3. **The economic and ecological role of the cypress in Tuscany: a case study**

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3.1 Introduction

The common Cypress tree (*Cupressus sempervirens* L.), which was introduced into Italy from the eastern regions of the Mediterranean basin, has found its greatest expression in Tuscany, where it has been naturalised and fully inserted within tradition, the landscape, and in art. In addition to marking entry driveways to villas and farms, cypress trees have always been found, as woodlands, close to farm houses and cemeteries. They may constitute wind-break belts for protecting valuable crops, and even pure or mixed wooded formations. Cypresses as protagonists have inspired numerous works of art, as well as literary works. Among these we can recall the poem “Davanti San Guido” [In front of St Guido] by Giosuè Carducci, in which reference is made to the monumental cypress trees on the Viale di Bolgheri in the Maremma. In his book “Il Cipresso dalla leggenda al futuro” [The Cypress from legend to the future] (2007), Panconesi describes in detail the role of the cypress tree in the history of civilisation, myths and religions of the Mediterranean populations. Panconesi has also offered (2007) a complete picture of the importance of cypress trees in art and literature, as well as in the Mediterranean landscape.

Starting in 1951, the year of its first being reported in Italy, cypresses were affected by a serious disease, “cypress cortical canker”, which is caused by the *Seiridium cardinale* fungus, which has produced economically consistent damages in forest (defined as pure and/or mixed formations of more than half a hectare) and ornamental plantings. The disease manifests itself with cankers on the trunk and/or branches, always with an emission of resin, and with desiccations on more or less extensive parts of the crown. The canker can evolve to the point of causing the death of the plant, with evident damage at both the environmental and landscape level (Panconesi, 2007). In order to limit the damages and the spread of the disease, interventions in defence of cypresses are necessary, among which sanitation (through pruning and felling) takes on particular importance. Sanitation interventions provide for the treating of the plant (cutting off the diseased parts and burning...
these). When sanitation is not possible for technical or landscape reasons or because the canker attack is already in an advanced stage, the plant must be felled. In the case of ornamental plantings, the felled tree can be replaced by varieties that are resistant to canker, such as the “Bolgheri” and “Agrimed N° 1” clones, which were patented by the Italian National Research Council (CNR) in 1990, or the “Mediterraneo” and “Italico” clones of 2004 (Danti et al., 2006; Panconesi, 2007). For further details, you are referred to Panconesi, 2007.

This contribution presents the results of a sample investigation carried out in order to evaluate the economic importance of cypress trees on the Tuscan landscape, based on their ability to attract tourists who choose to visit Tuscany and stay in farm-holiday facilities. The investigation was aimed at the continuously-expanding agritourism sector, which is influenced by the quality and beauty of the typical rural landscape of Tuscany. It should be remembered that the added value of agritourism businesses in Tuscany represents 8% of the overall value of the primary “tourism” sector. Official data indicate that approximately 350 million euros are spent annually by the tourists who stay in this type of accommodation. At present, agritourism generates an annual number of jobs equal to 6,700 employees, a figure that has doubled compared to that of the 1990s. Presences in agritourism facilities exceed 2 million days annually, with guests staying for an average of 6 nights. In Tuscany in 2008, 4,061 facilities were authorised to function as farm-holiday businesses (Bulletin of the Tuscan Region, 31.12.2008).

This work intends to offer information on:

1. the diffusion of cypress trees in Tuscany and the economic problems connected with their sanitation;

2. the methodology of our investigation and the main results that emerged from it.

The final objective of this case-study is to inform the population, by means of experimental data, of the importance of cypresses in the rural economy, in the ecological protection of resources (e.g. the soil, water), and in the safeguarding of the territory against natural risks (fires, desertification), so that the said population – having been made consciously aware – can involve the public institutions in the direction of an economic and legislative commitment in order to preserve cypress trees in the Mediterranean region.
3.2 Cypress trees in Tuscany: sanitation and intervention costs

According to the last Forest Service Inventory (1990), common cypress trees in forest plantings in Tuscany number 3,886,556 and are distributed over an area of 17,360 hectares of woods, most of which are situated in the province of Florence (60.0%), with a lesser number in the provinces of Siena (13.6%), Prato (6.7%), Pisa (5.8%), Arezzo (5.4%), Grosseto (4.2%), and only marginally in the remaining provinces (4.3%) (Graph 1).

