Ministry of Agriculture Republic of Armenia

The epidemiological status of African swine fever in domestic swine herds in the Tavush Marz region, Republic of Armenia.

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African Swine Fever in Armenia

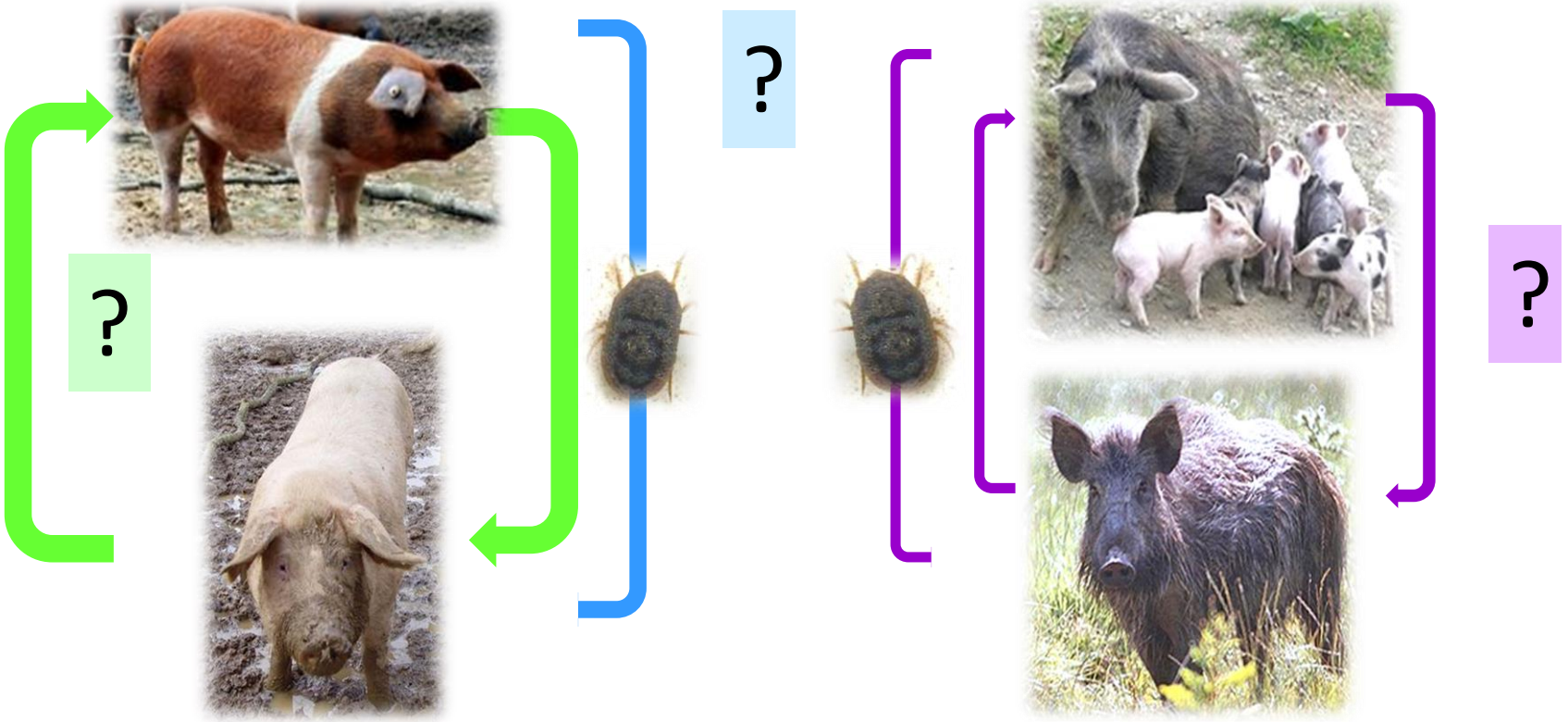
- African Swine Fever Virus (ASFV) was introduced in the Republic of Armenia in 2007.
- Since then, ASFV has spread through the Caucasus Region affecting domestic and wild swine.
- ASFV is currently circulating in the Caucasus region among free ranging domestic pigs, wild pigs, and probably native *Ornithodoros* ticks.
- *Here we have gathered information regarding the epidemiological status of African Swine Fever (ASF) in Armenia*
- *We actively surveyed the Tavush Marz considered at high risk for the disease.*

ASFV transmission: potential scenarios in Armenia

I - Domestic pig to domestic pig without ticks

II - Domestic pig to domestic pig with ticks

III - Domestic free range & feral pigs with wild boar +/- ticks



African Swine Fever in Armenia: *first disease epidemics in 2007-2008 was detected in Northern Armenia (Tavush and Lori Marzes)*

ASFV outbreaks in Armenia. Blue circle denotes the area of the country where the disease was first detected. Red dots indicate the spread of ASFV to other Marzes after the 2009 outbreaks.

