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PREFACE

On the behalf of the Organizing Committee of International Rural Development Symposium'09, I am pleased to come you İspir, Erzurum, Turkey, especially participants from different Universities in Turkey, United State of America, and Europe. I would like to express my thanks and appreciations to honor committee, scientific and organization committees, our supporters, and sponsors for all their assistance and full cooperation.

This symposium is a part of project entitled "Rural Development Challenges in the EU and Turkey" funded by European Commission. Atatütk, Padova and Çukurova Universities are partners with collaboration in Secretariat General for EU Affairs. So, my special thanks to European Commission, Secretariat General for EU Affairs, Rectorate of Atatütk, Padova and Çukurova Universities. I would like to thank all scientists from all of world for responding to our invitation to be here with us in İspir, Erzurum, and their contribution and collaboration for his symposium.

Project of Rural Development Challenges in the EU and Turkey accessed good and proudly relation between universities from Turkey and EU. Also Project has worked on İspir region and addressed almost all scientific information and investigation on strategies for developing rural area in İspir, Turkey, and contributed to farmers by training programs in region. In this symposium, not only rural development issues in all of world discussed, but also negotiated some opportunities and strategies for developing of İspir region.

My hoping is that results of project and this meeting would help to regional rural development for İspir Region and other rural area in the word.

November, 2009, İspir ERZURUM, TURKEY

Assoc. Prof. Ayhan YILDIRIM

Project Coordinator and

Head of Organization Committee

DESIGNING THE MARKETING STRATEGIES FOR ISPIR SUGAR BEAN AS A LOCAL PRODUCT USING CONJOINT ANALYSIS

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ABSTRACT: Local products have played an important role in rural development models by making it possible to make effective use of natural resources and stimulating rural development potential. There is a close relationship between production and marketing departments of commercial farms to introduce local products to target consumer masses impressively. The aim of this study is to explore individual consumers' purchase attitude and behaviors towards Ispir sugar bean and to design integrated marketing strategies based on the marketing mix or intrinsic and extrinsic attributes of Ispir sugar bean as a local product using conjoint analysis. The data of this research were obtained from a survey conducted with 250 households in Erzurum. These data were used to design the marketing strategies by using conjoint analysis in SPSS statistic program.

The results of this study show that the most important factors affecting respondents' purchase attitude and behavior for Ispir sugar bean were price, brand type, production type, origin mark and caliber size with 26.73%, 14.79%, 13.48%, 12.34% and 12.32% relative importance, respectively. Therefore, marketers could design and apply integrated marketing strategies such as price, manufacturer brand strategy with Ispir origin mark and organic production, product category management and retailing strategies for Ispir sugar bean. These strategies could stimulate rural development potential and could increase annual income levels of Ispir sugar bean producers in Ispir district of Erzurum, Turkey.

Keywords: Ispir sugar bean, conjoint analysis, integrated marketing strategy, orthogonal design.

NTRODUCTION

Local agricultural products that are called with a name of a region or origin, and are compatible with the agro-ecological structure of the region, and in a position to have a relative advantage compared with other agricultural products, have played an important role in rural development models by making it possible to make effective use of natural resources and stimulating rural development potential. For example, agricultural products such as Ispir sugar bean, Hinis common bean, Erzurum Civil cheese and mulberry molasses in Erzurum province are local products and also have relative advantages in the region. Besides, they have some product attributes such as flavor and taste, texture and mouthfeel, aroma, appearance and origin mark, which have been preferred more than other agricultural products at the same product category by the consumers of the region.

Ispir sugar bean of these products has been demanded more than other dry beans both in Erzurum and in other provinces such as Rize, Bayburt, Trabzon, Aydın, Ankara, Bursa, Istanbul, Izmir etc. because of its product attributes and origin. Despite climatic advantages of Ispir[1] being production area of Ispir sugar bean, shortage and steep slope of agricultural lands as topographical structure has limited the production and continuously prevented sufficient supply to target markets or consumer segments. As a result of this, there is an important deficit between the amount of its supply and demand, and the supply has not met the demand. Its production, therefore, should gradually be increased. One of the best methods to increase the production amount is to increase the productivity per unit land, and second method would be to allocate more farming land for the product in the production pattern. On the other hand, the best way of meeting demand deficit is to reach the target homogenous consumer masses or market segments by means of effective marketing tactics and strategies.

Dry bean is the most important economic species of the genus *Phaseolus* and is grown in many parts of the world. The main domestication areas of dry beans are Central and South America, Eastern and Southern Africa and East Asia (Gepts and Bliss, 1986). As an agricultural crop, it is widely cultivated throughout the world, both for dry beans and fresh pods. The world leaders in production of dry bean are Brazil, India and China with 3.17,

[1] Ispir district of Erzurum province located in Northeast part of Turkey is a microclimate small town along Coruh valley with an altitude of 1250 m of sea level.

3.00 and 1.23 million tones, respectively, and the total dry bean production in the world and Turkey is 19.70 and 0.20 million tones (FAO, 2009). In recent years, the dry bean cultivars "Ispir and Hinis" have increasingly become more popular, not only in Erzurum, but also in Turkey as a whole because of their high quality seeds (Ozturk et al., 2009).

On the other hand, people need to consume a variety of plant foods to obtain all the amino acids necessary for your body to form complete proteins. They have researched ways to optimize their intake of legumes such as dry bean, chickpea, lentil and pea as part of a healthier lifestyle and to make their body stronger by being a part of an alternative treatment against to illnesses. Dry bean is staple food all over the world, and is one of the best sources of soluble fiber, and is low in fat and high in good quality protein saving combination. The soluble fiber in beans helps lower levels of damaging LDL cholesterol in the blood, thus lowering heart-disease risk, and fends off unwanted peaks and valleys in blood glucose levels, especially valuable to people with diabetes, by slowing down carbohydrate absorption (Bazzano et al., 2003).

