



# Results of the implementation of the Rabies co-financed eradication programme in Hungary in 2009

Animal Health and Animal Welfare Directorate  
Central Agricultural Office, Hungary



# Distribution of the vaccines

- Target species: **Red fox** (*Vulpes vulpes*)
- 2 vaccination campaign:
  - Spring – early April
  - Autumn – early October
- Vaccinated area: **Specified part of the country (2x)**  
 $2 \times 46\,326 \text{ km}^2 = 92\,652 \text{ km}^2$
- Vaccine type: **Lysvulpen**
- Quantity (total): **1 853 100 doses**



# Distribution of the vaccines II



## Distribution:

### 98% by airplane:

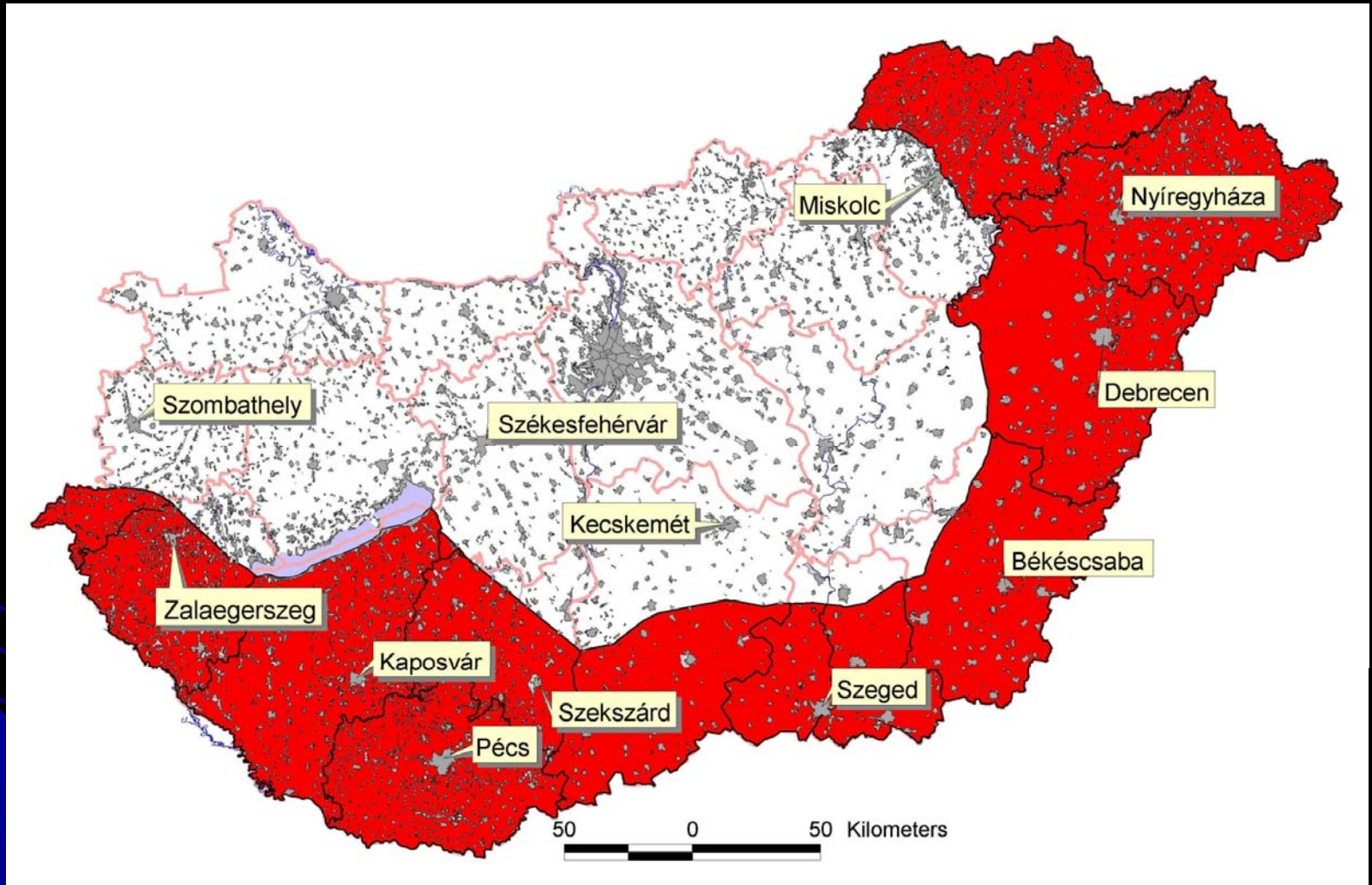
- GPS system, flying lines recorded by computer,
- Distance between flying lines 1000 m,
- Flying speed: 100-120 km/h,
- Density: **20 baits / km<sup>2</sup>** (gross)
- Flying lines rotated with 90° in the next campaign.

### 2% manually:

- Where flying not allowed or
- More targeted distribution needed,
- Carried out by qualified wild life biologists.



# Distribution of the vaccines III



Areas vaccinated in spring and autumn of 2009 (red colour)



# Control of vaccination

Number of foxes to be tested:

Year	Planned	Ratio
2009	7440	1 adult fox/25 km <sup>2</sup>

Implementation of sampling:

- Hunting period: 30 - 100 days after vacc. camp.  
(1/3 in Spring : 2/3 in Autumn)

Official hunters:

organized hunting + collection of dead foxes



# Control of vaccination II

## Laboratory background:

### Veterinary Diagnostic Directorate of the Central Agricultural Office:

- Budapest (National Reference Laboratory)
- Debrecen (regional laboratory)
- Kaposvár (regional laboratory)

## Applied tests:

- direct immunfluorescence of brain imprints,
- isolation of the virus in mice,
- isolation of the virus in neuroblastoma cell cultures,
- serological test (ELISA).



