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# *The Agroforestry Potential of Cherry Laurel in Rural Home Gardens in The Eastern Black Sea Region (The Case of Rize and Trabzon)*

## *Karayemişin (Prunus laurocerasus* L.*) Doğu Karadeniz Bölgesi (Rize ve Trabzon Örneği) Kırsal Ev Bahçelerinde Tarımsal Ormancılık Uygulamalarındaki Kullanılabilirliği*

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**Abstract**

This study aimed to determine the occurrence frequency and functional uses of cherry laurel (*Prunus laurocerasus* L.) in rural home gardens (RHGs) in Rize and Trabzon provinces and, based on the findings, to evaluate its potential for planned agroforestry practices. Face-to-face surveys were conducted with the owners of 48 RHGs, including 22 in Rize and 26 in Trabzon. In addition, plant taxon diversity was documented through sketch mapping in five additional RHGs in each province. Thus, data from a total of 58 RHGs, comprising 27 in Rize and 31 in Trabzon, were evaluated. The data were analyzed using descriptive statistics based on frequencies and percentages. A total of 69 woody climbing plant taxon were identified in the surveyed RHGs, and cherry laurel was recorded in 45 gardens, including 21 in Rize and 24 in Trabzon. The occurrence frequency of cherry laurel was 77.77% in Rize and 77.42% in Trabzon. The findings showed that cherry laurel serves multiple functions in RHGs, particularly for fruit production and as a windbreak, as well as for landscaping, soil conservation, and apicultural purposes. Its high occurrence frequency in both provinces and multifunctional use indicate that cherry laurel is a promising taxon for integration into planned agroforestry systems in the Eastern Black Sea Region of Türkiye. Accordingly, the planned cultivation of cherry laurel is considered potential to diversify production and support rural economies in the region.

**Keywords:** Agroforestry, Cherry laurel, Eastern Black Sea Region, Rural development, Rural home gardens

**Öz**

Bu çalışmada, Rize ve Trabzon illerindeki kırsal ev bahçelerinde (KEB) karayemişin (*Prunus laurocerasus* L.) bulunma sıklığının ve fonksiyonel kullanım biçimlerinin belirlenmesi ve elde edilen bulgular doğrultusunda türün planlı tarımsal ormancılık uygulamalarındaki potansiyelinin değerlendirilmesi amaçlanmıştır. Araştırma kapsamında Rize'de 22 ve Trabzon'da 26 olmak üzere toplam 48 kırsal ev bahçesi sahibiyle yüz yüze anket yapılmış; ayrıca her iki ilde beşer kırsal ev bahçesinde kroki çalışması gerçekleştirilerek bitki taksonu çeşitliliği belirlenmiştir. Böylece çalışma kapsamında Rize'de 27 ve Trabzon'da 31 olmak üzere toplam 58 kırsal ev bahçesine ait veriler değerlendirilmiştir. Elde edilen veriler frekans ve yüzde değerlerine dayalı betimsel istatistiklerle analiz edilmiştir. Araştırma sonucunda kırsal ev bahçelerinde toplam 69 odunsu ve sarılıcı bitki türü belirlenmiş; Karayemişin Rize'de 21 ve Trabzon'da 24 olmak üzere toplam 45 kırsal ev bahçesinde bulunduğu saptanmıştır. Karayemişin bulunma oranı Rize'de %77.77, Trabzon'da ise %77.42 olarak belirlenmiştir. Türün kırsal ev bahçelerinde başta meyve üretimi ve rüzgâr perdesi olmak üzere peyzaj, toprak koruma ve arıcılığa katkı gibi çok yönlü işlevlerle değerlendirildiği görülmüştür. Karayemişin her iki ilde de yüksek bulunma sıklığı ve çok yönlü kullanım özellikleri, türün Doğu Karadeniz Bölgesi'nde planlı tarımsal ormancılık sistemlerine dahil edilebilecek önemli bir takson olduğunu ortaya koymaktadır. Bu doğrultuda karayemişin planlı yetiştiriciliğinin yaygınlaştırılması, ürün çeşitliliğinin artırılması ve kırsal ekonominin desteklenmesi açısından önemli bir potansiyel taşıdığı düşünülmektedir.

**Anahtar kelimeler:** Tarımsal Ormancılık, Karayemiş, Doğu Karadeniz Bölgesi, Kırsal kalkınma, Kırsal ev bahçeleri

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## INTRODUCTION

Agroforestry is a multifunctional land-use approach in which woody perennial taxons are deliberately integrated with agricultural crops and/or livestock within the same land-management system, either spatially or temporally. By combining agricultural and forestry components, agroforestry systems can contribute to diversified production, more efficient use of limited land resources, soil conservation, food production, and the generation of additional income for rural households (Nair, 2008; Yazar & Yazar, 2025). Such systems are particularly relevant in areas where agricultural land is limited and where local livelihoods depend on the simultaneous use of multiple biological resources. In this context, agroforestry has gained increasing attention as an approach supporting sustainable land use, food security, and the ecological and economic resilience of rural production systems (Ranjitkar et al., 2024; Turna et al., 2024).

In general, the benefits of agroforestry can be listed as follows. -Reduction of erosion: Trees cover the soil with their branches and leaves, protecting it from heavy rainfall and thereby reducing the risk of soil erosion. It reduces the risk of crop losses. Structural support for climbing crop taxons: Trees serve as natural supports (similar to stakes) for vine crops. To improve the living standards of rural communities, create employment opportunities in rural areas, and prevent population growth in cities (Şefik, 1995). The production of vegetables and fruits needed by people is ensured. To increase the supply of agricultural products and prevent price increases caused by supply shortages (Yazar & Yazar, 2025). To protect existing natural forests and prevent desertification, as desertification leads to a decline in the yield, production, and diversity of agricultural and livestock products. To prevent floods and water overflows, and to extend the economic lifespan of dams (Şefik, 1995). It provides shelter and refuge for livestock, contributes to the protection of water resources, and creates recreational areas for the local population (Ayberk, 1988). Many plant taxons used in both traditional and modern rural home gardens are also utilized for landscaping purposes, and their preservation is given significant importance (Yazar & Yazar 2025). Windbreak function (Şefik, 1995). Trees planted in strips around agricultural crops and along field boundaries serve as windbreaks, helping to prevent crop losses and contributing to increased yield productivity. Today, the adverse effects of global climate change (such as fires, landslides, and floods), combined with the increasing demand for timber resources, pose a threat to the sustainability of forest areas. Moreover, the low economic income levels of forest villagers living within and around forest areas represent a significant social pressure on forests (Yazar & Yazar, 2025).

The establishment of RHGs in the Eastern Black Sea Region is rooted in traditional practices. The systems in which Agroforestry practices are applied vary according to the countries where they are implemented. Although Agroforestry has a long historical background and has traditionally been practiced in rural areas in accordance with local cultural structures, it has only recently been examined from a scientific perspective. Therefore, depending on the traditional and cultural structure of the country in which they are implemented, agroforestry practices have been classified differently by researchers. Conceptually, agroforestry applications are based on three main systems: the Agrosilvicultural system (agricultural production and forestry), the Silvopastoral system (forestry and grazing-livestock production), and the Agrosilvopastoral system (agricultural production, forestry, and grazing-livestock production) (Sağkaya & Kamiloğlu, 1987).

In Agroforestry practices, the multifunctional use of forest, pasture, and/or agricultural lands on a given land unit, either simultaneously or sequentially, is taken as a basis. Activities such as forest trees, fruit trees, various agricultural crops, beekeeping, and livestock production, including cattle and small ruminants, are carried out for specific purposes. The main objective is to increase product diversity on the same land, achieve maximum yield per unit area, and enhance the income level of producers. Similarly, Agroforestry is defined as the planning

of agriculture and forestry together and the research and development of techniques for cultivating these products, and its components include the use of tree leaves as animal fodder, grazing of livestock under afforested areas, the establishment of trees as windbreaks to protect agricultural crops from dry winds, the planting of nitrogen-fixing plants within fields to enhance soil fertility through leaf litter, and the establishment of thorny trees and shrubs around home gardens to provide protection as live fences (Ayberk, 1988).

