



EUROPEAN COMMISSION
HEALTH & CONSUMERS DIRECTORATE-GENERAL
Unit 04 - Veterinary Control Programmes

SANCO/12996/2010

*Programmes for the eradication, control and monitoring of certain
animal diseases and zoonoses*

Eradication programme of Rabies

Approved* for 2011 by Commission Decision 2010/712/EU

Estonia

* in accordance with Council Decision 2009/470/EC

Application from Estonia for Community financing for program for the eradication, monitoring and control of Rabies for years 2011

1. Identification of the programme

Member State: ESTONIA

Disease(s)¹: RABIES

Request of Community co-financing for²: 2011

Reference of this document: State Program on Monitoring and Surveillance of Animal Infectious Diseases

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Date sent to the Commission: 28 April 2010

2. Historical data on the epidemiological evolution of the disease(s)³:

EVOLUTION OF RABIES IN ESTONIA IN THE YEARS 2007-2009.

- The number of reservoir animals.

According to the data of the Ministry of the Environment, despite of more intensive hunting in recent years (see chart 1), influenced also by need to conduct post-vaccination sampling of target species, number of racoon dogs has increased in Estonia during the last years. If in years 2007-2008 hunting data, track index (tracks per 1 km) and charge in abundance (hunters estimation) indicated, that number of foxes is slightly decreasing. Charge in abundance indicated that in 2009 population showed very rapid increasing trend, in beginning of 2010 showed moderate decreasing again. Resembling data concerning numbers of racoon dogs has continuously shown ascending trend.

¹ One document per disease is used unless all measures of the programme on the target population are used for the monitoring, control and eradication of different diseases.

² Indicate the year(s) for which co-financing is requested.

³ A concise description is given with data on the target population (species, number of herds and animals present and under the programme), the main measures (testing, testing and slaughter, testing and killing, qualification of herds and animals, vaccination ...) and the main results (incidence, prevalence, qualification of herds and animals). The information is given according distinct periods if the measures were substantially modified. The information is documented by relevant summary epidemiological tables, graphs or maps.

The number of large predators, wolves and lynx, has slightly increased, being estimated as 100-135 wolves, 580-620 bears and 740- 760 lynxes in 2007-2008.

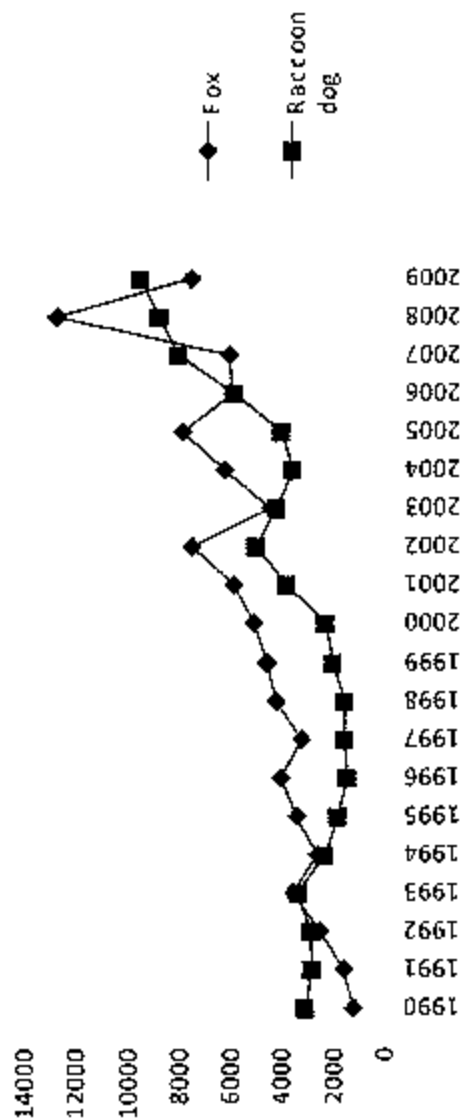


Chart 1 Hunting bags of foxes and raccoon dogs 1990 -2009

- Rabies infection in animals

There has been a huge general improvement of rabies situation in Estonian territory from the beginning of oral vaccination (OV) of wildlife in part of territory in 2005, in whole country since 2006. (See chart 2)

