



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

**A SOCIOECONOMIC SURVEY FOR THE RECOVERY AND
EXPLOITATION OF THE TERRACED VINEYARDS OF THE COSTA
VIOLA (CALABRIA, ITALY)**

**Agata Nicolosi, Domenico Cambareri, Mariangela Petullà
DiSTAFA Università “Mediterranea ” di Reggio Calabria, Italy**



*Paper prepared for presentation at the 99th Congress of the EAAE
(European Association of Agricultural Economists),
‘The Future of Rural Europe in the Global Agri-Food System ’, Copenhagen, Denmark August
24-27, 2005*

*Copyright 2005 by [Agata Nicolosi, Domenico Cambareri, Mariangela
Petulla’]. All rights reserved. Readers may make verbatim copies of this
document for non-commercial purposes by any means, provided that this
copyright notice appears on all such copies.*

A SOCIOECONOMIC SURVEY FOR THE RECOVERY AND EXPLOITATION OF THE TERRACED VINEYARDS OF THE *COSTA VIOLA* (CALABRIA, ITALY)

Agata Nicolosi, Domenico Cambareri, Mariangela Petullà*
DiSTAFa Università “Mediterranea ” di Reggio Calabria, Italy

Abstract

The new model of rural development, based on the recognition of the economic, social and environmental function of the European agriculture, mainly headed to make strategies of intervention concerning about, from one side, the competitive ability of the agricultural and agro-industrial enterprises, and, from the other, the increasing of the economic, human, environmental and historical-cultural resources.

In such context the multi-functional role of agriculture becomes central and the agricultural operators have to adapt themselves to items (the territories, the rural societies, the consumers, etc.) and to different prescriptions related to demands linked up with the productivity and/or the territory (defence of the ground, of the landscape, of the cultural traditions, of the rural development, of the environment, of the quality).

The present research documents the results of a territorial social-economic investigation, developed with the aim of examining the productive and environmental potentialities of the terraced wine-growing present in the territory of the “*Costa Viola*” in the province of Reggio Calabria (Calabria, Italy).

The study starts from an analysis of the territory and individualizes a sample of wine-growing farms in order to examine, through specific social economic investigations (developed through a questionnaire), the actual conditions of the grape cultivated terraces, the status of the “representative farmer” of the vineyards and the achieved economic results. The collected data concerned some social characteristics (age, degree of education, availability and/or propensity to innovation, to introduce new technologies, etc.).

Keywords: agro-environmental measures, multi-functionality, landscape safeguard.

Q32 - Exhaustible Resources and Economic Development

Q56 - Environment and Development; Environment and Trade; Sustainability; Environmental Accounting.

R51 - Finance in Urban and Rural Economies.

1. Introduction

The *Costa Viola* which looks onto the straits of Messina includes territories belonging to the towns of *Scilla*, *Villa San Giovanni*, *Bagnara Calabria*, *Seminara* and *Palmi*.

It is approximately 18 kilometres long and with an average width of 1 kilometre.

The plateaux, largely shaped by the agriculture, which has grown along the sides of the mountains and which has produced extraordinary results, have many rural habitations showing a recurrent style linked to the characteristics of the territory.

The entire costal belt is dominated by hills, defensive works and watch-towers in a complex visual relationship. All this gives value, exalts and adds meaning to an exceptionally varied system: the flora

*The present paper is the result of the common thoughts and co-operation of the three authors. Nevertheless paragraphs 4.1, 4.4 and 5 have been written by Agata Nicolosi, while paragraphs 4.2 and 4.3 are the work of Domenico Cambareri, who has also taken care of the data processing and of the figures of the text; paragraphs 2 and 3 have been written by Mariangela Petullà. Introduction and conclusions have been jointly compiled.

and the fauna, the woods and forests; the geological peculiarities and the rocky landscapes; the upland prairies and the most inaccessible peaks inland and on the coast.

A multitude of riches not yet fully explored, but potentially able to help in the development of the territory. The wine-growing of the *Costa Viola* is practiced at a strong inclination on very old terraces that takes the landscape of remarkable environmental interest.

The anthropological process has modified the structure and sometimes the shape of the landscape, making it suggestive and enchanting.

Four out of five towns developed their social life close to the sea, exploiting its resources, through agriculture and fishing.

The towns of *Bagnara Calabria*, *Palmi*, *Scilla* and *Cannitello* grew thanks to these activities (Seminara had exclusively an agricultural development, as more than three quarters of its territory covers the Calabrian hinterland).

The agricultural activity, which developed along the sides of the mountains, probably involuntarily restored the unique scenery unchanged through time. The only way to bond together the two different realities like agriculture and fishing was to reduce the inclination of the slopes through construction of small stone dry walls (the so called “macere”) creating the terraced cultivation. For this reason, the *Costa Viola* can not be considered a natural territory, but the result of a relation between man and nature, it was created by the men that lived in this area, passed on from generation to generation, a testimony, of intelligence, knowledge and sacrifice. Today, the *Costa Viola* landscape would not exist with its features without the human contribution; nevertheless it is a necessary to reflect on the fragility of this territory and to point out an issue: in past times the common knowledge created the rural territories and the landscape project. But today, they have been forgotten or have actually disappeared. It is necessary to verify if it is possible to pool together once again, the spontaneous knowledge, restoring the practical activity with the contribution of the technological innovation.

In other words, the problem is to restore through the scientific instruments, the spontaneous knowledge of common sense and to transfer it into the language and into the matters concerning the territory and its management. Today, the wonderful landscape of the *Costa Viola* is continuously threatened by weather conditions. The landscape is exposed to a serious risk because of man's carelessness, who does not implement the necessary precautions to avoiding the inexorable degradation.