According to the Nair (2008); agriculture and forestry are too often treated separately, yet these two sectors are often interwoven on the landscape and share many common goals. Nair defined agroforesry as often interwoven on the land use method that yields grather profit from the ecological and economic interactions of trees, crops and animal within the same time and spatial arrangement on the same plot of land (Küçükkaya, 1995; Nair, 2008).

Rural home gardens (RHGs) represent one of the traditional forms of small-scale agroforestry. They are generally characterized by the coexistence of fruit trees, forest trees, shrubs, climbing plants, annual crops, vegetables, and, in some cases, livestock and beekeeping activities within or around household areas. Because of their multi-taxons and multi-layered structure, rural home gardens can simultaneously provide food, supplementary income, ornamental and recreational value, and various ecosystem services. They can also contribute to the maintenance of plant diversity and household food security, particularly in rural communities where small parcels of land need to serve several functions (Korpelainen, 2023). Therefore, the importance of RHGs extends beyond household-level food production; they also represent locally adapted land-use systems in which ecological, economic, and cultural functions are closely integrated.

The Eastern Black Sea Region of Türkiye provides a characteristic setting for such multifunctional land-use systems. The region is generally characterized by mountainous and steep terrain, a dispersed settlement pattern, high precipitation, and relatively limited agricultural land. Tea (*Camellia sinensis* (L.) Kuntze) is the predominant agricultural crop in Rize, whereas hazelnut (*Corylus* sp.) is widespread in Trabzon; kiwi, various fruit trees, vegetables, forest trees, and climbing plants are also incorporated into rural land-use systems. Within this landscape, rural home gardens are traditionally established around settlements and often contain combinations of agricultural crops and perennial woody taxons. These gardens therefore provide suitable examples of small-scale agrosilvicultural systems in which the available land is used for multiple purposes. Previous observations in Rize and Trabzon have shown that RHGs contain diverse and multilayered plant assemblages and represent an important component of traditional agroforestry practices in the Eastern Black Sea Region (Turna et al., 2025).

The dataset used for this purpose is identical in terms of material to the survey data employed by Turna et al. in their 2025 publication. Findings at the taxon level have been expanded upon and further evaluated in the present study. Accordingly, new findings regarding the dominant taxa have been identified. Findings at the taxon level have been expanded upon and further evaluated in the present study. Accordingly, new findings regarding the dominant taxa have been identified.

Among the woody taxons traditionally maintained in these rural home gardens, Cherry laurel (*Prunus laurocerasus* L. (Syn. *Laurocerasus officinalis* M. Roem.) is particularly noteworthy because of its multifunctional characteristics. Cherry laurel is an evergreen woody taxons occurring in the natural vegetation of Türkiye and is also cultivated for its edible fruits (Günal, 2002). In the Eastern Black Sea Region, the taxons can occur across a relatively wide elevational range and in different vegetation environments (Akyıldırım Beğen et al., 2025). Its evergreen foliage, ability to tolerate pruning, ornamental characteristics, and traditional uses further increase its value in rural and cultivated landscapes (Anşin & Özkan, 1993). In addition to fruit production, cherry laurel

is traditionally retained or planted around rural settlements and agricultural areas for functions such as wind protection, boundary planting, landscaping, and soil protection. Its flowers may also contribute to apicultural resources, further enhancing its potential role in multifunctional rural production systems.

These characteristics are particularly relevant to agroforestry because a woody taxons included in such systems is expected to provide benefits beyond a single product. A perennial taxons that simultaneously produces edible fruit and performs protective, ecological, or landscape functions may increase the multifunctionality of small landholdings. In the Eastern Black Sea Region, where agricultural parcels are often small and different crops and woody plants are cultivated in close association, cherry laurel may therefore represent a suitable component of planned agroforestry systems. Nevertheless, although the taxons has long been traditionally cultivated and its botanical, ornamental, and fruit-related characteristics have been reported (Akyıldırım Beğen et al., 2025; Anşin & Özkan, 1993; Günal, 2002), its role within rural home-garden Agroforestry systems has received comparatively less specific attention.

Previous research in Rize and Trabzon has documented the general plant diversity, structural characteristics, and agroforestry potential of rural home gardens in the region. In particular, Turna et al. (2025) demonstrated that RHGs in the Eastern Black Sea Region are characterized by multi- taxons and multilayered vegetation structures and can contribute to food production, ecosystem services, and sustainable land use. However, a system-level evaluation of RHGs does not fully reveal the contribution and potential of individual multifunctional woody taxons. In this respect, identifying how frequently cherry laurel occurs in RHGs, determining the functions for which it is traditionally retained or cultivated, and evaluating its position relative to other commonly occurring woody and climbing taxons are necessary to assess its potential for more systematic use in agroforestry planning. This taxons -oriented perspective may also provide a basis for transforming an existing traditional practice into a more deliberate and functionally designed agroforestry approach.

Accordingly, the present study aimed to determine the occurrence frequency and functional uses of cherry laurel (*Prunus laurocerasus* L.) in rural home gardens of Rize and Trabzon provinces and to evaluate its potential for integration into planned agroforestry practices. For this purpose, data obtained from household surveys, rural home-garden sketches, plant taxons records, and field observations were evaluated together. Particular attention was given to the occurrence of cherry laurel within the broader woody and climbing plant composition of RHGs and to its existing functions, including fruit production, wind protection, landscaping, soil conservation, and other multifunctional uses. Through this approach, the study seeks to provide a taxons -focused assessment of cherry laurel as a potential component of sustainable and multifunctional rural land-use systems in the Eastern Black Sea Region of Türkiye.

## MATERIALS AND METHODS

### Study Area

The study was conducted in rural home gardens (RHGs) located in villages and neighborhoods of Rize and Trabzon provinces in the Eastern Black Sea Region of Türkiye. The study area is characterized by a dispersed settlement pattern, steep and mountainous topography, high precipitation, and limited agricultural land. Tea (*Camellia sinensis* (L.) Kuntze) constitutes the predominant agricultural crop in Rize, whereas hazelnut (*Corylus* sp.) is the main crop in Trabzon. *Actinidia* sp. is also cultivated as an important secondary crop in Rize. The RHGs included in the study were located at elevations ranging from approximately 5 to 800 m above sea level and

were situated either within rural settlements or near forest edges. The geographic distribution of the sampled RHGs is shown in Figure 1.

