Animal identification and recording in Croatia

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Introduction

The Republic of Croatia has about 4.8 million inhabitants and has a surface area of 56 691 km^2. The agricultural land covers 3.18 million ha; 2.2 million ha are cultivable land and 1.13 million ha are pasture. There are three distinct agro-ecological regions: Pannonia, the mountain zone and the Mediterranean. Private family farms (534 000) dominate the livestock production, but in general, they are characterised by their small size (2.8 ha), high level of land fragmentation and lack of specialisation.

Total number of farm animals is:

Farm animal	1997	1998	1999
Cattle	451 000	443 000	438 000
Pigs	1 176 000	1 166 000	1 362 000
Sheep	453 000	427 000	488 000
Poultry	10 945 000	9 959 000	10 871 000

Production of milk and meat includes:

Livestock production	1996	1997	1998
Milk, million litres	593	621	633
cattle, 000 t.	62	54	54
pigs, 000 t	163	166	184
sheep, 000 t	6	7	9
poultry, 000 t	69	85	99

Organization of animal recording

Hrvatski stocarsko selekcijski centar, the Croatian Livestock Selection Centre (CLSC) is an institution which has the leading role in selection and animal breeding.

The "Union of Croatian Cattle Breeding Cooperatives" was established in 1913 which was considered to be the year to mark the beginning of organized selection work in Croatia. Today, the Croatian Livestock Selection Centre is considered as a Government institution.

The CLSC is acting throughout the Republic of Croatia and today it has 201 employees. The main executive organization forms 27 district units which are in charge of data and milk sample collection and all other selection work in the field.

The system of funding is 60 percent by the Government and 40 percent is from fees and paid services. The costs of milk recording paid by the breeders per cow are equal to 30 kg of milk per year.

The main activities of the Croatian Livestock Selection Centre are:

- collecting data in a central database of registered livestock of farm animals;
- cattle identification and issue of documents of parentage (pedigree);
- planning and carrying out of breeding programmes;
- milk recording and breeding value estimation for registered animals;
- participation in the management of genetic resources (conservation of endangered breeds);
- cooperation with national and international scientific and other institutions; and
- organization of cattle exhibitions, reviews and auctions.

Breeder associations

There are many mixed types of regional farmer associations in Croatia. Recently, breeders have started with association establishment on species and breed level supported by the CLSC.

The tendency is that the regional breeders' association will be incorporated into the national breeders' association. They will be incorporated into the top breeders' association, according to the species, as such they will collaborate with international breeder associations.

The number of animals being recorded in 1999 and the recent trend are reported in figure 1

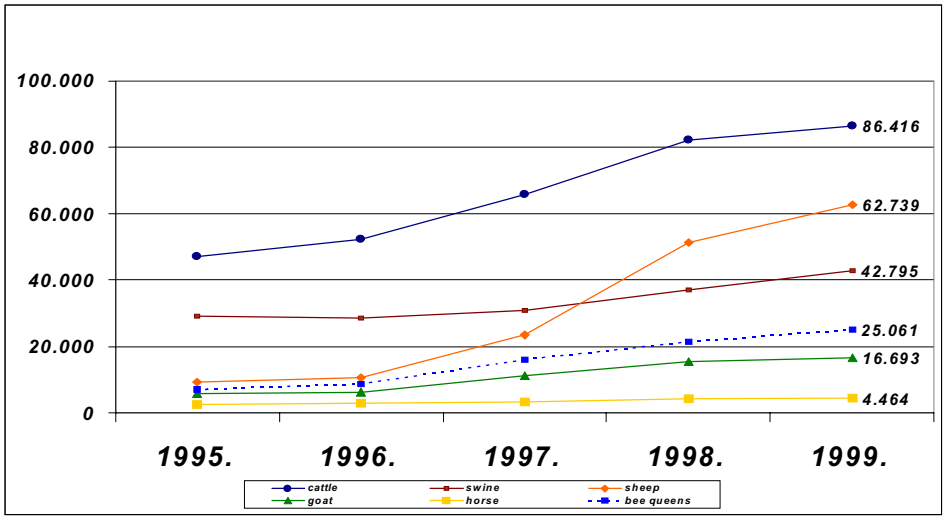

Figure 1. The number of animals being recorded from 1995 to 1999.

