

Historical Overview of Slovenian Autochthonous Cika Cattle Breed Production Traits - Milk Yield

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ABSTRACT: Cika cattle is the only Slovenian autochthonous cattle breed. Different names for breed were used in the past, mostly associated with the place of rearing. So, in Bohinj area the term Bohinj cattle was used. The oldest discovered written source, where the name Bohinj cattle is mentioned, dates back to the year 1846. The original Bohinj cattle had a small body frame, thin bones, consistent forms and it was mainly a dairy type. Up to the sixties of the previous century, Cika cattle was well known as a breed with relatively high milk yield. Expertly organized breeding work for Cika cattle coincides with the foundation of the first Cattle-breeding cooperative, established in 1906. It was the first organisation for milk recording in Cika cattle. Milk recording had great importance in the thirties of the 20th century and in 1934 there were 72% of all purebred cows of Cika cattle included into milk recording. Selection work remained important also at the end of the Second World War, when the buyers of cows took into consideration the criterion of the official data of milk recording. Accepted resolution on the termination of Cika cattle rearing in the sixties of the previous century caused the distinctively decreased number of animals of Cika cattle breed. The decline continued and milk recording of Cika cattle ended in 1971 on state farms and in 1979 on private farms.

Keywords: Cika cattle, autochthonous breed, Slovenia, milk yield, historical sources.

INTRODUCTION

According to the Livestock Breeding Act, accepted in 2002, Cika cattle are classified as one of the Slovenian autochthonous breed, and as such under a special state protection. In the study of historical sources on development of Cika cattle, different names in literature were found, and at least 30 of them are often associated with the place of rearing or coat colour (Bohinj breed, Gorenjska breed, Red Bohinj cattle ...). The first record so far that backs to the year 1846 used the naming »*Bohinj cattle*«, where it is written, that Bohinj cattle is a well searched for and desired breed by the breeders from the regions and places like Karst, Vipava, Tolmin and Friuli. A term "Bohinj cattle" symbolized a cow with relatively high milk yield (according to body weight). Encouragement of dairy cows production in Carniola* dates back at least to the first half of the 19th century. In distributing the premiums for the best bulls of a "local" breed the advantage was given to the bull which met the required type traits and was an offspring of a good dairy cow as well (Osnanilo ..., 1844). It was stressed in the proclamation that if individual type traits of bulls were very similar, the preference for the premium was given to the bull, which was an offspring of a better dairy cow (Razglas ..., 1869). Cika cattle have always been in a close relation with the Alpine dairy farming in the region of Bohinj. Schollmayr (1872) wrote that cattle in Bohinj area were extremely small, often not higher than goat males. A small body frame of these animals had been associated with summer grazing on the highlands of the Alpine Limestone Mountains. Bohinj cattle was considered as a good dairy breed among the prevalent breeds in Carniola and later in Drava Banovina**. Pirc (1909) wrote: "*There was as much milk as water*" say the old Bohinj people and I well believe them. Even in Salzburg area, breeders were competing for Bohinj cows and they came several hours in advance to meet with cattle brokers. They knew that these cows would give them milk in abundance at very modest feed. So they used to sell their low production but well build Pinzgauer cows for high sums of money to their land lords." Buyers of Bohinj cows came from the Friuli, Carinthia, Salzburg area, Bavaria ... The term "Bohinj cow" itself meant quality and on upper Carniola region they used to say: "*Go to Bohinj to get a cow and go to Poljansko to*

get a wife” (Cvenkelj, 1914). An unknown author described milk yield of Bohinj cows as follows: “*Bohinj cows are the best dairy cows bred in our country. They are small in body frame, but very good for dairying ...*” (Bohinjske krave, 1923). Černe (1928) described Bohinj cattle and wrote: »... *you can hardly see anything but a large and a beautiful udder which is worn by a small and gentle animal resembling a deer ...*«. Veble (1954) indicates Bohinj cattle as a strong dairy type of cattle, which had been selected by nature and breeders for centuries. Rearing of the so called “cow families” helped to conserve a relatively high milk yield of animals by Bohinj breeders. They did not buy cows; only bulls were bought by the local agricultural cooperative at the fairs of breeding animals. Until the sixties of the previous century, Cika cattle prevailed on upper Carniola region of Slovenia. In the year 1964, a symposium took place in Kranj, where it was accepted, that in the entire region of upper Carniola, Cika cattle need to be replaced by Simmental cattle. There were rare experts who pointed out the specific breeding conditions in Bohinj and they stressed that it is risky to introduce other cattle breeds there.

