SWOT Analysis of Cotton cultivation in Greece

Evangelia Sioki [1] and Anastasios Michailidis[1]

Abstract

The main aim of this paper is to describe the SWOT elements of cotton cultivation in Greece. For this purpose, research conducted combining focus groups and Delphi methodologies for the general areas of Thessaly, Macedonia, Thrace and Central Greece, from April to May 2018. According the results "fame of the product", "method of collection", "coupled aid", "size of cultivation" and "delivery" belong to the contributing factors of cotton. On the other hand, "taxation", "bureaucracy", "high land rents", "rising oil prices", "low growers' price" and "scattered land holdings" affect negatively the cotton cultivation.

Introduction

Cotton cultivation is one of the most important cultivations in the world. In the recent years, the amount of cultivated land is steadily up to 300 – 330 million acres, with a total production of 22-23 million tones. The United States together with China, India, Pakistan and Uzbekistan are the main crop countries since they produce up to 70% of the global production (Galanopoulou-Sendouka, 2002, Papakosta-Tasopoulou, 2013).

Cotton is cultivated in more than a hundred countries and its contribution to the economic figures is significant. In many of those cotton growing countries it is the most important inflow of financial resources. Cotton supports greatly both the growth and income of rural areas and it also keeps occupied a great part of the labor force (ICAC, 2002). More than a 100 million of families are involved in cotton production. (Fortucci, 2002; FAO, 2005). At the same time, apart from being just an agricultural product, cotton is also an industrial raw material which influences both the agricultural and the industrial sector of the global economy. Furthermore, cotton comprises a major factor of growth in the world trade since more than 30% of its production is traded (ICAC, 2001).

According to the Global Agricultural Information Network –USDA review (2018), Greece is the main cotton production country among EU, representing more than the 80% of the total European production.

In Greece, cotton is one of the most important national products that are exported, given that Greece finds itself amongst the first 12 countries of production and exports (ICAC 2016-2017) internationally. As mentioned above while Greece possesses the 12th place in universal level, it is also the main cotton- producing country in Europe. (GAIN REPORT-USDA, 2018). 90% of cotton production is exported while the rest 10% is used by domestic textile industry. Turkey imports up to 52% of Greek production, Egypt up to 20.8% and Indonesia up to 8.9%. Greece imports a small amount of cotton mainly for use in the textile industry (mixing). Cotton economic impact reaches up to half of billions

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[1] Dept. of Agricultural Economics, Aristotle University of Thessaloniki, 541 24, Thessaloniki, Greece; Emails: evageliasioki@gmail.com ; tassosm@auth.gr

euro per year, supporting thousands of jobs in all three sectors of the economy, while in parallel, more than 80.000 rural families cultivate cotton and 150.000 families are occupied with processing industry and services related to cotton (Ministry of Rural Development and Food, 2003).

The evolution of cotton cultivation in Greece is quite astonishing. Cotton- cultivated acres from 200.000 in 1930 reached up to 2.000.000 in 1963 and over passed 4.000.000 in 2001 (Papakosta-Tasopoulou, 2013). The increase of productivity was even more astonishing as a result of both the augmented amount of cultivated land and also the efficiency increase. Yield increase is due to many factors, such as the improvement of varieties being cultivated, the use of agricultural machinery, fertilizers, the expansion of irrigated areas and the improvement of cultivating techniques (Papakosta-Tasopoulou, 2002). Today's crop yield is estimated at about 280 kg of cotton seed.

To sum it up, the main factors that contributed to the development of cotton crop in Greece were the following:
- Greece's integration in EU in 1981 as the main cotton production country.
- Subsidies of Common Agricultural Policy (CAP), especially in 1995, 2001 and 2005, which supported the price of cotton covering up to 2/3 of grower's price.
- The use of machinery in cotton cultivation, especially in cotton harvesting (Galanopoulou- Sendouka, 2002).

Over the last few years, however, there is a decline in the acreage of cotton cropping mainly because of restrictive measures and controls applied by the common Agricultural Policy of EU and also the negative effects of the economic crisis.

The aim of this paper is to explore the causes and factors that influence the viability of cotton growing regarding the growers.