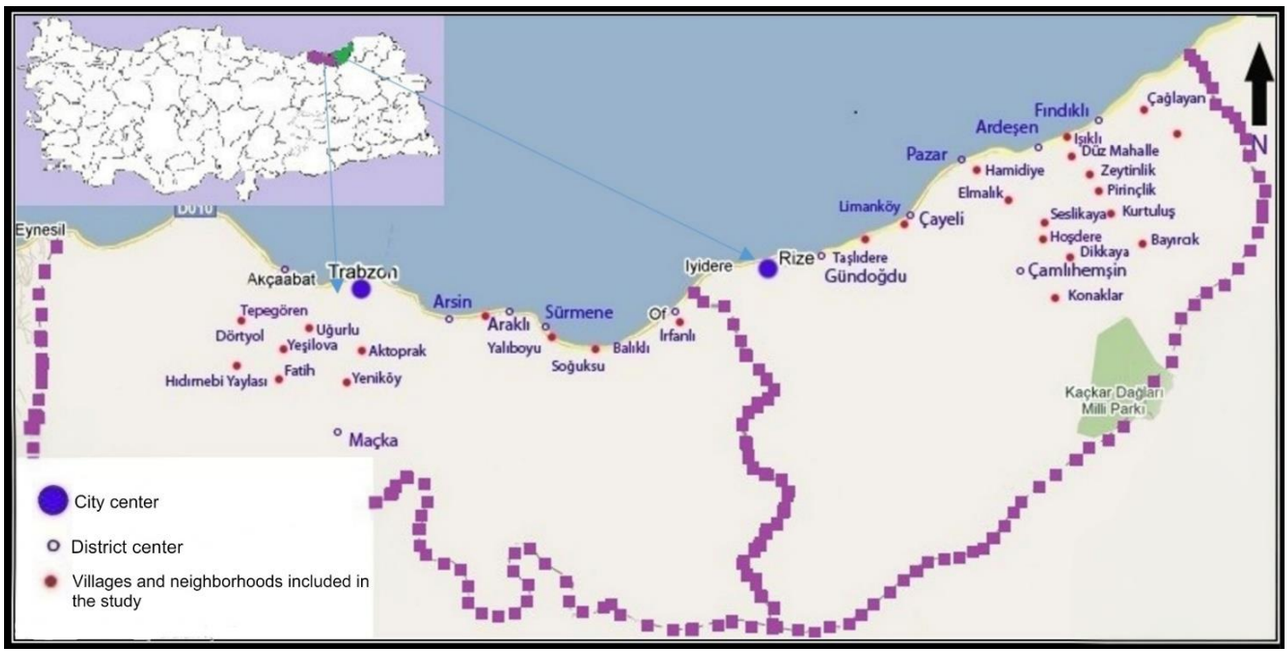



**Figure 1**. Geographic locations of the sampled rural home gardens

**Sampling Design and Data Collection**

A total of 58 rural home gardens were evaluated in Rize and Trabzon provinces. Face-to-face questionnaire surveys were conducted with the owners of 48 RHGs, including 22 in Rize and 26 in Trabzon. In addition, detailed sketch mapping and plant taxons inventories were carried out in five additional RHGs in each province. Data on the presence or absence of plants have been determined for all 58 regional agricultural groups. Thus, the dataset comprised 27 RHGs from Rize and 31 RHGs from Trabzon. Data were obtained through household surveys, field observations, RHG sketches, and plant taxons records. The questionnaire consisted of 19 questions (The survey questions are provided in Appendix 1.) and was administered through face-to-face interviews with RHG owners. The survey questions were designed as open-ended, multiple-response questions. Garden owners were selected using random sampling. The data for the study were collected during fieldwork conducted in May, June, July, August, and September 2010.

**Plant Taxons and Agroforestry Assessment**

During field observations and RHG sketching, plant taxons occurring within the gardens were recorded, with particular attention to perennial woody and climbing taxons. The presence or absence of each taxons was recorded for each RHG. In addition, existing agroforestry arrangements and the functional uses of cherry laurel, including its use for fruit production, wind protection, landscaping, soil conservation, and other observed purposes, were documented.

**Data Analysis**

The data were analyzed using descriptive statistics. For each plant taxons, occurrence was coded using a presence–absence approach. Occurrence frequency was expressed as both the number of RHGs in which the taxons was recorded and its percentage of the total RHGs evaluated in each province. Percentages were calculated separately for Rize (n = 27) and Trabzon (n = 31). The occurrence and functional uses of cherry laurel were subsequently evaluated in relation to the other commonly recorded woody and climbing taxons in the RHGs.

**RESULTS AND DISCUSSIONS**

In this study based on the surveys, rural home garden sketches, and field observations, a total of 97 vegetables, woody and climbing taxons plant were identified in the 58 rural home gardens (RHGs) evaluated in Rize and Trabzon. Of these, 28 were vegetable taxons and 69 were perennial woody and climbing taxons. In total, 46 woody and climbing taxons were recorded in the RHGs of Rize and 64 in those of Trabzon. These findings indicate that the traditional RHGs of the study area are characterized by a diverse plant composition in which agricultural crops, fruit trees, forest trees, and climbing plants are cultivated together.

The composition of RHGs showed descriptive variation between the two provinces, particularly in relation to their predominant agricultural production systems. Tea (*Camellia sinensis*) is the main agricultural crop in Rize, whereas hazelnut (*Corylus* spp.) predominates in Trabzon. In addition to these main crops, various fruit trees, woody plants, climbing taxons, and vegetables were recorded within the RHGs. In Rize, taxons such as *Actinidia* sp., *Citrus reticulata* Blanco*, Citrus sinensis* (L.) Osbeck, *Malus* sp., *Prunus domestica* Bunge., *Pyrus* sp., *Tilia* sp., *Prunus laurocerasus* L., *Ficus carica* L., *Diospyros kaki* Thunb., *Vitis vinifera* L., and *Alnus glutinosa* (L.) Gaertn. were commonly encountered. In Trabzon, frequently recorded taxons included *Prunus domestica* Bunge, *Prunus laurocerasus* L., *Malus* sp., *Pyrus* sp., *Tilia* sp., *Ficus carica* L., *Punica granatum* L., *Eriobotrya japonica* (Thunb.) Lindl., *Diospyros kaki* Thunb., *Vitis vinifera* L., and other woody taxons. The coexistence of these plants with the principal agricultural crops reflects the mixed and multifunctional character of traditional RHGs in the study area.

Among the woody and climbing plants recorded in the RHGs, several taxons occurred at relatively high frequencies in both provinces. To evaluate the position of cherry laurel within this plant composition, the occurrence frequencies of the most frequently recorded woody and climbing taxons were compared between Rize and Trabzon. The results are presented in Table 1.

The occurrence frequencies presented in Table 1 revealed some differences in the composition of rural home gardens between Rize and Trabzon. Pear (*Pyrus* sp.) was the most frequently recorded taxons in Rize (96.30%), whereas plum (*Prunus domestica* Bunge) had the highest occurrence frequency in Trabzon (90.32%). Cherry laurel (*Prunus laurocerasus* L.) was among the most frequently recorded woody taxons in both provinces, occurring in 77.77% of the RHGs in Rize and 77.42% in Trabzon. The similar occurrence frequency of cherry laurel in both provinces indicates its widespread presence across different traditional agricultural settings in the study area.

**Table 1**. Occurrence frequency of selected woody and climbing plant taxons in rural home gardens of Rize and Trabzon

| Turkish name of the plant | Scientific name of the plant | Rize (%) | Trabzon (%) | Total number in RHGs within the study area |
|---|---|---|---|---|
| **Armut** | *Pyrus* sp. | 96.30 | 77.42 | 50 |
| **Erik** | *Prunus domestica* | 88.88 | 90.32 | 52 |
| **Elma** | *Malus* sp. | 81.48 | 64.52 | 42 |
| **Karayemiş** | *Prunus laurocerasus* | 77.77 | 77.42 | 45 |
| **Asma** | *Vitis vinifera* | 77.77 | 77.42 | 45 |
| **Mandalina** | *Citrus rediculata* | 70.37 | 38.71 | 31 |
| **İncir** | *Ficus carica* | 66.66 | 87.10 | 45 |
| **Trabzon Hurması** | *Diospyros kaki* | 66.66 | 35.48 | 29 |
| **Ihlamur** | *Tilia* sp. | 59.26 | 35.48 | 27 |
| **Yenidünya** | *Eriobotrya japonica* | 40.74 | 64.52 | 31 |
| **Portakal** | *Citrus sinensis* | 51.85 | 22.58 | 21 |
| **Kızılağaç** | *Alnus glutinosa* | 48.15 | 19.35 | 19 |
| **Nar** | *Punica granatum* | 14.81 | 54.84 | 21 |
| **Kavak** | *Populus* sp. | 0 | 19.35 | 6 |

A graphical representation of the occurrence frequencies is presented in Figure 2.

