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Production and Marketing Problems of Tomato Producers and Quit of Tomato Production: The Case of the Central District of Tokat Province

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Abstract: The cultivation area and production amount of tomato, which is economically important and included in plant production, is decreasing every year. In this research, which examines the problems of producers in the production and marketing of labor-intensive and high-cost tomato production, the situation of quit tomato cultivation is also examined. A survey was conducted with 76 tomato producers in the villages of Tokat province. It has been observed that the producers among the active working population have 25 years of tomato growing experience and their education level is at primary school level. While the biggest problem of tomato producers in production is disease and product loss, the biggest problem in marketing is low prices and price instability. It was determined that 49% of producers gave up tomato cultivation. The reasons why producers give up tomato production are; Because it is not profitable, product disease is a product marketing problem and input costs are high. In line with the research results, it may be recommended that producers organize seminar courses on the disease. It is thought that both product and price stability can be achieved by developing policies for price instability and, most importantly, by establishing marketing cooperatives specific to this product in the region.

Keywords: Tomato, Marketing, Problem, Abandonment, Cultivation

Domates Üreticilerinin Üretim ve Pazarlama Sorunları ve Domates Üretiminden Vazgeçme Durumu: Tokat İli Merkez İlçe Örneği

Öz: Ekonomik boyutta önemli olan ve bitkisel üretim içerisinde yer alan domatesin ekim alanı ve üretim miktarı her geçen yıl azalmaktadır. Yoğun emek isteyen ve yüksek maliyetli domates üreticiliğindeki üretim ve pazarlamadaki üreticilerin sorunlarını inceleyen bu araştırmada domates yetiştiriciliğinden vazgeçme durumu da incelenmiştir. Tokat ilinde merkeze bağlı köylerde 76 domates üretimi gerçekleştiren üretici ile anket yolu ile görüşme yapılmıştır. Aktif çalışabilir nüfus içindeki üreticilerin 25 yıllık domates yetiştiriciliği tecrübesine sahip olduğu ve eğitim düzeylerinin ilkokul seviyesinde olduğu gözlemlenmiştir. Domates üreticilerin üretimdeki en büyük sorunu hastalık ve ürün kaybı iken pazarlamadaki en büyük sorunu ise fiyat düşüklüğü ve fiyat istikrarsızlığı olarak ortaya konulmuştur. Üreticilerin %49'unun domates yetiştiriciliğinden vazgeçtiği tespit edilmiştir. Üreticilerin domates üreticiliğinden vazgeçme nedenleri ise; karlı olmadığı için, ürün hastalığı, ürünün pazarlama sorunu olduğu ve girdi maliyetleri yüksek olmasıdır. Araştırma sonuçları doğrultusunda üreticilerin hastalık konusunda seminer kurs düzenlenmesi önerilebilir. Fiyat istikrarsızlığı için politika geliştirilmesi ve en önemlisi bölgede bu ürüne özgü pazarlama kooperatifleri kurularak hem ürün hem de fiyat istikrarı sağlanabileceği düşünülmektedir.

Anahtar Kelimeler: Domates, Pazarlama, Sorun, Vazgeçme, Yetiştiricilik

1. Introduction

According to FAO, 2021 data, the total tomato cultivation area in the world is 5,167.39 hectares. It was determined that 22.15% of the cultivation areas were in China and the most cultivation was made in this region. In terms of cultivation area, China is followed by India with 16.35%, Nigeria with 16.34%, Pakistan with 3.25% and Türkiye with 3.20%. In other words, it can be said that Türkiye has the fifth largest cultivation area in the world with 165.20 hectares of cultivation area.

According to TURKSTAT, 2022 data, tomato cultivation and production took place in 79 provinces in Türkiye. In 2021, the tomato planting area of 1,652.04 decares decreased by 3.93% and in 2022, the planting area was 1,587.19 decares. Antalya province ranks first in terms of cultivation area, accounting for 11% of Türkiye's tomato cultivation area. Antalya is followed by Bursa (10.16%) and Manisa (7.30%). Tokat province, which was examined as the research region, is Türkiye's tomato growing area. It ranks twelfth with 1.89%. While the tomato cultivation area in Tokat province was 38,118 decares in 2021, production was made in 29.97 decares in 2022, decreasing by 21.37% compared to the previous year. In other words, it can be

said that almost a quarter of the cultivation area has been abandoned.

