GF-TADs
GLOBAL FRAMEWORK FOR THE PROGRESSIVE CONTROL OF TRANSBOUNDARY ANIMAL DISEASES



REPUBLIC OF TURKEY
MINISTRY OF FOOD AGRICULTURE AND LIVESTOCK

ŞAP ENSTİTÜSÜ MÜDÜRLÜĞÜ
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TURKEY
FMD DISEASE SITUATION & National RBSP

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CVO, Deputy Secretary of the Ministry

Turkish Ministry of the Food, Agriculture and Livestock (MoFAL)

Gaps Identified in 2015 Roadmap

Gaps	Corrective actions taken	% achieved
Cost&Benefit Analysis (C&BA)	C&BA as a componenet of National RBSP has been prepared. Submitted to disease decision maker for final evaluation	100%
Bosster Vaccination	Bosster vaccination in Marmara and Aegean Regions has been implemented In addition those regions, it has been introduced in some other regions	85%
Early detection system for detection of upcoming risk-incursion from neighboring countries	Although there has been some initiative, it needs establishment a dynamic, routine system in the West Eurasia	?



FMD outbreaks in 2015-2016 (1)

CIRCULATING STRAINS

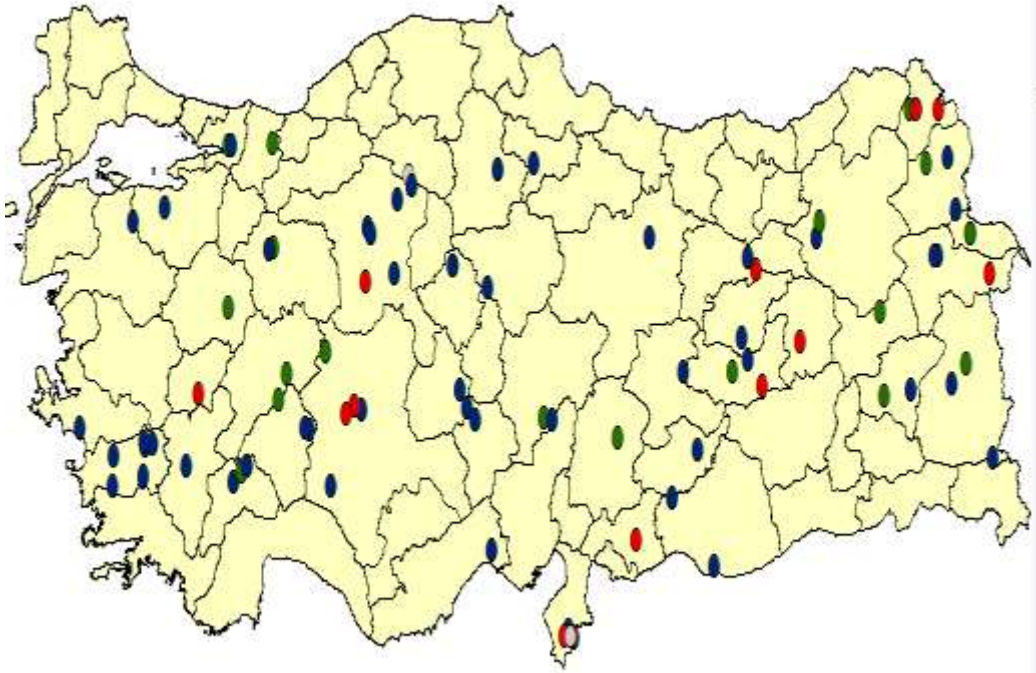
- FMD is endemic in Anatolia region in Turkey
- Current Circulating virus strains:
  - Serotype O (O PanAsiaII),
  - A (Asia/GVII)* and
  - Asia-1(Asia1/SINDH08)

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

FMD Situation Before New Serotype A, A(ASIAGVII) Incursion (2015, till October)

Before the new incursion;

- Occasional (sporadic) outbreaks were recorded in this period of 2015.
- In total: 62
- 12 Serotype O, 30 A, 13 Asia1 and 7 PCR (+).
- With low incidence (<0.3) and ignorable mortality rate.