In recent years we can see that the number of all animals recorded has increased. About 27 180 family farms and enterprises were recorded in 1999.

Total number and number of cows being recorded is:

Year	Total number of cows	Number of cows being recording
1995	235 400	47 144
1996	233 477	52 397
1997	233 207	65 807
1998	230 650	82 145
1999	228 014	86 416

In recent years the total number of cows has decreased but not significantly but the number of registered cows has increased.

The number of cows being milked

Due too small herd sizes, some cows are not included in milk recording. They can still be recorded regarding parentage and registered calves.

Family farms

Breeds	Milk recording		Parentage recording		Total	
	Breeders	Cows	Breeders	Cows	Breeders	Cows
Simmental	5 617	30 150	13 135	34 664	18 752	64 814
Holstein Friesian	665	6 131	1 161	4 163	1 826	10 294
Brown	84	397	2.052	4 442	2 136	4 839
Istrian cattle			65	133	65	133
Hereford			2	13	2	13
Charolais			3	105	3	105
Grand total:	6 366	36 678	16 418	43 520	22 784	80 198
Percentage	27.94	45.73	72.06	54.27	100	100
Average		5.76		2.65		3.52

The average number of cows with milk recording per breeder in family farms is 5.76 cows. The average size of parentage controlled herds is only 2.65 cows.

Enterprises

Breeds	Milk recording		Parentage recording		Total	
	No. enterp.	Cows	No. enterp.	Cows	No. enterp.	Cows
Simmental	6	328	1	67	7	395
Holstein Friesian	19	5 644			16	5 644
Slavon.syrm.podolian catt.			1	27	1	27
Hereford			1	124	1	124
Charolais			1	28	1	28
Grand total:	21	5 972	4	246	25	6 218
Percentage		96.04		3.96		100
Average		284.4		61.5		248.7

The average number of cows being milk recorded per enterprise is 284.4 cows and only 61.5 cows for parentage controlled herds.

The number of breeders in relation to herd size

Out of 22 784 breeders with cows being recorded, 14 106 (61.91 percent) have one to three cows. Only 1 075 (4.72 percent) breeders have ten and more cows. The situation in 1999 has improved in relation to previous years, but not significantly.

Number of bulls by breed in centres for AI

The total number of bulls is 144. In the centres for artificial insemination there are 80 bulls and in natural mating there are 64 bulls. For the Simmental and Holstein Friesian breed, 68.57 percent are AI bulls.

Analyses of milk samples

The number of analysed milk samples in 1999 was 291 304 (milk fat, proteins, lactose, non-fat dry matter and total dry matter). Analyses are made on Milcoscan 4400, with a capacity of 400 samples per hour. To fulfil the criteria for the special ICAR stamp, efforts have been made to establish a neutral laboratory, which is to be supervised by the relevant laboratory.

Production in 305 day lactation by breed is the following:

A) Family farms

Breed	Total record. lactations	Production in 305 – day lactation					
		No. calc. lactation	Milk, kg	Fat, kg	Fat, %	Protein, kg	Protein, %
Simmental	27 416	25 914	4 108	161	3.93	135	3.27
Holstein Friesian	4 399	4 168	5 463	210	3.84	175	3.20
Brown	70	68	4 230	168	3.99	134	3.17
All breeds	31 885	30 150	4 295	168	3.91	141	3.26

On family farms 86 percent of cows being milk recorded are recorded by the AT method. Control assistants, according to the monthly programme, have to be present at milking, to measure milk quantity as well as to take samples of each cow following official instructions. The work of control assistants is supervised by super-controllers.

B) Enterprises

Breed / Lactation	Total record. lactation	Production in 305 – day lactation			
		No. calc. lactation	Milk, kg	Fat, kg	Fat, %
Simmental	175	167	4364	157	3.61
Holstein Friesian	3 120	3 002	6 112	215	3.52
All breeds	3 295	3 169	6 020	212	3.52

On enterprises (former State farms) 14 percent of cows being milk recorded are recorded by the B method and milk samples are analysed in local dairies.

Production in 305 day lactation for Simmental breed from 1970 to 1999 is reported in figure 2.

