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The Aims of Member of Stud Cattle Breeders Association

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Abstract: In this study, it is aimed to determine the aim hierarchy of Stud Cattle Breeders Association members (SCBAM) reflecting their perspectives on stud cattle breeding and order their aims from most important to least important. In addition, another aim of the study is to determine the coherence between the institutional targets of Stud Cattle Breeders Association (SCBA) and targets of stud cattle breeders. For this purpose, 111 members of SCBA in Erzurum were surveyed with proportional sampling method. According to the results of the study, SCBAM in the study area give importance to the aims of "Meeting family needs", "Reducing debts", "Obtaining maximum profit", "Improving herds", "Extending enterprise", "Transferring enterprise to the next generation", and "Realizing the least risky production", respectively.

Keywords: Erzurum, Fuzzy Piar-Wise Comparison, Stud cattle breeders associations.

Damızlık Sığır Yetiştiricileri Birliği Üyelerinin Amaçları

Öz: Bu çalışmada Damızlık Sığır Yetiştiricileri Birliği SCBA üyelerinin, damızlık sığır yetiştirmeye bakış açılarını yansıtan amaç hiyerarşilerinin belirlenmesi, amaçların en çok önemliden en az önemliye doğru sıralanması amaçlanmaktadır. Ayrıca SCBA'nin kuruluş amaçları ile üyelerinin damızlık sığır yetiştirme amaçlarının birbirine uyumunun belirlenmesi de çalışmanın hedefleri arasındadır. Bu amaçla Erzurum ilinde SCBA üyelerinden Oransal Örnekleme yöntemi ile belirlenen 111 birlik üyesi ile anket yapılmıştır. Çalışmanın sonuçlarına göre SCBA üyeleri sırasıyla "Ailenin ihtiyacını karşılamak", "Borçları azaltmak", "Max. kar sağlamak", "Sürülerini ıslah etmek", "İşletmeyi büyütmek", "İşletmeyi gelecek nesle devretmek" ve "En az riskli üretimi gerçekleştirmek" amaçlarına önem verdikleri belirlenmiştir.

Anahtar Kelimeler: Erzurum, Bulanık Eşli Karşılaştırma, damızlık sığır yetiştiricileri birliği.

1. Introduction

Cells in human body are responsible for growth, development and repair of eroded tissues. Cells take the energy necessary for sustainment of their vital activities through the foods consumed by humans. Nutrient intake of humans is of plant and animal origin. Cheap and accessible animal foods are quite important for society as they are required for a balanced and adequate nutrition (Alkan, 2010). Meat and milk are basic animal food sources for humans. And, cattle have an important share in production of these foods. In Turkey, 60% of total red meat production and 90% of total milk production are obtained from cattle. The rest of milk and red meat production are provided from sheep, goat and buffalo (Anonymous, 2012a). The total number of bovine animals in Turkey increased by 9% at the end of 2011 compared to the previous year and became 12 483 969. And, the number of cattle among bovine animals became 12 386 337 with 8.9% increase. Milk production increased by 11.2% in 2011 compared to the previous year and became 15 056 211 tones. This quantity consisted of 91.7% cow milk, 59% sheep milk, 2.1% goat milk and 0.3% buffalo milk (TUIK, 2012). With rapidly increasing population of Turkey, it becomes an obligation to equally increase, optimize and effectively use the nutritional sources for human consumption. Decreases in production values are caused by the decreasing animal number and inability to increase yield per

animal. Adequate levels are not attained in milk and red meat productions in Turkey (Aydın and Sarıkaya, 2012). Therefore, it is required to increase the production of high efficiency and quality of stud animals in order to improve the yield in the current population. For this purpose, it is important to develop cooperative principle and association spirit in plant and animal production. Stud Cattle Breeders Association (SCBA) was established in 1998 to solve many problems of bovine animal production in Turkey and it has 76 members at present. SCBA aims to achieve maximum yield at minimum cost through breeding herds of stud cattle breeders (Anonymous, 2012b). Economists generally assume that firms allocate limited resources such that profit is maximized. Farmers, however, have been shown to have multiple goals that influence resource allocation decisions. While for most farmers, maximizing profit is an important goal (or the most important goal), other goals such as conserving land for future generations and having their families involved in agriculture may also be important. Understanding goal structures of farmers helps to explain resource allocation decisions. While some goals may be complementary, others may compete, resulting in decisions not easily understood without a more thorough evaluation of goal structure (Van Kooten et al. 1986; Basarir and Gillespie, 2003). Some of the aims are complementary and some are competitive with each other. For this reason, it becomes difficult to take decision without a multidimensional evaluation. Therefore, producers are supposed to realize as many aims as possible, primarily the most important aim and aims, and then less important aims (Günden and Miran, 2007). In this regard, it is clear that ordering the aims of producers from most important to least important will contribute to their decision making, economic behavior prediction and development of agricultural policies and extension activity programs (Van Kooten et al. 1986).

