

RECORDS ON THE USE OF ANIMALS IN EXPERIMENTS IN THE REPUBLIC OF SLOVENIA AND IN OTHER EU MEMBER STATES WITHIN A 15-YEAR PERIOD

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Summary: Scope of this paper is to present data on the number and species of animals used in experiments and on the purposes of use of animals in the Republic of Slovenia and in the European Union within a 15-year period. According to data collected in the particular years of the period from 1992 to 2006 on the use of animals in experiments in the Republic of Slovenia, the trend of the use of animals in experiments has been found to be on the decline. The total number of experimental animals in 1992 amounted to 37,212, and in 2006 to 13,181 only. In the Republic of Slovenia, the use of experimental animals in applied research shows a downward trend on account of validated alternative methods in use, which do not require animals. In the most recent years in particular, the Slovenian legislative activity in the field of protection of experimental animals has been most productive with the scope of harmonising the Slovenian legislation with the EU law. The European Commission published five reports on the use of animals in experiments. The total number of experimental animals as reported by the EU Member States amounted to 11.79 million in 1991, to 11.64 million in 1996, to 9.81 million in 1999, to 10.73 million in 2002, and to 12.11 million in 2005. The first two reports provided a limited scope of analysis due to the absence of a consistent system of reporting the data on the use of experimental animals in the Member States. The third and the fourth reports were based on agreed harmonized tables. This facilitated a more extensive interpretation of results on the use of experimental animals in the EU, despite some inconsistencies in the data submitted by the Member States. The second report covered for the first time the data collected by the 3 new Member States, and the fifth report by the 10 new Member States. However, it is not possible to draw conclusions on the evolution of use of animals for experimental purposes in the EU by comparing these data with those of the previous reports. The total number includes different animal species, from cold-blooded vertebrates on the one side, to mammals on the other, including farmed animals or anthropoid primates as used in some Member States. Comparison between the national reports is rendered impossible on account of the non-aligned methods of reporting by the EU Member States. These reports give a general survey only of the use of animals in experiments at Community level.

Key words: experimental animals; legislation; report

Background

In Europe and in other developed countries, methods are sought which would decrease the use of animals in experiments. Significant international development in regulating the protection of experimental animals was perceived at adoption of the European Convention (1) and Directive (2, 3). By Decision of the

Council of Europe 1999/575/EC (4), the Community was signatory to the Convention of the Council of Europe, ETS 123 (1), increasing thereby its commitment to endeavours of replacing experimental animals and protecting those still used in experiments. The objective of Directive (2) and European Convention (1) was to provide for the harmonisation of provisions on the protection of experimental animals in the national legislations of the Member States. By complying with the proposed standards, the disparities would be abolished, and the measures for

the protection of experimental animals harmonised in providing for the adequate conditions of rearing, care and use and, in particular, to avoid the unnecessary duplications of experiments on animals, by complying with the uniform standards and mutual recognition of test results obtained by experiments already conducted on animals. The requirement that experiments on animals shall not be conducted if another acceptable, feasible and scientifically satisfactory method is available, which does not require the use of experimental animals, has contributed to a decreased use of experimental animals and stimulated the development of alternative methods for experiments on animals. In 1991, the European Centre for the Validation of Alternative Methods – ECVAM was set up in Italy, which directly contributes to the protection of animals, using the 3 R concept (Replacement, Reduction, Refinement) and providing for the validation of alternative methods (5). Greater significance is awarded to the implementation and monitoring of policies in the different spheres of consumer protection and safety testing of chemicals, cosmetic products, biocides, foodstuffs, biological substances and medical devices. At implementation of relevant legislation on safety testing, the alternative methods, which exclude the use of experimental animals, are becoming more and more important. One of the seven main objectives of the action plan of the future policy on chemicals, set out in the White Paper of 2001 (6), is to support the developing of tests requiring no use of animals. Alternative methods can produce reliable information in the most up-to-date and proven tests, which are more rapid and cost-effective than the existing experiments on animals. It has been estimated that the requirements (expenses and animals) for experiments within the REACH Programme (Registration, Evaluation and Authorisation of Chemicals) – including the registration, valuation, authorisation and restriction of chemicals, could decrease by 70 % if using the intelligent strategies for testing (7). A final goal is to replace experiments on animals with methods that do not require the use of animals. At experiments which still do require the use of live animals, the goal is to decrease the number of animals used, and to improve the methods so as to cause less pain, suffering and harm. Activities towards the full implementation of the 3 R concept need to proceed in all the spheres of use of animals, the harmonisation of Directive 86/609/EEC (2) and legislation requiring experiments on animals shall be fully implemented, and agreements on the mutual acceptability and recognition of data

shall be subjected to scrutiny. Setting up a Community Reference Laboratory for the validation of alternative methods shall additionally improve the quality of alternative methods for testing, and speed up the validation procedure (6, 7).

Legal basis for data collection on experimental animals

In Slovenia, the Veterinary Administration of the Republic of Slovenia keeps records based on annual reports by the user organisations, in compliance with Article 24 of the Animal Protection Act (8). In 2004, the methods of collecting data on experimental animals were laid down in the Rules (9, 10). Pending the entry into force of these Rules, the data were collected from the reports submitted by scientists performing a particular experiment. Using a questionnaire prepared to this end and partly summing up the European Convention, Appendix B (1), and including the visits to user organisations, data were gathered for the period from 1992 to 1996, and presented to the public for the first time in 1999 (11, 12). Data collected on entry into force of the Animal Protection Act (8) were made available to the public and to all the applicants as public information (13).

Based on Article 13 of Council Directive 86/609/EEC (2), the competent authorities of the EU Member States collect and make available to the public the statistical data on the use of animals in experiments. In Article 26, the said Directive is laying down that the European Commission shall prepare regular reports for the Council and the European Parliament, using the data presented by the EU Member States. As the Directive does not lay down the form and scope of reporting, a common form was unanimously adopted to this end after the multi-annual discussions of the national competent authorities. The European Union requires the reporting to be performed using eight tables, called the EU Tables. The European Convention (1) requires the member states of the Council of Europe to provide reports in five tables, called the Convention Tables. The reservation of the European Community as to the reporting remained unchanged in Council Decision 2003/584/EC (14) that is laying down the simplified procedure of amending the Appendices to the European Convention. The Republic of Slovenia, having ratified the European Convention in 2006 (15), provided as well for a reservation in accordance with Article 34 to the effect that it did not consider itself bound by the requirement of reporting statistical data.