Grape growing is practised in difficult conditions, as the territory's access, fragmentation, and the nature of the slopes, needs hard work. Not competitive on an economic level, they are gradually abandoned by the population guardian of this heritage. This results in landslides and environmental degradation. All this leads to the depopulation of these areas, hence causing inconveniences and unemployment in the society. The territory geological nature does not encourage industrial development. The present resources are fishing, agriculture and trade which keep stagnant the regions economy. The potential resources are tourism and services.

2. The terraced wine-growing in the *Costa Viola* rural landscape

Nowadays the wine-cultivation is practiced in three of the five terraced towns: *Bagnara*, *Scilla* and *Seminara* (the latter with less intensity) – Figure 2.1.

The territory orogenesis formed mountain chains facing the sea, alternating precipices with sandy and graveling shores. The agricultural and viticultural activity is permitted by the presence of the terraced structure or by the small stone dry walls which support them. These structures are called “Armacie” which represents as a whole an imposing engineering work and covers approximately 4,000 Km. They were built over the centuries by farmers in order to render productive shores of difficult access and obviously unproductive.

The *Costa Viola* stone dry walls were built and extended after the 1733 earthquake. Their height varies from 1 to 3 meters and they form the terraces or “rasule” with an average width that does not exceed 3-4 meters.

Figure 2.1 . *Costa Viola* itinerary.



The stone dry walls are connected with little stone stairs, often irregular built into the walls themselves. The autumn and winter rain falls damage the geo soil substratum which is already precarious. Together with the geologic substratum slopes are typical of the coastline, where its continuity is systematically interrupted by indentations and valleys, caused by several water courses. This natural incontrollable water network often causes landslides of various importance, which in turn determines further isolation of areas once devoted to agriculture; therefore complicating the capacity and the containment effect of the existing arrangements and determining heavy damages that often lead to the cultivations abandonment. The abandoned terrace vineyards increase year after year: in 1929 more than 612 hectares of vineyards were cultivated. On a total area of 2.000 hectares; there are less than 200 on the same territory today (67% decrease in little more than 70 years). Around 5,8 hectares vineyards are abandoned every year; if this trend should continue in less than 35 years the terraced vineyards will completely disappear.

The small dry walls have an important draining function, of the exceeding water, therefore avoiding landslides.

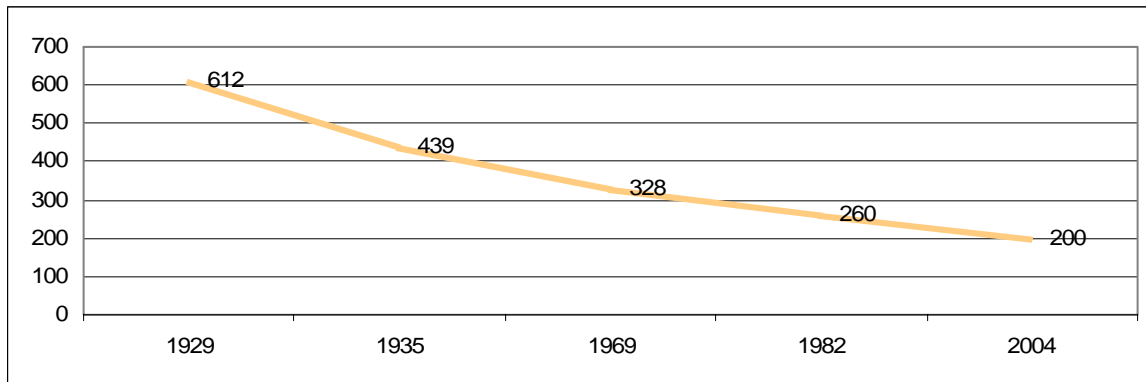
The viticultural production together with vegetables and citrus productions in the terraced slopes in *Costa Viola*, have been for centuries the source of maintenance for whole agricultural generations. In the past, these territories characterized by a typical mediterranean flora, with landscaping, containment and balancing role, there were various plants such as: Lentisk, Phillyrea, Bilberry, Heath, Arbutus, Mulberry tree, Ash tree, Locust tree, Oak tree, and other minor species.

All these productions have been replaced by the vineyards for market reasons. The traditional wine-growing systems "sapling" and "high bower", during the years have been transformed (espalier), so as to allow a better cultivation with the "guyot" pruning system.

The american stock was used at the beginning of the century, allowing the cultivation of varieties nowadays still existing such as malvasia, castiglione, prunesta, black pinot, Alessandria moscato (the so called zibibbo).

The vine-dressers age long activity of *Costa Viola* did not stop in the presence of intrinsic difficulties, like the territory features, or the need to reconstruct after a seismic tremor.

Graphic 1. The vineyards surfaces dynamics in the *Costa Viola* terraced cultivations from 1929 to 2004 (Ha.).



This is a continuous activity which consists in the stone dry wall maintenance, vine care and cultivation, territory safeguard, traditional grape gathering (which was also a time for amusement), where, women had a particular role. In fact, they carried on their head the collected grapes in baskets (called “*cofani*”) weighing up to 40 kilograms and they crossed the vine-yards along steep pathways¹.

Nowadays, the local viticultural sector is passing through a crisis because an adverse socio-economic trend, although it is possible to produce I.G.T wine (“*Scilla*” and “*Costa Viola*”). This present production is not accomplished by local producers, little interested in co-operation, or too old.

