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Full Length Research Paper

A regional comparative analysis of factors affecting farmers' decision to benefit from milk incentive premium in Turkey

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In this study, it was aimed to determine the factors affecting farmers' decision to benefit from milk incentive premium. The study was carried out in the Northwest region of Turkey, which is considered one of the most productive milk producing region and the Northeast of Turkey, where the number of cattle is the highest. The number of survey conducted in the provinces of these two regions was determined to be 540. Based on the data obtained, the regression analysis was performed using LIMDEP statistic package program with descriptive statistical analysis and univariate (binomial) probit procedure. According to the results of the study, it was determined that the farmers in the Northwest benefited more from the milk incentive premium, produce more milk for market, have higher levels of education than that of those in the Northeast, which was average. It was also observed that they generally have more productive breeds of cattle in their farms. Considering all these results, it could be thought that, it is necessary to perform animal growing more consciously in the Northeast and thus, it is a need in this region to train the animal growers, and the support policies should be restructured by considering regional differences.

Key words: Turkey, milk incentive premium, probit, regional differences.

INTRODUCTION

Milk and milk products industry is an important sector with its 15% production value contribution to the Turkish food industry. The sector produces important foods consisting of a large number of nutrients and thus, an essential food that must be consumed in every stage of human life (Yoruk, 2007). In cases of Turkey, it is impor-tant to increase the quality of milk produced enhancing dairy farming structure, to have better conservation methods that will keep the quality of milk products, to increase variety of milk products by special methods and procedures, to market the products in accordance with human health, and to organize dairy people in such a manner that will include technological and organizational enhancement relating to the inspection in terms of food value and hygiene in order to facilitate the development of the sector (Guler, 2007). For the realization of all these organizations, it is necessary to support the sector which includes dairy farming and processing. Within this frame-work, milk incentive premium support has been effective since 1987 and the support has continued over the years (Yeni and Dolekoglu, 2003; Yavuz et al., 2004). The milk incentive premium is paid per liter to the producers who sell milk to the dairy processing plants having double walled boiler and pasteurizator or UHT system (OG, 2008). Supporting the milk production, which is quite important for the animal husbandry sector in Turkey, is performed in order to increase the income level of the milk producers, to provide the flow of the produced raw milk to the enterprises, making hygienic production after it is pasteurized and/or sterilized in modern plants, to improve the technology used throughout the country and as a result to ensure that the people consume quality and hygienic dairy products Ministry of Agriculture and Rural

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Affairs (MARA, 2004). Within this scope, it is seen that the support of the milk incentive premium, which began after 1987 but was hampered in 2000 and 2001, had the second highest share as 20% after the forage crops support within the total animal supports in 2002 and this share reached up to 23% in 2008 (MARA, 2009). When the quantities of annual milk production are analysed, it is seen that, as a result of artificial insemination support, the number of high productivity culture breeds of animals increased in the enterprises and with the effect of the support of the milk incentive premium, the quantity of annual milk production increased as well. While the quantity of annual milk production was on the average 7 490 633 tons in 2002, this figure increased up to 11 255 176 tons in 2008. It was observed that there have been an approximately 67% increase throughout these years (TSI, 2008). Although, the quantity of production increased by years, the milk productivity level is still low and in order to overcome this, it is said that the sector should always be supported and the supports should be utilized at maximum level in order that these supports reach their aims.

In this context, determining the effectiveness of support policies and which factors are effective in farmers' behavior to benefit from the support of the milk incentive premium is rather important in terms of making these supports reach their aims. Besides, it is also necessary to determine how the effects of the support of the milk incentive premium executed in the same manner in all regions, are in regional basis in order to determine appropriate production regions and putting forward the objectives of production planning by regions. A study by Tan and Zulauf (2004) indicated that milk incentive premium and efficiency payment scenarios had different effect among regions. Taking all these into consideration, the study aimed to determine the factors which are effective in farmers' behavior to benefit from the support of the milk incentive premium by taking the effects in the regional basis into consideration as well. In this context, the Northwest region where the average milk productivity is high compared to the average of Turkey and the animal husbandry is performed by using a more ad-vanced technology. On the other hand, the Northeast region, where the animal stock is 1649 thousand head and which constitutes approximately 15.5% of the bovine animal stocks in Turkey and the animal husbandry is performed more traditional way. Therefore, these two diverted regions were included as the study.