In this study, it is aimed to determine the aim hierarchy of SCBAM reflecting their perspectives on stud cattle breeding and order their aims from most important to least important. In addition, another aim of the study is to determine the coherence between the institutional targets of SCBA and targets of stud cattle breeders.

2. Material and Method

The data were acquired from face-to-face surveys conducted in 2012. Sample size was set to be 111 based by means of the Proportional Sampling Method (in 90% confidence interval and 7.5% mean deviation) (Miran, 2010). The questionnaire was implemented with a total of 111 randomly selected from members of stud cattle breeders associations in Erzurum Province.

$$n = \frac{\mathrm{N} * \mathrm{p} * (1 - \mathrm{p})}{(\mathrm{N} - 1) * \sigma_{\mathrm{p}}^2 + \mathrm{p} * (1 - \mathrm{p})}$$

In the sampling formula; n:Sampling size, N:Population size (1284), σ_p:Confidence interval of probability level, r:Mean deviation, p:Estimating rate (0.5 for maximum sample size).

The Fuzzy Pair-Wise Comparison Method.

Partial membership is a central concept in fuzzy set theory (Zadeh, 1965). Assuming partial membership, the fuzzy set is mapped over a [0,1] closed interval. Thus, an element is assigned a value between 0 and 1, representing the partial membership the element has in the fuzzy set (Van Kooten et al. 1986). Thus, fuzzy set theory is based on some-what vague preferences. A person don't have to choose between two aim which be consist of 0 and 1. As the value gets closer to 1, greater intensity of preference for the particular goal has been indicated. As a result, stud cattle breeders's goal are ranked from most to least important. The fuzzy pair-wise comparison method in ranking of goal, preference and expectations has been used by Basarır and Gillespie (2007), Günden and Miran (2007), Günden et al. (2008), Koyubenbe et al. (2010), Tumer et al (2010), Tumer (2011), Tumer et al (2011). The aims of SCBAM are supposed to include "Realizing the least risky production", "Extending enterprise", "Meeting family needs", "Transferring the enterprise to the next generation (transferring)", "Reducing debts", "Obtaining maximum profit" and "Improving herds".

Non-parametric statistical analysis.

To analyse the students' goal/expectations derived from Fuzzy Pair Wise Comparison, nonparametric statistical tests are used (Basarir and Gillespie 2003). The null hypothesis is that there is no difference in preferences over the goal

among stud cattle breeders. Alternatively, at least one goal is preferred over the others. The basic aim of Kendall's W test is to measure the concordance of the ranking within the block. Looking at the values (0.1, 0.3, 0.5, 0.7, 0.9) of Kendall's W test, it is possible to argue that the concordance is very weak, weak, medium, strong or extremely strong.

3. Results and Discussions

In the study area, the mean age of the SCBAM is 41.34 years and the mean schooling year is 9.24 years. The mean number of their family members is 4.64 individuals, and the rate of family members occupied in agricultural production is 1.51 individuals. The mean experience of SCBAM in animal production is 14.92 years. SCBAM annually income is 12099.10 TL on average from animal production, while they annually allocate 4887.39 TL of budget for animal production. Of the SCBA members, 21% have social security and 19% want to make livestock insurance. The rate of members feeding animals on high energy corn silage is 24%. And, most of the members (97%) want to feed their animals on corn silage (Table 1).