Rabies cases in Estonia 1968 - 2009

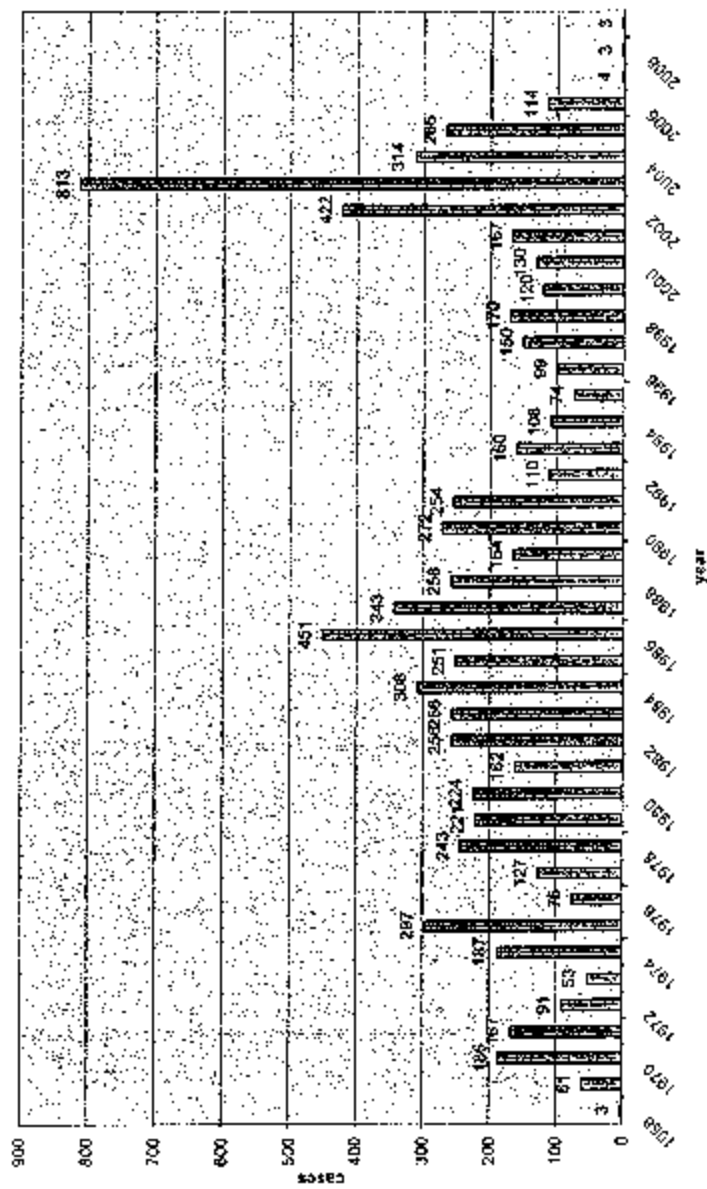


Chart 2 Rabies cases from 1968 to 2009

In 2007 4 positive cases of rabies infection were diagnosed: 2 cows (in Lääne and Rapla county), badger (in Lääne-Viru county) and raccoon dog (in Harju county). (see also table 1 and 2, figure 1)

RABIES CASES 2007		ESTONIA											
DISTRICTS	jan	feb	march	apr	may	june	july	aug	sept	oct	nov	dec	TOTAL
1 HIIRJUMAA	0	0	0	0	0	0	1	0	0	0	0	0	1
2 HIUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
3 IDA-VIRUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
4 JÖGEVAMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
5 JÄRVAMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
6 LÄÄNEMAA	0	0	0	0	1	0	0	0	0	0	0	0	1
7 L-VIRUMAA	0	0	0	0	0	0	1	0	0	0	0	0	1
8 PÖLVAMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
9 PÄRNUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
10 RAPLAMAA	0	0	1	0	0	0	0	0	0	0	0	0	1
11 SAAREMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
12 TARTUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
13 VALGAMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
14 VILJANDIMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
15 VÖRUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	1	0	1	0	2	0	0	0	0	0	4

Table 1. Data on positive cases by month and districts in 2007

RABIES CASES 2007		ESTONIA				
DISTRICTS	bov	rac.	dog	badger	TOTAL	
1 HARJUMAA			1		1	
2 HIUMAA					0	
3 IDA-VIRUMAA					0	
4 JÖGEVAMAA					0	
5 JÄRVAMAA					0	
6 LÄÄNEMAA	1				1	
7 L-VIRUMAA				1	1	
8 PÖLVAMAA					0	
9 PÄRNUMAA					0	
10 RAPLAMAA	1				1	
11 SAAREMAA					0	
12 TARTUMAA					0	
13 VALGAMAA					0	
14 VILJANDIMAA					0	
15 VÖRUMAA					0	
TOTAL	2	1	1	1	4	

Table 2 Data on positive cases by species and districts in 2007

In 2008 three positive rabies cases were found in the beginning of the year: sheep, (in Rapla county) fox and dog (both in Harju county) (see table 3 and 4, figure 2)

RABIES CASES 2008		ESTONIA											
DISTRICTS	jan.	feb.	march	apr	may	june	july	aug	sept	oct	nov	dec	TOTAL
1 HARJUMAA	0	1	1	0	0	0	0	0	0	0	0	0	2
2 HIUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
3 IDA-VIRUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
4 JÖGEVAMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
5 JÄRVAMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
6 LÄÄNEMAA	0	0	0	0	0	0	0	0	0	0	0	0	0

7	L-VIRUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	PÖLVAMAA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	PÄRNUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	RAPLAMAA	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11	SAAREMAA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	TARTUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	VALGAMAA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	VILJANDIMAA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	VÖRUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3

Table 3. Data on positive cases by month and districts in 2008

RABIES CASES 2008 ESTONIA						
	DISTRICTS	sheep	dog	fox	TOTAL	
1	HARJUMAA		1	1	2	
2	HIIGUMAA				0	
3	IDA-VIRUMAA				0	
4	JÕGEVAMAA				0	
5	JÄRVAMAA				0	
6	LÄÄNEMAA				0	
7	L-VIRUMAA				0	
8	PÖLVAMAA				0	
9	PÄRNUMAA				0	
10	RAPLAMAA	1			1	
11	SAAREMAA				0	
12	TARTUMAA				0	
13	VALGAMAA				0	
14	VILJANDIMAA				0	
15	VÖRUMAA				0	
	TOTAL	1	1	1	3	

Table 4 Data on positive cases by species and districts in 2008

Last rabies case in basic area of Estonia until passing in this application was in March 2008. Thereof, the only rabies cases occurred have been three rabid foxes found in summer 2009 in Põlva and Võru county in very close surrounding (less, than 5 km) of Estonian Republic Russian Federation land border in south-east. (see table 5 and 6, figure 3)

RABIES CASES 2008													
ESTONIA													
DISTRICTS	jan.	feb.	march	apr.	may	june	july	aug.	sept.	oct.	nov.	dec.	TOTAL
1 HARJUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
2 HIUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
3 IDA-VIRUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
4 JÕGEVAMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
5 JÄRVAMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
6 LÄÄNEMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
7 J.-VIRUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
8 PÕLVAMAA	0	0	0	0	1	0	1	0	0	0	0	0	2
9 PÄRNUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
10 RAPLAMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
11 SAAREMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
12 TARTUMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
13 VALGAMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
14 VILJANDIMAA	0	0	0	0	0	0	0	0	0	0	0	0	0
15 VÕRUMAA	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL	0	0	0	0	2	0	1	0	0	0	0	0	3

Table 5. Data on positive cases by month and districts in 2009

DISTRICTS	fox	TOTAL
1 HARJUMAA		0
2 HIUMAA		0

3	IDA-VIRUMAA	0
4	JÕGEVAMAA	0
5	JÄRVAMAA	0
6	LÄÄNEMAA	0
7	L-VIRUMAA	0
8	PÕLVAMAA	2
9	PÄRNUMAA	0
10	RAPLAMAA	1
11	SAAREMAA	0
12	TARTUMAA	0
13	VALGAMAA	0
14	VILJANDIMAA	0
15	VÖRUMAA	1
	TOTAL	3