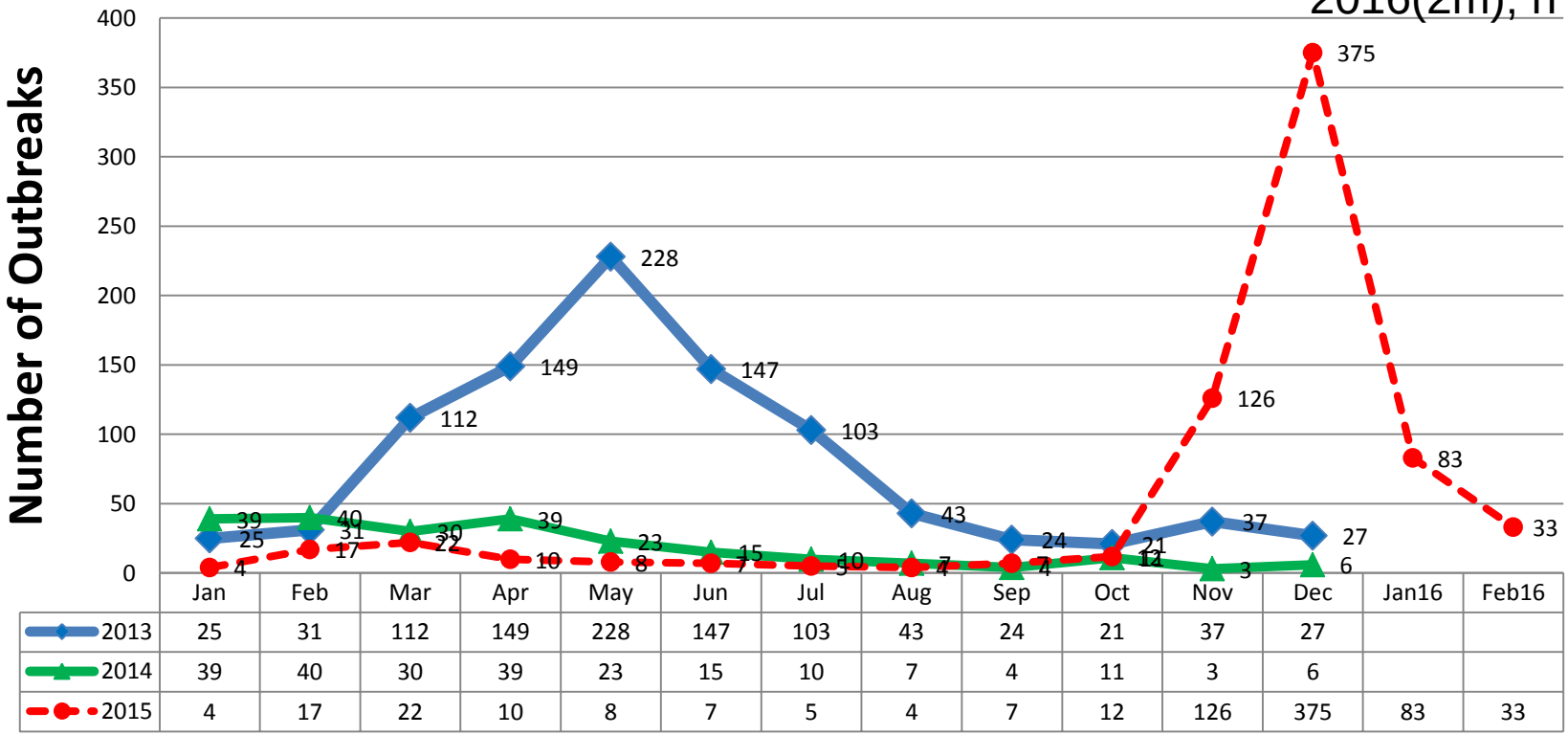


Chronology of New Incursion

29 Sep15	Clinical Detection of FMD; Indexcase Buzhane, Ipekyolu-Van	
2 Oct15	Lab Diagnosis, serotype A	
9 Oct15	Molecular Analysis Result: A new incursion	21,2% distinct fromTurkey2015 (AIRN2005)
9 Oct15	Shifted emergency response	Initiated active clinical surveillance program Leading by expert central level Animal markets were closed in area which detected high risk Movement was banned from/to high risk area and monitoring shifted emergency level Increase awareness activities covering all stakeholders
9 Oct15	Initiated adaptation of a new vaccine strain	
24 Oct15	Finalized 1st step of the adapdation proces Initiated QA and vaccine matching testing	
10Nov15 24 Nov15	Finalized 1st step vacc. Matching test First monovalent vacc. Delivering for emergency vaccination	r value was indicated A (AsiaGVII) vaccine strain was matched very well QA tests also finalized for 1st batch vacc.
15 Dec15	Proponed spring campaign vaccination	Tetra valency vaccine (O PanasiaII/, A (AsiaGVII, A Iran05/A Tur14 and Asia1/SINDH08) was used for campaign

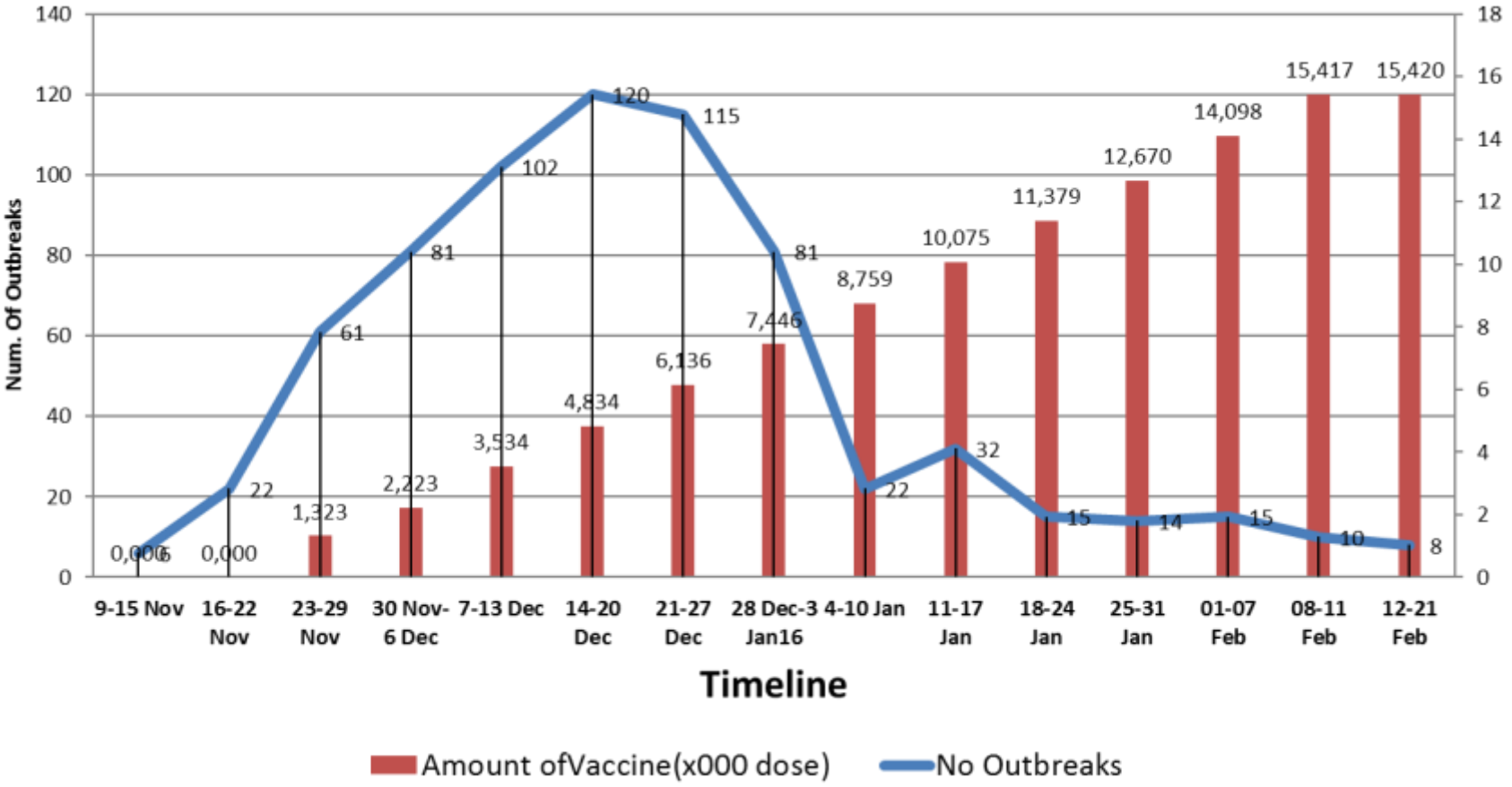
Number of FMD outbreaks occurred by years (2016 –till Feb)