Dry bean is also high rich in starch, protein and dietary fiber and is an excellent source of iron, copper, magnesium, potassium, selenium, molybdenum, thiamine, vitamin B_6 and folic acid for millions of people worldwide, and is a basic food of the indigenous populations in Central and South America, Central, Eastern and Southern Africa and East Asia where it is variously consumed at their meals (Queiroz et al., 2002). For example, while annual dry bean consumption per capita in South America, Central America, Eastern Africa and the world is 9, 11, 6 and 2 kg, respectively; that in Brazil, Mexico, Uganda, Nicaragua, Rwanda and Burundi are 17, 11, 15, 24, 26 and 31 kg, respectively (FAO, 2009). Dry bean consumption per capita in these countries is much more than that in the world, and they are some of the most dry bean consumption countries.

According to information obtained from a survey study conducted in Erzurum, Ispir sugar and other dry bean consumption per capita is 1.5 and 1.8 kg/year. Whereas annual total consumption of dry bean per capita in Erzurum is 3.3 kg; that in Turkey is 2 kg (FAO, 2009). As a result, consumption amount of dry bean in Erzurum is higher than that in Turkey. As compared Ispir sugar bean consumption with other dry bean consumptions in Erzurum, it can be observed that other dry bean consumption is higher than that of Ispir sugar bean. Although Ispir sugar bean with intrinsic and extrinsic attributes such as distinctive taste and flavor, aroma, texture and mounthfeel is demanded more than others, it is consumed less than the others. One of the most important reasons of this is the lack of an effective communication between the production and consumption regions, and the lack of proper use of marketing approaches. Another reason is that it is not easy to buy Ispir sugar bean at each selling point (markets, food shops, selling cooperatives etc.), because of the fact that is not sold under a registered brand name. Therefore, the consumers have always worried that buy other dry bean brands instead of real Ispir sugar bean.

Conventional marketing approaches have not met consumers' requirements and needs for food products; therefore, there have been very important developments related to marketing approaches, in recent years. For example, while conventional marketing approach uses only product-focused strategies for all customers, integrated marketing approach has tried to carry out customer-based strategies for every individual customer. To do this, marketers must first divide individual customers into homogenous market segments by taking into consideration consumers' buying attitudes and behaviors, and then design the marketing strategies for the target customer masses by considering product attributes (Topcu and Isik, 2007).

Marketers have focused on integrated marketing tactics and strategies such as customer relationship management (CRM), product, brand and category management, retailer and product innovation (design). Especially; brand and category management based on CRM has provided much important benefits to retailers having a close relationship with individual customers, and applying marketing strategies with respect to expectations and needs of target homogeneous consumer masses. So, they have continuously pursued their own customers, as well (Topcu et al. 2007).

On the other hand, consumers are faced with much greater information and choice in today's competitive and global market. They have limited processing capacity and hence use only part of the information available when choosing a brand or product. In their evaluations of brand attributes, consumers limit themselves to 3-5 items of information in order to reduce the complexity of selection (Topcu and Isik, 2008). For example, in any brand choice, price and quality play an important role since they are often central to consumers' judgment and decisions (Topcu, 2009). For most brands, consumers believe that price and quality are correlated and their preferences are affected by external variables such as income, family size, social status, profession, etc. Under the influence of all these factors, a consumer defines the purchasing problem, gathers necessary information, evaluates alternatives and makes a purchasing decision (Topcu, 2006).

There is a close relationship between production and marketing departments of commercial farms to introduce local products to target consumer masses impressively. On the other hand, to create homogenous groups related to individual consumers' demographic, socioeconomic and psychological characteristics and to explore factors affecting their buying attitude and behavior, it is necessary to analyze these factors for integrated marketing tactics and strategies focused on individual customers. Because marketing tactics and strategies could be applied for homogenous consumer groups and individual customers with food product quality set or attributes, maximizing total and part utilities, respectively.

The effects of product attributes on consumer attitudes towards product evaluation have been widely studied (Wansink et al., 2001; Deliza et al, 2003; Topcu, 2009; Topcu and Uzundumlu, 2009; Topcu et al., 2009). One of the greatest difficulties in these types of researches is to quantify the effect of each product attribute on the consumer purchase intention. Conjoint analysis is a useful tool to investigate the effect of these attributes. It is a market research tool for developing effective product design. Using conjoint analysis, the researchers can find out product attributes from customers, the most desirable level of product attributes in consumers' mind and the market share of preference for different brands (SPSS, 2006).

The aim of this study is to explore individual consumers' buying attitude and behavior towards Ispir sugar bean, and to design integrated marketing strategies based on the marketing mix or intrinsic and extrinsic attributes of Ispir sugar bean as a local product using conjoint analysis.

MATERIAL AND METHODS

Material and determination of sample size

The data of the present research were obtained from a survey conducted in the Erzurum, Turkey. In order to determine the sample size, while minimizing sample bias and representing the population correctly; the city centre was divided into three sub-districts: the east and south-sides Yakutiye with 44075, the west-side Aziziye with 11500, and the north-side Palandoken with 30022 households (Anonymous, 2009).