MATERIALS AND METHODS

In order to make a regional comparison in the analysis, the main material of the study was obtained by a survey study conducted in the Northwest and the Northeast of Turkey. Additional data were also obtained from the publications of the Ministry of Agriculture and Rural Affairs, the data of Turkish Statistical Institute (TSI), related studies which are related to the subject, the issued by-laws and regulations, and also related web pages. The data were mainly used in descriptive and univariated (binomial) probit analysis.

The provinces of the regions where the survey study was conducted are Balikesir, Çanakkale and Tekirda ğ in the Nortwest; Bayburt, Erzurum, Kars, and Ağri in the Northeast. In selecting the provinces in which the survey was conducted, the idea was to represent the region. The number of farms with which the survey study was conducted was calculated according to the simple random sampling method with an equation. Since the variability in the animal numbers in livestock farms belonging to the provinces in the study area differs between the provinces, the number of the survey conducted in each province was determined individually. Considering the idea that some of the surveys cannot reflect the reality and represent the population, the number of the survey was increased by 5%. In determining the number of the farms where the survey was conducted, the study was conducted within 5% significance level and 95% confidence interval (Cicek and Erkan, 1996):

$$n = \frac{(N) * \sigma^2}{N - 1 * D^2 + \sigma^2}$$

Where; n: sample size; N: number of total unit belonging to sampling framework; σ^2: population variance; D: d/z value; d: acceptable error ($\bar{x}$ .0.05); z: z value in the standard normal distribution table according to the rate of acceptable error.

According to the sampling results, total number of the survey to be conducted in the two regions was calculated as 540. The number of the surveys conducted in each province was determined to be 95 in Erzurum, 85 in Ağri, 86 in Kars, 55 in Bayburt, 82 in Balikesir, 74 in Çanakkale, and 63 in Tekirda ğ. The data from the survey study were loaded to the EXCEL with a certain coding and estimation of binomial probit model and marginal effect were conducted using LIMDEP econometric package program. In probit models, it is assumed whether an event will occur or not and if the event is dependent on a benefit index whose decision cannot be observed. If the benefit index is represented by I_i where I_i is dependent on independent variables to the extent of the I_i size, the possibility of occurrence realization of that event in question increases. $I_{i,}$ index is expressed as:

$$I_I = \beta_1 + \beta_2 X_i$$

In the equation; β_1: expresses the constant value; β_2: expresses the coefficient of the variable whose value is expressed by X; X_i: expresses the value of the i nth independent variable; I_i: the relationship between whether or not an event will happen is expressed with 1 if the event happens and with 0 if the event does not happen. For each dependent variable, whether or not an event in question will happen ensues from a certain value of I_I (critical or initial value). If the initial value is expressed as I_i^*, the event will happen only when the I_i value exceeds I_i^* value, otherwise it would not happen. The possibility of I_i^* is less than or equal to I_i ,can be calculated as follows:

$$P_I = P_r\,(Y = 1) = P_r\,(I_i^* \leq I_i) = F(I_i)$$

In the equation, P_i: expresses the possibility that the event will happen; P_r: expresses the probit model.

The R^2 value, which expresses the coefficient of determination in the probit models, is not taken into consideration on whether or not the functional form of the model is selected well. Therefore, the coefficients of the variables and the P values are taken into consideration on whether or not the model is selected well (Gujarati, 1995; Akkaya and Pazarlioglu, 1998; Demir and Yavuz, 2010).

Table 1. The distributions of the farmers according to age groups.