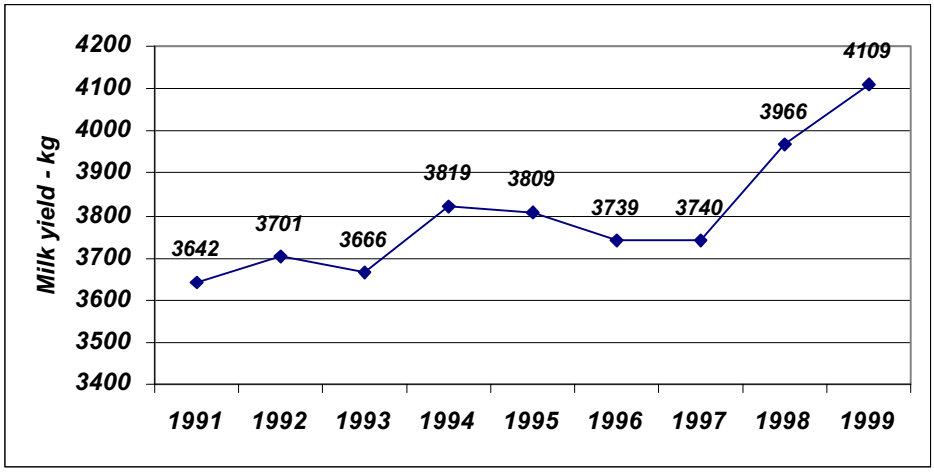

Figure 2. Production in 305 day lactation for Simmental breed from 1970 to 1999

In 1999 the number of calculated standard lactations was 26 081 which is four times (19 508) more than in 1991 (6 573). In the same period the average of milk yield per lactation increased by 12.8 percent (467 kg).

Cattle identification

Cattle identification is the basis for the breeding of cattle. Cattle are marked in two ways: permanently (tattoos) and by eartagging. A unique life-time identification number consists of eight digits: the first two represent the district and breed code and the other six represent the current number of each animal. The current number without sign of district and breed code is tattooed on the right ear and the number of sire is tattooed on the left ear.

The recommended yellow plastic eartag is used.

According to an EU regulation, this year we will start cattle identification by using two plastic eartags and we expect that controllers will start to register all calves.

All calves being recorded are recorded in the registration and breeding book no later than 30 days after birth.

For better data transmission and processing, our tendency is to connect the central database with district units by modem/internet connection. This will give us the possibility to return information back to breeders much earlier.

Sheep breeding

The number of registered sheep breeders in 1999 was 782, with 62 739 sheep being recorded.
The size of registered sheep herds during 1999 was:

- 31 percent less than 25;
- 28 percent from 26-50 sheep per herd;
- 29 percent from 51-100 sheep per herd;
- 12 percent had more than 100 sheep in the herd.

We have 17 sheep breeds being recorded. The most important are our autochthonous sheep breeds Istarska, Creska, Paška, Licka and Dubrovacka ruda.

The structure of sheep breeds being recorded was as follows:

- 87 percent meat sheep breeds;
- 13 percent milking sheep.

During 1999 the milk production control began for the East Friesian and Paška breed.

Breeding	Breed	No. of lactation	Av. dur. of lact. day	Milk (kg)	Fat (%)	Protein (%)
Intensive	East Friesian	87	240.07	213.63	7.36	6.11
Semi-extensive	Paška	263	182.15	114.85	8.15	7.06

Goat breeding

The number of registered goat breeders in 1999 was 373 with 16 693 goats being selected.

The size of registered goat herds during 1999 was:

- 49 percent smaller than 25 goats per herd;
- 26 percent from 26-50 goats per herd;
- 18 percent from 51-100 goats per herd;
- 7 percent had more than 100 goats per herd.

Over viewing the breed structure of registered goats, one can see that milking goats like French Alpine, Saanen and Bunte Deutsche Edelzige (BDEZ) are the most frequent breeds.

During 1999 milk production control began in the French Alpine, Saanen and BDEZ breeds.

Results were as follows:

Breed	No. of lactation	Av. dur. of lact. day	Milk (kg)	Fat (%)	Protein (%)
French Alpine	780	263.78	432.10	4.21	3.69
Saanen breed	139	267.94	521.79	3.94	3.39
BDEZ	187	214.22	394.48	3.92	3.73

References

Croatian Livestock Selection Centre; Annual Report for 1999.

Ministry of Agriculture and Forestry; A Strategy for Sustainable Agricultural Development.

Statistical Information 1999.