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43rd General Session of the EuFMD

TURKEY FMD&FASTs SITUATION AND CONTROL STRATEGIES IMPLEMENTED

On Behalf of **Dr. Nihat Pakdil**, CVO

A.Naci BULUT

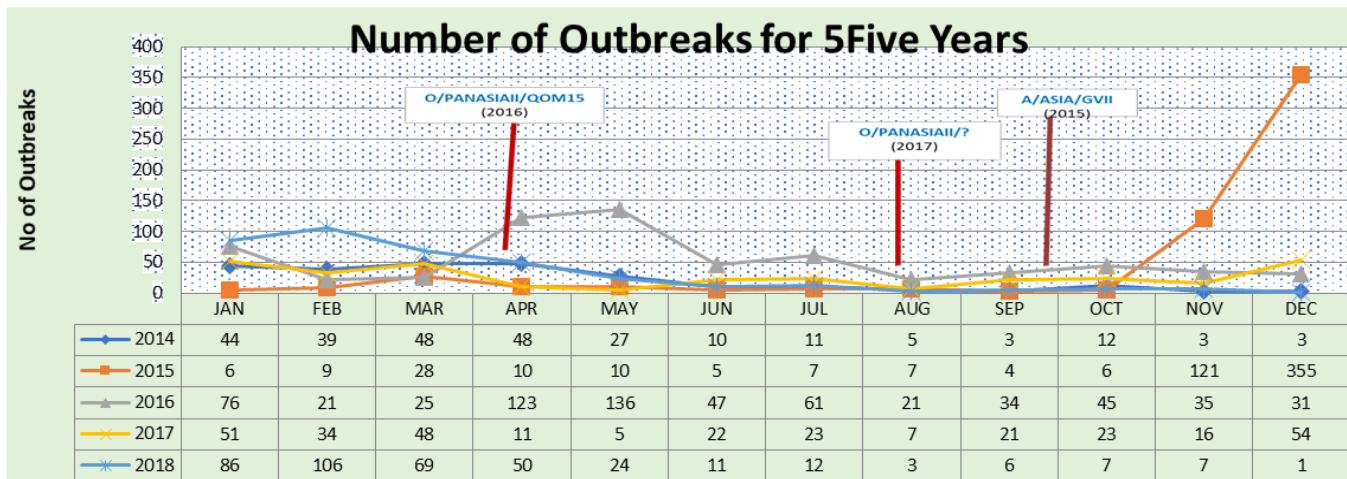
Şap Institute, Ankara, Turkey



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FMD SITUATION

- FMD is endemic in Anatolia region in Turkey
 - Currently only Serotype O (O PanAsiaII/Qom15) circulated
 - Since January 2018 Serotype A (A/ASIA/GVII); and since July 2015 Asia1 has not detected



In 2019:

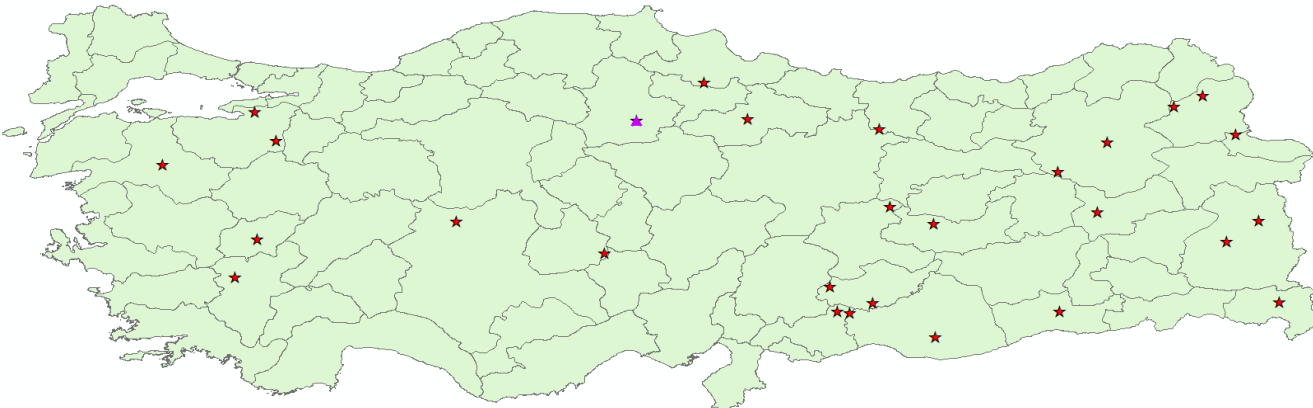
- only 29 outbreaks due to serotype O (one is PCR(+)) were detected

- Thrace region has been free of FMD with vaccination since May 2010**



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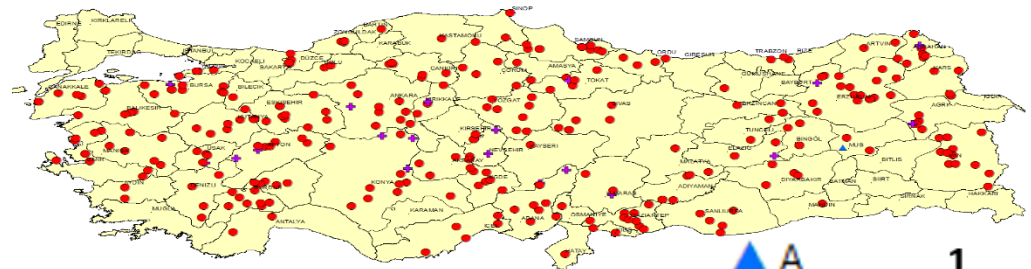
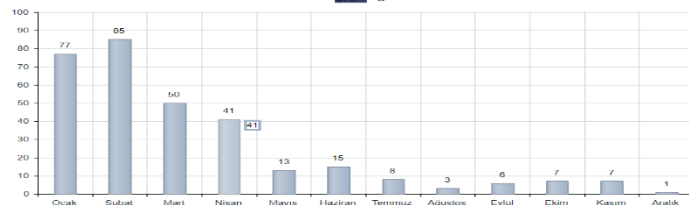
Map Distribution of FMD Outbreaks in 2018 and 2019



- Currently not only number of outbreak has been declining, but also incidence within the population and no of affected farm have been declining

N:29

Başlangıç Tarihi	01.01.2018
Bitiş Tarihi	31.12.2018
Hastalık Adı	ŞAP - O
Grafik Tipi	Bar (Dikey)