Table 6 Data on positive cases by species and districts in 2009

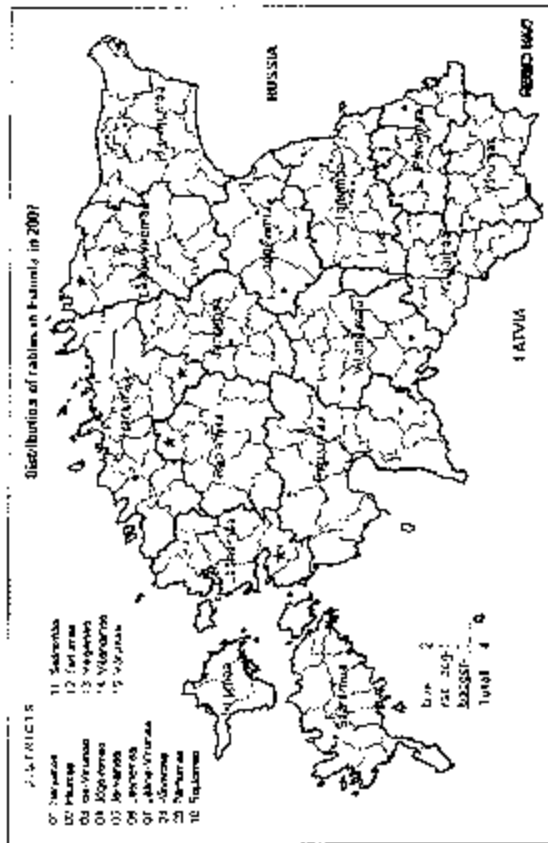


Figure 1. Distribution of rabies cases in 2007.

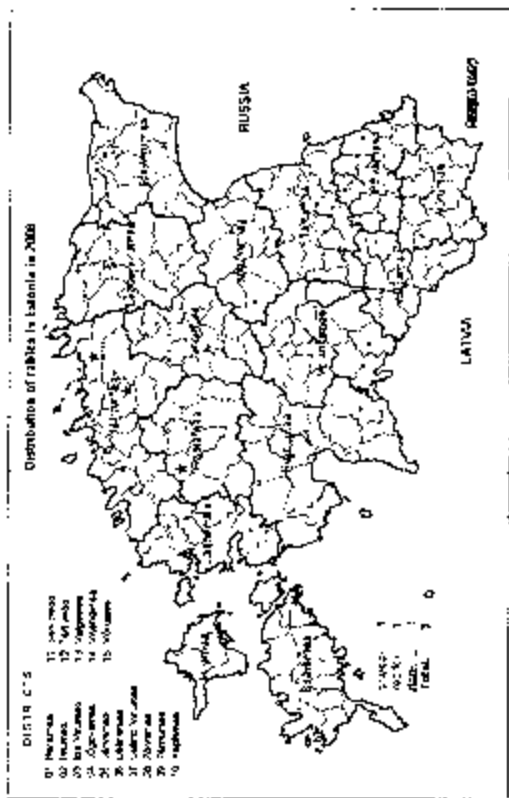


Figure 2. Distribution of rabies cases in 2008.

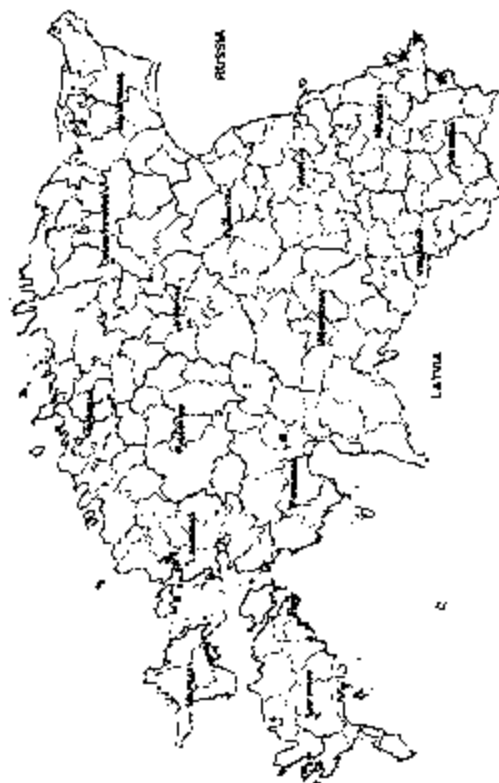


Figure 3. Distribution of rabies cases in 2009.

3. Description of the submitted programme⁴:

In 2006-2009 in spring and in autumn OV of wildlife has been carried into force in total territory of Estonia (45 227 km²); similar strategy is executed in 2010.

In case favourable rabies situation described in point 2 of application will continue, for the time of embodying of spring vaccination campaign in year 2011, more then 3 years have passed, since occurrence of last rabies case in regions of Estonia, not directly close to administrative borders of Republic.

- Oral vaccination program for wildlife in 2011

Main principal OV programme of 2011 year is to protect Estonian territory from cross-border re-infection from areas where rabies is endemic or cases occur sporadically.

Taking abovementioned into consideration, it is planned from beginning of year 2011 to establish buffer-zones with neighbouring countries wherewith Estonia is bordering with land (Russia, Latvia) and conduct OV only in these buffer areas to maintain sufficient level of immunity among wild raccoon dogs and foxes.

Vaccination will be carried out in buffer-zones twice a year: in spring and autumn. Planned distribution density of vaccine baits is 20 baits per sq km. Vaccine baits will be proclaimed as a result of public procurement. Prior the campaigns sampling is done from all vaccine batches to control vaccine titre level suitability. Bait-dropping is performed by fixed-wing airplanes by trained staff manually through the constructed special tube inside the plane. Flight altitude is – 100- 150 m, speed – 150 - 200 km/h and distance between parallel distribution lines ~ 550- 600 m. Navigation tool used for navigation is GPS Garmin 196, which also allows recording of flight track and make offprint afterwards.

Distribution of vaccine baits is not carried out in the urban area (town, villages etc), in area of water (lakes, rivers, deep swamps etc) and in area of roads, highways and railways. Awareness campaign will be carried into force in vaccinated and surrounding areas.

Continuous surveillance and monitoring for rabies will be carried out by Veterinary and Food Board in Estonian territory.

In any case, when rabies suspicion is risen by authorized veterinarian or veterinary official, laboratory investigation will follow. Costs of these investigations are covered by State Budget.

Brain samples from 4 foxes or raccoon dogs per 100 km² will be collected by hunters (the priority categories for investigation are indicator animals, e.g. road kills, animals found dead) throughout the country territory.