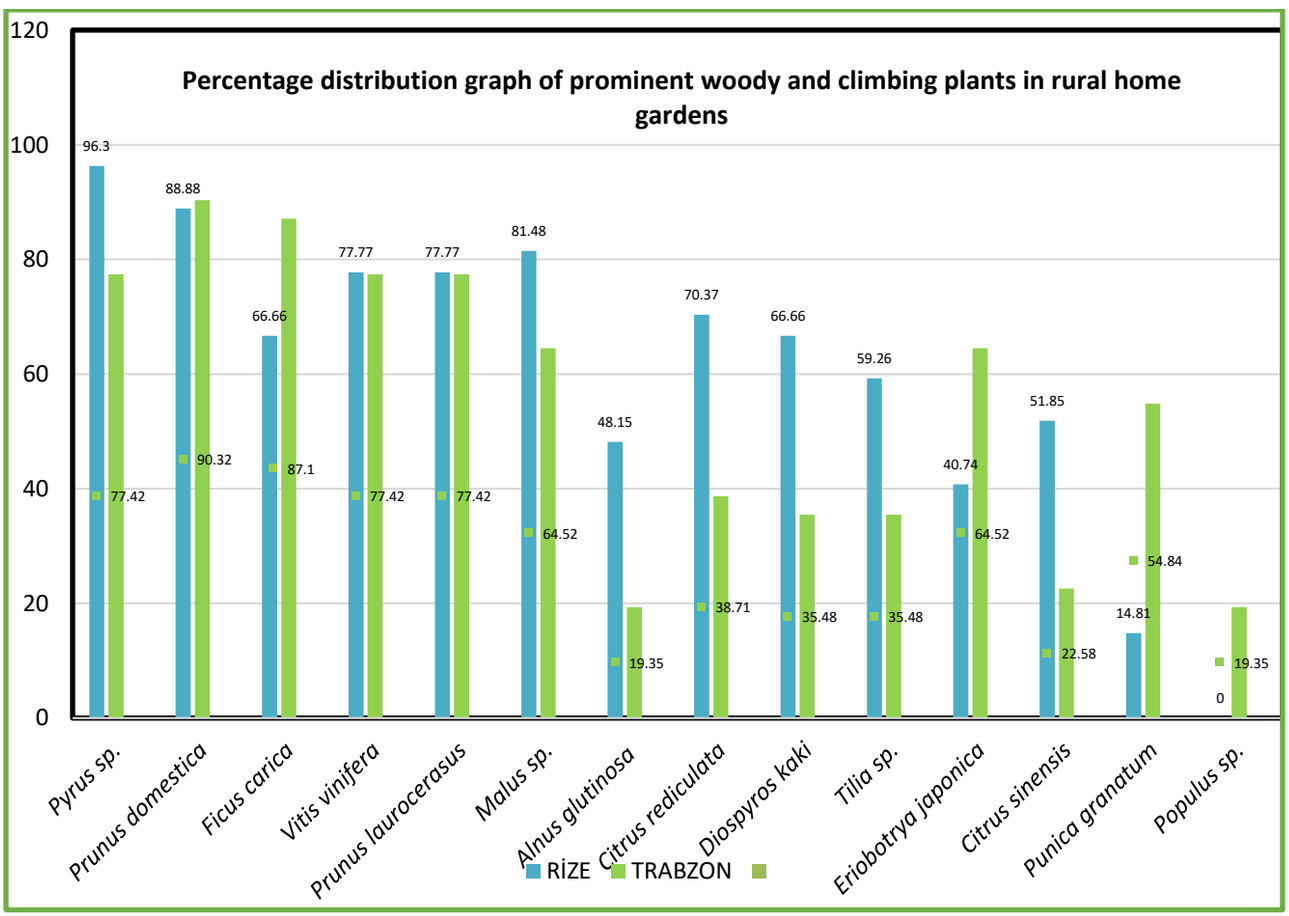



**Figure 2.** Graph of dominant plant taxons prominent in the study area rural home gardens (RHGs)

The high and nearly identical occurrence frequencies of cherry laurel in Rize and Trabzon are particularly noteworthy. In Rize, cherry laurel showed the same occurrence frequency as grapevine *Vitis vinifera* L. (77.77%), while in Trabzon both taxons were recorded in 77.42% of the RHGs. When the two provinces were considered together, *Prunus domestica* Bunge. was the most frequently recorded taxons (52 RHGs), followed by *Pyrus* sp. (50 RHGs), whereas *Prunus laurocerasus* L., *Ficus carica* L., and *Vitis vinifera* L. were each recorded in 45 RHGs. These findings place Cherry laurel among the most frequently occurring woody taxons in the traditional RHGs of the study area. The number of RHGs in which the selected woody and climbing taxons were recorded is presented in Figure 3.

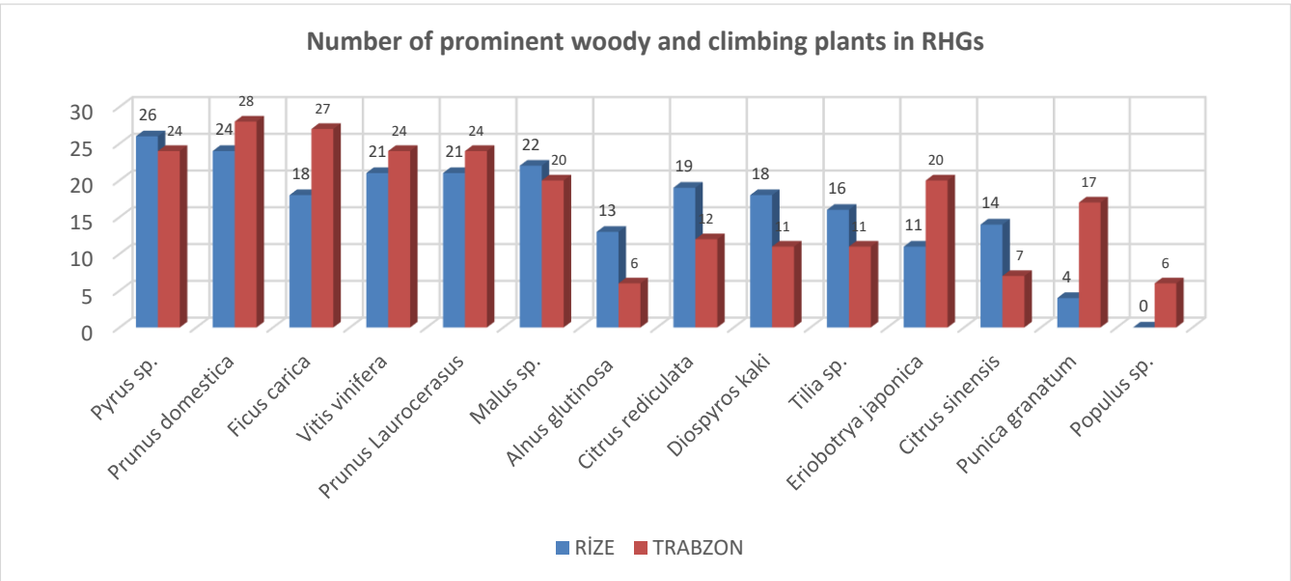



**Figure 3.** Graph showing the prominent woody and climbing plant taxons in rural home gardens

Beyond its high occurrence frequency, cherry laurel (*Prunus laurocerasus* L.) was characterized by its multifunctional use in the rural home gardens of both Rize and Trabzon. The taxons was primarily maintained for its edible fruits, while it was also observed in different functional arrangements, including windbreaks, boundary and alley plantings, soil-protection plantings, landscaping, and areas associated with beekeeping. These multiple uses indicate that cherry laurel is not merely a fruit-producing taxons in traditional RHGs but also performs several protective and landscape-related functions. Its evergreen woody structure and ability to occur together with agricultural crops, fruit trees, and other woody taxons further support its role as a multifunctional component of traditional agroforestry systems in the study area. Along the boundaries and other functional areas of RHGs, Cherry laurel was frequently associated with various fruit and forest trees and seasonal crops, illustrating the mixed and multifunctional use of limited land resources (Figure 4).



**Figure 4.** Use of Cherry laurel (*Prunus laurocerasus* L.) as a windbreak in RHGs– Akçaabat Tepegören Neighborhood

The landscape value of rural home gardens and the diversity of crops grown even in limited space increase people's interest in village life. In contrast, even urban homes with gardens are generally designed for aesthetic purposes only, so their plant diversity is not as rich or functional as that of rural home gardens. The planting arrangements in these gardens are highly functional. Moreover, well-designed rural home garden examples that include layered planting structures have also been observed (Figure 5).



**Figure 5.** Traditional rural home garden – Trabzon/Merkez – Yeniköy Village

The rural home garden shown in (Figure 5) is situated at an elevation of 150 m and is functional in terms of its layout and organization. The garden includes fruit trees, clustered vegetable cultivation, areas for grazing animals, and open spaces utilized for multiple purposes. In the Trabzon region, combinations such as hazelnut + vegetables + fruit trees are common, whereas in Rize, plantings of tea + kiwi + pear and citrus taxons (mandarin, lemon, orange) are more prominent. Intercropping and mixed-cultivation agroforestry systems are frequently observed in land use.

The main purposes of RHGs organization include providing seasonal fruits and vegetables close to the home and optimizing the use of remaining land around the main agricultural crops. Multiple crops and fruit trees are cultivated together through intercropping, with some of the best examples observed in rural home gardens in Rize. The Ardeşen Kurtuluş Village RHGs serves as a representative example of this practice (Figure 6).