▲ A	1
● O	310
✚ POZİTİF	24



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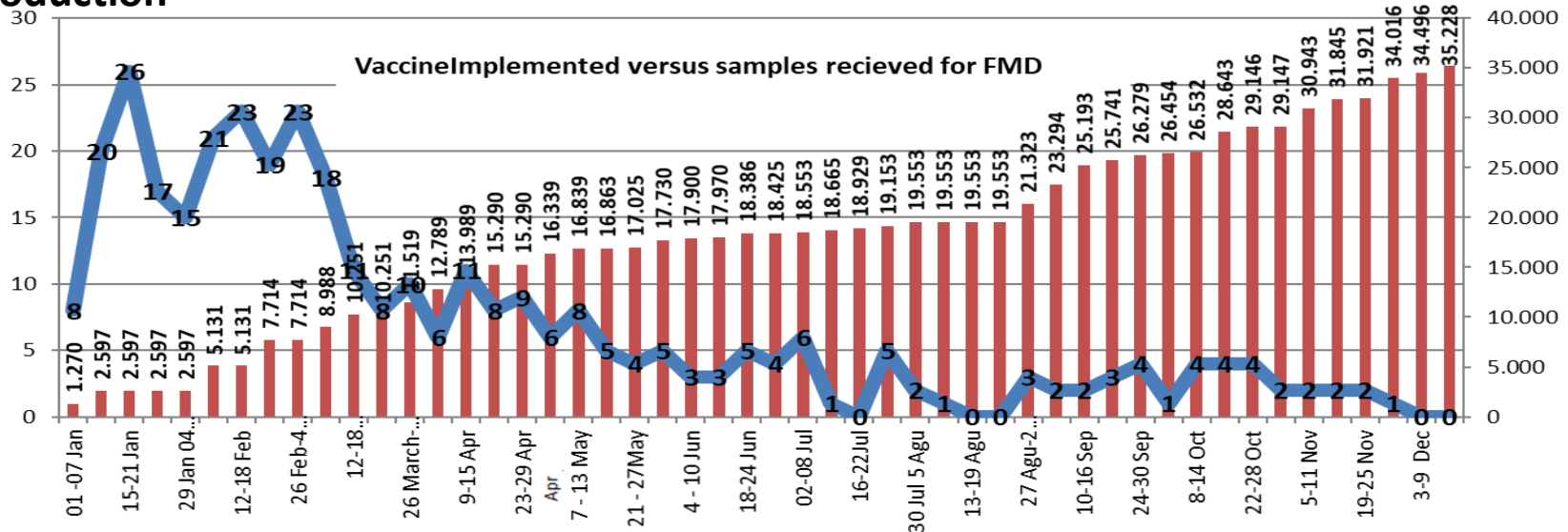
VACCINATION POLICY

- Preventive campaign vaccination :
 - In Anatolia; twice a year for LR;_ (SR not included/only request by owner)
 - In Thrace: : twice a year for LR/once for SR
- Ring Vaccination to response outbreak
 - In Surveillance zone of outbreak
- Targeting vaccination for identified “Hotspot»
- Small ruminant vaccination where risk identified
- Booster vaccination introduced in country wide
- Vaccination implemented based on risk assessment:
 - Early Spring: population assured protection before releasing grazing time
- ***Şap Institute produces FMD vaccine sufficient capacity covered national population with >6PD50 potency vaccine used***



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Vaccination policy response to FMD Outbreak Outputs in terms of reducing risk by Vaccine Introduction



- Overall >97% vaccination coverage was achieved in both, Spring and Autumn vaccination campaign
- Booster vaccination achievement was ranged between 45-75%
 - The latest SP serosurveillance: >90 overall antibody level (combination of all age group; without booster) was determined in both regions, Anatolia and Thrace region.



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Objective of the FMD national plan (RBSP)

GOAL OF NEW STRATEGY

To contribute to the development of
the livestock sector by achieving OIE
status of FMD free with vaccination

by 2023

2019 AchieveStage_3

2021 AchieveStage_4

2022 (end of) Achieve
Stage 5

- The strategy is consisting of two main components as zonal approach:
 - **Thrace region:** currently FMD free with vaccination;
 - **goal:** maintain freedom then progress free status
vaccination not practised
 - **Anatolia:** currently PCP stage2;
 - **goal:** progress to OIE status of FMD free with vaccination



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THE OTHER CONTROL MEASURES IMPLEMENTED, ADDITION TO VACCINATION

- **Diagnosis, Genetic and Antigenic Characterization of Isolates**
- **Epidemiological investigation**
 - Active and passive surveillance
 - Outbreak investigation and case study
 - Sero-surveillance; NSP Prevalence estimation in Anatolia/Risk based surveillance Program for early detection in Thrace
 - *Clinical surveillance in provinces along to borderline*
- **Routine control measures in case of the outbreak**
 - Sampling, biosecurity, restriction, quarantine
- **Control of animal movements and markets**
 - Movement monitored by TURKVET requiring of received vaccine-(2times for young anm. and once for adult within last six month
 - Clinical examination in destination
 - Improvement on dealer certification and regulation as well as of vechiles of animal transportation
- **Training field vets and awareness activities for stakeholders**
- ***Stamping out in Anatolia;* will be introduced with time with different regions or sectors**



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THE OTHER CONTROL MEASURES IMPLEMENTED, ADDITION TO VACCINATION

- **Monitoring and Evaluation System has been already established**
 - Central (GDFC)/Institute/Province level
 - This system administrates assessment and evaluation of the strategy
 - Additionally, steering committee and task force designated for the strategy monitors the plan
- **Routine Surveillance and sero-surveillance**
 - NSP Suro-surveillance: Assessment disease dynamics and identifying risk factors
 - Post vaccination sero-surveillance: Vaccination performance and antibody level
 - New clinical surveillance program & OI procedure
- **Reconstructed database with more functional and features**
 - Animal Registration System by TURKVET
 - LR/SR registered into the system with ear-tag; initiated replacement of electronic ear-tag
 - Animal movement managed and monitored by the system
 - Veterinary Information System (VIS)
 - Outbreak Management
 - Entering outbreak data all notifiable disease
 - Recording vaccination data
 - Sample Management System regulated by the database system
 - Recording surveillance questionnaire data



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What is the new on the new strategy?

- Clinical surveillance in provinces along to borderline
 - This will be extended all area
- Stamping out in Anatolia
- Use extra high potency (10PD50) vaccine
 - in borderline provinces,
 - in response to outbreak- in surveillance zone, and
 - where the risk identified it crucial
- Booster vaccination
- Restriction of the movement
 - Requirement use identified road and check on the check points
 - Requirement vaccination two times within last six months
 - Automatic restriction by Turkvet
- Improvement infrastructure on movement and dealers
- *Collaboration and cooperation with neighbouring countries*



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Summary

- *Vaccination is the main component of control policy implement in Turkey in addition to other control measures*
- *Due to effective control measures;*
 - *Vaccination coverage and protection level reach on desirable level*
 - *Number of outbreak has been decreased*
 - *Current outbreaks with low incidence rate*
 - *NSP prevalence, virus circulation, also has been declining*
 - *Budget allocated to control of the diseases particularly for FMD increased*



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Summary

To reach main goal of the strategy, new aggressive control measures also are put in place;

GOAL OF NEW STRATEGY

To contribute to the development of the livestock sector by achieving OIE status of FMD free with vaccination

by 2023

2019 AchieveStage_3

2021 AchieveStage_4

2022 (end of) Achieve Stage_5

endorsed official control plan (OCP) for FMD in end of 2020



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LUMPY SKIN DISEASE (LSD)



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Bacground

- Eight years after being occurred in Israel, first LSD outbreak was detected in Turkey in August 2013
 - Index case was in Kahramanmaraş, province in cross border of Syria
- The disease were first spread dynamically around Kahramanmaraş, mainly East Mediterranean, South Eastern and East Central Anatolia regions and then spread throughout of Anatolia in second year
- Means by massive vaccination and stamping out, including the others control measures, it has been currently occurred in limited area in which it has been related to more likely insect activity