⁴ A concise description of the programme is given with the main objective(s) (monitoring, control, eradication, qualification of herds and/or regions, reducing prevalence and incidence ...), the main measures (testing, testing and slaughter, testing and killing, qualification of herds and animals, vaccination ...), the target animal population and the area(s) of implementation and the delimitation of a positive case.

To control bait-uptake by target animals up to 8 foxes-raccoon dogs/100 km² will be hunted from areas of vaccination and head send to the laboratory for tetracycline detection, from ½ of these animals also blood sample will be collected to check seroconversion rate.

4. Measures of the submitted programme

4.3. *Description and delimitation of the geographical and administrative areas in which the programme is to be implemented⁵:*

- Oral vaccination area in 2011

Estonia is bordered to the north by the Gulf of Finland, to the west by the Baltic Sea, to the south by the Latvian Republic (343 km), and to the east by the Russian Federation (338.6 km).

Buffer-zones in south and east border with both, Russia and Latvia will be established in 2011.

Rabies virus is widely spread in territory of Russian Federation, several cases also occur in close neighbourhood of Estonian-Russian mainland border. To protect potentially rabies-free area from a neighbouring infected area, the immunological barrier along the mainland border with Russian Federation will be 50 km in depth. In eastern and north-eastern part of the border with Russia very good natural physical barriers exist. Lake Peipsi is the fifth largest in Europe, covers 3,500 km², its shore length is 520 km and an average depth of 7. Lake Peipsi constitutes impassable barrier for most of time of the year, as distance between its coasts can be counted in tenths of kilometres in most occasions. Lake Peipsi is drained by river Narva, largest river in Estonia, which could be crossed by target species only in limited time in cold winters, while frozen. Depth of the buffer zone near lake Peipsi will be reduced to 30 km (measured from lake's eastern coast) and towards river Narva vaccination area will be 30 km wide.

Due to OV campaigns in Latvian Republic territory rabies situation is favourable there, but as some rabies cases still occur also less, the 50 km from Estonian-Latvian mainland border (3 cases in 2008), in this stage, it is foreseen to build up buffer-zone of min. 20 radius from border. If possible, all buffer zones will be edged with natural or artificial barriers in Estonian side. In total, vaccination area of buffer-zones facing Russia and Latvia covers about 9400 km².

To prevent rabies epidemic in Estonia if re-emerging rabies case(s) in Estonia will occur in year 2011, emergency resources for management up to two rabies outbreaks is included into current application. As there is consistent lack of proper artificial barriers inside Estonia, also only few efficient natural barriers exist, the size of area intended to be vaccinated in surrounding of positive animal found is planned to be 8000 km². (radius of 50 km from rabies focus).

⁵ Describe the name and denomination, the administrative boundaries, and the surface of the administrative and geographical areas in which the programme is to be applied. Illustrate with maps.

In the case rabies situation will deteriorate in Estonia (re-infection occurs in areas far from country border in 2010) or in Latvia (rabies cases in closer surrounding, then 30 km from Estonian border, suspending of OV campaigns in area bordering with Estonia in 2010 or 2011). alterations from original strategy to conduct OV will be essential (giving occasion for need of reallocation of financial resources necessary for implementing the programme)

Notification system of all rabies-suspected cases is applied in all over the territory of Estonia. In case of suspicion, laboratory investigations will follow. Active surveillance will be conducted throughout the country territory by collecting brain samples from 4 foxes or raccoon dogs per 100 km² (the priority categories for investigation are indicator animals, e.g. road kills, animals found dead). The efficiency of OV campaigns will be measured by testing samples collected from areas vaccinated in 2011 for marker detection, virus and seroconversion rate.

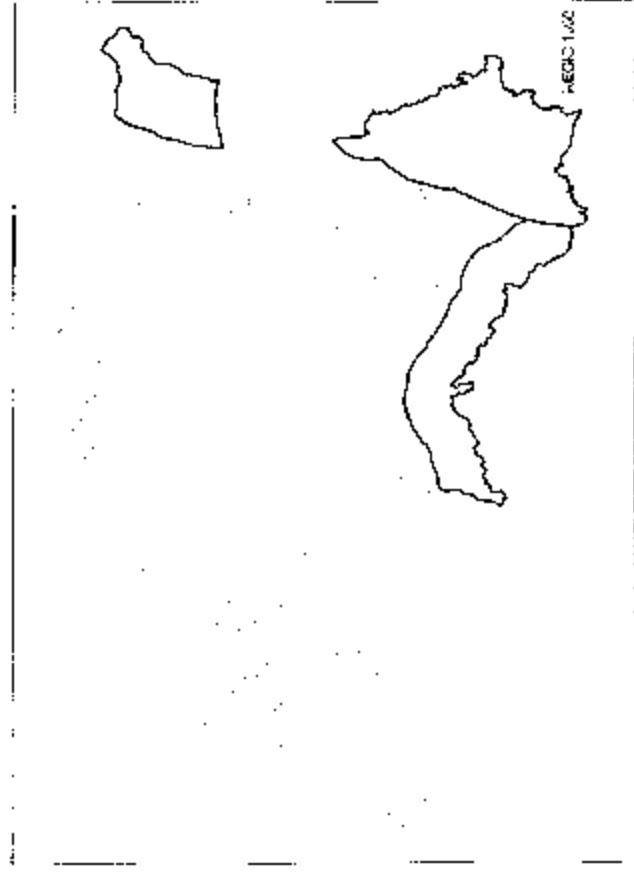


Figure 4. Vaccination area in Estonia 2011

5. **General description of the costs and benefits⁶**:

Costs incurred under the present programme

Under the state programme for infectious animal disease control for rabies prevention, state budget funds are used to cover the costs of laboratory tests of animals suspected to be infected with rabies and the costs of anti-rabies vaccination of mainly dogs and cats.

Since 2005, due to financial aid from EU, OV of wildlife has been enforced and additional remarkable costs on vaccination of wildlife had accrued to costs of abovementioned measures. (see table 7)

	2005	2006	2007	2008	2009	Total
OV costs	10 109 423	30 440 329	29 759 110	32 345 901	32 158 861	134 813 626

Table 7 Overview of main costs of OV of wildlife in Estonia in 2005-2009 (in EEK, taxes incl.)

Oral vaccination of wildlife in 2011

See detailed budget of wildlife vaccination of year 2011 in point 8.