African Swine Fever in Armenia: *emergence of the disease in domestic pig holdings in the Tavush Marz (Northern Armenia)*

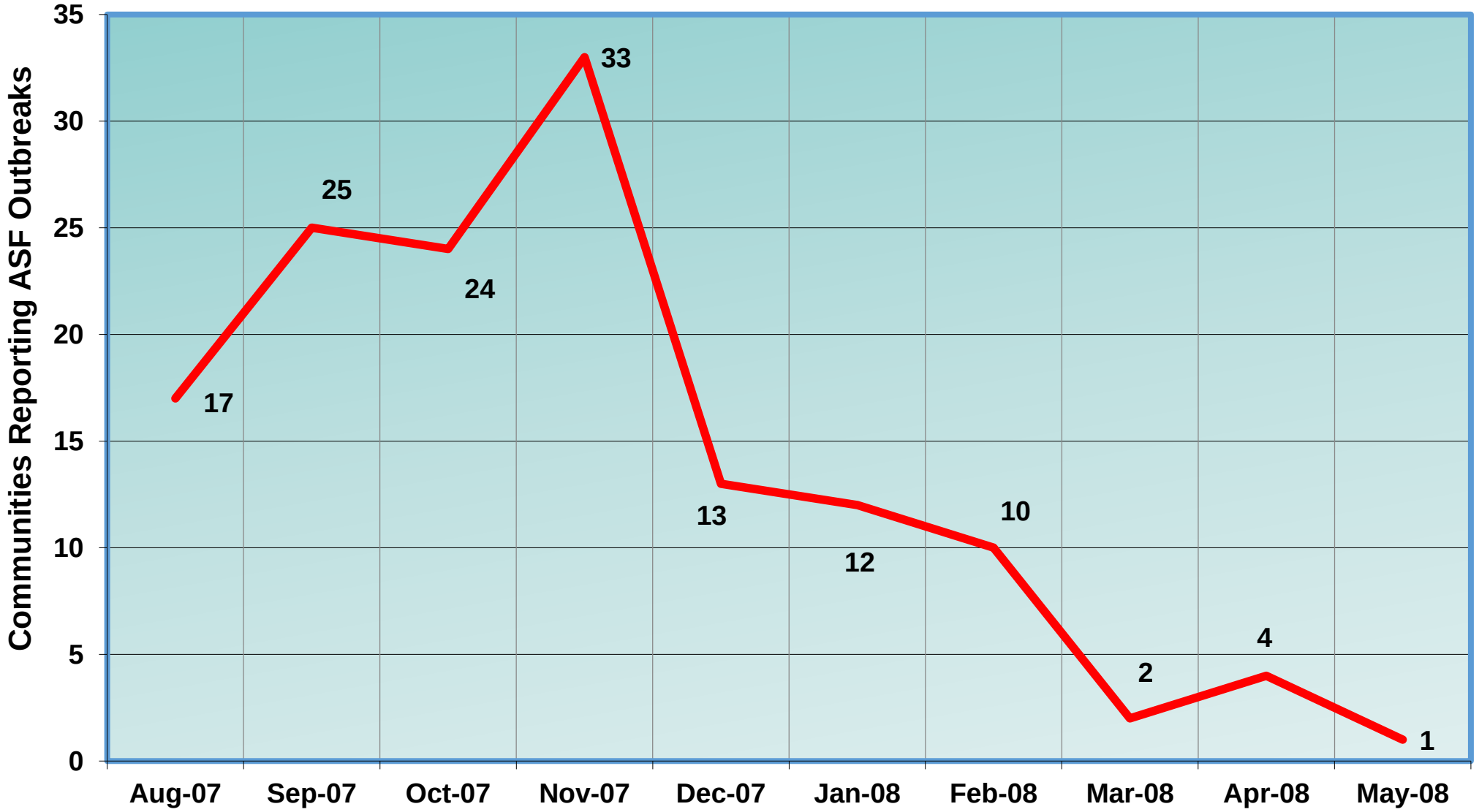
- ***First case was detected in August 2007, Dilijan, Tavush Marz.***
- ***Approximately 25,000 domestic pigs were culled at the height of the disease in 2007-2008.***
- ***Further outbreaks were then reported in 2008, 2010, and 2011.***