**Figure 6**. Example of intercropping cultivation – Ardeşen, Kurtuluş Village, Rize

The main crop combination of tea + kiwi + linden is cultivated along with beans + corn + tea in the pruning year and the following year, with corn grown in clustered arrangements. In the usage areas of the KEB and nearby agricultural plots, *Pyrus* sp., *Prunus domestica* Bunge, *Prunus laurocerasus* L., *Malus* sp., as well as climbing taxons such as *Vitis vinifera* L. and *Actinidia* sp. are cultivated.

In rural home gardens, Cherry laurel (*Prunus laurocerasus* L.) is commonly used in windbreak plantations together with other plants. Taxons used as windbreaks also serve multiple functions, including providing edible fruits and flowers for beekeeping (Figure 7).



(a)Akçaabat-Tepegören neighborhood (b)Ardeşen-Zeytinlik Village

**Figure 7.** Planting of Cherry laurel (*Prunus laurocerasus* L.) for windbreak purposes in RGHs – Akçaabat, Tepegören Neighborhood (a), Intercropping cultivation of cherry laurel in RHGs – Ardeşen, Zeytinlik Village, Rize (b)

Cherry laurel (*Prunus laurocerasus* L.) was observed not only in rural home gardens but also in agricultural areas surrounding rural settlements. Its fruits are mainly consumed fresh during the fruiting season, while limited quantities are also offered in local markets. The traditional use and consumption of cherry laurel fruit in the Black Sea Region have also been reported in previous studies (Akbulut et al., 2019; Yavuz Abanoz & Okcu, 2022). In addition to fruit production, field observations showed that cherry laurel is frequently maintained around houses and along garden boundaries, particularly for wind protection, soil protection, and landscaping purposes. The use of woody vegetation as windbreaks represents an important agroforestry practice because such plantings can provide protective functions while simultaneously supplying additional products and ecosystem services (Turna et al., 2024). Thus, the existing use of cherry laurel in the study area reflects a multifunctional role rather than a single-purpose fruit production function.

Linden (*Tilia* spp.) was another multifunctional woody taxons frequently observed in Agroforestry practices in Rize. It occurs within RHGs, agricultural fields, property boundaries, and linear plantings, where it may provide multiple ecological and productive functions. The importance of linden in agroforestry practices in Rize has also been emphasized by Yazar and Yazar (2025). Cherry laurel, however, was distinguished by its combination of edible fruit production with windbreak, boundary, soil-protection, and landscape functions. The coexistence of these woody taxons with agricultural crops indicates that traditional RHGs in the region have developed as

multifunctional production spaces in which individual taxons are retained according to more than one household or land-management objective.

The spatial arrangement of plants within RHGs further illustrates this multifunctionality. Fruit trees, forest trees, climbing plants, and seasonal crops were commonly cultivated together through mixed planting, intercropping, boundary planting, and windbreak arrangements.

Climbing taxons such as kiwi (*Actinidia* sp.) and grapevine (*Vitis vinifera* L.) were frequently associated with woody taxons such as *Tilia* spp., *Prunus domestica* Bunge, *Malus* sp., *Pyrus* sp., and *Prunus laurocerasus* L. Such mixed and multilayered structures are characteristic of homegarden agroforestry systems, in which different plant components are combined within relatively small areas to meet food-production, household, ecological, and landscape needs (Korpelainen, 2023; Sharma et al., 2022). In this respect, the RHGs examined in Rize and Trabzon represent locally adapted examples of multifunctional land use.

The layered structure of these gardens is particularly important under the geographical conditions of the Eastern Black Sea Region, where steep topography and limited agricultural land restrict opportunities for extensive crop production. Under such conditions, integrating perennial woody plants with annual crops and climbing taxons enables households to use the available land for several purposes simultaneously. In the observed RHGs, woody taxons were often located along plot boundaries or around houses, whereas vegetables and other seasonal crops occupied suitable open spaces between or beneath perennial vegetation. These arrangements may improve the functional diversity of small landholdings and are consistent with the broader multifunctional characteristics reported for agroforestry systems (Sharma et al., 2022; Mathieu et al., 2025).

The protective functions attributed to woody vegetation should, however, be interpreted within the scope of the present study. Wind protection and soil-protection functions were identified through field observations and traditional land-use practices rather than through direct measurements of wind-speed reduction, soil erosion, or other ecosystem processes. Nevertheless, previous studies have demonstrated that appropriately designed agroforestry and windbreak systems can contribute to protective and regulating ecosystem functions (Li et al., 2022; Turna et al., 2024). Therefore, the observed use of cherry laurel and other woody plants along garden boundaries suggests that these traditional arrangements may provide additional ecological benefits beyond the direct production of fruits and other household products.

The multifunctional structure of RHGs is also closely associated with their role in food production and plant diversity. Seasonal vegetables and fruits are mainly cultivated for household consumption, whereas surplus products may be marketed locally. Home gardens can therefore contribute simultaneously to household food supply, plant diversity, and the maintenance of locally adapted production practices (Korpelainen, 2023; Sharma et al., 2022). In the present study, the coexistence of numerous fruit, forest, vegetable, and climbing taxa within relatively small garden areas further supports the interpretation of RHGs as diversified agrosilvicultural systems rather than conventional monocultural production areas.

At the national policy level, Türkiye's Twelfth Development Plan (2024–2028) emphasizes the sustainable use and protection of agricultural soils and supports practices aimed at increasing soil organic matter and preventing soil erosion and pollution (Presidency of the Republic of Türkiye, Strategy and Budget Office, 2023). Although the Plan does not specifically define the RHG arrangements documented in the present study, these policy objectives are consistent with the broader principles of sustainable land management. In this context, preserving

and improving traditional mixed land-use systems may be relevant to future rural land-use planning, particularly in regions where agricultural land is limited.

Various mixed agroforestry arrangements were also observed outside and within RHGs in Rize and Trabzon, particularly in areas where tea cultivation is intensive. Examples included mandarin, orange, and other fruit trees intercropped within tea gardens; strip or mixed arrangements of tea and kiwi; and seasonal cultivation of maize and beans in association with tea following pruning operations. Linden (*Tilia* spp.), Cherry laurel (*Prunus laurocerasus* L.), and other fruit and woody taxons were also observed within or along the boundaries of these production systems. These arrangements demonstrate the local adaptation of agrosilvicultural practices in which perennial woody plants and agricultural crops are combined within the same land-use unit. A representative example of such mixed cultivation is presented in Figure 8.



**Figure 8.** Taungya system agroforestry practice (tea + fruit trees + beans + forest trees + fruit trees), Hamidiye Village, Pazar/Rize

In the rural home garden shown in (Figure 8), various fruit trees (apple, pear, mandarin, orange, etc.) are cultivated within tea plantations, while linden (*Tilia* sp.) and Cherry laurel (*Prunus laurocerasus* L.) are grown along the boundaries. This practice is commonly observed in RHGs in the Rize and Trabzon regions. Within the general land use of the study area and in suitable areas of RHGs, various crops (maize, beans, tea, kiwi, eggplant, pepper, etc.) are cultivated together with fruit trees, providing examples of agrisilvicultural systems.

Planting various fruit trees around agricultural crops also protects them from the adverse effects of wind. Cherry laurel is used to protect crops from wind damage as well. In the Eastern Black Sea Region, increasing the production of cherry laurel (*Prunus laurocerasus* L.) has a high potential to provide economic income for the rural population. Planned planting should be carried out through government agencies, municipalities, and cooperatives, with purchase guarantees provided for the products. Its production should be promoted with geographical indication in the region. Supplying the fruit both fresh and dried to the market would further encourage agricultural production in the area.

In another study conducted in Artvin-Arhavi, the use of cherry laurel was evaluated as aesthetic and functional, with very high usage intensity (Surat, 2020). Considering its usage intensity and functional characteristics, cherry laurel (*Prunus laurocerasus* L.) is a medicinal and aromatic plant taxons that should be supported under agricultural production in the Eastern Black Sea Region through planned cultivation.

