

Table S1. Agreement table, observer agreement chart, agreement indexes and relative confidence intervals for the selected nine dairy goat farms.

Values of the agreement indexes used with relative confidence intervals, calculated with the closed formulas of variance estimates found in published literature and through the bootstrap and exact bootstrap methods. The first column shows the agreement table [63] and the observer agreement chart [36].

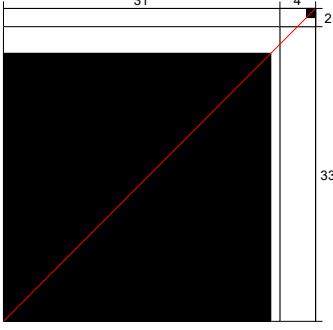
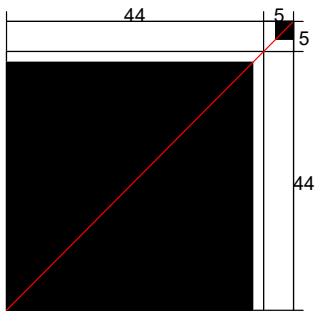
¹ $\pi = \pi$ index [19]; $k = k$ index [5]; $k_c =$ correct k index [5]; k_{PABAK} and related indexes (σ index [20], G index [27] and S index [28]); $H = H$ index [29]; $\alpha = \alpha$ index [30]; $\Gamma = \Gamma$ index [31]; $J = J$ index [32]; $B = B$ index [33]; $\Delta = \Delta$ index [24]; $\gamma(AC_1) = \gamma(AC_1)$ index [21].

² E-IT1, I-IT1, I-IT2, I-IT3, I-IT4, I-IT5, I-IT6, I-IT7, I-PT1 = farms.

³ P_o = concordance rate.

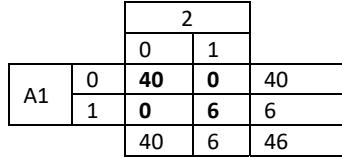
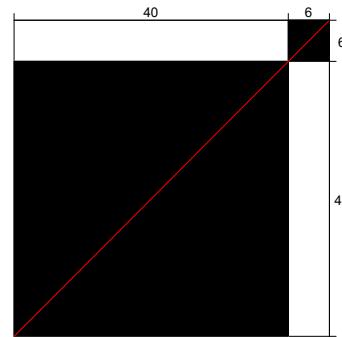
⁴ N.C. = not calculated as the closed formula or the algorithm was not able to give any value.