ASFV outbreaks in Armenia have declined since 2007

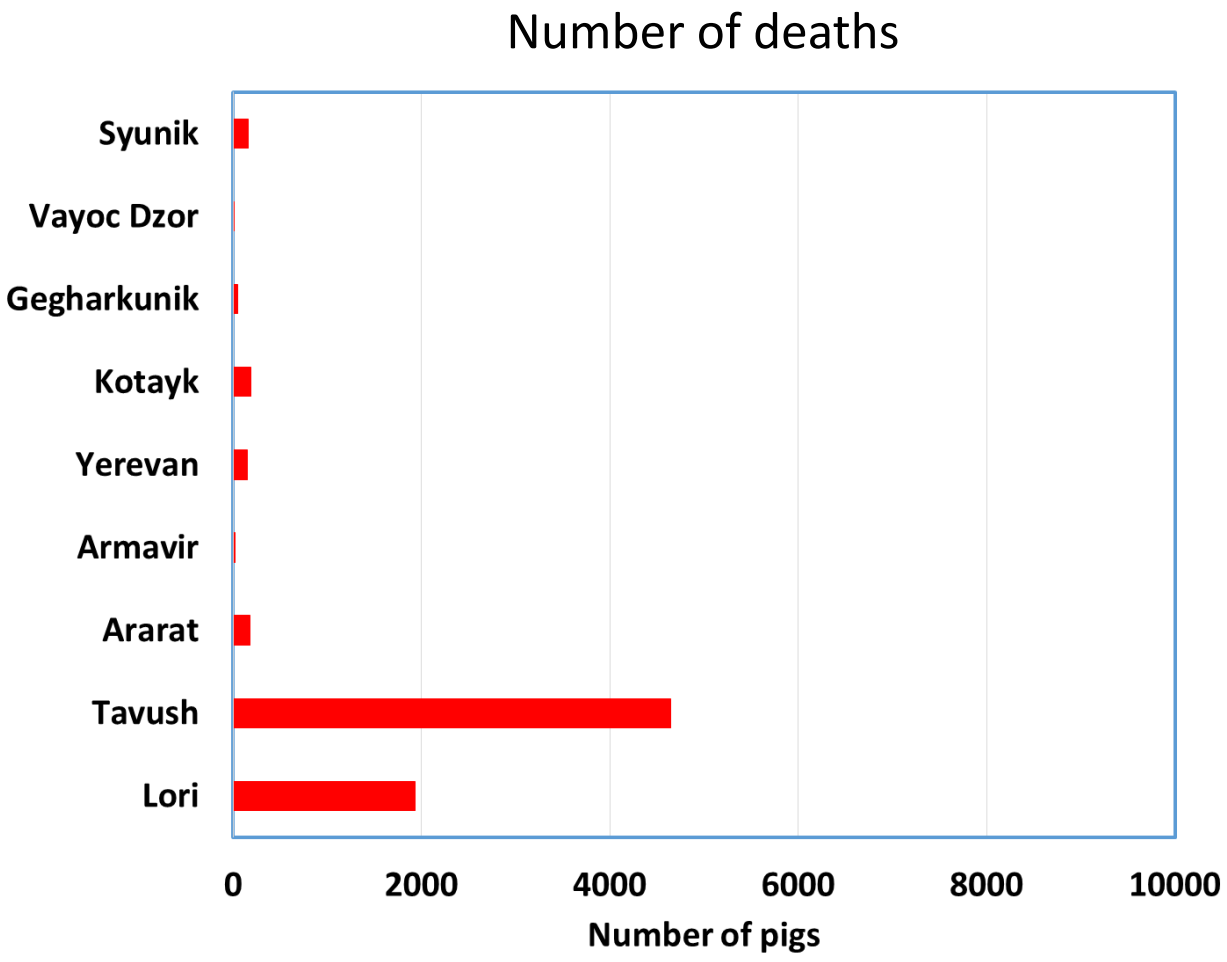
[source: World Animal Health Organization (OIE)]

