INTEGRATION OF NICHE AGRICULTURAL CROPS IN THE DEVELOPMENT OF ROMANIAN RURAL TOURISM. CASE STUDY: WALNUT CULTURE IN ROMANIA AFTER 1990

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https://doi.org/10.11118/978-80-7509-904-4-0123

Abstract

The study concerns walnut culture in Romania in the period 1990-2021. We considered the research useful because, in recent years, Romania had significant production at the European level. The walnut is a species of the tree protected by law, with ancient history in the Romanian landscape, reflected in toponymy and mentioned in medieval documents. Statistical data were used on the total number of trees per fruit and fruit production in tones. The analysis was carried out at the county level, making comparisons of the distribution of the percentages of the studied indicators. Although the total number of fruit trees registered a negative growth rate at the national level (-40%), for walnuts, the growth rate registered a very slight increase (+1%). In 2021, the largest number of trees will be found in Vâlcea County, which registers 5.85% of the total at the national level. In the same year, the lowest number of walnuts can be found in lalomiţa County, with 0.09% of the national total. At the same time, walnut production at the national level registered a growth rate of +116%. The average value for each tree, obtained by calculation, increased at the level of Romania from 10 kg in 1990 to 30 kg in 2021. The results of this study highlighted, in the end, the importance of niche crops such as walnut culture in promoting Romanian traditions and rural tourism.

Key words: counties of Romania, Juglans trees, diachronic analysis, rural tourism

Introduction

At the end of 2022, according to statistical data at a national level, more than 47% of the Romanian population lived in rural areas (National Institute of Statistics, 2022) or "satellite" localities in the periurban area, which represents a fairly high percentage compared to that at European level, of only 24%. This percentage can equally express their still impotence, these rural localities in the national socio-economic and cultural system.

In the Sustainable Development Strategy for Romania (Sustainable Development Strategy for Romania, 2023), within Objective 11: Sustainable Cities and Communities, an important objective to be achieved by 2030 is strengthening efforts to protect and safeguard cultural and natural cultural and natural heritage and urban and rural landscape features. (Objective 11: Sustainable Cities and Communities, 2023)

Since ancient times, the shape of the landscape has continuously changed, and people confuse nature with what, in reality, is shaped by culture. The industrialization process in Romania has produced a series of significant changes in the natural landscape through the creation of high densities in urban areas, the urbanization of the natural and rural environment, and the loss of some defining elements of the cultural heritage.

In his work, *The Guide to the Valorization of the Rural Heritage* (Gafar and Grigorovschi, 2004), architects Michaela Gafar and Mircea Grigorovschi develop the idea of material and intangible tourism patrimony. The intangible touristic heritage represents the totality of traditional, oral, authentic creations, transmitted from generation to generation, expressed in literary, musical, choreographic, or theatrical forms, as well as all the practices, representations, expressions, knowledge, and abilities together with instruments, objects, accessories, and specific clothing.

In recent years, Romanian rural tourism has developed a lot by promoting its cultural heritage, especially the Romanian folk traditions, and more recently by integrating and highlighting the niche cultures (lavender, saffron, coriander, fennel, etc.) existing in all the counties of the country.

The walnut has a well-deserved place in this context. The common walnut is native to South-Eastern Europe and Asia: the Balkan Peninsula, Asia Minor, the Caucasus, China, and the Himalayas, and through culture, it has expanded much outside the area. (Silva News, 2023). It was considered since antiquity"the king of fruit trees" and regarded as a magical tree, the walnut (Juglans regia L.) was highly valued by the ancient Greeks for its fruits or the oil extracted from them. The scientific name of the walnut, Juglans regia, comes from the Latin language, Jupiter regia, which means master of the gods." The Romans were also later interested in this fruit tree with its fruits and spread them throughout Europe, and today, France is the largest producer of nuts on the continent.

In Romania, walnut is cultivated in all country areas, from plain to about 800 m altitude; in hilly areas, it is common, often submontane. In Banat, Oltenia, it seems spontaneous, disseminated in deciduous forests (Silva News, 2023).

From a landscape point of view, this magnificent tree, with its high stem and rich canopy, gives the traveler the image of a special painting for any park or garden. To these are added countless traditions, customs, legends, and superstitions related to this fruit tree, which has been included in the Romanian cultural heritage for centuries.