According to FAO, 2021 data, the amount of tomato production in the world is 189,133.96 tons. It was determined that 35.76% of the production amount was produced in China and tomato production was highest in this region. In terms of tomato production amount, China is followed by India with 11.20% and Türkiye with 6.92%. In other words, Türkiye can be said to be the third largest tomato producer in the world with a production amount of 13,000.00 tons.

According to TURKSTAT data for 2022, the amount of tomato production was 13,095.26 tons in 2021, decreasing by 0.73% and producing 13,000.00 tons in 2022. Antalya province, in terms of production amount, constitutes 19.60% of Türkiye's tomato production amount.

ranks first. The top five provinces in terms of production amount produce 51.34% of Türkiye's tomato production amount. These provinces are Antalya (19.60%), Bursa (11.01%), Manisa (7.58%), Izmir (6.58%) and Mersin (6.57%), respectively. Tokat province, which was examined as the research region, ranks twelfth by producing 1.73% of Türkiye's tomato production amount. While the amount of tomato production in Tokat province was 279.09 tons in 2021, it decreased by 19.39% in 2022 compared to the previous year, reaching 224.98 tons. In other words, it can be said that almost a quarter of the cultivation area has been abandoned.

According to TURKSTAT and FAO data, it has been observed that there is a significant decrease in tomato production in terms of cultivation area and therefore production amount. In the light of this information, it was aimed to examine the problems of tomato growers and their abandonment of production in Tokat, which is an important place for tomato cultivation. For this purpose, it was first wanted to examine the socio structures of the producers in the central villages where production is intense, and then the problems in production and marketing were wanted to be determined. In the last stage, manufacturers are forced to abandon the product. By examining the tendencies, factors that may affect quit were tried to be determined with the econometric model. Thus, it is aimed to find the reason for the serious decrease in income in tomato cultivation and to propose solutions to the problem.

When the studies on the research topic are examined, it can be said that they are grouped under four main headings. While calculating the cost of some plant products in agricultural production, there are studies calculating the cost of tomato production (Kocaköse & Aktürk, 2019; Bayramoğlu et al., 2021). It is possible to come across studies examining tomato production and market structure in greenhouse cultivation (Daka et al., 2012; Engindeniz, 2015; Örük & Engindeniz, 2019; Değer et al., 2020). Studies examining the economic structure and marketing of tomato production have been found in the literature (Oğuz & Arısoy, 2002; Güler, 2018; Kazak et al., 2018; Bozdemir et al., 2021; Karadaş and Güler, 2021; Çiftçi & Tapkı, 2023). Otto et al. (2007), in their research in South Tenerife, found that tomato producers switched to banana processing. When studies on a national basis are examined, it is possible to come across studies examining the effect of cover change on land degradation or climate change (Bajocco et al., 2012; Loffe et al., 2012; Cegielska et al., 2018; Zhang et al., 2019).

According to the literature, there is no research that examines in detail why tomato production, whose cultivation area has decreased in recent years, or the events that caused the abandonment, will provide richness in looking at the literature from a different perspective.

2. Materials and Methods

2.1. Material

The material of this research Tokat Gaziosmanpaşa University Social and Human Sciences Research Ethics Committee at the 16th session on 29.12.2022, according to the decision number 01-60 consisted of data obtained through a survey from tomato producers in the villages of the Central district of Tokat province in January 2023.

2.2. Method Followed During Data Collection

By using the sampling method, more detailed, cheaper and quicker data about a population is obtained (Çiçek & Erkan, 1996; Yamane, 2010).

According to the data of the Ministry of Agriculture and Forestry for 2021, there are 1697 tomato growers in the villages of Tokat province center, on a total area of 3,679.78 decares. Considering the variance of the total cultivated area (2.17%), it was determined to be less than 75% and the sample volume was determined with the help of the simple random sampling formula based on the average. Before determining the sample volume, it was determined that tomato cultivation was carried out in 113 villages of the center. Purposeful sampling Based on the method, it was decided to include 11 villages, which are the most intensive tomato growers and correspond to 10% of the total villages (113 villages), within the scope of the research.

The number of enterprises that will represent the population, taking into account the tomato cultivation area;

$$n = \frac{N*S^2*t^2}{(N-1)d^2+S^2*t^2} \quad (1)$$

Calculated using Equation 1 (Çiçek & Erkan, 1996)

n: Number of businesses to represent the population (76),

N: Total tomato cultivation area in the central district (3,679.78),

S: Standard deviation of the population (2.17)

t: ruler value at 90% confidence limits (1.65)

d = acceptable margin of error (10% of the average of the total tomato cultivation area in the central district: 3.81)

After calculating the number of businesses to be surveyed, a random numbers table was used to determine the businesses to be surveyed.

