



Ministry of Agriculture

**RABIES ERADICATION
PROGRAMME IN HUNGARY
IMPLEMENTED IN 2017**

Meeting of the Standing Committee of Plants, Animals, Food and Feed
Brussels, 13-14 June 2018

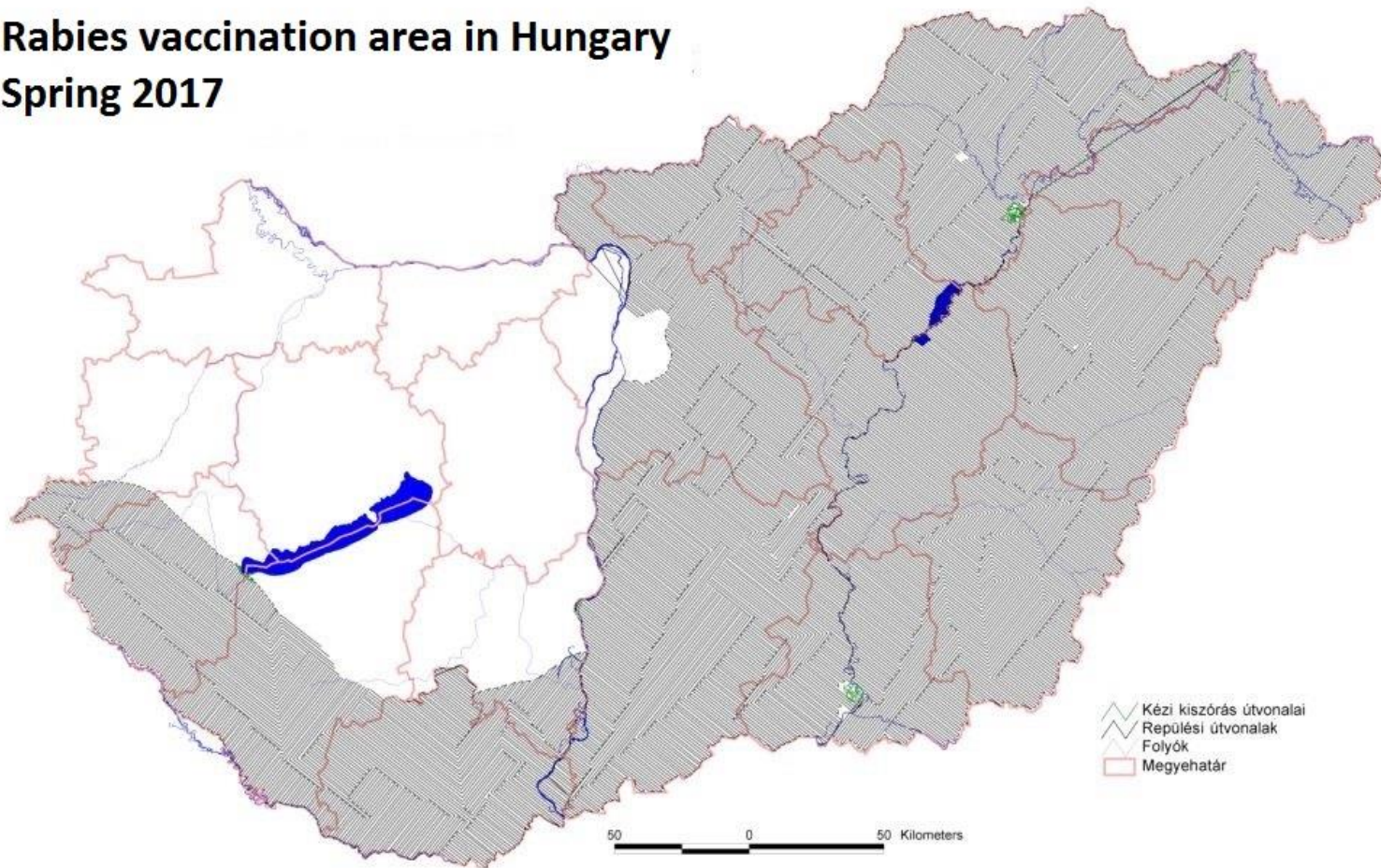


Rabies outbreaks – 2016-2017

- 2015 – no rabies cases in Hungary
 - **February 2016** – rabies was confirmed in a red fox in Borsod-Abaúj-Zemplén county
 - 2016 virus strain was different from 2013-2014 isolates
 - **March 2017** – rabies was confirmed in a red fox in Borsod-Abaúj-Zemplén county, only a few kilometres away from last year's case (fox showing abnormal behaviour)
 - 2 weeks later – rabies was confirmed in a goat and its kid (the farm is located close to the finding place of the rabid fox)
 - 2017 virus strain = 2016 virus strain (identical)
 - 2018 – no rabies cases in Hungary
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Area vaccinated in 2015-2017