Budget of OV in 2011 includes costs of purchase and distribution of vaccine baits, costs of hunting, collection and sending of laboratory samples, laboratory analyses (surveillance and monitoring), and awareness campaign. Public tender will be organised in beginning of year 2011 for procurement of vaccine baits and in early summer also for collection of samples. Contract undersigned with aerial company includes already distribution works of vaccine baits in year 2011. Laboratory investigations will be done by Veterinary and Food Laboratory of Estonia, mainly in central laboratory in Tartu.

⁶ A description is provided of all costs for the authorities and society and the benefits for farmers and society in general.

6. Data on the epidemiological evolution (since 2007)⁷

6.1. Evolution of the disease

6.1.1.2. Data on animals (one table per year and per disease/species)

Year: 2007	Disease ^(a) : rabies	Situation on date: 31.12.2007						INDICATORS		
		Region ^(b)	Total number of animals ^(c)	Number of animals ^(d) to be tested under the programme	Number of animals ^(e) tested	Number of animals tested individually ^(e)	Number of positive animals	Slaughtering	% coverage at animal level $\frac{7}{(4+7)} \times 100$	% positive animals Animal prevalence $\frac{10}{(6+3)} \times 100$
								Number of animals with positive result slaughtered or culled	Total number of animals slaughtered ^(f)	
	1	2	3	4	5	6		7	8	
	Domestic animals		All animals with rabies suspicious		184	2				
	Wild animals		All animals with rabies suspicious		189	2				
	Total				373	4				

Year: 2008 Situation on date: 31.12.2008
 Disease^(a): rabies Animal species: wild and domestic animals

⁷ The data on the evolution of the disease are provided according the tables below where appropriate.

Region ^(b)	Total number of animals ^(c)	Number of animals ^(c) to be tested under the programme	Number of animals ^(c) tested	Number of animals tested individually ^(c)	Number of positive animals	Slaughtering		INDICATORS	
						Number of animals with positive result slaughtered or culled	Total number of animals slaughtered ^(d)	% coverage at animal level	% positive animals /Animal prevalence
Estonia	2	3	4	5	6	7	8	9=(7÷3)×100	10 (6÷3)×100
Domestic animals		All animals with rabies suspicious		137	2				
Wild animals		All animals with rabies suspicious		171	1				
Total				308	3				

Year: 2009

Situation on date: 31.12.2009

Disease^(a): rabies

Animal species: wild and domestic animals

Region ^(b)	Total number of animals ^(c)	Number of animals ^(c) to be tested under the programme	Number of animals ^(c) tested	Number of animals tested individually ^(c)	Number of positive animals	Slaughtering		INDICATORS	
						Number of animals with positive result slaughtered or culled	Total number of animals slaughtered ^(d)	% coverage at animal level	% positive animals /Animal prevalence
Estonia	2	3	4	5	6	7	8	9=(7÷3)×100	10 (6÷3)×100
Domestic animals		All animals with rabies suspicious		77	0				
Wild animals		All animals with rabies suspicious		154	3				
Total				231	3				

6.2. Stratified data on surveillance and laboratory tests

6.2.1. Stratified data on surveillance and laboratory tests (one table per year and per disease/species)

Description of the used serological tests:

Description of the used microbiological or virological tests: Fluorescent Antibody Test (FAT) - test corresponds to the method prescribed in OIE Manual (2008). Test uses two anti-Rabies FITC conjugates (Bio-Rad Cat. No.72114 and Bioveta Cat. No. NP BI 262/89).

Virus isolation on cell culture (CC) - Test corresponds to the method prescribed in OIE Manual (2008). Test uses Murine neuroblastoma cell line (MNA).
Polymerase chain reaction (RT-PCR) - Main reference: Heaton et al., Heminested PCR Assay for Detection of Six Genotypes of Rabies and Rabies-Related Viruses, Journal of Clinical Microbiology. Nov. 1997, p. 2762-2766.

Description of the other used tests:

Year: 2007	Disease ^(a) : rabies	Animal species/category ^(b) , domestic animals					
		Serological tests		Microbiological or virological tests		Other tests	
Region ^(c)		Number of samples tested ^(d)	Number of positive samples ^(e)	Number of samples tested ^(d)	Number of positive samples ^(e)	Number of samples tested ^(d)	Number of positive samples ^(e)
ESTONIA							
DOG				37	0		
CAT				103	0		
BOVINE				30	2		
HORSE				1	0		
OVINE				10	0		
CARPINE				3	0		
Total				184	2		

Year: 2008	Disease ^(a) : rabies	Animal species/category ^(b) , domestic animals					
		Serological tests		Microbiological or virological tests		Other tests	
Region ^(c)		Number of samples tested ^(d)	Number of positive samples ^(e)	Number of samples tested ^(d)	Number of positive samples ^(e)	Number of samples tested ^(d)	Number of positive samples ^(e)
ESTONIA							
DOG				32	1		
CAT				67	0		

BOVINE					24	0
HORSE					1	0
OVINE					12	1
CAPRINE					1	0
Total					137	2

Year: 2009 Region ^(a)	Disease ^(a) , rabies	Animal species/category ^(b) ; domestic animals				
		Number of samples tested ^(d)	Number of positive samples ^(e)	Number of samples tested ^(d)	Number of positive samples ^(e)	Number of positive samples ^(e)
ESTONIA	DOG			24	0	
	CAT			39	0	
	BOVINE			9	0	
	HORSE			1	0	
	OVINE			1	0	
Total			77	0	0	

- (a) Disease and animal species if necessary.
- (b) Breeders, laying hens, etc. when appropriate
- (c) Region as defined in the approved eradication programme of the Member State.
- (d) Number of samples tested, all confounded.
- (e) Number of positive samples, all confounded.

6.3. Data on infection (one table per year and per disease/species)

Year: 2007	Disease ^(a) : rabies	Animal species: farm animals	Region ^(b)	Number of herds infected ^(c)	Number of animals infected
			ESTONIA	2	2
		BOVINE ANIMALS		2	2
		Total		2	2

Year: 2008	Disease ^(a) : rabies	Animal species: farm animals	Region ^(b)	Number of herds infected ^(c)	Number of animals infected
			ESTONIA	1	1
		SHEEP		1	1
		Total		1	1

Year: 2009	Disease ^(a) : rabies	Animal species: farm animals	Region ^(b)	Number of herds infected ^(c)	Number of animals infected
			ESTONIA	0	0
		Total		0	0

(a) Disease and animal species if necessary;

(b) Region as defined in the eradication programme of the Member State;

(c) Herds equal flocks, or holdings as appropriate.