The absence of a new generation in agricultural management, the land fragmentation (the plots of land on an average do not exceed the 3000 square meters in length), the lack of work labour due to the migration of the last years, the difficult access to the vineyards, the obsolete technological systems, and above all the inconvenient vine production have lead, over a short period to abandone several hactares of vineyards.

3. The public activity for the terraced landscape defence of the *Costa Viola*

The *Costa Viola* terraced grape-growing has over the last 15 years undergone two specific safeguard and recovery interventions in order to encourage the wine-growing in the terraces. From 1990 to 1995 the regional law 34/86 guaranteed the “landscape and environmental protection and supported the wine-growing in the *Costa Viola* towns –*Scilla Bagnara Calabria* and *Seminara*”.

Then the F2b measure was introduced for “rural landscape recovery and maintenance of the *Costa Viola*” as part of the PSR 2000-2006 of the Calabria Region.

The regional law 34/86 provided an 80% fund without security in order to carry out the following interventions: a rational modernization of the vineyards (enlargement of the installation order, a fencing suitable for the espalier cultivation, introduction of new varieties allowed and indicated by law); increase of the agricultural mechanization; restoration of the terraces and of the supporting walls, restoration of the state of the road of the farms, introduction of modern means of transport as the “monorail system”. While a 100% fund without security was allocated for the abandoned terraced cultivations, promoting the planting of table wine and minor fruit bearing trees (like the almond tree, the pistacchio, the sorb).

Hence all opeations for the recovery and use of vine plants over the short period guaranteed by the law concerned around a quarter of the productive viticultural surface, and they allowed the introduction of a new environment friendly transport system, like the “monorail system”

(thanks to the experience of the vine-growers of the “cinque terre” in the region of Liguria).

¹ In the town of *Bagnara* women had traditionally a remarkable function in the agricultural activities of the territory, and in particular as concerns harvesting, transport and grapes trading.

The monorail system is made up of a fixed part (rail) and a semi-mobile part (an engine with the waggons or “monorack”), which moves at a constant speed, whether uphill or downhill, coping even with 100% slopes with a full load.

Of the four existing monorail plants (three in Scilla and one in *Bagnara*) three are actually working and they are used by several viticulturists and vegetables growers. This transportation system, that replaced the old cableways and the back carrying, besides being alternative to the roads otherwise inaccessible, it allowed to decrease the by 80% the prime costs as it permits the transportation of various materials during the year and of the grapes during grape-gathering.

In fact, the introduction of this innovative system-where possible and also employed for touristic purposes- and the constant maintenance of the stone dry walls, has allowed the preservation of the terraced vineyards cultivation.

At present among the agro-environmental interventions, provided by the Calabria Region there are also those concerning the recovery of the *Costa Viola* rural landscape (table 1).

The “agro-environmental” measures of the PSR 2000-2006 of the Calabria Region finances above all the F1 measure concerning biological agriculture (80%) while for the remaining 20% grants aid in favour of the preservation and the safeguard of the agrarian landscape (F2 action) with the following distribution: 12,6% for the care and the maintenance of the rural landscape (F2a sub action); 1,8% for the preservation and the safeguard of the citron coast (F2c sub action) and 5,6% for the recovery of the *Costa Viola* rural landscape (F2b sub action) which provides funds for those lands with a terraced arrangement and dedicated to vine cultivation.

The interventions, which are guided by the need to promote an accurate recovery, protection, and enhancement of the rural cultural landscape, social and economic heritage of these territories, are to be viewed in the light of the new and complex policies concerning agricultural multifunctionality and its various functions: productivity, sustainability and land conservation, and together with cultural traditions, sustainable rural environmental, and quality development (production quality, rural space quality, etc.).

The interventions foresee the restoration and the upkeeping of the bearing structures related to the typical surface arrangements of the area (stone dry walls, grass mounds).

As indicated by table 1 funds provided for the F2 sub action “recovery and safeguard of the *Costa Viola* rural landscape” are equal to 5% (900.000 euros) of the total amount allocated for agro-environmental policies².

The funds are granted for each year of the 5 year period and consider the need to pay the farmers for the terraced lands and the vineyards. In accordance to the EC regulation 1257/99 the amount of the funds must be calculated on the basis of lacking incomes and extra costs for the farmers who requested the funds. The advantages envisaged by the F2b agro-environmental policy are calculated with precise technical parameters³. However the small economic commitment guaranteed by this policy, equal to 900 euros/Hectares per year, and the widespread fragmentation of the wine growers farmland do not encourage the owners to restore the stone dry walls and therefore vinegrowing.

The individual and associated farms which have requested the funds are 7. Among the associated farms there is the co-operative *Enopolis* in *Scilla* which groups 80 vinegrowers for a total of 50/hectares of terraced vineyards. The results obtained with the implementation of the F2b policy have not been really satisfactory given that by 31 december 2004 the measure involved a limited number of vinegrowers (4,17%).

² Financial support concerning the F measure in the 2000-2006 planning in Calabria started in 2004.

³ The technical parameters for calculating the amount of financial aid are the following

1) costs for restoring stone dry walls equal to 806,00 euros/hectares per year (costs relating to the restoring of natural and landscape elements); 2) lacking incomes equal to 37,5 euros/hectares per year (costs linked to the presence of structures and therefore to the reduction in arable land); 3) extra costs equal to 95,00 euros/hectares per year (design costs equal to 5% of the total costs).

Table 1. “Agro-environmental” F measure, PSR Calabria Region (2000-2006 planning)
Financial availability for type of action.

