

A STUDY ON THE USE OF ANCESTRAL SEEDS IN THE APPLICATION KITCHENS OF UNIVERSITIES WITHIN THE SCOPE OF SUSTAINABLE GASTRONOMY PRACTICES

Rana Şat^{1*}, Mehmet Sarıođlan², Ercan Karaçar³, Yakup Dinç⁴, Fatih Saydam⁵,
Serkan Semint⁶, Dilek Karakaş⁷

^{1*}Balıkesir University Institute of Social Sciences, Balıkesir, Turkey;

²Balıkesir University Gastronomy and culinary arts department, Balıkesir Turkey;

³Sinop University, Recreation Management Department, Sinop Turkey;

⁴Balıkesir University Ayvalık Vocational School, Balıkesir Turkey;

⁵Giresun University Dereli Vocational School, Giresun Turkey;

⁶Karamanođlu Mehmetbey University;

⁷Sakarya University of Applied Sciences

*Corresponding Author Rana ŞAT, e-mail: rana_sat_95@hotmail.com;

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ABSTRACT

Due to the inequitable distribution of food in the world and the overuse of resources, it is predicted that the ability of future generations to consume healthy and organic products may become a major problem. As the needs of individuals are unlimited and natural resources are limited, there is a gradual decline in natural resources. Due to the rapid increase in economic growth and global population, the demand for resources to meet societal needs is increasing day by day. The supply of organic and healthy food in the world is becoming a problem on a global scale. Ensuring the sustainability of organic products in the food and beverage production process is of great importance in terms of transferring the material, spiritual and cultural gains of the society to future generations. It is seen that the formation process of organic products multiplies through seeds as in all living things. While preserving the genes of the past, where seeds are a time capsule, they also play a major role in transferring them to the future. The loss of seeds means the loss of both our food culture and our future. For this reason, the protection and reproduction of seeds is one of the rights that we are responsible for our future generations. Ancestral seeds, which are of great importance for the sustainability of organic products from the past to the present, are one of the heritage that should be valued today in terms of the sustainability of the products inherited from our ancestors. Thanks to ancestral seeds, it is seen that the sustainable development approach has come to the agenda and as a result of the developments experienced, an institutionalized and culturally established scope and structuring has been achieved. In this process, it is seen that the effects and results of concrete practices at local, regional and national level can be observed in the organic product production process. In this context, the main purpose of this study is to raise awareness about sustainability, organic nutrition, organic food, local production and local product production, local dishes, cultural heritage-oriented courses in the education process of gastronomy and culinary arts, cookery, agricultural engineering fields and to reveal why the issue of sustainability is so important. In addition, it is aimed to reveal whether this awareness is gained in the kitchens and courses of the relevant departments of universities, what the opinions are, and in which areas it is used. In addition, in this study, the curriculum information of associate, undergraduate and graduate programs in the departments of Gastronomy and Culinary Arts, Cookery, Agricultural Engineering in

faculties and colleges in Turkey and in Berlin, Florida, Germany were examined and the faculties and colleges with course content on sustainability were included in the study. For this purpose, in the 2024-2025 academic year, academicians and students who received education in associate, undergraduate and graduate programs within the faculties were reached.

Keywords: sustainability, gastronomy practices, agriculture, ancestral seeds, gastronomy and culinary arts.

INTRODUCTION

Global warming, increasing population growth, unconscious and excessive consumption, and the danger of depletion of natural resources are among the biggest problems today. For this reason, organic production, organic nutrition and ancestor seeds are on the agenda today. Due to the decrease in food resources as a result of overconsumption and the resulting increase in prices, it has become a problem that concerns individuals as well as businesses and individuals trained in the field of food and beverage. For this reason, the preservation of ancestor seeds for organic and healthy nutrition and their use in the product production process will positively affect the costs of both food resources, businesses and individuals receiving education in the food production process (Ozcicek Dolekoglu, 2017). It is necessary to support the production of ancestral seeds in order to prevent and reduce negative impacts on food resources.

It is considered as a need in the perspective of sustainability that institutions providing education in the field of gastronomy and culinary arts provide rich information in order to contribute to the sustainability of natural and environmental resources. The concept of sustainability, which has been emphasized in a global framework especially in the late 20th century, has become a basic requirement for meeting the individual needs of future generations. In this context, it is important in terms of sustainable food production by ensuring long-term and optimum productivity in order to maintain the balance of resources and needs. In this context, it is possible to mention that there is an increasing interest in issues related to sustainability in the capacity of future generations to provide access to the same resources while meeting the needs of the current generation with the use of ancestor seed in sustainable culinary practices. When the researches on sustainability in the field of gastronomy are examined, it is possible to mention that studies on issues such as eco-gastronomy, geographical marking, waste management and waste reduction, supply chain, green restaurants and green practices, slow food and local food stand out (Yurtseven & Kaya, 2011; Durlu, 2013; Ceval & Dogan, 2022; Baran & Karaca, 2021; Gungör & Alperen, 2021; Serkan & Kılıç, 2022; Ertaş, 2022; Yuceer, 2019; Keskeci & Gençer, 2023; Bilgin & Akoglu, 2018; Demir, 2021). In this context, it is seen that providing production and product supply with ancestral seeds is of great importance in terms of reducing the negative environmental impacts of the sector in order to ensure the sustainable use of natural resources and the effective use of ancestral seeds for individuals who study and receive education in the fields of gastronomy and culinary arts, cookery and agricultural engineering (Axelos, 2018).

