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## SUMMARY

**Keywords:** *software, gardens, bark, flowers, leaves, color, landscape.*

The PhD Thesis „*Research Regarding the Biology, Ecology and Technology of Ornamental Fruit-bearing Trees in Order to Integrate Them in Landscaping Design*” includes an introduction, six chapters and a bibliography. The paper has been centred on the study of the main ornamental fruit-bearing tree genera and contains 22 tables, 153 colour images and aims to bring contribution to the improvement of the variety of ornamental fruit-bearing plants used to setup gardens and parks.

The paper is structured in two parts.

In the Introduction, we present the current and general status of the use of ornamental fruit-bearing trees in public areas and private gardens, on the world level, on European, national and regional level.

**Part I** called „*The Current Status of the Researches Regarding the Integration of Ornamental Frui-Bearing Trees in Landscaping Design*” includes **Chapter I**, that targets „**Studies and Researches From the Country and Aboard Regarding the Importance of Using Fruit-Bearing Trees with Ornamental Role in Landscaping Design**” making a description on the global level, of the way fruit-bearing trees are used in landscaping private and public areas. Within this chapter sever problems are approached:

- *Studies and researches regarding the extension of planting fruit-bearing trees in the public gardens that already benefit from the assistance of some specialized structures;*
- *Integration of fruit-bearing trees in alignments that accompany road or pedestrian ways, benefiting from community support;*
- *Studies and researches regarding the promotion of the “community orchard” concept in correlation to the “public garden” model;*
- *Educational public programs that stimulate solidarity and community’s responsibility in the field of environmental protection and the maintenance of planted areas.*

At the same time, I have also presented, in synthesis, theoretical aspects regarding:

- **types of canopies at ornamental fruit-bearing trees** (*narrow piramid-like, piramid-like, large piramid-like, oval, round, pendule*);
- **psychological effect of colours** (*concept, traits, classification, influence factors*);



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- **landscaping traits of the ornamental fruit-bearing trees** (*size, shape, leaves, flowers, fruit, bark*).

Also in this chapter I have presented means to use the ornamental fruit-bearing trees in landscaping setups, by using them as isolated individuals, in groups, creating massive groups, in alignment plantations and in the composition of protection curtains.

Moreover in **chapter II** called „**General considerations about the morphology, biology and ecology of ornamental fruit tree species**”, I have also underlined the following aspects:

- *morphology of ornamental fruit-bearing tree species;*
- *biology of ornamental fruit-bearing tree species;*
- *relationships of ornamental fruit-bearing trees with the environmental factors;*
- *relation of ornamental fruit-bearing trees with edaphic factors;*
- *compatibility of engraftment, parent stock at ornamental fruit-bearing trees.*

**Part II** of the PhD Thesis refers to „**The obtained results and their interpretation**” and includes four chapters.

**Chapter III** refers to „**Characterization of the Natural, Organisational and Institutional Environment where the Researches were Carried Out**”. This chapter begins with a description of the built environment seen as an immense artificial, man-made ecosystem, like:

- *Dendrologic Park from Hemeius;*
- *Tree Research and Development Station Istrița.*

Thereafter, I describe the natural environment that acts like a very dynamic system of close correlations between its components, and the conditions it offers in order to facilitate the breeding, growing and development of ornamental fruit-bearing trees, split on districts. In order to underling the strong points and opportunities, as well as the weak points and threats, I have done a SWOT analysis of the regions, underlining the most important economic, agricultural, human, infrastructure, environment, etc. aspects.

**Chapter III** concludes with the analysis of the natural conditions that influence the growth, blooming and ripening of ornamental fruit-bearing trees:

- **terrain**, that is found in the South and East Region, under all forms, namely 30 % mountains, 30% sub-Carpathian relief and 40 % plateau;
- **weather**, that in the western part of districts Iași, Buzău and Bacau is moderate-continental type, with cool summers and winters rich in snow, while in the eastern parts of Iași, Buzău and Bacau districts, as well as on the entire territory of the



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*districts, the climate is continental, with warm, dry summers and winters without snow most of the times;*

- **hydrographical and hydrologic network** is represented by a number of six important rivers on the north-south direction, the largest hydrographical basins being that of rivers Siret and Buzău;
- **soils**, with the repartition of the soils affected by limitative factors on a regional level and divided on districts.

