

# Rearing technology of autochthonous Cika cattle on the farms in Slovenia

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## Abstract

Cika cattle is the only autochthonous cattle breed in Slovenia. The object of the study was to investigate which rearing technology is applied on the farms with autochthonous Cika cattle herds. The questionnaires were filled in by the Cika cattle breeders at their annual meeting in the year 2008. Statistical analyses of questionnaires were processed by the statistical package SAS. Most of Cika cattle (80.2%) are kept in the tie-stall housing with straw bedding in winter time. During the vegetation period Cika cattle is grazing mostly on the mountain pastures. On most farms (43.4%) the winter total ration represented only hay. During summer time the total ration consisted only of the grazing on nearly half (48.2%) of the studied farms. Hand milking of the cows is still used on 47.3% farms. Bucket milking systems have already been introduced on 21.8% Cika farms.

**Keywords:** autochthonous breed, cattle, Cika cattle, farms, rearing technology

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## 1. Introduction

Cika cattle is the only autochthonous cattle breed in Slovenia. In June 2009 there were 2159 animals, 912 of them were cows. Breeding goal for Cika cattle is dual purpose cattle with greater emphasis on milk production [1].

Cika cattle are often reared on small farms, with extensive grazing without supplemented concentrates. Thus, autochthonous Cika is very well adapted to the environment and helps to preserve biodiversity and sustainable agricultural production, especially in marginal areas in Slovenia [2].

Cika cattle was very close to extinct years ago, because of its lower absolute productivity. A lot of cattle breeders in the past replaced Cika cattle with other, more productive breeds in their herds. Only a few herds of Cika were preserved in mountain areas. Those herds represented the basis to conserve this autochthonous breed. In the last few years the number of Cika cattle has been increasing [2].

A very few written information exist about rearing technology, productivity, health problems etc. of Cika breed. The idea of how to collect the information was to prepare a questionnaire forms for the breeders to fill in. The questionnaires consisted of some sets of questions. One set was meant for rearing technology.

The objective of the research was to find out which rearing technology is applied on the farms with autochthonous Cika cattle herds.

## 2. Materials and methods

The questionnaire forms were filled in by Cika cattle breeders at their annual meeting in the year 2008. So, only Cika breeders which were members of their Association for preservation of Cika cattle in Slovenia were included. We

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analysed all 119 filled up and collected questionnaires.

According to the official data of the Service for identification and registration (SIR) there were 365 breeders who reared at least one cow of Cika breed in 2008. Thus, this survey covered only 33% or one third of Cika cattle breeders in Slovenia.

Statistical analyses of questionnaires were processed by the SAS software [3]. The procedure FREQ was used for the frequency analysis.

### 3. Results and discussion

#### Basic data on Cika cattle farms included in the survey

Most of the included farms (57.52%) which keep Cika cattle today are situated in the traditional regions of Slovenia where Cika breed has been kept also in the past. 42.9% of farms own less than 5 ha of agricultural land. More than half of these farms (52.1%) do not have rented agricultural land.

Most farms (83.5%) covered by the survey are located in the mountain areas. More than a half of them (58.9%) have mountain pastures for grazing in the summer time. 32% of farms with Cika cattle have applied organic farming production.

When we divided breeders of Cika cattle by age, we realized that 35.4% of them were over 60 years old, 26.6% of breeders were between 50 and 59 years and 26.6% were between 40 to 49 years old. On 80.5% farms with Cika cattle the successor has already been chosen.

On the farms included in the survey 325 cows of Cika cattle were reared, which represents 42% of the whole population of Cika cows counted by the Services for the identification and registration (SIR). Most breeders (30.3%) rear two cows of Cika cattle. Only one Cika cow was reared by 26.1% breeders.

The main purpose of Cika cattle rearing was calves production on most included farms (37.1%) followed by the dual purpose rearing on 19.0% farms and beef production on 14.3% farms. Milk production was the main purpose of rearing cows

of Cika breed on only 5.7% of farms, which is not in accordance with the breeding goal.

