High Milk Somatic Cell Counts and Increased Teladorsagia Burdens Overshadow Non-Infection Related Factors as Predictors of Fat and Protein Content of Bulk-Tank Raw Milk in Sheep and Goat Farms

Daphne T. Lianou, Charalambia K. Michael, Dimitris A. Gougoulis, Peter J. Cripps, Natalia G.C. Vasileiou, Nikolaos Solomakos, Efthymia Petinaki, Angeliki I. Katsafadou, Elisavet Angelidou, Konstantinos Arsenopoulos, Elias Papadopoulos, Marzia Albenzio, Vasia S. Mavrogianni, Mariangela Caroprese and George C. Fthenakis

Table S1. Husbandry-related variables (n = 37) evaluated for potential association with fat and protein content in the bulk-tank raw milk of 325 sheep and 119 goat farms during a countrywide investigation in Greece.

Management system applied in the farm (description according to EFSA classification [1])
Month into the lactation period at sampling (month)
Availability of straw bedding (yes / no)
Availability of mechanical ventilators (yes / no)
Grazing practiced (yes / no)
Grazing land available to animals (acres per animal)
Availability of milking parlour (yes / no)
Number of milking units in the parlour (no.)
Number of available milking units per animal position (no.)
System pressure (kPa.)
Type of flow line (low / high / other)
No. of female animals in the farm (no.)
Breed of ewes /does (description)
Average age of culling female animals (years)
Total milk quantity per ewe / doe obtained during the preceding milking period (litres)
Average number of lambs / kids born per ewe / doe (no.)
Collaboration with a veterinarian (yes / no)
Clinical mastitis annual incidence risk in the flock / herd (%)
Application of reproductive control practices in the farm (yes / no)
Nutritional modifications performed according to the reproductive stage (yes / no)
Method for drying-off at the end of the lactation period (abrupt / progressive)
Age of lamb / kid removal from their dams (days)
Daily number of milking sessions (no.)
Number of feet care sessions provided annually to the female animals annually (no.)
Shearing of animals (yes / no)
Vaccination against mastitis (yes / no)
Vaccination against contagious agalactia (yes / no)
Administration of anthelmintic treatment during the last stage of pregnancy (yes / no)
Duration of grazing during the year (no. of months)

Provision of hay as fodder to animals (yes / no)

Average quantity of hay provided daily to animals during the preceding season (kg)

Provision of straw to animals (yes / no)

Provision of silage to adult animals (yes / no)

Provision of finished feed (concentrate) to adult animals (yes / no)

Provision of finished feed (concentrate) to adult animals throughout the year (yes / no)

Type of finished feed (concentrate) provided to adult animals (description)

Average quantity of finished feed (concentrate) provided daily to animals during the preceding season (kg)

---

[1] management system classified as intensive, semi-intensive, semi-extensive, extensive (European Food Safety Authority. Scientific opinion on the welfare risks related to the farming of sheep for wool, meat and milk production. *EFSA J.* **2014**, *12*, 3933–4060.).

Table S2. Human resources-related variables (n = 6) evaluated for potential association with fat and protein content in the bulk-tank raw milk of 325 sheep and 119 goat farms during a countrywide investigation in Greece.

Age of farmer (years)
Length of previous animal farming experience (years)
General education (description)
Farmer by profession (yes / no)
Family tradition in farming (yes / no)
Presence of working staff in the farm (yes/no)

Table S3. Details of multivariable models employed for the evaluation of the fat and protein content in the bulk-tank raw milk of 325 sheep and 119 goat farms during a countrywide investigation in Greece.

Outcome	Variables offered to the multivariable models (*n*)	Variables required in the final models
Fat content – sheep milk	16	(a) Month into the lactation period at sampling, (b) Breed of ewes, (c) Age of lamb removal from their dams, (d) Provision of finished feed (concentrate) to adult animals throughout the year, (e) Length of previous animal farming experience of the farmer, (f) presence of working staff in the farm
Protein content – sheep milk	21	(a) Somatic cell counts in bulk tank milk, (b) Proportion of *Teladorsagia* larvae in faecal samples, (c) Management system applied in the farm, (d) Month into the lactation period at sampling, (e) Administration of anthelmintic treatment during the last stage of pregnancy, (f) Provision of finished feed (concentrate) to adult animals throughout the year, (g) General education of farmer
Fat content – goat milk	11	(a) Somatic cell counts in bulk tank milk, (b) Total bacterial counts in bulk-tank milk, (c) Month into the lactation period at sampling, (d) Breed of does, (e) Collaboration with a veterinarian, (f) Age of kid removal from their dams, (g) General education of farmer
Protein content – goat milk	8	(a) Somatic cell counts in bulk tank milk, (b) Proportion of *Teladorsagia* larvae in faecal samples, (c) Month into the lactation period at sampling, (d) Duration of grazing during the year
Fat and protein content concurrently above the average contents of all flocks - sheep	8	(a) Somatic cell counts in bulk tank milk, (b) epg counts in faecal samples, (c) Collaboration with a veterinarian, (d) General education of the farmer
Fat and protein content concurrently above the average contents of all herds - goats	5	(a) Somatic cell counts in bulk tank milk, (b) Proportion of *Teladorsagia* larvae in faecal samples, (c) Month into the lactation period at sampling, (d) Breed of does

Table S4. Effects of husbandry- and human resources-related factors (n = 43) in the fat content (%) in the bulk-tank raw milk of 325 sheep flocks in Greece.