Indications	Public expense 000. €			
	Total	%	Of which UE	%
Measure F – Agro-environmental	17.995,38	100,0	12.033,72	100,0
- F1 Biological Agriculture	14.807,38	82,3	9.642,72	80,1
- F2 Recovery and safeguard of the agrarian landscape	3.188,00	17,7	2.391,00	19,9
- <i>F2a Care and maintenance of the rural landscape</i>	<i>2.000,00</i>	<i>11,1</i>	<i>1.500,00</i>	<i>12,5</i>
- <i>F2b Landscape restoration of the Costa Viola</i>	<i>900,00</i>	<i>5,0</i>	<i>675,00</i>	<i>5,6</i>
- <i>F2c Maintenance and safeguard of the Citron Coast</i>	<i>288,00</i>	<i>1,6</i>	<i>216,00</i>	<i>1,8</i>

Table 2. Commitment and expenses: F2b measure “Recovery of the *Costa Viola* rural landscape”.

Indications	Total Cost Programmed 000. € (CT) period 2000-2006	Payments 000. € (P)	Ability of investments (P/CT)*100
Papers admitted to the financial funds 31/5/04	900,00	37,60	4,17

Calabria Region data

4. The investigation in the agricultural sector

4.1 Investigating methodologies

The main issues and the true possibility to recover and enhance terraced vine culture in the *Costa Viola* were examined through indepth territorial and farm investigations so as to highlight the main features of the land owners and vine-growers present in the terraces.

The work accomplished during the land investigation focused predominantly on obtaining accurate data and information from local bodies and institutions, and from pre-existing studies, and on integrating and rectifying already available information.

The sampling project was organized so as to collect information on the general and socioeconomic characteristics of the entrepreneurs present in the terraces. Indeed, the farms have been chosen according to a sampling technique which considers their level of importance, their activities and their aspects which are typical of the area under analysis: if the terraced vineyard has been abandoned or not, type of farm, surfaces extension and farm location, etc.

A questionnaire has been used in order to survey the vineyards and to get information about the general and socioeconomic features of the vineyards present in the terraces.

The investigations were carried out in the agrarian year 2003/04. The questionnaire has been given to 58 persons (around 7% of the universe) that can be subdivided in the following way: owners that have already abandoned the terraces (17,2% of the sample) and viticultural farmers still working.

The survey, which interested above all the working farmers, highlighted the principal socioeconomic features, the motivations, the inclinations to investments and the expectations from their activity. The farms subjected to technical economic analysis were 22. The information led to the materials used and

to the type of work, to the structural and managerial characteristic; and salable gross production structure, to the identifying of cultivation costs and incomes⁴.

Moreover the structural characteristics of the farms as the production, the sale and the cultivation profits have been examined in order to access the farms ability to survive and the possibility to combine productive and environmental values.

4.2 Main characteristics of the interviewed entrepreneurs

According to the surveys carried out on the territory 17,2% of the interviewed has abandoned the terraces. The abandoning of the vineyards stems from two main economic and social factors: on one hand the slight economic convenience (especially considering the high cost of specialized labour), on the other hand the growing extra-agricultural activities of the owners, involved in other sectors (whitecollars, building contractors, craftsmen).

Given that the research aims at examining the true conditions of the vine cultivated terraces, of the status of the vine-grower and of the attained economic results obtained refer only to a part of of the questionnaire (48), relating to the farms still working.

The highest percentage of vine-growers is male (87,5%) and predominantly elderly: in 45,8% of the cases the entrepreneurs are over 65 and 31,3% the age is between 55-65. Significant is the lack of young people (only 2,1% are under 35 years of age).

A large portion of the interviewed is married and a number of children varies from 2 to 3, respectively 25% and 29,2%. As concerns the level of education there is a large concentration of owners with only primary school license (50%). Notheworthy is the high percentage of illiteracy (12%).

As highlighted by the table 3 the main reason for which less than 80% of the interviewed take on a business risk is due to family reasons or present existing conditions, for example inheriting the family business (66,7%), replacing a family member (8,3%) or marrying a farmer (4,2%). Less than 20% has bought the land⁵. The examined data shows a high level of satisfaction as to vine cultivation, between the farmer and the business which has been generally passed on from one generation to another. In the light of this, significant are the projects for the future: the general trend is to pass the activity to ones children (87,5%). However 54,2% of the interviewed intends to technologically improve their farm⁶, while only 29% intends to increase production.

Finally the entrepreneurs who have taken advantage of public funds (PSR F1, biological agriculture and F2b policy, L. 2328/91, etc) are only 17,4%.

When asked “would you trust your must to a social co-operative store?” 62,5% of the interviewed replied YES, the remaining 37,55% NO; this outlights the owners’ will to sell their must to the co-operative store.

The processing of the data, indicated by table 4, highlights a fragmentated form reality.

⁴ The technical data refer to the average quantities of the thee year period 2001-2/2003/04, and to the prices for the years 2004-04. the calculation of the quotas concerning fixed capitals required the use of aliquotas on reconstruction costs of these investments: 2% for rural buildings and 1.5% of the declared value of the plantations, the latter is accessed on the basis of replantation costs. The amortization and the managemnt of the spare capital have been calculated applying an average 15% aliquota on the value of new machineries and 10% on equipment.

The payment for surveillance and management of the proceedings has been calculated according to the salable gross production, while the salaries have been calculated by multiplying the job employment of each farm by the local daily average alary. Furthermore other figures have been considered: taxes, contributions and other form of taxations proportional to the days work and according to the local fees. In order to calculate the interests on the agrarian capital a 7% rate has been applied for the spare capital and 8% rate for advanced capital, calculated according to an average advance period of 8 months. The land Benefit is equal to 2% of the land value, calculated on the basis of the recent market values accessd in the territory. The salable gross production has been calculated for each farm on th basis of the quantity produced (grapes, must and wine) and on the sale price.