To determine the sample size, following formula was used (Topcu, 2009):

$$n=\frac{Z^2 * p*(1-p)}{c^2}=250, \quad \textit{Where;}$$

n = Sample size

Z = Z value, (used 1.96 for 95% confidence level)

p = percentage picking a choice, (0.8 used for sample size needed)

c = confidence interval, (used 0.05 = ±5)

Then, based on the population of each sub-district, weighted sample size and distribution of the surveys for each district were determined proportionally. Out of 250, the number of questionnaires of Yakutiye, Palandoken and Aziziye sub-districts were 128, 88 and 34, respectively.

Generation of orthogonal design and questionnaire

Conjoint analysis is a multivariate technique based on the assumption that purchasing behavior reflects a choice, within a product category, among products which possess a set of differentiating attributes. This technique has been used widely in many marketing researches including food products such as oil, yogurt, cheese, milk etc. (Kristalilis and Ness, 2005; Topcu, 2006; Haddad et al, 2007; Mtimet et al, 2008; Topcu and Isik, 2008; Topcu, 2009).

In this study, to determine the factors influencing consumer purchasing decisions for Ispir sugar bean, re-market researches were done in July, 2009 to learn its origin, prices, weight in grams, brand and package types and caliber sizes. After obtaining these data based on factors and factor levels in Table 1, the plan file which consists of product profiles to be rated by the respondents were generated by using the orthogonal design procedure in SPSS statistical program (SPSS, 2006).

Table 1. Factors and their levels for Ispir sugar bean used in conjoint analysis

Factors	Factor Levels			
Brand types	Manufacturer (MB)	Private label (PL)	Local brand (LB)	Generic (GB)
Prices (€/kg)*	5.6	5.1	4.7	3.7
Origin mark	Karsur (KR)	Hortik (HR)		Ispir (ISP)
Package types	Nylon bag (NB)	Plastic box (PX)	Paper bag (PAB)	Paper box (PAX)
Selling Points	Market (MM)	Selling cooperative (SC)	Food shop (FS)	E-market (EM)
Caliber size (mm)	Less than 8 (SM)	Between 8 and 10 (ME)		More than 10 (LA)
Weight (kg)	1	2.5		5
Production types	Organic (OR)	Conventional (CO)		Not important (NI)
Promotion	Yes			No

*The prices of the products were converted from Turkish Lira (TL) to Euro (€) using the exchange rate on July 15, 2009. The conversion rate used was 2.15 TL/€.

Statistical method

The data file was created with the preference ranking of these profiles collected from the respondents. Before analyzing the data with the conjoint procedure, *factors* subcommand must be described. We can specify the model describing the expected relationship between factors and rankings via *factors* subcommand (Topcu, 2006; Topcu, 2009). The discrete model indicates that factor levels are categorical and no assumption is made about the relationship between the factor and the ranks. On the other hand, the linear model indicates an expected linear relationship between the factor and ranks. The expected direction of the linear relationship can be specified with the keywords *more and less*. The linear-less indicates that lower levels of a factor are expected to be preferred, while the linear-more indicates that higher levels of a factor are expected to be preferred. Specifying more or less will not affect estimates of utilities (Hair et al., 1998; SPSS, 2006).

According to the characteristics of the factors, we used discrete, linear-less and linear-more models in this study. Selling point and brand type, origin, caliber size, package type, production type and weight in grams were modeled as discrete because there is no prior knowledge as to the influence of Ispir sugar bean attributes on purchase intent. Price and promotion, however, were modeled as linear-less and linear-more, respectively. Price was assumed to follow a linear-less model since it, typically, shows an inverse relationship with purchase intent. On the other hand, promotion was assumed to follow linear-more relationships in that consumers are expected to exhibit more positive attitudes towards product promotions (Haddad et al., 2007; Topcu, 2009).

The conjoint analysis of the data generates a utility score, called a part-worth, for each factor level. These utility scores, similar to regression coefficients, provide a quantities measure of the preference for each factor level, with larger values corresponding to greater preference. Utility values are expressed in a common unit, allowing them to be added together to give the total utility, or overall preference, for any combination of factor levels (Topcu, 2009).

RESULTS AND DISCUSSION

The results of this study show that it was correlation between observed and expected preferences, the utility values (part-worth) for each factor level and relative importance for each factor which has an important effective on the marketing mix to be introduced by taking into account the customer-based integrated marketing strategies for Ispir sugar bean in Table 3. Pearson's R and Kendall's tau statistics measured as 0.987 *(p: 0.0000)* and 0.875 *(p: 0.000)*, respectively, imply that it was a significant correlation between the observed and expected preferences, and the ordinal data set obtained from respondents was appropriate for conjoint model (Topcu, 2009).

The part-worth (utility value) coefficients with the highest positive and the lowest negative of factor levels obtained from conjoint analysis results indicated that these factor levels were preferred more than other factor levels. The results also show that while the most preferred brand types and origin marks for sugar bean were manufacturer brand (MB) and Ispir origin mark (ISP), the least preferred factor levels for these two factors were generic brand (GB) and Hortik origin mark (HR), respectively. As expected, utility values of respondents were maximized by the manufacturer brand and Ispir origin mark based on brand strategy derived from brand types and origin marks which bring about a meaningful identification to any product.