In the past five years, there has been a great increase in the sale of cypress plants in Tuscany, as can be seen from the commercial data of private and forestry nursery businesses (personal communication), and it is believed that there are more than 4 million plants in the forest plantings in Tuscany. The incidence of the cypress canker disease was estimated to be 23.6% in Tuscany (1994, Forest Service). A survey done by the Service Meta (2008-2009) on 51 stands localised in the Tuscan provinces found an average incidence of the canker disease of 21.6%. There is a marked variability among the provinces from 1% in Pistoia province to more than 50% in the Arezzo and Siena province and in southern stands of Florence. (Graph 2).
In recent years, an awareness of plants attacked by canker seems to be less, compared with the past, for a series of reasons. Among these are the felling and death of seriously infected plants, the progressive introduction of canker-resistant clones, and above all the sanitation operations financed by the Tuscan Region, which since 1992 has made annual contributions, as can be seen in Graph 3.

Graph 3 - Distribution of the costs sustained by the Tuscan Region for sanitation interventions on cypress trees between 1992 and 2009.
The costs for sanitation interventions are high, and therefore represent a limit to the successful treating of cypress trees in Tuscany. One study carried out by Arsia (Tuscan Regional Agency for Agricultural and Forestry Sectors) analyses the costs both for treating the individual plants and felling any cypresses that are seriously damaged by canker, and for their relative replacement with canker-resistant clones. From the analysis, it can been seen that, in 2003, the costs for the sanitation of a single plant varied from 95 euros in suburban areas to 115 euros in urban areas. For felling a tree, the cost fluctuated between 65 euros a plant in suburban areas to 90 euros in urban areas, while in wooded areas the estimated cost was 4,960 euros per hectare. For the planting of a canker-resistant cypress clone (for example, of the “Bolgheri” variety) that is between 2.50 and 3.00 metres high, the cost was 105 euros (various authors, 2003). The costs indicated, which are for 2003 (even if these were slightly higher in 2011), can be maintained for the economic elaborations without committing significant errors.

On the basis of these data, we evaluated the overall cost of sanitation interventions on cypress trees in Tuscany, and consider this estimate to be indicative. In view of the complexity and cost of these interventions, it is necessary to operate in accordance with certain priorities that are dictated also by the availability of public and private financial support.

No published statistical data exist regarding the number of cypresses present in the ornamental plantings in Tuscany, but it is believed that this number probably amounts to 1.5 million (estimate supplied by IPP-CNR).

In the estimate of costs, sanitation interventions within the sphere of forest plantings have been separated from those relative to ornamental plantings, and the mean percentage of canker incidence is considered to be equal to 21.6%.

In forest plantings, the felling of all plants showing symptoms of canker is advisable. To determine the hectares of forest cypress-planted area infected with canker to be subjected to sanitation operations, we multiplied the hectares of cypress-planted forest area by 0.216 (the mean incidence of the disease), thus arriving at 3,750 hectares to be subjected to sanitation interventions (Table 1).

The average cost per hectare for demolishing the infected cypresses was estimated at 4,960 euros, for a total cost of 18.6 million euros for sanitising 3750 hectares.
In ornamental plantings, it is necessary to carry out controls on each individual plant that has symptoms of the disease, and to establish whether to sanitise or fell it. Should felling be necessary, replacement of the plant with a canker-resistant clone will possibly be necessary. The number of diseased plants was estimated to be 324 thousand, a figure that derived from the product of the number of plants present in the ornamental plantings (1.5 million) and the mean incidence of the disease (0.216). On the basis of our previous sanitising interventions, we considered the percentage of plants to be treated as equal to 60% of the 324,000 diseased plants (i.e. 194,400 plants) and a percentage of the plants to be felled and possibly replaced with canker-resistant cypresses as equal to 40% (129,600 plants). If the following unit costs per plant: 95 euros for the sanitising, 65 euros for felling the plant, and 105 euros for planting a new cypress, are considered, the overall sanitation cost for cypresses is extremely high, as can be seen from Table 1. It can vary from 45.5 to about 59.1 million euros, respectively without or with the total replacement of the felled cypress trees with canker-resistant cypresses.