6.5. Data on vaccination or treatment programmes⁸

Description of the used vaccination, therapeutic or other scheme:

Due to improvement of rabies situation in recent years, legal bases in Regulation No. 67 of the Minister of Agriculture "Rabies Control Rules" of 20.11.2000 (RTL 2000, 120, 1876) concerning vaccination of domestic animals were changed in year 2009. (consolidated version of the Regulation is available in Estonian: <https://www.rigigataja.ee/ert/act.jsp?id=13248917>)

Animal owner is required to ensure that the cats and dogs belonging to him or her are vaccinated. Primary vaccination of dogs and cats takes place when animal is 3-4 months old. For decades as a rule, animals were revaccinated once a year, preferably after 12 months of the last vaccination. According to amendments in abovementioned regulation, since 20.07.09, it is allowed to make booster vaccination in accordance with instructions described in product information sheet of vaccine used, but interval between vaccinations can not be longer, than 24 months have passed from last vaccination. The vaccination of farm animals that graze on woodland pastures and pastures adjacent to forests is recommended. Animals are vaccinated by veterinary supervisory officials, authorized veterinary surgeons or licensed veterinarians. Since 18.12.09, it is compulsory to issue to animal owner after each vaccination an acknowledgment of vaccination (as a certificate, mark in passport e.c.) were vaccination date and revaccination date will be designated. This document should be retained at least until revaccination of the animal.

In longer perspective, there exists possibility, that when Estonia obtains rabies free status, the vaccination of pet animals remain compulsory, the vaccine and vaccination will not be covered by the state budget anymore, but the animal owner will bear all the costs. For vaccination inactivated adjuvanted vaccine (Rabisin) against rabies is used mainly, as a vaccine procured for implementing the State Program on Monitoring and Surveillance of Animal Infectious Diseases. but also other rabies vaccines registered by State Agency of Medicines could be exploited by licensed veterinarians.

⁸ Data to provide, where appropriate for Bovine brucellosis, IBR/IPV (AI + embryo units), Ovine and caprine brucellosis (*B. melitensis*), Aujeszky's disease, *Salmonella pullorum*, *Salmonella gallinarum*, Anthrax, IBR/IPV (other types of entraprise), Johnes disease (paratuberculosis), *Mycoplasma gallisepticum*, heartwater transmitted by vector insects in the French overseas departments, babesiosis transmitted by vector insects in the French overseas departments, anaplasmosis transmitted by vector insects in the French overseas departments, Bluetongue in endemic or high risk areas, Rabies, Echinococcosis and salmonellosis (zoonotic salmonella) and agents thereof.

Year: 2007

Disease^(a): rabies

Animal species: name of the species is given in the column named region

Region ^(b)	Total number of herds ^(c)	Total number of animals	Information on vaccination or treatment programme						
			Number of herds ^(d) in vaccination or treatment programme	Number of herds ^(d) vaccinated or treated	Number of animals vaccinated or treated	Number of doses of vaccine or treatment administered	Number of adults ^(e) vaccinated	Number of young ^(e) animals vaccinated	
ESTONIA									
DOGS		UNKNOWN			73 888	73 888			
CATS		UNKNOWN			42 097	42 097			
OTHER DOMESTIC ANIMALS					1 334	1 334			
Total					117 319	117 319			

Year: 2008

Disease^(a): rabies

Animal species: name of the species is given in the column named region

Region ^(b)	Total number of herds ^(c)	Total number of animals	Information on vaccination or treatment programme						
			Number of herds ^(d) in vaccination or treatment programme	Number of herds ^(d) vaccinated or treated	Number of animals vaccinated or treated	Number of doses of vaccine or treatment administered	Number of adults ^(e) vaccinated	Number of young ^(e) animals vaccinated	
ESTONIA									
DOGS		UNKNOWN			73 251	73 251			
CATS		UNKNOWN			40 046	40 046			
OTHER DOMESTIC ANIMALS					418	418			
Total					113 715	113 715			

Year: 2009

Disease^(a): rabies

Animal species: name of the species is given in the column named region

Region ^(b)	Total number of herds ^(c)	Total number of animals	Information on vaccination or treatment programme						
			Number of herds ^(c) in vaccination or treatment programme	Number of herds ^(c) vaccinated or treated	Number of animals vaccinated or treated	Number of doses of vaccine or treatment administered	Number of adult ^(d) vaccinated	Number of young ^(d) animals vaccinated	
ESTONIA									
DOGS		UNKNOWN		70 272	70 272	70 272			
CATS		UNKNOWN		38 905	38 905	38 905			
OTHER DOMESTIC ANIMALS				346	346	346			
Total				109 523	109 523	109 523			

(a) Disease and species if necessary

(b) Region as defined in the approved eradication programme of the Member State

(c) Herds equal flocks, or holdings as appropriate

(d) Only for Bovine brucellosis, Ovine and caprine brucellosis (*B. melitensis*) and zoonotic salmonella, and as defined in the programme

6.6. Data on wildlife⁹

6.6.1. Estimation of wildlife population

Year: 2007 2009 Method of estimation^(a): number of hunted animals per year

Regions ^(b)	Estimation of the population of the concerned wild species			
	Species: red fox	Species: racoon dog	Species:	Species:
Estonia 2007	5 986	7 994		
Estonia 2008	12 712	8 728		
Estonia 2009	7 472	9 495		
Total	26 170	26 217		

- (a) The hunting bag is considered to be the standard method of estimation. If other method is used, explain
 (b) Region as defined in the approved eradication programme of the Member State

⁹ Data to provide for Bovine brucellosis, Ovine and caprine brucellosis (*B. melitensis*), Aujeszky's disease, African Swine fever, swine vesicular disease, endemic classical swine fever, Rabies, Echinococcosis and trichinellosis and agents thereof.

6.6.2. Monitoring of wildlife (one table per year and per disease/species)

Description of the used serological tests: The enzyme-linked immuno-sorbent assay (ELISA) technique for testing of wildlife sera after oral vaccination - Platelia Rabies II (registered diagnostic kit certified by the OIE as validated fit for the purpose 05-Jul-2007).