Management system applied in the farm				
Intensive (n = 43)	Semi-intensive (n = 151)	Semi-extensive (n = 107)	Extensive (n = 24)	*p*
6.03 ± 0.09	6.24 ± 0.06	6.11 ± 0.09	6.16 ± 0.23	0.44
Month into the lactation period at sampling				
0 – 1st (n = 23)	2nd – 5th (n = 138)	6th – 9th (n = 147)	After 9th (n = 17)	*p*
5.77 ± 0.13	6.13 ± 0.07	6.25 ± 0.07	6.23 ± 0.33	0.07
Availability of straw bedding				
Yes (n = 268)		No (n = 57)		*p*
6.14 ± 0.05		6.28 ± 0.12		0.24
Availability of mechanical ventilators				
Yes (n = 47)		No (n = 278)		*p*
6.12 ± 0.12		6.17 ± 0.05		0.67
Grazing practiced				
Yes (n = 281)		No (n = 44)		*p*
6.19 ± 0.05		6.00 ± 0.09		0.15
Grazing land available to animals				
≤ 0.50 ac. per animal (n = 118)	0.51-2.00 ac. per animal (n = 130)	> 2.00 ac. per animal (n = 77)		*P*
6.03 ± 0.06	6.32 ± 0.07	6.10 ± 0.12		0.022
Availability of milking parlour				
Yes (n = 255)		No (n = 70)		*p*
6.15 ± 0.05		6.22 ± 0.11		0.53
Number of milking units in the parlour				
< 24 (n = 174)	24 (n = 65)	> 24 (n = 16)		*p*
6.18 ± 0.06	6.14 ± 0.10	5.86 ± 0.18		0.33
Number of available milking units per animal position				
< 1 (n = 177)		1 (n = 78)		*p*
6.21 ± 0.06		6.01 ± 0.09		0.08
System pressure				
< 38 kPa (n = 22)	38 - 42 kPa (n = 203)	> 42 kPa (n = 30)		*p*
6.05 ± 0.24	6.21 ± 0.06	5.79 ± 0.15		0.029
Type of flow line				
High (n = 182)	Low (n = 55)	Other (n = 18)		*p*
6.18 ± 0.06	6.12 ± 0.12	5.94 ± 0.19		0.48
No. of ewes in the flock				
≤ 165 ewes (n = 88)	166 - 330 ewes (n = 120)	331 - 500 ewes (n = 66)	> 500 ewes (n = 51)	*p*
6.02 ± 0.10	6.28 ± 0.07	6.22 ± 0.11	6.08 ± 0.11	0.13
Breed of ewes				
Assaf (n = 30)	Awassi (n = 1)	Boutsko (n = 2)	Chios (n = 44)	*p*
6.06 ± 0.12	5.43	6.55 ± 1.14	5.73 ± 0.15	< 0.0001
Crossbreeds (n = 43)	Friesarta (n = 12)	Friesian (n = 13)	Karagouniko (n = 5)	
6.16 ± 0.11	5.89 ± 0.15	6.41 ± 0.22	5.63 ± 0.62	

Kefallinia (n = 1)	Lacaune (n = 95)	Local (n = 55)	Mytilini (n = 18)	
5.12	6.30 ± 0.08	6.20 ± 0.12	6.89 ± 0.15	
Sfakia (n = 6)				
5.78 ± 0.23				
Average age of culling ewes				
≤ 6 years (n = 226)		> 6 years (n = 99)		*p*
6.17 ± 0.06		6.16 ± 0.08		0.92
Total milk quantity per ewe obtained during the preceding milking period				
≤ 200 L (n = 174)	201 - 400 L (n = 140)	> 400 L (n = 11)		*p*
6.18 ± 0.07	6.13 ± 0.07	6.33 ± 0.18		0.61
Average number of lambs born per ewe				
≤ 1.50 (n = 280)		> 1.50 (n = 45)		*p*
6.16 ± 0.05		6.20 ± 0.13		0.73
Collaboration with a veterinarian				
Yes (n = 277)		No (n = 48)		*p*
6.17 ± 0.05		6.10 ± 0.14		0.59
Clinical mastitis annual incidence risk in the flock				
≤ 0.50% (n = 269)		> 0.50% (n = 56)		*p*
6.15 ± 0.10		6.15 ± 0.05		0.91
Application of reproductive control practices in the farm				
Yes (n = 100)		No (n = 225)		*p*
6.11 ± 0.08		6.19 ± 0.06		0.38
Nutritional modifications performed according to the reproductive stage				
Yes (n = 229)		No (n = 96)		*p*
6.16 ± 0.05		6.17 ± 0.09		0.90
Method for drying-off at the end of the lactation period				
Abrupt (n = 12)		Progressive (n = 313)		*p*
6.25 ± 0.20		6.16 ± 0.05		0.70
Age of lamb removal from their dams				
< 45 days (n = 119)	45 – 60 days (n = 170)	> 60 days (n = 36)		*p*
6.22 ± 0.07	6.19 ± 0.07	5.86 ± 0.17		0.07
Daily number of milking sessions				
One (n = 1)	Two (n = 264)	Three (n = 60)		*p*
6.85	6.17 ± 0.05	6.13 ± 0.09		0.75
Number of feet care sessions provided to the ewes annually				
No feet care provided (n = 102)	1 - 2 (n = 203)	> 2 (n = 20)		*p*
6.22 ± 0.09	6.10 ± 0.06	6.52 ± 0.14		0.07
Shearing of animals				
Yes (n = 319)		No (n = 6)		*p*
6.16 ± 0.05		6.31 ± 0.41		0.68
Vaccination against mastitis				
Yes (n = 126)		No (n = 199)		*p*
6.18 ± 0.07		6.15 ± 0.06		0.77

Vaccination against contagious agalactia				
Yes (n = 186)			No (n = 139)	*p*
6.16 ± 0.06			6.17 ± 0.08	0.97
Administration of anthelmintic treatment during the last stage of pregnancy				
Yes (n = 224)			No (n = 101)	*p*
6.20 ± 0.05			6.08 ± 0.09	0.23
Duration of grazing during the year				
No grazing (n = 44)	1 - 5 months (n = 46)	6 - 10 months (n = 124)	11 - 12 months (n = 111)	*p*
6.11 ± 0.09	6.06 ± 0.13	6.21 ± 0.07	6.17 ± 0.09	0.72
Provision of hay as fodder to animals				
Yes (n = 324)			No (n = 1)	*p*
6.16 ± 0.05			6.63	0.44
Average quantity of hay provided daily to animals during the preceding season				
≤ 0.6 kg (n = 109)			> 0.6 kg (n = 216)	*p*
6.26 ± 0.09			6.11 ± 0.05	0.13
Provision of straw to animals				
Yes (n = 258)			No (n = 67)	*p*
6.18 ± 0.05			6.11 ± 0.14	0.57
Provision of silage to adult animals				
Yes (n = 72)			No (n = 253)	*p*
6.18 ± 0.09			6.16 ± 0.05	0.90
Provision of finished feed (concentrate) to adult animals				
Yes (n = 321)			No (n = 4)	*p*
6.17 ± 0.05			6.02 ± 0.63	0.73
Provision of finished feed (concentrate) to adult animals throughout the year				
Yes (n = 219)			No (n = 106)	*p*
6.09 ± 0.05			6.34 ± 0.09	0.012
Type of finished feed (concentrate) to adult animals				
Mash (n = 122)	Pelleted (n = 101)	Flakes (n = 4)	Crumbled (n = 87)	Other (n = 7)	*p*
6.09 ± 0.07	6.08 ± 0.08	6.45 ± 0.38	6.38 ± 0.09	5.83 ± 0.39	0.05
Average quantity of finished feed (concentrate) provided daily to animals during the preceding season				
≤ 0.6 kg (n = 140)		0.61 – 1.2 kg (n = 148)	> 1.2 kg (n = 37)	*p*
6.22 ± 0.07		6.10 ± 0.07	6.20 ± 0.12	0.42
Age of farmer				
Up to 50 years (n = 197)			Over 50 years (n = 128)	*p*
6.18 ± 0.06			6.14 ± 0.07	0.74
Length of previous animal farming experience				
≤ 5 years (n = 74)			> 5 years (n = 251)	*p*
5.94 ± 0.10			6.23 ± 0.05	0.008
General education of farmer				
Primary (n = 57)	Secondary and post-secondary (n = 225)		Tertiary (n = 43)	*p*
6.17 ± 0.10	6.15 ± 0.06		6.21 ± 0.13	0.92

Farmer by profession		
Yes (n = 292)	No (n = 33)	*p*
6.18 ± 0.05	6.03 ± 0.14	0.33
Family tradition in farming		
Yes (n = 283)	No (n = 42)	*p*
6.19 ± 0.05	5.98 ± 0.11	0.13
Presence of working staff in the farm		
Yes (n = 123)	No (n = 202)	*p*
6.01 ± 0.07	6.26 ± 0.06	0.008

Table S5. Effects of husbandry- and human resources-related factors (n = 43) in the protein content (%) in the bulk-tank raw milk of 325 sheep flocks in Greece.

