sustainability

MDPI

Review

Eco-Value and Public Perceptions for Indigenous Farm Animal Breeds and Local Plant Varieties, Focusing on Greece

Martha Tampaki [1], Georgia Koutouzidou [2], Athanasios Ragkos [3], Katerina Melfou [1] and Ioannis A. Giantsis [1,*]

[1] Faculty of Agricultural Sciences, University of Western Macedonia, 53100 Florina, Greece
[2] Institute of Plant Breeding and Genetic Resources, Hellenic Agricultural Organization—DIMITRA, 57001 Thessaloniki, Greece
[3] Agricultural Economics Research Institute, Hellenic Agricultural Organization—DIMITRA, 11528 Athens, Greece
* Correspondence: igiantsis@uowm.gr

Abstract: The present study aims to review the literature on the functioning of short value chains and public perceptions regarding indigenous farm animal breeds (IFABs), local plant varieties (LPVs), and their products. Our work mainly concerns Greece, providing additional concrete examples from the wider Balkan area, which is characterized by high agrobiodiversity and richness in various IFAB and LPV, enhanced by the extensive farming systems that still operate in many parts of the area. To achieve this goal, a systematic literature search of recent relevant studies was performed, followed by a description of their results and conclusions, as well as proposed measures and policies for the conservation and utilization of biodiversity in agricultural and livestock systems. According to our findings, the Balkan region is characterized by a great wealth of local plant varieties and indigenous breeds of farm animals, which is largely recognized by consumers, who would, however, recommend stronger eco-labeling of local agricultural products. Similar data are observed in Greece, which are reinforced by the Mediterranean climatic environment. NGO organizations occasionally play an important role in promoting local agricultural products and creating awareness about the need to preserve local breeds and plant varieties. Finally, the recognition, certification, and measurements carried out by local authorities, as well as EU regulations, are of great importance in highlighting the value of agrobiodiversity from a sustainable point of view.

Keywords: biodiversity; public awareness; consumers; indigenous breed; local variety

Citation: Tampaki, M.; Koutouzidou, G.; Ragkos, A.; Melfou, K.; Giantsis, I.A. Eco-Value and Public Perceptions for Indigenous Farm Animal Breeds and Local Plant Varieties, Focusing on Greece. *Sustainability* **2022**, *14*, 11211. https://doi.org/10.3390/su141811211

Academic Editor: Teodor Rusu

Received: 24 August 2022
Accepted: 6 September 2022
Published: 7 September 2022

1. Introduction

Crop and animal biodiversity maintenance constitutes a major challenge for the sustainability and resilience of the agricultural sector in Europe. The conservation and restoration of crop and farm animal biodiversity constitute one of the main scopes of the new Common Agricultural Policy (CAP) highlighted in the core of the EU "Farm to Fork" and "Biodiversity Horizon to 2030" Strategies, as well as in the European Green Deal [1]. In the literature dealing with biodiversity in the agricultural sector, references are often simply limited to the diversity of cultivated plants, such as local plant varieties (LPV), and of the domestic animals, such as the indigenous farm animal breeds (IFAB).

During the last decades, the intensification of the agricultural sector toward a pattern that is predominantly based on external inputs relies on genetically improved high-yielding farm animals and crop varieties. This transition may pose a threat to the biodiversity of the agricultural sector in general, as well as to valuable genetic resources, because intensification is generally associated with the homogenization of production systems and the use of fewer varieties and breeds allowing intense production patterns to prevail [2]. Under these conditions, an additional challenge for the conservation of animal and plant genetic resources concerns the maintenance of genetic diversity in the light of avoiding

inbreeding in farm animals and cultivated plant in the process of genetic improvement [3]. Innovative solutions are thus required to protect biodiversity and, consequently, to support sustainable agriculture practices [2] and traditional, diversified production systems, which are based on LPV and IFAB. The protection of genetic diversity and avoidance of loss due to inbreeding are the two points that are considered important and should be taken into account in management decisions. The genetic uniqueness of the breed and the genetic variation within the breed are among the most important biological features ought to be preserved [4].

When it comes to IFAB, many breeds have been created and evolved over the centuries, numerous have crossed, whereas many of them have gone extinct. However, the result was that diversity prevailed. Today, more than 8000 listed breeds are found worldwide [5] comprising the current animal genetic resources pool and it is of high importance that these genetic resources be maintained in their geographical contexts around the world. In developed countries, IFAB are mostly preserved in the context of maintaining tradition and cultural values [6], while their role in production is often underestimated. Nonetheless, IFAB enact a critical role in improving sustainability of rural life and valorizing marginal ecological areas, which would otherwise be abandoned. Their main feature is the provision of a wide variety of high-quality products of low environmental footprint [7]. These local breeds operate under extensive systems that graze in pastureland, producing manure, which is utilized in crop production, therefore constituting an essential element of sustainable agriculture [8] while supporting the livelihoods of rural populations and forming important short supply chains. Toward this scope, conservation measures for endangered IFAB in combination with the support for specialized markets for livestock products are now considered necessary [4]. Despite this necessity, the genetic improvement in purebred farm animals has often led to the intense reduction in genetic diversity and the extinction of several animal breeds. It is, therefore, important to design conservation and valorization strategies for the IFAB [5].