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MAP DISTRIBUTION FOR LSD IN 2017-18-19

MAP DISTRIBUTION OF LSD OUTBREAKS IN TURKEY IN 2019

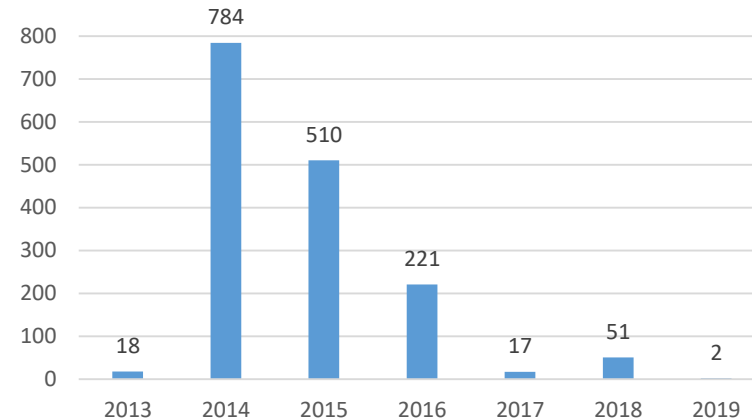


MAP DISTRIBUTION OF LSD OUTBREAKS IN TURKEY IN 2018



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LSD OUTBREAKS BY YEAR



LSD outbreaks in 2017



Lejand
Isd2017
TurkProvince
No outbreak
1
>1

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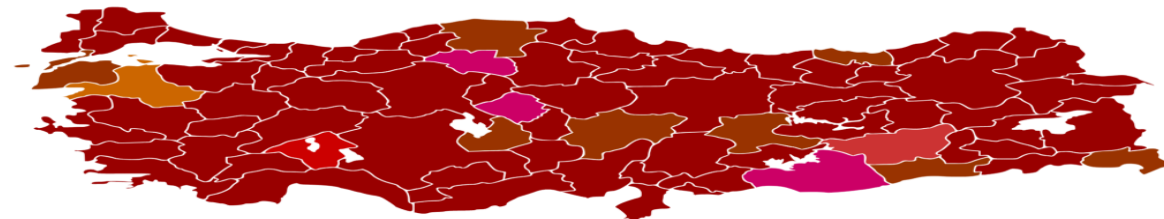
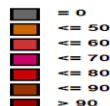


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il	Program (Yıllık)	Gerçekleşme	%	il	Program (Yıllık)	Gerçekleşme	%
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	il	Program (Yıllık)	Gerçekleşme	%	28 29	EDİRNE ELAZIĞ	149.362 148.720	154.968 148.133	103,75 ⁵⁵ 99,61 ⁵⁶	MALATYA MANİSA	149.829 226.007	133.308 236.193	88,97 104,51
1	ADANA	232.901	248.106	106,53	30	ERZİNCAN	115.043	108.976	94,73 ⁵⁷	MARDİN	113.755	99.445	87,42
2	ADIYAMAN	92.731	90.386	97,47	31	ERZURUM	745.253	795.867	106,79 ⁵⁸	MERSİN	112.168	108.967	97,15
3	AFYONKARAHİSAR	360.000	349.606	97,11	32	ESKİŞEHİR	135.669	147.120	108,44 ⁵⁹	MUĞLA	200.846	228.561	113,8
4	AĞRI	351.518	431.398	122,72	33	GAZİANTEP	183.759	185.810	101,12 ⁶⁰	MUŞ	280.849	308.877	109,98
5	AKSARAY	240.487	214.972	89,39	34	GİRESUN	89.687	94.143	104,97 ⁶¹	NEVŞEHİR	81.554	86.508	106,07
6	AMASYA	190.193	177.629	93,39	35	GÜMÜŞHANE	73.680	78.063	105,95 ⁶²	NİĞDE	126.600	140.476	110,96
7	ANKARA	438.000	484.220	110,55	36	HAKKARİ	42.805	37.972	88,71 ⁶³	ORDU	142.530	150.025	105,26
8	ANTALYA	162.986	184.828	113,4	37	HATAY	148.367	136.248	91,83 ⁶⁴	OSMANİYE	81.680	76.201	93,29
9	ARDAHAN	290.968	338.173	116,22	38	IĞDIR	149.911	181.390	121 ⁶⁵	RİZE	22.622	23.948	105,86
10	ARTVİN	58.481	73.511	125,7	39	İSPARTA	115.941	89.934	77,57 ⁶⁶	SAKARYA	143.649	136.696	95,16
11	AYDIN	378.148	442.852	117,11	40	İSTANBUL	97.644	99.112	101,57 ⁶⁷	SAMSUN	350.150	370.610	105,84
12	BALIKESİR	525.124	259.853	49,48	41	İZMİR	622.274	620.918	99,78 ⁶⁸	SİRT	28.191	26.246	93,1
13	BALIKESİR	525.124	259.853	49,48	42	KAHRAMANMARAŞ	189.294	197.949	104,57 ⁶⁹	SİNOP	94.000	92.515	98,42
13	BARTIN	49.363	61.345	124,27	43	KARABÜK	47.390	47.729	100,72 ⁷⁰	SİVAS	285.615	310.663	108,77
14	BATMAN	85.000	79.769	93,85	44	KARAMAN	61.916	66.157	106,85 ⁷²	ŞANLIURFA	318.791	193.437	60,68
15	BAYBURT	85.000	86.179	101,39	45	KARS	450.045	483.696	107,48 ⁷³	ŞİRNAK	39.031	39.481	101,15
16	BİLEÇİK	32.974	32.633	98,97	46	KASTAMONU	270.464	217.837	80,54 ⁷⁴	TEKİRDAĞ	141.280	166.264	117,68
17	BİNGÖL	135.325	145.666	107,64	47	KAYSERİ	347.594	309.953	89,17 ⁷⁵	TOKAT	283.113	281.096	99,29
18	BITLİS	81.948	78.942	96,33	48	KIRIKKALE	68.610	68.272	99,51 ⁷⁶	TRABZON	132.576	113.667	85,74
19	BOLU	124.175	117.688	94,78	49	KIRKLARELİ	136.173	166.064	121,95 ⁷⁷	TUNCELİ	31.253	29.860	95,54
20	BURDUR	195.297	189.733	97,15	50	KIRŞEHİR	198.000	138.282	69,84 ⁷⁸	UŞAK	129.427	134.512	103,93
21	BURSA	177.810	190.313	107,03	51	KİLİS	12.340	12.081	97,97 ⁷⁹	VAN	183.457	193.769	105,62
22	ÇANAKKALE	187.698	184.98	98,56	52	KOCAELİ	119.437	123.504	103,41 ⁸⁰	YALOVA	13.157	15.260	115,98
23	ÇANKIRI	139.515	96.074	68,86	53	KONYA	861.377	791.057	91,84 ⁸¹	YOZGAT	230.000	243.827	106,01
24	ÇORUM	213.573	208.736	97,74	54	KÜTAHYA	183.106	186.359	101,78	ZONGULDAK	67.067	66.446	99,07
25	DENİZLİ	252.560	257.360	101,9							15.456.438	15.048.777	97,36
26	DIYARBAKIR	538.178	291.605	54,18									
27	DÜZCE	63.427	58.332	91,97									

