The Importance of Turkish Livestock Guarding Dogs in Sheep Husbandry

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Turkey

- A bridge between Asia and Europe
- Also a bridge between ages, nations and civilizations


EUROPE
©GraphicMaps.com
15° E
30° E
45° E
60° E
Barents Sea
15° W
0°
ARCTIC CIRCLE
Norwegian Sea
Iceland
Faroe Islands (Denmark)
Norway
Finland
White Sea
400 mi
400 km
Russian Federation
60° N
Estonia
Latvia
Lithuania
Sweden
Scotland
North Sea
Atlantic Ocean
Baltic Sea
Netherlands
Belgium
Denmark
Russian Federation (European Russia)
Ural Mountains
Ireland
UK
England
Wales
Belarus
Poland
50° N
Germany
Luxembourg
Czech Rep
Ukraine
Slovakia
Kazakhstan
Liechtenstein
Switzerland
Austria
Hungary
Romania
Moldova
Sea of Azov
45° E
Bay of Biscay
France
Slovenia
Croatia
Bosnia and Herzegovina
Georgia
Monaco
Serbia
Italy
Black Sea
Caspian Sea
San Marino
Bulgaria
Andorra
Montenegro
Corsica (France)
Vatican
Sardinia (Italy)
40° N
Armenia
Spain
European Turkey
Turkey
Mediterranean Sea
Albania
Azerbaijan
Iran
Portugal
0°
Sicily (Italy)
Macedonia
Greece
Syria
Cyprus
Crete (Greece)
ASIA
Gibraltar (UK)
Algeria
Malta
Lebanon
Mediterranean Sea
15° E
30° E
Iraq
Israel
Jordan
Morocco
Tunisia
Libya
Egypt
30° N
Saudi Arabia
AFRICA
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Animal Husbandry in Turkey

- **Important agricultural sector (40 %)**

- **Sheep and goat husbandry form significant part of animal husbandry (25 % of total meat production)**

Sheep and Goat Husbandry in Turkey

- **Mostly depends on pasture**

- **The livestock guard dog accompanies the shepherd and the flock**

Predators in Turkey

- The wolf
- Wild pig
- Bear

Turkish Livestock Guarding Dogs

- primarily used in protecting sheep and goats against predators

Turkish Livestock Guarding Dog Breeds

- Kangal Dog
- Akbaş Dog
- Kars Dog

Some Sheep Breeds Identified with Some Guarding Dog Breeds

- Akkaraman Sheep → Kangal Dog
- Morkaraman Sheep → Kars Dog
- Kıvırcık Sheep → Akbaş Dog


Akbas Dog
Kangal Dog
Kars Dog
Black Sea
Sea of Marmara
Aegean Sea
Mediterranean Sea
Gulf of Antalya
Turkey
Bulgaria
Greece
Georgia
Armenia
Iran
Iraq
Syria
Cyprus
ANKARA
ISTANBUL
KONYA
SIVAS
KARS
ERZURUM
KAYSERI
ESKIŞEHIR
AFYON
KÜTAHYA
KIRŞEHIR
YOZGAT
TOKAT
MALATYA
GAZIANTEP
KAHRAMANMARAŞ
KARAMAN
ERZINCAN
TRABZON
RIZE
ARTVIN
Ardahan
GÜMÜŞHANE
KARAKÖSE
SAMSUN
SINOP
ANTALYA
ADANA
MERSIN
DIYARBAKIR
VAN

Aim of the Study

- **to determine effectiveness of TLGD for reducing wolf predation on domestic sheep**

Materials

- 292 producers with dogs
- 76 producers without dogs

were surveyed during 2005 and 2006 years

Methods

A questionnaire was applied to sheep producers

- Breed, sex and age of dog
- Herd size
- Number of dogs in the flock
- Sheep mortalities caused by wolves
- Number of dogs injuring sheep
- Number of sheep injured by dogs
- Number of producers who use bonding

Statistical Analyses

- Chi-square analysis was used to compare sheep losses
- In calculations, proportion of sheep losses in total sheep was based on
- Linear regression was used to determine effects of some factors

Results

- **Results are seen in table 1, 2 and 3**

Table 1. Data summarizing characteristics of sheep producers and Turkish livestock guarding dogs reported in the study

Dog Breeds	Producer n	Sheep Total	Average herd size	Sx	Dogs Total	Number of dogs/herd	Sx	Number of sheep/dog	Bonding producers n	Bonding producers %	Sheep mortalities n	Dog injured sheep n	Injured sheep n	Sheep losses in total sheep %	Sheep injuries in total sheep %
Kangal	138	29205	211.63	6.87	273	1.98	0.06	106.97	52[a]	37.68	35	11[A]	16[A]	0.12	0.05
Akbaş	65	12349	189.98	9.07	130	2.00	0.11	94.99	29[a]	44.62	12	4[A]	6[A]	0.10	0.05
Crossbred	89	18914	212.52	8.53	181	2.03	0.10	104.49	21[b]	23.60	36	33[B]	41[B]	0.19	0.22
General	292	60468	207.08	4.64	584	2.00	0.05	103.54	102	34.93	83		63	0.14	0.10
No Dogs	76	5881	77.39	2.35							60			1.02	
Total	368	66349	180.30	4.61										0.89 *	

a, b (P<0.05); Differences among bonding producers indicated by different letters in the same column are statistically significant

A, B (P<0.01); Differences among sheep injuries indicated by different letters in the same column are statistically significant

* = Reducing rate of sheep losses

Table 2. Results of regression analyses concerning sheep mortalities caused by wolves

Variable	B	Sx	β	t	p	Bilateral r	Partial r
Constant	-.155	.140		-1.109	.268		
Breed	.055	.044	.066	1.252	.212	.081	.074
Herd size	**.005**	**.001**	**.571**	**7.717**	**.000**	**.289**	**.416**
Dogs in flock	**-.377**	**.142**	**-.441**	**-2.662**	**.008**	**.017**	**-.156**
Sex of dog	.007	.032	.019	.226	.821	.059	.013
Age of dog	.028	.042	.100	.668	.505	.023	.040
Bonding	**-.430**	**.081**	**-.283**	**-5.289**	**.000**	**-.248**	**-.299**
R= 0.486 **F= 14.69**	**R^2=0.236** **p= .000**						

Table 3. Results of regression analyses concerning sheep injuries caused by dogs

Variable	B	Sx	β	t	p	Bilateral r	Partial r
Constant	-.462	.107		-4.323	.000		
Breed	**.129**	**.034**	**.195**	**3.848**	**.000**	**.246**	**.222**
Herd size	.001	.001	.106	1.480	.140	.275	.087
Dogs in flock	.186	.108	.277	1.723	.086	.332	.102
Sex of dog	.042	.024	.138	1.732	.084	.322	.102
Age of dog	-.017	.032	-.075	-.518	.605	.281	-.031
Bonding	**-.393**	**.062**	**-.328**	**-6.329**	**.000**	**-.277**	**-.351**
R= 0.532 **F= 18.78**	**R^2=0.283** **p= .000**						

Conclusions

- Data indicated that the use of livestock guarding dogs reduced wolf predation by 89 % .
- Producers who used bonding had a greater advantage regarding both sheep losses and the number of injuries
- Turkish livestock guarding dogs are an effective method to manage predation in Turkey