Either for LPV or for IFAB, preserving local genetic resources in agriculture is a two-fold challenge. Initially, farmers are often called upon to operate their farm in marginal environments facing multiple challenges and natural handicaps. Although these production systems have been proved resilient across the centuries, in many occasions these farmers struggle to survive nowadays under the pressure of industrialization of production, market globalization, high consumer demand that calls for increased productivity, climate change, and land abandonment. Moreover, products originating from local genetic resources are often difficult to trade, mainly due to high production and marketing costs alongside with low productivity, low technical efficiency and disproportional appreciation in markets [9]. In general, there is a large debate observed in producers choices, who have to select between rearing improved breeds and plant varieties originating from other countries, and indigenous ones, which often are however of lower productivity. Nevertheless, producers often face difficulties in promoting their products, even in the case of those originating from IFAB or LPV, so they resort to promote the experiences and idiosyncrasies of the local community [8].

Taken altogether, the current study aims to provide an overview of the literature on short value chains and public perceptions for LPV and IFAB as well as their products with an emphasis in Greece and to a lesser extent in the wider Balkan area. This scope reflects also the aforementioned debate and aims to enlighten the consumers' preferences, keeping in mind the demands of the public to sustain the agrobiodiversity. It is worth mentioning that in 2003, the European Union designed the requirements for the countries of the Western Balkans to join the Union. These criteria, in addition to political framework, included also environmental and ecological aspects, in compliance to the UN 2030 Agenda [10]. The present review investigates the integration of environmental policies related to agrobiodiversity into public perceptions, examining also ways of improvement according to consumers' opinion. A semi-systematic literature review was conducted, in which insights from relevant studies, articles and reports are summarized and discussed.

The relevant literature is categorized according to thematic criteria aiming to propose a future research agenda. Data were collected from three search engines, namely Scopus, Web of Science and Google Scholar, and were combined with reports from the Ministries of Agriculture of Balkan countries as well as from institutions related to the preservation of LPV and IFAB.

The choice to focus in Greece with references to the Balkan area in this paper lies mainly on the fact that Balkans constitute a region with geoclimatic conditions that favored the geographic isolation of flora and fauna, leading to high biodiversity rates. Indeed, the Balkan region is characterized by mountainous topography, numerous lakes and harsh terrestrial conditions that contributed to the development and evolution of various LPV and IFAB [11]. At the same time, agriculture has traditionally played a crucial role in the economy of the Balkan countries, while actually there has been a decrease in the productivity of IFAB despite the implementation of genetic improvement programs [12]. It should be noted, however, that despite their low productivity, IFAB in Balkan regions may be valuable in selective breeding schemes in the context of resilience and tolerance to diseases and disorders [13]. Conclusions are expected to be of wider readership interest, taking into account the recent EU and global policies to protect genetic resources as well as to activate and mobilize more actions and effects on the importance of IFAV and LPV by raising public awareness. At the same time, the perceptions of the consumer located in the Balkan regions have a dynamic potential, that can function as a model for the rest of the countries worldwide.

2. Materials and Methods

The methodological framework for the in-depth review of the studies is structured as follows (Figure 1):

- Recognition and categorization of LPV and IFAB that are cultivated and reared, respectively, in Greece with some references to the Balkans. This part is based on reliable data obtained from scientific content search engines, institutions, and recognized organizations in Greece and other Balkan countries. Measures for the conservation and utilization of LPV and IFAB are also suggested in order to promote agro-biodiversity. The review of relevant literature highlighted conservation and utilization measures that have been (or are still) implemented in Greece and the Balkans;
- Economic, ecological, cultural, and social values that are associated with LPV cultivation and IFAB breeding, which play a crucial role in Greek areas with some references in Balkan territory;
- Impact of the environment on IFAB products: This constitutes an important part of the review process, which focuses on consolidating previous work on the potential effects of environmental factors on IFAB products. This analysis was based on data from articles regarding Greece and other Balkan countries;
- Sustainability assessment of LPV and IFAB products from Greece and other Balkan countries;
- Public perceptions of LPV and IFAB and their products. What do consumers and farmers think about LPV, IFAB, and their products?
- Certification-marking-labeling of LPV and IFAB products together with examples of integrated approaches and small value chains that combine policy and market interventions and involve farmer organizations, networks, clusters, etc. This part of the review seeks to provide insights regarding the influence of certification and labeling in Greek and other Balkan markets.

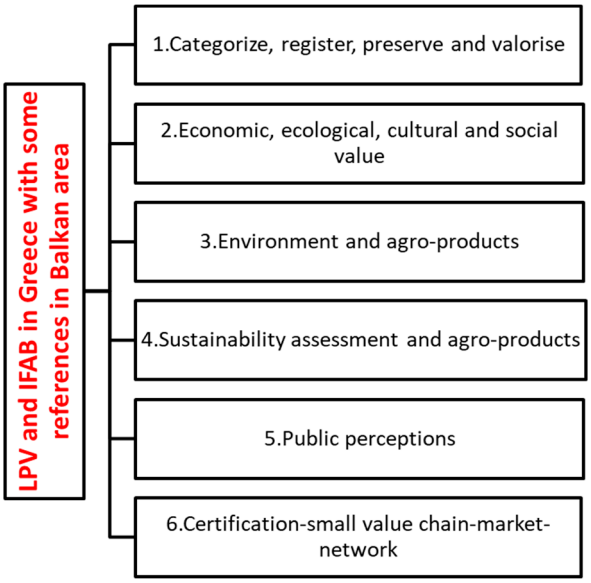

Figure 1. The examined aspects that contribute to the combined importance of LPV and IFAB.