2013; n 835
2014; n 197
2015; n (62/513)575
2016(2m); n 116



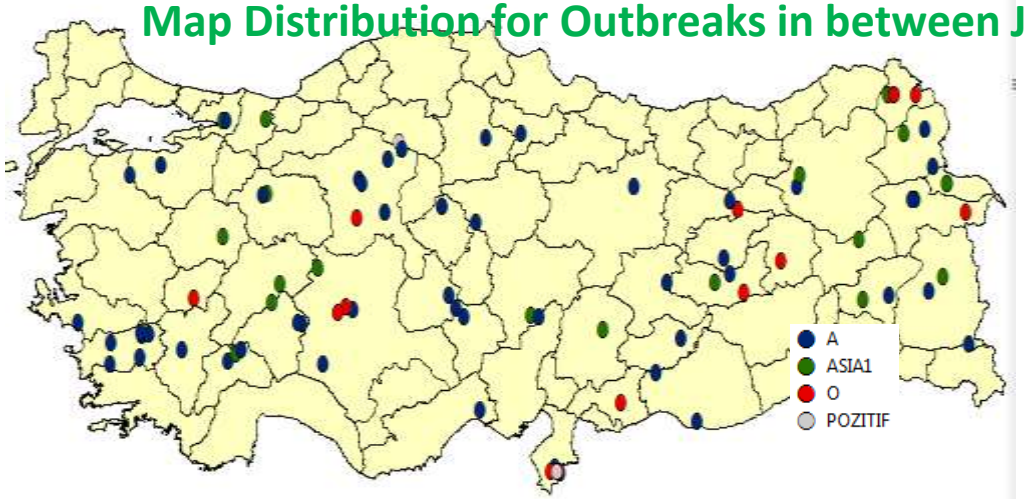
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan16	Feb16
2013	25	31	112	149	228	147	103	43	24	21	37	27		
2014	39	40	30	39	23	15	10	7	4	11	3	6		
2015	4	17	22	10	8	7	5	4	7	12	126	375	83	33

