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**RABIES ERADICATION
PROGRAMME IN
HUNGARY**

16th May 2017

Area vaccinated in 2015-2017

Tervezett immunizálási útvonalak 2016 tavaszán





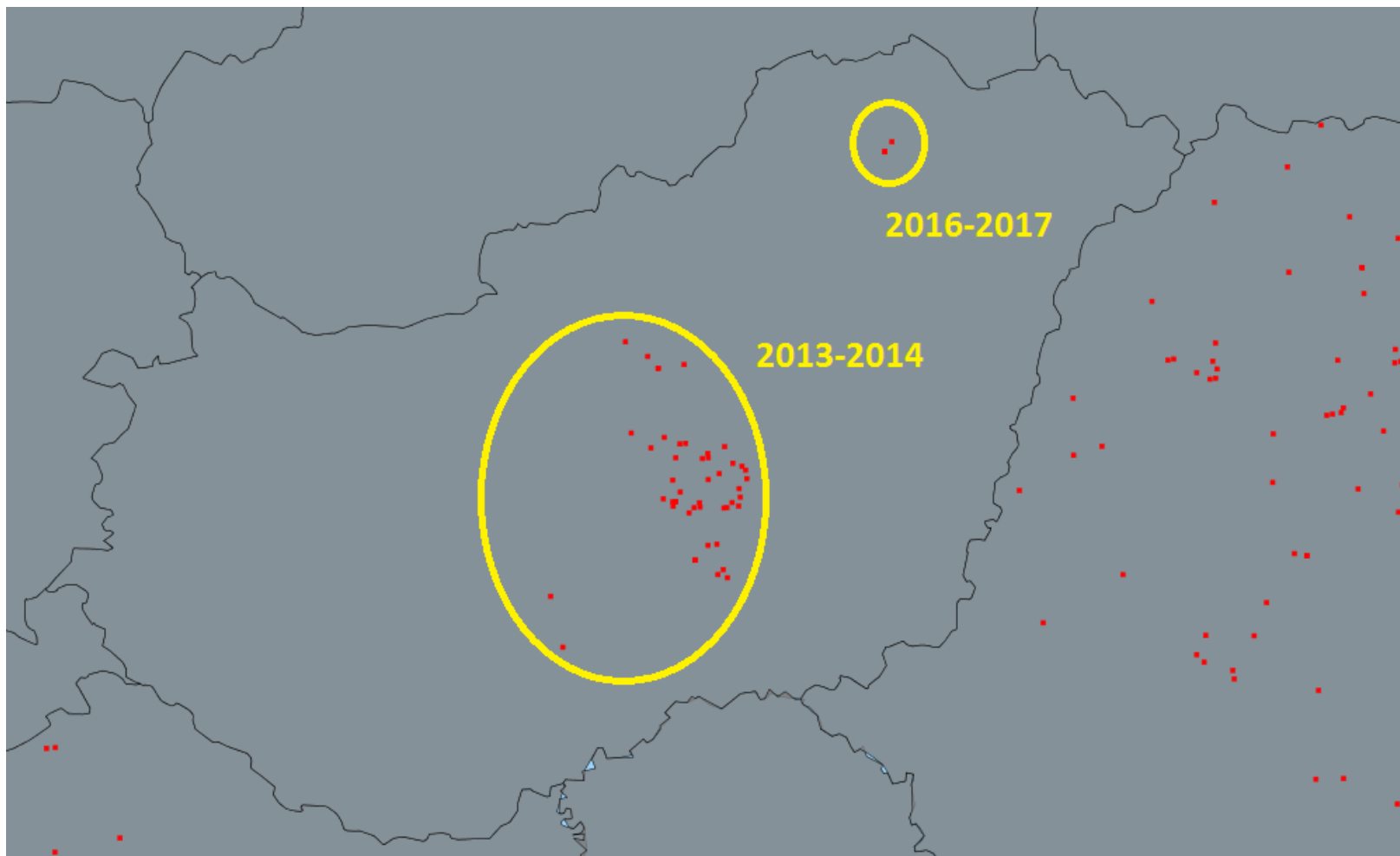
Rabies outbreak - 2016-2017

- February 2016 - rabies in a **red fox** in Borsod-Abaúj-Zemplén county
 - The case occurred within the vaccinated area (cca 40 km from SK, 75 km from UA border)
 - The virus strain isolated from the sample is different from the strain detected during the 2013-2014 rabies epidemic in Hungary
 - Emergency vaccination (40 baits/km²) was implemented along with the 2016 spring campaign within a 50 km radius circle around the outbreak
 - Enhanced surveillance: Increased number of samples (shot red foxes) from the area in 2016
 - March 2017 - rabies in a **red fox** in Borsod-Abaúj-Zemplén county (a few kilometres away from last year's case)