Semi-systematic reviews are useful for understanding complex issues covering broad topics and different types of studies; they generate results as themes in the literature, research agendas, and theoretical models [14]. To provide a transparent research process in this review, the guidelines provided by Tranfield et al. [15] were followed, dividing procedures into three phases.

- Planning the review: The review was designed according to a specific course of work in Internet search engines. This work was concerned with the search, localization, categorization, and synthesis of data from international and occasionally local scientific literature. The research question had to do with how the literature approaches the concepts of LPV and IFAB in Greece and some other Balkan countries;
- Conducting the review: This stage aims for a comprehensive, unbiased search, resulting in a full listing of documents on which the review will be based. The selection of papers and articles for this review started with the search of documents in 5 August 2021 in three databases/searching machines. Scopus preview was the main searching machine of the study https://www.scopus.com/standard/marketing.uri#basic (accessed on 16 May 2022). The two others were the Google Scholar https://scholar.google.com/schhp?hl=el&as_sdt=0,5 (accessed on 23 May 2022) and the Web of Science https://www.webofscience.com (accessed on 30 May 2022). All the strings were based on the research sections. At first the terms searched were ("Balkan", "local varieties", and "indigenous breed"). Furthermore, for Sections 1 and 2, the strings searched were each Balkan country separately, ("Greece", "Montenegro", "Serbia", "Bulgaria", etc.), "local varieties", and "indigenous breed" or "autochthonous breed"). For Sections 3, 4 and 6, the terms searched were each Balkan country separately ("Greece", "Montenegro", "Serbia", "Bulgaria", etc.), "agro-products", "local varieties" and "indigenous breed" or "autochthonous breed"). Finally, for Section 5 the strings searched were each Balkan country separately ("Greece", "Montenegro", "Serbia", "Bulgaria", etc.), "agro-products", "public perceptions", "short value chain", "local varieties", and "indigenous breed" or "autochthonous breed"). Although we aimed to search all terms simultaneously in the title, abstract, and keywords, filters, and criteria in each database had to be adapted because they offered different search options. We specifically focused on peer-reviewed sources to guarantee that the papers were carefully assessed. This procedure was performed on all papers. In this process, we rejected documents that did not meet the combination of the criteria;

- Identification, categorization and synthesis of results: at this stage the final synthesis of the information from the selected sources was carried out, simplifying and analyzing the content of the articles and starting with a descriptive coding of the categories. The findings were then discussed to make the final summary on the basis of which a future research agenda is proposed.

3. Results

3.1. Categorization, Registration, Preservation, and Valorisation of LPV and IFAB

In general, in order for a local indigenous breed to be recognized it has to possess some particular characteristics that distinguish it from other conspecific breeds, it has to transmit these characteristics to the next generations, and it has to originate by natural selection instead of anthropogenic selective breeding [14]. It should be also pointed out that recognition of LPVs and IFABs in European Union (EU) countries conveys their recognition by EU regulations and depository as well. Thus, local regulations have been adopted by the EU, supporting the recognition in a worldwide context. For instance, according to the Ministry of Agriculture in Bulgaria, there are lists that categorized the farm animals in many sections concerning their indigenous characteristics [16]. In Greece, the recognition of IFAB is delimited through laws and decisions of the Ministry of Rural Development and Food. Public organizations also undertake recognition and conservation initiatives, such as the operation of the Greek Genebank (https://ipgrb.gr/greek-genebank/), which is the coordinating executive body for the protection and conservation of the plant genetic resource, safekeeping a large number of LPV and wild relatives. The situation in non-EU countries is similar with local regulations that however have not followed the intended ones by EU, e.g., in Serbia, the Ministry of Agriculture has adopted the regulation, which includes the list of genetic resources of domestic animals [17]. It describes how to preserve the genetic resources of domestic animals, as well as the list of endangered indigenous breeds and breeds that constitute animal genetic resources in Serbia.

Non-governmental organizations (NGOs), such as Aigilopas (www.aegilops.gr), which operates in Greece as a network for biodiversity and ecology in agriculture, occasionally provide the required data for these recognitions. This organization is the reconstitution of the Conservation and Exchange Network of Local Varieties of Plants and Indigenous Animal Breeds of the Laboratory of Ecological Practice of Thessaloniki, an official body, which was active throughout the 1990s, with the main activity of promoting ecological geology in Greece continuing its actions to this day. This organization is a member of the Pan-European movement "Let's Liberate biodiversity" for the freedom of seeds and the Pan-Hellenic movement against genetically modified organisms. In addition, the alternative community of Peliti (www.peliti.gr) is actually a company, which aims at the collection, preservation, and dissemination of traditional varieties. The role of NGOs is quite important toward this scope in other countries as well. Many NGOs in Transylvania, Romania, are working on locating, preserving, and promoting local varieties. As a result, "seed houses" have been set up to facilitate seed exchange. Some of the activities that take place include locating, collecting and preserving traditional seeds, organizing seed exhibitions as well as raising public awareness for the importance of this genetic heritage and its benefits from its maintenance and development [18]. In Romania, the phenomenon of the loss of local plants in the vegetable sector was observed due to the old age of the smallholders. All this was strengthened with the aid of many NGOs, and the simultaneous creation of seed houses. Thus, the exchange, supply, and preservation of traditional seeds could be performed easily with direct access to the cultivators at any time [19].