The strategic adoption of environmental sustainability practices in culinary practices in the food sector will contribute to more effective management of natural resources and minimization of negative environmental impacts. In line with this information, the aim of the study is to increase the importance and value of ancestral seeds in culinary practices and research in the relevant departments of universities where the use of ancestral seeds in sustainable gastronomy will be expanded. For this reason, a questionnaire form was applied to learn the attitudes and perspectives of faculty members and students in the relevant departments of universities in Turkey and abroad.

Conceptual Framework

The Concept of Sustainability

Sustainability is defined as the ability of a process to conserve natural resources while meeting the needs of the current generation and leaving a healthy environment for future generations (Collin, 2004; Meneguel, 2019; Kuşat, 2013). This concept, which has been addressed in a multifaceted manner in the fields of development, applied science, environment and international politics in international environmental debates since the 1980s, has gained more importance and become a focal point today. However, there is still little consensus on the implications of development strategies or the meaning and definition of sustainability (Carvalho, 2001). Another definition defines sustainability as the capacity of a society, ecosystem or any system to continue to function into the indefinite future without depleting or overloading its basic resources (Gilman, 1992). This definition emphasizes the balanced use of natural resources in order for systems to continue their existence in a sustainable manner.

The concept of sustainability is generally shaped on three basic building blocks: environmental, economic and social sustainability (McKeown et al., 2002). Environmental sustainability is concerned with the conservation of natural resources and the continued healthy functioning of ecosystems, while economic sustainability argues that development should be economically sustainable, meaning that economic growth should take place without harming long-term sustainable development goals. Social sustainability aims to sustain the well-being of societies over the long term, based on social equity and justice. These three building blocks draw attention to the fact that sustainability should be addressed by taking into account not only environmental but also social and economic dimensions. These interconnected elements show that sustainable development has profound impacts not only on ecosystems and natural resources, but also on social and economic structures. Therefore, these three dimensions need to be considered in a balanced manner when formulating sustainability strategies (Lehtinen, 2012; Bagheri et al., 2008; Kuhlman and Farrington, 2010). Providing these three elements in a balanced manner will contribute to the sustainable use of resources, poverty reduction and the protection of ecosystems (Harris, 2000; Collin, 2004).

Although the concept of “sustainability” first emerged in the 1970s, it was officially defined in 1987 in the “Our Common Future” report published by the United Nations-sponsored World Commission on Environment and Development (WCED). In this report, sustainability was defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. In the report, the goals for sustainable development are listed as follows (WCED, 1987):

The concept of sustainability aims to re-evaluate major environmental and development problems and to make realistic proposals to address them.

In this framework, it is important to establish international cooperation methods to contribute to the development of policies that can make the necessary adjustments to solve the problems. It is also necessary to increase the interest of voluntary organizations, individuals, businesses, institutes and governments in sustainability.

This approach seeks to protect the future and enhance existing values in order to ensure that human needs are met and that the current needs of residents and tourists are met.

Sustainable development policies focus on assessing the possible consequences of current decisions by considering the needs of future generations and are based on the principle of sustainability. The understanding of sustainability aims to preserve the environmental balance by minimizing the consumption of natural resources, to ensure fair and equitable economic development and to increase social welfare. Therefore, sustainable development emphasizes the need to develop a comprehensive and holistic approach to respond to today's complex challenges. It aims to build a better future for humanity, taking into account not only environmental but also social and economic dimensions. In this context, sustainability assumes the responsibility of both meeting the needs of current generations and leaving a healthy and balanced world for future generations (Damtoft et al., 2008; Mebratu, 1998). In addition, the sustainable use of natural resources, namely water, minerals, forests and energy resources, and long-term investments in these resources make an important contribution to sustainability (Lovins, 2007). Sustainability is basically addressed in three stages. These are sustainability in production, sustainability in consumption and post-consumption sustainability (Veleva, 2021). Considering these three stages together is essential for achieving sustainable development, and the integration of all these elements contributes to both protecting the natural environment and increasing social and economic welfare (Lemanowicz, 2020).

The Relationship between Sustainability and Gastronomy Practices

Today, sustainability practices are an innovative approach in gastronomy and food applications (Pereira, 2019). It is seen that many chefs around the world prefer materials and products with sustainability features, pay attention to organic farming and organic product production, pay attention to the use of micro sprouts, consume products produced from ancestral seeds and find it valuable to benefit from the product preparation process. For this reason, it is seen that they generally pay attention to using local and organic ingredients or products that reflect regional traditional culture (Pereira, 2019; Zaneti, 2017). The connection between gastronomy practices and sustainability, how to prepare the dishes to be prepared, where and under what conditions the ingredients will be produced, what to pay attention to in the process of preparing sustainable products and how to provide products to culinary students in the field of gastronomy and culinary arts, It includes many issues such as whether meals are prepared with products consisting of ancestral seeds in applied courses, how much organic and local products are preferred, what are the environmental impacts in the process of supplying organic and healthy products regionally, and the level of employment in the process of producing ancestral seeds and organic products (Pereira, 2023). Sustainable gastronomy practices are basically based on the sustainable sourcing of ingredients and attention to their processing in application kitchens (Un, 2024). In this context, sustainability in the process of organic agriculture and organic product production should include policies and practices that contribute to the production of local and local, ancestral seeds and products that contribute to fairer and environmentally friendly local development (Lopes, 2019).