Management system applied in the farm				
Intensive (n = 43)	Semi-intensive (n = 151)	Semi-extensive (n = 107)	Extensive (n = 24)	*p*
4.46 ± 0.02	4.47 ± 0.02	4.38 ± 0.02	4.32 ± 0.04	0.021
Month into the lactation period at sampling				
0 – 1st (n = 23)	2nd – 5th (n = 138)	6th – 9th (n = 147)	After 9th (n = 17)	*p*
4.42 ± 0.07	4.47 ± 0.02	4.40 ± 0.02	4.33 ± 0.06	0.045
Availability of straw bedding				
Yes (n = 268)		No (n = 57)		*p*
4.44 ± 0.02		4.37 ± 0.04		0.09
Availability of mechanical ventilators				
Yes (n = 47)		No (n = 278)		*p*
4.45 ± 0.03		4.42 ± 0.02		0.53
Grazing practiced				
Yes (n = 281)		No (n = 44)		*p*
4.42 ± 0.02		4.47 ± 0.02		0.91
Grazing land available to animals				
≤ 0.50 ac. per animal (n = 118)	0.51-2.00 ac. per animal (n = 130)	> 2.00 ac. per animal (n = 77)		*p*
4.46 ± 0.02	4.42 ± 0.02	4.38 ± 0.03		0.09
Availability of milking parlour				
Yes (n = 255)		No (n = 70)		*p*
4.45 ± 0.02		4.35 ± 0.03		0.005
Number of milking units in the parlour				
< 24 (n = 174)	24 (n = 65)	> 24 (n = 16)		*p*
4.46 ± 0.02	4.40 ± 0.03	4.45 ± 0.06		0.20
Number of available milking units per animal position				
< 1 (n = 177)		1 (n = 78)		*p*
4.45 ± 0.02		4.43 ± 0.03		0.58
System pressure				
< 38 kPa (n = 22)	38 - 42 kPa (n = 203)	> 42 kPa (n = 30)		*p*
4.44 ± 0.07	4.44 ± 0.02	4.48 ± 0.04		0.76
Type of flow line				
High (n = 182)	Low (n = 55)	Other (n = 18)		*p*
4.45 ± 0.02	4.41 ± 0.03	4.54 ± 0.04		0.14
No. of ewes in the flock				
≤ 165 ewes (n = 88)	166 - 330 ewes (n = 120)	331 - 500 ewes (n = 66)	> 500 ewes (n = 51)	*p*
4.42 ± 0.03	4.45 ± 0.03	4.40 ± 0.02	4.42 ± 0.04	0.61
Breed of ewes				
Assaf (n = 30)	Awassi (n = 1)	Boutsko (n = 2)	Chios (n = 44)	*p*
4.36 ± 0.03	4.73	4.60 ± 0.05	4.47 ± 0.04	0.24
Crossbreeds (n = 43)	Friesarta (n = 12)	Friesian (n = 13)	Karagouniko (n = 5)	
4.42 ± 0.06	4.51 ± 0.06	4.37 ± 0.09	4.35 ± 0.11	

Kefallinia (n = 1)	Lacaune (n = 95)	Local (n = 55)	Mytilini (n = 18)
4.55	4.47 ± 0.03	4.39 ± 0.03	4.35 ± 0.03
Sfakia (n = 6)			
4.35 ± 0.04			
Average age of culling ewes			
≤ 6 years (n = 226)		> 6 years (n = 99)	*p*
4.43 ± 0.02		4.42 ± 0.03	0.84
Total milk quantity per ewe obtained during the preceding milking period			
≤ 200 L (n = 174)	201 - 400 L (n = 140)	> 400 L (n = 11)	*p*
4.43 ± 0.02	4.42 ± 0.02	4.41 ± 0.05	0.73
Average number of lambs born per ewe			
≤ 1.50 (n = 280)		> 1.50 (n = 45)	*p*
4.42 ± 0.02		4.48 ± 0.03	0.14
Collaboration with a veterinarian			
Yes (n = 277)		No (n = 48)	*p*
4.44 ± 0.02		4.37 ± 0.04	0.09
Clinical mastitis annual incidence risk in the flock			
≤ 0.50% (n = 269)		> 0.50% (n = 56)	*p*
4.41 ± 0.03		4.43 ± 0.02	0.59
Application of reproductive control practices in the farm			
Yes (n = 100)		No (n = 225)	*p*
4.45 ± 0.02		4.42 ± 0.02	0.26
Nutritional modifications performed according to the reproductive stage			
Yes (n = 229)		No (n = 96)	*p*
4.44 ± 0.02		4.38 ± 0.03	0.05
Method for drying-off at the end of the lactation period			
Abrupt (n = 12)		Progressive (n = 313)	*p*
4.47 ± 0.04		4.42 ± 0.01	0.59
Age of lamb removal from their dams			
< 45 days (n = 119)	45 – 60 days (n = 170)	> 60 days (n = 36)	*p*
4.46 ± 0.02	4.41 ± 0.02	4.37 ± 0.06	0.12
Daily number of milking sessions			
One (n = 1)	Two (n = 264)	Three (n = 60)	*p*
4.45	4.42 ± 0.02	4.47 ± 0.03	0.15
Number of feet care sessions provided to the ewes annually			
No feet care provided (n = 102)	1 - 2 (n = 203)	> 2 (n = 20)	*p*
4.39 ± 0.02	4.44 ± 0.02	4.44 ± 0.03	0.16
Shearing of animals			
Yes (n = 319)		No (n = 6)	*p*
4.42 ± 0.01		4.55 ± 0.14	0.25
Vaccination against mastitis			
Yes (n = 126)		No (n = 199)	*p*
4.43 ± 0.02		4.42 ± 0.02	0.70