 - 2 weeks later - rabies 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)
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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) (Jan-Apr)	948	108	0
2017 passive surv. (all species) (Jan-Apr)	478	62	3 (1 fox, 2 goat)



Oral immunisation programme

- Target species: **Red fox** (*Vulpes vulpes*) (+ golden jackal)
- 2015-2016 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 (0,03%)
- 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)



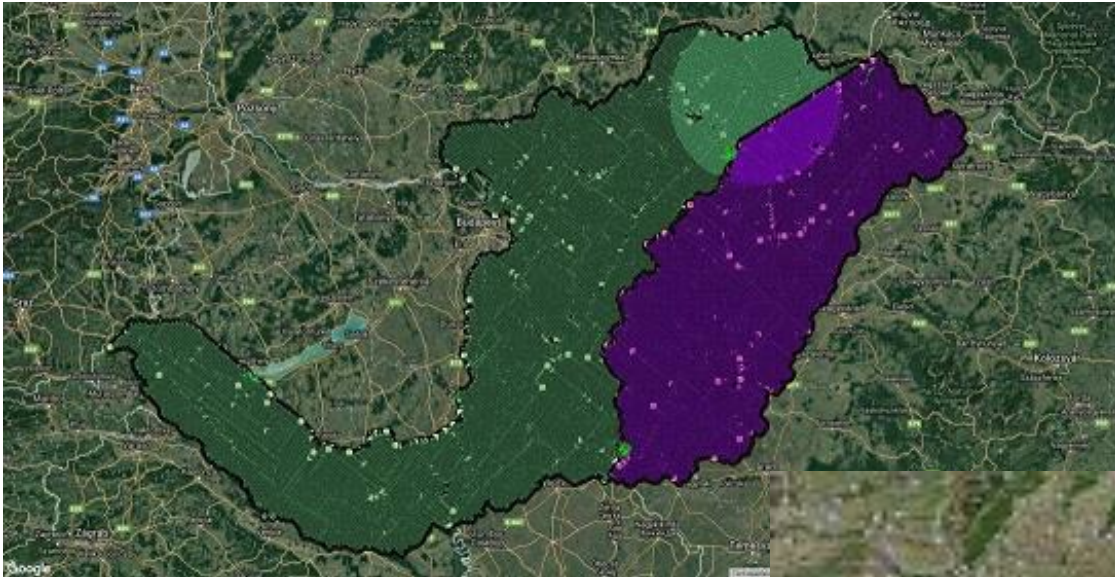
Activities in 2016- Distribution of vaccines

	Area covered by vaccination (km ²)	Flight distance/ bait density	Number of baits distributed	Number of campaigns	Total number of baits distributed
Regular vaccination	66 884	1000 m/ 20 baits/km ²	1 337 680	2	2 675 360
ERV/2016 spring	7 127	500 m/ +20 baits/km ²	142 540	1	142 540
Total:	66 884				2 817 900