In this way, it should be aimed to ensure the sustainability of these policies in the trainings given in the field of gastronomy, cookery and agriculture. Under the leadership of the Food and Agriculture Organization of the United Nations (FAO), within the scope of “Sustainable Gastronomy Day”, based on culinary practices that do not harm the health of consumers and the local and local universe, those who provide education in this field and chefs working in the sector should address how the ingredients are obtained, where they come from, how they are grown, how they should be grown, the importance of the ancestor seed, how they can spread to the international market by having a say in the niche market, and ultimately how they reach from soil to table in the trainings and events they carry out on the sustainability of gastronomy (Sternadt, 2021).

Consumption and production of organic and healthy products form the basis of sustainable culinary practices. It is important for those who will operate in this field to utilize the Ancestor seed in the process of supplying healthy products from soil to table (Hall and Sharples, 2024). Local and regional food consumption, which is an important attraction point for consumers, has a significant economic contribution in the tourism sector (Kim, 2012). It is thought that the use of ancestor seeds in these foods will help to create a sustainable touristic product that increases tourist spending regionally and extends the tourism season (Everett & Aitchison, 2008). Research shows that tourists allocate a significant budget for food and beverage expenditures in their travel choices (Okumuş & Çetin, 2018; Kim, 2020). With the increase in competition in the field of gastronomy and agricultural engineering in the global sense, it is thought that the use of ancestor seeds in the process of preparing organic products and local dishes will have a positive effect on the visitor attraction strategies among the destination choices of tourists in the tourism sector in the region (Dedeođlu, 2020; Mariani, 2021; Soltani, 2021). In this context, it is thought that individuals who receive education in the field of gastronomy, cookery and agricultural engineering will be effective in developing various strategies in order to increase their preference for ancestor seeds in the process of organic product and local healthy food production and to increase the number of visitors to the region. The development of sustainable gastronomy and sustainable gastronomy tourism has multidimensional effects. Increased demand for local food and increased healthy and organic consumption indirectly increases interest in local raw materials and ancestral seeds, thus providing more employment opportunities for local people (Torres, 2002). Both the provision of local food products and the use of ancestral seeds in the production process of local food and organic food are important for the provision of local resources. In addition, the awareness of the students who receive education in the field about local food consumption reduces the carbon footprint as an environmental result by setting an example worldwide in terms of the services they will provide (Boniface, 2003; Sims, 2009). Raising a generation that is sensitive to socio-environmental issues will be able to promote actions that support local and local products, support family farming, local and local production, strengthen the ties between rural and urban areas, and increase the use of ancestor seeds, contributing to the increase of the organic product production process (Niederle & Schubert, 2020; Pereira, 2019).

Sustainable Agriculture

Sustainable agriculture is an approach that aims to make more effective and efficient use of available biophysical and human resources. The main challenge to achieve this goal is to minimize the use of external inputs and optimize internal resource use. This ensures the effective use of available resources and minimizes dependency on external systems. This allows for continuous improvements to be sustained, supporting the conservation of natural resources while reducing the pressure of agriculture on the ecosystem (Maynard et al., 2020). Moreover, natural processes are increasingly replacing external inputs, contributing to reduced environmental impacts (Pretty et al., 1996).

The fact that policies to ensure food security support productivity in the agricultural sector offers a great opportunity for these countries to realize their economic development in a sustainable manner. In this context, the integration of agricultural policies and technological innovations is important to create a more equitable and efficient agricultural system. Therefore, sustainable agriculture means different things for different countries. While undeveloped countries are generally unable to implement sustainable agriculture practices due to inadequate education and economic conditions, developing countries adopt sustainable agriculture with the objectives of ensuring food security, preventing environmental problems, providing healthier living conditions and preventing negative situations in rural areas (Adenle et al., 2012; Balcı Akova and Tapan, 2022). In this context, each country needs to develop sustainable agriculture strategies in line with its specific needs and conditions (Mohanty, 2017). In these countries, efforts to reduce environmental pollution, create a clean environment and protect human health are at the forefront. Inadequate education and limited economic resources make it difficult to adopt sustainable agricultural models in these countries, which negatively affects the effectiveness of agriculture. On the other hand, in developed countries, sustainable agriculture is more concerned with environmental quality and the negative impacts of resources on human health (Gafsi et al., 2006). Integrating new agricultural technologies in these countries would be a critical step to optimize production processes, increase food security and ensure agricultural sustainability. For