Vaccination against contagious agalactia				
Yes (n = 186)			No (n = 139)	*p*
4.44 ± 0.02			4.41 ± 0.02	0.43
Administration of anthelmintic treatment during the last stage of pregnancy				
Yes (n = 224)			No (n = 101)	*p*
4.45 ± 0.02			4.38 ± 0.03	0.019
Duration of grazing during the year				
No grazing (n = 44)	1 - 5 months (n = 46)	6 - 10 months (n = 124)	11 - 12 months (n = 111)	*p*
4.47 ± 0.02	4.46 ± 0.04	4.44 ± 0.02	4.38 ± 0.03	0.07
Provision of hay as fodder to animals				
Yes (n = 324)			No (n = 1)	*p*
4.43 ± 0.01			4.34	0.62
Average quantity of hay provided daily to animals during the preceding season				
≤ 0.6 kg (n = 109)			> 0.6 kg (n = 216)	*p*
4.38 ± 0.02			4.45 ± 0.02	0.030
Provision of straw to animals				
Yes (n = 258)			No (n = 67)	*p*
4.43 ± 0.02			4.40 ± 0.03	0.41
Provision of silage to adult animals				
Yes (n = 72)			No (n = 253)	*p*
4.47 ± 0.02			4.41 ± 0.02	0.13
Provision of finished feed (concentrate) to adult animals				
Yes (n = 321)			No (n = 4)	*p*
4.43 ± 0.01			4.45 ± 0.16	0.83
Provision of finished feed (concentrate) to adult animals throughout the year				
Yes (n = 219)			No (n = 106)	*p*
4.45 ± 0.02			4.37 ± 0.03	0.005
Type of finished feed (concentrate) to adult animals				
Mash (n = 122)	Pelleted (n = 101)	Flakes (n = 4)	Crumbled (n = 87)	Other (n = 7)	*p*
4.45 ± 0.02	4.40 ± 0.03	4.36 ± 0.10	4.43 ± 0.02	4.35 ± 0.09	0.61
Average quantity of finished feed (concentrate) provided daily to animals during the preceding season				
≤ 0.6 kg (n = 140)		0.61 – 1.2 kg (n = 148)	> 1.2 kg (n = 37)	*p*
4.40 ± 0.02		4.43 ± 0.02	4.48 ± 0.05	0.24
Age of farmer				
Up to 50 years (n = 197)			Over 50 years (n = 128)	*p*
4.44 ± 0.02			4.41 ± 0.02	0.39
Length of previous animal farming experience				
≤ 5 years (n = 74)			> 5 years (n = 251)	*p*
4.45 ± 0.03			4.42 ± 0.02	0.28
General education of farmer				
Primary (n = 57)		Secondary and post-secondary (n = 225)	Tertiary (n = 43)	*p*
4.52 ± 0.03		4.40 ± 0.02	4.44 ± 0.05	0.004

Farmer by profession		
Yes (n = 292)	No (n = 33)	*p*
4.43 ± 0.01	4.38 ± 0.08	0.29
Family tradition in farming		
Yes (n = 283)	No (n = 42)	*p*
4.42 ± 0.02	4.49 ± 0.04	0.09
Presence of working staff in the farm		
Yes (n = 123)	No (n = 202)	*p*
4.45 ± 0.02	4.41 ± 0.02	0.21

Table S6. Effects of husbandry- and human resources-related factors (n = 43) in the fat content (%) in the bulk-tank raw milk of 119 goat herds in Greece.

Management system applied in the farm				
Intensive (n = 9)	Semi-intensive (n = 29)	Semi-extensive (n = 61)	Extensive (n = 20)	p
4.53 ± 0.43	4.66 ± 0.21	4.69 ± 0.13	5.27 ± 0.38	0.24
Month into the lactation period at sampling				
0 – 1st (n = 8)	2nd – 5th (n = 60)	6th – 9th (n = 43)	After 9th (n = 8)	p
5.41 ± 0.55	4.93 ± 0.16	4.58 ± 0.15	3.94 ± 0.47	0.05
Availability of straw bedding				
Yes (n = 76)		No (n = 43)		p
4.66 ± 0.14		4.96 ± 0.19		0.20
Availability of mechanical ventilators				
Yes (n = 8)		No (n = 111)		p
4.76 ± 0.51		4.77 ± 0.11		0.98
Grazing practiced				
Yes (n = 113)		No (n = 6)		p
4.79 ± 0.11		4.47 ± 0.60		0.54
Grazing land available to animals				
≤ 0.50 ac. per animal (n = 17)	0.51-2.00 ac. per animal (n = 31)	> 2.00 ac. per animal (n = 71)		p
4.51 ± 0.29	5.11 ± 0.23	4.68 ± 0.14		0.17
Availability of milking parlour				
Yes (n = 66)		No (n = 53)		p
4.52 ± 0.13		4.08 ± 0.19		0.012
Number of milking units in the parlour				
< 24 (n = 37)	24 (n = 26)	> 24 (n = 3)		p
4.51 ± 0.17	4.57 ± 0.22	4.26 ± 0.44		0.88
Number of available milking units per animal position				
< 1 (n = 42)		1 (n = 24)		p
4.54 ± 0.17		4.49 ± 0.19		0.85
System pressure				
< 38 kPa (n = 5)	38 - 42 kPa (n = 55)	> 42 kPa (n = 6)		p
4.76 ± 0.45	4.40 ± 0.14	5.49 ± 0.27		0.040
Type of flow line				
High (n = 43)	Low (n = 16)	Other (n = 7)		p
4.38 ± 0.13	4.59 ± 0.30	5.27 ± 0.57		0.11
No. of does in the herd				
≤ 165 does (n = 56)	166-330 does (n = 37)	331-500 does (n = 13)	> 500 does (n = 13)	p
4.63 ± 0.15	5.06 ± 0.23	4.43 ± 0.30	4.85 ± 0.31	0.27
Breed of does				
Alpine (n = 9)	Crossbreeds (n = 18)	Damascus (n = 18)	Kefallinia (n = 1)	p
3.90 ± 0.30	4.54 ± 0.35	4.76 ± 0.17	5.72	0.15
Local (*Capra prisca*) (n = 50)	Murcia (n = 13)	Saanen (n = 5)	Skopelos (n = 5)	
4.90 ± 0.18	5.08 ± 0.30	4.40 ± 0.59	5.24 ± 0.72	