Supplied Vaccine vs No of Outbreak during new outbreak wave



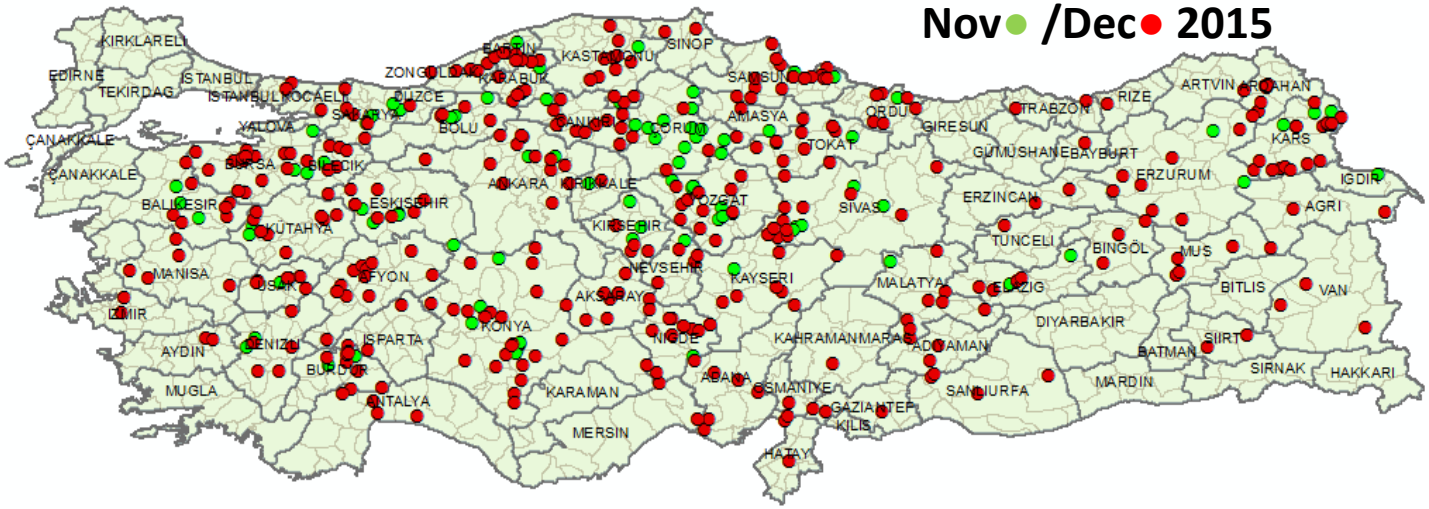


Map Distribution for Outbreaks in between January-October2015



Map Distribution for Outbreaks due to A/ AsiaGVII

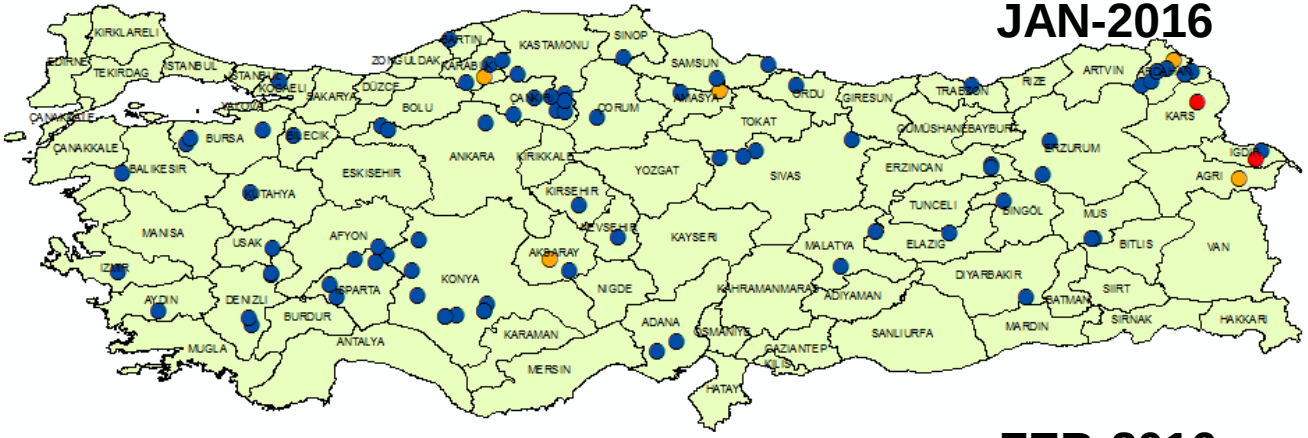
Nov● /Dec● 2015





Map Distribution of FMD Outbreaks Occurred in 2016

JAN-2016



Total:83
Serotype O:2
Serotype A:76
PCR(+) : 5

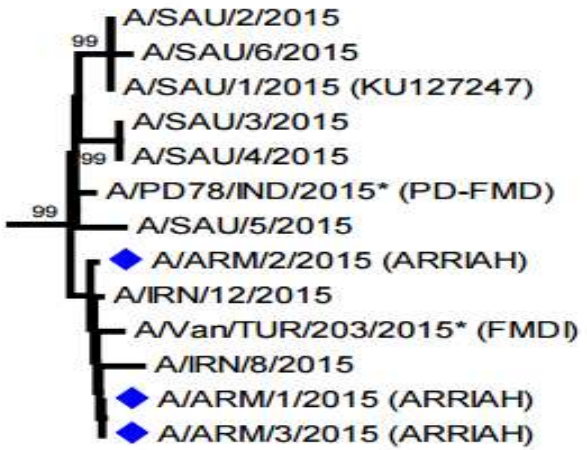
FEB-2016

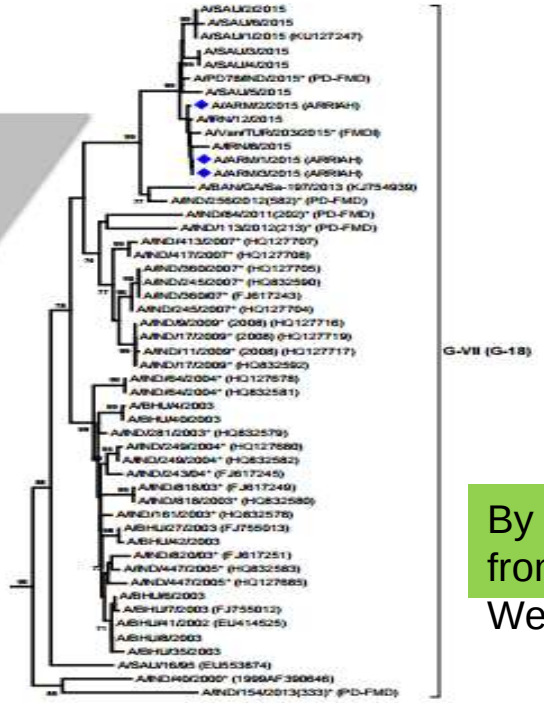
Total:33
Serotype O:1
Serotype A:32

FMD Situation In the regions_WE and SEA

Sequence analysis

Single episode and introduction?