example, innovations in water management, soil improvement methods, crop protection technologies and sustainable fertilization practices have the potential to increase both the quantity and quality of production. Making agricultural practices sustainable is necessary both to improve food security and to support economic development (Crucefix, 1998). Restaurants, which have a significant economic potential in the food sector, have a great importance in terms of sustainability in terms of various aspects of the food they serve. Factors such as the proportion of food used in restaurants, where these foods are sourced, under what conditions they are produced and how they are served are critical factors to be considered in the context of sustainability. Restaurants have the opportunity to reduce environmental impact and fulfill social responsibilities at every stage of the supply chain (Ilbery and Maye, 2005). For example, organic and seasonal produce sourced from local farmers not only provides a fresh and nutritious menu, but also demonstrates an environmentally responsible approach by reducing the carbon footprint of transportation. Furthermore, the sustainability of food production methods contributes to both protecting ecosystems and supporting agricultural biodiversity. Factors such as reducing food waste, recycling practices and energy efficiency are part of restaurants' sustainability efforts. The potential of policies developed to ensure food security to increase productivity in the agricultural sector is highly effective in helping countries achieve their sustainable development goals (Higgins et al., 2019; Kim and Hall, 2021). Increasing productivity in agriculture is not only limited to increasing production, but also contributes to raising the incomes of individuals working in the agricultural sector and improving income distribution in a more equitable way. This situation necessitates the adoption of sustainable agricultural policies and new agricultural technologies to both increase agricultural employment and achieve high-yield agricultural production targets (Sims, 2009).

Nature has a limited capacity to resist all kinds of external interventions and to regenerate itself against the damages it is exposed to. This limited regeneration capability further increases the importance of maintaining environmental balance. Therefore, protecting the environment and natural resources at every stage of the development process is one of the primary social responsibilities of people. The concept of sustainable development emphasizes that natural resources should be used responsibly (Daly, 2006). Human activities can lead to a range of impacts that threaten the balance of nature, resulting in reduced biodiversity, degradation of ecosystems and climate change (Bansal, 2005). Therefore, the principles of environmental sustainability should be taken into account when formulating and implementing development policies. Moreover, the conservation of natural resources is not only of environmental but also of economic and social importance. Rational use of natural resources is a critical step to meet the needs of future generations. In this context, developing environmentally sensitive policies, raising social awareness and supporting environmental protection efforts will help people fulfill their responsibilities in this regard. As a result, respecting the limited regenerative capacity of nature and taking care not to exceed these limits is essential for a sustainable future (Boz et al., 2013).

The Importance of Ancestral Seed and Soil in Gastronomy Education

Soil is considered an indispensable living space that is home to many living things. It generally sheds light on history by providing important data in terms of understanding the processes that living things and humanity have gone through. Gastronomy, which belongs to the field of social sciences, can explain some of the information on the history of human nutrition by utilizing the information obtained as a result of anthropological studies. In addition, data on the biological processes of soil is a field that should be indirectly associated with gastronomy science. It is seen that the field of gastronomy focuses more on food, cuisine, tourism and the search for new flavors. Therefore, it can be thought that there is no need for information about soil and ancestor seeds in gastronomy and cookery education. However, ensuring that the importance of the soil and the ancestral seed, which constitute the source of food, is sufficiently understood is seen as a major deficiency in terms of establishing a healthy relationship between sustainable food and sustainable culinary practices, which are perhaps among the most mentioned issues today. According to Cemaloğlu (2021), similarly, the basis of the mistakes carried out in the practices carried out in the field of food and environment stems from the lack of understanding of the importance of soil and organic agriculture science. The fact that this subject is not included in general education curricula in our country is seen as the main reason why this deficiency is not eliminated. Studies in which the concepts of cuisine and ancestor seeds are evaluated together with soil and blended in application kitchens have been important for a long time in other countries besides Turkey. Pehlivan and Yavaş (2022) state that such studies in sustainable gastronomy practices are given much more importance especially abroad and in this context, it is stated that in some universities, students in gastronomy education carry out studies intertwined with concepts such as agroecology and permaculture, which include methods for sustainable agricultural practices. As a result of the knowledge gained by students in these trainings, it is seen that they are offered the opportunity to experience organic agriculture and organic products by creating one-to-one hobby gardens in farms and various application areas. Sustainable gastronomy culinary practices have a very broad perspective in this respect. For this reason, it is foreseen that multifaceted steps should be taken.