VACCINATION COVERAGE FOR LSD





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LSD_Control Policy

Routine control measures in response to outbreak

- Restriction, Quarantine, Ring Vaccination, Diagnosis
- Cleaning and Disinfection in outbreak areas-Biosecurity
- Insect control
- Stamping-out with compensation
- Control of animal movements
- Mass vaccination
 - S&GP vaccine strain used as 3x doses of sheep&goat
 - Vaccination implemented before session of starting insect activities; ONCE A YEAR
- Pendik Veterinary Control Institute is The National Reference Laboratory conducts diagnosis service
- SGP vaccine used against LSD produced by PVCI and other two private companies



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LSD CONTROL PROJECT

A new Project has been initiated for control of LSD:

- The Project has been funded by EC with National budget contribution
- Aimed eradicated the disease
- Vaccination will be covered by the Project till next year
 - S&GPV vaccine strain (with 3times doses of sheep) used for Anatolia while Neethling based vaccine strain used in Thrace
 - This will be started next year, this year national budget used as before
- Compansation for stamping out covered by national budget
- A technical assistance Project will be conducted as part of the Project:
 - Capacity building of laboratory
 - Training
 - Awareness campaign
 - Surveillance and serosurveillance



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SHEEP&GOAT POX DISEASE (S&GP)



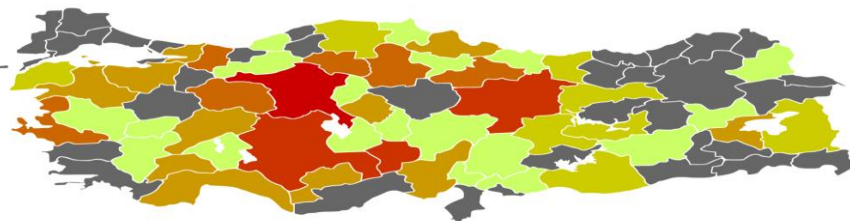
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MAP DISTRIBUTION OF S&GP OUTBREAKS IN TURKEY IN 2017-18-19

MAP DISTRIBUTION OF S&GP OUTBREAKS IN TURKEY IN 2019



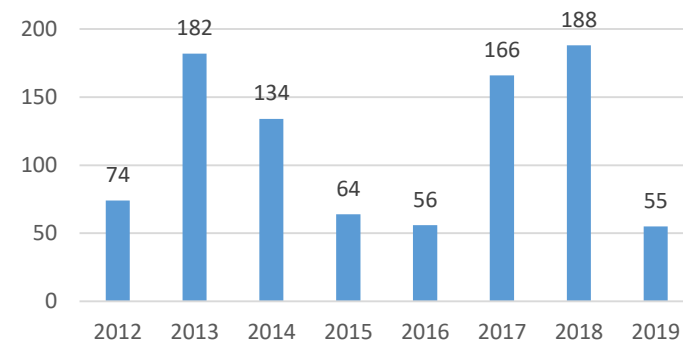
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S&GP OUTBREAKS BY YEARS



Sheep and Goat Pox



Legend
Sheep_goat_pox
TurkishProvince



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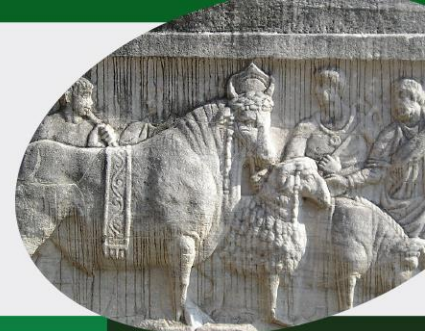


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control of foot-and-mouth disease

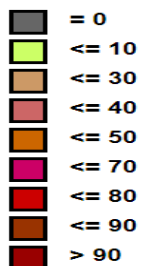
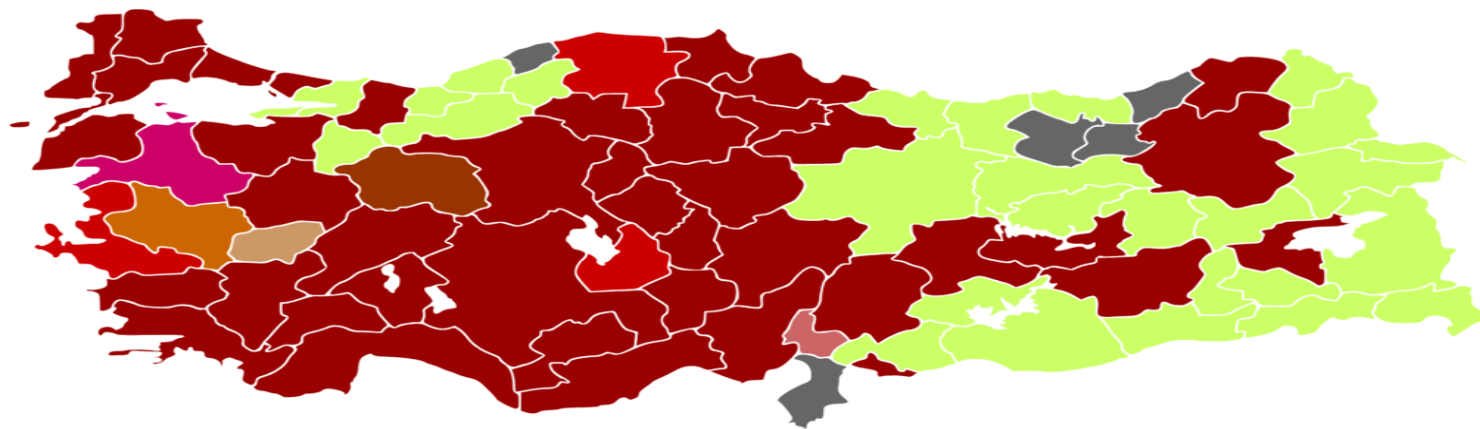


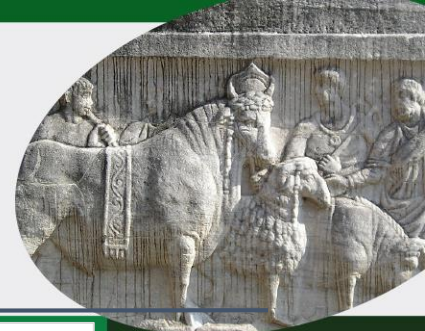
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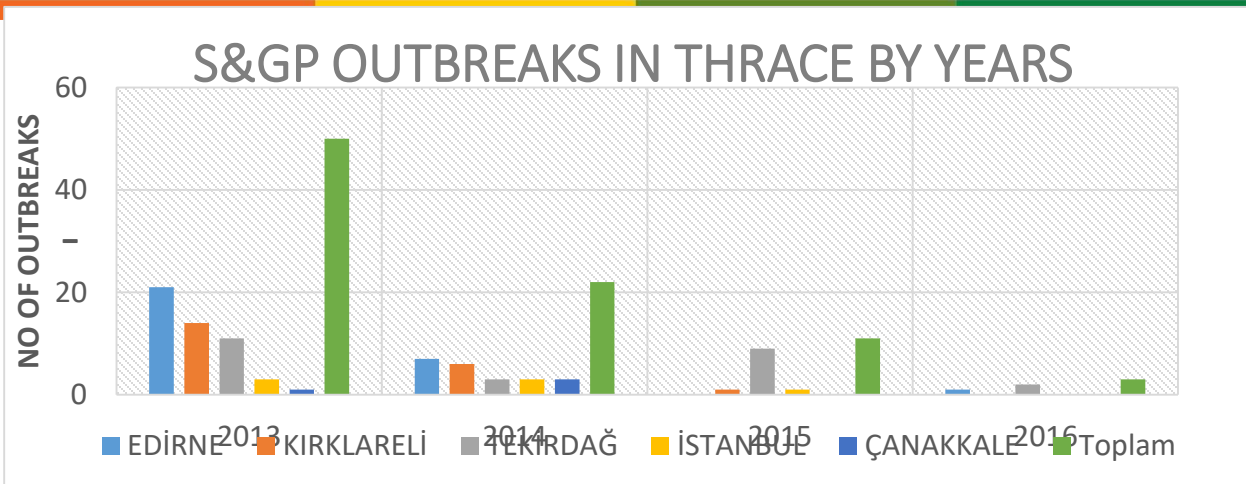
VACCINATION COVERAGE FOR S&GP IN 2018