By Dr. King, from EuFMD Webinar

www.pirbright.ac.uk



Representative phylogenetic trees: O

Analysis Options

Analysis
- Analysis ---------- Phylogeny Reconstruction
- Scope ---------- All Selected Taxa
- Statistical Method ---------- Minimum Evolution method

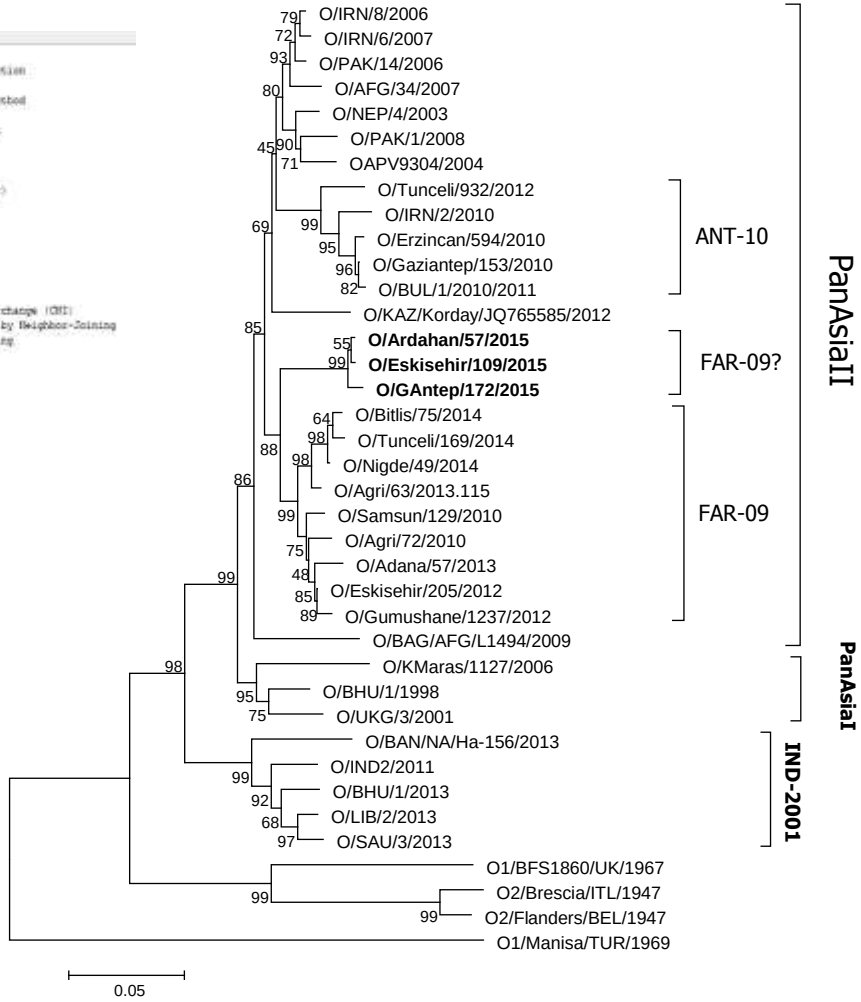
Phylogeny Test
- Test of Phylogeny ---------- Interior-branch test
- No. of Bootstrap Replications ------- 1000

Substitution Model
- Substitutions Type ---------- Nucleotide
- Model/Method ---------- Tamura-Kumar
- Substitutions to Include ---------- All

Rates and Patterns
- Rates among Sites ---------- Uniform rates
- Pattern among Lineages ---------- Same (Homogeneous)

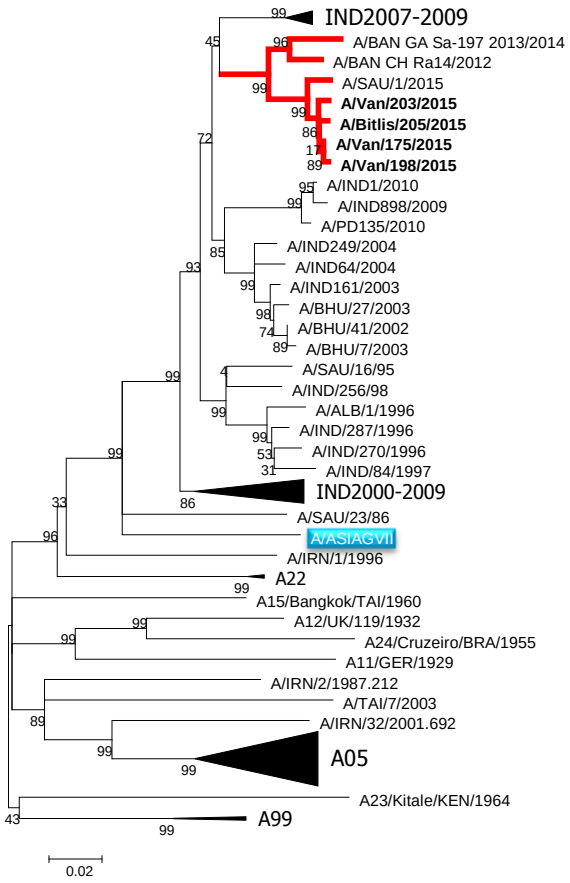
Data Subset to Use
- Gaps/Missing Data Treatment ---------- Pairwise deletion

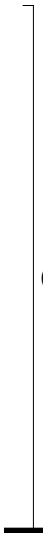
Tree Inference Options
- ME Heuristic Method ---------- Close-Neighbor-Interchange (CNI)
- Initial Tree for ME ---------- Obtain initial trees by Neighbor-Joining
- Codons Included ---------- 1st+2nd+3rd+Non-Coding