Age groups	Northwest		Northeast		Total	
	N	%	N	%	N	%
15-24	2	0.9	4	1.2	6	1.1
25-34	40	18.3	51	15.9	91	16.9
35-44	71	32.4	77	24.0	148	27.4
45-54	66	30.1	77	24.0	143	26.5
55-64	32	14.6	65	20.2	97	18.0
65->	8	3.7	47	14.6	55	10.2
Total	219	100.0	321	100.0	540	100.0

Table 2. The distributions of the farmers according to their education levels.

Education level	Northwest		Northeast		Total	
	N	%	N	%	N	%
Illiterate	7	3.2	54	16.8	61	11.2
Primary school	121	55.3	159	49.5	280	51.9
Secondary school	50	22.8	52	16.3	102	18.9
High school	39	17.8	51	15.9	90	16.7
Higher education	1	0.5	4	1.2	5	0.9
Faculty	1	0.5	1	0.3	2	0.4
Total	219	100.0	321	100.0	540	100.0

In the model, the state of the farmers' behavior to benefit from the support of the milk incentive premium was considered as the dependent variable, and if the farmers benefited from the support of the milk incentive premium, it is considered as 1 whereas if not as 0. The independent variables are composed of some properties of the farmers and the farms.

RESULTS

Descriptive analysis

The descriptive analyses were used to summarize the distributions for the features of the farmers and the farms. In this way, the features of the farmers and the farms were given in the following tables by taking the regional differences into consideration as well. The distribution of age groups by regions for the farmers to whom the survey was conducted is given in Table 1. Approximately 50% of the population is under 28 years old, whereas only 7.1% consisted of people who are 65 years old or is, thus, the ratio of young population in Turkey is quite high over (TSI, 2007b). However, the ratio of young population in villages is low because of the migration of young peo-ple from the rural areas. Accordingly, the highest share belonged to the enterprise owners who are between 35 to 44 age range with 32.4% in Northwest and 24.0% in Northeast of Turkey. The lowest share in both regions was people between the age ranges of 15 to 24. It is seen that the population ratio of the elderly people who are 65 years old or more is 3.7% in Northwest and 14.6% in Northeast. These indicated that the ratio of young people is lower in the Northeast as compared to the West.

Although, the literacy rate in Turkey has been steadily increasing, it is still not at the desired level. The current population is composed of people who have primary school education as 46.1%, secondary school education as 7.4%, high school education as 7.8%, and higher education as 3.2%. The rate of the people who received no education is 19.6%, whereas the rate of the people who are literate without receiving education is 11.9% Turkish Statistical Institute (TSI, 2009). The education level of the farmers to whom the survey was conducted is shown in Table 2. According to the table, while the highest share in the Northwest is in the primary school graduates with 55.3%, the lowest share is in the higher education and faculty graduates with 0.5%. The share of the people who received no education is 3.2%. The condition in the Northeast is also similar to the one in the Northwest. While the highest share is in the primary school graduates with 49.5% as in the other region, the lowest share is in the faculty graduates with 0.3%. General education level in the Northwest is slightly higher than that in the Northeast.

In Turkey, the percentage of cattle growing farms and sheep and goat growing farms are approximately 66 and

Table 3. The distributions of the farmers according to types of activities in their enterprises.

Type of enterprise	Northwest		Northeast		Total	
	N	%	N	%	N	%
Ovine	12	5.5	20	6.2	32	5.9
Bovine	176	80.3	225	70.1	401	74.3
Both	31	14.2	76	23.7	107	19.8
Total	219	100.0	321	100.0	540	100.0

Table 4. The number of animals according to the breeds of the cattle.