From an ecological point of view, the walnut tree is a tree with almost essential utility in many of the industrial branches (pharmacy, cosmetics, wood and furniture industry, food, etc.); from it are capitalized all the components: leaves, wood, buds, fruits and green or dry nut bark.

From an economic point of view, the walnut is an extremely good tree because for the care and maintenance of one hectare of nut orchard is spent annually on average, only 200-300 euros. In our country, walnut culture is protected according to Law 348/2003 (Law 348/2003, 2023), belongs to the category of grated trees, and is subject to the following special provisions: "The planting of walnuts shall be carried out with selected propagating material from approved nurseries. The feeling of edible walnuts and chestnut trees belonging to the category of grated trees, irrespective of the owner, shall be carried out based on authorization" (Law 348/2003, 2023).

The integration and promotion of niche cultures in Romanian rural tourism, together with the preservation of folk traditions and customs, represents one of the methods of reviving the current Romanian village and engaging the local population in this complex process.

Objectives

The socio-political and economic changes in Romania after 1990 generated periods of financial instability, instability in the labor market, an increase in the migration rate, etc. Although the rural population in Romania occupies a higher percentage than the European average, the forecast for the next decades could be more optimistic, given the urbanization process of these areas, so measures are needed to revitalize these localities. The objectives of this study aimed to carry out an analysis of niche crops in Romania (O1), with direct reference to walnut culture (O2) and the possibility of integrating them into the promotion of Romanian rural tourism (O3).

Methods and procedures

- **O1.** This objective focused on the definition and analysis of niche cultures in Romania that were introduced in Romanian agriculture after 1990. After the fall of the communist regime, Romanian agriculture underwent a series of changes in the socio-political context, against the background of legislative implementation, of some decisions such as the reconstitution of the property right over the lands that were found in the patrimony of the agricultural cooperatives during the communist period, their dissolution and implicitly the fragmentation of these agricultural lands into smaller plots (Law 18/1991, 2023). As a result of these measures, the land was cultivated differently, depending on the possibility for each owner to invest in raw materials (seeds), fertilizers, and agricultural machinery. The commercial opening to the European market offered agricultural producers the to experiment, acclimatize and introduce in the list of cultivated products other species less used in the past or not at all, niche crops, which, in addition to the nutritional, aromatic, pharmaceutical, pharmaceutical, industrial qualities they could offer, were important elements for increasing the landscape quality of the area, to be integrated into different traditions and folk holidays, to create clothing items, etc. This category includes lavender, rose, walnut, goji, paulownia, fennel, coriander, etc.
- **O2.** This study was conducted as a statistical analysis regarding the nut culture at the county and national levels. The main indicator was the number of trees per fruit, but some aspects of fruit production were also analyzed. Information provided by the National Institute of Statistics was used (National Institute of Statistics, 2022). There were included elements related to identifying areas suitable from an ecological point of view to this type of culture, toponymic aspects, and some agrotechnical characteristics of this crop. In this way, several aspects regarding the evolution of this culture in Romania could be rendered between 1990 and 2021.
- **O3.** He aimed to identify solutions for integrating walnut culture in promoting Romanian rural tourism. In this respect, we started from the need to develop accommodation and food services in rural areas, to harmonize them with recreation programs through the participation of tourists in various local activities agricultural, cultural, and religious.

Results and discussions

O1. After Romania acceded to the EU, the agricultural and rural development policy changed, requiring new approaches to integration into the EU internal market and respect for the Common Agricultural Policy. In this context, it was necessary to find new marketing solutions that would support

rural growers so that they could enter with increasingly varied products in the internal and European markets. The answer came from integrating niche crops in Romanian agriculture, with the adaptation of new species of fruit trees and shrubs, vegetables, or aromatic plants, to the pedoclimatic conditions in our country.