Data on experimental animals used in the Republic of Slovenia in a 15-year period

Table 1 shows data on experimental animals used in the Republic of Slovenia in a 15-year period, collected by the Veterinary Administration of the Republic of Slovenia. In 1992, the number of experimental animals totalled 37,212, as compared to 2006 with 13,181 animals only, which is by 65 % less. Most used were the laboratory mice, followed by laboratory rats and rabbits. Within the first five years of data collection on experimental animals there stands out a high number of poultry. The numbers include also the poultry used in nutritional experiments under the normal rearing conditions and without the invasive treatment of animals. Such use of poultry was excluded from the subsequent reports. Table 1 includes a column on the protected animal species that are protected

in the Republic of Slovenia in accordance with the Decree (16, 17). Of the protected animal species, mostly the amphibians (frogs) were used in experiments.

Most experiments are conducted on laboratory rodents in pharmaceutical industry for substance testing, and are carried out in accordance with the applicable legislation, the rules of pharmacopoeias applied, and international laws, regulations and administrative provisions. This information is evident from Table 2. Institutes and laboratories of university faculties of the medical, veterinary, biological and zootechnical programmes use animals in the baseline biological research, and in scientific and research studies. To a lesser extent, animals are used for diagnosing diseases, training and education, and for other purposes that are not particularly specified.

Table 1: Number and species of animals used in experiments in the Republic of Slovenia in the period from 1992 to 2006

Species	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Mice (<i>Mus musculus</i>)	19,754	16,475	15,555	16,274	15,163	15,233	11,796	12,900	10,394	9,773	9,024	8,388	7,560	8,556	7,590
Rats (<i>Rattus norvegicus</i>)	7,458	6,472	5,974	5,659	5,066	4,011	4,387	3,261	4,284	3,504	3,201	3,056	4,429	2,732	4,767
Guinea Pigs (<i>Cavia porcellus</i>)	532	553	450	567	482	400	468	139	79	50	112	120	121	38	26
Hamsters (<i>Mesocricetus</i>)	0	0	0	0	0	10	3	0	0	0	0	0	0	0	0
Other Rodents (other Rodentia)		6	86	0	0	0			10	0	0	177	35	18	0
Rabbits (<i>Oryctolagus cuniculus</i>)	1,251	1,207	1,387	909	1,451	1,107	1,439	781	744	712	795	597	582	533	472
Cats (<i>Felis catus</i>)	43	50	50	57	29	60	50	83	55	44	38	0	1	0	0
Dogs (<i>Canis familiaris</i>)	19	52	44	18	19	14	17	21	3	12	14	34	7	15	6
Horses, donkeys, crossbreeds (<i>Equidae</i>)					10	0	1	0	0	1	1	4	26	1	0
Pigs (<i>Sus</i>)	22	22	40	26	27	69	239	82	246	29	106	6	11	16	0
Goats (<i>Capra</i>)						0	0	0	10	60	0	0	0	0	0
Sheep (<i>Ovis</i>)	19	21	21	19	17	35	22	21	36	47	47	43	21	57	50
Cattle (<i>Bos</i>)	22	22	22	22	22	22	2	1	36	20	0	0	0	0	0
Primates (<i>Prosimia</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Poultry (Poultry)	8,004	7,394	8,524	8,575	7,625	361	520	334	60	438	225	0	0	0	0
Other birds (pigeon)						0	11	3,000	150	150	0	0	270	22	265
Fish (<i>Pisces</i>)	20	10	100	522	180	245	146	25	270	813	120	137	326	0	0
Other animals						706	606	756	172	287	236	81	4	0	4
Protected animals*	68	53	65	59	45	305	268	227	270	146	26	39	145	3	1
Total	37,212	32,337	32,318	32,707	30,136	22,578	19,975	21,631	16,819	16,086	13,945	12,682	13,538	11,991	13,181

Legend to Table 1: * Protected or endangered animal species in accordance with the Decree (16, 17) applicable at the time

Table 2: Number of animals used in experiments as to the purpose of use in the Republic of Slovenia in the period from 1992 to 2006

Research type	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Baseline biological research (1)	13,107	12,711	14,526	13,863	13,656	2,668	4,276	4,001	2,688	3,688	3,975	3,700	4,391	1,888	1,457
Applied research (2)	23,282	18,701	16,649	16,018	15,545	17,974	14,048	13,018	12,071	10,081	8,685	8,202	8,182	9,420	10,564
Research of substances for protecting the public, animals and environment (3)	130	50	140	539	200	477	305	273	859	1,467	120	0	0	*	*
Education and practice (4)	177	85	87	182	112	832	812	745	475	468	336	239	454	283	214
Forensics (5)	4	11	2	1	0	0	0	0	0	0	0	0	0	0	0
Diagnosing diseases (6)	512	779	914	2,104	623	539	331	565	368	267	339	446	414	378	683
Other (7)						88	203	3,029	358	115	490	95	97	22	263
Total	37,212	32,337	32,318	32,707	30,136	22,578	19,975	21,631	16,819	16,086	13,945	12,682	13,538	11,991	13,181

- (1) Baseline biological research: research of the anatomy or operation of living organisms, organs, tissues and cells
(2) Applied research: research, development, quality control, pharmacological and toxicological analysing and testing of efficiency of medicinal products and medicinal substances in human medicine and dentistry, and in veterinary medicine.
(3) Research of substances for protecting the public, animals and environment with toxicological and other testing (excluding medicinal products and medicinal substances)
(4) Education and practice
(5) Forensics: human or veterinary
(6) Diagnosing diseases: tests for the specific determination of pathogens or for the production of diagnostic reagents
(7) Other: other purposes of use of animals in experiments.