In European countries, it is possible to mention that it is possible to make edible landscape designs in urban areas to be used in case of a possible global warming and disaster, balcony and roof gardening, organic hobby gardening and permaculture parks are not approached as a new subject, and that such applications are more prone and widespread compared to Turkey. For example; in permaculture parks, it is seen that the people living around the park produce their own organic food and provide the opportunity to protect the soil and transfer it to future generations by increasing the amount of organic matter in the soil and climate change by obtaining compost. In school gardens with edible landscapes for school children in Leith, USA, it was emphasized that school gardens with low carbon emissions, healthy and organic food production, emphasizing the importance of biodiversity in sustainable food production, can be passed on to future generations through transfer to students. He also states that providing trainings in the garden environment (referring to plants, pollination and composting, etc.) can be realized more easily even in this age group compared to the classroom environment (dos Santos, 2020). It has been observed that edible plants found locally in Brazil - despite their high nutritional value - are not sufficiently utilized in the kitchen. It is aimed to include these plants in the national food and nutrition to protect the country's biodiversity, in the development of organic agriculture, and to increase adaptation and resilience to the climate crisis. In this context, the researchers published a list of edible natural plants belonging to that region. They contributed to the creation of books with recipes for gastronomic uses of these plants (Moura de Oliveira Beltrame, 2021). In Turkey, it is possible to mention that there are a small number of businesses, institutions, farms, etc. that implement sustainable gastronomy in a similar way in culinary practices. It is seen that some of the subjects such as composting, water harvesting, organic farming, organic farming, ancestor seed production practices, which are included in the content of trainings such as agroecology, permaculture, ancestor seed, which are included in sustainable gastronomy trainings abroad, are tried to be given in Turkey through courses carried out with various certificates, some projects in partnership with associations and universities, and some of the trainings organized by municipalities. In this regard, it is possible to mention that the aspect reflected in the institutions providing education at undergraduate and graduate level is almost non-existent. The situation of sustainable gastronomy education; When the university course contents are examined, it is seen that the courses such as sustainable tourism, sustainable gastronomy, ecogastronomy, local dishes are especially focused on tourism, and that their counterparts abroad are compared with school gardens and greenhouses, farm partners (integrated into sustainable systems, extensive animal husbandry, beekeeping and agroecology in agricultural production areas) and joint training activities with artisan food enterprises. However, some nature and climate friendly cooperation texts such as the "Cooperation Protocol on Creating a Sustainable and Climate Friendly Campus" have been signed with some universities. Thus, it is aimed to implement zero waste, practices to prevent food waste, composting, collection and use of roof and rainwater, use of ancestor seeds, and energy-saving practices in pilot universities (YÖK, 2024). When the websites of the universities selected for sustainable campus practices are examined, it is seen that their campuses include practices such as parking areas with herbal production, park design with natural materials, and waste separation. It is thought that Özyeđin University Gastronomy and Culinary Arts department is implementing a campus orchard in its education program and in this context, permaculture trainings, food production, etc. should be included in the curriculum (YÖK, 2024). With the TUBITAK 4004 project "I Learn in Nature with Permaculture Philosophy for a Sustainable World", Yozgat Bozok University became a project partner to provide training for teachers (TUBITAK, 2024). Within the scope of the "SDU Green, Livable and Sustainable Campus Project" (2024), which is being implemented under the coordination of Süleyman Demirel University Water Institute, studies on zero waste and water saving are being carried out (TUBITAK, 2024). It is thought that these similar studies will contribute to sustainability. It is also encouraging in terms of the spread of sustainable gastronomy studies.

Agricultural education in our country should be carried out through a curriculum in which monoculture agricultural methods are generally taught. Monoculture agriculture, which is traditionally practiced, is seen as a major obstacle to ecological sustainability. For this reason, changes should be made in this regard in order to realize sustainable agricultural methods. Kanbak (2018) states that monoculture agriculture is the most widely practiced agricultural production method in the industry. He emphasizes that thanks to this method, it is possible to grow a single product in the production area. He states that in the realization of practices for the standardization of agriculture and market control, no plants and animals will be able to live except for the products that will be produced first, and the importance of agricultural lands will increase. Although sustainable food is thought to attract attention depending on the level of awareness of the society on issues such as climate crisis, water crisis, environmental pollution, ancestor seed and destruction of ecology, these issues are seen as a major problem that can deeply affect all humanity. For this reason, it is urgently necessary to support education and practices for our country and to accelerate ancestral seed practices. In order for these to be done, it is of great importance for the faculty members who teach gastronomy and culinary arts, cookery and agricultural engineering to fulfill their responsibilities, especially in universities, to

review the trainings on these issues and include their applications in the curriculum, to set an example to the public with pilot application areas, and to carry out studies on this subject together with local and traditional methods.

MATERIAL AND METHOD

Methodology

Ancestral seeds are considered one of the basic building blocks of national security. When the powers that aim to control humanity by disrupting the genetic structure of seeds realized the disruptions in their own lands, they set Mesopotamia as a focal point. The saying “The greatest service that can be rendered to any country is to provide its culture with a useful plant seed” supports this belief (Saracoglu, 2022). As it can be understood from this, ancestral seeds play a leading role in protecting local and national value and are the center of attention of people today. The aim of the research is to investigate ancestral seeds, to provide information about these seeds and to present a written source on this subject to the literature. The research was designed qualitatively. Document analysis technique was used by utilizing secondary sources. This analysis technique is used to meticulously analyze the content of written sources (Wach, 2013). Within the scope of the analysis, all written and electronic sources are systematically analyzed. As in other methods, document analysis method can be used to create a meaning, develop empirical information and make sense of the researched topic (Corbin & Strauss, 2008). In order to achieve the aim, the relevant literature was reviewed and the most frequently mentioned ancestral seeds in the sources were compiled. These seeds were identified as Yellow Wheat, Black Melon, Çanakkale pepper, Ottoman Strawberry, Cranberry and Garlic. These seeds constitute the sample of the research. Research was conducted as ancestor seeds and it was seen that these were the most common seeds. For this reason, the research was limited to these seeds. Information about the seeds was collected between 10.08.2024-10.10.2024. In order to achieve the aim of the research, the following parameters were set out:

- What are the so-called ancestral seeds?
- What is the chronological order of ancestral seeds?
- What is the sustainability status of ancestral seeds today?