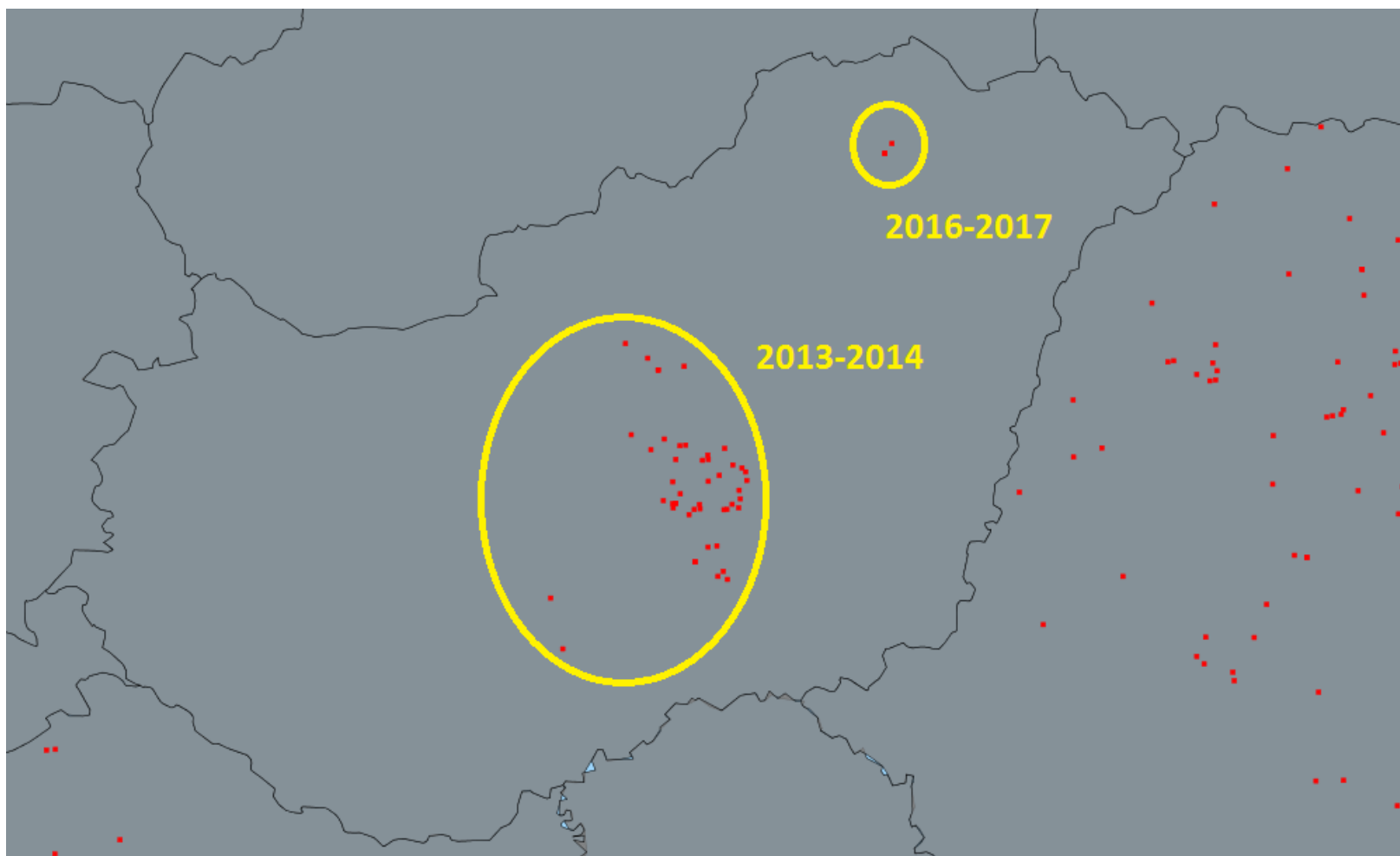
Rabies vaccination area in Hungary Spring 2017