Subsidies for breeding autochthonous breeds received 81.1% of Cika breeders, who also received subsidies for rearing suckler cows.

#### Rearing technology

In the main part of the questionnaire there were questions which asked breeders of the detailed rearing technology. We wanted to find out how Cika cattle herds are kept and fed in winter as well as in summer time. More detailed questions were put for grazing on the mountains pastures. We also asked about the milking systems on Cika cattle farms.

Most of Cika cattle (80.2%) are kept in the tie-stall housing with straw bedding in winter time. This type of housing also requires a lot of physical manual work (tearing of manure, milking, ...). Most of these stables are old, and many owners of the farms are very old too, therefore they have not decided to renovate the stables. However, in winter there are also 7.2% of the herds in free-stall housing system with straw bedding and 3.6% in tie-stall housing with slatted floor, which facilitates the physical work. In a few herds Cika cattle are kept in various combinations of free-stall and tie-stall housing systems during winter time (Table 1).

Table 1: Housing systems of Cika cattle herds in winter time

Type of housing	Number of farms	Share of farms (%)
Free-stall housing – slatted floor	1	0.9
Free-stall housing – straw bedding	8	7.2
Tie-stall housing – slatted floor	4	3.6
Tie-stall housing – straw bedding	89	80.2
Different combinations of housing systems	9	8.1
All together	111	100

Most of Cika cattle are grazing on the mountain pastures during the vegetation period. There are several different grazing systems. In some parts of Slovenia cattle are moved to the mountain

pastures, where they stay until the end of the vegetation period. In the other parts of the country, a migration from the lower to the higher mountain pastures is known. 42.1% of all surveyed Cika herds are grazed on one mountain pasture without migrations (Table 2). Mountain pastures in the questionnaire were divided according to altitude. On one mountain pasture 500 m high graze 3.4% herds, and on the pastures over 500 m to 1000 m high graze 11.8% herds. Most herds of Cika cattle graze on a pastures which are over 1000 m above the sea level, 19.3% on the pastures over 1000 to 1500 m and 7.6% on pastures over 1500 m high. Based on the share of herds which graze very high on the mountain pastures it can be concluded that Cika cattle breed is very suitable for grazing on high mountain pastures.

Table 2: The share of herds which graze on one mountain pasture in the vegetation period

Altitude of mountain pastures (m)	Number of farms	Share of farms (%)
Up to 500 m	4	3.4
Above 500 m to 1000 m	14	11.8
Above 1000 m to 1500 m	23	19.3
Above 1500 m	9	7.6
All together	50	42.1

Grazing on two mountain pastures means moving cattle herds from lower lying mountain pastures to the upper mountain pastures. This system of grazing has been practiced over the years and is still very much in use in Bohinj region. In spring cattle were usually grazing on the pastures around the villages then they were moved to the first (lower) mountain pastures, and when vegetation period started on the high mountains cattle were moved there. In the reverse order in late summer to autumn cattle were moved back to the valley due to wintering. The questionnaire analyses included 10.9% herds that graze on the lower and upper mountain pastures in one season. Mostly, herds (6) are kept at lower pastures, with altitude from 1000 to 1500 m (Table 3).

Table 3: The share of herds which graze on two mountain pastures in the vegetation period and the altitude of lower mountain pastures

Altitude of lower mountain pastures (m)	Number of farms	Share of farms (%)
Up to 500 m	2	1.7
Above 500 m to 1000 m	5	4.2
Above 1000 m to 1500 m	6	5.0
All together	13	10.9

Four herds with Cika cattle are moved from lower to upper mountains pasture at an altitude of 1500 m to 1850 m, which again confirms the fact that Cika is highly adapted to graze in the mountains. According to our survey there were 11 herds which were moved from lower to upper pasture during the same season (Table 4).