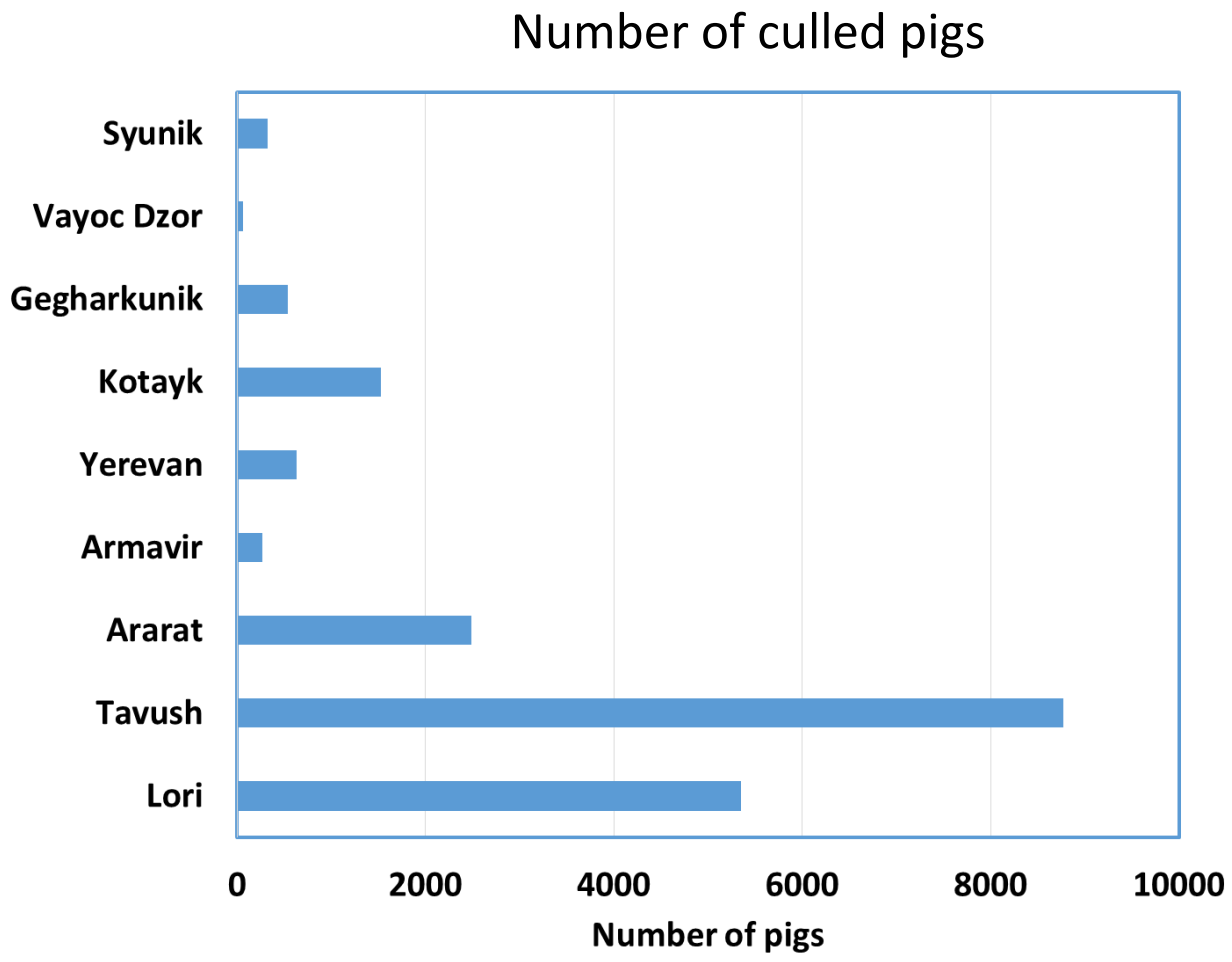
Date	Location	# Exposed pigs	# Deaths	# Destroyed pigs	Test	Species
Aug-07	VAAGNADZOR, LORI	34	34	0	IFA, PCR, VI	Domestic pigs
Aug-07	BAREKAMAVAN, TAVOUSH	360	140	220	IFA, PCR, VI	Domestic pigs
Aug-07	DILIJAN, TAVOUSH	406	137	269	IFA, PCR, VI	Domestic pigs
Aug-07	AGARTSNI, TAVOUSH	500	230	0	IFA, PCR, VI	Domestic pigs
Aug-07	VAHAGNI, LORI	408	90	28	IFA, PCR, VI	Domestic pigs
Aug-07	DSEGH, LORI	520	26	0	IFA, PCR, VI	Domestic pigs
Oct-07	NEKHOTC, LORI	20	10	10	qPCR	Domestic pigs
Oct-07	HAKHPAT, LORI	94	18	76	qPCR	Domestic pigs
Oct-07	SHAMLUKH, LORI	56	40	16	qPCR	Domestic pigs
Oct-07	KOTHI, TAVOUSH	14	5	9	qPCR	Domestic pigs
Oct-07	THEKHUT, LORI	18	7	4	qPCR	Domestic pigs
Oct-07	KOGHB, TAVOUSH	21	13	8	qPCR	Domestic pigs
Sep-07	TSAKHKASHAT, LORI	32	23	9	Clinical	Domestic pigs
Mar-10	Noyemberyan, Tavoush	116	3	113	Antibody detection ELISA	Domestic pigs
Aug-10	Marts, Lori	8	3	5	Antigen detection ELISA	Feral pigs
Aug-10	Lorut, Lori	26	19	7	Antigen detection ELISA	Feral pigs
Oct-10	Eghegnadzor, Vayots Dzor	2	2	0	Antigen detection ELISA	Wild pigs
Jan-11	Geghashen, Kotyak	1	0	1	Antigen detection ELISA	Domestic pigs
Jan-11	Nor Artik, Aragatson	2	0	2	Antigen detection ELISA	Domestic pigs
Jan-11	Azatamut, Tavoush	2	0	2	Antigen detection ELISA	Domestic pigs
Feb-11	Norakert, Armavir	2	0	2	Antigen detection ELISA	Domestic pigs
Feb-11	Mutsq, Siounik	2	0	2	Antigen detection ELISA	Domestic pigs
Feb-11	Arinj, Kotayk	2	0	2	Antigen detection ELISA	Domestic pigs
Jan-11	Aygedzor, Tavoush	2	0	2	Antigen detection ELISA	Domestic pigs
Jan-11	Nor Gosh, Kotayk	2	0	2	Antigen detection ELISA	Domestic pigs
Jan-11	Kapan, Siounik	1	0	1	Antigen detection ELISA	Domestic pigs
Jan-11	Tsaghkalanj, Armavir	4	0	4	Antigen detection ELISA	Domestic pigs
Mar-11	Nor Egheg, Aragatsotn	2	0	2	Antigen detection ELISA	Domestic pigs

Number of communities in Northern Armenia (Tavush and Lori Marzes) reporting outbreaks during the first ASF epidemic (2007 – 2008).