In summary, the importance of preserving the general resources of the indigenous traditional varieties and breeds is reflected in the following proposals. First of all, one must realize that local/traditional breeds contain disease-resistant genes that are necessary to maintain the viability of animal production systems [9]. It is additionally worth mentioning that, according to Kebede [20], local breeds can compete with improved breeds, even in terms of productivity. This finding has been verified by studies on indigenous breeds of

farm animals. Moreover, genetic diversity within domesticated species makes indigenous breeds necessary in a genetic selection and adaptation point of view.

Apart from adaptation, the downgrading of IFAB's values is affected by economic development, policies, and market competition. As a result, many of these breeds are in danger of extinction. However, indigenous breeds can be protected and will continue to contribute to the multifunctional production systems and local short value chains that operate through the use of appropriate measures promoted by agricultural agencies. The appropriate measures that would be suitable to implement are the following. Firstly, it is suitable to introduce management with a holistic character to make use of IFABs. In addition, in the field of reproduction, the promotion and implementation of integrated strategies can help to maintain IFABs. Using technology to create comprehensive databases of sample populations or historical, socioeconomic, and field measurements could enhance information on productivity and quality characteristics. While at the same time advertising through multimedia campaigns would help to make the public aware of the benefits of IFABs. Last but not least, the role of information, education, and the creation of important networks among farmers, who deal with IFAB breeding, is very important to trigger and implement a system of naming and/or certification of agricultural products [21].

3.2. Economic, Ecological, Cultural, and Social Value of IFAB and LPV

Conservation of biodiversity is recognized as a priority by FAO, EU, and UN policies, contributing to the basis of a balanced daily life in all societies and biological levels. In the Convention on Biological Diversity, Roosen [22] states that members recognize the intrinsic value of biodiversity and also the importance of biodiversity for the evolution and conservation of biosphere systems. Moreover, the assessment of biodiversity can be combined perfectly with the participation of the economic and biological resources of a society. In addition, biodiversity could be described as an important assessment tool for well-targeted and calibrated financial incentives [22]. As Schöpke and Swalve mentioned in their study [23], biodiversity is of great ecological importance providing economic benefits, ecosystem services, as well as holistic benefits, such as the preservation of the cultural heritage and tradition of a particular region. Therefore multifunctionality, resilience and vulnerability, territorial development, and social innovation, are basic concepts toward an integrated development framework for rural areas where local breeds are used as development resources [24].

Concerning the economic field, the value of LPV/IFAB and their products is occasionally remarkable. Globally, there are many examples of breeds that produce high-quality products, contributing effectively to their preservation. Several efforts are being made to enhance the value of species for each breed, as well as to enhance the production levels of each breed. This can be a more realistic strategy for breeds belonging to species that dominate certain highly productive markets, such as in racing horses. It makes sense to increase breed immutability when breed products gain a market premium, as producers receive higher monetary returns [4].

Local products originating from specific breeds are also of high importance aiming to enhance IFAB. For instance, in Greece breeders consider the volume of milk production to be an impediment to the composition of milk. This is because farmers are mainly rewarded according to the volume of their production. Unfortunately, only a minimum acceptable fat composition is defined in sheep's milk, without taking into account the fat/protein ratio of milk [25].

It should be emphasized that the sheep sector is of particular importance for Balkan countries and can equally contribute to sustainable development, including employment and income, to large parts of the rural population [26]. A typical example is the study of Lianou et al. [27], in Greece, which investigated sheep and goat breeds present in small ruminant farms and evaluated possible differences between those breeds. The results of this project show that in a country where sheep and goats constitute a large part of the agriculture sector, genetic improvement for mastitis resistance will contribute to better

health and welfare of sheep and goats indigenous breeds and to increased productivity on farms [26]. Another example is the Florina sheep breed originating from northwestern Greece. This breed acts as a driving force in generating multiplier effects for other businesses in the region, thereby helping the overall process of encouraging local entrepreneurship [28]. The produced milk comes from an area rich in tradition and culture, history, and natural resources. With an aim to reflect all the above in products, consumers are expected to give them high added value (Figure 2). Thus, the production of a branded, recognizable, quality processed product will increase the importance of its own primary product and will ensure benefits in the medium term [29].

