoljan broj klanica koje imaju sertifikat EU. U 2006. godini registrovane su samo 4 klanice sa EU sertifikatima. Od ukupne količine proizvedenog mesa u Centralnoj Srbiji se proizvede 69.000 t dok u Vojvodini 21.000 t. Polazeći od postojećeg stanja u govedarskoj proizvodnji, kao i na osnovu dosadašnje domaće i međunarodne prakse i razvoja govedarstva neophodna brza i efikasna transformacija govedarske proizvodnje u cilju ukрупnjavanja zemljišnih poseda i stvaranja specijalizovanih farmera za proizvodnju mleka i mesa. Na specijalizovanim farmama treba uvesti sisteme sertifikacije i registracije koje povećavaju vrednost proizvoda. Ovako proizvedeno mleko može se

dalje valorizovati na tržištu preko specijalnih proizvoda od mleka (tvrdi sirevi, polutvrđi sirevi, beli sir i mlečni napitci). Gazdinstva (farmeri) specijalizovani za proizvodnju mesa imaju za cilj proizvodnju junećeg mesa za domaće potrebe i za izvoz. Budućnost srpskog izvoza mesa leži pre svega u proizvodnji junećeg mesa takvog kvaliteta koji odgovara zahtevima odgovarajućeg tržišta (Italija, Grčka i dr).

References

ALEKSIĆ S., LAZAREVIĆ R., MIŠČEVIĆ B., PETROVIĆ M.M., JOSIPOVIĆ S. (1998): Fiksni uticaj genotipa na kvalitet junećeg mesa. *Biotehnologija u stočarstvu*, 1-2, p 31-39.

ALEKSIĆ S., VLAHOVIĆ M., MIŠČEVIĆ B., PETROVIĆ M., PERKOVIĆ S. (1999): The correlation between the distribution of carcass fatty tissue traits of meat in different genotypes of young bulls. *Biotechnology in Animal Husbandry* (5-6), p.1-7.

ALEKSIĆ S., LAZAREVIĆ R., MIŠČEVIĆ B., PETROVIĆ M., JOSIPOVIĆ S. (2000): The investigation of the technological traits of beef with DFD symptoms. *Biotechnology in Animal Husbandry* Vol. 16, (3-4), p. 55-63.

ALEKSIĆ S., LAZAREVIĆ R., MIŠČEVIĆ B., PETROVIĆ M., TOMAŠEVIĆ D. (2001): The effect of Live Weight Prior to Slaughtering on Yield and Weight of Retail Carcass Cuts. *Biotechnology in Animal Husbandry* 17(5-6), p. 125-133..

ALEKSIĆ S., MISCEVIĆ B., PETROVIĆ M.M., PAVLOVSKI Z., JOSIPOVIĆ S., TOMAŠEVIĆ D. (2002): Investigation of factors affecting the results regarding the dressing percentage value of male young cattle of domestic simmental breed and crossbreds of domestic simmental and limousine breed, *Biotechnology in Animal Husbandry* 18(3-4), p: 9-15.

ALEKSIĆ S. LAZAREVIĆ R., MIŠČEVIĆ B., PETROVIĆ M.M., JOSIPOVIĆ S. (1995): Proizvodni i ekonomski aspekti ukrštanja domaće šarene rase sa francuskim tovnim rasama. *Tehnologija mesa* 2-3, god. XXXVI, 77-79.

ALEKSIĆ S. LAZAREVIĆ R., MIŠČEVIĆ B., PETROVIĆ M.M., JOSIPOVIĆ S. (1997): Nove tehnologije za povećanje prinosa i kvaliteta junećeg mesa domaće šarene rase namenjenog izvozu. *Biotehnologija u stočarstvu*, posebna edicija, p 17-24.

ALEKSIĆ S., PETROVIĆ M.M., MIŠČEVIĆ B., PANTELIĆ V. TOMAŠEVIĆ D., OSTOJIĆ D. (2005): Proizvodnja kvalitetnog junećeg

mesa u skladu sa evropskim trendovima. *Biotechnology in Animal Husbandry* Vol. 21, (5-6), p.49-54.