In accordance with the International Declaration on Biological Diversity (which treats the conservation of biological diversity, including diversity of breeds of domestic animals and plant varieties in agriculture) the remains of Cika cattle were found. This happened at the beginning of 21st century and represented the basis for the establishment of breeding and zootechnical professional work. Today, the conservation is supervised by the Public Service for Farm Animal Genetic Resources Conservation. Due to the social and market changes in agriculture in recent years in Slovenia, many Cika cattle breeders have been advised to breed suckler cows for beef production. Only a few breeders are still using Cika cows for milk production. The objective of the present study is a review of milk yield of Cika cattle, done on the base of historical sources and on the data of milk recording in Cika cattle in the previous century.

MATERIAL AND METHODS

Data for the analysis of milk yield investigation of Cika cattle before the Second World War were obtained from the journal *Kmetovalec* (Agricultural publication 1884-1944). Data of the average milk yield of Cika cattle after the Second World War were obtained from the reports of milk recording on private and state farms prepared by the Agricultural Institute of Slovenia. Weighted average milk yield and fat content by year were calculated and included into the balance. We used the method of least square means by which we assessed the impact of year as linear regression of weighted averages with respect to the year. Data were analysed with the software package SAS (SAS/STAT, 1990).

RESULTS

MILK RECORDING DEVELOPMENT IN CIKA CATTLE

The first livestock cooperative in Carniola was established in 1906 in Selce, a small town situated above Škofja Loka by a provincial dairy and livestock supervisor for Ljubljana region - Rado Legvart. He named the first livestock cooperative after Cika cattle breed. He also prepared the selection work rules and created the herdbook. The selection work in animal husbandry was cut off by the First World War. After the war it was re-established in some animal husbandry organizations. (Poročilo o kontroli ..., 1956).

MILK YIELD OF CIKA CATTLE IN DRAVA BANOVA

Milk recording in Drava Banovina was mandatory for all purebred cows included in the herdbook. Milk recording results for Gorenjska Cika cattle in Gorenjska district during the period 1930-1934 are shown in Table 1.

Table 1: Results of milk recording for Gorenjska Cika cattle in Gorenjska breed district during 1930-1934 (Wenko, 1933, 1934, 1935)

Year	Selection units for milk recording		No. of cows included in milk recording	Cows in milk recording /no. of cows in herdbook	Milk yield (l)				Milk yield as breed average (l)
	No.	No. of cows in herdbook			Max.	Min.	Average of particular unit		
							Max.	Min.	
1930			43						2.279
1931	17	611	119	19 %	4.891	1.152	2.804	1.813	2.194
1932	25	844	300	36 %	3.971	1.021	2.518	1.797	2.150
1933	18	629	231	52 %	3.963	442	2.546	1.452	2.068
1934	24	1.048	539	72 %	3.944	769	2.563	1.694	2.068

Wenko (1933) observed a strong extension work in 1931 as compared to 1930. Gorenjska Cika cattle achieved the best milk yield among all breeds in 1930, while in 1931 it was in the second place. The number of cows included in milk recording in 1932 increased by 80% in comparison to the year 1931 (Wenko, 1934). The largest increase in the Drava Banovina reached Cika cattle (152%). In 1932, Gorenjska Cika cattle was in the third place among all breeds included to milk recording. The percentage of recorded purebred cows included into herdbook in the whole Drava Banovina increased to 45% in 1932 in comparison to 1931. However, there were still more than half of the cows unrecorded. In 1932, Gorenjska Cika with an average milk yield of 2.150 litres was in the second place among dairy breeds. The proportion of cows of Gorenjska Cika cattle involved in milk recording increased in individual years and in 1934 there were 72% of all purebred cows of Gorenjska Cika cattle included to milk recording. Table 2 provides the average milk yield of purebred cows per breed in 1939.