* Number of animals used in the research of substances for protecting the public, animals and environment was in the period 2005 – 2006 included in the number of animals used in the applied research.

Data on experimental animals used in the European Union in a 15-year period

European Commission published five reports, which include data on experimental animals in the EU Member States. Table 3 shows the total number of animals used in experiments in the European Union in 1991, 1996, 1999, 2002 and 2005 (18, 19, 20, 21, 22).

The first report on animals used in experiments in the EU Member States (18) includes data on the total number of animals in 1991 only, and was published in 1994. France and Portugal reported the data of 1992, and Belgium and Luxemburg did not present any relevant reports. Total number of experimental animals used in 1991, as reported by the EU Member States, amounted to 11.79 million. Data are shown in column 2 of Table 3.

The second report on animals used in experiments in the EU Member States (19) provides data of 1996, and was published in 1999. The report includes the data of three new Member States, Austria, Finland and Sweden. France and Sweden presented their respective reports in the EU Tables, and the other Member States in the Convention Tables. France reported the data of 1997. This report and

the subsequent reports include animals used for the education and training purposes. Such a purpose of use of animals is not laid down in Directive (2), but in Council Resolution 86/C331/02 (23). Some Member States included in their reports the animals which are neither indicated in the Directive nor in the Resolution, as for instance, the production of harmful mutants and transgenic animals. The number of animals used in experiments in the European Union in 1996 totalled 11.64 million. Table 4 shows relevant data.

The second report includes also the data on the purpose of use of animals in experiments, as shown in Table 5. Thirteen Member States reported on the purposes of use of animals in experiments. In case of some Member States, the data on the total number of animals used in experiments did not tally with the data on the purpose of use of animals in experiments. Per purpose of use of animals in experiments, the number of animals used in experiments in 1996 in the thirteen Member States totalled 8.81 million.

The third report on animals used in experiments in the EU Member States (20) provides the data of 1999, and was published in 2003. Member States presented their respective reports in the EU Tables, excluding one Member State that presented its re-

Table 3: Total number of animals used for experimental purposes in the EU Member States in 1991, 1996, 1999, 2002 and 2005

Abbreviation	Member State	1991	1996	1999	2002	2005
AT	Austria		204,825	130,295	192,062	167,312
BE	Belgium		1,515,867	790,089	695,091	718,976
CY	Cyprus					967
CZ	Czech Republic					330,933
DE	Germany	2,402,710	1,509,619	1,591,394	2,071,568	1,822,424
DK	Denmark	304,370	350,226	323,444	371,072	365,940
EL	Greece	25,439	19,280	9,686	515,423	926,092
ES	Spain	558,823	506,837	475,726	262,042	595,597
EE	Estonia					4,900
FR	France	3,645,708*	2,609,322**	2,309,597	2,212,294***	2,325,398
HU	Hungary					297,290
IE	Ireland	25,199	77,107	73,929	52,203	37,940
IT	Italy	683,293	1,094,185	987,771	924,889	896,966
LV	Latvia					13,319
LT	Lithuania					5,767
LU	Luxembourg		1,003	3,060	5,320	4,120
MT	Malta					0
NL	The Netherlands	876,058	652,300	621,466	640,930	531,199
PL	Poland					358,829
PT	Portugal	87,117*	49,520	39,851	44,577	41,621
FI	Finland		110,659	228,334	644,880	256,826
SI	Slovenia					11,991
SK	Slovakia					23,369
SE	Sweden		286,012	324,067	281,184	505,681
UK	United Kingdom	3,181,768	2,659,368	1,905,462	1,817,485	1,874,207
Total		11,790,485	11,646,130	9,814,171	10,731,020	12,117,583

* data of 1992

** data of 1997

*** data of 2001

port in the Convention Tables. The number of animals used in experiments in the European Union in 1999 totalled 9.81 million. Table 6 shows relevant data. The third report made by 14 Member States included also the data on the purpose of use of animals in experiments, as shown in Table 7. Data on the total number of animals used in experiments do not tally with the number of animals per purpose of use of animals in experiments.

The fourth report on animals used in experiments in the EU Member States (21), as shown in Table 8, provides the data of 2002, and was published in 2005. All the fifteen Member States presented their respective reports in the EU Tables,

with the exception of France that reported the data of 2001. The number of animals used in experiments in the European Union in 2002 totalled 10.73 million. Part 2 of the report conveys the data of the particular Member States, including clarifications. Purposes of use of animals are described in detail, including the required conditions and types of testing.

The fourth report includes the data on the purpose of use of animals in experiments, as shown in Table 9. All the Member States reported on the purposes of use of animals in experiments. Data on the total number of animals used in experiments do tally with the data on the purposes of use.

Table 4: Total number of animals used for experimental purposes in 1996 in the EU Member States in 1996

Species	AT	BE	DE	DK	EL	ES	FR*	IE	IT	LU	NL	PT	FI	SE	UK	Total
Rodents and rabbits	200,640	711,748	1,258,110	307,513	17,091	481,950	2,411,358	54,925	1,071,856	1,003	500,720	46,567	76,759	266,922	2,348,758	9,755,920
Cold - blooded vertebrates (1)	2,158	736,165	134,952	24,604	1,930	1,090	103,024	19,021	9,193	0	44,787	118	29,608	11,489	146,924	1,265,063
Birds (2)	0	54,982	94,793	9,347	129	17,736	67,652	94	9,218	0	86,071	329	1,912	3,178	113,691	459,132
Artio + Perissodactyla (3)	0	9,073	14,026	7,028	126	5,126	18,054	2,554	1,868	0	17,865	2,457	2,097	3,070	32,413	115,757
Carnivores (4)	274	2,899	5,887	1,710	2	812	6,545	513	1,254	0	1,763	44	248	1,266	12,980	36,197
Prosimians + Monkeys + apes	164	600	1,519	18	2	53	2,622	0	772	0	1,082	0	17	46	3,786	10,681
Other animals	1,589	400	332	6	0	70	67	0	24	0	12	5	18	41	816	3,380
Total	204,825	1,515,867	1,509,619	350,226	19,280	506,837	2,609,322	77,107	1,094,185	1,003	652,300	49,520	110,659	286,012	2,659,368	11,646,130