Distribution according to the animal breeds	Northwest		Northeast		Total	
	N	%	N	%	N	%
Native breed	228	7.8	3441	62.5	3669	43.4
Cross breed	745	25.4	1556	28.3	2301	27.3
Culture breed	1961	66.8	507	9.2	2468	29.3
Total	2934	100.0	5504	100.0	8438	100.0

30% of all farmers respectively (Kaymakci et al., 2005). In recent years, there have been significant reductions in sheep and goat stock in Turkey. These reductions brought about some consequences. It was reported that there was a 53.0% reduction in the number of the milking sheep and 25.3% reduction in the sheep milk production in the period between 1993 and 2007 in Turkey (Keskin et al., 2010). As an example in other countries, it was reported in a study conducted in 98 villages in the Amhara region in Northern part of Ethiopia that there were significant reductions in the number of animal stock between 1991 and 1999 and there was a 34% reduction especially in the number of ovine animal stock (Benin et al., 2003). The same situation is observed in the area of this study. The types of enterprises in the regions where the survey was conducted are shown in Table 3. According to this table, while cattle growing farms have the highest share with 80.4%, sheep and goat growing enterprises have the lowest share with 5.5%. The condition is similar in the Northeast with 70.1 and 6.2% respectively.

In a study by Yavuz et al. (2003), cattle breeding policies implemented for about a period of 40 years from 1960 to 2000 were investigated and it was determined that the rate of culture breed and cross breed animals in the total animal stock increased from 1 to 61%. According to TSI 2007 data, the distribution of breeds is cross breed with 40.5%, culture breed with 29.9%, and native breed with 29.7%. The number of bovine animals in the enter-prises where the survey was conducted and the distribution of these animals according to the breeds are shown in Table 4. While the highest share in the total animal number in the Northwest was in the culture breed with 66.8%, the highest share in the Northeast was unlike the Northwest in the native breed with 62.5%. On the other hand, while the lowest share in the Northwest is in the native breed with 7.8%, the lowest share in the Northeast is in the culture breed with 9.2%. The rate of the cross breed in the enterprises appeared to be close to each other in both regions. These showed that there exists a very big difference between the two regions with respect to the shares of breeds.

The major aim of the farmers dealing with animal production in enterprises where the survey was con-ducted and their shares by regions are shown in Table 5. According to this table, the highest share in the aims of production in the Northwest is that they produce to meet the household needs at 59.4%, whereas the highest share in Northeast is that they produce only to meet the household needs at 55.1%. The lowest share is the farmers who produce for the market in both regions. Because high productive breeds are being raised in the Northwest, the meat and milk productivity is higher than in the Northeast and as a result, there are more specia-lized enterprises in the animal husbandry sector in this region. Therefore, while the enterprise owners in North-west are dealing with the animal husbandry both for household needs and commercial purposes, because of raising low productivity breeds in Northeast, the products obtained from the animal husbandry can only meet the household needs.

The type of production and their share in total in the regions where the survey was conducted are shown in Table 6. According to this table, while the highest share in both regions is the type of enterprise which makes both milk and meat production in Northwest with 59.4% and in Northeast with 54.8%, the second is the type of enterprise which produce only milk, and the last is the type of enterprise which produce only meat production. During the survey the enterprise owners stated that the

Table 5. The distributions of the farmers according to their aim in animal husbandry.

Aim to perform the animal husbandry	Northwest		Northeast		Total	
	N	%	N	%	N	%
For household requirements	79	36.1	177	55.1	256	47.4
For commercial purposes	10	4.6	15	4.7	25	4.6
For both	130	59.3	129	40.2	259	48.0
Total	219	100.0	321	100.0	540	100.0

Table 6. The distributions of the farmers according to the type of production.

Type of production	Northwest		Northeast		Total	
	N	%	N	%	N	%
Milk production	79	36.1	133	41.4	212	39.3
Meat production	10	4.6	12	3.7	22	4.1
Milk and meat production	130	59.3	176	54.9	306	56.6
Total	219	100.0	321	100.0	540	100.0

Table 7. The distribution of the farmers according to their benefiting from the support of the milk incentive premium.

State of benefiting from the support	Northwest			Northeast		
	2005	2006	2007	2005	2006	2007
No	37.9	32.9	22.5	91.9	88.2	87.5
Yes	62.1	67.1	77.5	8.1	11.8	12.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

reason why they do not produce only meat is that the transportation of animals is difficult, there is not an animal market and the meat plants have lost their functions.