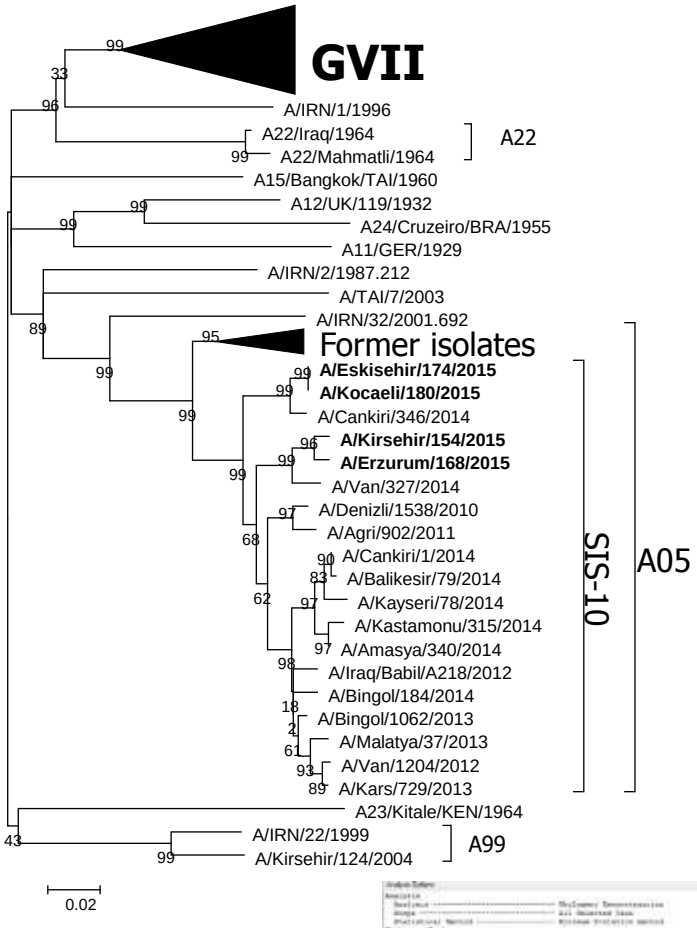
Representative phylogenetic trees: A (ASIAGVII)





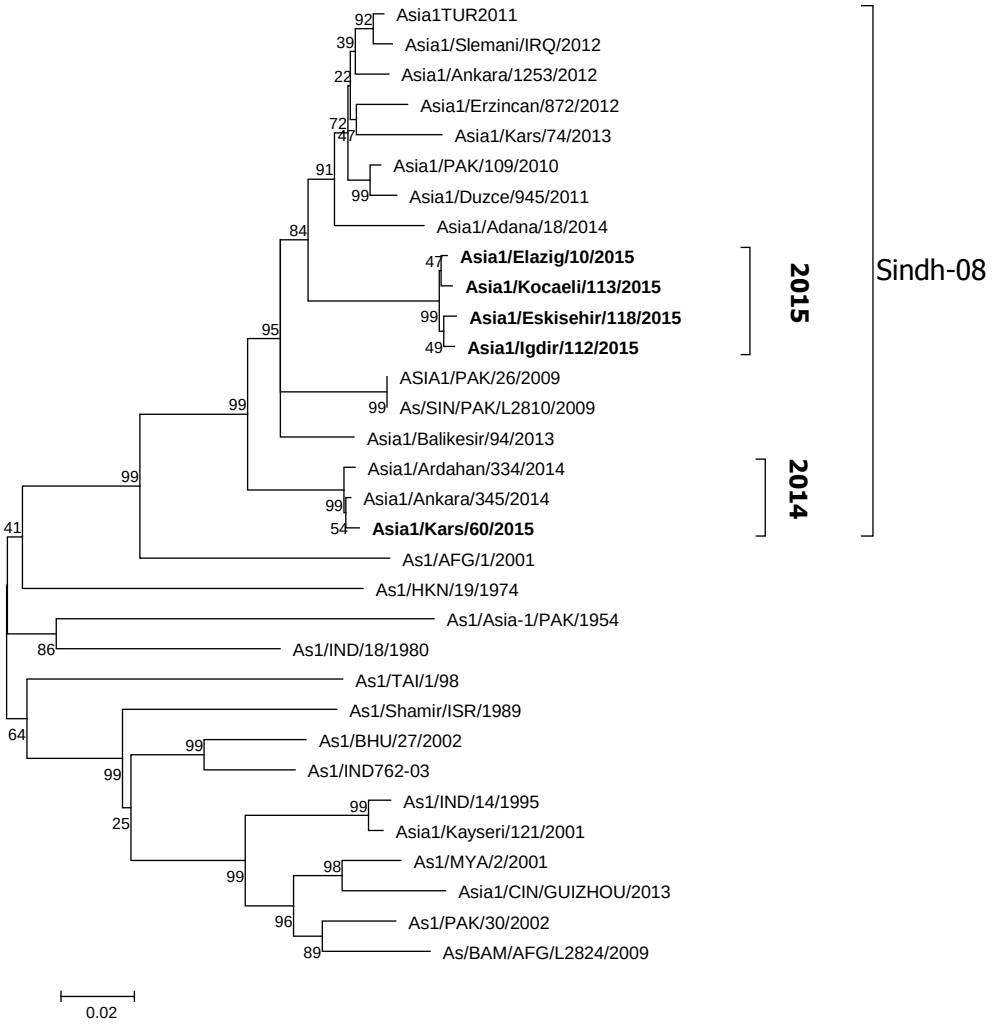
Strains	Distance
Saudi2015	1,3%
Bangaldesh2013	4,7%
Albania96	10,5%
Saudi95	10,8%
NEP-84	14,0%
AIRN96	17,3%
A22/Mahmatli/1964.98 1	17,3%
AIRN87	19,0%
Turkey2015 (AIRN2005)	21,2%
AIRN99	21,4%
AIRN2005 (index)	22,2%