In line with the data obtained, survey technique, one of the quantitative research methods, was used in the research. The population of the research consists of faculty members and associate, undergraduate and graduate students of the Department of Gastronomy and Culinary Arts, Department of Cookery and Department of Agricultural Engineering in Turkey and abroad.

In the second part of the research, a survey form was applied to experts, chefs, agricultural engineers, university students studying in agriculture, cooking, gastronomy and graduated who have knowledge about heirloom seeds, who use heirloom seeds, who receive education in sustainable campuses, who prepare products in food and beverage workshops with sustainable heirloom seeds. The survey form includes 5 questions examining demographic characteristics and 36 questions about heirloom seeds and culinary practices. A 5-point Likert type scale was used within the scope of my research. It is characterized as (1- Strongly Disagree, 2-Disagree, 3-Neither Agree nor Disagree, 4-Agree, 5-Strongly Agree).

RESULTS

Findings

Ancestral seeds play a critical role in preserving local and traditional agricultural varieties and maintaining sustainable agricultural practices. Through natural selection over generations, these seeds have adapted to environmental conditions, acquired disease resistance and become compatible with local ecosystems. The use of ancestral seeds preserves genetic diversity and provides alternative solutions to the threats faced by modern agriculture, such as pests and diseases caused by uniform agriculture. In addition, crops produced with ancestral seeds are often more nutritious and flavorful. As part of cultural heritage, they also support the agricultural independence of local communities and contribute to a healthy food system for future generations. In this part of the study, ancestral seeds will be discussed one by one and detailed information about each product will be given. The chronological order of ancestor seeds is given in Table 1. When the table is examined, it is seen that the first product is Yellow Wheat.

Table 1. Chronological Order of Ancestor Seeds.

Ancestor Seeds	Year	Motherland
Yellow Wheat	Neolithic Age	Mesopotamia
Black Melon	3000 B.C.E.	China
Garlic (Taşköprü Garlic)	2600-2100 BCE	Central Asia
Ottoman Strawberry	23-79 AD	France
Canakkale Pepper	-	Americas
Cranberry	-	West Asia

The gender distribution of the participants is as follows: 30.7% male (101 people) and 69.3% female (227 people). This shows that the number of female participants is considerably higher than male. The age distribution is mostly concentrated in the 18-22 age range, 67.8% (223 people). This is followed by the 23-41 age range with 21.3% (70 people) and the 42-65 age range with 10.9% (36 people). The graduation status of the participants is as follows: 3% high school graduate (10 people), 78.4% bachelor's degree graduate (258 people), 5.8% master's degree graduate (19 people), and 12.8% doctoral degree graduate (42 people). This shows that the majority of the participants have a bachelor's degree. The marital status of the participants is mostly single, 83% single (273 people), and 17% married (56 people).

Table 2. The gender distribution of the participants.

Variable	Group	N	%
Gender	Male	101	30,7
	Woman	227	69
Your Age	18-22	223	67,8
	23-41	70	21,3
	42-65	36	10,9
Graduation	High School	10	3
	Licence	258	78,4
	Degree	19	5,8
	Doctorate	42	12,8
Marital Status	Married	56	83
	Single	273	17
Working Status	It Works	29	8,8
	Does Not Work	16	4,9
	Retired	2	0,6
	Public Employee	40	12,2
	Student	242	73,6

This shows that there are many more single participants than married participants. The employment status of the participants is as follows: 8.8% employed (29 people), 4.9% unemployed (16 people), 0.6% retired (2 people), 12.2% public servant (40 people) and 73.6% students (242 people). This shows that the majority of the participants are students.

Table 3. Consciousness Scale Reliability Analysis.

Cronbach's Alpha:	N
0,780	5

Cronbach's Alpha value (0.972) shows a very high reliability. Generally, values of 0.9 and above are considered excellent reliability, indicating that your scale provides very consistent measurements and that internal consistency

is extremely high. These results show that attitudes towards the use of heirloom seeds in university practice kitchens are effectively measured and that the scale is reliable. In this context, educational programs and awareness campaigns can be recommended for the more widespread use of heirloom seeds in gastronomic applications.

Construct Validity. Construct validity is the construction of a scale to measure a phenomenon completely and unbiasedly (Özdamar, 2017). The structure of the questions in the scale should be questioned with Exploratory Factor Analysis (EFA) (Kartal and Bardakçı, 2018). In this study, the Kaiser-Meyer-Olkin (KMO) sample concordance coefficient was found to be 0.961 and the Bartlett's Test of Sphericity test χ^2 value was found to be 11950.425 ($p < 0.001$), indicating that the data set was suitable for factor analysis. For factor analysis, the KMO value must be higher than 0.60 (Büyüköztürk, 2004), and values between 0.70-0.79 are considered "good" for sample adequacy (Kartal and Bardakçı, 2018). EFA results are shown in Table 4.