**Chapter IV**, called „**Organisation of Researches for the Planning of the Experimental Protocol in order to Evidence the Decorative Characters of the Ornamental Fruit-bearing Trees considered for the Study**”, approaches the scope and objectives of the research, stressing the following aspects:

- *characterization of the researched genera and the factors that have determined their selection in order to determinate the most decorative fruit-bearing species;*
- *characterization of the factors that influence the growth, blooming and fruiting of the ornamental fruit-bearing tree species;*
- *identification and characterization of landscaping planning programs and use of the ornamental fruit-bearing trees in the setup of gardens and spaces;*

Thereafter, a presentation of the research methodology follows, namely the use of secondary researches with information sources from the specialized literature from Romania and abroad, as well as the research based on *primary data* obtained following the use of questionnaires on a sample comprising *specialists in the field of landscaping architecture* and *people with own gardens* from Buzău, Bacău and Iași, presenting a series of details regarding the way sampling was made.

In order to start the case study, I have used *the written questionnaire* that includes questions regarding the way people select plants for the landscaping of green areas, where they purchase the plants for the garden, if they consider such a program for the selection of the species they are to use in the setup of the garden necessary, how they evaluate the information found in the program, to what extent they know the species presented in the program, the reasons why they opted to use the program, and their level of satisfaction after the use of the program, as well as gaining their fidelity in the use of the program.

**Chapter V** presents the „**Obtained results**”. Within this chapter the following aspects are analyzed:

- *presentation of the fruit-bearing trees taken into study from a biologic and phonologic point of view;*



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- *Structure and presentation of the practical application of the software “Romanian Gardens, Practical Advice for the Selection of Ornamental Fruit-bearing trees for the Setup of Sustainable Gardens in Romania”*
- *Behaviour of some ornamental fruit-bearing trees species in the nursery;*
- *Promotion and use of the realisations in the field of the integration of ornamental fruit-bearing trees in landscaping design.*

The identification and analysis of the most representative ornamental fruit-bearing trees found in the Dendrologic Park of Hemeiuș, underling the importance of their use in the setup of parks and gardens, by presenting the most representative characteristics of each specie.

Following this study, we ascertain the most special species of each presented genus, in order to integrate them in the landscaping design, by carrying out the researches between 2009 and 2012.

In the second part of the chapter, called “Obtained Results regarding the Nursery Behaviour of some Ornamental Fruit-Bearing Trees” I make reference to the percentage of engraftment success, reported to the used parent stocks, the *winter resistance* of the grafter plants under the climate conditions of our country, the *starting of vegetation of the engrafted buds* and the *growth vigour* of the shoots.

The last part of the chapter presents the main stages of drawing up the program « *Romanian Gardens, Practical Advice for the Selection of Ornamental Fruit-bearing trees for the Setup of Sustainable Gardens in Romania* ».

Following the study carried out, it was observed that the program enjoys an audience that embraces this method of species presentation and that it is well perceived by the specialists working in the field, as well as by people without specialized studies, that own their own gardens and are keen on landscaping design.

The analysis of the questionnaires underlined the fact that the program offers complete information that are easily perceived and can be easily put into practice.

The software “*Romanian Gardens, Practical Advice for the Selection of Ornamental Fruit-bearing trees for the Setup of Sustainable Gardens in Romania*” offers the users safety and reliability, factors that contribute in the decision to use the presented species in setups, without the users manifesting an uncertain or doubtful attitude.

**Chapter VI** comprises the „**Conclusions and Recommendations**” that have resulted from the analysis of the content of the PhD thesis.

The PhD Thesis concludes with „**Bibliography**” comprising 161 titles from Romania and abroad.