# Control of vaccination III



## Monitoring on efficiency of the oral immunization

- biomarker tetracycline test – test for bait uptake (only in NRL Budapest),
- RFFIT (Rapid Fluorescent Focus Inhibition Test) determination of the titre of antibodies of the rabies virus in the blood serum – test for immunisation,
- collection, handling and analysis of epidemiological data about diagnosed cases.



# Control of vaccination IV

Laboratory results in 2009 (in red foxes):

Virological tests:

Samples tested	Positive
7872	2

Serological tests:

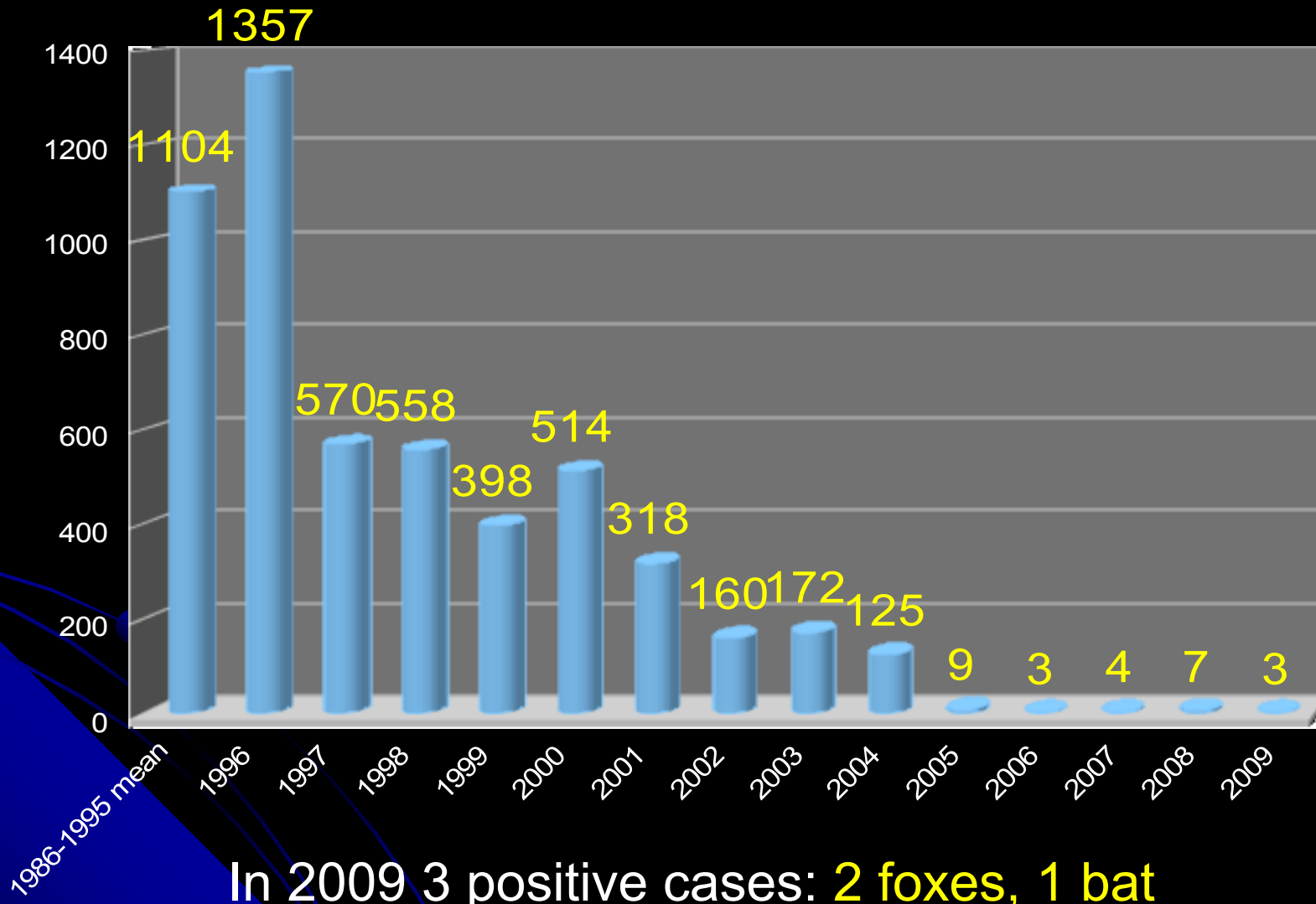
Samples tested	Positive
2033	586

Bone polishing:

Samples tested	Positive
3767	2273



# Rabies cases in Hungary



In 2009 3 positive cases: **2 foxes, 1 bat**



# Financial contribution

Costs of the Vaccination (without VAT):

**1 538 494 EUR**

Costs of the Testing (without VAT):

**358 466 EUR**

---

Total costs (without VAT):

**1 896 960 EUR**

Community co-financing (Commission Decision  
2008/897/EC as amended by 2009/858/EC):

**880 000 EUR**



**Thank you for your attention!**