Table 1. Charecteristics of the stud cattle breeders associations members

	Min.	**Max.**	**Mean**	**Std.Dev.**
Age (year)	24	80	41.34	10.34
Education (year)	4	14	9.24	1.95
The number of members (member)	2	15	4.64	1.61
The number of working in farm	1	6	1.51	0.76
Experience in animal product (experience) (year)	2	45	14.92	9.45
Animal product income (income) (TL/year)	3000	50000	12099.10	7126.08
Alloted butge to animal prodution (butge) (TL/year)	1000	15000	4887.39	2273.05
Social security (No:0)	0	1	0.21	0.41
Willigness to livestock insurance (No:0)	0	1	0.19	0.39
Working in non-agriculture	0	1	0.20	0.40
Feding animals corn silage (No:0)	0	1	0.24	0.43
Willing to feed their animal on corn silage (No:0)	0	1	0.97	0.16

In the study area, SCBAM the utmost importance to the aim of “meeting family needs”. Then, it was followed by “reducing debts”, “obtaining maximum profit”, “Improving herds”, “Extending enterprise” and “transferring the enterprise to the next generation”. The members of this association give the least importance to “realizing the least risky production” (Table 2). Accordingly, it could be claimed that members of the association are ready to take risk in every stage of production. The presence of a difference between members’ aims of stud cattle breeders associations according to the analysis results was analyzed by means of the Friedman test. As a result of the analysis, a difference was found between members’ aims of stud cattle breeders associations. Kendall's W value was determined to be 0.53. It is possible to argue that the results are medium compatible with farmers.

The SCBAM under 36 years of age give the utmost importance to Improving herds, while members between 36-45 years of age are most interested in obtaining maximum profit and members over 45 years of age in meeting family needs.

Table 2. Weight of SCBA members' aims

Aims	Mean	Std.Dev	Min.	Max.	Median
Realizing the least risky production	0.2765	0.0589	0.1594	0.4255	0.2708
Transferring the enterprise to the next generation	0.2930	0.1172	0.1321	0.6394	0.2395
Extending enterprise	0.4568	0.1007	0.2743	0.6326	0.4615
Improving herds	0.5407	0.1111	0.2461	0.9000	0.5565
Obtaining maximum profit	0.5666	0.1008	0.3292	0.8268	0.5718
Reducing debts	0.5706	0.0936	0.3132	0.8268	0.5817
Meeting family needs	0.5725	0.0902	0.2362	0.7727	0.5817

**Significant by Friedman Test for P<0.01*
**Kendall's W=0.53*

On the other hand, the SCBAM under 36 years of age give the least importance to transferring the enterprise to the next generation, while other members 36 years of age and older give the least importance to realizing the least risky production. Primary school graduate members of the association are most interested in meeting family needs, while secondary school graduate members are most interested in reducing debts and high school graduates are most interested in obtaining maximum profit. Primary and secondary school graduate members give the least importance to realizing least risky production, while high school graduates are least interested in transferring enterprise to the next generation. The members of the association that have fewer than 4 family members give the utmost importance to meeting family needs, while the members with 4-5-person family are most interested in reducing debts and the members with 5-person family are most interested in obtaining maximum profit. Regardless of the number of family members, the association members give the least importance to the aim of realizing the least risky production. The members of the association with less than 12 years of experience in animal production given the utmost importance to meeting family needs, while 12-21 years experienced members are most interested in reducing debts and more than 22 years experienced members are most interested in obtaining maximum profit. Regardless of experience in animal production, the members of the association give the least importance to the aim of realizing the least risky production. The members of the association with 14000 TL and lower annual animal production income give the utmost importance to meeting family needs, while the members with more than 14000 TL annual income are most interested in obtaining the maximum profit. Regardless of the animal production income level, the members of the association give the least importance to realizing the least risky production. The SCBAM allocating less than 4000TL budget for animal production give the utmost importance to meeting family needs, while the members allocating 4000-5000 TL budget are most interested in reducing debts, and members allocating more than 5000 TL budget are most interested in obtaining the maximum profit. The SCBAM allocating less than 4000 TL and more than 5000TL budget for animal production give the least importance to transferring enterprise to the next generation and members allocating 4000-5000 TL budget give the least importance to realizing the least risky production. The members of the association that do not want to feed their animals on corn silage give the utmost importance to meeting family needs and the members that want to feed their animals on corn silage are most interested in reducing debts. The SCBAM that have 7 or fewer number of calves give the utmost importance to reducing debts, while the members with higher than 7 calves are most interested in obtaining maximum profit. The members with fewer than 2 heifers give the utmost importance to obtaining maximum profit, and the members with 2-4 heifers are most interested in meeting family needs and the members with more than 4 heifers give the utmost importance to Improving herds. The SCBAM with fewer than 8 cows give the utmost importance to meeting family needs, while

the members with 8-11 cows are most interested in reducing debts and the members with more than 11 cows are most interested in obtaining maximum profit (Table 3).