⁵ This percentage highlight a fund market essentially static.

⁶ It is reasonable to believe that the geomorpologiacl, technical, economic and social difficulties do not encourage any investments.

Table 3. Mean characteristics of the interviewed entrepreneurs sample.

Social-economic characteristics (%)			
<i>Sex</i>	<i>100,0</i>	<i>Number of children</i>	<i>100,0</i>
Men	87,5	1-3	58,4
Women	12,5	4-5	31,2
		> 5	10,4
<i>Age</i>	<i>100,0</i>	<i>Stage</i>	<i>100,0</i>
26-45	6,2	Yes	2,1
46-65	49,0	No	97,9
Over 65	45,8		
<i>Education</i>	<i>100,0</i>	<i>Obtained Contribution</i>	<i>100,0</i>
Illiterate	12,4	Yes	17,4
elementary	50,0	No	82,6
Junior high school	18,8		
Senior high school	18,8		
<i>Future planning</i>		<i>Itroduction of innovative technologies</i>	
<i>Production encrease</i>		Yes	54,2
Yes	29,2	No	45,8
No	70,8		
<i>Future assignement</i>		<i>Required intervention</i>	
To the children	87,5	Agronomical	16,7
I do not know	8,3	Infrastructural	39,6
Sell	4,2	Specialized work labour	43,8

Data processing.

Table 4. Mean characteristic of the interviewed entrepreneurs sample: structural characters of the farms.

Structural characters of the farms	(%)
<i>Farm dimension</i>	<i>100,0</i>
< 2000 sm	39,6
2000-2500 sm	41,6
Over 2500 sm	18,8
<i>Family components employed in the farm</i>	<i>100,0</i>
None	47,9
1-3	43,8
4-6	8,3
<i>N° of person employed with a determinate contract</i>	<i>100,0</i>
None	33,3
1-3	33,3
4-6	20,8
> 6	12,5
<i>Wine total production</i>	<i>100,0</i>
< 100 hl	83,3
> 100 hl	16,7
<i>Wine trade</i>	<i>100,0</i>
Direct Sale	45,8
Domestic consumption	54,2

Over 80% of the farms have productive surfaces below 5.000 square meters and only 6% is over 10.000 square meters, grapes production per farm vary predominantly between 10-100 quintals (64,6% of the cases) or is under 10 quintals (equal to 27,1%).

Vine production per farm varies mainly between 10-100 hectolitres (83,3%), and only 16,75% reaches greater productions (between 100 and 1.000 hectolitres).

The farming work does not involve the entrepreneur's family members (47,9% of the cases), while in 52,1% of the examined cases there is a co-operation between both. Other persons with a determinate work contract are regularly employed in the farm, or in particular period of the year, they represents 66,7%, and this percentage depends on the farm dimension.

The trade of the obtained products represents less than 50% of the interviewed farmers, while the remaining part declared to produce wine for a domestic consumption.

4.3 The examined viticultural farms

The economic result of a consistent number of farms have been examined (22 cases) after collecting information on the territorial characteristics and the social aspects of the terraced grape-growing. Grape-growing, practised in difficult conditions as the territory access, its fragmentation and the nature of the slopes, needs hard work. They are not much competitive on the economic level, then they are abandoned.

The various cultivation operations weigh upon costs (like pruning, grafting, various works, productive means and grape transportation). Another aspect that has to be considered is the absence of specialized work labour, and the gradual loss of competences and of the local knowledge.

The climatic conditions are favourable to grape-growing, which can get a good brightness and insolation, the ground is well exposed and fair fruitful.

The height of the examined terraces varies on an average between 0 and 400 metres from sea-level. It is around 40 years that the plantations exist. There are not vineyards completely flat, namely with slopes inferior than 15%.

Moreover there is a general dispersion of the surfaces characterized by several strips, which often reach the dimension of few ares, always arranged on stairs or on plots of land which length varies from 1 to 12 metres.

Vine is cultivated with the "sapling system" in the old plantations (existing from more than 30 years) and with the "contrary sapling system" in the recent cultivations. Vines' distance is of one metre between the rows, and two meters on the row, with a number of plantations which varies between 1.300-8.300/hectares.

The productions on an average are 60-80 q/hectares.

Viticultural productions, that follow one another for the whole productive cycle are: extirpation, "barbatelle" replacement, pruning, binding, manuring, hoeing, various treatments, grape-gathering. The first two operations foresee the "barbatelle" extirpation, no more fruitful, and their replacement with new ones.

The production pruning yearly favours a good fructification and consent the emission of replacement vineshoots.

Bounding consists in supporting the vine-shoot, generally through a wood pole (which is seldom made of cement) or a wood support, leant against wall (in the internal part of the terrace).

The annual manuring consists around in 100 kilogrammes of azote, 50 kilogrammes of the phosphorus, and 100-200 kilogrammes of potassium for hectare.

Hoe, is pratized, where possible, with motor-plough of small volume, or often, through the hoe; it has the aim of eliminating infestations, encreasing the air capacity, encouraging the respiration process and the micro-organism activity, and controlling the water balance.

These treatments assure the defence against micro-organisms insects and infestations.

The main adversities that wine-growers have to face are represented firstly by mildew and iodine, also if spring and summer climatic conditions, particularly dry, do not make difficult the anticryptogamic defence.

Grape-gathering is carried out after establishing grapes ripeness.

Vine-growers collect from 70 to 120 kilogrammes of grapes an hour.