Table 2. Combination for Ispir sugar bean used in conjoint analysis

Card no	Brand	Origin	Caliber	Price	Package	Weight	Production	Selling points	Promotion
1	MB	ISP	LA	3.7	PAB	1	OR	FS	Yes
2	MB	HR	ME	4.7	NB	5	OR	SC	Yes
3	GB	KR	SM	4.7	PAB	1	OR	EM	No
4	LB	ISP	LA	4.7	PAB	1	CO	FS	Yes
5	PL	ISP	LA	5.1	PX	5	OR	SC	No
6	GB	HR	ME	5.1	PAX	1	CO	FS	No
7	LB	HR	SM	5.1	PAB	5	OR	MM	No
8	MB	HR	SM	5.6	PAB	1	CO	SC	Yes
9	MB	HR	SM	5.6	PAX	5	NI	FS	No
10	GB	ISP	SM	4.7	PAX	5	OR	MM	Yes
11	PL	KR	ME	5.1	NB	1	OR	FS	Yes
12	GB	HR	SM	3.7	NB	1	OR	SC	Yes
13	MB	ISP	ME	3.7	PAB	2.5	OR	EM	No
14	LB	KR	ME	4.7	PAX	2.5	NI	SC	No
15	LB	HR	LA	3.7	NB	1	NI	MM	No
16	PL	HR	ME	5.6	PAB	1	OR	MM	No
17	LB	KR	SM	5.6	PX	1	OR	SC	No
18	PL	HR	SM	4.7	PX	1	NI	EM	Yes
19	MB	HR	LA	4.7	PX	1	OR	FS	No
20	MB	KR	SM	3.7	PX	2.5	CO	FS	No
21	PL	HR	SM	4.7	NB	2.5	CO	MM	No
22	PL	KR	SM	3.7	PAB	5	NI	FS	Yes
23	GB	KR	SM	5.6	*NB*	5	CO	EM	No
24	LB	HR	ME	4.7	NB	5	OR	FS	Yes
25	GB	HR	LA	5.1	PAB	2.5	NI	SC	Yes
26	LB	ISP	SM	5.6	NB	2.5	OR	FS	Yes
27	GB	ISP	ME	5.6	PX	1	NI	MM	Yes
28	LB	HR	ME	3.7	PX	5	CO	EM	Yes
29	LB	HR	SM	5.1	PAB	1	OR	EM	Yes
30	GB	HR	SM	3.7	PX	2.5	OR	FS	No
31	PL	HR	LA	5.6	PAX	2.5	OR	EM	Yes
32	PL	ISP	SM	3.7	PAX	1	CO	SC	No
33	MB	ISP	SM	5.1	NB	1	NI	EM	No
34	MB	KR	SM	5.1	PX	2.5	CO	MM	Yes

As for caliber sizes and selling points, the factor levels of Ispir sugar bean with more than 10 mm (LA) as caliber size which refer to standardization of agricultural food products and food shops (FS) as a selling point which implement retailing strategy were preferred much more, for the part-worth coefficients of these factor levels are higher than that of other ones. Caliber sizes of dry beans could have an important function for texture, convenience during cooking and appearance after cooking. Food shops functioning at retailing sector, which is one of the most important chains of the marketing channel take part at the end of the supply chain, and buy the food products in large quantities from either producers or manufacturers, or could manufacture their own food products, and then directly sell the food products to the end-consumers. Due to shortening of their marketing chains, marketing margin of food shops is lower than that of other retailers. In addition to, they have a broad food product diversification, a wide food line and an effective shelf depth, and are the most important sellers for local food products, as well. They, hence, could service with a lower price and a wide food variety to the end-consumers, and completely create customers retailer loyalty (Topcu and Uzundumlu, 2009).

On the other hand, factor levels of Ispir sugar bean with organic production (OR) as a production type, selling promotion (Yes), with paper bag (PAB) as a package type, 1 kg as weight in grams had the highest part-worth coefficients among that of these factors. In other words, respondents paid more attention for Ispir sugar bean with these factor levels, and preferred those rather than the other factor levels. Consumers have recently preferred much more organic products instead of conventional products so that organic products could be purified from toxic substances such as pesticide, hormone etc. which are harmful for public health. On the other hand, retailers, in recent years, have separately established the organic and conventional food departments in order to provide customer satisfaction, to attract new customers and to retain current those (Topcu, 2009).

Table 3. Conjoint analysis results for Ispir sugar bean

Factors	Factor Levels	(Part-worth)	Relative importance (%)	Standard Error
Origin marks	HR	-0.511	**12.343**	0.250
	KR	-0.106		0.293
	ISP	**0.617**		0.293
Brand types	GB	-2.027	**14.790**	0.325
	LB	0.260		0.325
	PL	0.627		0.325
	MB	**1.139**		0.325
Caliber sizes (mm)	SM	-2.093	**12.320**	0.250
	ME	0.385		0.293
	LA	**1.708**		0.293
Selling Points	SC	0.813	6.396	0.325
	EM	-2.056		0.325
	FS	**1.116**		0.325
	MM	0.127		0.325
Weight in grams (kg)	**1**	**0.542**	4.445	0.250
	2.5	-0.600		0.293
	5	0.058		0.293
Package types	NB	-0.582	5.100	0.325
	PX	-0.265		0.325
	PAB	**0.729**		0.325
	PAX	0.118		0.325
Prices (€/kg)	**3.7**	**-2.290**	**26.734**	0.168
	4.7	-4.580		0.335
	5.1	-6.870		0.508
	5.6	-9.160		0.671
Production types	**OR**	**1.605**	**13.483**	0.252
	CO	0.255		0.293
	NI	-1.890		0.293
Promotion	No	-3.287	4.389	0.375
	Yes	**-1.644**		0.750
Constant (α)		**24.787**		0.737
Correlations between observed and estimated preferences				
		Value		**Significance level**
Pearsons's R		**0.987**		**0.000**
Kendall's tau		**0.875**		**0.000**

In point of economic theory, selling promotions have always increased consumer demands as if having a price discount; hence they have an effect as if buying more food products. In other words, the products with selling promotion could considerably decrease costs to consumer and their ratios among total food expenditures, and create a significant demand increase. Not only do paper bags (PAB) selected as a package type maximize respondents' utility values, but also they give a measurement of their sensibilities related to environment. Since while a paper material may be decomposed in about one year on the earth, a nylon material may be decomposed in a longer time period than thirty years, and then could also threaten the biological life on the earth (Tutuncu and Deniz, 2008). On the other hand, today, conventional family structure that has more family members has increasingly turned into core family structures; hence, food consumption of core families could be less than that of conventional families, and people could pay more attention smaller packaged food products in order to prevent decay of food attributes such as nutritive value, texture, flavor etc. For example, dry bean could keep indefinitely if stored in a cool and dry place, but as time passes, their nutritive value and flavor degrade and cooking times lengthen.