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Rabies cases in Hungary, 2013-2014 and 2016-2017





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Rabies surveillance

Type of test	Number of FAT tests performed HUNGARY	Number of FAT tests performed B-A-Z county	Number of positive samples
2015 active surv. (fox)	2612	203	0
2015 passive surv. (all species)	1058	61	0
2016 active surv. (fox and jackal)	3072	280	0
2016 passive surv. (all species)	1087	84	1 (fox)
2017 active surv. (fox and jackal)	2875	316	0
2017 passive surv. (all species)	1198	123	3 (1 fox, 2 goat)



Oral immunisation programme

- Target species: **Red fox** (*Vulpes vulpes*) (+ golden jackal)
 - 2017-2019 multiannual programme
 - 2 vaccination campaigns: spring (April)/autumn (October)
 - Vaccinated area: specified part of the country
 - Vaccine type: SAD Bern - Lysvulpen® vaccine (Bioveta)
 - Distribution: aerial (99,7%) + manual (0,3%)
 - Sampling: performed by hunters (hunting organisations)
 - Hunting period: 30 - 100 days after vaccination campaign
 - Control of efficiency of vaccination (biomarker -TC, serology)
 - Rabies surveillance (immunofluorescent test)
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Activities in 2017- Distribution of vaccines

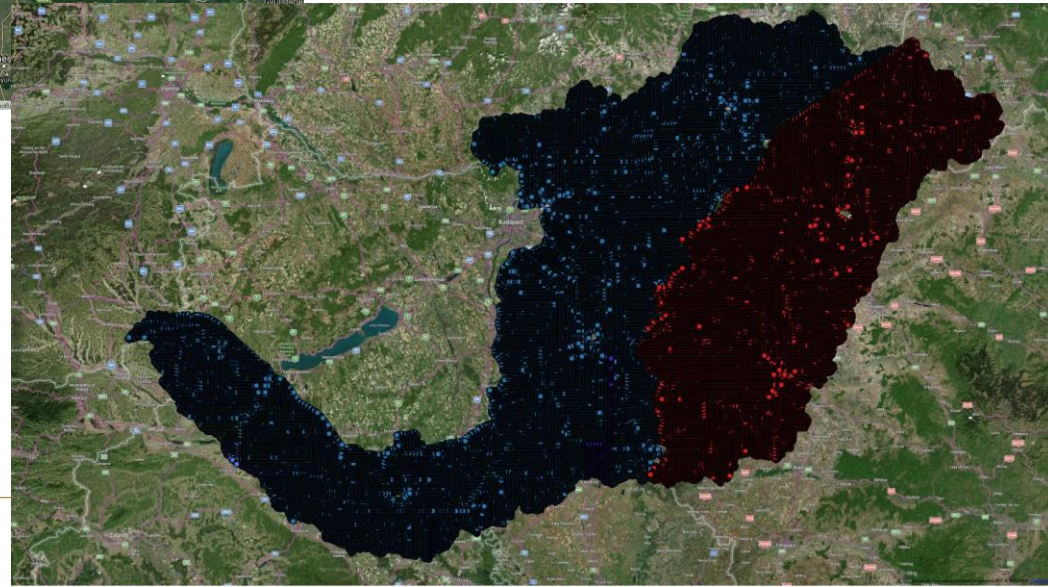
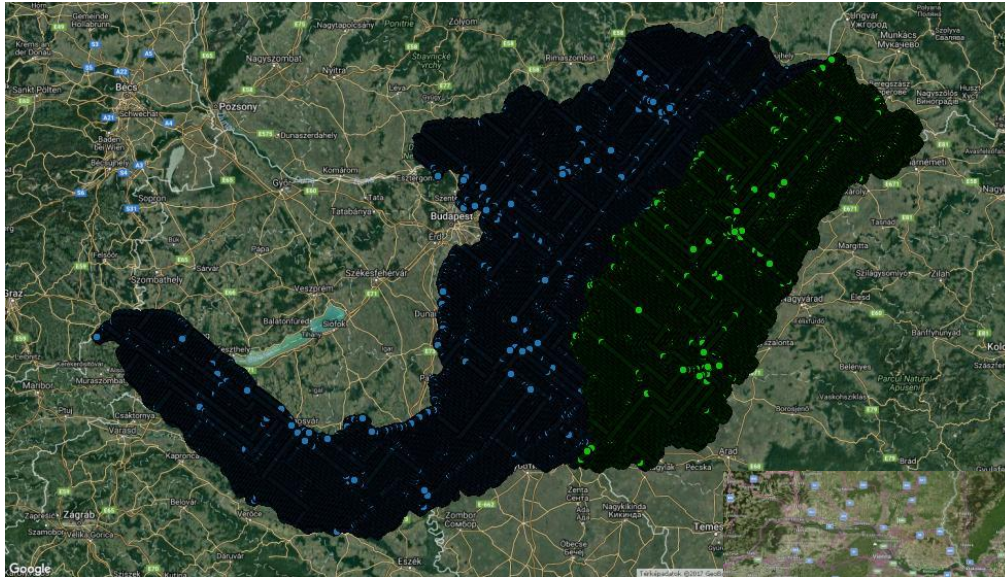
Area covered by vaccination (km ²)	Flight distance/ bait density	Number of baits distributed	Number of campaigns	Total number of baits distributed
66 884	1000 m/ 20 baits/km ²	1 337 680	2	2 675 360