Description of the used microbiological or virological tests: **Fluorescent Antibody Test (FAT), Virus isolation on cell culture (CC), Polymerase chain reaction (RT-PCR).**

Description of the other used tests: **Detection of tetracycline in teeth and bone specimenes by fluorescence.**

Year: 2007 Disease^(a): rabies Animal species: wild animals

Region ^(b)	Microbiological or virological tests (FAT) Number of samples tested	Number of positive samples	Serological tests (ELISA) Number of samples tested	Number of positive samples	Other tests (tetracycline assessment) Number of samples tested	Number of positive samples
Estonia						
Red fox	83	0	280	94	1 255	1 070
Raccoon dog	75	1	316	119	1 627	1 349
Lynx	2	0				
Marten	7	0				
Ferret	1	0				
European mink	1	0				
Otter	1	0				
Wild boar	1	0				
Roe deer	11	0				
Badger	3	1				
Rat	3	0				
Mouse	1	0				
Total	189	2	596	213	2 882	2 419

Year: 2008 Disease^(a): rabies Animal species: wild animals

Region ^(b)	Microbiological or virological tests (FAT) Number of samples tested	Number of positive samples	Serological tests (ELISA) Number of samples tested	Number of positive samples	Other tests (tetracycline assessment) Number of samples tested	Number of positive samples
Estonia						
Fox	80	1				
Raccoon dog	66	0				
Fox (vaccination assessment)	1727	0	929	472	1 727	1 599

	Raccoon dog(vaccination assessment)	1734	0	985	1734	1520
Lyxix	2	0				
Marten	9	0				
Ferret	3	0				
Wild boar	2	0				
Roe deer	1	0				
Squirrel	4	0				
Beaver	2	0				
Bat	1	0				
Weasel	1	0				
Total	3 632	1	1 914	3 461	3 119	

Year: 2009 Disease^(a): rabies Animal species: wild animals

Region ^(b)	Microbiological or virological tests (FAT)		Serological tests (ELISA)		Other tests (tetraacycline assessment)	
	Number of samples tested	Number of positive samples	Number of samples tested	Number of positive samples	Number of samples tested	Number of positive samples
Estonia						
Fox	72	3				
Raccoon dog	64	0				
Fox (vaccination assessment)	783	0	647	310	1131	1 033
Raccoon dog(vaccination assessment)	973	0	1091	513	1 880	1 617
Marten	4	0				
Wild boar	1	0				
Roe deer	1	0				
Mink	4	0				
Stoat (ermine)	1	0				
Ferret	1	0				
Badger	1	0				
Bat	1	0				
Rat	1	0				
Weasel	1	0				
Hedgehog	2	0				
Total	1910	3	1 738	823	3 011	2 650

(a) Disease and species if necessary

(b) Region as defined in the approved eradication programme of the Member State

6.6.3. Data on vaccination or treatment of wildlife

Year: 2007

Disease^(a): rabies

Description of the used vaccination, therapeutic or other scheme:

Animal species: red fox and racoon dog

Vaccination area covered total territory of Estonia (45 227 sq km), except densely populated urban areas, roads, water bodies and wet fields (approximately 43 000 sq km of territory suitable for bait-dropping). Spring vaccination was carried out from 22nd April to 15th May and autumn campaign from 10th September to 16th October 2007. Total quantity of vaccine baits per two campaigns was 1 716 800 baits, Rabigen SAG2 baits were used. Distribution was done from the air using aircrafts type Cessna-172, baits were dropped by trained personnel manually. An average baiting density was 20 baits/km², distance between dropping lines is ~ 500-600 m. No additional manual distribution of baits on land was embodied.

Region ^(a)	Square km	Vaccination or treatment programme		
		Number of doses of vaccine or treatment to be administered	Number of campaigns	Total number of doses of vaccine or treatment administered
Total territory of Estonia - spring	43 000	853 600	1	853 600
Total territory of Estonia - autumn	43 000	863 200	1	863 200
Total	86 000	1 716 800	2	1 716 800

* Prior the campaigns from every vaccine batches 10 baits were sent to AFSSA in France to control vaccine titre.

Year: 2008

Disease^(a): rabies

Description of the used vaccination, therapeutic or other scheme:

Animal species: red fox and racoon dog

Vaccination area covered total territory of Estonia (45 227 sq km), except densely populated urban areas, roads, water bodies and wet fields (approximately 43 000 sq km of territory suitable for bait-dropping). Spring vaccination was carried out from 12th May to 3rd June and autumn campaign from 8th September to 2nd October 2008. Total quantity of vaccine baits per two campaigns was 1 720 400 baits, Rabigen SAG2 baits were used. Distribution was done from the air using aircrafts type Cessna-172, baits were dropped by trained personnel manually. An average

baiting density was 20 baits/km², distance between dropping lines is ~ 500-600 m. No additional manual distribution of baits on land was embodied.

Region ^(a)	Square km	Vaccination or treatment programme		
		Number of doses of vaccine or treatment to be administered	Number of campaigns	Total number of doses of vaccine or treatment administered
Total territory of Estonia - spring	43 000	860 000	1	860 000
Total territory of Estonia - autumn	43 000	860 400	1	860 400
Total	86 000	1 720 400	2	1 720 400

* Prior the campaigns from every vaccine batches 10 baits were sent to APSSA in France to control vaccine titre.

Year: 2009

Disease^(b): rabies

Animal species: red fox and racoon dog

Description of the used vaccination, therapeutic or other scheme:

Vaccination area covered total territory of Estonia (45 227 sq km), except densely populated urban areas, roads, water bodies and wet fields (approximately 43 000 sq km of territory suitable for bait-dropping). Spring vaccination was carried out from 1st May to 2nd June and autumn campaign from 12th September to 11th October 2008. Total quantity of vaccine baits per two campaigns was 1 720 000 baits, Rabigen SAG2 baits were used. Distribution was done from the air using aircrafts type Cessna-172, baits were dropped by trained personnel manually. An average baiting density was 20 baits/km², distance between dropping lines is ~ 500-600 m. No additional manual distribution of baits on land was embodied.