Grapes transportation is a very hard and expensive operation; the baskets have to be carried across narrow and steep stairs, first is reached the area where grapes are loaded, then transported to the “*palmento*” for the transformation (transformation costs weigh upon balance of 1 € for quintal of grapes).

4.4 Productions, costs and economic results

The vineyards in question put their grapes, wine and must when it is economically profitable. Often vine is produced and consumed by the producer. Although the typical brand IGT “Costa Viola” and “Scilla” has been recognized in the area - from 1995- producers trade their wine without using it. The wine produced is mostly made up of table –wine (malvasia wine), it consists of different varieties (Prunesta, castiglione, Nerello, Zibibbo, Marchesina, Lacrima e Nerello, Nocera, etc). Wine price varies between 0.70 and 0.80 per kilogramme, must price varies between 1.10 and 1.30 €/litre. Wine which is more profitable, is sold for a price that varies from 1.80 to 2 €/litre, it is traded in demijohn or in cans of 15, 20 and 25 litres, seldom in bottles. Little difference was noted in the price realized by individual producers, due to the almost uniform qualitative of the product; also no significant differences were noted between the quantities produced. The value of the saleable gross production per unity of surface (1000sqm), is made up of the sold products (only wine or wine, grapes and must depending on the cases) and of those consumed by producer during the year. The economic results of vineyards in question are represented in table 5, which indicates productions, costs and incomes of the cultivation.

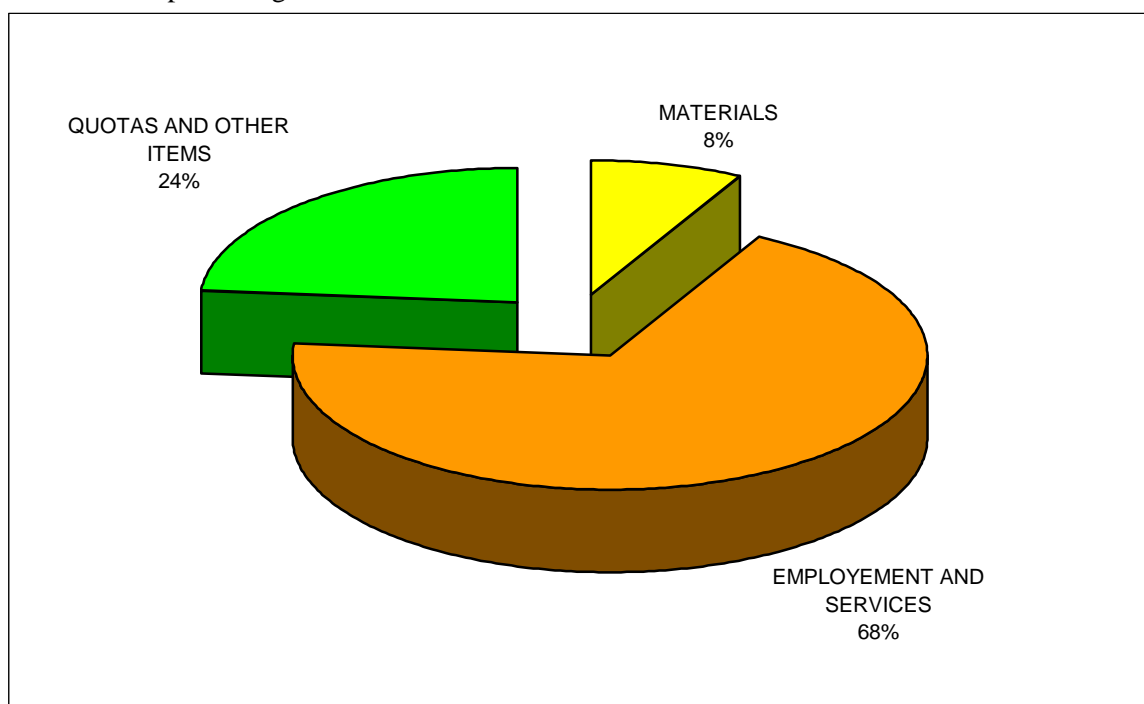
5. The economic results of the Costa Viola terraced vineyards.

FARM	Surface sqm	Type of Farm (*)	SALEABLE GROSS PRODUCTION			Production costs (€/1000sqm)	Profits (€/1000sqm)	Net incomes (€/1000 sqm)
			Obtained productions	F2b Aid policy	TOTAL			
1	4.000	Psc	2025	0	2.025	1.985	40	592
2	10.500	Ps	2922	90	3.012	2.663	348	564
3	8.100	Ps	2667	90	2.757	2.455	302	501
4	8.750	Psc	3657	90	3.747	2.401	1346	1616
5	13.700	Psc	3117	90	3.207	2.383	823	1104
6	7.500	Psc	3587	90	3.677	2.836	841	1146
7	6.900	Psc	3478	90	3.568	1.871	1697	1957
8	11.300	Ps	3274	0	3.274	2.626	649	879
9	3.500	Psc	904	90	994	1.178	-184	125
10	1.100	Pcs	2645	0	2.645	1.913	731	1940
11	2.300	Pcs	1229	90	1.319	1.384	-65	602
12	2.700	Psc	1097	90	1.187	1.406	-219	378
13	1.700	Psc	1875	0	1.875	1.627	248	845
14	900	Pcs	4073	0	4.073	1.917	2156	3390
15	1000	Pcs	3300	0	3.300	1.747	1553	2666
16	1.500	Pcs	1662	0	1.662	1.282	380	1026
17	1.700	Pcs	1669	90	1.759	1.231	528	1110
18	2.600	Psc	1218	90	1.308	1.072	236	533
19	1.300	Pcs	3053	0	3.053	1.441	1612	2377
20	950	Pcs	3789	0	3.789	1.407	2382	3114
21	3000	Psc	976	90	1.066	1.051	15	363
22	1.650	Pcs	1955	0	1.955	1.349	606	1221
MINIMUM			904	0	994	1.051	-219	125
MAXIMUM			4.073	90	4.073	2.836	2.382	3.390
AVERAGE			2.489	45	2.534	1.783	1081	1758

(*) Pcs= cultivator-capitalistic property; Ps= capitalistic property; Psc= capitalistic-cultivator property.