The distribution of the farmers, who participated in the survey benefiting from the milk premium support for years, is given in Table 7. According to this table, there are significant differences between the two regions in terms of the shares of the farmers who benefit from the milk support. Because there is a great number of culture breed in Northwest, the milk productivity is much higher and they generally perform the animal husbandry with 59.4% both for their family needs and for commercial purposes, the rates of their benefit from this support were 62.1% in 2005, 67.1% in 2006 and 77.5% in 2007 higher than in the Northeast. However, because the animal husbandry is generally performed for the household needs with 44.1% and there is more native breed in the Northeast, the productivity is low and as a result, the producers could not benefit much from this support. The rates benefiting from the support were only 8.1% in 2005, 11.8% in 2006 and 12.5% in 2007. When the cases of benefiting from this support in two regions are compared, the percentage of farmers receiving milk premium support is 6 to 8 times higher in the Northeast. This is because farmers in the Northwest produce milk mostly for the market and they have means such as cold chain for marketing milk, but farmers in the Northeast produce for mainly household use.

Univariate (binomial) probit model analysis

It is necessary to select appropriate variable to determine which independent variable will be included in the model to estimate the best model in the analysis and to increase the explanation level of the model. For this purpose, a correlation analysis was performed to select only one of the variables correlating to each other in order to determine the relationship between the dependent and independent variables in a better way. The situation belonging to the correlation analysis in which the relation-ship between the independent and dependent variable was determined, and the situation belonging to the correlation analysis in which the interrelation between the independent variables involved in the univariate probit model and the dependent variable which was the situation of benefiting from the milk incentive premium was determined are shown in Table 8. When the table

Table 8. The correlation coefficient matrix of the variables in the model.

Variable	MILK	REG	AGE	LEVED	ACT	DIST	TAN
REG	0.789**						
AGE	-0.091*	-0.125**					
LEVED	0.028	0.115**	-0.409**				
ACT	-0.176**	-0.114**	-0.215**	0.093*			
DIST	-0.025	0.047	0.102**	-0.078*	0.017		
TAN	-0.035	-0.133**	0.166**	0.022	-0.021	0.005	
MILCUL	0.660**	0.694**	-0.076*	0.101**	-0.157**	0.011	0.037

** P <0.01; * P<0.005; N: 540; MILK: The state of enterprises' benefiting from the milk incentive premium in 2007 (yes: 1, no: 0); REG: the regions in which the survey was conducted (Northwest of Turkey: 1, the Northeast of Turkey: 0), AGE: the producer's age, LEVED: level of education (uneducated: 1, primary 2, secondary school: 3, high school: 4, higher education: 5, faculty: 6), ACT: the state of having non-agricultural activities (yes: 1, no: 0), DIST: distance of the enterprise to the city center TAN: The total animal number, MILCUL: daily milk production of the culture breed animals in the enterprise.

Table 9. Estimates of binomial probit model.

Variable	Coefficient	Std. error	P value
Constant term	-0.295	0.628	0.638
Region	-2.790	0.255	0.000
Enterprise owner's age	-0.018	0.009	0.055
Education level	-0.387	0.119	0.001
State of having non-agricultural activities	-0.507	0.196	0.009
Distance of the enterprise to the city center	-0.004	0.002	0.076
Total animal number	0.021	0.008	0.011
Daily milk productivity of the culture breed animals in the enterprise	0.027	0.008	0.000
Error terms formed by the combination of the unobservable factors to affect the total animal number	-0.017	0.013	0.188

was examined, the highest positive correlation was observed to occur between the regions and the case of benefiting from the milk incentive premium (r: 0.789). The other significant positive correlations observed to be between daily milk productivity of the culture animals and the variable of regions (r: 0.694) and between daily milk productivity of the culture animals and the case of benefiting from the milk incentive premium (r: 0.660). It was also observed that the highest negative correlation was between the producer's age and education level (r: -0.409). The fact is that, the correlation matrix of the independent variables shows that there is no multicolinearity problem in the data.