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SHEEP & GOAT POX IN THRACE



- Three S&GP outbreaks were occurred in Thrace in 2016
 - One in Enez, Edirne
 - Two in Tekirdağ; Malkara and Çorlu
- One outbreak (last one) 2017
 - Ipsala
- Compared by years there has been a gradually declining on number of the outbreaks

PROVINCES	2013	2014	2015	2016	2017
EDİRNE	11	7	0	1	1
KIRKLARELİ	15	6	1	0	-
TEKİRDAĞ	10	3	5	2	-
İSTANBUL	3	2	2	0	-
ÇANAKKALE	11	6	2	4	-
TOTAL	50	24	10	7	1



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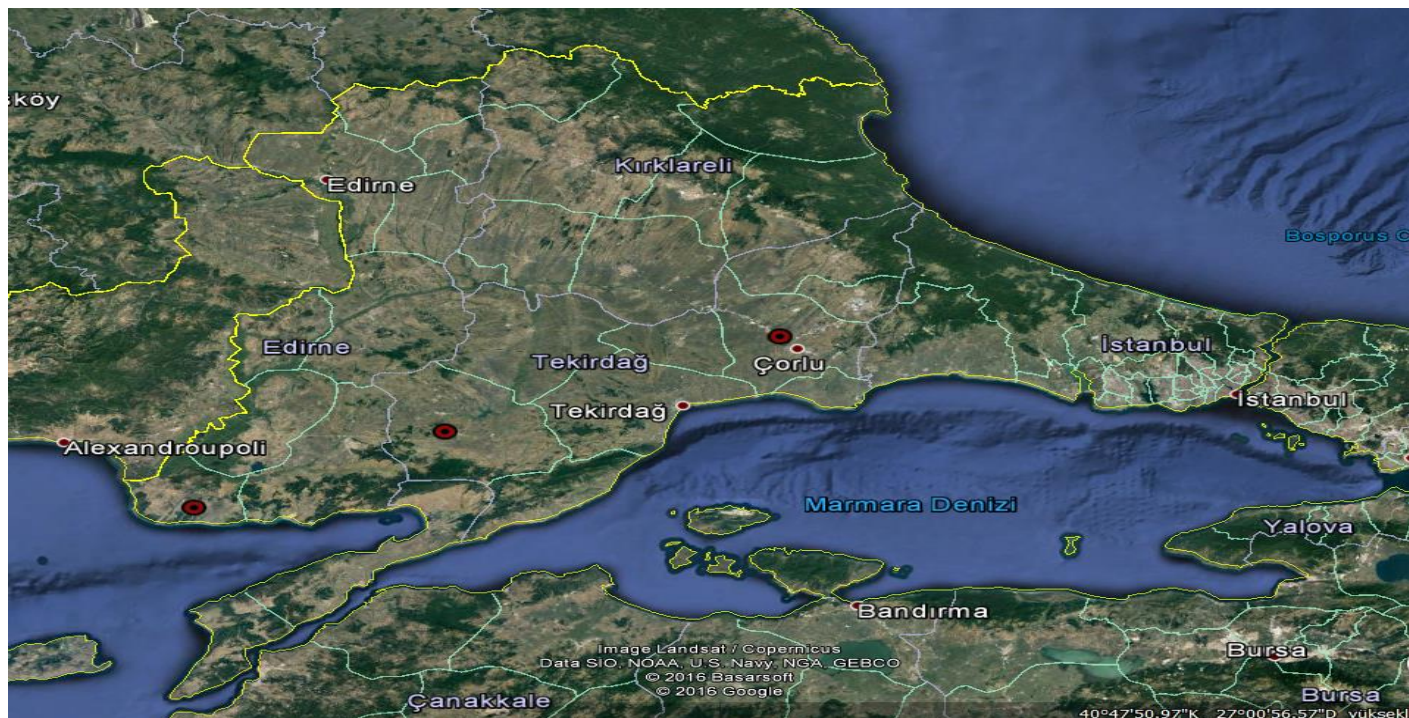


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MAP DISTRIBUTION OF S&GP OUTBREAKS IN THRACE IN 2016





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CONTROL POLICY

- Routine control measures in case of outbreak
 - Restriction, Quarantine, Ring Vaccination, Sampling, Diagnosis
 - Control of animal movements
 - Cleaning and Disinfection on outbreak areas

• Current Vaccination Policy

- All small ruminants are vaccinated throughout Thrace
- Small ruminants will vaccinated in outbreaks zone of Anatolia
- Response to outbreak, all small ruminants vaccinated 2 year continuously in outbreak zone after occurrence
- Vaccination is carried out before autumn and winter session that occur high prevalence of the disease

Vaccination in Anatolia by years

YEAR	TARGETED	IMPLEMENTED	COVERAGE
2012	526.402	458.244	87
2013	839.486	650.128	77
2014	2.380.748	2.503.886	105
2015	2.242.482	1.764.441	79
2016	2.260.133	2.360.586	104
2017	3.445.100	3.768.443	109
2018	3.132.272	4.341.777	140

Vaccination in THRACE IN 2018

PROVINCE	TARGETED	IMPLEMENTED	COVERAGE
ÇANAKKALE	166.500	183.160	110,01
EDİRNE	335.276	340.459	101
İSTANBUL	155.675	153.400	100.00
KIRKLARELİ	341.500	346.943	98,66
TEKİRDAĞ	306.350	307.048	100



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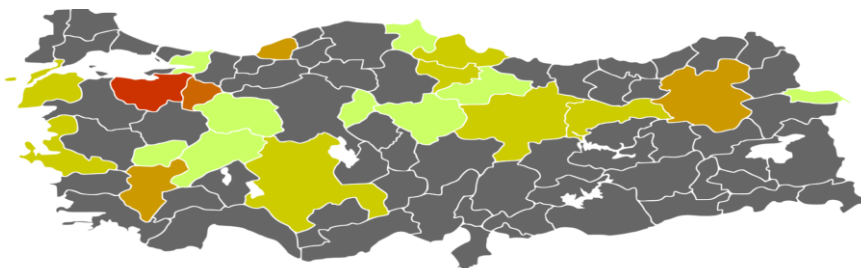
PESTE DES PETITS RUMINANTS (PPR)