Average age of culling does			
≤ 6 years (n = 45)		> 6 years (n = 74)	*p*
4.68 ± 0.17		4.83 ± 0.15	0.52
Total milk quantity per doe obtained during the preceding milking period			
≤ 200 L (n = 73)	201 - 400 L (n = 32)	> 400 L (n = 14)	*p*
4.89 ± 0.15	4.58 ± 0.17	4.53 ± 0.34	0.37
Average number of kids born per doe			
≤ 1.50 (n = 102)		> 1.50 (n = 17)	*p*
4.82 ± 0.12		4.44 ± 0.23	0.22
Collaboration with a veterinarian			
Yes (n = 101)		No (n = 18)	*p*
4.84 ± 0.12		4.37 ± 0.24	0.13
Clinical mastitis annual incidence risk in the herd			
≤ 0.50% (n = 48)		> 0.50% (n = 71)	*p*
4.71 ± 0.19		4.81 ± 0.14	0.69
Application of reproductive control practices in the farm			
Yes (n = 17)		No (n = 102)	*p*
4.83 ± 0.26		4.76 ± 0.12	0.83
Nutritional modifications performed according to the reproductive stage			
Yes (n = 68)		No (n = 51)	*p*
4.62 ± 0.14		4.97 ± 0.18	0.11
Method for drying-off at the end of the lactation period			
Abrupt (n = 5)		Progressive (n = 114)	*p*
4.13 ± 0.55		4.80 ± 0.11	0.23
Age of kid removal from their dams			
< 45 days (n = 26)	45 – 60 days (n = 44)	> 60 days (n = 49)	*p*
4.43 ± 0.24	4.59 ± 0.17	5.11 ± 0.18	0.032
Daily number of milking sessions			
One (n = 4)	Two (n = 108)	Three (n = 7)	*p*
4.12 ± 0.69	4.78 ± 0.12	5.01 ± 0.33	0.50
Number of feet care sessions provided to the does annually			
No feet care provided (n = 48)	1 - 2 (n = 69)	> 2 (n = 2)	*p*
4.91 ± 0.19	4.68 ± 0.14	4.47 ± 0.91	0.58
Shearing of animals			
Yes (n = 102)		No (n = 17)	*p*
4.75 ± 0.12		4.86 ± 0.29	0.75
Vaccination against mastitis			
Yes (n = 35)		No (n = 84)	*p*
4.69 ± 0.17		4.80 ± 0.14	0.65
Vaccination against contagious agalactia			
Yes (n = 65)		No (n = 54)	*p*
4.78 ± 0.16		4.75 ± 0.16	0.89

Administration of anthelmintic treatment during the last stage of pregnancy				
Yes (n = 75)		No (n = 44)		*p*
4.88 ± 0.15		4.58 ± 0.16		0.19
Duration of grazing during the year				
No grazing (n = 8)	1 - 5 months (n = 13)	6 - 10 months (n = 33)	11 - 12 months (n = 65)	*p*
4.51 ± 0.44	4.58 ± 0.39	4.58 ± 0.20	4.94 ± 0.15	0.44
Provision of hay as fodder to animals				
Yes (n = 116)		No (n = 3)		*p*
4.77 ± 0.11		4.87 ± 0.37		0.89
Average quantity of hay provided daily to animals during the preceding season				
≤ 0.6 kg (n = 59)		> 0.6 kg (n = 60)		*p*
4.97 ± 0.17		4.58 ± 0.14		0.08
Provision of straw to animals				
Yes (n = 73)		No (n = 46)		*p*
4.65 ± 0.13		4.95 ± 0.21		0.20
Provision of silage to adult animals				
Yes (n = 18)		No (n = 101)		*p*
4.59 ± 0.23		4.80 ± 0.12		0.50
Provision of finished feed (concentrate) to adult animals				
Yes (n = 116)		No (n = 3)		*p*
4.76 ± 0.11		5.30 ± 0.09		0.45
Provision of finished feed (concentrate) to adult animals throughout the year				
Yes (n = 70)		No (n = 49)		*p*
4.54 ± 0.13		5.05 ± 0.20		0.020
Type of finished feed (concentrate) to adult animals				
Mash (n = 43)	Pelleted (n = 34)	Flakes (n = 0)	Crumbled (n = 34)	Other (n = 5)	*p*
4.78 ± 0.19	4.71 ± 0.19	-	4.89 ± 0.23	4.48 ± 0.46	0.84
Average quantity of finished feed (concentrate) provided daily to animals during the preceding season				
≤ 0.6 kg (n = 48)	0.61 – 1.2 kg (n = 35)	> 1.2 kg (n = 36)		*p*
4.87 ± 0.20	4.73 ± 0.19	4.68 ± 0.19		0.75
Age of farmer				
Up to 50 years (n = 73)		Over 50 years (n = 46)		*p*
4.73 ± 0.15		4.83 ± 0.17		0.67
Length of previous animal farming experience				
≤ 5 years (n = 24)		> 5 years (n = 95)		*p*
4.75 ± 0.26		4.77 ± 0.12		0.94
General education of farmer				
Primary (n = 20)	Secondary and post-secondary (n = 89)	Tertiary (n = 10)		*p*
5.26 ± 0.32	4.72 ± 0.12	4.24 ± 0.34		0.07
Farmer by profession				
Yes (n = 105)		No (n = 14)		*p*
4.82 ± 0.12		4.42 ± 0.25		0.25

Family tradition in farming		
Yes (n = 104)	No (n = 15)	*p*
4.73 ± 0.12	5.02 ± 0.32	0.40
Presence of working staff in the farm		
Yes (n = 34)	No (n = 85)	*p*
4.60 ± 0.20	4.84 ± 0.14	0.35

Table S7. Effects of husbandry- and human resources-related factors (n = 43) in the protein content (%) in the bulk-tank raw milk of 119 goat herds in Greece.

Management system applied in the farm				
Intensive (n = 9)	Semi-intensive (n = 29)	Semi-extensive (n = 61)	Extensive (n = 20)	*p*
3.29 ± 0.10	3.19 ± 0.05	3.25 ± 0.05	3.18 ± 0.05	0.70
Month into the lactation period at sampling				
0 – 1st (n = 8)	2nd – 5th (n = 60)	6th – 9th (n = 43)	After 9th (n = 8)	*p*
3.39 ± 0.05	3.28 ± 0.04	3.13 ± 0.04	3.17 ± 0.07	0.030
Availability of straw bedding				
Yes (n = 76)		No (n = 43)		*p*
3.23 ± 0.04		3.23 ± 0.05		0.99
Availability of mechanical ventilators				
Yes (n = 8)		No (n = 111)		*p*
3.33 ± 0.11		3.22 ± 0.03		0.33
Grazing practiced				
Yes (n = 113)		No (n = 6)		*p*
3.23 ± 0.03		3.22 ± 0.08		0.92
Grazing land available to animals				
≤ 0.50 ac. per animal (n = 17)	0.51-2.00 ac. per animal (n = 31)	> 2.00 ac. per animal (n = 71)		*p*
3.20 ± 0.05	3.22 ± 0.04	3.24 ± 0.04		0.88
Availability of milking parlour				
Yes (n = 66)		No (n = 53)		*p*
3.22 ± 0.04		3.24 ± 0.04		0.78
Number of milking units in the parlour				
< 24 (n = 37)	24 (n = 26)	> 24 (n = 3)		*p*
3.21 ± 0.05	3.25 ± 0.08	3.16 ± 0.20		0.85
Number of available milking units per animal position				
< 1 (n = 42)		1 (n = 24)		*p*
3.23 ± 0.05		3.20 ± 0.08		0.70
System pressure				
< 38 kPa (n = 5)	38 - 42 kPa (n = 55)	> 42 kPa (n = 6)		*p*
3.27 ± 0.15	3.20 ± 0.05	3.34 ± 0.14		0.61
Type of flow line				
High (n = 43)	Low (n = 16)	Other (n = 7)		*p*
3.18 ± 0.05	3.20 ± 0.06	3.49 ± 0.12		0.07
No. of does in the herd				
≤ 165 does (n = 56)	166-330 does (n = 37)	331-500 does (n = 13)	> 500 does (n = 13)	*p*
3.28 ± 0.05	3.19 ± 0.03	3.14 ± 0.05	3.19 ± 0.06	0.33
Breed of does				
Alpine (n = 9)	Crossbreeds (n = 18)	Damascus (n = 18)	Kefallinia (n = 1)	*p*
3.08 ± 0.10	3.38 ± 0.08	3.14 ± 0.04	3.08	0.15
Local (*Capra prisca*) (n = 50)	Murcia (n = 13)	Saanen (n = 5)	Skopelos (n = 5)	
3.17 ± 0.03	3.37 ± 0.13	3.42 ± 0.25	3.32 ± 0.10	