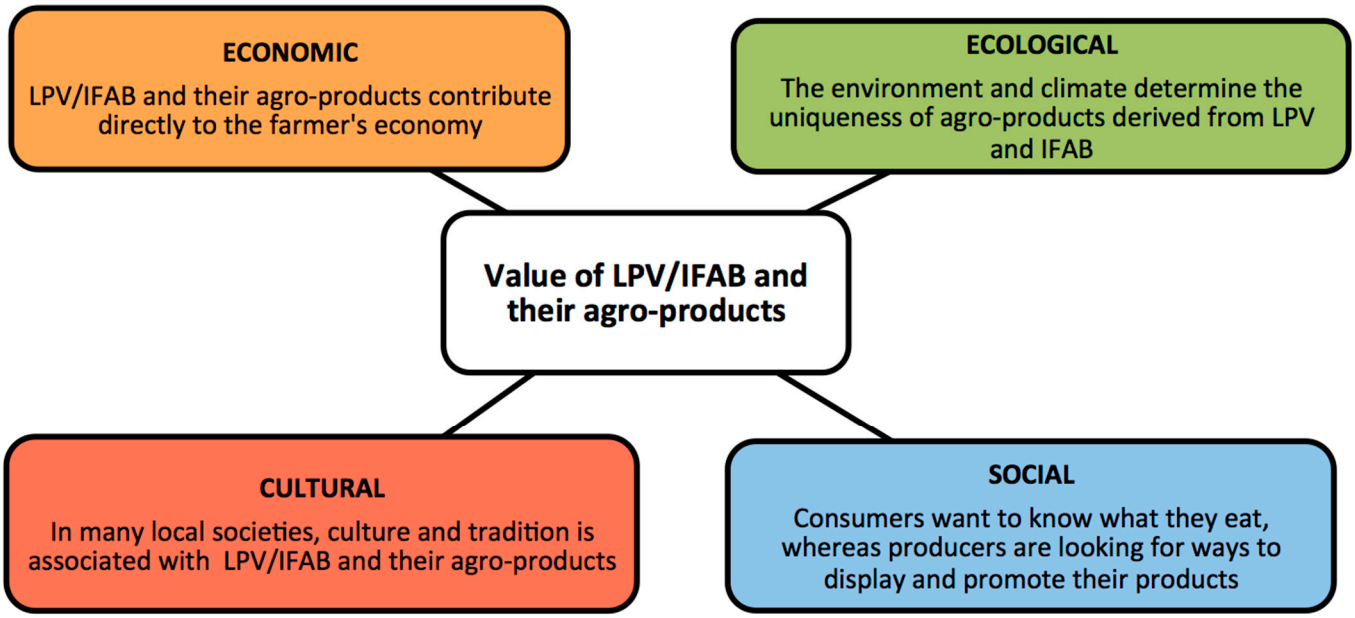

Figure 2. Schematic representation of economic value of IFAB and LPV as an example of a Greek indigenous animal breed.

Similarly, the Epirus Greek breed of mountain sheep produces milk high in fat and protein, reared in several mountainous areas. Its milk is quite important and has great value, widely used by the cheese industry for production of PDO (protected designation of origin) products such as feta cheese. This particular milk from this sheep breed of the mountainous Epirus, is not used as raw for human consumption. Its destination is exclusively intended for the production of cheese. It is worth mentioning, that the excellent adaptation of this breed to the adverse environmental conditions of the area, makes it irreplaceable for this husbandry [30].

Generally, sheep production systems have multiple effects on the socioeconomic activity in the Balkan countries cross-border area [26], with many prospects for the indigenous breed sheep products with a decisive role in many sections of the local societies [31]. Culture, customs, and tradition are characteristics of societies that go hand by hand with the preservation of IFAB and LPV and the promotion of their products. It is thus necessary to ensure the production of local and traditional products with high quality, that will have the special characteristics of the region (biodiversity of aromatic plants and herbs of the region, beneficial fatty acids, etc.) and which will be associated with the name of the region. Last but not least, the development of agrotourism is important to highlight the area of origin and breeding, in order to develop the local economy [31].

Regarding other Balkan countries, apart from the financial incentives given by states, it was observed that the breeder who has the right information in relation to the conservation of IFAB is more willing and at the same time prefers to become involved with the rearing of local animal breeds. All this is strengthened by the combination of both the reduction in bureaucracy and the utilization of IFABs in the market [32].

Regarding local breeds of other animals, studies on cattle breeding are also worth noticing. Indicatively, Radovan et al. [33] in their study assessed the biodiversity level in selected local cattle populations that were considered important animal genetic resources in Slovakia in the context of the sustainable management of food resources in the Baltic region.

Concerning plants, there is a great interest to produce LPVs such as sweet cherries in Croatia, where the new and young producers are directed to the cultivation of indigenous varieties. The seven local cultivated varieties of sweet cherries are preferred by producers and their production is limited to certain geographical areas, where they are produced traditionally providing high-quality products. These varieties get their name from the place names of their production area [34].

Another study, which concerns also variety of cherries, was carried out on 22 local cornelian cherry (*Cornus mas* L.) genotypes, which were grown northwest of Bosnia and Herzegovina [35]. The aim of this study was to provide information on the diversity of genetic resources of local cornelian cherry in the area of northwest Bosnia and Herzegovina and how this variety constitutes a valuable source of natural bioactive compounds and gene stock for breeding programs.

Moreover, a study of Udris et al. in Romania [36] about tomato, which is an important vegetable cultivation in Balkans, focused on the analysis of the genome variation for eight local tomato varieties using next-generation sequencing technique. These varieties were used as a case study to determine which genotypes might be suitable candidates for future breeding of tomato varieties resistant to Verticillium species and the findings of the study can be used to create novel tomato varieties adapted to the ever-changing environment.

Other studies involving plants are found in the Italian region. Specifically, in the study by Basile et al. [37], which deals with traditional apricot breeds grown in Campania, the Italian region with the highest number of traditional varieties. In this study, several apricot cultivars were evaluated and characterized using agromorphological and pomological traits as well as fruit quality parameters. Qualitative traits were sufficient to distinguish landraces, with a suitable distribution of the assessed traits. There were also some notable and highly present phenotypes, which were important drivers for the differentiation of the cultivated apricot material at a regional scale. An additional study related to the local varieties of the Italian region and specifically the Abruzzo region (Southern Italy) is that of Stagnari et al. [38]. These researchers worked on the local sweet pepper ecotype, Altino. This crop is one of the most cultivated and economically important in the Mediterranean basin, where the Altino ecotype is characteristic of the Abruzzo region (Southern Italy), in the province of Chieti, and is known for its air- or sun-dried fruits, which they are commonly used in many typical culinary dishes and as a spice after grinding.