The estimations of univariate probit model that determined what factors affect the case of benefiting from the milk incentive are shown in Table 9. Based on these estimates, the signs of the coefficients belonging to the variables in the model are logical as they were expected. It is determined that there is an inverse relationship between the case of the producer benefiting from the support of the milk incentive premium and the producer's age, level of education, the case of having non-agricultural activities, region and the distance of the enterprise to the city center, whereas there is a positive relationship with the total animal number and the daily milk productivity of the culture breed animals. Considering the farmers' levels of benefiting from the artificial insemination support, we can say that there will be an increase in the rates of the farmers benefiting from the support of the milk incentive premium similar to those in the Northwest. The farmers in the Northwest want to benefit more from the support of the milk incentive premium than the farmers in the Northeast. Interpretation of these results could be seen as follows:

1) The old farmers like to do things in ways they are used to and thus, the share of old farmers who benefit from the support of the milk incentive premium is low.
2) The level of education is higher among farmers who deal with non-agricultural activities and thus, their benefiting from the support of the milk incentive premium is low as well.
3) The farmers whose enterprise is far from the city center would pay more for milk transportation in order to receive milk support premium. As a result of more animals and milk production, the level of receiving milk

Table 10. Marginal effect values belonging to the independent variables in the model.

Variable	Coefficient	Std. error	P value
Constant term	-0.072	0.154	0.637
Region	-0.733	0.041	0.000
Enterprise owner's age	-0.004	0.002	0.052
Education level	-0.095	0.029	0.001
State of having non-agricultural activities	-0.116	0.042	0.006
Distance of the enterprise to the city center	-0.001	0.000	0.084
total animal number	0.005	0.002	0.011
Daily milk productivity of the culture breed animals in the enterprise	0.006	0.002	0.002
Error terms formed by the combination of the unobservable factors to affect the total animal number	-0.004	0.003	0.189

support will be higher. In addition, the farmers who have culture breed animals in their enterprises will have much more interest in support of the milk incentive premium in parallel to the increase of daily milk productivity of these animals.

While the variables in the model such as regions, daily milk productivity of the culture breed animals, level of education, the state of having non-agricultural activities, and the total animal number were found to be statistically significant at 1% significance level, the variable belonging to the producer's age was found to be statistically significant at 5% significance level. The variables such as the distance of the enterprise to the city center and the variables belonging to the error terms formed by the combination of the unobservable factors to affect the total animal number were found to be statistically insignificant.

The estimates of marginal effects which show the changes to be in the dependent variable by increasing 1 unit of the independent variables in the model, in which the dependent variable is the case of the enterprise' benefiting from the support of the milk incentive premium in the study are shown in Table 10. According to this, it is seen that by increasing 1 unit of the independent variables in the model, the possibility of the enterprise' benefiting from the support of the milk incentive premium is reduced by the variable of regions at 73% , the variable of the producer's age at 0.04%, the variable of level of education at 9%, the variable of the state of the pro-ducer's having non-agricultural activities at 11%, and the variable of the enterprise' distance to the city center at 0.01%, whereas it is increased by the variable of total animal number at 0.5% and the daily milk productivity of the culture breed animals at 0.6%.

Conclusions

In comparing the farmers and the farms in the Northwest and Northeast, the farmers in the Northwest have lower average age but higher levels of education than the farmers in the Northeast. The enterprises in the Northwest produce not only for their household needs but also for the market. In addition, the percentage of the culture breed animals in the enterprises in Northwest is higher than that of the Northeast. As a result of these, the ratio benefiting from the support of the milk incentive premium is more in the Northwest. According to the results of the regression model, regional differences benefiting from the support of the milk incentive premium are statistically important. The most important aim of the supports is to contribute to the creation of a competitive and thus, profitable animal husbandry sector. In order to realize this, the enterprises need to be converted into specialized enterprises which make productions not only for the household needs but also for the market. The ratio of high yielding breeds should be higher in order to increase the productivity per animal. The regional effects of the support policies implemented in the same manner for each region have different effects and that was also indicated in the study conducted by Yavuz et al. (2004). Therefore, the regional differences should be taken into consideration by the policy makers when implementing the support policies. This fact holds also for milk support premium.