	Index ¹	Value	Confidence intervals																			
			By closed formula	By bootstrap method (BM; mean) By exact bootstrap method (EBM; mean)																		
E-IT1 ²			$P_o = 0.75^3$																			
	A2																					
A1	<table border="1"> <tr> <td></td><td>0</td><td>1</td><td></td></tr> <tr> <td>0</td><td>54</td><td>13</td><td>67</td></tr> <tr> <td>1</td><td>6</td><td>4</td><td>10</td></tr> <tr> <td></td><td>60</td><td>17</td><td>77</td></tr> </table>		0	1		0	54	13	67	1	6	4	10		60	17	77		π	0.15 <i>(with paradoxes)</i>	-0.19; 0.48 <i>[19]</i>	BM: -0.12; 0.42 (0.13) EBM: -0.11; 0.39 (0.14)
	0	1																				
0	54	13	67																			
1	6	4	10																			
	60	17	77																			
			k_α	0.16 <i>(with paradoxes)</i>	-0.01; 0.33 <i>[62]</i>	BM: -0.08; 0.40 (0.14) EBM: -0.08; 0.41 (0.15)																
			k_c	0.23 <i>(with paradoxes)</i>	0.01; 0.45 <i>[62]</i>	BM: -0.14; 0.62 (0.21) EBM: -0.13; 0.60 (0.22)																
			k_{PABAK}	0.51 <i>(without paradoxes)</i>	0.31; 0.69 <i>[19]</i>	BM: 0.30; 0.69 (0.50) EBM: 0.30; 0.69 (0.51)																
			H	0.75 <i>(without paradoxes)</i>	0.65; 0.85 <i>[19]</i>	BM: 0.65; 0.85 (0.75) EBM: 0.65; 0.84 (0.75)																
			Γ_J	0.25 <i>(with paradoxes)</i>	0.22; 0.29 <i>[59]</i>	BM: 0.09; 0.47 (0.26) EBM: 0.09; 0.47 (0.27)																
			B	0.70 <i>(without paradoxes)</i>	N.C. ⁴	BM: 0.57; 0.82 (0.70) EBM: 0.57; 0.82 (0.70)																
			Δ	0.52 <i>(without paradoxes)</i>	$\Delta_I = 0.33; 0.71$ $\Delta_{II} = 0.35; 0.69$ <i>[24]</i>	BM: 0.33; 0.72 (0.52) EBM: 0.33; 0.72 (0.53)																
			$\gamma(AC_1)$	0.65 <i>(without paradoxes)</i>	0.54; 0.77 <i>[21]</i>	BM: 0.46; 0.80 (0.64) EBM: 0.47; 0.80 (0.65)																
I-IT1			$P_o = 0.77$																			
	A2																					
A1	<table border="1"> <tr> <td></td><td>0</td><td>1</td><td></td></tr> <tr> <td>0</td><td>31</td><td>5</td><td>36</td></tr> <tr> <td>1</td><td>5</td><td>3</td><td>8</td></tr> <tr> <td></td><td>36</td><td>8</td><td>44</td></tr> </table>		0	1		0	31	5	36	1	5	3	8		36	8	44		π	0.24 <i>(with paradoxes)</i>	-0.18; 0.65 <i>[19]</i>	BM: -0.17; 0.70 (0.24) EBM: -0.14; 0.56 (0.22)
	0	1																				
0	31	5	36																			
1	5	3	8																			
	36	8	44																			
			k_α	0.24 <i>(with paradoxes)</i>	-0.18; 0.65 <i>[62]</i>	BM: -0.15; 0.65 (0.24) EBM: -0.12; 0.56 (0.23)																
			k_c	0.24 <i>(with paradoxes)</i>	0.24; 0.24 <i>[62]</i>	BM: -0.26; 0.74 (0.29) EBM: -0.22; 0.86 (0.33)																
			k_{PABAK}	0.54 <i>(without paradoxes)</i>	0.29; 0.79 <i>[19]</i>	BM: 0.22; 0.87 (0.55) EBM: 0.27; 0.77 (0.54)																
			H	0.77 <i>(without paradoxes)</i>	0.64; 0.90 <i>[19]</i>	BM: 0.73; 0.97 (0.88) EBM: 0.64; 0.88 (0.77)																
			Γ_J	0.30 <i>(with paradoxes)</i>	0.23; 0.36 <i>[59]</i>	BM: 0.07; 0.63 (0.31) EBM: 0.07; 0.60 (0.31)																
			B	0.71 <i>(without paradoxes)</i>	N.C.	BM: 0.46; 0.91 (0.72) EBM: 0.54; 0.87 (0.71)																
			Δ	0.54 <i>(without paradoxes)</i>	$\Delta_I = 0.30; 0.79$ $\Delta_{II} = 0.32; 0.77$ <i>[24]</i>	BM: 0.28; 0.83 (0.56) EBM: 0.30; 0.79 (0.57)																
			$\gamma(AC_1)$	0.68 <i>(without paradoxes)</i>	0.56; 0.79 <i>[21]</i>	BM: 0.33; 0.90 (0.68) EBM: 0.44; 0.86 (0.67)																