<table>
<thead>
<tr>
<th>Typology</th>
<th>Interventions</th>
<th>Cost (in euros)</th>
<th>Cost of the Sanitation</th>
</tr>
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<tbody>
<tr>
<td>Forest plantings</td>
<td>Felling</td>
<td>18,600,000</td>
<td></td>
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<tr>
<td>Ornamental plantings</td>
<td>60% Sanitation</td>
<td>18,500,000</td>
<td>26,900,000</td>
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<tr>
<td></td>
<td>40% Felling</td>
<td>8,400,000</td>
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<tr>
<td>Replacement of cypress trees</td>
<td></td>
<td>13,600,000</td>
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*Table 1 - Calculation of the indicative cost for the sanitation of cypress trees in Tuscany (Sources: our processing of ARSIA 2003 and Forest Service Inventory 1990 data).*
3.3 Methodological description

In order to evaluate the role of the presence of cypress trees as regards the attraction capacity of the Tuscan landscape, an investigation was made based on the distribution of a questionnaire to the clients of eighteen farm-holiday facilities located in various provinces of Tuscany. The sphere of reference (indicated as “sample”) consisted of tourists who chose to stay at farm-holiday facilities in Tuscany. The evaluation was based on two methods (Notaro et al., 2005; Giau, 1999; Stellin e Rosato, 1998; Tempesta, 1997):

1. the non-monetary method known as “landscape components”;
2. the monetary method of contingent evaluation.

The “landscape components” method provided for a sample investigation based on the variations in aesthetic judgement provided by a sampling of persons interviewed, who were shown photographs of a similar landscape typology in which the intensity of one of the variables was different: for example, the slope, the underbrush, or a very precise element of the landscape, while the other characteristics remained unchanged. This method made it possible to estimate the importance to be attributed to one or more variables in the overall landscape structure and in the variability of the judgement.

The contingent evaluation method, instead, provided for interviewing a sampling of persons who were asked to express their willingness to make a financial contribution to conserving a given environmental resource (or their readiness to accept compensation for not doing so), depending on the hypothetical situation created by the interview.

In the proposed investigation, a choice was made between the possible modalities for defining a willingness to contribute to the preservation of cypress trees in the Tuscan landscape (“close-ended” or “take it or leave it”), which consisted of offering the person being interviewed a limited series of possible alternatives that had a monetary value.

It was considered appropriate to divide this investigation into four phases:

a) Realisation of the questionnaire
b) Distribution of the questionnaire
c) Processing of the data
d) Analysis of the results

a) Realisation of the questionnaire

The questionnaire was drawn up by Eurisko, a well-known Italian institute that deals with public-opinion and market research. The
questionnaire was printed by IPP-CNR in 4 languages (Italian, English, French, German). The forms, which consisted of 13 questions in addition to a request for general information regarding the person interviewed (see Annex 1 pag. 46) were distributed to tourists according to the language preference, upon their arrival at the agrotourism facility, with the request to compile them.

In the first part of the questionnaire, after indicating the nationality of the interviewee, questions were asked regarding an evaluation of the elements of the Tuscan landscape from a non-monetary point of view, to which the interviewee could reply by choosing an answer among those already indicated (multiple choice). The evaluation of the “landscape components” was based on two photographic images that depicted, respectively, a Tuscan landscape from which the cypress trees had been eliminated thanks to a photographic retouching programme, and subsequently the same landscape, but in its original version with cypress trees. The aim of this comparison was to obtain information on the contribution made by cypresses for a “visual” evaluation of the landscape.