2. Methodological Framework

For answering the main points of this paper, a qualitative type of research was done, which is an "unconstructed" type of method based mainly on small samples for easier understanding, while studying the scope of the research. The "tool" that was selected for the research is a SWOT analysis, which according to Anastasiadis et al., 2020; Markou et al., 2020; Michailidis et al., 2015; Dyson, 2004; focuses both on the strengths, weaknesses, opportunities and also the threats, and it is used by organizations/firms and all the sector of the economy for undertaking decisions. The research was implemented in focus groups of 15 growers each, who were the main administrators of their agricultural holdings, in 4 prefectures, reaching up to 60 growers in total. They were asked to evaluate the strong points, the weaknesses, the opportunities and threats that cotton cultivation is facing.

The four prefectures were selected after evaluating data found in the bibliography below, and statistical data both by the Ministry of Agricultural Policy and Foods (2003), the Greek Payment Authority of Common Agricultural Policy (OPEKEPE 2019) and Gaiapedia (2012). These data indicated that the prefectures selected are the main cotton –cultivation prefectures of Greece in terms of the number of growers being involved in cotton cultivation, and also in terms of acres being cultivated. From the prefectures, Thessaly has the highest percentage of both growers dealing with cotton cropping and also total amount of land cultivated reaching up to 38% in national level. The remain percentages are as following: Central Macedonia has the second highest percentage of

cotton producers, 28,4 %, combined with 25.5 % of land cultivated. In Eastern Macedonia and Thrace, the third highest percentage, is observed, that is 19,3% of the growers along with 22% of the land occupied for cotton production; Sterea Ellada follows with 14% of its land covered by cotton.

From the above, it is easy to conclude that these four prefectures are the main ones in Greece in terms of cotton cultivation, adding up to 99.8% of Greek cotton growers and 99.7% of the land being cropped with cotton. The time between the collection of the questionnaire's answers was from April till June 2018.

For the accomplishment of the questionnaire, preliminary research was done in fore hand based on semi-structured interviews, aiming to understand how the participants – growers perceive the question around this issue (Ruyter and Scholl, 1998), along with literature review, which at the end contributed to the questionnaire's formation. A pilot test was carried out afterwards with feedback and guidance from a small number of experts (academics, researchers, stakeholders and business executives) and a pre-sample analysis was used to identify the points of the questions that needed clarification in order to improve the quality of the questionnaire and take its final form (Dillman, 2000). The questionnaire was structured on a eleven-point scale and included 21 variables/reports for "the opportunities" of cultivation (organic farming, cooperative power etc.), 19 variables/ reports for the threats, 13 variables/ reports for the strong points of cultivation and 17 variables/ reports for the weaknesses. The results collected from the SWOT analysis were recorded, processed, analyzed and quantified using the modified Delphi method (Zhang and Feng, 2013). Delphi is a methodology developed mainly by Dalkey and Helmer (1963) which is considered to be an important tool for collecting information and data in such a multidimensional subject that requires in depth knowledge and practical experience from experts (Okoli and Pawlowski, 2004) who deal with a specific issue. Therefore, it was chosen as the most appropriate method for
our research.

Results

As mentioned above, the aim of the survey was to investigate the factors affecting the viability of cotton cultivation in Greece, with regards to the growers. After processing the data, based on an 11-point scale (0 to 10), where zero was the smallest score and ten was the highest, the survey results are shown in the graph below.

Cultivation opportunities identified 21 variables/statements, as presented in Fig 1. The results shown in the graph represent the averages of the grower's responses, covering all four regions of the study (Thessaly, Eastern Macedonia-Thrace, Central Macedonia and Central Greece). As it is shown in graph 1, the most important factors that support the cotton-growing opportunities, according to the growers, are the reputation of the product (mean value 7.8), the EU financing coupled aid (mean value 7.63), the fact that cotton is among the ten most exported products (mean value 7.24), the soil quality (mean value 7.22), the high productivity (mean value 7.07) and the quality of the product (mean value 6.76).

With regards to the threats for cotton cultivation, 19 statements /variables were set out which were evaluated by the growers. The average score of each variable of this evaluation is depicted in Graph 2 (Figure 2). The seven most important threats according to the producers are high taxes (mean value 9.42), high production costs (mean value 9.39), bureaucracy (mean value 8.80), the low price for the grower (mean value 8.69),

small farming enterprises (mean value 8.51), [as cotton cultivation since the crop is suitable for large areas], the high harvest cost (mean value 8.46), and also the low income of farmers (mean value 8.25).