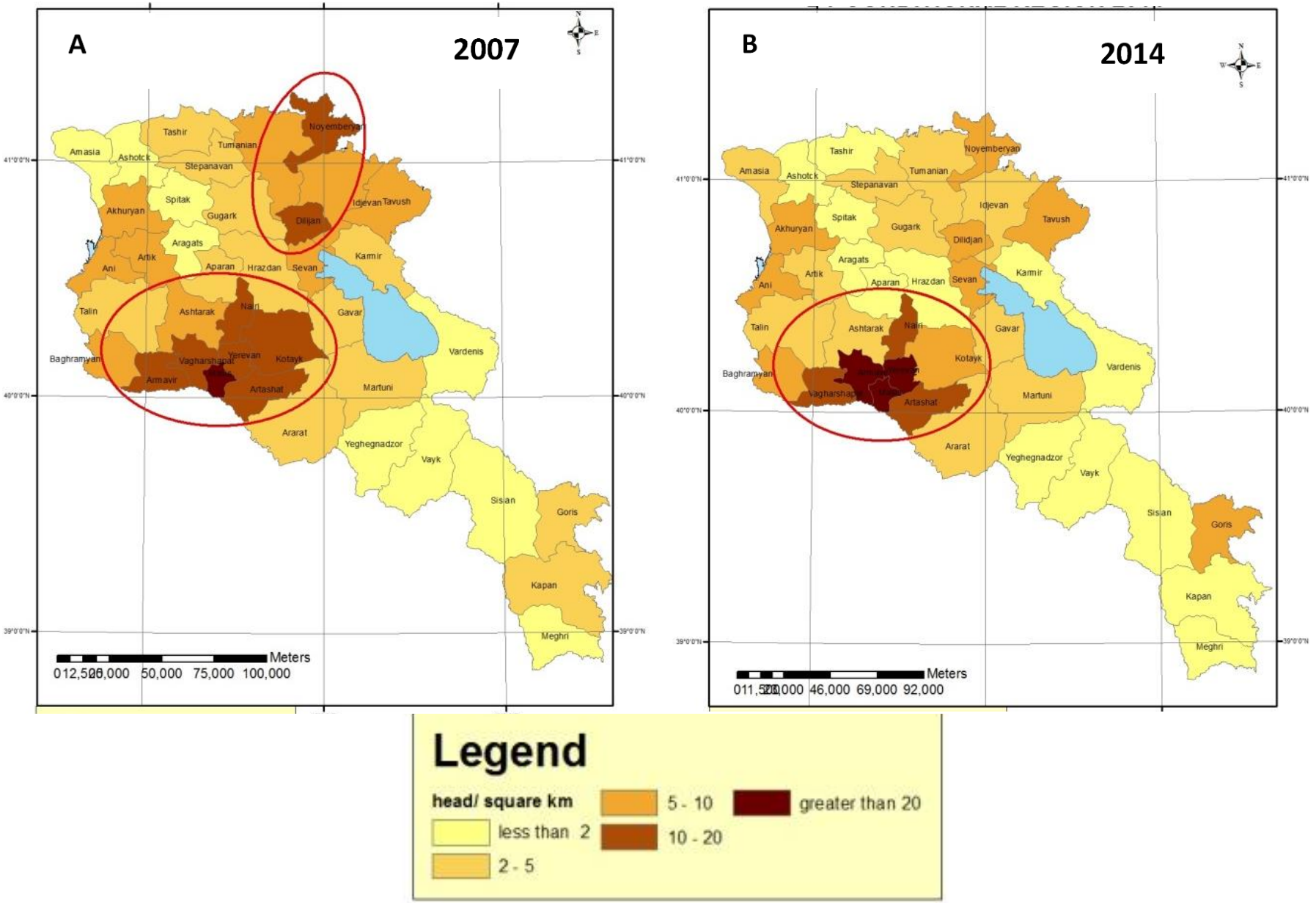
Impact of ASF across Armenia: *number of deaths caused by the disease and number of culled pigs (2007-2008).*