Table 3. Weight of aims by charecteristic of SCBAM

		Realizing the least risky production	Extending enterprise	Meeting family needs	Transferring the enterprise to the next generation	Reducing debts	Obtaining maximum profit	Improving herds
		Mean	Mean	Mean	Mean	Mean	Mean	Mean
Age	<36	0.281	0.4652	0.5655	0.2663	0.5738	0.5502	0.5799
	36-45	0.2697	0.4522	0.5795	0.2857	0.5665	0.5836	0.5348
	46+	0.2777	0.4512	0.5742	0.3321	0.5706	0.5699	0.4996
Education	Primary	0.2832	0.4687	0.6116	0.3534	0.5075	0.5811	0.482
	Secondary	0.2683	0.4472	0.5702	0.3158	0.5792	0.5427	0.55
	High	0.2833	0.4641	0.5688	0.2624	0.572	0.5871	0.5409
Member	<4	0.271	0.4582	0.5893	0.2489	0.5763	0.5671	0.5581
	4-6	0.2715	0.4624	0.5844	0.2821	0.5852	0.5547	0.5427
	6+	0.294	0.4407	0.5279	0.3572	0.5273	0.5978	0.5217
Experience	<12	0.2748	0.4597	0.572	0.2922	0.571	0.5427	0.5539
	12-21	0.2764	0.4562	0.5764	0.2936	0.5917	0.571	0.5194
	22+	0.2824	0.4487	0.5643	0.2944	0.5136	0.6347	0.5532
Income (000)	<10	0.2808	0.4572	0.5734	0.2855	0.5695	0.5471	0.5712
	10-14	0.2755	0.4633	0.5752	0.2972	0.5686	0.565	0.5291
	15+	0.2725	0.4356	0.5628	0.2925	0.5788	0.6046	0.5262
Butge (000)	<4	0.2931	0.4486	0.5951	0.2815	0.5643	0.5474	0.5489
	4-5	0.2708	0.4497	0.5548	0.3139	0.5657	0.5613	0.5571
	5.5+	0.2733	0.4777	0.588	0.2619	0.5856	0.5937	0.5016
Corn Silage	No	0.247	0.3751	0.6264	0.3803	0.5357	0.5004	0.5558
	Yes	0.2773	0.4591	0.571	0.2906	0.5716	0.5685	0.5403
Calf	<5	0.2831	0.4421	0.5631	0.34	0.5674	0.515	0.5572
	5-7	0.2848	0.4748	0.578	0.2563	0.584	0.5691	0.5376
	8+	0.2589	0.439	0.5707	0.3171	0.5519	0.5993	0.5341
Heifer	<2	0.2995	0.4656	0.545	0.373	0.5171	0.6583	0.4355
	2-4	0.2803	0.4647	0.5996	0.255	0.5887	0.5531	0.5378
	5+	0.257	0.4377	0.5384	0.3184	0.5669	0.5412	0.6034
Cow	<8	0.2796	0.4685	0.5937	0.3047	0.5737	0.549	0.5156
	8-11	0.2877	0.4523	0.5883	0.2448	0.593	0.5681	0.5455
	12+	0.2466	0.4514	0.5081	0.3879	0.5152	0.5868	0.5634

4. Conclusions

SCBA established pursuant to Animal Breeding Law no 4631 is producer organization founded within the framework of regulation about establishment and services of stud breeding associations. SCBA aims to provide maximum profit at lowest cost to its members through improving herds, conduct Pedigree System, and follow up parent and yield records that form the basis of pedigree in cattle. For this purpose, it is aimed to determine hierarchy of objectives of SCBAM for stud cattle breeding and order these objectives from the most important to the least important. According to the results of the study, SCBAM in the study area give importance to the aims of "Meeting family needs", "Reducing debts", "Obtaining maximum profit", "Improving herds", "Extending enterprise", "Transferring enterprise to the next generation", and "Realizing the least risky production", respectively. Similar to the enterprises in the region, the main objective of SCBAM is to provide family needs, as well. After fulfilling main responsibility for their families, the members of the association aim to increase the profit from SCB. With this aim, they could reduce their debts, extend their enterprises and transfer them to the next generation. Thus, they could provide continuity of their enterprises. As a result, the aims of SCBA and its members are compatible with each other. The members of the association give the least importance to realizing the least risky production, which indicates that they are ready to take risk during production period and they are aware that they might gain profit with regard to risk. As the number of cattle and cow increases, producers attach more importance to the aim of "Improving herds". The members of the association want to raise high efficiency cattle in parallel to increasing enterprise size. In addition, they give more importance to the aim of "Obtaining maximum profit" as the budget allocated for SCB increases. The SCBAM become more interested as the production factors they allocate for SCB increase. The SCBAM between 36-45 years of age give the utmost importance to the aim of obtaining maximum profit, while they give the least importance to realizing the least risky production. This result indicates that the members can take risk in production process and they can continue production in line with the aims of the association. Consequently, the aims of the members should be taken into consideration and their production should be directed in order for the objectives of members and SCBA to be compatible with each other and to be directed to the same direction. Especially, young members should be informed about the importance of stud cattle breeding, yield and quality increasing methods through training seminars to increase the consciousness about SCB. In addition, the members should be informed about the advantages, preparation way and production of high energy corn silage that boosts milk production.