With regards to the weaknesses of the crop 17statements / variables were given, and the results are presented in Graph 3 (Fig. 3). The participants of the survey consider that the most important weaknesses for cotton cultivation are the dispersed land (mean value 9.42), high land rent (mean value 9.36), increased oil price (mean value 9.29), small land size (mean value 8.66), shrinkage of production (mean value 8.41) and non-compulsory product standardization (mean value 8.29).

For the strong points of cultivation 13 statements/variables were provided by the growers. The average results of growers' responses are shown in Graph 4 (Fig. 4). According to Figure 4, the producers estimated the mechanical crop harvesting (mean value 9.46) as the strongest point, the fact that cotton crop is suitable for large-scale farming (mean value 8.63), the faith that cotton as the Greek national product is deeply ingrained in growers minds (mean value 7.36). Additionally, due to cotton cultivation the land is not abandoned (mean value 7.22) and cotton farming is connected with the ingrained tradition (mean value 7.10).

Comparing the six most important results of the producers' focus groups on the strengths, weaknesses, opportunities and threats of cotton cropping, it can be concluded that weaknesses and threats outweigh the strengths and opportunities, therefore cotton in Greece is at a turning point and threatened (fig.5).

Conclusions

The present paper deals with a multidimensional issue of the sustainability of cotton cultivation, the so-called "white gold", which is produced in Greece, since cotton is the most vigorous crop among the large-scale crops and the first in terms of value product for Greece (S. Galanopoulou - Sendouka, 2013).

The survey has shown that cotton cultivation is a dynamic crop for Greece, due to the reputation of the product, the mechanization of cultivation, which was increased due to the CAP improvement plans that included the compulsory renewal of mechanical equipment of the holdings to aid the machinery industry, the coupled aid which gives farmers basic area aid (70%) and green aid (30%) and also the legal aid (CAP 2015-2020), and the fact that cotton is at the top ten exportable agricultural products, according to statistics of the National Exporters Association (2014).

However, economic instability in the country during the past years has led to an increase in agricultural production costs, according to PASEGES official data (2009-2013), which is also confirmed by cotton growers who state that crops are negatively affected by factors such as high taxation, high production costs, high land rent, and the price of oil that is the major factor.

The results of this survey are policy proposals for the competent bodies in order to exploit the strengths and opportunities of cotton cultivation and to limit as much as possible the weaknesses and threats, so that the productive system of our country is improved.

In addition, convergence of stakeholders in joint actions and objectives can aid in the improvement of the position of cotton growing on international markets and promote sustainability values in order to save resources, to reduce production costs and thus

promote a competitive, environmentally-friendly product with respect to the environment.

Carrying out a more extensive national level study, in conjunction with a quantitative analysis, could confirm and interpret existing research findings.