2.3. Method Followed During Data Analysis Phase

In the study, the factors affecting tomato producers' abandonment of production were determined by binary logit analysis. Dependent in logit the model variable is a dummy and the predicted probability values vary between 0 and 1.

Some variables in the logistic model were converted into categorical variables so that differences between categories could be obtained as odds ratios. For ease of interpretation, some of the independent variables were included in the model as dummy variables.

As an explanatory variable to the model; age of the producers (continuous variable), experience in tomato production (years, continuous variable), educational status (0 if literate, If a primary school graduate is coded as 1, if a secondary school graduate is coded as 2, if a high school graduate is coded as 3 and if a college graduate is coded as 4), tomato cultivation area (decare, continuously variable), factors that trigger producers to give up on tomato production (since it is not profitable, crop disease, marketing problem of the product). and input costs are high) was included in the model as a dummy variable (coded as 1 if it caused people to give up, 0 otherwise).

Table 1 gives the codes, explanations and some statistical properties of the dependent and independent variables in the model.

Table 1. Variables used in the binary logit model
Çizelge 1. Binary logit modelinde kullanılan değişkenler

Code	Variable
Dependent Variable (Y)	Case of abandoning tomato production: 1 Status of not quit tomato production: 0
Age	Manufacturer's age: (Continuously variable)
Experıence	Tomato production experience: (Continuously variable)
Educatıon	Educational status of the producer: Literate: 0 Primary school graduate: 1 Secondary school graduate: 2 High school graduate: 3 College graduate: 4 Bachelor's degree: 5 Master's degree: 6
Receıvıng The Supplement	Tomato production area: (decare, continuously variable)
Azkar	Consideration of quit tomato production because it is not profitable: if thinking: 1, if not thinking: 0
Illness	Consideration of quit tomato production because there are too many crop diseases: if thinking: 1, if not thinking: 0
Marketing Problems	Consideration of quit tomato production because of problems in marketing the product: if thinking: 1, if not thinking: 0
Cost	Consideration of quit tomato production because input costs are too high: if thinking: 1, if not thinking: 0

3. Result and Discussion

3.1. Demographic structures of producers

The average age of the producers is 48.20 and they have been producing tomatoes for an average of 25.22 years. When research on tomato cultivation in recent years is examined, it is possible to come across producers with similar active age groups and similar years of experience in tomato cultivation. Daka et al. (2012) found the average age of greenhouse tomato producers in Muğla province to be 46, while Değer et al. (2020) stated that the producers of greenhouse tomato cultivation in Muğla Fethiye are on average 47 years old and have approximately 18 years of experience. While Karadaş & Güler (2021) determined that the producers

in Iğdır province have an average age of 52, Kazak et al. (2018) stated that the average age of the producers in Izmir Torbalı is 45 years old and that they have been producing tomatoes for 13 years, and Örük & Engindeniz (2019) in their research calculated the average age of the producers as 45 years old and that they have 21 years of experience in tomato cultivation. When we look at the educational status of the producers, it is seen that the highest share is made up of primary school graduates with a rate of approximately 36%, followed by secondary school graduates with a maximum rate of 25%, and the least share is made up of illiterate people (1.32%) and bachelor's degree graduates (1.32%). It is seen that it forms (Table 2). Çiftçi and Tapkı (2023) determined that 50% of tomato producers in Hatay province were primary school graduates. Daka et al. (2012) found that 67% of greenhouse tomato producers in Muğla province and Karadaş and Güler (2021) found that 44% of tomato producers in Iğdır province were primary school graduates. When recent studies are examined, it can be said that the education level of the majority of producers is primary school or an average of 5 years of education.

Table 2. Educational status of the producer
Çizelge 2. *Üreticilerin eğitim durumu*

Educational Status	Frequency	Share (%)
Illiterate	1	1.32
Primary school	27	35.53
Middle school	19	25.00
High school	17	22.37
College	4	5.26
Licence	7	9.21
Degree	1	1.32
Total	76	100.00

When the producers' participation in seminars and courses on tomato cultivation was examined, it was determined that 67% of the producers did not attend the seminars and courses, while 33% did. When the production branch of the producers was considered, they were asked whether there was plant and animal production and it was determined that the highest rate of plant and animal production was approximately 57%. Following this, it was determined that only herbal production was made at the rate of approximately 42% and not at the rate of approximately 58%. There are an average of 5 individuals in the household. When we look at the presence of individuals who bring income to the producers' households, it is determined that there are fewer individuals in the household with agricultural income (10.53%), while there are more individuals without agricultural income (89.47%).