Table 4. EFA Results of the Awareness and Use of Ancestral Seeds Scale.

Item No	Ancestor Seed Consciousness	Use of Heirloom Seeds
1	,589	-
2	,585	-
3	,596	-
4	,545	-
28	,787	-
5	-	,676
6	-	,619
7	-	,584
8	-	,663
9	-	,656
10	-	,658
11	-	,647
12	-	,609
13	-	,757
14	-	,588
15	-	,633
16	-	,816
17	-	,812
18	-	,838
19	-	,815
20	-	,770
21	-	,673
22	-	,807
23	-	,843
24	-	,788
25	-	,807
26	-	,815
27	-	,841
29	-	,746
30	-	,787
30	-	,787
31	-	,741
32	-	,749
33	-	,790
34	-	,789
35	-	,738
36	-	,784

As a result of exploratory factor analysis, a four-factor structure explaining 70.671% of the total variance was obtained. KMO and Bartlett's test results show that the sample suitability and factorability are high. The factor loadings of the scale are focused on ancestral seed awareness and use. These results show that the scale is valid and has a sufficient explanatory level. The factor loading value of each item considered to be included in the scale should be above 0.50 (Hair, Black, Anderson & Babin, 2009).

The first four items (1-4) and the 28th item measure ancestral seed awareness, while the remaining items measure ancestral seed use. Examining the awareness levels regarding ancestral seed awareness and use with factor analysis

can be used to evaluate whether education programs and awareness activities are effective. In addition, such analyses can help determine in which areas more education or awareness campaigns are needed.

Table. 5 Analysis of Data on Awareness and Use of Ancestral Seeds.

Category	Sub Category	N	Average	Standard Deviation	P Value
Gender	Male	101	3,1901	0,92752	0,330
	Woman	227	3,0678	0,84234	
Age	18-22	223	2,9821	0,86391	0,028
	23-41	70	3,3200	0,81961	
	42-65	36	3,4889	0,84778	
Educational Status	Doctorate	42	3,5333	0,83656	0,039
	Licence	258	3,0039	0,83958	
	High school	10	3,6400	1,06583	
	Master Degree	19	3,3263	0,90973	
Marital status	Single	273	3,0212	0,86822	0,046
	Married	56	3,5393	0,75791	
Working Status	Worker	45	3,0622	0,90234	0.001
	Retired	2	3,9000	1,55563	
	Public Employee	40	3,5900	0,88862	
	Student	242	3,0322	0,83499	

Analyses conducted on ancestral seed awareness and use show significant differences according to various demographic variables. In the gender category, the average ancestral seed awareness of men was found to be 3.1901, while this rate was found to be 3.0678 in women. However, since the p-value was 0.330, it is seen that this difference between the genders is not statistically significant.

In the age category, the average awareness of those in the 18-22 age group is 2.9821, those in the 23-41 age group are 3.3200, and those in the 42-65 age group are 3.4889. The p-value is 0.028, indicating that these differences are statistically significant. This finding reveals that ancestral seed awareness increases as age increases.

In the analyses conducted in terms of educational status, the average awareness of bachelor's degree graduates was determined to be 3.0039, master's degree graduates were 3.3263, doctoral degree graduates were 3.5333, and high school graduates were 3.6400. The p-value is 0.039, which shows that these differences are statistically significant according to the level of education. It is understood that as the level of education increases, the awareness of ancestral seeds also increases.

In the analyses made in terms of education status, the average awareness of undergraduate graduates was determined as 3.0039, master's graduates as 3.3263, doctoral graduates as 3.5333 and high school graduates as 3.6400. The p-value was 0.039, indicating that these differences were statistically significant according to the level of education. It is understood that as the level of education increases, ancestral seed awareness also increases.

In the marital status category, the average ancestral seed awareness of single individuals was 3.0212, while the average of married individuals was 3.5393. The p-value was 0.046, indicating that marital status has a significant effect on ancestral seed awareness. Married individuals have a higher awareness compared to single individuals.

Finally, when the employment status was examined, the average awareness of employees was found to be 3.0622, retirees as 3.9000, public employees as 3.5900 and students as 3.0322. The p-value is 0.001, which shows that employment status has a significant effect on ancestral seed awareness. In particular, public employees and retirees have higher ancestral seed awareness compared to other groups. These data provide important clues about how demographic factors affect ancestral seed awareness and use. When developing strategies to increase ancestral seed awareness, these demographic differences should be taken into account. In this way, more effective and target-oriented approaches can be adopted.

This study examined how the awareness levels of universities regarding the use of heirloom seeds vary according to various demographic factors such as gender, age, education level, marital status and employment status. The analysis results are as follows:

Table 6. Results of the Heirloom Seed Usage Scale.