References

Alkan M (2010). Bitter end of goat and sheep production, http://www.ciftlikdergisi.com.tr/ciftlikdergisi/hayvancilik/kumes-hayvanciligi, (Accessed to web: 07.07.2011).

Anonymous (2012a). Stud Cattle Breeders Association, http://www.dsymb.org.tr/filesandimages/file/pdfler/32.pdf (Accessed to web: 14.07.2012).

Anonymous (2012b). Stud Cattle Breeders Association, http://www.dsymb.org.tr/?x=1&id=103# (Accessed to web: 14.07.2012).

Aydın E, and Sarıkaya E, (2012). Kars ve Erzurum İlleri Entansif Sığır Besi İşletmelerinin Ekonomik Analizi. Kafkas Univ Vet Fak Derg18 (6): 997-1005.

Basarir A and Gillespie MJ (2003). Goals of Beef Cattle and Dairy Producers: A Comparision of the Fuzzy Pair-Wise Method and Simple Ranking Procedure. Selected Paper Prepared for Presentation at the Southern Agricultural Economics Association Annual Meeting, Mobile, AL February 1-5.

Basarir A and Gillespie MJ (2007). Eliciting Farmers' Goal Hierarchies: Comparing the Fuzzy Pair-Wise Method with the Simple Ranking Procedure, *IJAB*, 1560-8530/09-2 257-263.

Günden C and Miran B. (2007). Research on the Determination of Farmers' Objectives Hierarchy Using Fuzzy Pairwise Comparison. Akdeniz University, Journal of Agricultural Faculty 20(2), sy: 183–191, Antalya.

Gunden C, Miran B, Karahan Uysal O and Kenanoğlu Bektaş Z (2008). An Analysis of Consumer Preferences for Information Sources on Food Safety by using Fuzzy Pair-wise Comparison. Selected Paper prepared for presentation at the Southern Agricultural Economics, Association Annual Meeting, Dallas, TX February 2-6.

Ikikat Tumer E., Miran B and Birinci A (2010). Analysis Of The Factors Affecting The Expectations Of The Students From Teaching Staff At Ataturk University. Ataturk University Journal of Agricultural Faculty of Ataturk University, 41 (2), 129-135.

Ikikat Tumer E. (2011). An Analysis on Determining The Attitudes of The Farmers Towards Risks and Possible Premium Levels for Insurance in Erzurum, Erzincan and Bayburt Provinces (TRA I Region). Ataturk University Science Education Instituons, Dr Thesis, Erzurum.

Ikikat Tumer E., Miran B and Birinci A (2011). Analyze of Aims Determining Faculty Decision of Ataturk University Students with Fuzzy Pair-Wise Comparison Method. JIIBF, 10. Econometri and Statistic Symposium, Vol:25, pp.119-136.

Koyubenbe N, Miran B, Konca Y, Yaylak E, Uzmay A and Candemir M (2010). Farmer's Preferences for Organic Milk Production in İzmir. Turkey, *JAVA*, 5(1): 24-33.

Miran B (2010). Basic Statistic. Ege University Printing House, Bornova, Izmir.

TUIK (2012). Statistics, http://www.tuik.gov.tr/PreHaberBultenleri.do?id=10820 [Access: 14.07.2012].

Van Kooten GC, Schoney RA and Hayward KA (1986). An alternative Approach to the Eveluation of Goal Hierarchies among Farmers. Western Journal of Agricultural Economics, 11 (1):40-49.

Zadeh LA (1965). Fuzzy Sets, Information and Control, 8, 338-353.