

INVESTIGATION OF MILK TRAITS OF SAME SIMMENTAL BULLS' DAUGHTERS IN GERMANY AND SERBIA¹

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Abstract: More important milk traits of F1 generation daughters of German Simmental bulls, in production conditions in Germany and Serbia are investigated in this paper. Progeny testing in conditions in Serbia included in average 26 daughters and in Germany considerably more - 1122. Based on compared results considerably greater absolute difference in quantity of produced milk was determined in F1 generation in Germany (1057kg) with level of significance of ($p < 0,05^*$). Statistically highly significant difference ($p < 0,01^{**}$) was established for quantity of milk fat and content of milk fat. Daughters investigated in Germany have realized higher production.

Key words: Simmental breed, bulls, milk traits, test

Introduction

One of the main goals of breeding-selection activities is creating new generations which would exceed previous generations in regard to productive characteristics and in this way contribute to realization of higher economical profit. Great attention nowadays is directed to selection of bull sires, and prior to selection it is important to confirm/check their own productive abilities as well as the ability to transfer genes to their offspring.

Few Simmental bulls are tested annually in Serbia, and this reflects negatively on realization of greater and faster genetic progress in regard to fattening and milk traits of domestic population of Simmental cattle. Therefore, AI centres often import breeding material, or borrow

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young bulls (waiting bulls) and use their semen for planned insemination of domestic Simmental female breeding cattle.

Objective of our research was to establish the influence of German spotted – Fleckvieh bulls on major milk traits of F1 generation daughters of domestic Simmental breed.

Material and Methods

For the purpose of this investigation results of the progeny testing of daughters of German spotted – Fleckvieh bulls were used (Horus, Reno, Horst, Ural Horsi, Holdan and Holbi). Investigation of milk traits of first calving cows was carried out in year 1999/2000 in production conditions in Serbia and in Germany. Basic selection criteria was minimum 18 first calving cows under control per bull and lactations calculated at 305 days. Average number of investigated daughters in Germany was 1122 and in Serbia 26.

By application of CC method effect of German bull sires was determined, or their relative breeding value based on milk traits of females of the same age in our production conditions.

Investigation included following production characteristics:

- Average milk quantity
- Average quantity of milk fat
- Content of milk fat

Data was processed using the method of descriptive statistics - SPSS ver.10 software programme (T- test of significance).

Results and Discussion

In tables 1, 2 and 3 results of the progeny testing of F1 generation daughters carried out in Germany and Serbia are presented.

Tabela 1. Rezultati progenog testa kćeri F1 u Nemačkoj
Table 1. Results of the progeny testing – F1 generation daughters in Germany

Ime bika/ Name of the bull	Broj kćeri/ Number of daughter	Mleka/ Milk (kg)	M. Masti/ Milk fat (%)	M. Masti/ Milk fat (kg)
Horus	80	4.504 -248	3,92 -0,25	177 -24
Horst	7112	5.813 +168	4,09 -0,22	237 -7
Horsi	63	4.445 -477	3,95 -0,20	176 -34
Holdan	118	4.364 -575	4,11 +0,02	179 -22
Holbi	93	4.394 -212	3,95 -0,28	175 -26
Ural	108	5.244 +129	4,07 -0,17	213 -4
Reno	286	5.209 +213	4,10 -0,11	213 +1
Prosek/Average	-	4.854	4,02	195,7

**Izvor: Baza podataka odgajivačkih vrednosti Instituta za stočarstvo pri Upravi za poljoprivredu u Bavarskoj/*Source: Data base containing breeding values of the Institute of Animal Breeding – Agricultural Administration of Bavaria*

Tabela 2. Rezultati progenog testa kćeri F1 u Srbiji
Table 2. Results of the progeny testing – F1 generation daughters in Serbia

Ime bika / Name of the bull	Broj kćeri / Number of daughters	Mleka/ Milk (kg)	M. masti/ Milk fat (%)	M. masti/ Milk fat (kg)
Horus	19	4.162 +54	3,80 0,0	158 +2
Horst	47	4.131 +23	3,80 0,0	157 +1
Horsi	89	4.113 +2	3,80 0,0	156 0,0
Holdan	35	2.853 -256	3,79 +0,07	108 -8
Holbi	30	3.075 +19	3,65 -0,10	112 -3
Ural	17	3.876 +123	3,89 -0,02	151 +4
Reno	40	4.361 +320	3,94 -0,02	172 +12
Prosek/Average	-	3.796	3,81	144,8