The second part of the questionnaire focused on the health conditions of cypress trees. The person interviewed was informed of the health problems of cypresses caused mainly by canker, which threatens cypress trees to the point of determining their deterioration and then their death. At this point, the interviewee was asked whether he/she would be willing to contribute with a percentage of the total cost sustained for his/her stay, and/or to purchase a number of disease-resistant seedlings, as a contribution to safeguarding cypress trees on the Tuscan landscape. Logically, the interviewee had been informed that the unit production cost for an 80-cm-high grafted cypress plant was 3.50 euros.

b) **Distribution of the questionnaire**

Distribution of the questionnaires was realised by eighteen Tuscan farm-holiday facilities located in the provinces of Siena, Florence, Pisa, Lucca, and Grosseto, which made the form in four languages available to their clients. More than 5000 forms were delivered and/or made available to the tourists. The clients replied for a total of 614 questionnaires. The size of the sampling was statistically sufficient to be considered valid for this investigation.

c) **Processing of the data**

All the data of the questionnaires were computerized forming a database consisting of 614 records, one for each questionnaire compiled. The data contained in the database were then processed by utilising
pivot tables. Thanks to these interactive data-recapitulation tables, which enabled us to analyse them in different ways by considering one or more variables, it was possible to represent the general characteristics of the sample analysed and the answers given to each question.

In the database the data relative to the willingness to contribute to the safeguarding of cypress trees on the landscape, expressed in euros, on the part of each person interviewed were also taken into consideration. In order to estimate the level of willingness to contribute for each interviewee, his/her availability to pay an established percentage of the cost of his/her stay was added to that for the purchase of seedlings. When only one of the two options was indicated as being available, this value corresponded only to the amount of the stay or only to the cost of the seedlings purchased.

To determine the value of the various percentage amounts of the cost of the stay as these are expressed in the questionnaire, we had to calculate indicatively the average cost for a tourist staying in a farm-holiday facility in Tuscany. Subsequently, this cost was multiplied by the percentage quota chosen by the interviewee in favour of the safeguarding of cypress trees on the landscape from among those proposed in the questionnaire. This average cost was difficult to calculate, because no recent official data were available. In this study, we considered the data provided in the 5th Report on the Agricultural Economy in Tuscany for 2003. The average cost for a tourist staying at an agritourism facility in Tuscany was calculated thanks to the ratio between the average annual cost sustained by “agritourism” guests (350 million euros) and the number of annual arrivals (350 thousand, with an average stay of 6 nights per tourist). Each tourist pays an indicative cost of about 1000 euros for a stay of 6 nights, which corresponds to a daily cost of about 167 euros. The price paid for purchasing seedlings is given by the product of the number of plants chosen by each interviewee and the unit cost of 3.50 euros.

Statistical analyses were made of the data relative to the replies regarding a willingness to pay, and the confidence interval relative to the average willingness to pay per interviewee was also estimated. By availing ourselves of the pivot tables, we could highlight the average willingness to pay for each person interviewed and the frequency of interviewees per class of willingness. The sampling of interviewees was assigned to the following three classes:
I) interviewees not willing to contribute;
II) interviewees willing to pay between 0 and 15 euros;
III) interviewees willing to pay more than 15 euros.

d) Analysis of the results

- Characteristics of the sample

From a first analysis of the results it was possible to delineate the main characteristics of the sample, which consisted of 614 interviewees.

The first information regarded nationality. 30% of the persons interviewed were Italian, while the remaining 70% were foreigners, mostly Americans, English, and Germans, as indicated by the percentages in Graph 4.

The sex of those interviewed involved 52% males and 41% females (7% failed to reply to this question). As regards age, 10% of the interviewees were 24 years old or younger, 36% were between 25 and 44 years old, 42% between 45 and 64, and lastly 9% were older than 65 (3% failed to reply).

![Graph 4 - Distribution of the interviewees according to nationality.](image)

* In the “Others” category are indicated interviewees coming from the following countries: Austria (1%), Denmark (0.5%), Sweden (0.5%), Japan (0.3%), Thailand (0.3%), Brazil (0.2%), Norway (0.1%), and Australia (0.1%).
As regards study qualifications, a prevalence of those with degrees (50%) and diplomas (35%) was noted, while a lower level of study, such as a lower-middle-school diploma (9%) or an elementary school certificate (1%), had marginal importance. 5% of those interviewed did not answer this question.

Under the item “professions”, the percentage of entrepreneurs and free lancers was 23%, while executives represented 18%, employees and teachers 17%, students 10%, retired persons 10%, housewives 5%, artisans and tradespersons 4%, factory workers 2%. 7% indicated “another profession”, and 4% did not give an answer.