Activities in 2016- Distribution of vaccines



Activities in 2016- Distribution of vaccines





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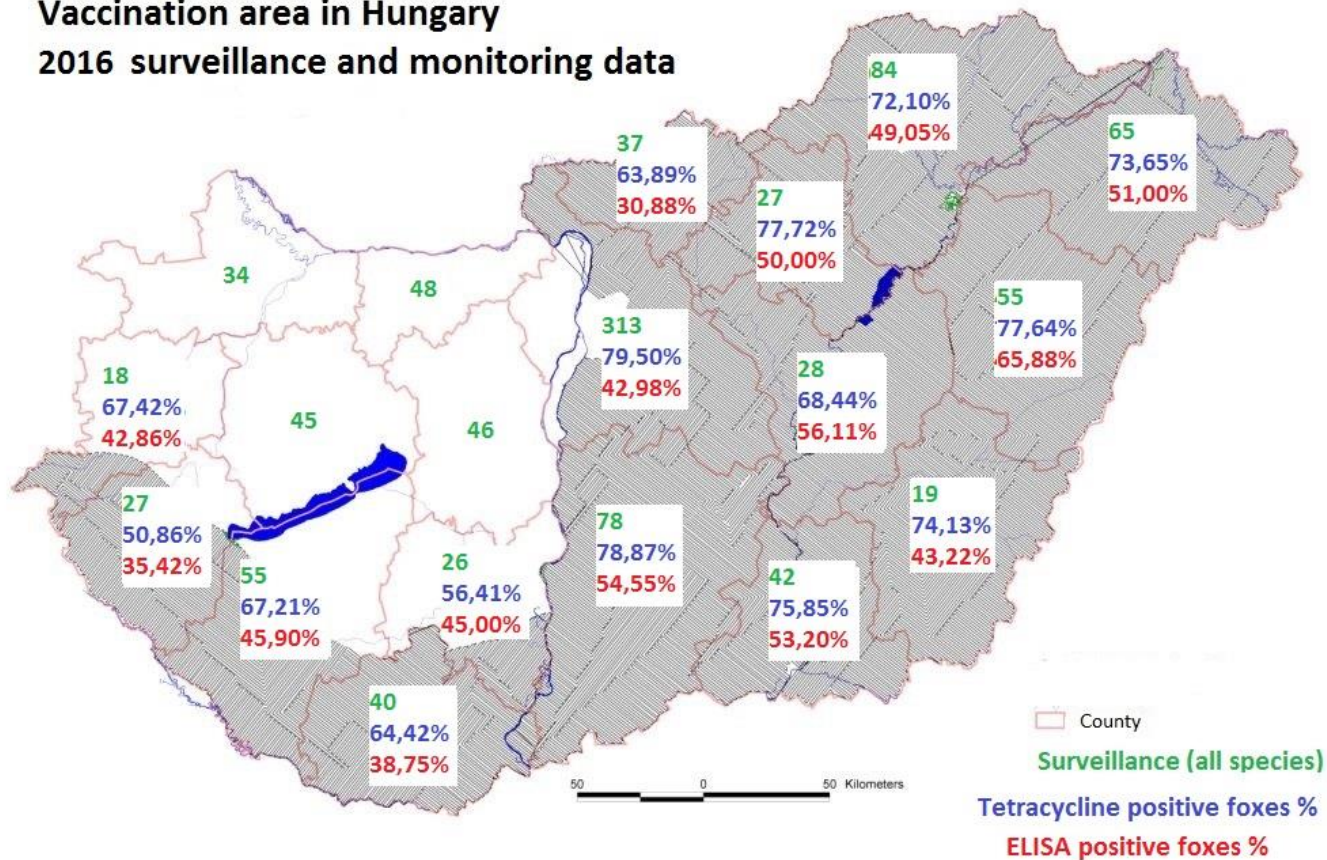
Results 2016/2017 hunting year - fox

Type of test	Type of sample	Number of tests performed	Number of positive samples
Virological test Immunofluorescence test (FAT)	Brain (red fox)	2998	0 (0,00%)
Bone polishing (Tetracycline detection)	Mandible (red fox)	3047	2209 (72,50%)
Serological test AB-ELISA	Blood (red fox)	2451	1240 (50,59%)