With regard to price of Ispir sugar bean, the results of this study also show that there was an inverse relationship between prices and their utility values, as expected. This means that consumers preferred dry bean with lower price (€3.7) per kg to those with higher price (€5.6) per kg in view of the fact that lower prices led to higher utility values. Prices that are an effective instrument during introduction and application of marketing strategies should be regulated to target consumer masses and created price diversification according to income levels of the target homogenous consumer groups. This finding is supported by previous researches related to how affecting

the marketing strategies and consumers' demands of food product prices (Yi and Jeon, 2003; Topcu, 2006; Wadolowska et al., 2007; Topcu and Isik, 2008; Topcu et al., 2009; Topcu, 2009).
The results also show relative importance of each factor that has an important effect on integrated marketing strategies focusing on individual customers' purchase attitude and behaviors in Table 3. Price having the most important effect on target consumers' buying models played a characteristic role on customer-focused marketing strategies with 26.73% relative importance among all factors preferred. So, marketers to introduce Ispir sugar bean to target markets or consumer masses should pay more attention its price, and create price diversification according to both its attributes such as caliber size, brand types, origin marks etc. and socioeconomic attitude of the target markets and customer masses. Following this factor, the most second factor for respondents was brand types with 14.79% relative importance; but to give purchase decision of a specific brand should be focused on the factor levels of brand types. This means that respondents took into consideration the brand type of a product after its price, and then also preferred a specific brand by comparing the utility values of each brand levels.

Third and fourth important factors affecting purchase decision of target consumers for Ispir sugar bean were production types and origin marks with 13.48% and 12.34% relative importance, respectively. There is a close relationship between production type and origin mark of an agricultural product; therefore, for people have a lot of information about attributes and nature of the product they could give a decision about if not preferring it. Just as these two factors have a close relationship, so do the brand type and origin mark.

On the other hand, caliber size and selling point of Ispir sugar bean were preferred as fifth and sixth factors with 12.32% and 6.40% relative importance, respectively. With caliber sizes, agricultural products could be standardized and diversified by product category management strategies. With regards to selling points, retailers not only easily reach to individual customers but also increase the product lines and shelf depths by means of product category management and retailing strategies (Topcu, 2004). Therefore, retailers could design private label products with integrated marketing strategies, and create loyal customers by using advantages of a closer relationship with individual customers. The least significant three factors affecting respondents' Ispir sugar bean preference were promotion, weight in grams and package types with 4.39%, 4.45% and 5.10% relative importance, respectively. As a result, to develop and introduce designing integrated marketing strategies for Ispir sugar bean, marketers could apply these last three factors after the first six factors.

The results of this study also show consumers' total utilities in Table 4 derived from utility values of each factor level in Table 3 by being taken into consideration 34 product profiles designed with orthogonal cards in Table 2. In other words, calculated from utility values of each factor level with orthogonal card profiles obtained from orthogonal design, total utilities were given in Table 4. For example, the total utility (TU) of Ispir sugar bean with MB as brand type, ISP as origin mark, LA as caliber size, €3.7 as price per kg, PAB as package type, 1 kg as weight in grams, OR as production type, FS as selling point, and Yes as promotion for card number 1 is:

$$TU = \alpha + U(MB) + U(ISP) + U(LA) + \mathrm{U}(€3.7) + U(\mathrm{PAB}) + \mathrm{U}(1\ \mathrm{kg}) + \mathrm{U}(\mathrm{OR}) + \mathrm{U}(\mathrm{FS}) + \mathrm{U}(\mathrm{Yes});$$

$$TU = 24.787 + 1.139 + 0.617 + 1.708 - 2.290 + 0.729 + 0.542 + 1.605 + 1.116 - 1.644 = 28.309$$

As calculated the total utilities for 34 Ispir sugar bean profiles in Table 4, product profiles with card number 1 and card number 23 were maximized and minimized respondents' total utilities with 28.309 and 5.789, respectively. In light of these findings, which the integrated marketing strategies based on the target consumer mass for Ispir sugar bean could marketers design and then, apply? The answer of this question could be given by being analyzed the cards maximizing and minimizing the total utilities of the target consumer mass in Table 4. Referred to the cost to customers of Ispir sugar bean, price levels in the card number 1 and 4 are lower than that in the card number 23 and 9; therefore, price which have the highest relative importance could firstly be differentiated according to attitudes and socioeconomic characteristics of the target consumer mass and Ispir sugar bean attributes, and marketers should apply price strategies with lower price levels for this consumer group.

The second most important strategy of marketing for Ispir sugar bean also was brand strategy, which MB was preferred more than the other brands. This brand has a function as both national and international brand, and respondents demand introduction of Ispir sugar bean under a MB name to the target markets. Marketers, accordingly, should design it with the MB names registered by manufacturers, and introduce it with this brand name to target markets. Additionally, origin mark and production type along with a brand name could also be used to bring about an effective identification to food products by brand strategies. To provide identification to Ispir sugar bean, therefore, marketers who focus on respondents' purchase attribute and behaviors should also put together OR production type and ISP origin mark under a MB name. As doing so, they could combine with MB management strategy as an important part of the integrated marketing strategies with 40.62% relative

importance of these factors affecting preferences of the target consumer mass.