It was determined that 46.05% of the producers were members of the cooperative and producer union, while 53.95% were not members. Daka et al. (2012) found that 76% of the producers growing tomatoes in greenhouses in Muğla province were members of the cooperative.

3.2. Tomato production and producer problems

It was calculated that the producers produced tomatoes in an average area of 9.79 decares and the average yield was 7,171 kg/da. Considering that the general yield in Tokat province is 7,507 kg/da according to TURKSTAT's 2022 data, it can be said that the average yield of the producers interviewed within the scope of the research is slightly low. It was calculated in the research results that tomato producers harvest tomatoes on average 8 times a year and experience an average annual product loss of 16,504.61 kg per business.

The biggest part of the problems experienced by producers in production is crop disease, and This problem appears in 89% of cases. Following this, it is seen that 58% of producers experienced product loss during harvest and the most common problems with input are identified with a rate of approximately 55%. Collector, distributor, processor and marketer problems are among the problems they experience with a rate of approximately 53%. Labor (46.05%) and planting, maintenance and fertilization (40.79%) are also among the problems experienced. It is seen that the problems experienced with the accommodation and transportation of seasonal workers and the lack of modern equipment were determined to be the same rate, approximately 16%. It was observed that the least experienced problems were insufficient technical knowledge with a rate of approximately 9% and credit with a rate of approximately 11% (Table 3). It is possible to come across manufacturers experiencing similar problems because of research. Karadaş & Güler (2021) stated in their research that among the most common problems experienced by tomato producers in Iğdır province in production, the cost of growing the product is very high and the unit price of the product is very low. Kazak et al. (2018) mentioned product loss as the biggest problem in production of tomato producers in İzmir Torbalı, Örük & Engindeniz (2019) found product loss among the biggest problems in production of greenhouse tomato producers in Muğla province.

Table 4 examines the problems experienced by producers in marketing tomato products. When we look at the problems experienced by manufacturers in marketing, the most common problem is price

instability, and it has been determined that this problem is experienced by approximately 86%, and then another of the most experienced problems is the lack of price determination and lack of control It is another of the main problems experienced by approximately 82%. Failure to sell at the desired price (76.32%), market structure The fact that it is irregular (75.00%) and that production and demand vary throughout the year (69.74%) are also among the problems experienced at high rates. When we look at the situations where the buyer cannot be found at the desired time (57.89%), the cooperatives are insufficient (57.89%), and the relevant institutions and organizations do not provide information (51.32%), it has been determined that more than half of them have problems. Less than the information given here the problems experienced are the lack of storage facilities (48.68%), the buyer not paying in advance (44.74%), and the product prices not being received on time (30.26%). In the literature, price instability is the biggest problem in marketing tomato producers Studies in the literature showing that there are studies are as follows: Kazak et al., who studied tomato producers in Torbalı, Izmir (2018) and Örük & Engindeniz (2019), who studied greenhouse tomato cultivation in Muğla province.

Table 3. Problems faced by producers in tomato production
Çizelge 3. *Üreticilerin domates üretiminde karşılaştığı sorunlar*

Main Problems Encountered by Manufacturers	Frequency	Share (%)
Crop Disease	68	89.47
Product Loss at Harvest	44	57.89
Input Supply	42	55.26
Picker. Distributor. Experiencing Processor and Marketer Problems	40	52.63
Labor Expense	35	46.05
Sowing, Planting, Maintenance, Fertilization Expense	31	40.79
Housing of Seasonal Workers. Transport	12	15.79
Harvest Problem Due to Lack of Modern Agricultural Machinery and Equipment	12	15.79
Loan Procurement	8	10.53
Lack of Technical Knowledge	7	9.21

Table 4. Problems experienced by producers in marketing tomato products
Çizelge 4. *Üreticilerin domates pazarlamasında karşılaştığı sorunlar*