Thus, fields cultivated with lavender appeared (about 275 plantations throughout the country) (Vijulie et al., 2022) or roses (Counties: Alba, Braşov, Constanţa, Mureş) (Davis and Gaburici, 1999). A little shyer in the western-south-western part of the country, saffron is grown (Counties: Arad, Gorj, Bihor) (Vasile et al., 2021), in vegetable gardens, in addition to the well-known aromatic plants are grown more recently, coriander or fennel, in orchards we find new varieties of trees/fruit bushes of the type of gooseberry (Counties: Baia-Mare, Cluj, Mureş, Sălaj) (Gimbăṣanu, 2015) or goji (Counties: Buzău, Cluj) (Befu, 2015). The furniture industry has found a new source of raw materials with the advent of intensive crops of paulownia (jud. Bihor, Arad) (Teo, 2022), a fast-growing tree of more than 2-3 m/year.

O2. Along with all this, with millenary age, but rediscovered and supported in recent decades by European funding programs, the nut culture dominates through the ecological, economic, and financial benefits it offers (Lozan, 2023).

Tab. 1: Evolution of the number of walnut trees on fruit between 1990 - 2021

Walnuts		Number of trees		%	Cuavith nata
	1990	2021	1990	2021	Growth rate
TOTAL ROMANIA	2070372	2088057	100.00	100.00	0.01
Alba - AB	28729	46928	1.39	2.25	0.63
Arad - AR	68528	46722	3.31	2.24	-0.32
Arges - AG	90702	82766	4.38	3.96	-0.09
Bacau -BC	67086	61232	3.24	2.93	-0.09
Bihor - BH	96100	90863	4.64	4.35	-0.05
Bistrita-Nasaud - BN	26156	42200	1.26	2.02	0.61
Botosani - BT	127722	48964	6.17	2.34	-0.62
Braila - BR	25456	20750	1.23	0.99	-0.18
Brasov - BV	25261	3811	1.22	0.18	-0.85
Buzau- BZ	52143	116040	2.52	5.56	1.23
Calarasi - CL	22576	6108	1.09	0.29	-0.73
Caras-Severin - CS	58357	56146	2.82	2.69	-0.04
Cluj - CJ	20506	27231	0.99	1.30	0.33
Constanta - CT	29890	124199	1.44	5.95	3.16
Covasna- CV	13733	19983	0.66	0.96	0.46
Dambovita - DB	49207	47941	2.38	2.30	-0.03
Dolj - DJ	41828	13696	2.02	0.66	-0.67
Galati - GL	44043	22920	2.13	1.10	-0.48
Giurgiu - GR	18547	20343	0.90	0.97	0.10
Gorj - GJ	90850	66241	4.39	3.17	-0.27
Harghita - HR	1639	6473	0.08	0.31	2.95
Hunedoara - HD	41199	77314	1.99	3.70	0.88
Ialomita - IL	24908	1799	1.20	0.09	-0.93
lasi - IS	75229	69755	3.63	3.34	-0.07
Maramures - MM	80404	145424	3.88	6.96	0.81
Mehedinti - MH	41575	45666	2.01	2.19	0.10
Mures - MS	29442	57211	1.42	2.74	0.94
Neamt - NT	96780	32882	4.67	1.57	-0.66
Olt - OT	28901	31769	1.40	1.52	0.10
Prahova - PH	120590	83557	5.82	4.00	-0.31
Bucuresti - Ilfov - B/IF	23763	2122	1.15	0.10	-0.91
Salaj - SJ	14895	102807	0.72	4.92	5.90
Satu Mare - SM	51273	70523	2.48	3.38	0.38
Sibiu - SB	33627	9569	1.62	0.46	-0.72
Suceava - SV	53972	78058	2.61	3.74	0.45
Teleorman - TR	41265	19380	1.99	0.93	-0.53
Timis - TM	66825	32586	3.23	1.56	-0.51
Tulcea - TL	19431	2987	0.94	0.14	-0.85
Valcea - VL	66943	122179	3.23	5.85	0.83
Vaslui - VS	62488	49928	3.02	2.39	-0.20
Vrancea - VN	97803	80984	4.72	3.88	-0.17

Source: National Institute of Statistics

In Romania, according to data of the National Institute of Statistics (National Institute of Statistics, 2022), the number of walnut trees (2070372) accounted for 1.67% of the number of fruit trees at a national level, and in 2021 (2088057) it represented 2.79%. This shows us, on the one hand, that the walnut culture is a niche one, and on the other hand, that its importance has increased. The increase, however, is not due to an increase in the number of walnuts, which is only 17685 trees. It is due to the massive decrease between 1990 - 2021 in the number of other species of fruit trees (plum trees, apple trees, pear trees, peaches, cherries, and cherries, horses, and zarzari, and other trees), which makes the value in 2021 to represent only 59.6% of that of 1990. This situation reflects the effect of protecting the walnut by law.