Species %	AT	BE	DE	DK	EL	ES	FR*	IE	IT	LU	NL	PT	FI	SE	UK	Mean
Rodents and rabbits	97.96	46.95	83.34	87.80	88.65	95.09	92.41	71.23	97.96	100	76.76	94.04	69.37	93.33	88.32	83.77
Cold - blooded vertebrates (1)	1.05	48.56	8.94	7.03	10.01	0.22	3.95	24.67	0.84	0.00	6.87	0.24	26.76	4.02	5.52	10.86
Birds (2)	0.00	3.63	6.28	2.67	0.67	3.50	2.59	0.12	0.84	0.00	13.20	0.66	1.73	1.11	4.28	3.94
Artio + Perissodactyla (3)	0.00	0.60	0.93	2.01	0.65	1.01	0.69	3.31	0.17	0.00	2.74	4.96	1.90	1.07	1.22	0.99
Carnivores (4)	0.13	0.19	0.39	0.49	0.01	0.16	0.25	0.67	0.11	0.00	0.27	0.09	0.22	0.44	0.49	0.31
Prosimians + Monkeys + apes	0.08	0.04	0.10	0.01	0.01	0.01	0.10	0.00	0.07	0.00	0.17	0.00	0.02	0.02	0.14	0.09
Other animals	0.78	0.03	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.03	0.03
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* = France reporting for 1997

For abbreviations see Table 3

(1) = reptiles + amphibians + fish

(2) = quails and other birds

(3) = horses, donkeys and crossbreeds + pigs + goats and sheep + cattle

(4) = cats + dogs + ferrets + other carnivores

Table 5: Number of animals used for selected purposes versus species in the EU Member States in 1996

Species	Baseline biological research	Research, development and quality control of products and devices for human medicine and dentistry and for veterinary medicine	Toxicological and other safety valuations (including valuation of products)	Diagnosis of disease	Education and training	Other	Total
Rodents and rabbits	1,820,483	3,644,125	536,527	317,145	75,090	751,776	7,145,146
Cold - blooded vertebrates (1)	190,605	23,458	59,750	8,257	5,699	661,885	949,654
Birds (2)	64,592	68,256	6,226	5,406	936	45,423	190,839
Artio + Perissodactyla (3)	22,963	17,753	739	5,427	2,476	8,855	58,213
Carnivores (4)	8,381	14,982	3,403	814	693	211	28,484
Prosimians + Monkeys + apes	1,187	5,737	631	254	41	242	8,092
Other animals	98,561	129,136	152,167	51,064	7,019	1,337	439,284
Total	2,206,772	3,903,447	759,443	388,367	91,954	1,469,729	8,819,712

Table 6: Total number of animals used for experimental purposes in 1999 in the EU Member States

Species	AT	BE	DE	DK	EL	ES	FR	IE	IT	LU	NL	PT	FI	SE	UK	Total
Mice	91,194	446,677	775,932	163,680	3,566	261,301	1,552,330	31,251	410,788	3,000	277,774	23,669	89,959	184,230	990,162	5,305,513
Rats	12,699	169,662	403,227	96,864	1,900	134,070	460,407	14,484	500,625	20	159,768	9,836	32,519	84,374	526,904	2,607,349
Guinea - Pigs	7,367	37,397	42,891	10,431	240	13,892	77,021	1,041	18,474	20	10,246	1,452	1,737	9,355	61,308	292,872
Other Rodents	396	19,641	18,020	1,310	0	1,227	25,605	133	6,023	0	5,267	1,211	1,763	550	18,848	99,994
Rabbits	15,056	20,968	50,623	6,543	632	19,496	49,836	915	19,030	20	9,222	730	1,686	5,031	27,578	227,366
Cold - blooded vertebrates (1)	1,447	65,097	179,869	29,018	1,840	20,605	29,042	20,052	7,995	0	47,428	539	89,094	28,249	130,595	650,870
Birds (2)	1,367	19,726	92,792	5,225	80	19,027	86,610	1,229	20,157	0	92,823	267	5,228	6,920	105,931	457,382
Artio+ Perisso-dactyla (3)	670	8,874	17,765	9,004	1,426	4,181	18,735	4,370	3,295	0	17,430	1,752	2,347	4,165	29,376	123,390
Carnivores (4)	92	1,557	7,531	1,358	2	1,831	7,417	441	847	0	1,153	94	1,844	774	10,632	35,573
Prosimians + Monkeys+apes	7	490	2,084	0	0	96	2,322	0	512	0	320	0	9	66	3,191	9,097
Other Mammals	0	0	660	11		0	272	13	25	0	45	301	2,148	353	937	4,765
Total	130,295	790,089	1,591,394	323,444	9,686	475,726	2,309,597	73,929	987,771	3,060	621,466	39,851	228,334	324,067	1,905,462	9,814,171

Species %	AT	BE	DE	DK	EL	ES	FR	IE	IT	LU	NL	PT	FI	SE	UK	Mean
Mice	69.99	56.54	48.76	50.61	36.82	54.93	67.21	42.27	41.59	98.04	44.70	59.39	39.40	56.85	51.96	54.06
Rats	9.75	21.47	25.34	29.95	19.62	28.18	19.93	19.59	50.68	0.65	25.71	24.68	14.24	26.04	27.65	26.57
Guinea - pigs	5.65	4.73	2.70	3.22	2.48	2.92	3.33	1.41	1.87	0.65	1.65	3.64	0.76	2.89	3.22	2.98
Other rodents	0.30	2.49	1.13	0.41	0.00	0.26	1.11	0.18	0.61	0.00	0.85	3.04	0.77	0.17	0.99	1.02
Rabbits	11.56	2.65	3.18	2.02	6.52	4.10	2.16	1.24	1.93	0.65	1.48	1.83	0.74	1.55	1.45	2.32
Cold - blooded vertebrates (1)	1.11	8.24	11.30	8.97	19.00	4.33	1.26	27.12	0.81	0.00	7.63	1.35	39.02	8.72	6.85	6.63
Birds (2)	1.05	2.50	5.83	1.62	0.83	4.00	3.75	1.66	2.04	0.00	14.94	0.67	2.29	2.14	5.56	4.66
Artio +Perisso-dactyla (3)	0.51	1.12	1.12	2.78	14.72	0.88	0.81	5.91	0.33	0.00	2.80	4.40	1.03	1.29	1.54	1.26
Carnivores (4)	0.07	0.20	0.47	0.42	0.02	0.38	0.32	0.60	0.09	0.00	0.19	0.24	0.81	0.24	0.56	0.36
Prosimians + Monkeys+apes	0.01	0.06	0.13	0.00	0.00	0.02	0.10	0.00	0.05	0.00	0.05	0.00	0.00	0.02	0.17	0.09
Other Mammals	0.00	0.00	0.04	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.01	0.76	0.94	0.11	0.05	0.05
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