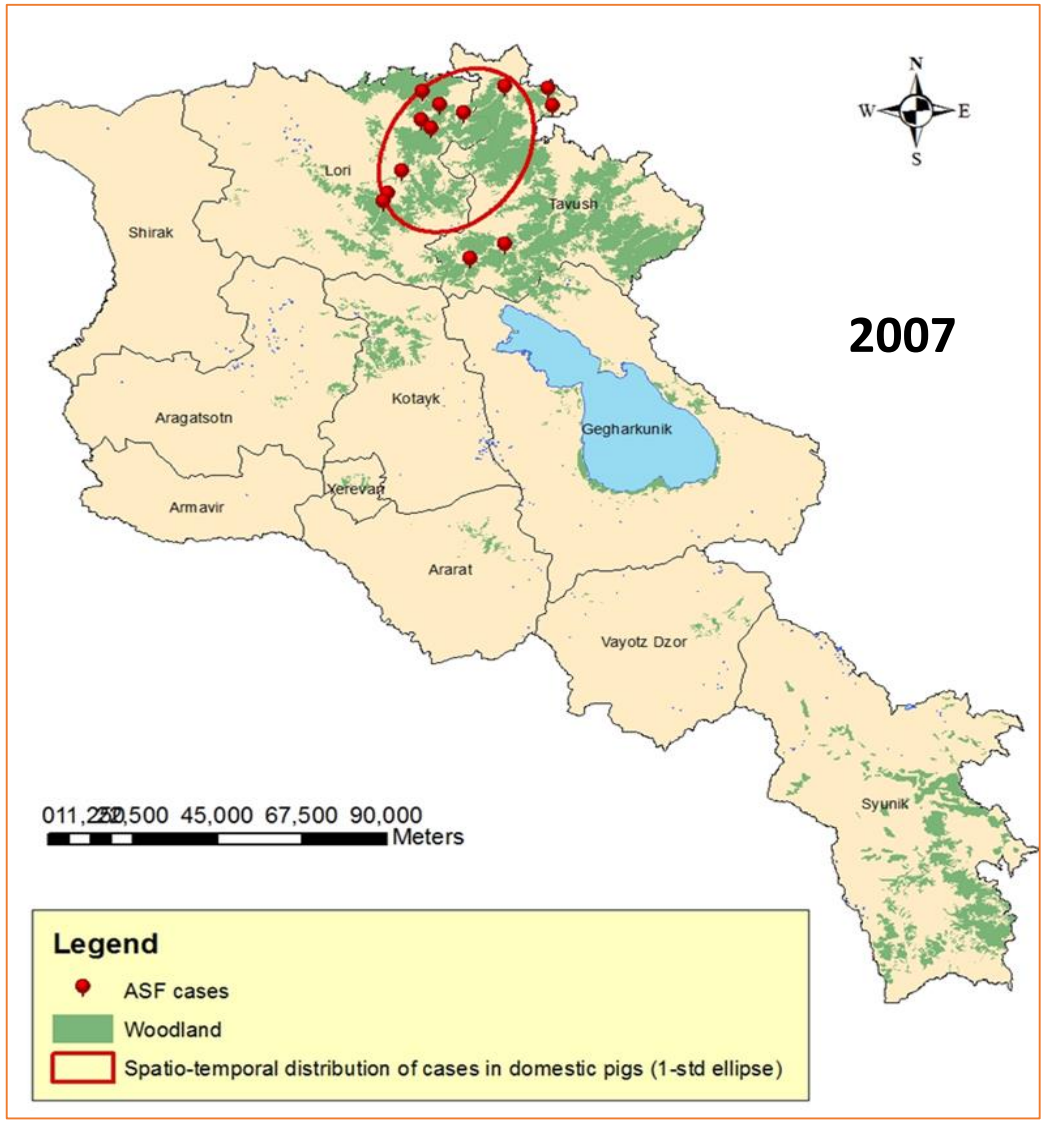


Impact of ASFV introduction into Armenia:

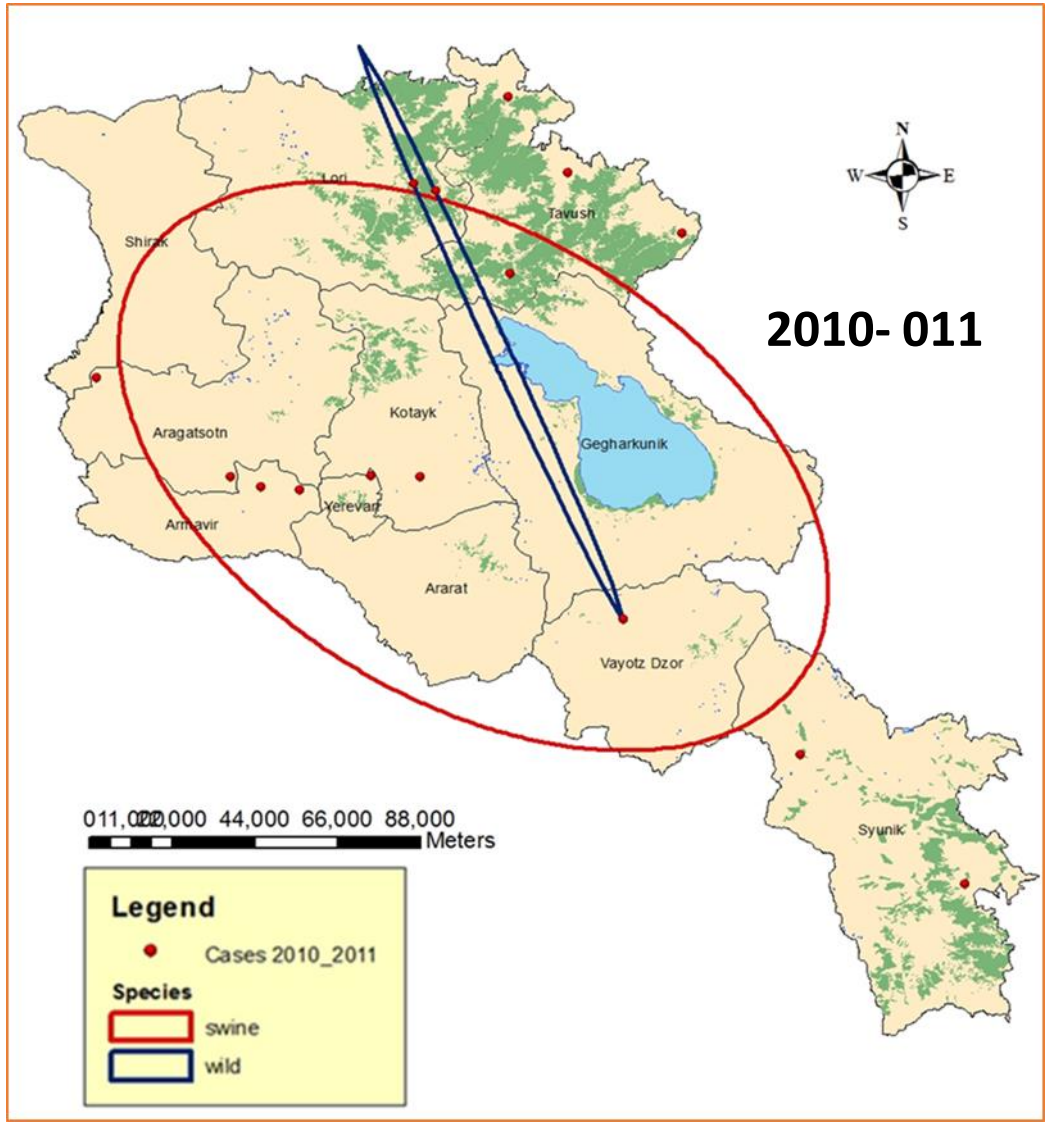
Decline in pig population and geographical shift of pork production *2007 to 2014.*