Problems	Frequency	Share (%)
Price Instability	65	85.53
No Price Determination and No Control	62	81.58
I Can't Sell At The Price I Want	58	76.32
Market Structure Irregular	57	75.00
Production and Demand Varies During the Year	53	69.74
Not Finding a Buyer at the Desired Time	44	57.89
Cooperatives Are Insufficient	44	57.89
Relevant Institutions and Organizations Not Providing Information	39	51.32
Lack of Preservation Possibility (Storage)	37	48.68
Buyer Not Making Advance Payment	34	44.74
We Cannot Receive Product Prices on Time	23	30.26

3.3. The situation of producers quit tomato production and the factors affecting quit

When the situation of producers quit tomato production and switching to another product production is examined; It was determined that more than half of the producers (51.32%) will continue tomato production (Table 5). There are studies in the literature on producers who are considering quit other herbal products ıt is also possible to find studies conducted. Baş & Ateş (2010) found that 63% of tobacco producers in Muş province would give up production if the tobacco law came into effect. Can (2020) stated in his research that 67% of black cumin growers in Uşak province will give up production

Considering the reasons why producers give up tomato production; switching to a more profitable branch of production (31.58%), low profitability (28.95%), diseases (26.32%) and market experiencing problems (23.68%) is one of the main reasons why they prefer to give up. It was determined that the reasons that least affected this situation were not wanting to do it (2.63%), lack of knowledge (1.32%) and returning to growing only seedlings (1.32%) (Table 6). Baş & Ateş (2010) found that the reason for tobacco producers in Muş province to abandon crop cultivation was that they did not find production profitable. Can (2020) It was

concluded that the reason why black cumin producers in Uşak province gave up production was that they planted it for trial purposes and that the expected profit was not achieved. Tasci et al. (2021) stated that the most important reasons that triggered the abandonment of wheat production in Çorum province were the high production cost of the product and the very low unit sales price of the product.

Table 5. Situation of producers quit tomato production and switching to other product production
Çizelge 5. *Üreticilerin domates üretiminden vazgeçip başka ürün üretimine geçmek isteme durumu*

Consideration of Quit Tomato Production	Frequency	Share (%)
Wanting to Give Up	37	48.68
Wanting to Continue	39	51.32

Table 6. Reasons for producers to give up tomato production
Çizelge 6. *Üreticilerin domates üretiminden vazgeçme nedenleri*

Reasons	Frequency	Share (%)
Desire to Switch to a More Profitable Branch of Production	24	31.58
Profitability is Low	22	28.95
Illness	20	26.32
Market Problem	18	23.68
Input Cost	15	19.74
Efficiency is Low	14	18.42
Irrigation Problem	8	10.53
Not Wanting to Do	2	2.63
Lack of Information	1	1.32
Don't Just Return to Seedling Growing	1	1.32

Table 7. Products that producers consider growing instead of tomatoes

Çizelge 7. *Üreticilerin domates üretiminden vazgeçip yetiştirmeyi düşündükleri ürünler*

Products	Frequency	Share (%)
Those who continue to grow tomatoes	39	51.32
Corn - Grain Corn	11	14.47
Sunflower	6	7.89
Beet	9	11.84
Pepper	2	2.63
Bean	2	2.63
Wheat	2	2.63
Garlic	1	1.32
Cucumber	1	1.32
Barley	1	1.32
Ornamental Plants	1	1.32
Vine Leaf Production	1	1.32

It has been determined that when producers want to give up tomato production and switch to a different production, the first products they consider growing are corn - grain corn (14.47%), followed by beet (11.84%) and sunflower (7.89%). The products that were least produced were garlic, cucumber, pepper, barley, ornamental plants and vine leaves at the same rates (1.32%) (Table 7).

Due to the high input costs in tomato production, it was aimed to determine the factors affecting the thoughts of producers who plan to switch to a more profitable production branch with an econometric model. For this purpose, binary logit regression, which is easy to interpret from models where the dependent variable is used as a dummy variable, was chosen. Beta values, standard errors and marginal effects of the variables in the model are given in Table 8. In the resulting values, the likelihood (significance level) value is acceptable in every confidence interval, the model's independent variables explain the dependent variable (Mc Fadden corrected R^2) by 95%, and the Chi square value is acceptably low; It ensures that the model is meaningful and interpretable.

According to the model, it was determined that four factors that affect quit tomato production (because it is not profitable, product disease, marketing problems of the product and high input costs) affect the abandonment of tomato production positively at the 1% significance level and positively affect the cultivation area at the 5% significance level.