AUGUSTINI, CHR., TEMISAN, V. (1989): Uticaj namenskog ukrštanja na kvalitet trupova zaklanih životinja i kvalitet mesa. *Tehnologija proizvodnje i kvalitet goveđeg mesa*. Tehnološki fakultet, Novi Sad, p.9-16.

ČEPIN S. (2001): Blagovne znamke govjega mesa. *Meso in mesnine*, br. Vol. 2, p. 17-20.

ČOBIĆ T., NENADOVIĆ M., MEDIĆ D., NOVAKOVIĆ M. (1990): Ispitivanje tovnih sposobnosti muških meleza F₁ generacije šaroleske i limuzinske sa simentalskom rasom goveda. *Biotehnologija u stočarstvu*, 3-4, pp 3-13.

MIŠČEVIĆ M., LAZAREVIĆ R., ALEKSIĆ S. , PETROVIĆ M.M., JOSIPOVIĆ S. (1997): Fiksni uticaj genotipa na proizvodne osobine junadi. *Biotehnologija u stočarstvu*, 3-4, pp 65-73

MIŠČEVIĆ B., LAZAREVIĆ R., ALEKSIĆ S., PETROVIĆ M.M., JOSIPOVIĆ S. (2000): Evaluation of the genetics parameters of fattening traits of young cattle of different genotypes. *Biotechnology in Animal Husbandry* Vol. 16, (1-2), p.19-24.

NOSAL, V., ČUBON, J. (1992): Structure of carcass and meat quality in heifers-products of commercial crossing with meaty breeds. *Biotehnologija u stočarstvu*, 5-6, p.55-59.

Official Journal L 323, (1978), European Convention for the protection of animals kept for farming purposes, p.14-22.

Official Journal L 323, (1978), Council Decision concerning the conclusion of the European Convention for the protection of animals kept for farming purposes, p.12-13.

Official Journal L 019, (2000), Commission Decision concerning minimum requirements for the inspection of holding on which animals are kept for farming purposes, p.51-53.

Official Journal L 221, (1998), Council Directive concerning the protection of animals kept for farming purposes, p 23-27.

Official Journal L 340, (1991), Council Directive laying down minimum standards for the protection of calves, p 28-32.

Official Journal L 025, (1997), Council Directive laying down minimum standards for the protection of calves, p 24-25.

Official Journal L 076, (1997), Council Directive laying down minimum standards for the protection of calves, p 30-30.

Official Journal L 137, (1988), European Convention for the protection of animals for slaughter, p.27-38.

Official Journal L 137, (1988), Council Decision on the conclusion of the European Convention for the Protection of animals for Slaughter, p.25-26.

Official Journal L 340, (1993), Council Directive on the protection of animals at the time of slaughter or killing, p 17-27.

Official Journal L 340, 1991, Council Directive on the protection of animals during transport, p. 21-34.

Official Journal L 148, (1995), Council Directive on the protection of animals during transport, p. 52-63.

Official Journal L 174, (1997), Council Regulation concerning Community criteria for staging point and amending route plan, p. 1-6.

Official Journal L 052, 1998., Council Regulation on additional animal protection standards applicable to road vehicles used for carriage of livestock on journeyes exceeding eight hours, p. 8-8

PETROVIĆ M.M., BOGDANOVIĆ V., PETROVIĆ P.M., RUŽIĆ-MUSLIĆ D., OSTOJIĆ D. (2002): Mogućnosti unapređenja stočarstva brdsko-planinskog područja Srbije, *Biotehnologija u stočarstvu*, 18 (5-6), p. 1-8.

PETROVIĆ M.M, LAZAREVIĆ LJ. (2003): The Present Situation in the Livestock Production in the Republic of Serbia and Measures for its Improvement 7th International Symposium, *Modern Trends in Livestock Production, Biotechnology in Animal Husbandry*, 19 (5-6), p.13-23.

Republički Zavod za statistiku Srbije(2005) br.70 LIV.

Uredba Ministarstva poljoprivrede Srbije o obeležavanju goveda (2004)