**Interpretation of the results**

From the data the fact emerged that most of those interviewed (78%) had already visited Tuscany. Of these 78%, at least 22% had visited it once, 35% had visited it 2 or 3 times, and 42% more than 3 times. 1% did not answer this question, and 21% said that they were visiting Tuscany for the first time. These were all persons who did not reside in Tuscany, who chose this region because of its landscape (22%), for a holiday (21%), for its beauty spots (11%), and for its art and culture (10%), as can be seen in Graph 5.

What was the main reason for your coming to Tuscany?

![Graph 5 - Percentages relative to the answers as to the reason for visiting Tuscany.](image-url)
Those persons interviewed on several general aspects of Tuscany showed a great appreciation for its landscape, followed by its countryside, art and cuisine, the people (as regards acceptance and cordiality), its handcrafts, and lastly the sea (Graph 6).

**As regards Tuscany, how much do you like...?**

![Graph 6 - Appreciation of interviewees for several characteristics of Tuscany.](image)

In a more detailed analysis of what influenced their attraction to the Tuscan landscape, the sea, the art and culture, and the countryside, the interviewees gave greater importance to the landscape and the countryside, mirroring moreover the trend of the sample interviewed, which consisted of persons who had decided to spend their holiday at a farm-holiday facility. The tourists were asked to characterise identifying elements of the Tuscan landscape, such as its colours, the shape of the hills; the cypress trees, and the farmhouses. The interviewees considered that each of these elements is typical of the Tuscan landscape; however, their preferences went, in particular, to the classic profiles of the Tuscan hills exalted by the significant presence of cypress trees (Graph 7).

**How typical and identifying do you rate the following elements of the Tuscan landscape?**

![Graph 7 - Qualitative evaluation of several aspects of the Tuscan landscape.](image)
The questionnaire offered to the interviewees 2 pictures of the same typical Tuscan landscape: one with cypress trees and the other without them (the trees were removed by means of retouching). Upon observing the picture without the cypresses (Figure 1A), most of the persons interviewed (53%) said that this was not a picture of a typical Tuscan landscape because, for 82% of them, it seemed that something was missing that could identify it as such. 41% of the interviewees, again while observing the picture without the cypresses, still considered that it was a Tuscan landscape. 6% did not answer this particular question. In the following question, in which it was explained that it was indeed a Tuscan landscape and it was asked if something was missing, 82% of those interviewed replied that yes, something was missing, and 12% answered that no, nothing was missing (6% did not give an answer).

The questionnaire subsequently invited the interviewee to compare the two photographs depicting the same landscape with and without the cypress trees (Figure 1), and asked them to express a judgement on the importance of cypress trees on the Tuscan landscape.

In this regard, the role that was attributed to cypress trees as a characteristic element of the Tuscan landscape clearly emerged from the answers of the interviewees. 90% of those interviewed replied that cypress trees are fundamental, very important, and important in representing the Tuscan landscape (Graph 8), while for 6% the
The relevance of cypress trees was further emphasised by the answers depicted in Graph 9, where in effect it emerged that the landscape would not be the same if cypress trees were not there.

**How important are cypress trees in characterising the Tuscan landscape?**

![Graph 8](image)

*Graph 8 - The importance of cypress trees in the Tuscan landscape.*

**Without cypress trees, is the Tuscan landscape...**

![Graph 9](image)

*Graph 9 - Evaluation of the Tuscan landscape without cypress trees.*
In the eleventh question, the problem of cypress canker was introduced, and tourists were asked whether the competent local and/or regional authorities should intervene in order to tackle the spread of the disease. Most of the persons interviewed (78%) replied in the affirmative (Graph 10).

These visitors to Tuscany were asked whether they would visit it again in the case that cypress trees could no longer be seen on the landscape. It was interesting to note that many of those interviewed (55%) replied that they would come in any case to spend their holidays in Tuscany even without the presence of cypresses, but less frequently, while for 33% the absence of cypresses would not make any difference to the frequency of their visits. Lastly, 8% would not return to Tuscany if there were no cypress trees. 4% of the interviewees did not express an opinion in answer to this question (Graph 11).