The Tavush Marz at high risk area for ASF: *a forested area, at international borders, main terrestrial port of entry, presence of wild pigs and ticks.*



Outbreaks detected in domestic pigs



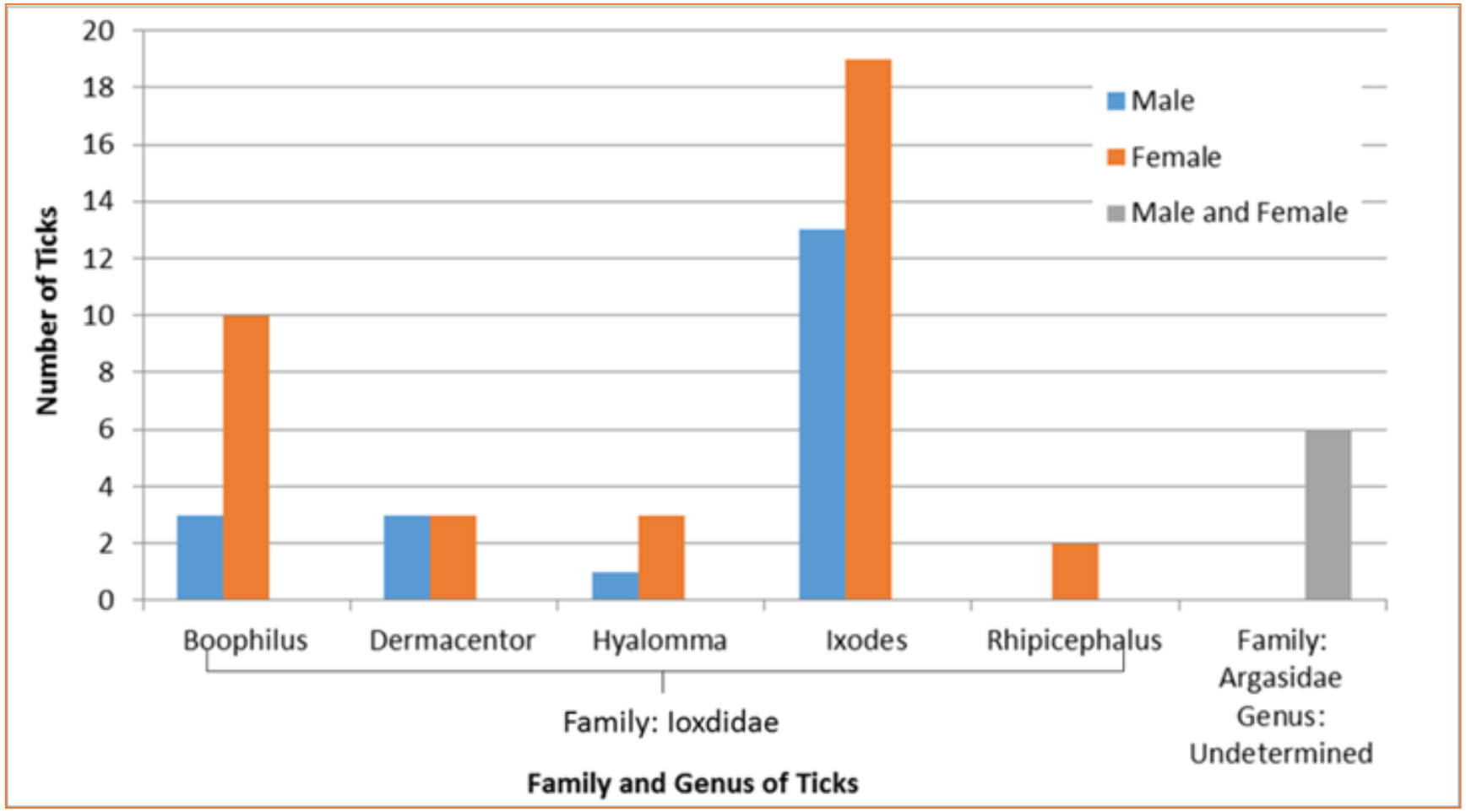
Outbreaks detected in domestic and wild pigs