Category	Sub Category	N	Average	Standard Deviation	P-Value
Gender	Male	101	3,0990	0,90421	0,33
	Woman	227	3,0182	0,87353	
Age	18-22	223	2,9400	0,90879	0,758
	23-41	70	3,1959	0,78536	
	42-65	36	3,4328	0,79789	
Educational Status	Doctorate	42	3,3172	0,74744	0,392
	Licence	258	2,9575	0,88068	
	High school	10	3,7387	0,93015	
	Degree	19	3,3243	0,95023	
Marital status	Single	273	2,9859	0,90359	0,042
	Married	56	3,3525	0,73022	
Working Status	Worker	45	3,1032	0,97236	0,12
	Retired	2	3,8710	1,36859	
	Public Employee	40	3,3339	0,78798	
	Student	242	2,9841	0,87429	

Analyses conducted on heirloom seed use show significant differences according to various demographic variables. In the gender category, the average heirloom seed use was found to be 3.0990 for men, while this rate was found to be 3.0182 for women. However, since the p-value was 0.33, it is seen that this difference between the genders is not statistically significant. This situation shows that gender is not a determining factor in heirloom seed use.

In the age category, the average use of those in the 18-22 age group is 2.9400, those in the 23-41 age group is 3.1959, and those in the 42-65 age group is 3.4328. The p-value is 0.758, indicating that these differences are not statistically significant. This finding reveals that age is not a determining factor in heirloom seed use. However, it is observed that heirloom seed use increases with age.

In the analyses conducted in terms of education status, the average usage of undergraduate graduates was determined as 2.9575, master's graduates as 3.3243, doctoral graduates as 3.3172 and high school graduates as 3.7387. The p-value was 0.392, indicating that these differences according to education level were not statistically significant. It is observed that the use of heirloom seeds increases as the level of education increases. A high usage rate is especially striking among high school graduates. In the marital status category, the average heirloom seed usage of single individuals was 2.9859, while the average of married individuals was 3.3525. The p-value was 0.042, indicating that marital status has a significant effect on heirloom seed usage. Married individuals have a higher usage rate compared to single individuals. This shows that married individuals have a higher interest in and use of heirloom seeds.

CONCLUSION

- Finally, when the employment status was examined, the average usage of employees was found to be 3.1032, retirees 3.8710, public employees 3.3339 and students 2.9841. The p-value was 0.12, indicating that employment status did not have a significant effect on heirloom seed usage. However, it was observed that the highest usage rate was among retirees and public employees also had a high usage rate. This situation shows that retirees and public employees are more interested in heirloom seeds than other groups.
- These data help us understand how demographic factors affect heirloom seed usage. These demographic differences should be taken into account in strategies to be developed to promote heirloom seed usage. Factors such as age, education level and marital status in particular can play an important role in targeted campaigns to increase heirloom seed usage. In this way, more effective and target-oriented approaches can be adopted.
- Expanding the use of heirloom seeds is of great importance for the sustainability of local agriculture and the protection of biodiversity. The protection and use of traditional seeds plays an important role in preserving the ecological balance by increasing agricultural diversity. Therefore, studies aimed at increasing awareness and use of heirloom seeds should be supported not only at the individual level but also at the social and political level. Interest and awareness of heirloom seeds can be increased by using tools such as education programs, public relations campaigns and incentive policies.

- This study examined how awareness and attitudes towards the use of heirloom seeds in universities differed according to various demographic factors. The research findings revealed that heirloom seed awareness and use showed significant differences depending on demographic variables such as gender, age, education level, marital status and employment status. Gender did not significantly affect heirloom seed awareness and use. The average awareness and use levels of male and female participants were quite similar. However, analyses conducted according to age groups showed that heirloom seed awareness and use increased with age. Participants in the 42-65 age group had the highest awareness and use levels compared to other age groups.
- Education level emerges as an important determinant in heirloom seed awareness and use. High school graduates have the highest level of awareness and use, followed by doctorate, master's and bachelor's degree graduates. These findings show that education level significantly affects awareness and use levels.
- Marital status is also an effective factor in heirloom seed awareness and use. Married individuals have higher awareness and use levels compared to single individuals. This reveals that marital status significantly affects heirloom seed awareness and use.
- Employment status is another important variable affecting heirloom seed awareness and use. Retired individuals have the highest awareness and use levels, followed by public employees, workers and students. Employment status significantly affects awareness and use.
- These findings provide important information to create awareness and develop educational programs regarding heirloom seed awareness and use in universities. In this context, the following recommendations can be made to encourage the use of heirloom seeds and increase awareness:
 - Educational Programs: Special educational programs should be organized for different demographic groups and the importance of heirloom seeds should be emphasized.
 - Awareness Campaigns: Wide-scale awareness campaigns should be conducted to increase heirloom seed awareness and aim to reach every segment of society.
 - Applied Education: Food preparation practices using heirloom seeds should be increased in university practice kitchens and encouraging programs should be developed in this direction.
 - Research and Development: More research and development activities should be carried out to increase the gastronomic and agricultural value of heirloom seeds.
 - This study helps us understand how heirloom seed awareness and use vary in universities. Future research will contribute to gaining more information on this subject and supporting sustainable gastronomy practices.

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