Graph 10 - Request for intervention on the part of public institutions in order to safeguard cypress trees in Tuscany.
As far as the availability of tourists to contribute to the maintenance of cypresses in the Tuscan landscape is concerned, 74% of those interviewed expressed their willingness to purchase young canker-resistant cypress trees and/or to turn over a percentage calculated on the cost of their stay as a contribution to carrying out sanitation operations on cypresses. 15% were not disposed either to pay a share of the cost of their stay or to purchase seedlings. Lastly, 11% did not reply to this question (Graph 12).

Graph 11 - Frequency of interviewees in the 4 categories.

As far as the availability of tourists to contribute to the maintenance of cypresses in the Tuscan landscape is concerned, 74% of those interviewed expressed their willingness to purchase young canker-resistant cypress trees and/or to turn over a percentage calculated on the cost of their stay as a contribution to carrying out sanitation operations on cypresses. 15% were not disposed either to pay a share of the cost of their stay or to purchase seedlings. Lastly, 11% did not reply to this question (Graph 12).

Graph 12 - Answers of the interviewees* relative to contributing to the safeguarding of cypress trees.
  * Interviewees who indicated their willingness to pay either for one of the two options (a share of the cost of their stay or by purchasing seedlings) or for both.

To be more precise, of the 74% willing to contribute (done equal to 100 percent), 44.5% of the interviewees would be willing to pay either with a share of the cost of their stay and by purchasing one or
more seedlings; 20% wished to contribute solely by purchasing seedlings, and 35.5% intended to contribute solely by paying a share of the cost of their stay. Furthermore, of the 61% of those interviewed who were willing to pay a percentage share of the cost of their stay (done equal to 100 percent), 27.8% committed themselves to paying 0.1% of the cost of their stay; 30% the 0.5%; 30% the 1.0%; and, lastly, 12.2% the 2%.

Instead, when we considered only the replies regarding a willingness to purchase seedlings, 49% of those interviewed were favourable to purchasing seedlings of canker-resistant cypress at a cost of 3.50 euros each, to replace the ones felled because they were seriously compromised by the canker. By making the aforesaid 49% equal to 100, 35.8% would purchase only one plant; 32.7%, three cypress plants; 16.2%, five plants; and, lastly, 15.3% would purchase ten plants.

As far as the interviewees who expressed their willingness to contribute with only a percentage of the cost of their stay were concerned, the average commitment to pay was 6.00 euros (confidence interval: 5.45 and 6.54) As regards the interviewees who expressed a desire solely to purchase seedlings, their average willingness was found to represent 7.45 euros (6.65 – 8.43).

In considering the two options together, the average willingness to pay on the part of each of the 614 persons interviewed was found to be 11.18 euros, with a confidence interval of between 10.16 and 12.20.

To obtain a projection at a regional level, we extended the result regarding the willingness to pay to all tourists who stay in Tuscan agritourism facilities every year. Logically speaking, this evaluation does not have statistical significance, but serves only to give an indication on the “theoretical” contribution of agritourism to the safeguarding of cypress trees on the Tuscan landscape. The most recent data officially available (for the year 2007) on the number of arrivals in the agritourism sector of Tuscany indicated 556 thousand tourists. If the willingness to contribute to the conservation of cypresses on the part of every tourist is confirmed as being 11.18 euros, on a regional level a theoretical availability of 6.2 million euros each year could be obtained.

Subsequently, we examined the possible relationship between the average willingness to pay for the maintenance of cypress trees and the nationality of the persons interviewed. The Europeans interviewed, with the exception of the English, showed a greater than average willingness (11.18 euros), while lower values were obtained for the English, Americans, and other nationalities (Graph 13).
This result indicated that tourists coming from European countries showed a greater sensitivity as regards the maintenance of cypress trees in the Mediterranean landscape, as they consider them to be a distinctive and irreplaceable element also in their own cultures.

By associating the frequency of visits to Tuscany with the commitment to make a financial contribution for the defence of cypress trees, we could note that the willingness to pay was directly proportional to how many times the tourist had already stayed in Tuscany (Graph 14).