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MAP DISTRIBUTION OF PPR OUTBREAK IN ANATOLIA IN 2017-18

MAP DISTRIBUTION OF PPR OUTBREAK IN ANATOLIA IN 2019

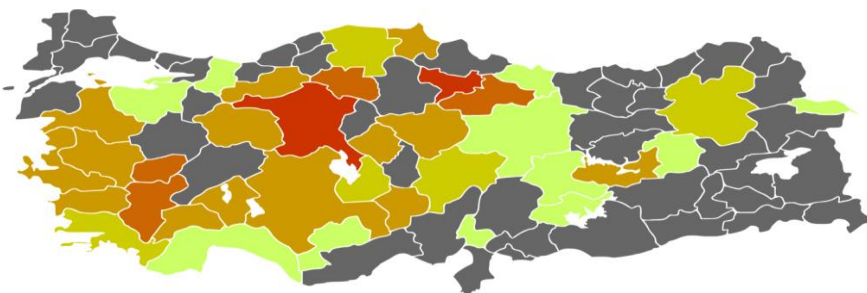


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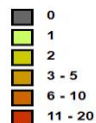


MAP DISTRIBUTION OF PPR OUTBREAK IN ANATOLIA IN 2018

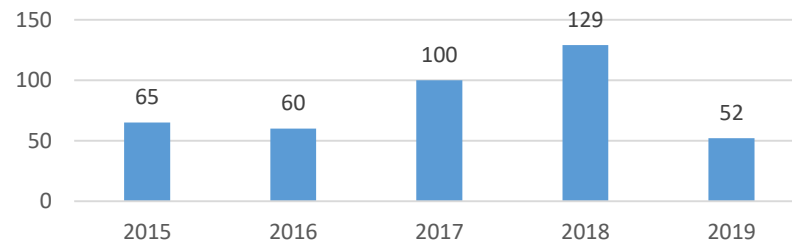
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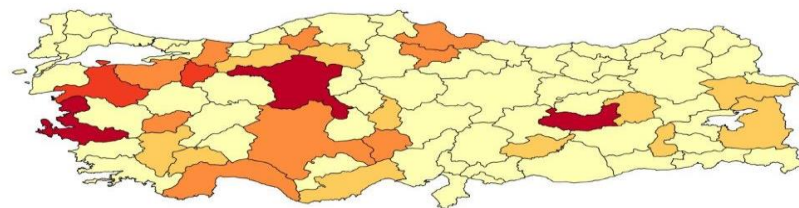


PPR OUTBREAKS BY YEAR



MAP DISTRIBUTION OF PPR OUTBREAK IN ANATOLIA IN 2017

PPR outbreaks in 2017



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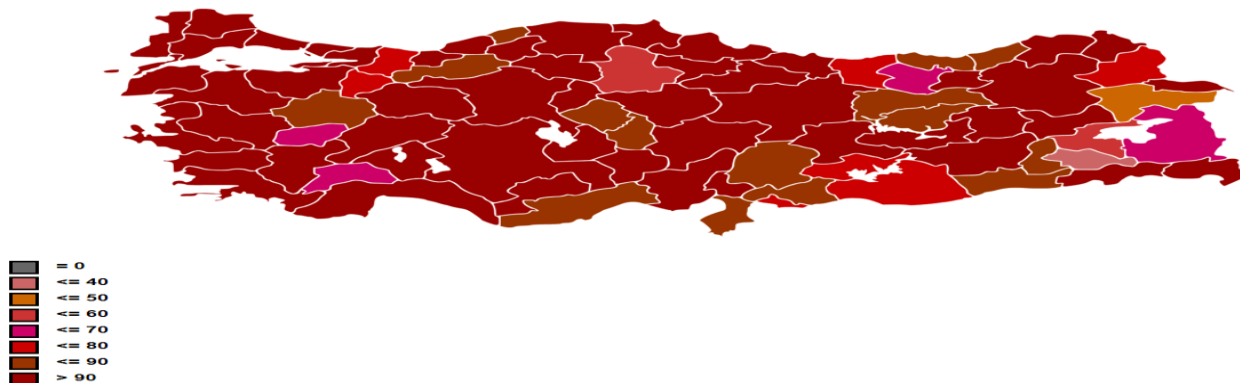


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il	Program (Yıllık)	Gerçekleşme	%	il	Program (Yıllık)	Gerçekleşme	%
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VACCINATION COVERAGE FOR PPR IN 2018

	il	Program (Yıllık)	Gerçekleş me	%	28	EDİRNE	335.276	380.026	113,35	55	MALATYA	66.610	79.246	118,97
1	ADANA	201.194	240.748	119,66	29	ELAZIĞ	202.000	183.219	90,7	56	MANİSA	420.000	391.536	93,22
2	ADİYAMAN	112.250	86.701	77,24	30	ERZİNCAN	188.500	168.614	89,45	57	MARDİN	299.000	261.002	87,29
3	AFYONKARAHİSAR	449.000	414.970	92,42	31	ERZURUM	242.067	230.040	95,03	58	MERSİN	440.000	380.127	86,39
4	AĞRI	631.000	295.906	46,89	32	ESKİŞEHİR	279.500	304.302	108,87	59	MUĞLA	63.600	65.245	102,59
5	AKSARAY	167.000	180.849	108,29	33	GAZİANTEP	215.000	192.963	89,75	60	MUŞ	412.700	409.575	99,24
6	AMASYA	45.650	82.249	180,17	34	GİRESUN	20.000	15.439	77,2	61	NEVŞEHİR	58.500	51.791	88,53
7	ANKARA	400.000	431.036	107,76	35	GÜMÜŞHANE	9.500	5.975	62,89	62	NİĞDE	150.000	169.543	113,03
8	ANTALYA	297.200	361.068	121,49	36	HAKKARİ	153.000	156.884	102,54	63	ORDU	37.550	43.703	116,39
9	ARDAHAN	29.350	28.666	97,67	37	HATAY	125.200	112.651	89,98	64	OSMANİYE	62.500	73.187	117,1
10	ARTVİN	37.100	43.911	118,36	38	İĞDIR	235.000	249.632	106,23	65	RİZE	9.150	7.366	80,5
11	AYDIN	88.500	133.840	151,23	39	İSPARTA	167.200	159.867	95,61	66	SAKARYA	27.900	22.021	78,93
12	BALIKESİR	237.182	318.518	134,29	40	İSTANBUL	127.580	144.790	113,49	67	SAMSUN	70.200	66.621	94,9
13	BARTIN	3.200	2.655	82,97	41	İZMİR	301.550	360.394	119,51	68	SİRT	290.000	93.213	32,14
14	BATMAN	197.500	173.498	87,85	42	KAHRAMANMARAŞ	260.000	228.912	88,04	69	SİNOP	30.000	52.545	175,15
15	BAYBURT	30.000	29.932	99,77	43	KARABÜK	7.300	8.448	115,73	70	SİVAS	210.910	217.221	102,99
16	BİLECİK	53.500	40.735	76,14	44	KARAMAN	234.150	222.320	94,95	71	ŞANLIURFA	544.500	425.144	78,08
17	BİNGÖL	90.000	132.941	147,71	45	KARS	170.000	133.326	78,43	72	ŞİRNAK	200.000	215.784	107,89
18	BİTLİS	267.500	150.487	56,26	46	KASTAMONU	25.600	32.834	128,26	73	TEKİRDAĞ	276.350	254.537	92,11
19	BOLU	52.600	45.546	86,59	47	KAYSERİ	180.500	184.672	102,31	74	TOKAT	80.300	99.907	124,42
20	BURDUR	178.500	117.249	65,69	48	KIRIKKALE	74.700	68.398	91,56	75	TRABZON	29.650	24.670	83,2
21	BURSA	137.800	160.330	116,35	49	KIRKLARELİ	243.500	276.004	113,35	76	TUNCELİ	141.300	114.174	80,8
22	ÇANAKKALE	243.500	268.703	110,35	50	KİRŞEHİR	67.500	58.286	86,35	77	UŞAK	180.000	119.721	66,51
23	ÇANKIRI	38.200	38.465	100,69	51	KİLİS	75.000	56.231	74,97	78	VAN	1.286.000	892.334	69,39
24	ÇORUM	55.350	31.231	56,42	52	KOCAELİ	19.900	19.481	97,89	79	YALOVA	9.845	18.231	185,18
25	DENİZLİ	248.100	286.980	115,67	53	KONYA	825.343	852.964	103,35	80	YOZGAT	100.000	112.962	112,93
26	DIYARBAKIR	605.000	552.474	91,32	54	KÜTAHYA	212.000	185.893	87,69	81	ZONGULDAK	10.800	9.855	91,25
27	DÜZCE	3.950	5.054	127,95								15.404.357	14.318.532	92,95