Table 2: Average milk yield of breeding cows per breed in 1939 (Ferčej, 1951)

Breed	No. of cows	Average milk yield (l)	No. of cows with milk yield (l)	
			2.000-3.000	above 3.000
Gorenjska Pinzgauer cattle	731	2.177	447	50
Simmental cattle	1.012	2.177	458	121
Brown cattle	991	2.148	500	119
White Slovenian cattle	413	2.176	238	33
Murboden cattle	486	1.948	173	16

MILK YIELD OF CIKA CATTLE DURING THE SECOND WORLD WAR

Ferčej (1947) writes that Bohinj cows were known as good dairy cows and breeders from other places liked to buy them for this reason. According to the reports of the Association for selection work organization for Pinzgauer cattle breed in Kranj, the average milk yield in 1940 including 738 purebred cows was 2.177 litres. Of these cows 61% achieved 2.000 - 3.000 litres and about 6% of the cows over 3.000 litres of milk. The best cow gave an average 4.350 litres of milk per year. Based on these data Ferčej (1947) concludes that Gorenjska cows are relatively good dairy cows considering their weight, especially the Bohinj cows. The author continues that good Bohinj dairy cows produced more milk per year, about six times their body weight.

MILK YIELD OF COWS IN BOHINJ AREA AFTER THE SECOND WORLD WAR

After the Second World War, milk production of cows in the Bohinj area was low, as a result of a sharp reduction in number of cows and other cattle categories in the years of war (Veble, 1954). Ferčej (1951) is convinced that milk yield of these cows could be further increased, while lower milk yield of purebred cows the author attributes to the consequences of war. Veble (1954) reports that dairy cows in Bohinj in 1957 had the average annual milk yield of 2.400 l with 4.02% fat, and at the summer Alpine grazing they used to produce the average of 3 to 3.5 litres of milk per day.

MILK RECORDING OF COWS IN SLOVENIA AFTER THE SECOND WORLD WAR

Milk recording was organised and led by the Republic's Animal Husbandry Committee of the Main Cooperative Association, while Agricultural Institute of Slovenia took charge of the professional work (Šef, 1980). In addition to the general tendency to increase milk yield the rapid progress in milk recording was strongly influenced also by the growing demand of breeding animals and by the recognition of the principle that a higher price reaches only that breeding animal, which has a clear information on its milk recording. Breeders were increasingly demanding quality animals with the reliable official data of their production (Poročilo ..., 1956). The results of milk recording for Cika cattle on state farms in the period from 1960 to 1971 are shown in Table 3, while Table 4 shows the results of milk recording by years of Cika cattle on private farms from 1960 to 1979.

Table 3: Cika cattle milk recording results on state farms (1960-1971) (Šef, 1980)

Year	No. of milk recorded cows	Milk yield (l)	Fat content (%)
1960	44	2.615	3.79
1962	11	2.729	3.98
1964	404	2.671	3.77
1966	502	2.878	3.90
1968	62	2.414	3.75
1971	13	2.223	3.81

Table 4: Cika cattle milk recording results on private farms 1960 - 1979 (Šef, 1980)

Year	No. of milk recorded cows	Milk yield (l)	Fat content (%)
1960	114	2.684	3.92
1966	762	2.298	3.87
1967	325	2.395	3.86
1971	197	2.852	3.89
1972/1973	206	2.999	3.88
1976	149	3.066	3.62
1979	108	3.226	3.88

In 1960, there were 44 cows of Cika cattle included in milk recording in regard to the state farms (Table 3) and 114 cows in regard to the private farms (Table 4). In 1966, the number of cows included in milk recording on private farms increased almost six times in comparison to 1960. In 1967 the number of recorded cows halved in comparison to 1966. In the following years their number has slowly declined. Cows of Cika cattle were again included into milk recording in 2008, mainly belonging to breeders who were engaged in market milk production. Weighted average of Cika cattle milk yield and fat content by year is shown in Figure 1.