Results 2016/2017 hunting year – fox

Vaccination area in Hungary 2016 surveillance and monitoring data





Age distribution (fox)

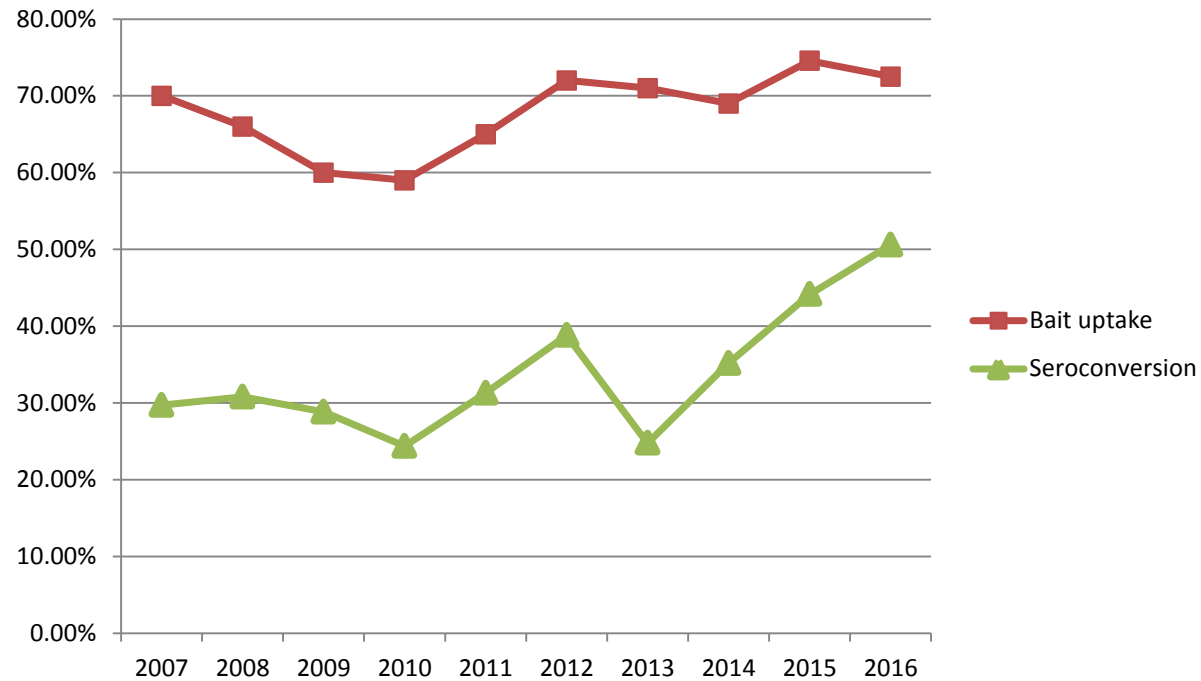
Tetracycline, fox	Nr of samples	Positive	%
Juvenile	1979	1231	62,20
Adult	1068	978	91,57
Total	3047	2209	72,50

ELISA, fox	Nr of samples	Positive	%
Juvenile	1612	737	45,72
Adult	839	503	59,95
Total	2451	1240	50,59



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Improvement





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Results 2016/2017 hunting year – jackal

Type of test	Type of sample	Number of tests performed	Number of positive samples
Virological test Immunofluorescence test (FAT)	Brain (red fox)	74	0 (0,00%)
Bone polishing (Tetracycline detection)	Mandible (red fox)	73	52 (71,23%)
Serological test AB-ELISA	Blood (red fox)	43	18 (41,86%)



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Awareness

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www.veszettsegmentesites.hu

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A VESZETTSÉG JÁRVÁNYTANA

- ▶ Előfordulás, magyarországi járványtani helyzet
- ▶ Kórokozó, kórfejlődés

A VESZETTSÉG KÖZEGÉSZSÉGÜGYI VONATKOZÁSAI

- ▶ Mit tegyek, ha egy kutya, macska vagy egyéb állat megharapott?
- ▶ Háziállatok vesztség elleni védőoltása