REFERENCES

Akkaya SM, Pazarlioglu V (1998). Econometrics II. Erkan printing, Istanbul.

Benin S, Ehui S, Pender J (2003). Policies for livestock development in the Ethiopian highlands. Environ. Dev. Sustain., 5: 491-510.

Cicek A, Erkan O (1996). Research and sampling methods in agricultural economics. Gaziosmanpaşa University Faculty of Agriculture's Publications No: 12. Lecture Notes Serial No: 6. Tokat.

Demir N (2009). A regional comparative analysis of effects of support policies on livestock sector. Atatürk University In stitute of Science Doctorate Thesis, Erzurum.

Demir N, Yavuz F (2010). An analysis on factors effective in benefiting from forage crops support. Scient. Res. Essays, 5(15): 2022-2026.

Keskin A, Dagdemir V, Demir N (2010). Economical analysis of sheep breeding according to the NUTS Level 1 region in Turkey. Scient. Res. Essays, 5(7): 641-645.

Gujarati DN (1995). Basic Econometrics. Third Edition, Mc Graw-Hill, USA.

Guler H (2007). Necessary precautions to be taken before and after

harmonization to common agricultural policy (CAP) in milk sector in process of Turkey' being member of european union (EU). Eastern Anatolia Region Research Publications, Elazığ.
Kaymakci M, Elicin A, Işın F, Taskın T, Karaca O, Tuncel E, Ertuğrul M, Özder M, Güney O, Gürsoy O, Torun O, Altın T, Emsen H, Seymen S, Geren H, Odabaşı A, Sönmez R (2005). Technical and economic approaches on ovine breeding in Turkey. 6th Turkish Agricultural Engineering Technical Congress (3rd-7th January), Ankara.
OG (2008). R.T. Official gazette, 15.04.2008 and number: 13489 "Decision on supporting the animal husbandry"
MARA (2004). T. Ministry of agriculture and rural affairs. 2nd Agriculture Council 7th Commission Report. http://tarimsurasi.tarim.gov.tr/pdfler/vii.komisyon.pdf (18.03.2010).
MARA (2009). Ministry of agriculture and rural affairs information center's records. http://www.tsı.gov.tr/PreTablo.do?tb_id=39&tb_adi=N (16.03.2007).
TSI (2008). Turkish statistical institute. Animal production statistics, http://www.tsı.gov.tr/VeriBilgi.do?tb_id=46&ust_id=13 (11.03.2010).
TSI (2007a). Turkish statistical institute. Livestock statistics. http://www.tsı.gov.tr/PreTablo.do?tb_id=46&ust_id=13 (03.02.2007)
TSI (2007b). Turkish statistical institute. Population statistics.
TSI (2009). Turkish statistical institute. Education statistics, http://report.tuik.gov.tr/reports/rwservlet?adnksdb2=&report=turkiye_cinsiyet_yas
grp_egitim_top.RDF&p_xkod=okuryazar_kod&p_yil=2009&p_dil=1&desformat=html&ENVID=adnksdb2Env (13.01.2011)
Yavuz F, Akbulut O, Keskin A (2003). A research on efficiency of improvement and support policies on cattle breeding in Turkey. Turkish J. Vet. Animal Sci., 27 (645- 650) Tubitak, Ankara.
Yavuz F, Tan S, Zulauf C R (2004). Regional ımpacts of alternative price policies for turkey's dairy sector. Tubitak, Ankara. Turkish J. Vet. Anim. Sci., 28: 537-543.
Yeni R, Dölekoglu CO (2003). Processes and producer transfers in agricultural support policy. Agric. Econ. Res. Inst. Pub. Ankara, p. 98.
Yoruk M (2007). Turkish milk sector in EU harmonization process. SETBİR (Union of dairy, beef, food industrialists and producers of Turkey) Presentation, 27 June, Istanbul.