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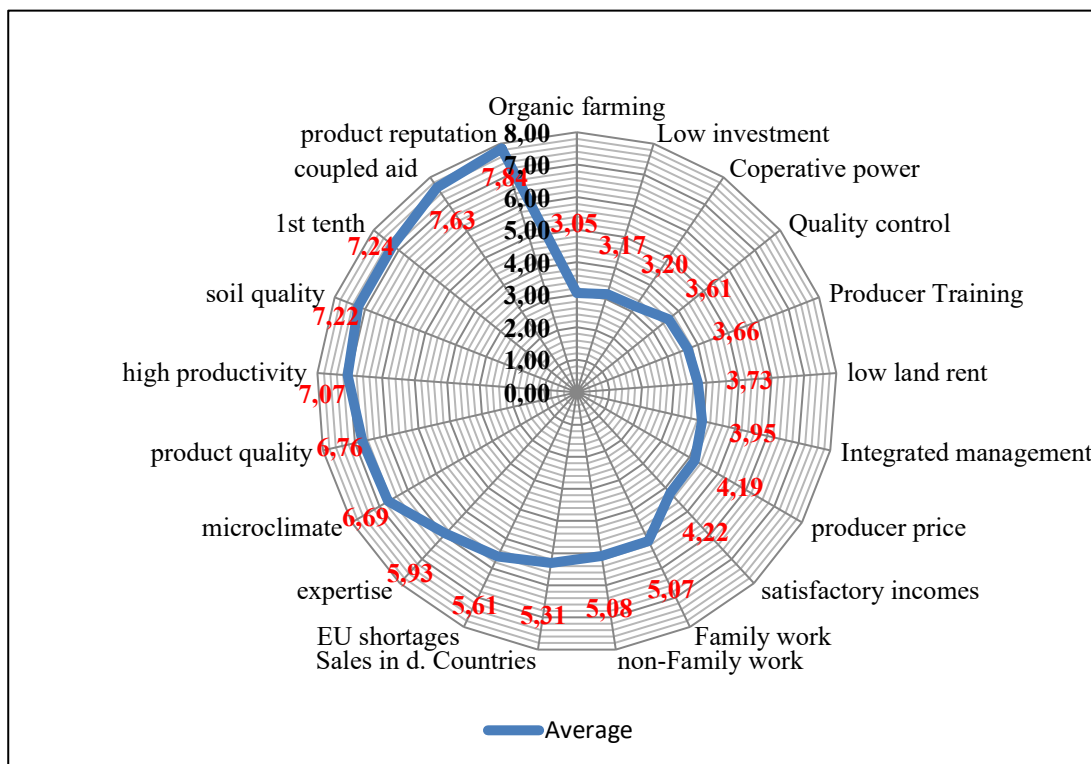
Figures and tables

Figure 1. Opportunités for Cotton cultivation

Notes figure 1:
Organic farming: refers to organic farming in the cotton sector
Low investment: low cost of initial investment in machinery and equipment
Cooperative power: refers to co-operating producers in groups to claim common goals
Quality control: refers to the standardization and classification of the product through a Public Entity for Quality Control, Classification and Standardization of Cotton
Producer Training: Producers training on the proper use of pesticides, protective measures to protect themselves and the environment, but also the need to produce a famous and quality product to be more competitive on international markets,
Integrated management: participation in integrated management programs such as "Agro2"
Family work or non-family work: refers to the availability of work for harvesting
Sales in D. Countries: Possibility to sell cotton in developed countries
EU shortages: refers to cotton shortages in the EU
Product quality: refers to the production of quality cotton due to increasing demand
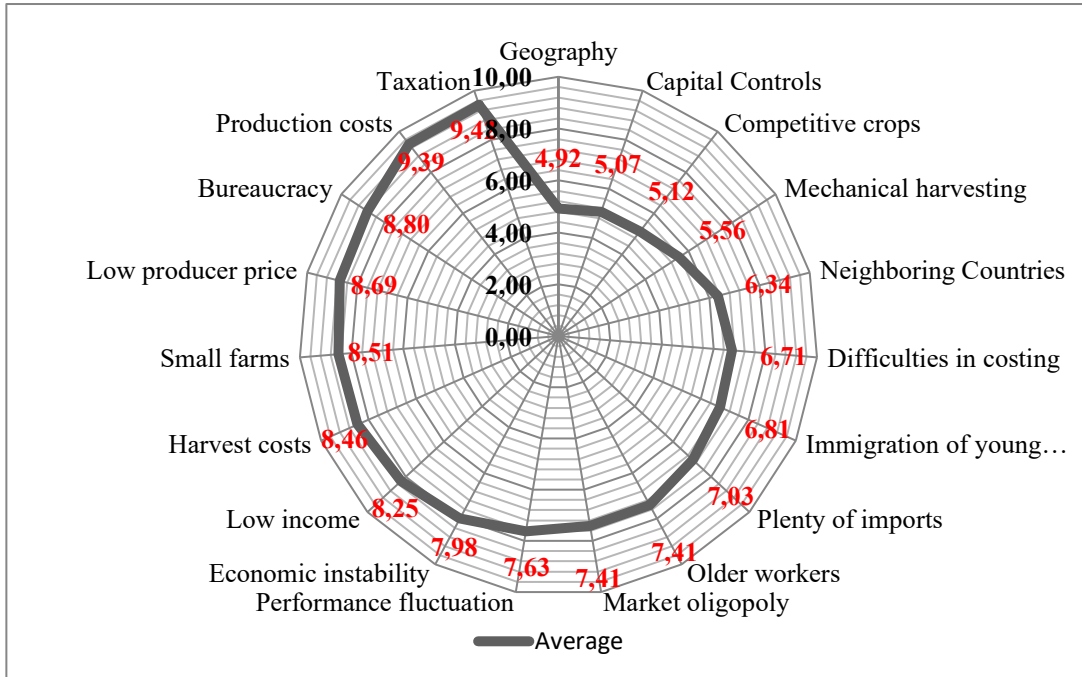**1st tenth**: it is in the top ten exported products