**Izvor: Godišnji Izveštaj IPN-a Selekcija stoke u Srbiji / Source: Annual report by the Institute for Science Application in Agriculture, Selection of Livestock in Serbia*

By investigating differences in milk production, quantity and content of milk fat obtained in progeny testing of same bull sires of Simmental breed in German and Serbian conditions the following was established:

F1 generation daughters in conditions of progeny testing in Germany have realized average milk production of $4\ 854 \pm 568$ kg, or 1057 kg more compared to level of milk production of first calving cows in Serbia. Difference was at the level of significance ($p < 0,05^*$). Average quantity of milk fat in daughters in Germany was approximately 195 ± 25 kg and by almost 41 kg greater than average quantity of milk fat established in case of daughters in Serbia. Average content of milk fat was by 0,22% below the level determined in Germany. Established differences in both traits were statistically significant ($p < 0,01^{**}$).

Based on results of CC method for bull sires tested in our conditions, five bulls have achieved relative breeding value of 100% for

trait of milk quantity: Reno(108), Ural (105), Horus (102), Horst and Holbi (101). Bulls Horsi and Holdan in our production conditions have realized negative results.

Based on investigation of Romčević et al. (1990) it can be concluded that difference in absolute produced milk quantity increased in favor of German cattle population, reflecting the negative situation, level and conditions in domestic population and production.

Tabela 3. Uporedni rezultati progenog testa F1 kćeri
Table 3. Comparative results of progeny testing of F1 generation - daughters

Osobina/ Trait	F1 generacija/ F1 generation									
	Fleckvieh ♂ x ♀ Fleckvieh					Fleckvieh ♂ x ♀ Simmental				
	\bar{X}	V	S	Min.	Max.	\bar{X}	V	S	Min.	Max.
Mleka/ Milk (kg)	4853,29	0,12	568,52	4364,00	5813,00	3795,86	0,16	588,98	2853,00	4361,00
M. Masti/ Milk fat (kg)	195,71	0,13	25,00	175,00	237	144,86	0,17	24,69	108,00	172,00
M. Masti/ Milk fat (kg)	4,03	0,02	0,08	3,92	4,11	3,81	0,02	0,09	3,65	3,94

**Izvor: Izvestaj IPN-, Baza podataka odgajivačkih vrednosti Instituta za stočarstvo pri Upravi za poljoprivredu u Bavarskoj kao i sopstvena izračunavanja / Source: reports by the Institute for Science Application in Agriculture*

Conclusion

By comparative investigation of achieved results of 2 groups of F1 generation daughters it can be concluded that first calving cows tested in conditions in Germany have realized considerably higher quantity of milk, quantity of milk fat and content of milk fat (1057 kg, 41 kg, 0,22%, respectively). Based on investigation carried out by Romčevića et al. in year 1990 it can be concluded that difference in absolute milk quantity increases with time in favour of German cattle population, reflecting not so favourable situation, level and conditions present in domestic population and cattle production. Based on results of relative breeding

value, German bulls have shown superiority in relation to population average determined in Serbia, and their daughters have realized considerably better results in German production conditions.

ISPITIVANJE OSOBINA MLEČNOSTI KĆERI ISTIH BIKOVA SIMENTALSKE RASE U NEMAČKOJ I SRBIJI

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Rezime

U radu su ispitane važnije osobine mlečnosti kćeri F1 generacije istih bikova Fleckvieh rase, u uslovima proizvodnje u Nemačkoj i kod nas. Progenim testom je u našim uslovima obuhvaćeno prosečno 26 kćeri, a u Nemačkoj znatno više - 1122. Na osnovu uporednih rezultata utvrđena je znatno veća apsolutna razlika u količini proizvedenog mleka (1057kg) kod F1 generacije u Nemačkoj, a razlika je bila na nivou značajnosti ($p < 0,05^*$). Statistički vrlo značajna razlika ($p < 0,01^{**}$) ustanovljena je za osobine količina mlečne masti i sadržaj mlečne masti, pri čemu su kćeri ispitane u Nemačkoj ostvarile veću proizvodnju.

Ključne reči: Simentalska rasa, bikovi, osobine mlečnosti, test

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