Activities in 2017- Distribution of vaccines



Activities in 2017- Distribution of vaccines





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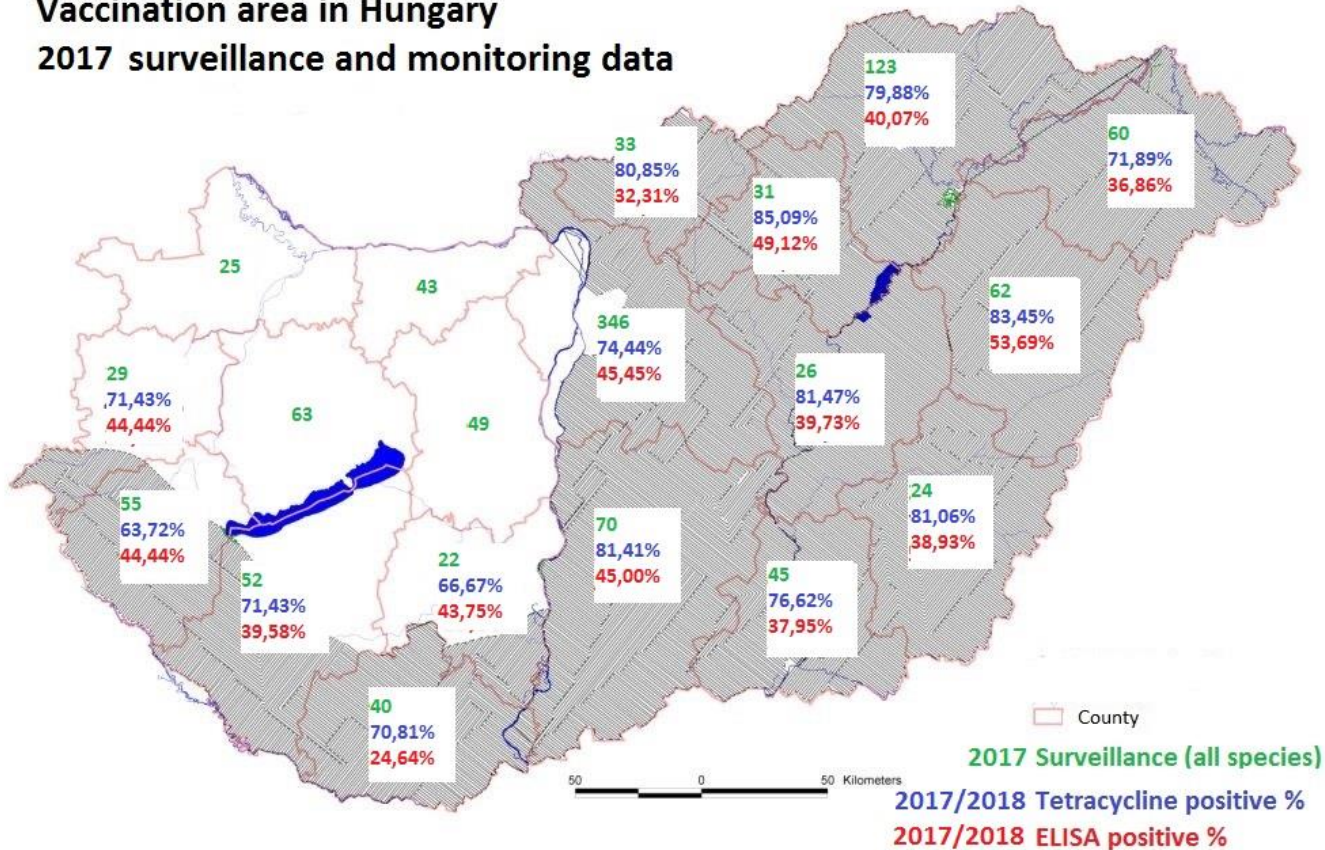
Results 2017/2018 hunting year - fox