For abbreviations see Table 3

Table 7: Number of animals used for selected purposes versus species in the EU Member States in 1999

Species	Baseline biological research	Research, development and quality control of products and devices for human medicine and dentistry and for veterinary medicine	Toxicological and other safety valuations (including safety valuation of products)	Diagnosis of disease	Education and training	Other	Total
Mice	1,452,583	2,347,842	285,132	93,218	27,719	219,937	4,426,431
Rats	567,904	1,265,125	284,940	4,837	36,157	24,959	2,183,922
Other Rodents	40,631	215,796	51,397	3,618	1,571	11,897	324,910
Rabbits	22,701	84,159	30,104	9,108	3,316	9,850	159,238
Cold - blooded vertebrates (1)	215,412	56,186	82,113	21,317	11,300	82,470	468,798
Birds (2)	101,487	165,879	18,571	4,107	1,707	71,472	363,223
Artio + Perissodactyla (3)	45,687	34,135	3,584	3,573	4,824	13,129	104,932
Carnivores (4)	6,930	8,963	9,190	221	594	1,995	27,893
Prosimians + Monkeys + apes	1,279	1,796	3,687	22	4	206	6,994
Other Mammals	3,430	312	274	0	0	89	4,105
Total	2,458,044	4,180,193	768,992	140,021	87,192	436,004	8,070,446

Table 8: Total number of animals used for experimental purposes in the EU Member States in 2002

Species	AT	BE	DE	DK	EL	ES	FR*	IE	IT	LU	NL	PT	FI	SE	UK	Total
Mice	153,034	460,487	1,071,282	221,557	3,589	200,821	1,370,293	16,790	466,640	3,000	288,706	27,616	98,078	163,041	914,795	5,459,729
Rats	13,175	116,340	483,470	80,518	4,021	38,544	471,234	8,282	377,573	2,200	128,975	12,302	27,563	73,862	473,285	2,311,344
Guinea - Pigs	7,566	34,305	39,913	7,613	310	1,932	59,184	35	18,722	100	8,752	633	757	2,738	43,779	226,339
Other Rodents	132	19,315	24,057	6,966	135	587	24,099	6	9,106	0	7,788	93	3,822	1,283	13,820	111,209
Rabbits	15,560	10,805	132,833	5,542	1,492	2,292	53,545	130	12,481	20	8,093	908	1,235	2,165	20,574	267,675
Cold - blooded vertebrates (1)	1,176	26,235	208,805	36,171	502,360	14,888	109,831	21,046	6,202	0	32,426	2,399	502,400	19,383	165,938	1,649,260
Birds (2)	417	20,352	78,882	5,275	340	1,625	94,932	0	28,892	0	143,100	198	6,872	14,053	140,029	534,967
Artio + Perisso dactyla (3)	536	5,486	22,867	6,621	3,141	1,138	17,770	5,520	3,771	0	20,761	394	2,969	3,422	32,009	126,405
Carnivores (4)	388	1,191	6,468	794	35	141	7,518	262	1,071	0	1,968	34	494	1,049	8,699	30,112
Prosimians+ Monkeys+apes	78	567	1,844	5	0	74	3,840	0	420	0	270	0	0	91	3,173	10,362
Other Mammals	0	8	1,147	10			48	132	11		91		690	97	1,384	3,618
Total	192,062	695,091	2,071,568	371,072	515,423	262,042	2,212,294	52,203	924,889	5,320	640,930	44,577	644,880	281,184	1,817,485	1,0731,020

Species %	AT	BE	DE	DK	EL	ES	FR*	IE	IT	LU	NL	PT	FI	SE	UK	Mean
Mice	79.68	66.25	51.71	59.71	0.70	76.64	61.94	32.16	50.45	56.39	45.04	61.95	15.21	57.98	50.33	50.88
Rats	6.86	16.74	23.34	21.70	0.78	14.71	21.30	15.86	40.82	41.35	20.12	27.60	4.27	26.27	26.04	21.54
Guinea - Pigs	3.94	4.94	1.93	2.05	0.06	0.74	2.68	0.07	2.02	1.88	1.37	1.42	0.12	0.97	2.41	2.11
Other Rodents	0.07	2.78	1.16	1.88	0.03	0.22	1.09	0.01	0.98	0.00	1.22	0.21	0.59	0.46	0.76	1.04
Rabbits	8.10	1.55	6.41	1.49	0.29	0.87	2.42	0.25	1.35	0.38	1.26	2.04	0.19	0.77	1.13	2.49
Cold - blooded vertebrates (1)	0.61	3.77	10.08	9.75	97.47	5.68	4.96	40.32	0.67	0.00	5.06	5.38	77.91	6.89	9.13	15.37
Birds (2)	0.22	2.93	3.81	1.42	0.07	0.62	4.29	0.00	3.12	0.00	22.33	0.44	1.07	5.00	7.70	4.99
Artio + Perisso dactyla (3)	0.28	0.79	1.10	1.78	0.61	0.43	0.80	10.57	0.41	0.00	3.24	0.88	0.46	1.22	1.76	1.18
Carnivores (4)	0.20	0.17	0.31	0.21	0.01	0.05	0.34	0.50	0.12	0.00	0.31	0.08	0.08	0.37	0.48	0.28
Prosimians + Monkeys + apes	0.04	0.08	0.09	0.00	0.00	0.03	0.17	0.00	0.05	0.00	0.04	0.00	0.00	0.03	0.17	0.10
Other Mammals	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.01	0.00	0.11	0.03	0.08	0.03
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* = France reporting for 2001