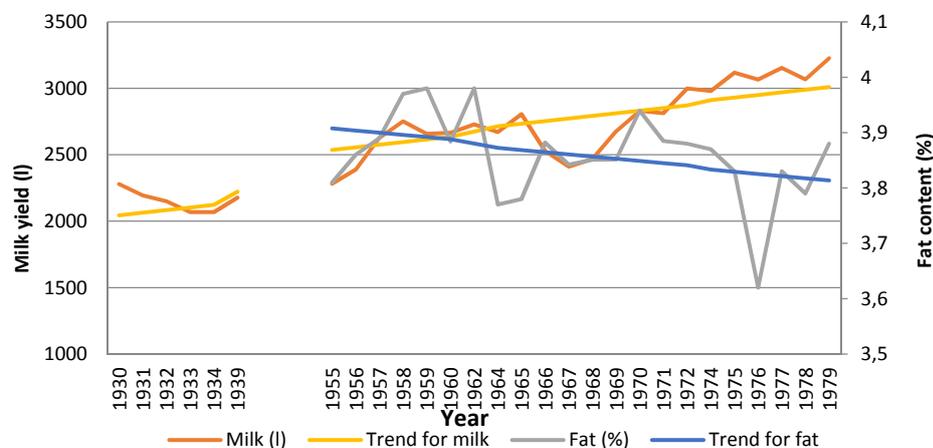


Figure 1: Weighted average of Cika cattle milk yield and fat content by year

The produced milk yield in Cika cattle breed has been annually increased by 19.7 ± 2.01 (Figure 1). The increasing trend of milk yield in the period 1930 - 1934 (1939) and 1955 - 1979 was statistically significant ($p < 0.0001$). Milk fat content in the period 1955 - 1979 decreased 0.004 ± 0.002 %. The trend of milk fat content was not statistically significant ($p = 0.0856$).

CONCLUSION

The promotion of dairy cows rearing on today's territory of Slovenia was encouraged already in the first half of the 19th century. Dam's milk yield was the most important criteria in giving premiums to their male offspring (bulls). Cika (Bohinj) cattle breed was a synonym for an excellent dairy cow, which gave the most reliable yield at very modest breeding conditions. Relatively high milk yield of Bohinj cows was appreciated also outside of Bohinj area. Rearing of Cika cattle breed was directed to milk production up to the sixties of the previous century. Milk yield of Cika cattle was comparable to the other breeds. Later on, the decisions on upgrading Cika cattle with Simmental breed were accepted. For almost 40 years the breed was without selection and special thanks should be given to the breeders to conserve Cika cattle in such unfavourable conditions for rearing autochthonous breeds. After the year 2000 the zootechnical work in Cika cattle was restored. For the continuation of originality (original type) of Cika cattle it is necessary to conserve the dairy type of Cika cattle, which is in accordance with breeding work for this breed in the past. This also requires the accepted and approved breeding program, indicating Cika cattle as a dual purpose breed with more emphasis on milk production. Recently, an importance of conservation of livestock biodiversity (especially autochthonous breeds), sustainability, and organic food production in the global, regional and local level is growing. In Slovenia, all these aspects are fulfilled by rearing methods of Cika cattle, which are in accordance with the traditional technology and the low input production systems. These are in close connection with the Alpine mountain grazing. Therefore, it should be important that the government encourages and supports breeders of Cika cattle to the milk processing into dairy products, which are of exceptional quality and highly appreciated. Cika cattle is included into the Slovenian natural and cultural heritage and further professional work on this autochthonous breed should be focused on creating a niche market for dairy products and at the same time for their trademark development. Brand recognition, local supply and extremely tasty products could certainly represent the story of success regarding the Slovenian autochthonous breed, which was nearly lost.

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*Carniola - a historical region that comprised parts of present-day Slovenia and was abolished in 1918.

**The Drava Banovina or Drava Banate (Slovene: Dravska banovina) was a province (banovina) of the Kingdom of Yugoslavia between 1929 and 1941. This province consisted of most of the present-day Slovenia and was named after the Drava river. The capital city of the Drava Banovina was Ljubljana.