Table 4: The share of herds which graze on two mountain pastures in the vegetation period and the altitude of higher mountain pastures

Altitude of higher mountains pasture (m)	Number of farms	Share of farms (%)
No data	2	1.6
Up to 500 m	1	0.8
Above 500 m to 1000 m	3	2.5
Above 1000 m to 1500 m	3	2.5
Above 1500 m to 1850 m	4	3.4
All together	13	10.9

In a large number of herds (42.1%) during the vegetation period the cattle is housed and every day they are also grazing in the neighborhood of the stables. Mostly, cows with calves graze in the vicinity of the stables, while fattened bulls are housed all the time. The survey showed that there is a very large share of herds (18.4%) where Cika cattle are never put on the pastures. On such farms the cattle is housed and breeders do not exploit the potential of Cika for grazing.

Breeders included in the survey were also asked about the milking system on their farms (Table 5). Since 23.6% breeders answered that they never milk cows, they probably keep Cika cattle in the cow-calf herds. Hand milking of the cows is still used on 47.3% farms, which represents a large burden for the breeders. Bucket milking systems have already been applied on 21.8% of the Cika farms. The share of farms with pipeline milking system is negligible.

Table 5: Milking systems on the farms

Milking system	Number of farms	Share of farms (%)
No milking	27	23.6
Hand milking system	52	47.3
Bucket milking system	24	21.8
Pipeline milking system	1	0.9
Hand and bucket milking systems	5	4.6
Hand and pipeline milking systems	1	0.9
All together	110	100

Breeders were also asked of the composition of total mix ration fed to Cika cattle. We were particularly interested in how cattle are fed in winter time and how in the vegetation period. On most farms (43.4%), the winter total ration represents only hay (Table 6), followed by herds which are fed with hay and grass silage (32.7%). If this is put together, we can see that on 77% of all included farms cattle are fed with a total mix winter ration, produced on the grasslands. We found out that the total winter mix ration on most farms is based on cheap forage without concentrates or maize silage. Supplementing the concentrates in winter ration is in practice, only on 10.6% of the included farms.

Table 6: Composition of the winter total mix ration

Composition of the winter total mix ration	Number of farms	Share of farms (%)
Only hay	49	43.4
Only grass silage	1	0.9
Hay + grass silage	37	32.7
Hay + maize silage	3	2.7
Hay + concentrates	5	4.4
Hay + grass and maize silage	11	9.7
Hay + grass silage + concentrates	7	6.2
All together	113	100

During summer time or during grass growing period (Table 7) the total summer ration consisted only of grazing on nearly half (48.2%) of investigated farms. On 29.1% farms the total summer mix ration consisted of grazing and hay. On 10.0% farms also in summer time Cika cattle were fed only with hay. There was only a small

share of farms where grazing in summer time was supplemented with hay, grass and maize silage as well as concentrates.

Table 7: Composition of the total summer mix ration

Composition of the total summer mix ration	Number of farms	Share of farms (%)
Grazing	53	48.2
Hay	11	10.0
Grazing + hay	32	29.1
Grazing + grass silage	1	0.9
Grazing + concentrates	1	0.9
Hay + grass silage	3	2.7
Hay + concentrates	1	0.9
Grazing + hay + grass silage	2	1.8
Grazing + hay + maize silage	1	0.9
Grazing + hay + concentrates	3	2.7
Hay + grass and maize silage	1	0.9
Grazing + hay + grass and maize silage	1	0.9
All together	110	100

#### 4. Conclusions

Most of Cika cattle (80.2%) are kept in the tie-stall housing with straw bedding in winter time. During the vegetation period Cika cattle are mostly grazing on the mountain pastures. There are several different grazing systems. The majority of Cika cattle herds (19.3%) grazed on one mountain pasture over 1000 m above the sea level without migrations. The analyses included 10.9% herds that grazed on the lower and upper mountain pastures in one season. Mostly, herds were grazing at the lower pastures at an altitude from 1000 to 1500 m. Four herds of Cika cattle were moved from the lower to upper mountain pastures from 1500 m to 1850 m high. On most farms (43.4%) the total winter ration represented only hay. During summer time the total ration consisted only of grazing on nearly half (48.2%) of the investigated farms. Hand milking of the cows is still used on 47.3% farms. Bucket milking systems have already been applied on 21.8% of Cika farms.

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