Figure 2. Threats for Cotton cultivation

Notes figure 2:

Geography: refers to the slopes, arid and semi-mountainous areas, etc.
Mechanical harvesting: refers to job losses, concentration of production on large farms.
Neighboring countries: refers to competitiveness from neighboring countries (eg. Turkey)
Difficulties in costing: are considered as difficulties in estimating production costs
Plenty of imports: imports of ready-made garments
Purchasing oligopoly on the part of processing plants
Harvesting costs : refers to high harvest costs
Small farms: small farms are considered as this crop is suited to large farms.
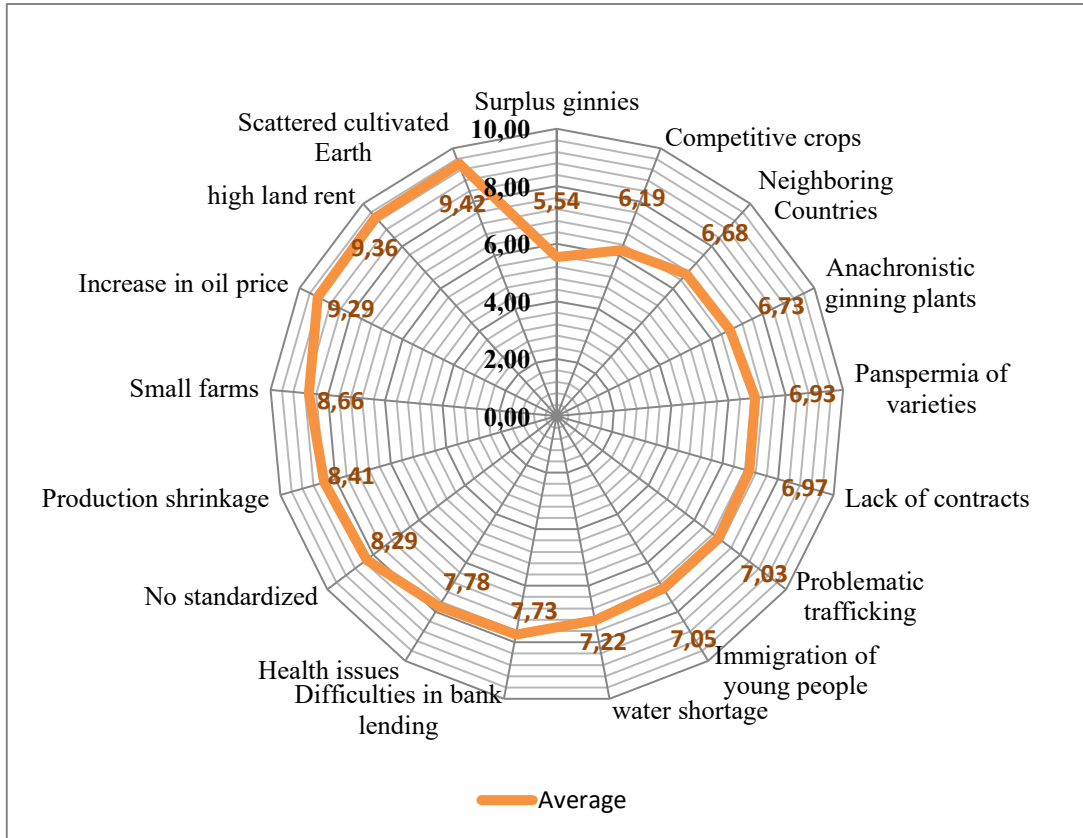**Production costs**: refers to high crop production costs