Cherry laurel also having many chemicals in young shoots, fruits and seeds it is used in pharmacology extensively. Cherry laurel is a new fruit species for Türkiye and the world (Yazıcı et al., 2011). Karataş and Uçar (2018) examined the nutritional content of laurel cherry and its relationship with various diseases. In addition to being consumed as a food, laurel cherry has also been used in the treatment of gastric ulcers, bronchitis, eczema, and hemorrhoids, as well as for its diuretic properties. Moreover, its high antioxidant capacity has been reported to make laurel cherry potentially effective in the prevention and treatment of cancer, cardiovascular diseases, diabetes mellitus, chronic diseases, and neurodegenerative diseases (Karataş & Uçar, 2018).

Livestock farming has traditionally been carried out in a controlled manner at forest edges, within forests, and in pasture areas. In highland pastures where forest roses are abundant, beekeeping in forest clearings has traditionally been an economic source of income for the local population. Seasonally, part of the winter fodder needs is met in these highlands, and income is also obtained from livestock and beekeeping. In production forests, cherry laurel (*Prunus laurocerasus* L.) and other melliferous plants should be preserved even if individually present, and their planned planting should be carried out as part of afforestation efforts in honey forests. Accordingly, figures showing silvopastoral system applications in Düzköy-Çalköy, Akçaabat-Hıdırnebi Plateau, and Akçaabat -Işıklar Kayabaşı Plateau in Trabzon are presented in (Figure 9).



**Figure 9**. Silvo-pastoral system applications in land use in Trabzon

The multifunctional use of cherry laurel (*Prunus laurocerasus* L.) was one of the most notable characteristics observed in the RHGs of the study area. In addition to being cultivated for its edible fruits, the taxons was maintained in different spatial arrangements for wind protection, boundary planting, landscaping, and soil-protection purposes, while its flowers also provide floral resources for beekeeping. These functions indicate that cherry laurel is not used solely as a fruit-producing taxons but represents a multifunctional woody component of traditional rural land-use systems. Its occurrence in mixed plantings, along garden boundaries, and in association with agricultural crops further supports its potential role in agroforestry systems.

In Rize and Trabzon, cherry laurel was observed as an established component of traditional rural land use, with functions extending beyond household fruit production. Its fruits are mainly consumed fresh during the fruiting season, while surplus fruits may also be sold in local markets or preserved by drying. Field observations indicated that only limited quantities of cherry laurel fruit reached local markets, suggesting that the taxons is currently utilized mainly at household and local scales. Together with its protective and landscape functions, these traditional uses further emphasize the multifunctional character of cherry laurel within RHGs.

Based on mapping, surveys, and observations, a total of 97 different plant taxons were identified in 58 RHGs in the Rize and Trabzon provinces, including 28 vegetable taxons and 69 perennial woody and climbing taxons. Among these gardens, Cherry laurel (*Prunus laurocerasus* L.) was observed in 21 gardens in Rize and 24 in Trabzon. The list of woody and climbing plant species in the study area's RHGs is presented in Table 2.

**Table 2.** The research area includes a table of woody and climbing plant taxons grown in rural home gardens

| Identified plants in RHGs | | Life forms of plants | Rize | Trabzon | Total number in RHGs |
|---|---|---|---|---|---|
| **Turkish name** | **Scientific name** | | | | |
| Fındık | *Corylus* sp. | shrub | 9 | 26 | 37 |
| Ceviz | *Juglans regia* L. | tree | 6 | 15 | 21 |
| Elma | *Malus* sp. | tree | 22 | 20 | 42 |
| Armut | *Pyrus* sp. | tree | 26 | 24 | 50 |
| Kivi | *Actinidia* sp. | hugger | 16 | 7 | 23 |
| Beyaz Çiçekli Yalancı Akasya | *Robinia pseudoacacia* L. | tree | 1 | 5 | 6 |
| Doğu ladini | *Picea orientalis* (L.) Peterm. | tree | 9 | 9 | 18 |
| Mavi ladin | *Picea pungens* Engelm. | tree | - | 1 | 1 |
| Kokarağaç | *Ailanthus altissima* (Mill.) Swingle | tree | 1 | 1 | 2 |
| Erik | *Prunus domestica* Bunge | shrub | 24 | 28 | 52 |
| Kayın | *Fagus orientalis* Lipsky | tree | 1 | - | 1 |
| İncir | *Ficus carica* L. | shrub | 18 | 27 | 45 |
| Salkım Söğüt | *Salix babylonica* L. | tree | 1 | 1 | 2 |
| Büyük Meyveli Trabzon Hurması | *Diospyros kaki* Thunb. | shrup | 18 | 11 | 29 |
| Küçük Meyveli Trabzon Hurması | *Diospyros lotus* L. | tree | 2 | 8 | 10 |
| Ormangülü | *Rhododendron ponticum* L. | bush | 1 | 1 | 2 |
| Kartopu | *Viburnum* sp. | bush | 2 | 1 | 2 |
| Şeftali | *Prunus persica* (L.) Batsch | shrub | 6 | 5 | 11 |
| Ihlamur | *Tilia* sp. | tree | 16 | 11 | 27 |
| Ayva | *Cydonia oblonga Mill.* | shrub | 3 | 13 | 16 |
| Çay | *Camellia sinensis* (L.) Kuntze | bush | 25 | 4 | 29 |
| Palmiye | *Phoenix canariensis* Chabaud | tree | 1 | 2 | 3 |
| Nar | *Punica granatum L.* | shrub | 4 | 17 | 21 |
| Muz | *Musa × paradisiaca* L. | shrub | 1 | - | 1 |
| Portakal | *Citrus sinensis* (L.) Osbeck | shrub | 14 | 7 | 21 |
| Mandalina | *Citrus reticulata* Blanco | shrub | 19 | 12 | 31 |
| Dut | *Morus* sp. | tree | 11 | 14 | 25 |
| Yenidünya | *Eriobotrya japonica* (Thunb.) Lindl. | shrub | 11 | 20 | 31 |
| Kiraz | *Prunus avium* (L.) L. | tree | 14 | 11 | 26 |
| Duglas | *Pseudotsuga menziesii (Mirb.) Franco* | tree | 1 | 2 | 3 |
| Asma (Üzüm) | *Vitis vinifera* L. | hugger | 21 | 24 | 45 |
| Manolya | *Magnolia grandiflora L.* | tree | 1 | 4 | 5 |
| Karayemiş | *Prunus laurocerasus* L. *(Syn. Laurocerasus officinalis* M.Roem.) | shrub | 21 | 24 | 45 |
| Hatmi | *Hibiscus syriacus* L. | shrub | 4 | 5 | 9 |
| Kızılağaç | *Alnus glutinosa* (L.) Gaertn. | tree | 13 | 6 | 19 |
| Kestane | *Castanea sativa* Mill. | tree | 11 | 4 | 15 |