A VESZETTSÉG TÜNETEI

- ▶ Róka
- ▶ Egyéb vadállat
- ▶ Háziállatok
- ▶ Denevér

RÓKÁK VESZETTSÉG ELLENI IMMUNIZÁLÁSI PROGRAMJA MAGYARORSZÁGON >

MIT TEGYEK, HA RÓKÁT LÁTTAM A LAKÓKÖRNYEZETEMBEN? >

GYAKRAN ISMÉTELT KÉRDÉSEK >

A vesztségmentesítési program

veszettsegmentesites.hu

	Nr.	Avg. cost	Unit cost	Ceiling	Total cost (actual)	EU contribution (uc/cg, 75%)
Sampling	2974	22,76 €	-	15,00 €	67 674 €	33 458 €
Serological tests	2624	-	15,24 €	-	39 990 €	29 992 €
Biomarker (TC)	3233	4,78 €	-	10,0 €	15 449 €	11 587 €
Fluoresc. ab tests (all)	4296	-	13,09 €	-	56 235 €	42 176 €
Vaccine - titration	24	54,19 €	-	100,0 €	1300 €	975 €
Vaccine - purchase	2 817 900	0,25 €	-	0,28 €	703 055 €	527 291 €
Vaccine - distribution	2 817 900	0,41 €	-	0,47 €	1 162 255 €	871 691 €
Awareness	1		25 144,66 €		25 144,66 €	18 858 €
TOTAL					2 071 103 €	1 536 029 €



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Oral vaccination programme in Ukraine





Oral vaccination programme in Ukraine

The buffer zone in Ukraine covers:

- 1) Zakarpattia Oblast: Berehovskiyi, Vynohradivskiyi, Irshavskiyi, Mizhhirskiyi, Mukachevskiyi, Rakhivskiyi, Tyachivskiyi, Uzhgorodskiyi and Khustskiyi Raion (7.600 km²).
- 2) Ivano-Frankivska Oblast: Rozhnyativskiyi, Dolynskiyi, Nadvirnanskyi Raion and the city Bolekhiv (2.600 km²)

25 baits/km² (255.000 baits/campaign)

1 vaccination campaign performed in October 2016



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Oral vaccination programme in Ukraine

Area and baits 2016	Planned	IT expert report 2016 autumn	Final report
Size of vaccination area (km ²)	10.200	14.865 - 500 - water&urban areas = cca 13.000	10.200
No. of baits (per campaign)	255.000	324.216	255.000

Monitoring off vaccination effectiveness	Foxes tested for tetracycline (% positive)	Foxes tested for antibodies (% positive)	Number of rabies cases in 2016
Zakarpattia	36 juvenile (78,1%) 60 adults (73,3%)	25 (16%)	10 (7 dogs, 2 cats, 1 cattle)
Ivano-Frankivsk	21 juvenile (71,7%) 32 adults (71,8%)	29 (31%)	15 (11 foxes, 2 dogs, 2 cats)



Oral vaccination programme in Ukraine

Cost of the oral vaccination programme in the buffer zone

- 7 273 875 UAH (excl. VAT)
 - 254 686,70 EUR (1 UAH = 0,03501 EUR)
 - 255 000 doses
 - 1 EUR/dose
 - Ceiling: 0,95 EUR/dose
 - Eligible: 242 250 EUR
-



Oral vaccination programme in Ukraine

Conclusions, recommendations

- Size of the administrative areas listed in the Agreement is not the same as the „area to be vaccinated” (= 10.200 km²) - OK
 - BUT according to 2016 GPS data, the vaccination area and the amount of vaccine used during 1 campaign was more than planned
 - Reconsider the size of „area to be vaccinated” in order to better estimate the necessary amount of vaccines
 - More frequent exchange of technical information
 - Reporting deadlines to be taken more seriously
 - Claimed amount - VAT should not be included
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Thank you for your
attention!