I-IT2				$P_o = 0.88$																
<table border="1"> <thead> <tr> <th colspan="2">A2</th> </tr> <tr> <th>0</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>A1 0</td> <td>30</td> </tr> <tr> <td>1</td> <td>3</td> </tr> <tr> <td></td> <td>33</td> </tr> <tr> <td></td> <td>2</td> </tr> <tr> <td></td> <td>35</td> </tr> </tbody> </table>				A2		0	1	A1 0	30	1	3		33		2		35	π 0.27 (with paradoxes) k_C 0.43 (with paradoxes) k_{PABAK} 0.77 (without paradoxes) H 0.88 (without paradoxes) Γ_J 0.59 (with paradoxes) B 0.87 (without paradoxes) Δ 0.79 (without paradoxes) $\gamma(AC_1)$ 0.86 (without paradoxes)	-0.41; 0.95 [19] k 0.27 (with paradoxes) α 0.95 [62] -0.40; 0.95 $[62]$ 0.54; 0.98 [19] 0.77; 0.99 [19] 0.52; 0.67 [59] N.C. $\Delta_I = 0.58; 0.99$ $\Delta_{II} = 0.62; 0.96$ [24] 0.75; 0.98 [21]	BM: -012; 0.86 (0.26) EBM: -0.11; 0.78 (0.23) BM: -0.10; 0.78 (0.27) EBM: -0.09; 0.78 (0.25) BM: -0.17; 1.00 EBM: N.C. ² BM: 0.45; 0.95 (0.76) EBM: 0.54; 0.94 (0.77) BM: 0.74; 0.99 (0.88) EBM: 0.77; 0.97 (0.89) BM: 0.28; 0.90 (0.59) EBM: 0.29; 0.89 (0.61) BM: 0.73; 0.97 (0.87) EBM: 0.74; 0.97 (0.87) BM: 0.52; 0.97 (0.79) EBM: 0.57; 0.97 (0.81) BM: 0.66; 0.99 (0.86) EBM: 0.70; 0.97 (0.86)
A2																				
0	1																			
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Agreement table																				
Observer agreement chart																				
I-IT3				$P_o = 0.92$																
<table border="1"> <thead> <tr> <th colspan="2">2</th> </tr> <tr> <th>0</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>A1 0</td> <td>42</td> </tr> <tr> <td>1</td> <td>2</td> </tr> <tr> <td></td> <td>44</td> </tr> <tr> <td></td> <td>5</td> </tr> <tr> <td></td> <td>49</td> </tr> </tbody> </table>				2		0	1	A1 0	42	1	2		44		5		49	π 0.55 (with paradoxes) k_C 0.55 (with paradoxes) k_{PABAK} 0.84 (without paradoxes) H 0.92 (without paradoxes) Γ_J 0.69 (with paradoxes) B 0.90 (without paradoxes) Δ 0.84 (without paradoxes) $\gamma(AC_1)$ 0.90 (without paradoxes)	0.13; 0.98 [19] k 0.55 (with paradoxes) α 0.97 [62] 0.14; 0.97 $[62]$ 0.55; 0.55 $[62]$ 0.69; 0.99 [19] 0.84; 0.99 [19] 0.64; 0.76 [59] N.C. $\Delta_I = 0.68; 0.99$ $\Delta_{II} = 0.70; 0.98$ [24] 0.78; 1.02 [21]	BM: 0.17; 0.83 (0.54) EBM: -0.04; 0.90 (0.52) BM: 0.21; 0.83 (0.55) EBM: -0.03; 0.90 (0.53) BM: 0.20; 1.00 (0.64) EBM: -1.29; 5.09 (1.23) BM: 0.71; 0.95 (0.84) EBM: 0.67; 0.96 (0.84) BM: 0.86; 0.97 (0.92) EBM: 0.80; 0.97 (0.90) BM: 0.51; 0.90 (0.71) EBM: 0.45; 0.92 (0.70) BM: 0.85; 0.98 (0.90) EBM: 0.80; 0.98 (0.90) BM: 0.72; 0.97 (0.85) EBM: 0.68; 0.98 (0.85) BM: 0.81; 0.97 (0.90) EBM: 0.78; 0.98 (0.90)
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	49																			
Agreement table																				
Observer agreement chart																				