Table 4. Total utilities of Ispir sugar bean profiles under orthogonal design

Card #	Brand	Origin	Caliber	Price	Package	Weight	Production	Selling points	Promotion	Total utilities	Ranking
1	**MB**	**ISP**	**LA**	**3.7**	**PAB**	**1**	**OR**	**FS**	**Yes**	**28.309**	**1**
2	MB	HR	ME	4.7	NB	5	OR	SC	Yes	21.470	4
3	GB	KR	SM	4.7	PAB	1	OR	EM	No	13.514	28
4	**LB**	**ISP**	**LA**	**4.7**	**PAB**	**1**	**CO**	**FS**	**Yes**	**23.790**	**2**
5	PL	ISP	LA	5.1	PX	5	OR	SC	No	19.793	9
6	GB	HR	ME	5.1	PAX	1	CO	FS	No	14.508	24
7	LB	HR	SM	5.1	PAB	5	OR	MM	No	14.805	21
8	MB	HR	SM	5.6	PAB	1	CO	SC	Yes	14.857	20
9	***MB***	***HR***	***SM***	***5.6***	***PAX***	***5***	***NI***	***FS***	***No***	***10.277***	***33***
10	GB	ISP	SM	4.7	PAX	5	OR	MM	Yes	16.968	14
11	PL	KR	ME	5.1	NB	1	OR	FS	Yes	19.860	8
12	GB	HR	SM	3.7	NB	1	OR	SC	Yes	18.600	13
13	MB	ISP	ME	3.7	PAB	2.5	OR	EM	No	21.029	5
14	LB	KR	ME	4.7	PAX	2.5	NI	SC	No	15.900	17
15	LB	HR	LA	3.7	NB	1	NI	MM	No	18.864	12
16	PL	HR	ME	5.6	PAB	1	OR	MM	No	15.844	18
17	LB	KR	SM	5.6	PX	1	OR	SC	No	13.096	29
18	PL	HR	SM	4.7	PX	1	NI	EM	Yes	12.917	30
19	**MB**	**HR**	**LA**	**4.7**	**PX**	**1**	**OR**	**FS**	**No**	**22.254**	**3**
20	MB	KR	SM	3.7	PX	2.5	CO	FS	No	16.366	16
21	PL	HR	SM	4.7	NB	2.5	CO	MM	No	14.143	27
22	PL	KR	SM	3.7	PAB	5	NI	FS	Yes	19.294	10
23	***GB***	***KR***	***SM***	***5.6***	***NB***	***5***	***CO***	***EM***	***No***	***5.789***	***34***
24	LB	HR	ME	4.7	NB	5	OR	FS	Yes	20.894	6
25	GB	HR	LA	5.1	PAB	2.5	NI	SC	Yes	14.495	25
26	LB	ISP	SM	5.6	NB	2.5	OR	FS	Yes	14.306	26
27	GB	ISP	ME	5.6	PX	1	NI	MM	Yes	11.472	31
28	LB	HR	ME	3.7	PX	5	CO	EM	Yes	18.979	11
29	LB	HR	SM	5.1	PAB	1	OR	EM	Yes	14.749	22
30	GB	HR	SM	3.7	PX	2.5	OR	FS	No	16.435	15
31	PL	HR	LA	5.6	PAX	2.5	OR	EM	Yes	14.874	19
32	PL	ISP	SM	3.7	PAX	1	CO	SC	No	20.089	7
33	***MB***	***ISP***	***SM***	***5.1***	***NB***	***1***	***NI***	***EM***	***No***	***10.307***	***32***
34	MB	KR	SM	5.1	PX	2.5	CO	MM	Yes	14.730	23

On the other hand, with product category management strategy, Ispir sugar bean with caliber sizes, package types and weight in grams could diversify with 36 marketing mix combinations, which have Ispir sugar bean with LA, PAB and 1 kg maximizing the respondents' total utilities. Marketers, in that case, could considerably increase the product line and depth of Ispir sugar bean by this marketing strategy. Respondents, then, could successfully select the product varieties being fit for them and maximizing their total utilities. As conducting retailing strategy together with product category management; retailers could significantly enlarge their shelf depths, and effectively use selling promotions. As a result of this, consumers could more prefer Ispir sugar bean designed with category management and retailing strategies at food shops where work with wider food product varieties according to their socioeconomic characteristics and purchasing attitudes.

Table 5. Product profiles maximizing and minimizing consumers' total utilities

Card #: 1		
Brand types	:	Manufacturer brand
Origin mark	:	Ispir
Caliber sizes (mm)	:	More than 10 mm
Price (€/kg)	:	€3.7
Package types	:	Paper bag
Weight in grams (kg)	:	1 kg
Production types	:	Organic
Selling point	:	Food shop
Promotion	:	Yes

a) Maximum Utility

Card #: 23		
Brand types	:	Generic brand
Origin mark	:	Karsur
Caliber sizes (mm)	:	Less than 8 mm
Price (€/kg)	:	€5.6
Package types	:	Nylon bag
Weight in grams (kg)	:	5 kg
Production types	:	Conventional
Selling point	:	E-market
Promotion	:	No

b) Minimum Utility

Consequently, integrated marketing strategies with individual customer-focused maximizing the consumers' total utilities for Ispir sugar bean consisted of the price strategy with lower price; of the MB strategy registered with ISP origin mark and selected OR production type, of the product category management with LA caliber size, PAB package type and 1 kg weight in gram, of the retailing strategies with FS selling point and applying selling promotion.