The minimum and the maximum value of the saleable gross production in the terraces, have respectively been €904 and 4.073€/1.000sqm, with a value that on an average is €2489/1.000sqm. It is necessary to add the available aids, through the F2b measure, of the PSR Calabrian Region (90.00€/1.000sqm) for wine-growers that requested them. In this case the saleable gross production of the examined farm is on an average 2.534€/1.000sqm. Costs are on an average 1.783€/1.000sqm. They vary between a minimum of 1.051€/1.000sqm and a maximum of 2.836€/1.000sqm. Costs consist of expenses and taxations sustained to compensate goods and totally exploited services value, and to maintain capital at the same level of efficiency, as well as of the compensations for the economic subjects participating to the production process. As indicated by graphic 2 the costs have been grouped in three large categories: “work and services” which are equal to 68%, “quotas and other items” equal to 24% of the total cos, sustained by the producer and “materials” equal to 8%. A series of other agricultural operations weigh upon production costs, namely: pruning, grafting and other activities, least but not last the transport of productive means. The materials include the costs for buying extra-firm floating capital. The “quotas and other items” include the sums sustained for the re-integration amortization quotas and maintenance quotas, for taxes, interests and salaries.

Graphic 2. Components of the average production costs in Costa Viola terraced vine producing farms.



According to studies carried out some of the farms profits are negative. The figures vary from a minimum of -219 €/1.000sqm to a maximum of 2.382€/1.000sqm. Only those farms tha have a surface exceeding 4.000sqm are competitive, if compared to the other producing realities. The strong ties to ones land justify the ongoing anvestment on behalf of the owners in order to sustain administration costs .

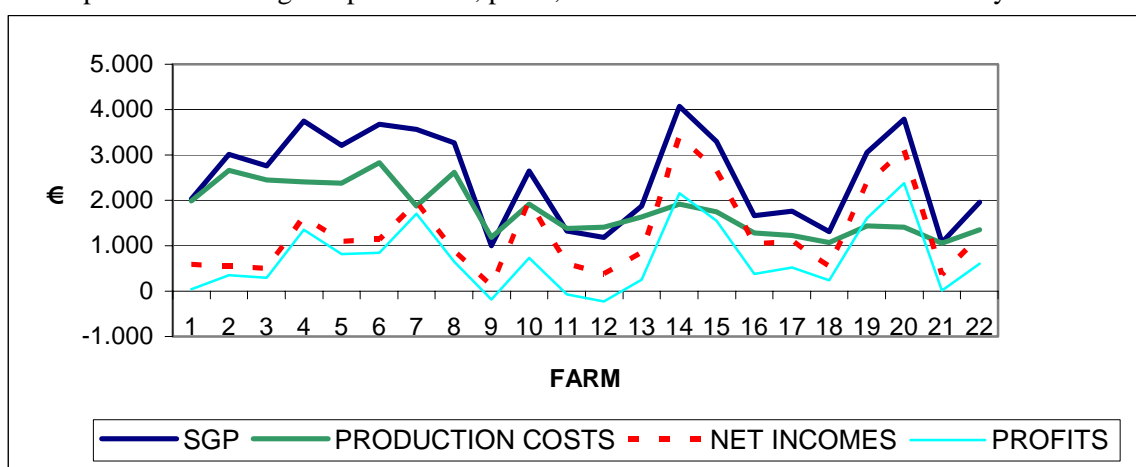
As concerns net incomes, which include vine producers retributions and farm profits or losses, the values are superior in those capitalistic farms where a large part is provided by the retribution for the work carried out by the owners together or without the family components. These figures are influenced by the the presence or not of public funds (F2b policy, of the Calabrian Region PSR) in particular with reference to the larger farms (exceeding 4.000sqm).

The average value of the net incomes stands at around 1.758€/1.000sqm, with a range varies from a minimum of 125€/1.000sqm to a maximum of 3.390€/1.000sqm.

The technical economic studies carried out and summerized in the graphic 3 highlighted the negative income trend of terraced vine producing areas of the *Costa Viola*, this due to a series of reasons:

- Structural problems caused by the presence of small sized farms and by the growing techniques;
- Spread of “*cultivar*” which empedes the evaluation of the products uniqueness and of the IGT brand;
- Product low prices, which prevents the covering of production costs,
- Inadequacy of public support for the safeguard of the territory, eventhough the important role played by terraced vineyards for the safeguard and protection of the territory has been recognized.

Graphic 3. Saleable gross production, profit, and net income trend of terraced vineyard farms.



The outcome of the study outlines the difficult situation of the vine producing sector of the *Costa Viola*, which has lead to a reduction of the number of plants and of the surfaces employed.

The negative trend has been slightly dampened by the funds allocated to for the producers by EU agro-environmental policies but also by the lack of alternative means of resources exploitation and by strong bonds between the owners and their land. On the other hand the interest for this territory and for the sector goes beyond its productive role focusing more and more on the target it has to safeguard the environment and sustain human settlements.