I-IT4	$P_o = 0.95$
	π 0.64 (with paradoxes) 0.14; 1.13 [19] BM: 0.19; 0.92 (0.62) EBM: - 0.04; 1.00 (0.59)
	k_α 0.64 (with paradoxes) 0.16; 1.12 [62] BM: 0.23; 0.93 (0.62) EBM: N.C.
	k_C 1 (with paradoxes) 0.51; 1.48 [62] BM: N.C. EBM: -4.3; 8.33
	k_{PABAK} 0.89 (without paradoxes) 0.76; 1.00 [19] BM: 0.79; 0.97 (0.89) EBM: 0.72; 1.00 (0.89)
	H 0.95 (without paradoxes) 0.88; 1.00 [19] BM: 0.88; 0.99 (0.95) EBM: 0.86; 1.00 (0.95)
	Γ_J 0.79 (with paradoxes) 0.72; 0.87 [59] BM: 0.59; 0.95 (0.80) EBM: 0.52; 1.00 (0.79)
	B 0.94 (without paradoxes) N.C. BM: 0.88; 0.99 (0.94) EBM: 0.85; 1.00 (0.94)
	Δ 0.95 (without paradoxes) $\Delta_I = 0.84; 1.05$ $\Delta_{II} = 0.84; 1.05$ [24] BM: 0.87; 0.99 (0.94) EBM: 0.86; 1.00 (0.95)
	$\gamma (AC_1)$ 0.94 (without paradoxes) 0.82; 1.05 [21] BM: 0.86; 0.99 (0.93) EBM: 0.83; 1.00 (0.93)
I-IT5	$P_o = 0.95$
	π -0.02 (with paradoxes) -1.43; 1.38 [19] BM: N.C. EBM: -0.07; 1.00 (0.10)
	k_α 0.00 (with paradoxes) -1.35; 1.35 [62] BM: N.C. EBM: 0.00; 1.00 (0.13)
	k_C 0.00 (with paradoxes) N.C. BM: N.C. EBM: N.C.
	k_{PABAK} 0.90 (without paradoxes) 0.76; 1.00 [19] BM: 0.74; 1.00 (0.90) EBM: 0.75; 1.00 (0.90)
	H 0.95 (without paradoxes) 0.88; 1.00 [19] BM: 0.86; 1.00 (0.95) EBM: 0.87; 1.00 (0.95)
	Γ_J 0.81 (with paradoxes) 0.74; 0.88 [59] BM: 0.51; 1.00 (0.79) EBM: 0.56; 1.00 (0.81)
	B 0.95 (without paradoxes) N.C. BM: 0.87; 1.00 (0.95) EBM: 0.87; 1.00 (0.95)
	Δ 0.95 (without paradoxes) N.C. BM: 0.90; 1.00 (0.97) EBM: 0.87; 1.00 (0.95)
	$\gamma (AC_1)$ 0.95 (without paradoxes) 0.83; 1.00 [21] BM: 0.81; 1.00 (0.94) EBM: 0.86; 1.00 (0.95)

I-IT6	$P_o = 0.97$				
	π	0.78 (with paradoxes)	0.35; 1.20 [19]	BM: 0.62; 0.94 (0.77) EBM: 0.47; 0.80 (0.74)	
	k α	0.78 (with paradoxes)	0.36; 1.20 [62]	BM: 0.00; 1.00 (0.77) EBM: 0.00; 1.00 (0.74)	
	k_c	1.00 (with paradoxes)	0.58; 1.41 [62]	BM: N.C. EBM: N.C.	
	k_{PABAK}	0.93 (without paradoxes)	0.82; 1.00 [19]	BM: 0.74; 1.00 (0.93) EBM: 0.80; 1.00 (0.93)	
	H	0.97 (without paradoxes)	0.91; 1.00 [19]	BM: 0.79; 0.99 (0.90) EBM: 0.9; 1.00 (0.97)	
	Γ J	0.87 (with paradoxes)	0.78; 0.95 [59]	BM: 0.55; 1.00 (0.87) EBM: 0.64; 1.00 (0.87)	
	B	0.96 (without paradoxes)	N.C.	BM: 0.88; 1.00 (0.96) EBM: 0.88; 1.00 (0.96)	
	Δ	0.97 (without paradoxes)	$\Delta_I = 0.87; 1.00$ $\Delta_{II} = 0.87; 1.00$ [24]	BM: 0.87; 1.00 (0.97) EBM: 0.90; 1.00 (0.97)	
	$\gamma (AC_1)$	0.96 (without paradoxes)	0.84; 1.00 [21]	BM: 0.84; 1.00 (0.96) EBM: 0.80; 1.00 (0.93)	
I-IT7	$P_o = 0.97$				
	π	-0.02 (with paradoxes)	-2.01; 1.98 [19]	BM: N.C. EBM: -0.05; 1.00 (0.35)	
	k α	0.00 (with paradoxes)	-1.93; 1.93 [62]	BM: N.C. EBM: 0.00; 1.00 (0.36)	
	k_c	0.00 (with paradoxes)	N.C.	BM: N.C. EBM: 0.00; 1.00 (0.00)	
	k_{PABAK}	0.93 (without paradoxes)	0.82; 1.00 [19]	BM: 0.77; 1.00 (0.93) EBM: 0.80; 1.00 (0.93)	
	H	0.97 (without paradoxes)	0.91; 1.00 [19]	BM: 0.90; 1.00 (0.97) EBM: 0.90; 1.00 (0.97)	
	Γ J	0.87 (with paradoxes)	0.78; 0.96 [59]	BM: 0.63; 1.00 (0.88) EBM: 0.64; 1.00 (0.87)	
	B	0.97 (without paradoxes)	N.C.	BM: 0.91; 1.00 (0.97) EBM: 0.90; 1.00 (0.97)	
	Δ	0.97 (without paradoxes)	$\Delta_I = 0.87; 1.00$ $\Delta_{II} = N.C.$ [24]	BM: 0.88; 1.00 (0.97) EBM: 0.90; 1.00 (0.97)	
	$\gamma (AC_1)$	0.96 (without paradoxes)	0.85; 1.00 [21]	BM: 0.88; 1.00 (0.97) EBM: 0.89; 1.00 (0.96)	