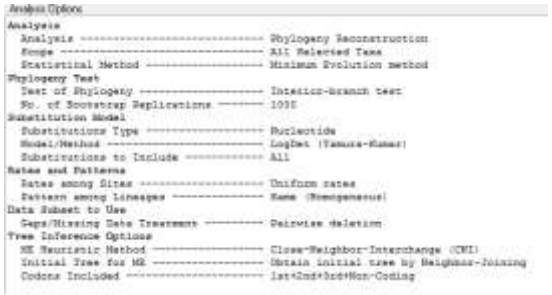
Representative phylogenetic trees: A (A05 SIS-10)





Representative phylogenetic trees: Asia1



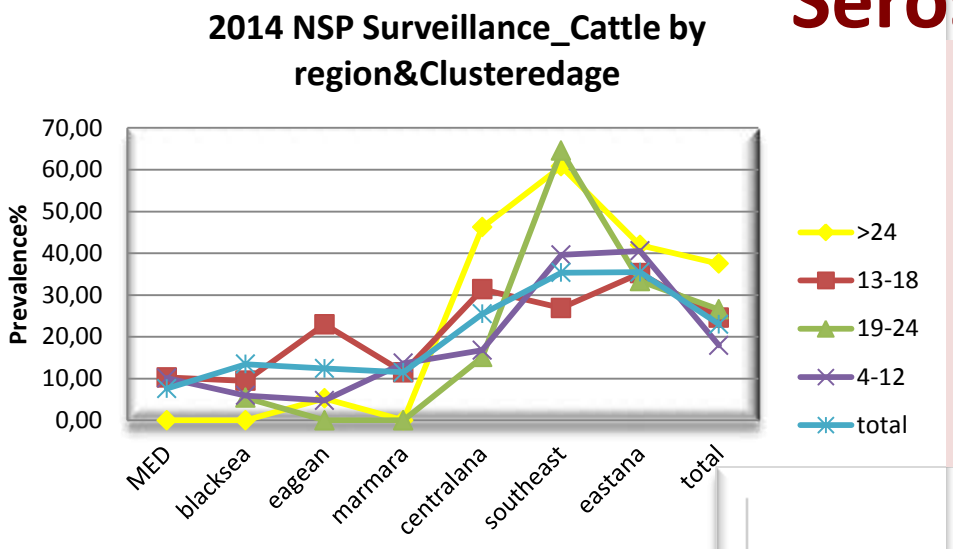




Sero-surveillance in 2014-2015

- Two separate national level sero-surveillance were conducted in each year with aimed:
  - Estimation NSP Prevalence for LR and SR (in Anatolia)
  - Evaluation vaccination performance and immunity level (including Thrace region)
- Significant declining on 2015 NSP prevalence was detected, when compared with previous year:
  - LR: 17.04% (2014) → 13.07% (2015)
  - SR: 24.00% (2014) → 13.14% (2015)

Serosurveillance_2014/2015

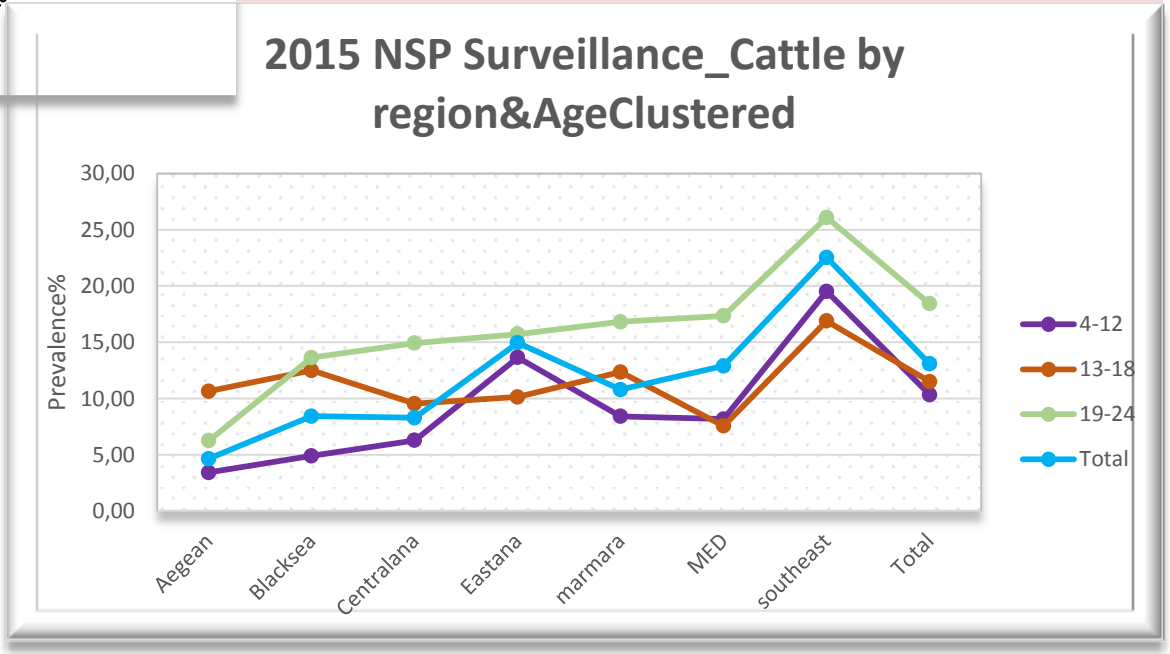


2015:

- Differences by region is not significant except southeast, prevalence by age is constant within the same region
- older group has higher prev.
- There is no overlap ratio on prevalence between each region.