CONCLUSION

Local products have played an important role in rural development models by making it possible to make effective use of natural resources and stimulating rural development potential. There is a close relationship between production and marketing departments of commercial farms to introduce local products to target consumer masses impressively. On the other hand, to create homogenous groups related to individual consumers' demographic, socioeconomic and psychological characteristics and to explore factors affecting their buying attitude and behavior, it is necessary to analyze these factors for integrated marketing tactics and strategies focused on individual customers. Because marketing tactics and strategies could be applied for homogenous consumer groups and individual customers with product quality set, maximizing total and part-worth, respectively. The aim of this study is to determine individual consumers' purchase attitude and behaviors towards Ispir sugar bean and to design integrated marketing strategies based on the marketing mix or intrinsic and extrinsic attributes of Ispir sugar bean as a local product using conjoint analysis. In order to determine the factors influencing consumers' purchase decisions for Ispir sugar bean, pre-market researches were done in July, 2009. After obtaining these data based on factors and factor levels, the plan file which consists of product profiles to be rated by the respondents were generated by using the orthogonal design procedure in SPSS statistic program. Obtained from orthogonal design, the numbers of product profiles were reduced to 34 cases, and then survey forms were designed according to these product profiles. The primary data of the research was obtained from a survey conducted with 250 households in Erzurum, Turkey. These data were used to design the marketing strategies by using conjoint analysis in SPSS.

The results of this research show that the most important factors affecting respondents' purchase attitude and behaviors for Ispir sugar bean were price, brand type, production type, origin mark and caliber size with 26.73%, 14.79%, 13.48%, 12.34% and 12.32% relative importance, respectively. On the other hand, while both part-worth and total utilities of respondent were maximized by factor levels with €3.7 per kg, a MB name, OR production type, ISP origin mark, LA as caliber size, FS as selling point, PAB as package type, 1 kg as weight in gram and selling promotion for Ispir sugar bean, respectively. These factor levels or marketing mix for Ispir sugar bean, therefore, were increasingly preferred by respondents, and consisted of the main components of integrated marketing strategies. In this way, marketers could design and apply the integrated marketing strategies such as price strategy with lower price, MB strategy with ISP origin mark registered and OR production type selected, product category management with LA caliber size, PAB package type and 1 kg as weight in gram and retailing strategy with FS selling point applying selling promotion for Ispir sugar bean.

The results of this study could also provide some important information to food manufacturers, retailers and marketers and this information could be used to develop predominant marketing tactics and strategies and policies based on Ispir sugar bean attributes and the purchase attitudes of the target consumer masses. These strategies could then stimulate rural development potential and could increase annual income levels of Ispir sugar bean producers in Ispir district of Erzurum, Turkey. Even though this study has some scientific merit to the academic and the food manufacturing community, it is not exempt from limitations, like all other studies. The results have limited generalizability since the data were collected in a single city. The survey can be conducted

nationwide and the use of larger data can give us more objective results about user preferences of Ispir sugar bean. Moreover, in future studies, our model could be expanded via incorporating more factors and factor levels into the model, and population could also divide into segmentations by considering relationships between their socioeconomic attitudes and behavior and intrinsic and extrinsic attributes of Ispir sugar bean.

REFERENCES

Anonymous, 2009. Annual report, the data of documentation centre of Erzurum metropolitan municipality, Erzurum-Turkey.

Bazzano L.A, He J, Ogden L.G, Loria C.M., Whelton P.K., 2003. Dietary fiber intake and reduced risk of coronary heart disease in US men and women: the National Health and Nutrition Examination Survey I Epidemiologic Follow-up Study. *Arch Intern Med*. 163 (16):897-904.

Deliza R., MacFie H.J. and Hedderley D., 2003. Use of computer-generated images and conjoint analysis to investigate sensory expectations. *Journal of Sensory Studies*, 18 (6): 465-486.

FAO 2009. Statistical database. http://faostat.fao.org [accessed 28 July 2009].

Gepts P, Bliss F.A., 1986. Phaseolin variability among wild and cultivated common beans (*Phaseolus vulgaris*) from Colombia. *Economy Botany,* 40 (4): 469–478.

Haddad Y., Haddad J., Olabi A., Shuayto N., Haddad T. and Toufeili I., 2007. Mapping determinants of purchase intent of concentrated yogurt (Labneh) by conjoint analysis. *Food Quality and Preference*, 18 (5): 795-802.

Hair J.F., Anderson R.E., Tahtam R.L. and Black W.C., 1998. Multivariate data analysis. Prentice-Hall, New Jersey.

Krystallis A. and Ness M., 2005. Consumer preferences for quality foods from a South European perspective: A conjoint analysis implementation on Greek olive oil. *International Food and Agribusiness Management Review,* 8 (2): 62-91.

Mtimet N., Kashiwagi A.K., Zaibet L. and Masakazu N., 2008. Exploring Japanes olive oil consumer behavior. *12th EAAE Congress*, people, food, environments: global trends and European strategies, Gent (Belgium), 26-29 August 2008.

Ozturk I., Kara M., Yildiz C. and Ercisli S., 2009. Physico-mechanical seed properties of the common Turkish bean (*Phaseolus vulgaris*) cultivars 'Hinis' and 'Ispir'. *New Zealand Journal of Crop and Horticultural Science,* (37): 41–50.

SPSS Conjoint 15.0, 2006. SPSS Conjoint 15.0 user's guide.