In other words, a one-unit increase in producers quit production because it is not profitable can cause an increase in overall abandonment by 56%. another expression Producers who do not think that production is profitable are 56% more likely to give up production than those who think that it is profitable.

It can be said that producers who experience crop disease in tomato cultivation are 58% more likely to give up crop cultivation than those who do not. Similarly, according to the marginal effects in Table 8, it can be said that producers who experience marketing problems in Tomato are 55% more likely to give up on crop cultivation than those who do not, and that producers who find the input costs in tomato crop cultivation are too high are more likely to give up on crop cultivation at a rate of 53% compared to those who do not.

A one-unit increase in the tomato cultivation area of tomato producers can increase the abandonment of tomato cultivation by 0.1%. In other words, it can be said that producers do not plan to plant more and it is easier to plan to give up production rather than expanding the planting area.

It has been observed that the fact that the producers are younger or have more years of experience in tomato cultivation has a positive effect on quit tomato cultivation, but there is no econometrically significant relationship. Because the increase in the level of education also increases tomato It was determined that it positively affected the abandonment of productivity, but there was no econometrically significant relationship.

In short, the reasons why producers give up production are really positive reasons for quitting. It can be said that it affects both ways. It has been observed that the socio-characteristics of the producers affect it, but there is no statistical relationship.

Table 8. Binary logit analysis result of factors affecting producers' abandonment of tomato production
Çizelge *8. Üreticilerin domates üretiminden vazgeçmesini etkileyen faktörlerin binary logit analiz sonucu*

	Coefficient	Standard error	z	P (importance level)	Marginal Effect
Constant	-10.605	8.340	-1.27	0.204	
Age	-0.037	0.152	-.24	0.810	-0.001
Experience	0.094	0.176	0.53	0.593	0.002
Educatio	0.842	1.001	0.84	0.400	0.016
Plant Area	0.162**	0.095	1.71	0.087	0.004**
Azkar	36.744	0.019	29.47	<0.001	0.561*
Illness	35.406	0.017	33.97	<0.001	0.578*
Marketing Problems	37.291	0.016	34.67	<0.001	0.553*
Cost	32.615	0.016	32.22	<0.001	0.526*
Representation at significance level *: 1%, **: 10%					
Chi square [8 variable]: 95.086, Converted R^2:52.653, McFadden R^2: 0.903					
Severity Level: 0.000					

In Türkiye, which ranks among the top three in world tomato production, the amount of tomato production has decreased, especially in recent years. After examining the production and marketing problems of tomato producers in Tokat province, the main aim was to determine the reasons why tomato producers gave up production and the factors affecting the abandonment. It has been observed that tomato producers are in the active working age range and that they are growing tomatoes at a level that can be considered experienced compared to the average age. As is a reality in Türkiye, it has been determined that the education levels of tomato producers in Tokat province are low. It is obvious that in agricultural production, producers generate income from several production branches in order to reduce risk, rather than specializing in a single production branch, especially due to risk and uncertainty. In this study, more than half of the producers engage in plant production as well as animal production production is also available in the results of his research.

The biggest problem of tomato producers in production is crop disease and crop loss. In other words, it is concluded that producers experience economic losses due to product loss due to the disease occurring in the tomatoes they grow. The biggest reason to give up crop cultivation is It is an economic problem. Therefore, it is necessary to pay attention to this problem of producers. Seminar courses should be organized to provide producers with detailed information about the diseases. In fact, relevant institutions and organizations can propose a project idea to organize seminar courses of this size.

The biggest problem in product marketing is price instability and low prices. Economic problems lie at the root of the marketing problems experienced by producers. It may be recommended to implement a price control policy in order to protect the producer's economy. The actual marketing cooperatives are Türkiye's biggest deficiency, and this deficiency can be emphasized once again because of this research. Producers may not have much influence in the market as small businesses, but if they enter the market as a cooperative, they can have a stronger say in the market both in selling products and in price stability.

As a result of the research, it was determined that since tomato cultivation requires intensive labor and is high cost, producers with fewer retirees have started to turn to more economical products. After determining the main purpose of the research, the factors affecting the abandonment of crop cultivation, were tried to be determined with an econometric model. As a result of the model, it was determined that the producers' reasons for abandoning production affected the abandonment positively rather than the effect of demographic factors. In other words, it can be said as a result of the research that the reasons for manufacturers' abandonment are actually directing them to another product.

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