Average age of culling does			
≤ 6 years (n = 45)		> 6 years (n = 74)	*p*
3.21 ± 0.04		3.24 ± 0.04	0.70
Total milk quantity per doe obtained during the preceding milking period			
≤ 200 L (n = 73)	201 - 400 L (n = 32)	> 400 L (n = 14)	*p*
3.22 ± 0.03	3.23 ± 0.06	3.31 ± 0.13	0.70
Average number of kids born per doe			
≤ 1.50 (n = 102)		> 1.50 (n = 17)	*p*
3.23 ± 0.03		3.23 ± 0.10	0.98
Collaboration with a veterinarian			
Yes (n = 101)		No (n = 18)	*p*
3.22 ± 0.03		3.30 ± 0.11	0.29
Clinical mastitis annual incidence risk in the herd			
≤ 0.50% (n = 48)		> 0.50% (n = 71)	*p*
3.21 ± 0.05		3.24 ± 0.04	0.66
Application of reproductive control practices in the farm			
Yes (n = 17)		No (n = 102)	*p*
3.24 ± 0.10		3.23 ± 0.03	0.91
Nutritional modifications performed according to the reproductive stage			
Yes (n = 68)		No (n = 51)	*p*
3.22 ± 0.03		3.24 ± 0.05	0.65
Method for drying-off at the end of the lactation period			
Abrupt (n = 5)		Progressive (n = 114)	*p*
3.16 ± 0.08		3.23 ± 0.03	0.60
Age of kid removal from their dams			
< 45 days (n = 26)	45 – 60 days (n = 44)	> 60 days (n = 49)	*p*
3.24 ± 0.06	3.23 ± 0.05	3.22 ± 0.04	0.97
Daily number of milking sessions			
One (n = 4)	Two (n = 108)	Three (n = 7)	*p*
3.27 ± 0.12	3.23 ± 0.03	3.14 ± 0.08	0.72
Number of feet care sessions provided to the does annually			
No feet care provided (n = 48)	1 - 2 (n = 69)	> 2 (n = 2)	*p*
3.22 ± 0.04	3.23 ± 0.04	3.24 ± 0.19	0.99
Shearing of animals			
Yes (n = 102)		No (n = 17)	*p*
3.24 ± 0.03		3.18 ± 0.05	0.47
Vaccination against mastitis			
Yes (n = 35)		No (n = 84)	*p*
3.18 ± 0.06		3.25 ± 0.03	0.30
Vaccination against contagious agalactia			
Yes (n = 65)		No (n = 54)	*p*
3.24 ± 0.04		3.21 ± 0.04	0.63

Administration of anthelmintic treatment during the last stage of pregnancy				
Yes (n = 75)		No (n = 44)		*p*
3.23 ± 0.03		3.22 ± 0.05		0.91
Duration of grazing during the year				
No grazing (n = 8)	1 - 5 months (n = 13)	6 - 10 months (n = 33)	11 - 12 months (n = 65)	*p*
3.27 ± 0.07	3.48 ± 0.12	3.21 ± 0.06	3.18 ± 0.03	0.014
Provision of hay as fodder to animals				
Yes (n = 116)		No (n = 3)		*p*
3.23 ± 0.03		2.99 ± 0.02		0.18
Average quantity of hay provided daily to animals during the preceding season				
≤ 0.6 kg (n = 59)		> 0.6 kg (n = 60)		*p*
3.19 ± 0.03		3.26 ± 0.05		0.20
Provision of straw to animals				
Yes (n = 73)		No (n = 46)		*p*
3.22 ± 0.04		3.24 ± 0.05		0.77
Provision of silage to adult animals				
Yes (n = 18)		No (n = 101)		*p*
3.34 ± 0.07		3.21 ± 0.03		0.09
Provision of finished feed (concentrate) to adult animals				
Yes (n = 116)		No (n = 3)		*p*
3.23 ± 0.03		3.14 ± 0.21		0.61
Provision of finished feed (concentrate) to adult animals throughout the year				
Yes (n = 70)		No (n = 49)		*p*
3.21 ± 0.03		3.25 ± 0.05		0.43
Type of finished feed (concentrate) to adult animals				
Mash (n = 43)	Pelleted (n = 34)	Flakes (n = 0)	Crumbled (n = 34)	Other (n = 5)	*p*
3.26 ± 0.04	3.21 ± 0.05	-	3.23 ± 0.06	3.14 ± 0.08	0.73
Average quantity of finished feed (concentrate) provided daily to animals during the preceding season				
≤ 0.6 kg (n = 48)	0.61 – 1.2 kg (n = 35)	> 1.2 kg (n = 36)		*p*
3.20 ± 0.04	3.25 ± 0.06	3.25 ± 0.05		0.67
Age of farmer				
Up to 50 years (n = 73)		Over 50 years (n = 46)		*p*
3.23 ± 0.04		3.22 ± 0.04		0.91
Length of previous animal farming experience				
≤ 5 years (n = 24)		> 5 years (n = 95)		*p*
3.22 ± 0.05		3.23 ± 0.03		0.82
General education of farmer				
Primary (n = 20)	Secondary and post-secondary (n = 89)	Tertiary (n = 10)		*p*
3.26 ± 0.05	3.22 ± 0.03	3.24 ± 0.10		0.84
Farmer by profession				
Yes (n = 105)		No (n = 14)		*p*
3.23 ± 0.03		3.23 ± 0.09		0.99

Family tradition in farming		
Yes (n = 104)	No (n = 15)	*p*
3.23 ± 0.03	3.23 ± 0.06	0.94
Presence of working staff in the farm		
Yes (n = 34)	No (n = 85)	*p*
3.27 ± 0.06	3.21 ± 0.03	0.37

Table S8. Results of univariable analysis of variables (n = 32) for evaluation of the outcome ''fat and protein content in bulk-tank milk concurrently above the average contents found for all flocks'' in 325 sheep flocks in Greece.