Figure 3. Weaknesses in Cotton growing

Notes figure 3:
Competitive crops: compared to cotton, such as corn, wheat and others
Neighboring countries: Other neighboring productive countries (eg. Turkey)
Anachronistic ginning plants: Ginning plants without modernized equipment
Panspermia of varieties: many and different varieties are an obstacle to standardization of the product
Lack of contracts: there are no cooperative relationships
Problematic trafficking: A problematic traffic system in the primary sector
Health issues: refers to health issues related to the use of pesticides
Not standardized: lack of product standardization
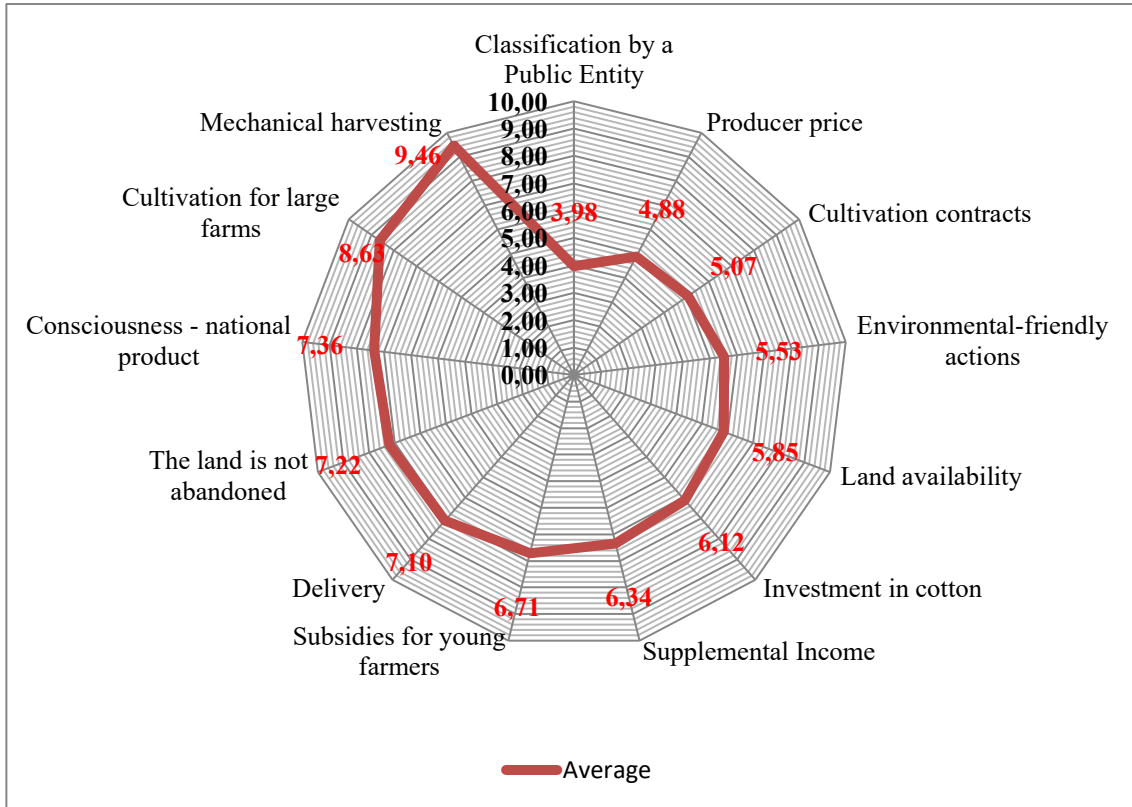**Small farms**: Small farm size

Figure 4. Strengths of Cotton cultivation

Notes figure 4 :
Classification by a Public Entity: Refers to the standardization and classification of the product through a Public Organization for Quality Control, Classification and Standardization of Cotton
Cultivation contracts: between producers - ginners help to sell the product better
Environmental-friendly actions: Implementation of environmentally friendly, advanced technology actions (Nitrate Reduction Program)
Land availability: it is understood that the land is cultivated and not abandoned
Supplemental Income: Appropriate crop for supplementary income
Delivery: It is a crop that awakens memories / habit
Consciousness - national product: Established in the consciousness of producers as a national product.
Large farms: Suitable crop for large farms