For abbreviations see Table 3

Table 9: Number of animals used for selected purposes versus species in the EU Member States in 2002

Species	Baseline biological research	Research, development and quality control of products and devices for human medicine and dentistry and for veterinary medicine	Toxicological and other safety valuations (including safety valuation of products)	Diagnosis of disease	Education and training	Other	Total
Mice	2,125,001	2,473,444	358,090	187,231	54,716	261,297	5,459,779
Rats	638,337	1,196,783	375,656	8,548	52,062	39,908	2,311,294
Other Rodents	47,140	201,372	69,792	2,931	2,435	13,878	337,548
Rabbits	19,621	178,776	45,067	8,232	2,095	13,884	267,675
Cold - blooded vertebrates (1)	690,261	472,495	175,220	2,486	218,566	90,232	1,649,260
Birds (2)	141,623	197,706	18,975	6,631	4,934	165,098	534,967
Artio + Perissodactyla (3)	56,065	37,871	3,227	10,528	6,741	11,973	126,405
Carnivores (4)	5,754	9,202	13,188	712	408	848	30,112
Prosimians + Monkeys + apes	1,738	1,580	6,832	34	7	171	10,362
Other Mammals	2,886	58	0	0	3	671	3,618
Total	3,728,426	4,769,287	1,066,047	227,333	341,967	597,960	1,0731,020

* = France reporting for 2004

The fifth report on animals used in experiments in the EU Member States (22) provides the data of 2005, and was published in 2007. All the twenty-five Member States presented their respective reports in the EU Tables. France presented its report of 2004. This report includes the data presented by the ten new EU Member States, i.e. Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. The number of animals used in experiments in the European Union in 2005 totalled 12.11 million. Data by the old Member States are presented in Table 10, and data

by the new Member States in Table 11. The number of animals used in the ten new Member States represents 8.6 % of the total number of animals used in the twenty-five Member States. Part 2 of the report conveys data presented by the particular Member States, including clarifications. Purposes of use of animals are described in detail, including the required conditions and types of testing. Data on the total number of animals used in experiments do tally with the data on the purposes of use. Table 12 shows relevant data.

Table 10: Total number of animals used for experimental purposes in the 15 EU Member States reporting up to 2005

Species	AT	BE	DE	DK	EL	ES	FR*	IE	IT	LU	NL	PT	FI	SE	UK	Total
Mice	128,634	488,125	1,084,358	208,375	15,340	393,217	1,510,334	17,776	534,614	3,280	240,048	28,318	120,636	213,727	1,052,064	6,038,846
Rats	11,920	106,483	435,417	85,664	6,024	125,754	424,387	7,722	279,774	720	116,608	6,793	28,358	83,321	411,501	2,130,446
Guinea - Pigs	3,149	39,530	37,761	5,046	574	16,780	79,350	4	11,533	100	7,479	379	563	2,014	28,918	233,180
Other Rodents	224	4,134	15,538	6,783	40	1,202	21,374	0	3,840	0	8,411	129	3,313	1,436	11,962	78,386
Rabbits	18,439	21,159	103,329	5,805	1,255	11,878	93,282	379	9,916	20	8,251	594	1,214	2,112	15,523	293,156
Cold - blooded vertebrates (1)	2,104	40,286	74,905	36,852	902,275	31,013	66,072	6,420	19,598	0	18,076	4,799	93,240	188,545	203,173	1,687,358
Birds (2)	1,025	13,691	41,607	7,784	21	8,425	106,263	2,024	31,697	0	111,233	112	5,773	7,838	115,000	452,493
Artio + Perissodactyla (3)	1,664	3,530	20,622	8,603	548	6,094	13,540	3,281	4,420	0	18,963	460	2,569	4,378	22,787	111,459
Carnivores (4)	97	1,530	6,686	843	14	1,090	7,007	286	1,094	0	1,790	36	188	1,596	7,623	29,880
Prosimians + Monkeys + apes	56	449	2,086	0	1	84	3,789	0	412	0	327	0	0	75	3,115	10,394
Other Mammals	0	59	115	185	0	60	0	48	68	0	13	1	972	639	2,541	4,701
Total	167,312	718,976	1,822,424	365,940	926,092	595,597	2,325,398	37,940	896,966	4,120	531,199	41,621	256,826	505,681	1,874,207	1,1070,299

Species %	AT	BE	DE	DK	EL	ES	FR	IE	IT	LU	NL	PT	FI	SE	UK	Mean
Mice	76.88	67.89	59.50	56.94	1.66	66.02	64.95	46.85	59.60	79.61	45.19	68.04	46.97	42.27	56.13	53.07
Rats	7.12	14.81	23.89	23.41	0.65	21.11	18.25	20.35	31.19	17.48	21.95	16.32	11.04	16.48	21.96	19.28
Guinea - Pigs	1.88	5.50	2.07	1.38	0.06	2.82	3.41	0.01	1.29	2.43	1.41	0.91	0.22	0.40	1.54	2.12
Other Rodents	0.13	0.57	0.85	1.85	0.00	0.20	0.92	0.00	0.43	0.00	1.58	0.31	1.29	0.28	0.64	0.79
Rabbits	11.02	2.94	5.67	1.59	0.14	1.99	4.01	1.00	1.11	0.49	1.55	1.43	0.47	0.42	0.83	2.58
Cold - blooded vertebrates (1)	1.26	5.60	4.11	10.07	97.43	5.21	2.84	16.92	2.18	0.00	3.40	11.53	36.30	37.29	10.84	15.07
Birds (2)	0.61	1.90	2.28	2.13	0.00	1.41	4.57	5.33	3.53	0.00	20.94	0.27	2.25	1.55	6.14	5.44
Artio + Perissodactyla (3)	0.99	0.49	1.13	2.35	0.06	1.02	0.58	8.65	0.49	0.00	3.57	1.11	1.00	0.87	1.22	1.16
Carnivores (4)	0.06	0.21	0.37	0.23	0.00	0.18	0.30	0.75	0.12	0.00	0.34	0.09	0.07	0.32	0.41	0.33
Prosimians + Monkeys + apes	0.03	0.06	0.11	0.00	0.00	0.01	0.16	0.00	0.05	0.00	0.06	0.00	0.00	0.01	0.17	0.09
Other Mammals	0.00	0.01	0.01	0.05	0.00	0.01	0.00	0.13	0.01	0.00	0.00	0.00	0.38	0.13	0.14	0.08
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* = France reporting for 2004
For abbreviations see Table 3