Flocks with fat or protein content in bulk-tank milk concurrently below the average content found for all flocks				**Flocks with fat and protein content in bulk-tank milk concurrently above the average contents found for all flocks**				
Average somatic cell counts in bulk-tank raw milk								
0.511×10^6 cells mL^{-1}				0.411×10^6 cells mL^{-1}				*p* 0.020
Average total bacterial counts in bulk-tank raw milk								
418×10^3 cfu mL^{-1}				341×10^3 cells mL^{-1}				*p* 0.34
Staphylococcal recovery from bulk-tank raw milk								
No staphylococcal isolation 88		Staphylococcal isolation 158		No staphylococcal isolation 32		Staphylococcal isolation 47		*p* 0.45
epg counts in pooled faecal samples								
≤ 300 epg 190		≥ 350 epg 56		≤ 300 epg 69		≥ 350 epg 10		*p* 0.05
Proportion of *Teladorsagia* in pooled faecal samples								
0% 37	1%-63% 137	≥ 64% 72		0% 10	1%-63% 43	≥ 64% 26		*P* 0.77
Management system applied in farms								
Intensive (n = 43) 33	Semi-intensive (n = 151) 106	Semi-extensive (n = 107) 87	Extensive (n = 24) 20	Intensive (n = 43) 10	Semi-intensive (n = 151) 45	Semi-extensive (n = 107) 20	Extensive (n = 24) 4	*p* 0.16
Month into the lactation period at sampling								
0 – 1st (n = 23) 21	2nd – 5th (n = 138) 93	6th – 9th (n = 147) 117	After 9th (n = 17) 15	0 – 1st (n = 23) 2	2nd – 5th (n = 138) 45	6th – 9th (n = 147) 30	After 9th (n = 17) 2	*p* 0.012
Availability of straw bedding								
Yes (n = 268) 201		No (n = 57) 45		Yes (n = 268) 67		No (n = 57) 12		*p* 0.53
Grazing practiced								
Yes (n = 281) 211		No (n = 44) 35		Yes (n = 281) 70		No (n = 44) 9		*p* 0.52
Grazing land available to animals								

≤ 0.50 ac. per animal (n = 118)	0.51-2.00 ac. per animal (n = 130)	> 2.00 ac. per animal (n = 77)	≤ 0.50 ac. per animal (n = 118)	0.51-2.00 ac. per animal (n = 130)	> 2.00 ac. per animal (n = 77)	*P*
91	97	58	27	33	19	0.90
Availability of milking parlour						
Yes (n = 255)		No (n = 70)	Yes (n = 255)		No (n = 70)	*p*
195		51	60		19	0.53
Number of available milking units per animal position						
< 1 (n = 177)		1 (n = 78)	< 1 (n = 177)		1 (n = 78)	*p*
134		61	43		17	0.66
System pressure						
< 38 kPa (n = 22)	38 - 42 kPa (n = 203)	> 42 kPa (n = 30)	< 38 kPa (n = 22)	38 - 42 kPa (n = 203)	> 42 kPa (n = 30)	*p*
18	154	23	4	49	7	0.82
Type of flow line						
High (n = 182)	Low (n = 55)	Other (n = 18)	High (n = 182)	Low (n = 55)	Other (n = 18)	*p*
135	47	13	47	8	5	0.20
No. of ewes in the flock						
≤ 165 ewes (n = 88)	166 - 330 ewes (n = 120)	331 - 500 ewes (n = 66)	> 500 ewes (n = 51)	≤ 165 ewes (n = 88)	166 - 330 ewes (n = 120)	331 - 500 ewes (n = 66)	> 500 ewes (n = 51)	*p*
65	89	52	40	23	31	14	11	0.83
Breed of ewes								
Assaf (n = 30)	Awassi (n = 1)	Boutsko (n = 2)	Chios (n = 44)	Assaf (n = 30)	Awassi (n = 1)	Boutsko (n = 2)	Chios (n = 44)	*p*
25	1	1	33	5	0	1	11	0.47
Crossbreeds (n = 43)	Friesarta (n = 12)	Friesian (n = 13)	Karagouniko (n = 5)	Crossbreeds (n = 43)	Friesarta (n = 12)	Friesian (n = 13)	Karagouniko (n = 5)	
32	11	10	4	11	1	3	1	
Kefallinia (n = 1)	Lacaune (n = 95)	Local (n = 55)	Mytilini (n = 18)	Kefallinia (n = 1)	Lacaune (n = 95)	Local (n = 55)	Mytilini (n = 18)	
0	64	44	15	1	31	11	3	
Sfakia (n = 6)				Sfakia (n = 6)				
5				1				
Average number of lambs born per ewe								
≤ 1.50 (n = 280)		> 1.50 (n = 45)		≤ 1.50 (n = 80)		> 1.50 (n = 45)		*p*
215		31		65		14		0.25
Collaboration with a veterinarian								
Yes (n = 277)		No (n = 48)		Yes (n = 277)		No (n = 48)		*p*
204		42		73		6		0.039
Nutritional modifications performed according to the reproductive stage								

Yes (n = 229)		No (n = 96)	Yes (n = 229)		No (n = 96)	*p*
170		76	59		20	0.34
Age of lamb removal from their dams						
< 45 days (n = 119)	45 – 60 days (n = 170)	> 60 days (n = 36)	< 45 days (n = 119)	45 – 60 days (n = 170)	> 60 days (n = 36)	*p*
92	125	29	27	45	7	0.59
Daily number of milking sessions						
One (n = 1)	Two (n = 264)	Three (n = 60)	One (n = 1)	Two (n = 264)	Three (n = 60)	*p*
0	199	47	1	65	13	0.19