Following production process, in the context of the promotion of agri-food products but also of the tourist exploitation, it is important to explore agri-food and traditional processing of local products. The local agricultural products of several geographical areas within the Balkans are of high quality. The products derived from viticulture are worth mentioning, cherry cultivation as well as aromatic and medicinal plants. Traditional wine and raki have been ranked among the best of their kind in several areas and beyond alongside other local products, such as cheese, meat, oregano and jams [39]. The main scope of local products related tourism is the target to develop agrotourism by highlighting the area of origin and breeding, in order to stand out the local economy [31].

Indicatively, the Istria Regional Business Plan represents an action plan to achieve tourism sustainability in Croatia. Characteristics of this project support the emphasis on the cultural and historical authenticity of the region, the encouragement of the development of selective forms of tourism, the promotion of economic development through the organization of tourist visits to the authentic areas of Istria and of course the possibility of utilizing indigenous gastronomy in the context of socioeconomic sustainability. A study, held at the Days of Fresh Olive Oil event in Vodnjan, found that it is important to organize gastronomic events in the context of the sustainable development of tourist destinations

by local producers of original tourist products and equally important are the indigenous products and dishes preserved in their original environment and form [40].

Furthermore, wine tourism can be a very attractive and promising holiday experience for consumers. According to a study conducted in eight Greek catering groups with British wine consumers, it emerged, inter alia, that local varieties and specific grape-growing areas can entice consumers especially with high expectations and without financial constraints. Therefore, farmers of local wine varieties as well as wine producers should focus on marketing strategies, which will be directly targeting consumers with activities, such as tastings, and focus on tangible rather than intangible characteristics of wine [41]. In the last 20 years there has been a shift toward local indigenous grape varieties. This is due to the fact that winegrowers aim for the uniqueness of their products, both in taste and quality [42]. At the same time, in other Balkan regions such as Montenegro, considering the cultivation of the vine, ancient practices are observed in local varieties coexisting with modern viticulture. This fact reinforces the traditional method of cultivation with respect to the environment, thus giving the opportunity to explore processes that increase genetic diversity offering also a touristic destination to visitors [43].

In addition, the utilization of traditional rural buildings for the sustainable development of rural tourism in mountainous areas gives a positive feeling. During the summer months farms are used to raise local animals for the production of traditional local milk and local meats. This effort by local breeders is a pole of attraction for tourists as well, due to the traditional way of producing the agro-products in the local areas [44].On the other hand, the COVID-19 crisis is responsible for various limitations in daily life. However, consumers seem to not have changed their positive attitude and perception of traditional products, although not sufficiently promoted abroad, which remains a significant disadvantage for their development [45]. They believe that these foods have many nutritional benefits, since they were made from local raw materials and local food companies with a significant economic impact on the regional economy.

Finally, it is worth mentioning that in the context of "sustainable living" approaches to development, local livestock farming is an important contributor to rural prosperity and poverty alleviation [8,46].

3.3. Impact of the Environment on Products Derived from LPVs and IFABs

Not only environmental but also climatic conditions change over time. The ability of an animal population to adapt to these changes is directly related to its genetic diversity. Therefore, if diversity is threatened, particular management strategies should be designed and implemented. These measures are directly related to the biodiversity conservation and sustainable use [4]. Toward this scope, the expansion of organic farming requires local varieties that are better adapted to harsh environmental conditions [18].

The preservation of the indigenous breeds is critical for the enhancement of the genetic biodiversity but also important for the cultural heritage. Moreover, it can enable farmers to select suitable genetic resources, to develop new genotypes that will co-respond to ever-changing climatic conditions and also to market and society needs and expectations (e.g., in terms of sustainable food production and food security) [27].

Not all the breeds, which are in danger, show the same conservation value [4]. For instance, Greek breeders, in order to produce traditional local cheese products, must consider the photoperiodism and the seasonality in the reproduction of the Greek native sheep and goats. Due to the above factors, milk production is detected only at certain times of the year. Sheep milk is an important ingredient for many Balkan cheeses, which are financially significant with consistently high demand throughout the year. Usually, this effect is related to the fact that has to do with birth rates and milk production at very specific times of the year [47].

Also, there are significant differences not only between the breeds, but also between individuals of a particular population, in terms of the number of follicles that usually rupture in each estrous cycle. Therefore, a simple method of increasing the number of

ovaries in a flock of sheep or goats is the systematic choice in the direction of polygamy. A typical worth-mentioned example is the case of the Merino sheep breed, in which the characteristic of a high ovulation rate has been shown to be determined by a single gene (the "F" or Booroola gene). Henderson and Robinson mentioned that this genotype can be used to increase the number of ovulations in any sheep population. In this way, an additional ovulation per ewe can be achieved in a herd [48]. Meat from IFAB in Turkey has been found to occasionally have significant differences in the quality characteristics of the cholesterol content, or in color, pH, water holding capacity, indicating the quality value of local breeds despite the low quantitative productivity [49].