Topcu Y. 2004. The evaluation of production and marketing policies with total quality management in food industry. *Turkish J. Agr. Economics*, 10: 27-41.

Topcu Y., 2006. Brand competition and consumer behaviors in dairy products: The case study in Erzurum city, (PhD Dissertation). Ataturk University, Natural and Applied Sciences Institute, Erzurum-Turkey.

Topcu Y. and Isik H.B. 2007. New marketing strategies in the food product market: private brands vs. manufacturer brands. *J. Agric. Econom.* 13: 7-17.

Topcu Y., Isik H.B. and Dagdemir V. 2007. The changing role of agro-food marketing in new economy. *J. Agric. Fac.* 38: 207-214.

Topcu Y. and Isik H.B., 2008. Determining the best product quality set for packed yogurt in Turkey. *Ital. J. Food. Sci.* 20(3): 401-44.7.

Topcu Y., 2009. Exploring Turkish olive oil consumer behaviour using conjoint analysis. *J. Applied Biological Sci.,* 3 (2): 1-8.

Topcu Y., Isik H.B. and Uzundumlu A.S., 2009. Turkish consumer attitudes toward food products: The case of Erzurum. *Ital. J. Food. Sci.* 21(1): 37-50.

Topcu Y. and Uzundumlu A.S., 2009. Analysis of factors affecting customer retailer loyalty in Turkish food MM: The case study of Erzurum. *Ital. J. Food. Sci.* 21(2): 181-194.

Tutuncu K. and Deniz V., 2008. Which does more green do? Which does more environment-friendly do? Geri Donusum Dergisi, March-April: 18-23.

Wansink B., Park S.B., Sonka S. and Morganosky M., 2001. How soy labeling influences preference and taste. *International Food and Agribusiness Management*, 3 (1): 85-94.

Wądołowska L., Babicz-Zielińska E. and Czarnocińska J. 2008. Food choice models and their relation with food preferences and eating frequency in the Polish population: POFPRES study. *Food Policy*, 33 (2): 122-134.

Queiroz K.S, de Oliveira A.C, Helbig E., 2002. Soaking the common bean in a domestic preparation reduced the contents of refines-type oligosaccharides but did not interfere with nutritive value. *J. Nutrition Sci. Vitamin,* 48 (4): 283-289.

Yi Y. and Jeon H., 2003. Effects of loyalty programs on value perception, program loyalty, and brand loyalty. *J. Academy Market. Sci.* 31: 229-243.

MAIN SOIL TYPES OF THE ÇORUH RIVER BASIN

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ABSTRACT: This study was carried out to determine and evaluate basic soil characteristics and types of the Çoruh River Basin. Soil groups were defined according to the USA Soil Classifications and soil maps were produced using the ArcGIS. The Çoruh River basin is mostly occupied by chestnut colored soils (107,838 ha) commonly found in agricultural, horticultural and grass-pasture lands and even in forest and shrub lands. Entisols and Inceptisols are common in irrigated and grasslands (2,990 ha); Mollisols in pasture lands (15,551 ha); Mollisols and Alfisols in dry and pasture lands (14,794 ha); Podzol characterized Alfisols ans Ultisols in irrigated and dry lands, dry horticulture, pasture, shrub and forest lands (55,455 ha); Litochromic soils in grasslands (81 ha); Aridisols in pasture lands (430 ha); transported Entisols and Inceptisols in dry lands, horticulture and grasslands (1,797 ha) and Alfisols and Mollisols in dry and pasture lands (46,527 ha). Of the total 326,220 ha of cultivated land in the basin; 290,000 ha is suitable for irrigation.

Key words: Agricultural potential, Çoruh river basin, soil maps.

INTRODUCTION

Soil and water are the two most important resources for sustainable development. River basins are not only ideal units for the protection of water resources and ecosystems but also for sustainable usage.

The Çoruh river basin is an important natural treasure of Turkey. It is selected as one of the hot points of world among 34 by International Protection Agencies. Great differences in biodiversity and elevation, which reaches up to 3000 m, lead different climates within the watershed. There are a lot of different faunas and floras in different valleys of the watershed. It is estimated that the Çoruh basin contains almost 100 endemic species (Anonymous, 2008e).

Soil survey is made by the investigation of terrain, its identification and classification which is then displayed on the map. For specific use, some soil surveys are made in few hectares or less in width, for accurate and detailed information. Such investigations, including information about soil management and behavior, requires a detailed separation of small and homogeneous areas. Other soil surveys are made for large scaled areas, which show not detailed information. Some soil surveys cannot give the desired information for other users. For the implementation of soil science in various forms, soil maps containing the individual characteristics of soils are needed. Base soil maps are prepared when reviewing the nature of soil formation factors (Anonymous, 1993).

The Çoruh river basin is located in the eastern part of the Black Sea Region, which is the wet region (app. 2100 mm per year) of Turkey. The Çoruh River is one of the most important hydrological basins of Turkey in which a series of dams and hydroelectric power plants will be established. It is an important gateway which provides a connection not only to Black Sea to Eastern Anatolia but also Anatolia to Caucasus. This mountainous region shows mild Black Sea and harsh continental climate features. This region sorts attention with Çoruh River, steep slopes and high mountains (2900 m) rising one after another. The Çoruh River has an important place in rafting and kayaking. This causes attention of local and foreign tourists to this region.

Study site is an authentic tourist paradise with its virgin forests, high mountains an crater lakes in its peaks and with wealth of fauna and flora (Anonymous, 2005e). Project area is an alternative tourism place with its 230 bird species (2 endemic), 2300 plant varieties (550 endemic), natural forests and highlands.