Hence, acknowledging that vine producing in the *Costa Viola* is an irreplaceable activity in this area, the need is felt to identify other solutions so as to promote the recovery through an adequate reinforcement of supporting activities.

5 CONCLUSIONS

The results of the investigation highlighted the need of more resolute interventions than those already provided by the present agro-environmental measures. In fact, from the socioeconomic point of view came out the following problems: need of a renewal of the entrepreneurs, gradual abandonment of the viticultural activity by farmers and consequent degradation of the terraced vineyards, hydrological disasters and increase of landslides.

Furthermore, other problems are represented by the farm dimensions, the high prime costs, the difficulty of trading products, and the inadequate profits of the cultivations.

Then it is necessary to allocate funds for the generational replacement of vine-growers, to improve the infrastructural network of the area, to give products original qualitative characteristics by

strengthening the quality brand (IGT *Costa Viola*), to provide a permanent fund of interventions in case of flood damages, improvement of the information and technical assistance action, and furthermore to exploit the remarkable touristic potentialities (“agri-tourism”, “sun-sea tourism”, “green tourism”, and “echo-tourism”).

These interventions are important to the viticultural sector, from the point of view of the territory, with the values bound in the landscape and with men labour that was passed on from generation after generation, leaving their intelligence, knowledge and sacrifice, has a special meaning.

This field has to be defended in order to avoid the environmental degradation and the definitive abandonment of the countries.

In order to preserve the landscape and its structures it is not enough to save their material aspects, but it is also necessary to preserve the knowledges that allowed to build them.

Nevertheless, it does not mean that these knowledges have to be the same as in the past, but it is needed to realize the meaning of the structures and their peculiarities and to translate them into innovative forms, through the use of the scientific models and of the technological instruments.

The territory development depends on different environmental conditions and on the ability of exploiting factors not to be found in the market and not to be produced in other areas.

Indeed the landscape can be preserved by keeping the continuity of the territorial process, that in the traditional agricultural world has bound man and ground through the agricultural activities.

The landscape represents today a heritage, which evaluation depends on the general recognition of its value as a complex living system.

This heritage needs a continuous maintenance to be preserved. The high cultural value of the *Costa Viola* is reproducible through an evolution process concerning both the environmental and the social structures.

Differently than in the past, today this heritage can obtain the recognition of a universal value, also of it has a local dimension.

From this point of view both the internal and external observations can converge and foresee the expectations of a new community, of which are part all those people that intend to take care of a complex environment, combining the characteristics of the urban reality and of the rural one.

References

- Albanese G. (2001). Istituzione di paesaggi protetti nel territorio del “Basso Tirreno Reggino” *Costa Viola* e Piano degli ulivi. Reggio Calabria (Laruffa Editore).
- Aloj, Totaro E., (2003). L’ecoturismo per la conoscenza e tutela dei valori della biodiversità in occasione della promulgazione da parte dell’ONU dell’anno “2002 anno dell’Ecoturismo” (Franco Angeli) Milano.
- Bellia F. (1998). Sintesi del gruppo di lavoro “Lo sviluppo rurale”, Atti del XXXV Convegno studi SIDEA, Palermo.
- Casini L. (2000). Nuove prospettive per uno sviluppo sostenibile del territorio. CNR-RAISA. Firenze.
- Casini L. (2002). Funzioni sociali dell’agricoltura e nuove tipologie d’impresa. XXXIX Convegno SIDEA. Firenze 12-14 settembre.
- De Benedictis M. (1995). Agricoltura Familiare in transizione. INEA.
- De Stefano F. (2004). Ricerca economica-agraria per la politica dello sviluppo rurale. *Rivista di Economia Agraria* (59) 3.
- Esposti R., Sotte F. (1999). Sviluppo rurale e occupazione. Franco Angeli. Milano.
- Fichera R. et al., (2000) Sustainable planning of wineries in relation to land uses and landscape in the wine regions of Italy. In: proceedings of the XIV Memorial CIGR Word Congress Tsukuba, Japan.
- Henke R. (2004). Verso il riconoscimento di una agricoltura multifunzionale. Teorie, politiche e strumenti. INEA.
- Larent C. (2002) Le débat scientifique sur la multifonctionnalité de l’activité agricole et sa reconnaissance par les politiques publiques. Colloque SFER « La multifonctionnalité de l’activité agricole et sa reconnaissance par les politiques publiques » Paris, 21-22 mars 2002.
- Nicolosi A. (2001). Alcune riflessioni sul ruolo della donna nello sviluppo dell’agricoltura e del mondo rurale. *Rivista di Economia agraria* 56 (2).
- Nicolosi A., Platania M. (2004). Farm women in the rural areas of Calabria. A case-study in Sila Crotonese (Crotona). 87° EAAE-Seminar, Assessing rural development policies of the CAP, April 21-23, Vienna Austria.
- Nicolosi A., Petullà M. (2005). Rural development politics in the decisional processes for the sustainable development of Calabria. SFER International Conference: Multifunctional of landscape. Analysis, evaluation and decision support. Giessen, Germany 18-19 may.
- Ortiz-Miranda D., Estruch-Guitart V. (2003). The role of Agri-environmental measures in the Definition of Property Rights. 80° EAAE-Seminar EAAE, New Policies and Institutions for European Agriculture. Ghent, 24-26 settembre
- Rossi A. et al., (2001). Il ruolo dei fattori istituzionali nell’analisi dell’implementazione delle politiche agro-ambientali. *Rivista di economia agraria*, 56 (3).