In the flora section, vitamin C is one of the important ingredients that the farmer wants to be present in the products he produces. There are many researches where their purpose is to identify the content of this ingredient in herbal products. As an example, we mention that in some autochthonous grapevine varieties (*Vitis vinifera* L.) in North Macedonia [50], in fruits of autochthonous cherry varieties Dalbazlija and Dolga shishka from the region of Ohrid [51], in indigenous pears in Northeast Bosnia [52], a high content of vitamin C was observed. This fact works positively for the farmers since, combined with the application of other parameters, very suitable quality products are received. All this, of course, confirms our assumptions that indigenous plant varieties under proper cultivation care are possible to give products with the best possible quality characteristics.

Moreover, during research carried out in areas of Montenegro on native wild varieties of pomegranate, remarkable conclusions were reached. The quality of the soil where the specific plants grow directly affects the content of important components present in pomegranates as a fruit and by extension in the prepared juices. The report of this case is interesting because the specific varieties can grow well in the specific soil and climate conditions, aiming for the best quality in the final product [53].

The River Timok region and Mountain Svrljig region in Serbia were samples for conducting research aimed at identifying any different data on autochthonous medicinal and ritual plants. Although the reference plants in both cases were the same, the results obtained were interesting. Initially, women were the ones who preferred to use herbal medicinal products of autochthonous plants. However, the interesting result of the study was that for the same diseases and ailments each region used different plants and not the same ones. This of course confirms the assumption that each local plant grows by acquiring components, which are measured in its products, depending on the soil and climate conditions that exist in each area at the maximum degree of its quality [54].

3.4. Sustainability Assessment of Local Agro-Products

The life cycle of a product refers to the main activities that take place during its production process life, in a "farm to fork" point of view. LCA (life-cycle assessment) is defined as the process of assessing the environmental burden associated with a product, process, or activity, through the identification and quantification of energy and materials used and released (as waste) into the environment. The aim of the LCA is to identify the points of the system where ecological improvements can be made [55].

Regarding animal husbandry, pig production systems, even when using local breeds, may cause environmental impacts at the upper permissible limits [18]. The emissions are related to the consumption of grass and the mitigation of the effects through soil C sequestration. Especially in some studied breeds in Slovenia, the acidification potential was higher for pigs of the indigenous Krškopolje breed due to the high dietary content of crude protein in the amount of feed. So, it is suitable in the cases of extensive pig systems based on pig foraging in grasslands to account for soil C sequestration and emissions associated with grazing and foraging.

On the other hand, in the context of circular bioeconomics, research has demonstrated that the quality characteristics of wine by-products, especially from the traditional PDO grape varieties of the Ionian Islands, may have a decisive contribution to a possible by-product management plan for a circular bio-economy, and can be used to strengthen

food business sectors, pharmaceuticals, cosmetics, cooking, animal feed and many other industries [56]. Schmitt [57] concluded that after sustainability evaluations in 14 products it appears that global products are in the last place in terms of sustainability, while in the first places of the ranking there were local or intermediate products. Areas that stood out were mainly in health and socioeconomic dimensions, especially in the aspects of care and connections with the territory, such as biodiversity, animal welfare, governance, or resilience.

3.5. Public Perceptions regarding IFAB and LPV and Their Agro-Products

Increasing consumer awareness is necessary in order to take a step forward toward conservation of indigenous breeds. Preserving an indigenous breed can play an important role in consumer demand [58]. A survey of European countries including Balkan countries as well, explored whether innovations in traditional pork products support the welfare of pigs bred in each country. The investigation involved two pillars. Firstly, the willingness of consumers to pay for such products and secondly the evaluation of their satisfaction always relating to traditional pork products. The results confirm the value of traditional local products, as consumers chose them rather instead of the innovative ones that are enriched with additional ingredients [59].

Additionally, in northern Greece consumers' perceptions of the value of their country's certified foods were examined, with a geographical indication (GI), including some LPV and IFAB products, among a sample of 433 consumers. Research evidence suggests that consumer ethnocentrism acts as a precursor construct for positive consumer attitudes toward food products with a geographical indication. GI products seem to compete with other types of products that are differentiated in terms of quality, such as sustainable foods (e.g., organic, animal welfare, fair trade, etc.), for a market share in the same market niche. In addition, the profile of the typical GI-certified food consumer resembles the typical profile of a more food quality conscious consumer, i.e., educated, female, and relatively younger.

Interestingly, farmers' age plays crucial role regarding IFAB and LPV, and their agro-products. Young consumers represent an important part of society in relation to traditional food products. A survey conducted in 7 European countries, including Greece, Bulgaria, Romania, Slovenia, Croatia, examined the attitude of 836 European adults aged between 18 and 30, consuming local and traditional products. The results showed that young people have a positive view of local and traditional food products. This study shows that there is a need for more focused promotion strategies depending on the profile of each consumer, avoiding horizontal approaches [60]. Of course, safety and quality of agro-products can regulate the perceptions of the consumer. A similar survey in Albania and Kosovo analyzed this statement [61], which although did not specifically address food produced from LPV or IFAB, the results showed that in both countries domestic food was considered safer, as well as of higher quality, than imported food. It is worth mentioning that women and better-educated consumers were the ones who used information on food safety, apart from information such as expiration date, reliable food brands and clear and transparent communication of country of origin or local origin [61], whereas of equally important role for consumer preferences is sensory quality [62].