From the statistical data presented, in 2021, the lowest number of walnut trees were in lalomita County (0.09% of the total at a national level) and in the Bucharest-Ilfov region (0.10% of the total at a national level). The share of walnuts in the region circumscribed to the counties Vrancea, Buzău, Prahova, Dâmboviţa, Argeş, Vâlcea, Gorj, Mehedinţi counties is noted. These include predominantly hills with a southern exhibition, sunny and semi-sunny, located on the outside of the Curvature Carpathians and the Southern Carpathians, which are distinguished by the existence of a sheltered climate, following the ecological optimum of the walnut, in areas protected from frosts and early or late frosts, with low thermal (Silva News, 2023). These counties account for only 17.98% of Romania's surface but 30.83% of walnuts.

Many of the toponyms in Romania reflect the connection with this tree, including oiconims, from the past or current: Nucu, Nuci, Nucet, Valea Nucetului, Nucșoara, Valea Nucarilor. This is a sign of the existence and development of this culture since ancient times. C. Giurăscu in 1976 (Giurăscu, 1976) stated that the nuceturile from Vâlcea, Dâmboviţa, and Prahova counties are mentioned eary on. The nucetul from Vâlcea County (mentioned around 1400) gave the first name of the current monastery Cozia (in the past called Nucet), then changed to Cozia, in order not to be confused with the nut of Dâmboviţa, where there is the Nucet monastery, mentioned documentary at the end of the XVth century (Mănăstirea Nucet, 2023).

It is appreciated that the very name Cozia comes from the word *coz* of Pecenego-Cumana origin, which also means walnut, the foundation of the monastery between 1386 and 1388, in a region where walnuts were growing (Mănăstirea Cozia, 2023).

It should be noted concerning the prefix *coz* and other toponyms, such as Cozla or Cozancea. For example, Cozancea is the name of a monastery in Botoşani County, founded in the second half of the seventeenth century (Mănăstirea Cozancea, 2023).

Another element that shows the connection between the spread of walnuts and the monastic hearths is the presence of several vestiges of some churches and cave cells in the area of Nucu locality in Buzău County.

At the level of Romania, the growth rate of trees was almost contagious, registering an increase of 0.01%. The growth rate was calculated by the formula: Growth rate = (Final value - Starting value) / Starting value.

Nut crop growth rates have evolved differently depending on the pedoclimatic conditions and development funding programs at the national and county level. From the calculations made, the situation of presents according to Table 1 and Figure 1, where the data at the county level were spatialized.

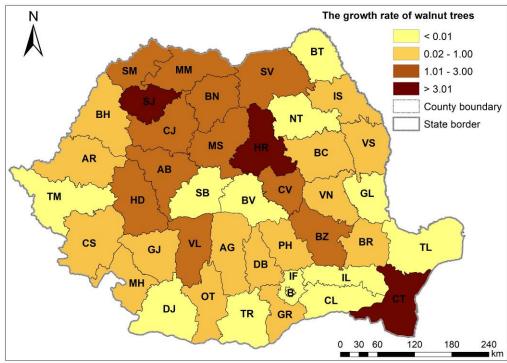


Fig. 1: The growth rate of walnut trees (1990-2021)

From the administrative point of view, the territory of Romania is divided into 41 counties and the municipality of Bucharest. In our analysis, Ilfov County and Bucharest Were analyzed together under the name of Bucharest-Ilfov Region. In 24 units, the growth rate recorded small negative variations, ranging from 0.03 to 0.93, and this situation was offset by increases in the other 17 units, with values between 0.10 and 5.90.

While the growth rate of the number of trees was only 1% (0.01) during the period under review, national nut production recorded a growth rate of 116%. Thus, the average value for each tree, obtained by calculation, increased in Romania three times, from 10 kg in 1990 to 30 kg in 2021.