Number of feet care sessions provided to the ewes annually						
No feet care provided (n = 102)	1 - 2 (n = 203)	> 2 (n = 20)	No feet care provided (n = 102)	1 - 2 (n = 203)	> 2 (n = 20)	*p*
77	153	16	25	50	4	0.90
Administration of anthelmintic treatment during the last stage of pregnancy						
Yes (n = 224)		No (n = 101)	Yes (n = 223)		No (n = 102)	*p*
165		81	59		20	0.20
Duration of grazing during the year						
No grazing (n = 44)	1 - 5 months (n = 46)	6 - 10 months (n = 124)	11 - 12 months (n = 111)	No grazing (n = 44)	1 - 5 months (n = 46)	6 - 10 months (n = 124)	11 - 12 months (n = 111)	*p*
35	34	86	91	9	12	38	20	0.14
Average quantity of hay provided daily to animals during the preceding season						
≤ 0.6 kg (n = 109)		> 0.6 kg (n = 216)	≤ 0.6 kg (n = 109)		> 0.6 kg (n = 216)	*p*
85		161	24		55	0.49
Provision of silage to adult animals						
Yes (n = 72)		No (n = 253)	Yes (n = 72)		No (n = 253)	*p*
52		194	20		59	0.44
Provision of finished feed (concentrate) to adult animals throughout the year						
Yes (n = 219)		No (n = 106)	Yes (n = 219)		No (n = 106)	*p*
164		82	55		24	0.63
Type of finished feed (concentrate) to adult animals										
Mash (n = 122)	Pelleted (n = 101)	Flakes (n = 4)	Crumbled (n = 87)	Other (n = 7)	Mash (n = 122)	Pelleted (n = 101)	Flakes (n = 4)	Crumbled (n = 87)	Other (n = 7)	*p*
85	82	3	67	6	37	19	1	20	1	0.34

Length of previous animal farming experience						
≤ 5 years (n = 74)	> 5 years (n = 251)		≤ 5 years (n = 74)	> 5 years (n = 251)		*p*
57	189		17	62		0.76
General education of farmer						
Primary (n = 57)	Secondary and post-secondary (n = 225)	Tertiary (n = 43)	Primary (n = 57)	Secondary and post-secondary (n = 225)	Tertiary (n = 43)	*p*
36	179	31	21	46	12	0.030
Family tradition in farming						
Yes (n = 283)		No (n = 42)	Yes (n = 283)		No (n = 42)	*p*
213		33	70		9	0.64
Presence of working staff in the farm						
Yes (n = 123)		No (n = 202)	Yes (n = 123)		No (n = 202)	*p*
94		152	29		50	0.81

Table S9. Results of univariable analysis of variables (n = 19) for evaluation of the outcome ''fat and protein content in bulk-tank milk concurrently above the average contents found for all flocks'' in 119 goat herds in Greece.

Herds with fat or protein content in bulk-tank milk concurrently below the average content found for all herds				**Herds with fat and protein content in bulk-tank milk concurrently above the average contents found for all herds**				
Average somatic cell counts in bulk-tank raw milk								
0.904×10^6 cells mL^{-1}				0.683×10^6 cells mL^{-1}				p 0.015
Average total bacterial counts in bulk-tank raw milk								
624×10^3 cfu mL^{-1}				528×10^3 cfu mL^{-1}				p 0.59
Proportion of *Teladorsagia* in pooled faecal samples								
0%	1%-64%	≥ 65%		0%	1%-64%	≥ 65%		P
9	42	36		4	24	4		0.012
Month into the lactation period at sampling								
0 – 1st (n = 8)	2nd – 5th (n = 60)	6th – 9th (n = 43)	After 9th (n = 8)	0 – 1st (n = 8)	2nd – 5th (n = 60)	6th – 9th (n = 43)	After 9th (n = 8)	p
2	42	36	7	6	18	7	1	0.005
Grazing land available to animals								
≤ 0.50 ac. per animal (n = 17)	0.51-2.00 ac. per animal (n = 31)	> 2.00 ac. per animal (n = 71)		≤ 0.50 ac. per animal (n = 17)	0.51-2.00 ac. per animal (n = 31)	> 2.00 ac. per animal (n = 71)		p
12	23	52		5	8	19		0.96
Availability of milking parlour								
Yes (n = 66)		No (n = 53)		Yes (n = 66)		No (n = 53)		p
50		37		16		16		0.47
System pressure								
< 38 kPa (n = 5)	38 - 42 kPa (n = 55)	> 42 kPa (n = 6)		< 38 kPa (n = 5)	38 - 42 kPa (n = 55)	> 42 kPa (n = 6)		p
4	43	3		1	12	3		0.30
Type of flow line								
High (n = 43)	Low (n = 16)	Other (n = 7)		High (n = 43)	Low (n = 16)	Other (n = 7)		p
37	11	2		6	5	5		0.003
Breed of does								
Alpine (n = 9)	Crossbreeds (n = 18)	Damascus (n = 18)	Kefallinia (n = 1)	Alpine (n = 9)	Crossbreeds (n = 18)	Damascus (n = 18)	Kefallinia (n = 1)	p
8	11	17	1	1	7	1	0	0.029
Local (*Capra prisca*) (n = 50)	Murcia (n = 13)	Saanen (n = 5)	Skopelos (n = 5)	Local (*Capra prisca*) (n = 50)	Murcia (n = 13)	Saanen (n = 5)	Skopelos (n = 5)	
39	6	3	2	11	7	2	3	

Collaboration with a veterinarian						
Yes (n = 101)		No (n = 18)	Yes (n = 101)		No (n = 18)	*p*
4		14	28		4	0.63
Nutritional modifications performed according to the reproductive stage						
Yes (n = 68)		No (n = 51)	Yes (n = 68)		No (n = 51)	*p*
54		33	14		18	0.07
Age of kid removal from their dams						
< 45 days (n = 26)	45 – 60 days (n = 44)	> 60 days (n = 49)	< 45 days (n = 26)	45 – 60 days (n = 44)	> 60 days (n = 49)	*p*
20	32	35	6	12	14	0.88
Administration of anthelmintic treatment during the last stage of pregnancy						
Yes (n = 75)		No (n = 44)	Yes (n = 75)		No (n = 44)	*p*
55		32	24		8	0.23
Duration of grazing during the year						
No grazing (n = 8)	1 - 5 months (n = 13)	6 - 10 months (n = 33)	11 - 12 months (n = 65)	No grazing (n = 8)	1 - 5 months (n = 13)	6 - 10 months (n = 33)	11 - 12 months (n = 65)	*p*
5	8	25	49	3	5	8	16	0.65
Provision of hay as fodder to animals						
Yes (n = 116)		No (n = 3)	Yes (n = 116)		No (n = 3)	*p*
84		3	32		0	0.29
Average quantity of hay provided daily to animals during the preceding season						
≤ 0.6 kg (n = 59)		> 0.6 kg (n = 60)	≤ 0.6 kg (n = 59)		> 0.6 kg (n = 60)	*p*
44		43	15		17	0.72
Provision of silage to adult animals						
Yes (n = 18)		No (n = 101)	Yes (n = 18)		No (n = 101)	*p*
12		75	6		26	0.50
Provision of finished feed (concentrate) to adult animals throughout the year						
Yes (n = 70)		No (n = 49)	Yes (n = 70)		No (n = 49)	*p*
52		35	18		14	0.73
General education of farmer						
Primary (n = 20)	Secondary and post-secondary (n = 89)	Tertiary (n = 10)	Primary (n = 20)	Secondary and post-secondary (n = 89)	Tertiary (n = 10)	*p*
14	64	9	6	25	1	0.45