

**Supplementary Table 1.** History of the herds from which the sample was taken (Total number of flocks = 43).

City	Flock number	Herd size	Abortion rate%	vaccination		Serology (adults)	PCR (fetuses)
				(adults)	(lambs)		
Tabriz	1	500	2.4	✘	✘	+	N/A
	2	100	5	m	m	+	+
	3	125	8.8	✘	✓	N/A	+
	4	50	14	✘	✘	-	N/A
	5	85	3.5	m	m	+	+
	6	300	1.5	m	m	-	+
Marand	1	110	21.81	✘	✓	-	N/A
Charuymaq	1	290	7.5	✓	✓	+	+
	2	355	7.04	✓	✘	+	N/A
	3	200	5	✘	✘	+	N/A
	4	150	4.66	✘	✘	+	+
	5	260	3.1	✘	✓	-	+
	6	350	4.28	✘	✘	+	+
	7	105	5.71	✘	✘		+
	8	243	12.34	✘	✘	+	+
	9	320	8.12	✘	✘	+	+
	10	60	5	✘	✘	-	N/A
	11	40	8	✘	✘	N/A	+
	12	68	13.23	✘	✘	N/A	+
	13	100	6	✘	✘	N/A	+
	14	510	0.4	✘	✘	N/A	+
	15	80	2.5	✘	✘	N/A	+
	16	200	0.5	✘	✘	N/A	+
Khoda Afarin	1	130	24.61	✘	✘	+	+
	2	370	17.83	✘	✘	+	+
	3	110	19.1	✘	✘	+	
Jolfa	1	700	5.71	✘	✘	+	+
	2	730	2.75	✘	✘	+	+
Heris	1	85	35.3	✘	✘	+	+
Bostan Abad	1	396	9.6	✘	✓	+	+
	2	220	4.54	✓	✓	+	+
	3	50	6	✘	✘	+	+
	4	169	3.55	✘	✘	-	+
	5	52	38.46	✘	✘	+	+
	6	355	5.66	✘	✓	N/A	+
	7	35	2.85	✘	✘	N/A	+
	8	130	2.3	✘	✘	N/A	+
Mianeh	1	236	17.8	✘	✘	+	N/A
	2	220	25	✘	✘	+	N/A
	3	75	42.6	✘	✘	+	+
	4	300	26.6	✘	✘	-	N/A
	5	150	10	✘	✘	-	N/A
Hashtroud	1	132	62.12	✘	✓	+	N/A

✓: Received vaccine; ✗: No received vaccine; -: negative result; +: positive result; m: missed data; NA: No samples or fetuses available.