| | | | | | |
|---|---|---|---|---|---|
| Böğürtlen | *Rubus* sp. | bush/shrub | 2 | 1 | 3 |
| Ayçiçeği | *Helianthus annuus* L. | bush | 2 | - | 2 |
| Limon | *Citrus limon* (L.) Osbeck | shrub | 9 | 5 | 14 |
| Kayısı | *Prunus armeniaca* L. | shrub | 2 | - | 2 |
| Greyfurt | *Citrus* sp. | tree | 6 | - | 6 |
| Adi Şimşir | *Buxus sempervirens* L. | shrub | 3 | 1 | 4 |
| Zeytin | *Olea europaea* L. | shrub | 1 | 1 | 2 |
| Çınar | *Platanus orientalis* L. | tree | - | 2 | 2 |
| Japon kriptomeryası | *Cryptomeria japonica* (Thunb. ex L.) D.Don | tree | 3 | 2 | 5 |
| Dişbudak | *Fraxinus* sp. | tree | - | 14 | 14 |
| Beyaz Çiçekli ispirya | *Spiraea vanhouttei* (Briot) Carrière | bush | 1 | 1 | 2 |
| Sarmaşık | *Hedera helix* L. | hugger | - | 4 | 4 |
| Kavak | *Populus* sp. | tree | - | 6 | 6 |
| Gül | *Rosa* sp. | bush | 1 | 18 | 19 |
| Zakkum | *Nerium oleander* L. | bush | - | 5 | 5 |
| Ortanca | *Hydrangea macrophylla* (Thunb.) Ser. | bush | - | 3 | 3 |
| Çam Türleri | *Pinus* sp. | tree | - | 9 | 9 |
| Gümüşi Akasya | *Acacia dealbata* Link | tree | - | 1 | 1 |
| Karaağaç | *Ulmus* sp. | tree | 1 | 7 | 8 |
| Çitlenbik | *Celtis* sp. | tree | - | 1 | 1 |
| Toros Sediri | *Cedrus libani* (L.) A.Rich. | tree | - | 5 | 5 |
| Gülibrişim | *Albizia julibrissin* Durazz. | shrub | - | 1 | 1 |
| Vişne | *Cerasus vulgaris* Risso | shrub | - | 7 | 7 |
| Ligustrum | *Ligustrum vulgare* L. | bush/shrub | - | 3 | 3 |
| Mazı | *Platycladus orientalis* (L.) Franco | shrub | - | 4 | 4 |
| Beşbıyık | *Mespilus germanica L.* | shrub | - | 1 | 1 |
| Taflan | *Euonymus* sp. | bush | - | 3 | 3 |
| Erguvan | *Cercis siliquastrum* L. | shrub | - | 1 | 1 |
| Akçaağaç | *Acer sp.* | tree | - | 1 | 1 |
| Kadın Tuzluğu | *Berberis vulgaris L.* | bush | - | 1 | 1 |
| Mahonya | *Berberis aquifolium* Pursh | bush | - | 1 | 1 |
| Pavlonya | *Paulownia* sp. | tree | - | 1 | 1 |
| Kızılcık | *Cornus alba* L. | bush | - | 1 | 1 |
| **Total** | | | **46** | **64** | **69** |

The web addresses URL-1 and URL-2 were utilized for the current nomenclature of the plant taxa specified in Table 2.

The plant composition of RHGs also reflects their multifunctional character. Turna et al. (2025) reported that 43.47% of the plant taxons recorded in RHGs of Rize and Trabzon were associated with fruit production, whereas 56.52% consisted of ornamental or forest tree taxons. This mixture of productive and non-crop woody vegetation supports the interpretation of RHGs as diversified land-use systems rather than solely as areas of agricultural production. In the present study, fruit trees, woody taxons, climbing plants, vegetables, and the principal agricultural crops were frequently observed together in mixed and layered arrangements. Such configurations allow limited land around rural households to be used simultaneously for food production, protective functions, and landscape purposes.

Vegetable production in RHGs was primarily oriented toward household consumption, whereas surplus vegetables and fruits were occasionally marketed locally, particularly in Trabzon. Thus, RHGs contribute primarily to household-level food provision while also offering opportunities for supplementary income from surplus production. The combination of seasonal crops with perennial woody and climbing taxons, including cherry laurel, further demonstrates the importance of these gardens as locally adapted agrosilvicultural systems in the Eastern Black Sea Region.

**CONCLUSIONS**

This study demonstrated that rural home gardens in Rize and Trabzon represent diverse and multifunctional land-use systems in which agricultural crops, fruit trees, woody taxons, and climbing plants coexist. A total of 69 perennial woody and climbing plant taxons. This diversity reflects the importance of traditional rural home gardens as small-scale production systems adapted to the limited and heterogeneous agricultural lands of the Eastern Black Sea Region of Türkiye.

Cherry laurel (*Prunus laurocerasus* L.) was one of the most frequently recorded woody taxons in the study area. It was present in 45 of the 58 RHGs, including 21 of 27 gardens in Rize and 24 of 31 gardens in Trabzon, corresponding to occurrence frequencies of 77.77% and 77.42%, respectively. The similarly high occurrence of the taxons in both provinces, despite differences in their dominant agricultural systems, indicates that cherry laurel is a well-established component of traditional rural land use throughout the study area.

The findings also showed that cherry laurel is maintained for multiple purposes rather than solely for fruit production. In addition to the consumption of its fruits, the taxons is used as a windbreak, in boundary plantings, for landscaping and soil protection, and as a floral resource associated with beekeeping. Its occurrence within mixed and multilayered plant arrangements further indicates that cherry laurel is well suited to the traditional agroforestry structure of rural home gardens in the Eastern Black Sea Region.

The high occurrence frequency and multifunctional use of cherry laurel suggest that the taxons has considerable potential for more deliberate integration into planned agroforestry systems. Improving the management of existing individuals and encouraging well-designed cultivation may contribute to product diversification and provide supplementary economic opportunities for rural households. Rather than introducing an unfamiliar taxons into local production systems, such an approach would build upon a taxons that is already established in traditional rural land-use practices. The Cherry laurel should be systematically incorporated into agricultural land-use systems and afforestation efforts within forest ecosystems in The Black Sea Region.

However, the present study was primarily based on presence–absence records, household surveys, garden sketches, and field observations. Therefore, the results demonstrate the occurrence, traditional uses, and agroforestry potential of cherry laurel but do not directly quantify its fruit productivity, economic profitability, soil-conservation efficiency, windbreak performance, or other ecosystem services. Future studies should focus on the quantitative evaluation of fruit yield and quality, economic returns, management and pruning practices, ecosystem-service functions, and market opportunities. Such information would provide a stronger scientific basis for the development of cherry laurel as a multifunctional component of planned agroforestry systems in the Eastern Black Sea Region of Türkiye.

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## REFERENCES

Abanoz, Y.Y., & Okcu, Z. (2022). Biochemical content of cherry laurel (*Prunus laurocerasus* L.) fruits with edible coatings based on caseinat, Semperfresh and lecithin. *Turkish Journal of Agriculture and Forestry*, 46(6), Article 11. https://doi.org/10.55730/1300-011X.3052

Akbulut, M., Yazici, K., Bakoglu, N., & Goksu, B. (2019). Cherry laurel (*Prunus laurocerasus* L.)—genetic resources in the Eastern Black Sea region, Turkey. *Acta Horticulturae*, 1260, 125–128. https://doi.org/10.17660/ActaHortic.2019.1260.20

Akyıldırım Beğen, H., Eminağaoğlu, Ö., & Aslan, B. (2025). Honey plants of Artvin. *Biological Diversity and Conservation*, 18(2), 243–282. https://doi.org/10.46309/biodicon.2024.1541568

Anşin, R., & Özkan, Z.C. (1993). Seed plants. Trabzon: Black Sea Technical University, Faculty of Forestry Publication.

Ayberk, S. (1988). Definition, scope, application and opinions of agroforestry, poplar and fast growing alien species forest trees. *Journal of Research Institute*, 2. İzmit.

Günal, N. (2002). Laurocerasus officinalis: a shrub species in natural vegetation cover of Turkey. *Turkish Geographical Journal*, 38, 1–18. https://dergipark.org.tr/en/download/article-file/198572

Karataş, E., & Uçar, A. (2018). Evaluation The Effect of Cherry laurel (*Laurocerasus officinalis*) on the Healthy. *Journal of Healhty Sciences*, *27*(1), 70-75. https://izlik.org/JA77WL42MS

Korpelainen, H. (2023). The role of home gardens in promoting biodiversity and food security. *Plants*, 12(13), 2473. https://doi.org/10.3390/plants12132473

Küçükkaya, İ. (1995). Agroforestry. In Proceedings of the 1st National Black Sea Forestry Congress (p. 246). Trabzon: Karadeniz Technical University, Faculty of Forestry Publication.

Li, S., Gong, S., Hou, Y., Li, X., & Wang, C. (2022). The impacts of agroforestry on soil multi-functionality depending on practices and duration. *Science of the Total Environment*, 847, 157438. https://doi.org/10.1016/j.scitotenv.2022.157438

Mathieu, A., Martin-Guay, M.O., & Rivest, D. (2025). Enhancement of agroecosystem multifunctionality by agroforestry: A global quantitative summary. *Global Change Biology*, 31(5), e70234. https://doi.org/10.1111/gcb.70234

Nair, P.K.R. (2008). Agroforestry for sustainability of lower-input land-use systems. *Journal of Crop Improvement*, 19(1–2), 25–47. https://doi.org/10.1300/J411v19n01_02

Presidency of the Republic of Türkiye, Strategy and Budget Office. (2023). Twelfth Development Plan (2024–2028). Ankara, Türkiye. https://www.sbb.gov.tr/wp-content/uploads/2023/12/On-Ikinci-Kalkinma-Plani_2024-2028_11122023.pdf

Ranjitkar, S., Ayub, M., Bhuju, U.R., & Sujakhu, N.M. (2024). Promoting sustainable agriculture in Devdaha Municipality, Nepal: leveraging agroforestry to address challenges and enhance food security. *Circular Agricultural Systems*, 4, e013. https://doi.org/10.48130/cas-0024-0012

Sağkaya, A., & Kamiloğlu, M.Y. (1987). Mixed systems in forestry. Ankara: Chamber of Forest Engineers Publication No: 10.