I-PT1		$P_o = 1.00$																							
A1	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th colspan="2"></th> <th colspan="2">2</th> </tr> <tr> <th colspan="2"></th> <th>0</th> <th>1</th> </tr> <tr> <th>0</th> <td>40</td> <td>0</td> <td>40</td> </tr> <tr> <th>1</th> <td>0</td> <td>6</td> <td>6</td> </tr> <tr> <th colspan="2"></th> <td>40</td> <td>6</td> <td>46</td> </tr> </table>			2				0	1	0	40	0	40	1	0	6	6			40	6	46	π	1.00 (with paradoxes)	1.00; 1.00 [19] BM: 1.00; 1.00 (1.00) EBM: 1.00; 1.00 (1.00)
		2																							
		0	1																						
0	40	0	40																						
1	0	6	6																						
		40	6	46																					
Agreement table		k	1.00 (with paradoxes)	1.00; 1.00 [62] BM: 1.00; 1.00 (1.00) EBM: 1.00; 1.00 (1.00)																					
Observer agreement chart		k_C	1.00 (with paradoxes)	-1.00; 1.00 [62] BM: 1.00; 1.00 (1.00) EBM: 1.00; 1.00 (1.00)																					
		k_{PABAK}	1.00 (without paradoxes)	N.C. BM: 1.00; 1.00 (1.00) EBM: 1.00; 1.00 (1.00)																					
		H	1.00 (without paradoxes)	N.C. BM: 1.00; 1.00 (1.00) EBM: 1.00; 1.00 (1.00)																					
		Γ	1.00 (with paradoxes)	0.94; 1.00 [59] BM: 1.00; 1.00 (1.00) EBM: 1.00; 1.00 (1.00)																					
		J																							
		B	1.00 (without paradoxes)	N.C. BM: 1.00; 1.00 (1.00) EBM: 1.00; 1.00 (1.00)																					
		Δ	1.00 (without paradoxes)	$\Delta_I = 1.00$ $\Delta_{II} = 1.00$ [24] BM: 1.00; 1.00 (1.00) EBM: 1.00; 1.00 (1.00)																					
		$\gamma (AC_1)$	1.00 (without paradoxes)	0.88; 1.12 [21] BM: 1.00; 1.00 (1.00) EBM: 1.00; 1.00 (1.00)																					

References

63. Agresti, A. *Categorical Data Analysis*, 2nd ed.; Wiley: New York, NY, USA, 2002; pp. 1–356.

Table S2. Agreement table.

Observations can be organized in a contingency 2 (rater) $\times 2$ (categories) table, in which the N objects are evaluated by a categorical scale of 2 categories. This table is known as agreement table [63].

		Rater B		Total
		1	2	
Rater A q	1	n_{11}	n_{12}	$n_{1.}$
	2	n_{21}	n_{22}	$n_{2.}$
	Total	$n_{.1}$	$n_{.2}$	n

q = categories; n = subjects