NB: Coverage calculated based on targeted SR population



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CONTROL POLICY for PPR

- A strategy plan has been prepared and implemented since 2016 approaching with regional progressive eradication of the disease
- **ANATOLIA**
- Routine control measures in case of disease outbreak
 - Restriction, quarantine, ring vaccination, sampling, diagnosis
- Control of animal movements
- Unvaccinated animal not allowed for movement.
- Vaccination policy
 - all animals in response to outbreaks (ring vaccination),
 - As protective propose:
 - All new born and
 - Unvaccinated adults
- **THRACE**
- PPR has not been detected clinically in Thrace region since 2013
- Next year vaccination will be ceased
- Initiated the disease control program to achieve zonal free status
 - Control of animal movements strictly applied
 - Initiated serosurveillance activities
 - Continued clinical surveillance program integrated Thrace FMD RBSP



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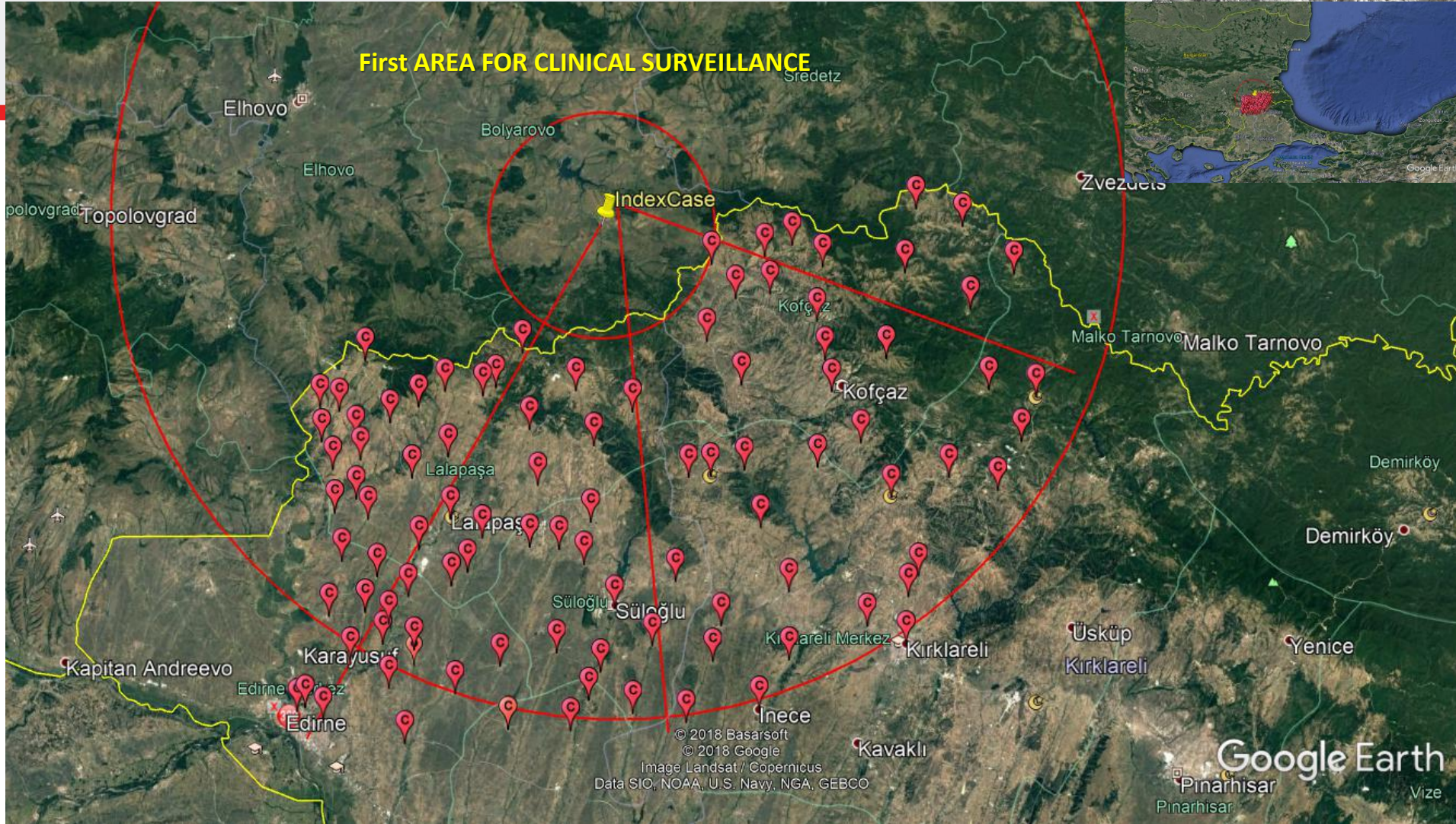


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CLINICAL SURVEILLANCE RESPONSE TO BL PPR OUTBREAK





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CLINICAL SURVEILLANCE

- Clinical surveillance for early detection to response PPR outbreak:
 - **Area** has been extended to 45km deeper from the border, instead of surveillance zone of the outbreak
 - **Location:** Edirne (central, Lalapaşa, süloglu and Havsa districts) and Kırklareli (central and kofçaz) provinces
 - **Epi-Units:** 90 villages
 - **Population size:** 89017 SR (80761 and 8256 Sheep and Goat respectively)
 - Target for clinical examination: 60 animal (for >100 /per epi-unit); all if exist <100/per epi unit
 - Almost all **farms** were visited for examination and totaly 3870 SR were examined
 - Any suspecion detected by the surveillance
 - Result recorded database; [PPR CLINICAL SURV EDRN KRKLL JULY18.xlsx](#)
 - Data collection form; [PPR-KlinikSur kayapa.jpg](#)