Type of test	Type of sample	Number of tests performed	Number of positive samples
Virological test Immunofluorescence test (FAT)	Brain (red fox)	2767	0 (0,00%)
Bone polishing (Tetracycline detection)	Mandible (red fox)	2781	2164 (77,81%)
Serological test AB-ELISA	Blood (red fox)	2159	892 (41,32%)



Results 2017/2018 hunting year – fox

Vaccination area in Hungary 2017 surveillance and monitoring data





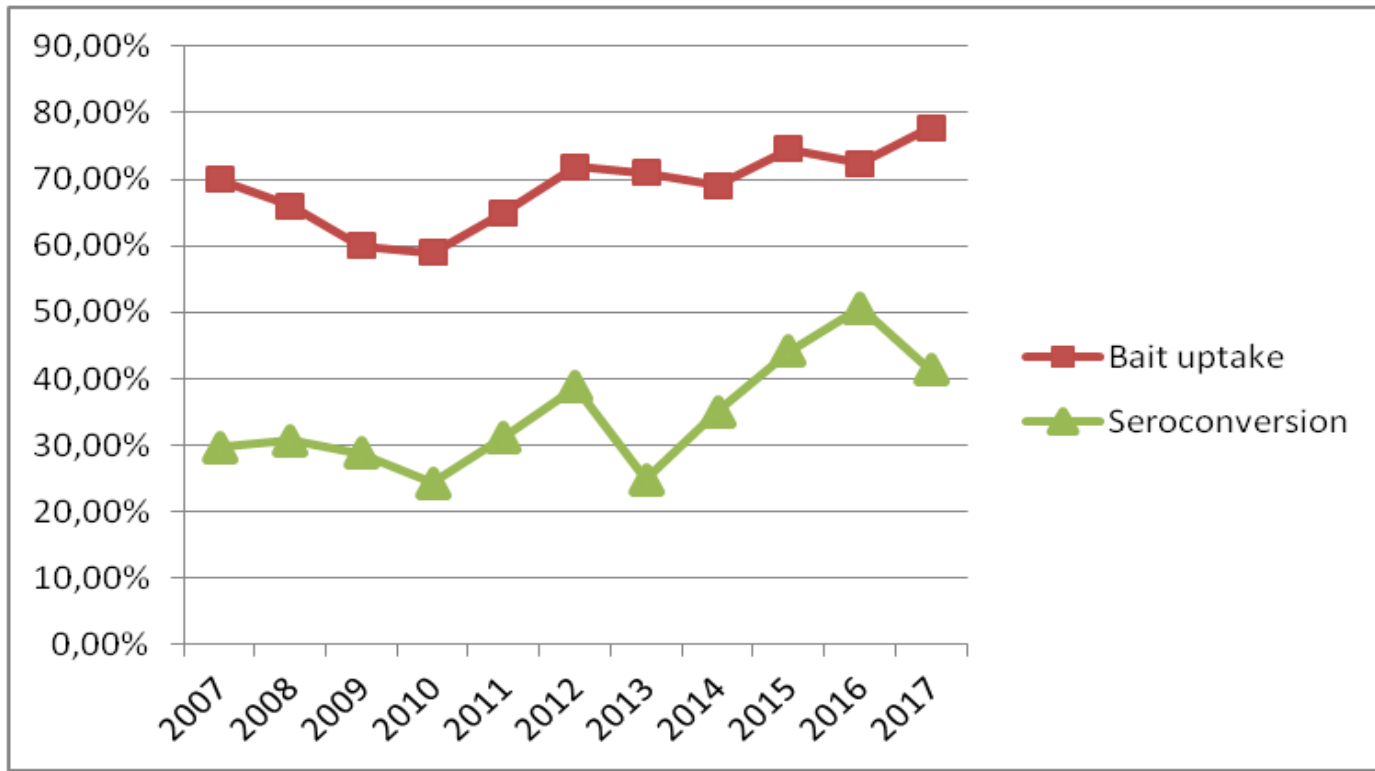
Age distribution (fox)