**Graph 13 - Average willingness to pay in euros according to the nationality of the persons interviewed.**

**Graph 14 - Average willingness to pay in euros in relation to the number of previous visits to Tuscany.**

**Graph 14 - Average willingness to pay in euros in relation to the number of previous visits to Tuscany.**

This is the first visit
Already visited once
Already visited twice
Already visited 3 times
Already visited more than 3 times

Visits to Tuscany
• Analysis according to classes of willingness to pay

To examine in greater detail our investigation into the willingness to contribute economically to safeguarding cypress trees, we divided up the interviewees disposed to make a financial contribution into three classes:

Interviewees not willing to pay and those who did not give an answer: 150
Interviewees willing to pay between 0 e 15 euros: 285
Interviewees willing to pay more than 15 euros: 169

The 69 persons interviewed who did not give an answer to this question were considered in Class A.

These three classes of willingness to pay were associated with the answers furnished in the questionnaire in order to analyse the possible differences between the makeup of the class of interviewees not willing to pay (0 euros) and that of the class of interviewees who were disposed to pay a higher amount (>15 euros). In particular, we tried to delineate a profile of the interviewees who had a greater propensity to commit themselves financially for the safeguarding of cypress trees (class C). This analysis was found to be in line with the results illustrated previously, and originated from the relationship between the average willingness to pay per interviewee and the answers given to the various questions in the questionnaire.

Although there were no direct correlations between the general characteristics of those interviewed and their willingness to pay, the interviewees in class C were mostly adults aged between 35 and 64, with a diploma or a university degree, who worked as executives, entrepreneurs, and free lancers, and came from Italy and from other parts of Europe. They were also mostly persons who had visited Tuscany several times, and had chosen it again as a holiday destination because they appreciate its landscapes and recognise that cypresses play a leading role in the Tuscan rural landscape. This category of interviewees likewise demonstrated great sensitivity in regard to the safeguarding of cypress trees, and considered that the possible disappearance of these trees from the landscape could compromise not only its attraction for tourists, but also the rural economy of Tuscany, especially as far as farm-holiday facilities are concerned.
3.4 Conclusions

The results of our investigation showed a “considerable” appreciation on the part of the persons interviewed for the rural landscapes in Tuscany and great sensitivity in regard to the problems connected with safeguarding its cypress trees. In fact, most of those interviewed declared that they had chosen Tuscany as their holiday destination precisely because of the beauty of its countryside. This aspect tended to prevail over other motivations, such as art and culture and the sea. This orientation was unquestionably influenced by the nature of the reference sample, which consisted of tourists who chose to spend their free time in farm-holiday facilities and so were potentially, right from the start, more attracted to the rural world as compared to other components.

In a more thorough analysis that was based on photographic images aimed at showing the difference between a Tuscan landscape with cypress trees and the same landscape without cypresses, almost all the interviewees attributed a significant importance to cypresses in the characterisation of the Tuscan landscape. Then, when we introduced the problem of cypress canker, it emerged that, if cypress trees in the Tuscan landscape were decimated by canker, most of the persons interviewed would visit Tuscan farm-holiday facilities less frequently, thus indicating a relationship between the presence of cypress trees in the landscape and the frequency of visits to Tuscany and the duration of a stay in agritourism facilities. This last-cited datum is indicative in that it not only reaffirms the environmental and landscape importance of cypresses, but also points out their attraction for tourists, which in turn affects the correlated businesses that rotate around farm-holiday businesses and thus has an influence on the economy of rural communities.

The interest in safeguarding cypress trees was expressed by a consistent willingness to pay (on average 11.18 euros for each of the 614 interviewees), which constitutes a monetary disbursement of absolute importance. If the willingness to pay indicated by each person interviewed were theoretically extended to all the tourists who stay in Tuscan agritourism facilities each year, the income would be very high (namely, 6.2 million euros) at a regional level, and would make possible a significant participation in the steep costs necessary for guaranteeing the permanence of cypresses on the Tuscan landscape, which should be sustained by the local organisations.

It is interesting to observe that the Italians interviewed, and in general the interviewees from European countries – except for the English – showed a greater willingness to contribute as compared with
the non-European interviewees. Furthermore, a directly proportional ratio was pointed out between the number of the interviewee’s previous stays in Tuscany and his/her willingness to pay. This tendency can be explained by a closer bond with the rural landscape typical of Tuscany (and thus with cypress trees) on the part of European tourists and of those who have already chosen several times to come for a stay in Tuscany. It is understandable that a greater willingness to contribute financially to safeguarding the Tuscan landscape and consequently the cypress trees corresponds to a greater appreciation and/or interest in cypress trees.