Region ²⁰	Square km	Vaccination or treatment programme		
		Number of doses of vaccine or treatment to be administered	Number of campaigns	Total number of doses of vaccine or treatment administered
Total territory of Estonia - spring	43 000	860 000	1	860 000
Total territory of Estonia - autumn	43 000	860 000	1	860 000
Total	86 000	1 720 000	2	1 720 000

* Prior the campaigns from every vaccine batches 10 baits were sent to AFSSA in France to control vaccine titre.

- (a) Disease and species if necessary
- (b) Region as defined in the approved eradication programme of the Member State

7. Targets

7.1. Targets related to testing

7.1.1. Targets on diagnostic tests

See also comments on point 4.3.

In any case, when rabies suspicion is risen by authorized veterinarian or veterinary official, laboratory investigation will follow. Brain samples from 4 foxes or raccoon dogs per 100 km² will be collected by hunters (the priority categories for investigation are indicator animals, e.g. road kills, animals found dead) throughout the country. To control bait-uptake by target animals up to 8 foxes-raccoon dogs/100 km² will be hunted from areas of vaccination in year 2011 and head send to the laboratory for tetracycline detection, from ½ of these animals also blood sample will be collected to check seroconversion rate. In case of positive result, material will be passed to EU reference laboratory, to detect rabies virus strain.

Disease^(a), rabies 2011 Animal species: wild and domestic animals

Region ^(b)	Type of the test ^(c)	Target population ^(d)	Type of sample ^(e)	Objective ^(f)	Number of planned tests
Estonia	FAT	all animals with suspicion	brain tissue	confirmation of suspected cases	350
Estonia	PCR	all animals with suspicion	brain tissue	confirmation of suspected cases	100
Estonia	CC	all animals with suspicion	brain tissue	confirmation of suspected cases	100
Estonia	FAT	red fox, raccoon dog	brain tissue	surveillance, monitoring of campaigns	2 000
Estonia	TC detection	red fox, raccoon dog	mandibula, tooth	monitoring of campaigns	855
Estonia	ELISA	red fox, raccoon dog	blood sera	monitoring of campaigns	490
Estonia	PCR (sequencing)	red fox, raccoon dog	brain tissue	virus strain genotyping	10
Total					3 905

(a) Disease and species if necessary

(b) Region as defined in the approved eradication programme of the Member State

(c) Description of the test (for instance SN-test, AB-Elisa, RHT, ...)

(d) Specification of the targeted species and the categories of targeted animals (for instance sex, age, breeding animal, slaughter animal, ...).

(e) Description of the sample (for instance blood, serum, milk, ...)

(f) Description of the objective (for instance qualification, surveillance, confirmation of suspected cases, monitoring of campaigns, seroconversion, control on deleted vaccines, testing of vaccine, control of vaccination, ...)

7.3. Targets on vaccination or treatment

7.3.1. Targets on vaccination or treatment¹⁰

See comments on point 6.5.

Disease ^(a) : rabies	Animal species: domestic animals					Targets on vaccination or treatment programme			
	Total number of herds ^(b) in vaccination or treatment programme	Total number of animals in vaccination or treatment programme	Number of herds ^(c) in vaccination or treatment programme	Number of herds ^(c) of expected to be vaccinated or treated	Number of animals expected to be vaccinated or treated	Number of doses of vaccine or treatment expected to be administered	Number of adults ^(d) expected to be vaccinated	Number of young ^(e) animals expected to be vaccinated	
Estonia 2011					80 000	80 000			
Total					80 000	80 000			

(a) Disease and species if necessary

(b) Region as defined in the approved eradication programme of the Member State

(c) Herds or flocks or holdings as appropriate

(d) Only for Bovine brucellosis and Ovine, Caprine brucellosis (*B. melitensis*) as defined in the programme

¹⁰ Data to provide only if appropriate.

7.3.2. Targets on vaccination or treatment¹⁷ of wildlife

See comments on point 4.3.

Disease ^(a) ; rabies	Region ^(b)	Animal species: red fox and raccoon dog	Targets on the vaccination or treatment programme			
			Square km	Number of doses of vaccine or treatments expected to be administered in the campaign	Expected number of campaigns	Total number of doses of vaccine or treatment expected to be administered
	ESTONIA 2011 - buffer-zone along border with Russia and Latvia		9 400	188 000	2	376 000
	ESTONIA 2011- emergency vaccination in case of urgency		8 000	160 000	2	320 000
	Total		17 400	348 000		696 000

(a) Disease and species if necessary

(b) Region as defined in the approved eradication programme of the Member State

..... Data to provide only if appropriate

8. Detailed analysis of the cost of the programme

Year 2011	Costs related to	Specification	Number of units	Unitary cost in €	Total amount in €	Community funding requested (yes/no)
1. Testing						
1.1. Cost of the analysis						
		Test: FAT(fox, raccoon dog)	2 000	29,97	59 940	yes
		Test: ELISA (fox, raccoon dog)	490	21,54	10 555	yes
		Test: TC detection (fox, raccoon dog)	855	17,00	14 535	yes
		Test: FAT (all suspected animals)	350	29,97	10 490	yes
		Test: PCR (all suspected animals)	100	47,04	4 704	yes
		Test: cell culture (all suspected animals)	100	43,27	4 327	yes
		Test :PCR (sequencing - in the case of positive result)	10	127,82	1 278	yes
1.2. Cost of sampling		Hunting of foxes and raccoon dogs	2 360	9,42	22 231	yes
		Taking of blood sample	490	9,42	4 616	yes
1.3. Other costs		Transportation of samples	2 360	3,83	9 039	yes
		Autopsy (fox, raccoon dog)	2 000	5,82	11 640	yes
		Autopsy (all suspected animals)	350	23,14	8 099	yes
2. Vaccination or treatment						
2.1. Purchase of vaccine/treatment		Vaccine bats for wild animals	696 000	0,831	578 376	yes
2.2. Distribution costs		Aerial distribution (per km2)	34 800	4,48	155 904	yes
2.3. Administering costs						
2.4. Control costs						
3. Slaughter and destruction						
3.1. Compensation of animals						
3.2. Transport costs						
3.3. Destruction costs						
3.4. Loss in case of slaughtering						
3.5 Costs from treatment of products (milk, eggs, hatching eggs, etc)						
4. Cleaning and disinfection						
5. Salaries (staff contracted for the programme only)						

6. Consumables and specific equipment						
7. Other costs	Awareness campaign concerning OI	2	3 195,58	6 391		yes
	TOTAL			902 124		