Sharma, R., Mina, U., & Kumar, B.M. (2022). Homegarden agroforestry systems in achievement of sustainable development goals: a review. *Agronomy for Sustainable Development*, 42, 44. https://doi.org/10.1007/s13593-022-00781-9

Surat, H. (2020). The determination of ornamental plants used in Eastern Black Sea traditional housing gardens: Arhavi example. *The Journal of International Social Research*, 13(75), 347-358. https://doi.org/10.17719/jisr.11234

Şefik, Y. (1995). Agroforestry. Trabzon: Karadeniz Technical University, Faculty of Forestry Publication.

Turna, İ., Atar, F., Güney, D., & Turna, H. (2024). Utilization of windbreaks in agricultural areas as agroforestry practices. *Journal of Forestry Research*, 11(1), 65–80. https://doi.org/10.17568/ogmoad.1457661

Turna, İ., Yazar, M.K., & Atar, F. (2025). Agroforestry practices in rural home gardens of the Eastern Black Sea Region: The example of Rize and Trabzon. *Turkish Journal of Forest Science*, 9(2), 265–282. https://doi.org/10.32328/turkjforsci.1772013

URL-1. https://bizimbitkiler.org.tr/yeni/demos/technical/ (Access Date: 05. 10.2026)

URL-2. WFO Plant List https://wfoplantlist.org/ (Access Date: 05. 10.2026)

Yazar, M.K., & Yazar, M. (2025). The importance of linden (*Tilia* spp.) in agroforestry practices in Rize province. *Biological Diversity and Conservation*, 18(3), 307–320. https://doi.org/10.46309/biodicon.2025.1654861Yazı

Yazıcı, K., Çakır, B., & Kazaz, S. (2011). An important genetic resource for Turkey: Cherry laurel (*Laurocerasus officinalis* Roemer). *Acta Horticulturae*, 890, 261-266. https://doi.org/10.17660/ActaHortic.2011.890.37

**Appendix 1.** Survey Questions for Assessing the Agroforestry Potential of Rural Home Gardens in the Rize and Trabzon Regions

*(This survey will be used for scientific research purposes. Thank you for your support.)*

| **I. SECTION** | |
|---|---|
| **Location of the rural home garden:** | Province: District: Village: |
| **Village where rural home garden is located:** | Avarege population: Number of households: |
| **Relationship of the village where rural home garden is located to the forest:** | A)Within the forest (____) B)Forest Edge (____) C) Outside the forest (____) |
| **Village where rural home garden is located:** | Elevation: Aspect: Slope: (%) |
| **II. SECTION** | |
| **House area**: … m² **Home garden area**: … m² | |
| **Approximately how old is your house? 10–15 years:** New (____) 16–50 years: Old (____) 50+ years: Very old (____) | |
| **Did you arrange/design the garden yourself?** Yes (____) No (____) | |
| **How many years has the garden been in use?** _____ | |
| **Land-use proportion of the garden:** _____ %<br>Building:_____ Fruit orchard +Woodland : _____ Fruit orchard: _____<br>Woodland/tree-covered area: _____ Agricultural use (hazelnut, tea, kiwifruit, field crops): _____ Meadow/open area: _____ | |
| **This section should be completed by the owners of rural home gardens or their representatives.** | |
| **1. Which (perennial) plant species do you grow in your garden?** | |
| **A) Which vegetables do you grow in your garden?** Summer: _____ Winter: _____<br>**Do you grow plants, vegetables, and fruit together with animals, or separately?** Together (____) Separately (____) | |
| **B) What is the purpose of planting these tree or shrub species?**<br>Landscape purposes (___) Fodder-leaf use (____) Fruit production (____) Windbreak (____) Living fence (____) Timber and firewood (____)<br>Boundary demarcation between neighbors (____) Beekeeping/flowers (____) All of the above (____) Other (____) | |
| **C) Most commonly grown species for fodder-leaf use:** | |
| **D) Species grown for fruit production**: | |
| **E) Species grown for landscaping purposes:** | |
| **F) Species planted for boundary demarcation between neighbors:** | |
| **2. How are you currently using the home garden that you own/use?** | |
| Tree-covered area: _____ m²<br>Agricultural area (hazelnut, maize, tea, kiwifruit, mandarin–orange, apple–pear), for growing vegetables (potato…, cabbage…, lettuce,-parsley…, tomato-cucumber- eggplant-pepper…) : _____ m²<br>Meadow/open area: _____ m² | |
| **3. How many animals do you have?**<br>Cattle: _____head Small ruminants: _____ head Poultry: _____ Beehives: _____ Other (cats, dogs, etc.): | |
| **4. Do you have sufficient pasture area for your animals?** Yes (____) No (____)<br>**How do you meet your fodder needs?** From my own land (____) By purchasing (____) Transhumance (____) All of the above (____) | |
| **5. What is your annual fodder requirement?** _____ kg / tonnes | |
| **6. What types of feed/fodder do you provide to your animals, and where do you obtain them from?** | |
| **7. Do you construct terraces on your land?** Yes (____) No (____)<br>**If yes, for what purpose?** Landslide prevention (____) Erosion control (____) Soil fertility improvement (____) | |
| **8. If you propagate woody plants yourself, how do you do so?**<br>By cuttings (____) By sowing seeds (____) By layering (____) By grafting (____) Other (____) | |
| **9. How do you propagate your main agricultural crops (tea, hazelnut, kiwifruit, etc.)?**<br>By seed (____) By cuttings (____) By grafting (____) Other (____) | |
| **10. If you do not propagate them yourself, where and how do you obtain seedlings, cuttings, or seeds?**<br>By purchasing from the Forestry Administration (____)<br>By purchasing from the Directorate of Agriculture (____)<br>From private nurseries in the market (____)<br>By obtaining special-variety seedlings from outside sources (____)<br>**Do you have difficulty finding the seedlings you want to grow?**<br>Yes (____) No (____) | |

**11. How are trees, fruit trees, and other agricultural crops arranged on the land?**
Forest trees + fruit trees (____)
Forest trees + fruit trees + tea (____)
Forest trees + fruit trees + kiwifruit (____)
Forest trees + fruit trees + kiwifruit + tea (____)
Forest trees + fruit trees + kiwifruit + tea + maize (____)
Forest trees + hazelnut (____)
Hazelnut + tea (____)
Hazelnut + tea + kiwifruit (____)
Tea + beans (____)
Hazelnut + tea + grapes (____)
Tea + Trabzon persimmon (____)
Fruit trees + tea + kiwifruit (____)
Fruit trees + tea + kiwifruit + maize (____)
Trees and fruit trees around other agricultural crops (____)
Trees and fruit trees individually or in clusters (____)

**12.-What types of products do you obtain from the plants in your home garden?**
**How do you use the products you obtain?** For our own needs (____) We sell them for commercial purposes (____) Both (____)

**13. How much annual income do you obtain from the products in your home garden?** _____ TL

**14. Do you think you have sufficient knowledge about growing agricultural crops, fruits, and vegetables?** Yes (____) No (____)
**What would you like to be provided in this regard?**
Income support (____) Free seed support (____) Training/education (____) Guaranteed purchase of produce (____) Other_____

**15. Which plants and agricultural crops would you like to grow in the future?**

**16. Are there any trees, fruits, or agricultural crops that you do not want to grow?** Yes (____) No (____)
**If yes, which ones?**

**17. Would you prefer a wide variety of plant species or a single species in your garden? Why?**
For example, tea + house, hazelnut + house, or combinations of different plant species:

**18. Is your garden regularly maintained?** Yes (____) No (____)

**19. Do you have knowledge about garden maintenance?** Yes (____) No (____)