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VACCINATION and Other Measures

- In addition regular annual vaccination achieved this year;
 - All SR were vaccinated in those two provinces, Edirne and Kırklareli
- Animal existed surveillance area were kept confidence inside the barns till 13rd July
- Animal movement and market were stanstilled up to finalizing clinical surveillance



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SECOND PHASE CLINICAL SURVEILLANCE

- Clinical surveillance planned with same criteria's with first:
- Villages in Area 35km square:
 - 35 villages from central of Kırklareli
 - 22 villages from Demirköy district
- Up to 7th August:
 - 3180 sheep and goats were examined clinically in total of 35 central villages of Kırklareli Provinces.
 - 1482 small ruminants were examined by PPR clinically in 21 villages of Demirköy district
- There has been not detected any suspicion on PPR clinically



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PPR VACCINE PERFORMANCE SURVEILLANCE

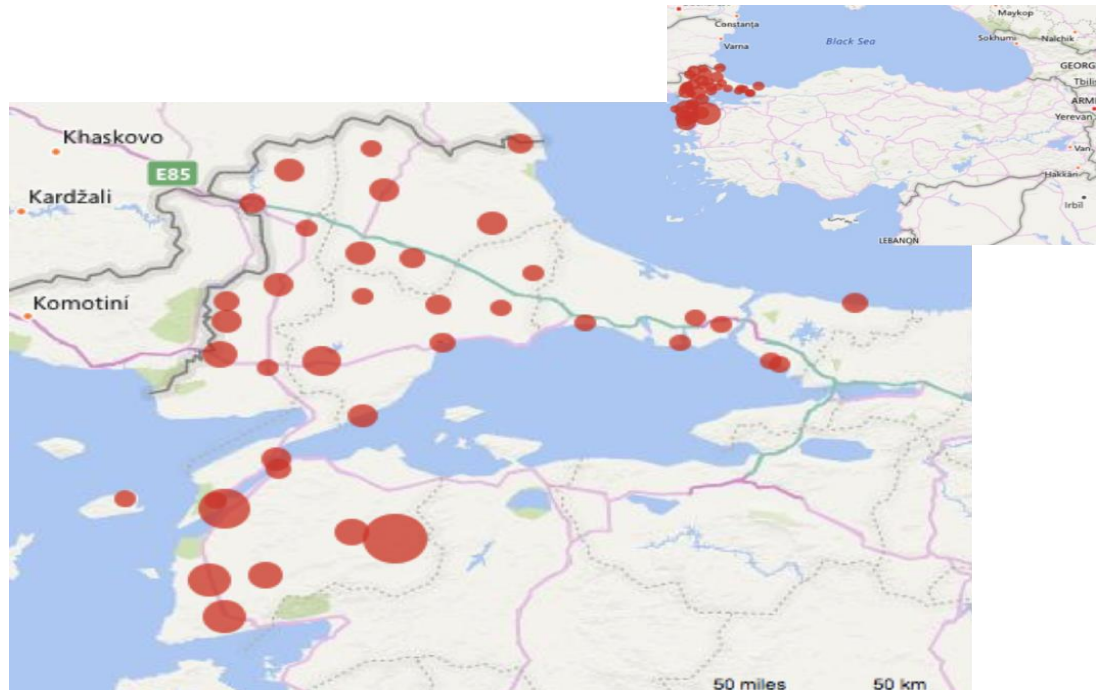


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DESIGN OF SEROSURVEILLANCE

- Used two stage sampling
 - Number of village (Epi-units)
 - Number of animal for sera sampling
- 108 epi-units
- 20 sera samples/per
- Age: young and young adult combination
- 1730 sheep and 325 goat (105 samples for sheep out)
- Mab Blocking ELISA used for test

SAMPLING MAP DISTRIBUTION AND SAMPLING SIZE

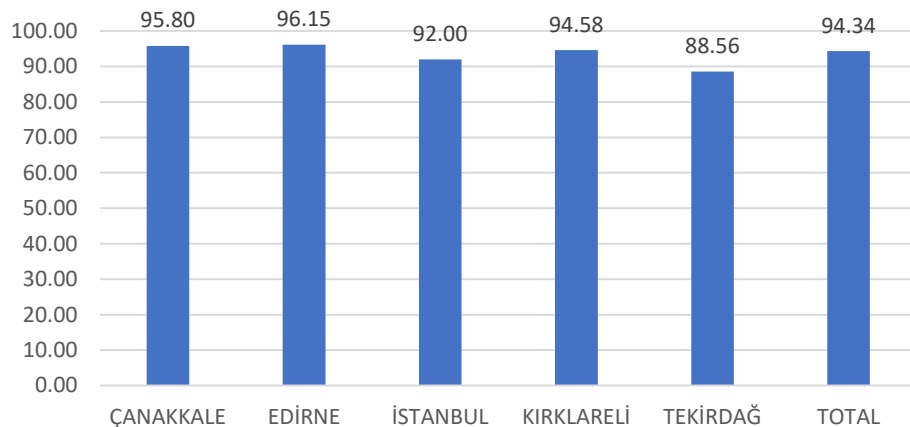




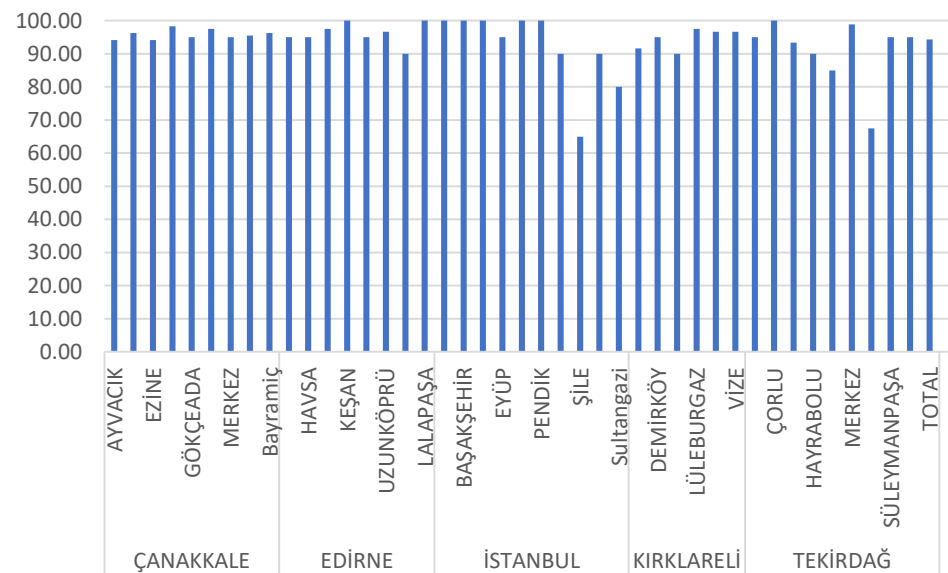
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IMMUNITY COVERAGE BY PROVINCES AND DISTRICTS

Immunity Coverage%



Immunity Coverage%





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SAMPLING PORPORTION AND IMMUNITY LEVEL BY SPECIES