Table 11: Total number of animals used for experimental purposes in the 10 New Member States in 2005

Species %	CY	CZ	EE	HU	LV	LT	MT	PL	SI	SK	Total
Mice	967	82,252	4,350	138,312	10,480	5,116	0	126,492	8,556	14,975	391,500
Rats	0	31,703	484	109,479	2,376	493	0	51,558	2,732	6,761	205,586
Guinea - Pigs	0	4,075	0	8,360	297	0	0	10,763	38	594	24,127
Other Rodents	0	6,018	0	518	0	0	0	11,069	18	0	17,623
Rabbits	0	5,567	66	9,152	166	158	0	3,101	533	782	19,525
Cold - blooded vertebrates (1)	0	71,186	0	11,315	0	0	0	56,413	3	0	138,917
Birds (2)	0	126,241	0	17,434	0	0	0	62,618	22	251	206,566
Artio + Perissodactyla (3)	0	3,193	0	1,303	0	0	0	24,026	74	0	28,596
Carnivores (4)	0	459	0	1,330	0	0	0	7,728	15	6	9,538
Prosimians + Monkeys + apes	0	51	0	6	0	0	0	0	0	0	57
Other Mammals	0	188	0	0	0	0	0	5,061	0	0	5,249
Total	967	330,933	4,900	297,209	13,319	5,767	0	358,829	11,991	23,369	1,047,284

Species %	CY	CZ	EE	HU	LV	LT	MT	PL	SI	SK	Mean
Mice	100	24.85	88.78	46.54	78.68	88.71	0	35.25	71.35	64.08	37.38
Rats	0.00	9.58	9.88	36.84	17.84	8.55	0	14.37	22.78	28.93	19.63
Guinea - Pigs	0.00	1.23	0.00	2.81	2.23	0.00	0	3.00	0.32	2.54	2.30
Other Rodents	0.00	1.82	0.00	0.17	0.00	0.00	0	3.08	0.15	0.00	1.68
Rabbits	0.00	1.68	1.35	3.08	1.25	2.74	0	0.86	4.45	3.35	1.86
Cold - blooded vertebrates (1)	0.00	21.51	0.00	3.81	0.00	0.00	0	15.72	0.03	0.00	13.26
Birds (2)	0.00	38.15	0.00	5.87	0.00	0.00	0	17.45	0.18	1.07	19.72
Artio + Perissodactyla (3)	0.00	0.96	0.00	0.44	0.00	0.00	0	6.70	0.62	0.00	2.73
Carnivores (4)	0.00	0.14	0.00	0.45	0.00	0.00	0	2.15	0.13	0.03	0.91
Prosimians + Monkeys + apes	0.00	0.02	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.01
Other Mammals	0.00	0.06	0.00	0.00	0.00	0.00	0	1.41	0.00	0.00	0.5
Total	100	100	100	100	100	100	0	100	100	100	100

Table 12: Number of animals used for selected purposes versus species in the all EU Member States* in 2005

Species	Baseline biological research	Research, development and quality control of products and devices for human medicine and dentistry and for veterinary medicine	Toxicological and other safety valuations (including safety valuation of products)	Diagnosis of disease	Education and training	Other	Total
Mice (<i>Mus musculus</i>)	2,465,474	2,727,254	384,741	225,524	86,597	551,356	6,440,946
Rats (<i>Rattus norvegicus</i>)	677,533	1,161,517	350,275	13,564	50,048	72,876	2,325,813
Other Rodents (other Rodentia)	53,241	230,403	56,006	4,512	2,606	6,548	353,316
Rabbits (<i>Oryctolagus cuniculus</i>)	15,463	237,411	38,761	8,322	3,856	8,829	312,642
Cold - blooded vertebrates (1)	485,858	942,973	116,123	5,905	40,236	235,180	1,826,275
Birds (<i>Aves</i>) (2)	251,443	249,024	53,935	9,723	5,440	89,494	659,059
Artio + Perissodactyla (3)	64,419	41,079	4,542	4,100	9,491	16,341	139,972
Carnivores (Carnivore) (4)	11,605	9,309	14,884	348	674	2,339	39,159
Prosimians + Monkeys + apes	1,456	1,397	7,004	16	42	536	10,451
Other Mammals (other Mammalia)	8,978	214	15	0	4	739	9,950
Total	4,035,470	5,600,581	1,026,286	272,014	198,994	984,238	12,117,583

* = France reporting for 2004

Table 13 shows the comparison between proportions of groups of animals used in the EU in experiments in 1996, 1999, 2002 and 2005 (22). As seen above, the most used group of animals represent the rodents and rabbits with around 80 %, with the highest use in 1999 and the lowest use in 2005. The second most used group of animals

represent cold-blooded vertebrates, and their use ranges between 10 and 15 %, with the rather low use in 1999. Birds represent a third most used group of animals, which ranges between 4.7 and 5.4 %. A fourth most used group represent the equidae and ungulates with around 1 %.