This cannot be attributed to the increase in trees in the period under review. He can be put in touch with increasing the productivity of trees with their maturation carrying out special maintenance work and introducing varieties with faster maturation. The periodicity of the fructification of the common walnut, a cultivated, subspontane, or even spontaneous species, considered traditional in Romania, is almost annual, in September-October, the germination power is 60-80%, and the longevity is supra centennial (Silva News, 2023).

The entry period for fruiting, from sunrise to the production of the first fruits, lasts, depending on the variety, between 5 and 15 years. In grafted trees, the period of youth is 2-3 years shorter than in trees obtained directly from seeds. Some very early varieties have a very short youthful period, giving the first fruits even after 2-3 years (Zaharia, 2021).

The Romanian varieties with terminal fructification (Geoagiu 65, Jupâneşti, Argeşean, Velcor, Valrex, Valmit, Valcris, Şuşiţa) are the best adapted to the ecological conditions in Romania and present the highest quality fruits (Ministry of Agriculture and Rural Development, 2023).

O3. In the last decade, special attention has been paid to rural tourism development in Romania as an inexhaustible source of promoting traditions, customs, festivals, and in general, all that means immaterial Romanian cultural heritage. The walnut tree is a tree with tradition in Romania, and it is an element often found in folk legends, old stories, traditions and customs of the village, proverbs, and sayings. It has been proven that revenues from rural tourism represent a beneficial source of local development of rural communities. Currently, even if only 33% of rural localities benefit from utilities, this inconvenience is not a problem for the owners of accommodation or food spaces because most of the tourists prefer to live just like in the past times, to participate in local activities, to enjoy traditional holidays, etc.

Many of the nut orchards can be found beside the monasteries, most of them located in places that belong administratively to the rural area, especially in connection with the use of the fruits of this tree in the realization of foods of ritual importance such as coliva, in connection with the commemoration of the departed, the martyrs of Wallachian and Moldavian, used in connection with the feast of the 40 Holy Martyrs of Sevastia (March 9), cakes used at traditional Christmas and Easter meals, or which

can be eaten as such during fasting periods. From the green walnuts collected before Sânziene (the day of the Birth of St. John the Baptist) about the middle of June, a very appreciated sweetness can be prepared (Biaplant, 2014).

Conclusion

Therefore, the integration of niche cultures is one of the means within reach of each rural community to promote cultural tourism heritage and economic development. Among the niche crops preserved but also developed through the introduction of new varieties in recent years in Romanian agriculture, the walnut represents one of the most profitable and useful species from all points of view. That is why it was considered opportune the discussion on the walnut situation in the last 30 years, along with elements regarding the possibility of integrating this culture in the promotion of the Romanian cultural heritage for the development of rural tourism in Romania. Of course, the analysis was not exhaustive, as future concerns may bring new elements and details to shed more light on this issue.

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Souhrn

Studie se zabývá pěstováním ořechů v Rumunsku v období 1990-2021. Výzkum jsme považovali za užitečný, protože v posledních letech mělo Rumunsko významnou produkci na evropské úrovni. Ořešák vlašský je zákonem chráněný druh stromu, který má v rumunské krajině dávnou historii, odráží se v toponymii a je zmiňován ve středověkých dokumentech.

Mnoho toponym v Rumunsku odráží souvislost s tímto stromem, včetně oikonym, z minulosti nebo současnosti: Nucu, Nuci, Nucet, Valea Nucetului, Nucșoara, Valea Nucarilor. To je známkou existence a rozvoje této kultury od pradávna. C. Giurăscu (1976) uvádí, že nuceturile z krajů Vâlcea, Dâmboviţa a Prahova jsou zmiňovány již v dávné minulosti. Nucetul z župy Vâlcea (zmiňovaný kolem roku 1400) dal první název současnému klášteru Cozia (v minulosti se nazýval Nucet), pak se změnil na Cozia, aby nebyl zaměňován s ořechem Dâmboviţa, kde se nachází klášter Nucet, zmiňovaný listinně na konci XV. století.

Výsledky této studie nakonec zdůraznily význam nikových plodin, jako je ořechová kultura, pro propagaci rumunských tradic a venkovské turistiky.

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