Another sample investigation, similar to the one that we have reported, utilised our Eurisko questionnaire in a slightly modified version in order to evaluate the economic importance of cypress trees in the tourism of the Upper (Lake) Garda (Notaro et al., 2005). Tourists visiting Lake Garda were willing to contribute on an annual basis to the safeguarding of cypresses with an amount estimated at 2.8 million euros, which corresponds to about half of the amount determined in our investigation, i.e. 6.2 million euros. This difference could be attributed to various aspects: in the first place, to the nature and size of the reference sampling, which included – in the work by Notaro et al. – all the tourists who stayed in the Communes of the Upper (Lake) Garda, while in the case proposed by the present contribution we considered only one particular category of tourists, namely those who stayed at Tuscan farm-holiday facilities, who are potentially more sensitive to the problems of the rural landscape. Another aspect that could determine a greater willingness to contribute in order to safeguard Tuscan cypress trees is the different mean percentage of the incidence of canker: 7.7% for the cypresses of the Upper (Lake) Garda, against 21.6% for the Tuscan ones. The greater incidence of cypress canker in Tuscany unquestionably has a strong influence on the appearance and quality of the landscape. The disfigurement of the Tuscan landscape due to the cypress disease emotionally incites and promotes a more immediate intervention in order to restore at least the initial conditions. Furthermore, tourists could attribute a greater historic and landscape-related importance to cypresses in Tuscany compared to that – even if deserving – of the Upper (Lake) Garda.

The evident necessity for appropriate and urgent public and private interventions for safeguarding cypress trees in Tuscany emerges from the results obtained in our investigation. One proposal could be that of utilising an annual contribution (we propose 1% of the total amount spent for the stay) to be paid by visitors to Tuscany who stay in farm-holiday facilities (or to be paid directly by the said facili-
ties) in order to finance annual sanitation interventions on cypresses. From the results of this research project, the theoretical contribution of visitors staying at these facilities could amount to 6.2 million euros a year, which is equal to 10.5% of the predicted cost of the sanitation intervention on cypresses in Tuscany (Table 1). With this annual contribution, the total sanitation would take at least ten years. We should point out that sanitation interventions with these financings, even if diluted over 10 years, make sense, because the annual outbreak of new cankers in sanitised cypress groves is found to be very low and is manageable with ordinary sanitation interventions, as demonstrated by experimental trials carried out by IPP from 1980 up until now.

As an alternative to this “tourist tax”, an annual contribution in the same amount could be disbursed by the local organisations (municipalities, mountain communities, provinces), by the Tuscan Region and by the European Community, in consideration of the great historical-cultural and landscape value that is widely recognised to cypress trees in Tuscany.

The results of this study have pointed out that persons staying in farm-holiday (i.e. agritourism) facilities have manifested a clear commitment to contribute in consistent manner to the safeguarding and conservation of cypress trees on the Tuscan landscape. The self-taxation on the part of these tourists clearly indicates that safeguarding the Tuscan landscape merits their financial intervention.

Cypress trees in a typical Tuscany landscape.
This intervention must consequently be followed by a necessary long-term commitment on the part of public institutes, organisations, private enterprises, foundations, and research institutes, in order to guarantee over the years a safeguarding and above all an exploitation of the Tuscan landscape, which is a source of income and employment for the rural communities.

This investigation was originated from an active collaboration between several businesses specialised in agritourism, Eurisko, several public organisations, Operational Programme MED and research institutes such as the CNR and the University of Florence. The initiative has supplied results that can guide public institutions towards a solution that is very expensive but also definitive. Tourists have clamoured (96% of those interviewed) for the competent organisations to intervene in order to preserve and exploit cypresses in the Tuscan reality. It is now up to those institutions as well as to legislators to heed them, and to organise methods for controlling the disease and make possible timely and correct sanitation interventions together with all the interested public and private organisations, and to set up a medium-term programme for safeguarding and exploiting cypress trees in the Tuscan rural landscape in such a way as to promote tourism, the rural economy, and above all the protection of the environment from natural risks such as erosion, fires, and desertification.

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