Table 13: Comparison between proportions of classes of animals used in EU in 1996, 1999, 2002 and 2005

Class of species	1996*	1999	2002**	2005***
% Rodents - rabbits (1)	81.3	86.9	78.0	77.5
% Cold - blooded vertebrates (2)	12.9	6.6	15.4	15
% Birds (3)		4.7	5	5.4
% Artio + Perissodactyla (4)		1.2	1.2	1.1

* = 14 Member States reporting for 1996; 1 for 1997

** = 4 Member States reporting for 2002; 1 for 2001

*** = 24 Member States reporting for 2005; 1 for 2004

Discussion

In the Republic of Slovenia, the data on animals used in experiments have been known since 1992; however, the data collection method was defined in 2004 only (in a specific regulation). Data collected in

the Republic of Slovenia show a downward trend in animal use in experiments. In the beginning of data collection it was believed that the number of animals used in experiments would increase from year to year owing to the more comprehensive methods of data collection, though the real number of animals

used in experiments would be smaller. However, the presentation of the total number of animals used in experiments, by species and in a longer period of time, clearly demonstrates the opposite. In the Republic of Slovenia, the use of experimental animals in applied research shows a downward trend on account of validated alternative methods in use, which do not require animals, even if authorised for use in experiments by the law. In the most recent years in particular, the Slovenian legislative activity in the field of protection of experimental animals has been most productive with the scope of harmonising the Slovenian legislation with the EU law. Current activities are focused on improving the minimum accommodation standards and conditions of care of particular animal species, including those not covered by the applicable legislation. This is resulting from the Protocol of Amendment (ETS 170) to Convention (ETS 123) of the Council of Europe (23), which was fully transposed as recommendation by the European Commission (24) in Directive 86/609/EEC (2).

A more extensive amendment of the applicable legislation is envisaged to take place, including the European Commission's proposal for a directive amending Directive 86/609/EEC. The proposed draft Directive (25) shall take into account the most recent developments in animal welfare and ethical concerns of animal use in experiments. The proposed draft Directive shall harmonise disparities between the national laws of the EU Member States so as to harmonise actions of protecting experimental animals, decreasing the number of animals used in experiments, and avoiding the unnecessary duplication of experiments. The Republic of Slovenia supports the strategy of protecting experimental animals, by urgently requiring the numbers of animals used in experiments to decrease, by introducing alternative methods and providing for the utmost protection and, at the same time, by providing for the welfare of animals which are still used in experiments on the reasonable and justifiable grounds.

Reviewing the number of animals used in experiments in the particular EU Member States through all the five years of reporting, it may be established that the number of animals used in experiments has been oscillating in many Member States. Most animals were used in experiments in France, United Kingdom and in Germany. Data presented by the Member States show a general survey only of the use of animals in experiments in their respective countries. Data cannot be compared on account of the differing reporting methods. For this very reason

it is important that the EU Member States present the data in a standardised way so as to facilitate comparison. It may be envisaged with certainty that the number of animals used in experiments will decrease in future, in the Republic of Slovenia as well as in the European Union. This fact will be influenced by the more rigorous legislation, more severe inspection and control, replacement of animals by alternative methods, authorisation granting procedures for the implementation of experiments which will take into account the opinions stated by the ethical commissions, staff qualification, higher responsibility of the researchers and their improved attitude towards experimental animals that shows in preparing the precise experimental protocols, in selecting the methods and in the implementation of experiments as such. In decreasing the numbers of experimental animals, the mutual cooperation of institutions, researchers at state and interstate levels, as well as active approach of animal protection societies will be of key importance. In decreasing the numbers of experimental animals in pharmaceutical industry in particular, in addition to the validated alternative methods, the interstate recognition of results obtained by experiments already conducted on animals, the improved biometric methods, improved baseline research stages of new substances, and the use of cell cultures, tissues or smaller groups of animals play a significant role.

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POROČILA O UPORABI ŽIVALI V POSKUSIH V REPUBLIKI SLOVENIJI IN DRUGIH DRŽAVAH, ČLANICAH EVROPSKE UNIJE V 15-LETNEM OBDOBJU

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Povzetek: Namen prispevka je prikazati podatke o številu in vrsti uporabljenih živali v poskusih ter o namenih uporabe živali v Republiki Sloveniji in Evropski uniji v obdobju 15 let. V Republiki Sloveniji na podlagi zbranih podatkov v letih od 1992 do 2006 ugotavljamo, da trend uporabe poskusnih živali pada. V letu 1992 jih je bilo 37.212, v letu 2006 pa le 13.181. V Sloveniji upada uporaba poskusnih živali zaradi uporabe validiranih alternativnih metod, ki ne zahtevajo živali. Zlasti v zadnjih nekaj letih poteka v Sloveniji aktivna zakonodajna dejavnost na področju zaščite poskusnih živali, da bi harmonizirali slovensko zakonodajo z evropsko.

Evropska komisija je objavila pet poročil o uporabi živali v poskusih. Kot so poročale države članice, je bilo v letu 1991 11,79 milijona poskusnih živali, v letu 1996 11,64 milijona, v letu 1999 9,81 milijona, v letu 2002 10,73 milijona in v letu 2005 12,11 milijona. Prvi dve poročili dajeta nepopolno analizo zaradi neenotnega navajanja podatkov o uporabi poskusnih živali v državah članicah. Tretje in četrto poročilo temeljita na dogovorjenih enotnih tabelah. To omogoča razširjeno obrazložitev zbranih podatkov o uporabi poskusnih živali v Evropski uniji, kljub določenim neskladnostim pri poročanju držav članic. Drugo poročilo prvič vsebuje podatke, zbrane v treh novih državah članicah, peto poročilo pa v desetih novih državah članicah. Podatkov o uporabi živali v poskusne namene ni mogoče primerjati s tistimi iz prejšnjih poročil. Skupno število vključuje različne živalske vrste, od hladnokrvnih vretenčarjev na eni strani do sesalcev, kot so rejne živali ali človeku podobni primati v nekaterih državah članicah na drugi strani. Zaradi neenotnega poročanja držav članic primerjava med nacionalnimi poročili ni mogoča. Poročila dajejo le splošen pregled nad uporabo poskusnih živali na nivoju skupnosti.

Ključne besede: poskusne živali; zakonodaja; poročilo