Collection of samples at the Tavush Region: *targeting domestic swine herds*

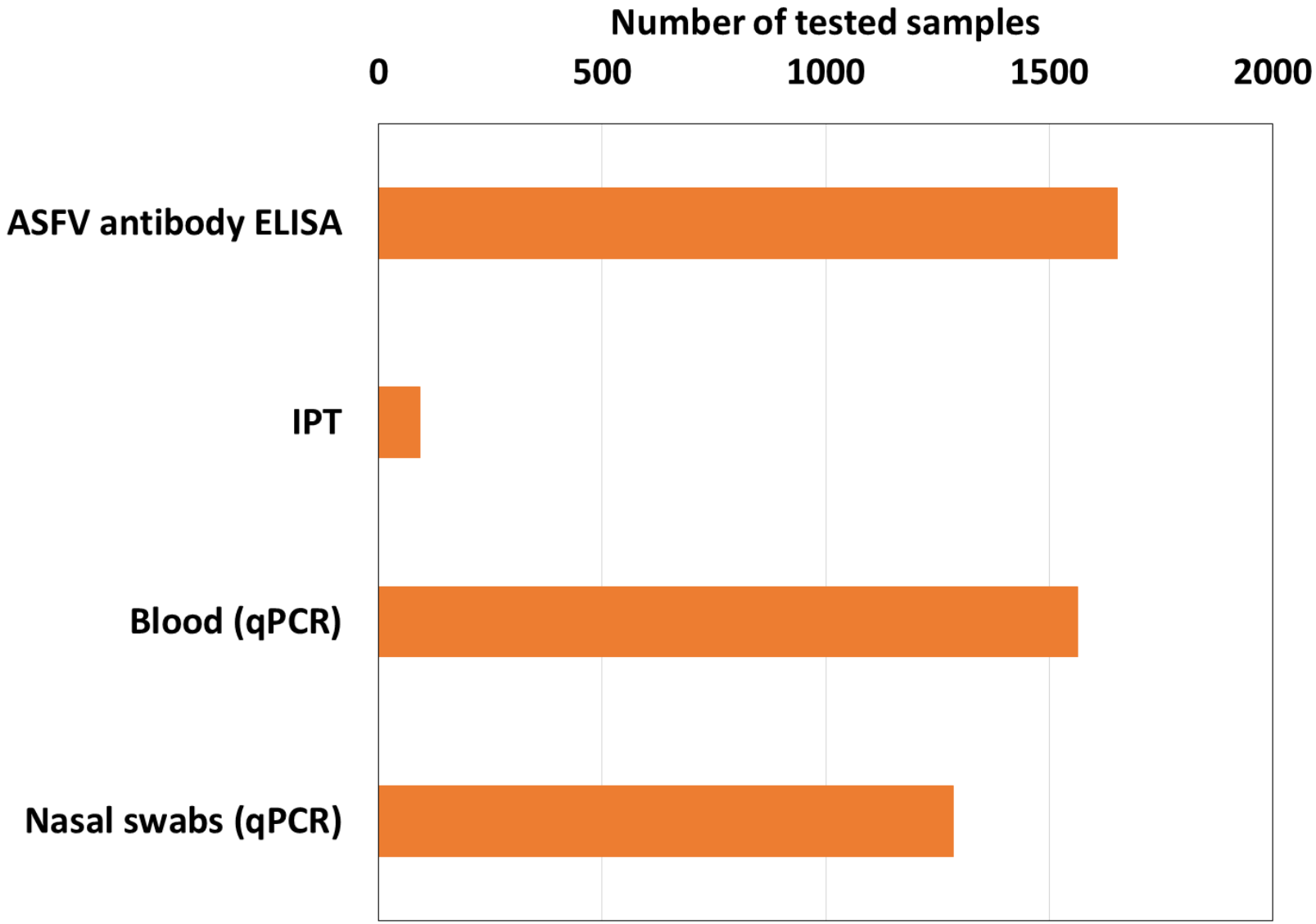
Sample Type	Surveillance Samples	Training Samples (1)	Samples tested with rapid test (2)	Total	Samples tested
Ticks	59	15	0	74	74
Nasal Swabs	1,509	76	0	1,585	1,544
Blood	1,507	74	12	1,593	1,558
Serum	1,507	67	12	1,586	1,561
Totals	**4,582**	**232**	**24**	**4,838**	**4,737**

(1) Comprised samples utilized during sample collection and sample testing training sessions.
(2) Samples tested for ASFV using a rapid chromatographic antigen detection test (Ingenasa, Spain).

Limited numbers of ticks were collected from swine and/or swine environments: *identification*



All samples tested negative for ASF: Estimated prevalence <1% among domestic pigs in the Tavush Marz.



Concluding Remarks

- All 4,668 samples tested negative for ASF.
- *ASFV prevalence in the* ***Tavush Marz is lower than 1% among domestic pigs (considering a 95% confidence with 2.5% precision and a sensitivity and specificity of the tests of 90% and 80% respectively)(*)****.*
- The role of wild pigs and indigenous ticks in ASF in this region has yet to be determined.

(*) *(Epitools.ausvet.com; Humphry RW, Cameron A, Gunn GJ, 2004. A practical approach to calculate sample size for herd prevalence surveys. Prev. Vet. Med. 65: 173-188. Adjustment for finite population size is described by Thrusfield M, 2005. Veterinary Epidemiology, 3rd Edition, Blackwell Science, Oxford, UK p233-234*

Acknowlegements

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