2014:

- Differences by region is significant, prevalence by age is constant within the same region
- older group has higher prev.
- Detected overlap ratio for east and southeastern



LATEST FMD SITUATION AND CONTROL POLICY

- Although the new outbreak wave, due to A (Asia/GVII), was spread pandemic in the beginning, there has been recorded declining number of outbreaks at the moment as a result of strict control measures.
- Spring 2016 vaccination campaign has been proponed to December 2015 (December2015-15th March).
- The Campaign has been mainly included LR vaccination. However, SR has been also included in some area in which it has been identified high risk.
- More than 15.5 million tetra-valence (included one batch monovalent) vaccine with 6 PD50 potency has been delivered for campaign vaccination targeting with at least 90% coverage.
- Till now, 96% vaccination coverage was achieved .



LATEST FMD SITUATION AND CONTROL POLICY

- Booster vaccination has been also implemented for primo-vaccinator cattle in Marmara (included Thrace region) and Aegean regions.
- Vaccination campaign in Marmara and Aegean will be implemented 3 times in 2016 (To be planned additional vaccination campaign on May)
- Emergency vaccination response to outbreak has been implemented regularly including SR.
- Clinical surveillance and outbreak case studies have been continued.
- Movement and animal market control measures has been strictly monitored (to better monitoring of the movement, conventional air-tag has been replaced with electronic version). Map of animal movement is produced monthly through the TURVET data.
- Markets and movements have been banned in the area in which it was identified high risk.
- Poster and leaflet have been prepared and delivered for enhance awareness
- Vaccine strains used:
  - **O PanAsiaII/OTur2014; A/ASIA/G-VII-ATUR2015&A/ASIA/Iran05-ATUR2014** and **Asia1(SINDH08**

CONTROL POLICY CONDUCTED IN THRACE REGION

- All control measures compliance with Terrestrial Manuel of OIE in order to keep confidence of disease free status with vaccination.

- Thrace Risk Based Surveillance Program (Thrace RBSP) support by EuFMD has been conducted successfully.

- In addition to Thrace RBSP, clinical surveillance has been conducted three times by central epidemiology teams since detected new A virus incursion so that it can be keep confidence of the freedom

Activities to strength the veterinary services

- FMD national RBSP has been implemented
  - Vaccination has been planned based on outputs of risk assessment
  - All control measures are routinely evaluated and monitored by monthly steering & taskforce meeting
  - Crisis centre has been recently established for emergency situation
  - Budget allocated to FMD control has been increased by national budget
- An epidemiology and monitoring unit had been established in 2014 with three different level: Central (GDFC); Research Institutes (FMD Institute and 8 regional reference institutes) and provincial level.
- To enhancement technical capacity of the units, an epidemiology training course has been conducted by technical support of EuFMD.
- 5 simulation exercises for FMD were conducted in the different regions

Synergies to control other TADs

- A surveillance component for S&GP, PPR and LSD has been integrated into Thrace Risk Based Surveillance Program for FMD .
- Following preparation of FMD RBSP, strategy plans has been prepared for other infectious diseases by GDFC (listA) through EC project. Control plans with risk assessment concept will be initiated for TADs.
- There has been declining of number of outbreak for TADs, such as LSD, PPR, S&GP by enhancement of technical capacity of the vet. service and better achievement of control measures as a reflect of gaining experiences of FMD control strategy.

Ongoing projects and budget for FMD control

- Research on R&D for vaccine production at Şap Institute
- Vaccine and vaccination monitoring
  - Planned for conducting vaccine effectiveness study
- Air-taging Project: replacement conventional air-tag to electronic version
- Technical assistance to Pakistani FMD Project
  - Vaccine QC methods
  - Vaccine plants
  - Vaccine monitoring process and test methods for monitoring
- EC Project on preparation RBSP for all infectious disease
- Thrace RBSP: Ongoing surveillance program for keep confidence of free status and early detection support by EuFMD

Gaps and request for support

1. To detect upcoming risk:

-Establishment Early detection system

-Mechanism for information sharing

-Routine & realtime virus serotyping, genotyping and vaccine matching

-Routine market survey

2. To eliminate risk on incursion:

-cross-border survey and coordination

-strong political commitment & action

3. Training on surveillance and serosurveillance in order to build up capacity of the region.

Turkey PCP-FMD expected stage progression until 2025

Country	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
TURKEY-Thrace		4	4	4	5	5	5	5	5	5	5
TURKEY-Marmara/Aegean	2	2	3	3	4	4	4	4	4	5	5
TURKEY-Marmara/Aegean	2	2	2	2	2	2	3	3	4	4	4

1	2	3	4	5		

Summary

- FMD was sporadically spread by implementing effective control measures since experienced new incursion.
- However, new incursion of A/ASIA/G-VII was changed the disease situation as pandemic.
- Although the disease spread rapidly beginning of the first two months, due to emergency response (early new vaccine strain adaptation and other control measures), a sharply declining of number of outbreaks has been achieved again.
- This new incursion happened in the region is another example (like 2010 typeO&2011 Asia1) that establishment of early detection is crucial for the region.
- It is clear that there is a gap on vaccine sufficiency for A/ASIA/G-VII. Turkey has already achieved producing this vaccine and ready for some contribution for the region.
- In the other hand, vaccine is only one tool for the control. To eradicate the disease need a strong political commitment and regional coordination as well as implementation other control measures.

Thank you very much for your attention!

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