Tetracycline, fox	Nr of samples	Positive	%
Juvenile	1868	1292	69,16
Adult	913	872	95,51
Total	2781	2164	77,81

ELISA, fox	Nr of samples	Positive	%
Juvenile	1473	522	35,44
Adult	686	370	53,94
Total	2159	892	41,32



Improvement





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Results 2017/2018 hunting year – jackal

Type of test	Type of sample	Number of tests performed	Number of positive samples
Virological test Immunofluorescence test (FAT)	Brain (jackal)	108	0 (0,00%)
Bone polishing (Tetracycline detection)	Mandible (jackal)	109	83 (76,15%)
Serological test AB-ELISA	Blood (jackal)	59	16 (27,12%)

	Nr.	Avg. cost	Unit cost	Ceiling	Total cost (actual)	EU contribution (uc/cg, 75%)
Sampling	2544	22,43 €	-	15,00 €	57 053 €	28 620 €
Serological tests	2143	-	15,24 €	-	32 659 €	24 494 €
Biomarker (TC)	2762	4,22 €	-	10,0 €	11 654 €	8 740 €
Fluoresc. ab tests (all)	3948	-	13,09 €	-	51 679 €	38 759 €
Vaccine - titration	18	106,81€	-	100,0 €	1923 €	1350 €
Vaccine - purchase	2 675 360	0,25 €	-	0,28 €	657 847 €	493 385 €
Vaccine - distribution	2 675 360	0,41 €	-	0,47 €	1 088 127 €	816 095 €
Awareness					157 131 €	117 849 €
TOTAL					2 058 074 €	1 529 293 €



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Oral vaccination programme in Ukraine





Oral vaccination programme in Ukraine

The buffer zone in Ukraine covers:

- 1) Zakarpattia Oblast: Berehovskiy, Vynohradivskiy, Irshavskiy, Mizhhirskiy, Mukachevskiy, Rakhivskiy, Tyachivskiy, Uzhgorodskiy and Khustskiy Raion (7.600 km²).
- 2) Ivano-Frankivska Oblast: Rozhnyativskiy, Dolynskiy, Nadvirnanskiy Raion and the city Bolekhiv (2.600 km²)

25 baits/km² (255.000 baits/campaign)

1 vaccination campaign performed in September 2017



Oral vaccination programme in Ukraine

Monitoring of vaccination effectiveness

	Foxes tested for tetracycline (% positive)	Foxes tested for antibodies (% positive)	Number of rabies cases in 2017
Zakarpattya	90 juvenile (67,77%) 133 adults (68,42%)	48 (39,58%)	6 (5 dogs, 1 cat)
Ivano-Frankivsk	37 juvenile (64,86%) 52 adults (73,07%)	69 (49,27%)	15 (13 foxes, 2 cats)



Oral vaccination programme in Ukraine

Cost of the oral vaccination programme in the buffer zone

- 7 154 874 UAH (excl. VAT)
 - 214 860,87 EUR (1 UAH = 0,03 EUR)
 - 255 000 doses
 - Actual cost: 0,84 EUR/dose (excl. VAT)
 - Ceiling: 0,95 EUR/dose
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**Thank you for your
attention!**