3.6. Certification-Marking-Label of LPV and IFAB Agro-Products

The European eco-label, in relation to the certification and promotion of sustainable tourism, can play an important role for local communities but also for tour operators in the areas with such a scheme. It is suitable that non-governmental organizations specializing in environmental protection and consumer organizations are actively involved in informing and raising public awareness about eco-labeling. This can be achieved through promotion, information, and education actions at the national and not just local levels [63].

Consumers usually trust local food labels, showing interest and support local food chains by consuming local products [64]. However, they encounter difficulties in finding

and communicating with local producers, whereas they insist that the use of a label on the products is very important, since in that way they can see the region of origin and the identities of all the other local products [65]. Labels can be regulators of the acceptance of the product by consumers. In the case of conventional products, the information that was provided affected adversely consumers' perceptions and expectations whereas information about local, traditional products significantly increased the desire and expectations of consumers [62].

On the other hand, there are farmers with increased awareness who implement alternative production systems. Producers are characterized as the "consumers" of genetic material, but their motivations are behavioral or psychological and not just related to profit maximization. In addition, they are informed about market conditions and produce products of similar concerns, for example, certified products [66].

The concept of cooperation is an important tool in everyday rural life. Small bottlers have minimum benefits, as they have no contact with large retailers. In order to address this inequality in rural society, farmers need to apply verticalization methods and become familiar with the many roles in a highly competitive market. They have to become, at the same time, agronomists, conservators, processors, traders, and sellers [67]. Factors that can influence the improvement in farm units are land leases and the advanced age of farmers. However, in terms of cooperation, the creation of cooperatives and the organization of producers within them are very important steps. With the support of these structures, farmers will be able to have better access to credit and financing or even subsidies. Cooperatives can also set up special training programs to educate and inform farmers relevant to their professional skills [68].

Moreover, a promising strategy for the conservation of endangered breeds is for producers to claim that the name of their farmed animals is related to their place of origin. This initiative could contribute to the long-term conservation of these animals [69]. Niche marketing can encourage breeders to maintain their entire ecosystem. For example, on the Greek island of Mytilini, the dairy agro-product Ladotyri can help local Lesvos sheep breeders to gain higher prices and prevent its conversion for another purpose [70].

Eventually, an important step for a country is to develop a national conservation program for the genetic resources of animals bred in specific areas. This initially requires an overview of animal production systems across the country, including the species and breeds involved in providing different livestock functions [4]. To achieve these goals, proper planning is required and implementation of breeding goals, which should take into account functional characteristics, especially when there are specialized markets or a market that may be spatially fragmented [22]. Supporting rural development, combined with ensuring food safety, are important steps in strengthening livestock. At the same time, addressing the growing demand for livestock products, meeting the changing demands of consumers, and minimizing the threat of animal diseases can enhance the sense of safety and security of the products. Finally, the conservation of biodiversity and environmental integrity, as also the fight against hunger and poverty, can be a challenge for every country to bring about a significant change in the daily life of society [4].

4. Discussion

Our research, which anthologized some of the most recent studies that have been carried out on the conservation and sustainable value of biological diversity, revealed that the interest in the investigation of plant and animal biodiversity is constantly growing. The development of a biodiversity observatory for recording registered IFABs and LPVs in the Balkans that can be freely accessed would be beneficial, helping increase the added value of local products. The production of high-quality products of local varieties and breeds ensures higher market prices, which constitute a key driver for a sustainable and resilient agricultural sector that focuses not only on productivity but also on the conservation and valorization of biodiversity.

Interestingly, despite low rates of productivity, LPV and IFAB are particularly resilient and tolerant to the geoclimatic conditions of their growing and rearing areas, as well as to various pathogens and even climate change effects. At the same time, their transition to organic standards is easier with fewer requirements. Their products, especially when combined with agritourism, can be of great importance to local economies, also contributing to ecosystem stability. Nevertheless, it is worth noting that the consumption of locally produced dairy and meat products is generally low, considering its significant potential in the Balkan countries [25].

It is noteworthy that the safety and quality ensured by these categories of plant and animal organisms are very important to the consumer. It should also be emphasized that while consumers recognize the value of IFABs and LPVs as a safer source of higher quality agricultural products, they would expect better promotion of these products. Together with the consumers and farmers of the Balkan region, it is found that they are willing to invest and show their preferences for local IFAB and LPV products in terms of conservation and sustainability if they are intensively recognized and certified by local or community regulations. Ecolabelling could be a promising strategy for this purpose, according to consumer perceptions. Most Balkan countries have created and implemented regulations and have given financial support for the recognition and maintenance of IFABs and LPVs. Nevertheless, there is always room for improvement and evolution from a sustainability point of view.

Thus, perspectives future perspectives of local breeds and plant varieties should not only be limited to conservation units from an ecological and sustainable point of view but also to their economic value under particular circumstances.

5. Conclusions

In conclusion, in Greece, as well as in several areas of the Balkans, a wide variety of IFABs and LPVs are hosted, which still play a crucial role in rural and regional development. Interestingly, although there is strong public awareness of their sustainability, the need for more intense labeling is underlined by consumers. Furthermore, the conservation of genetic resources is of great importance for agrobiodiversity, ecosystem, and species sustainability both locally and globally. Despite the recognition of the different breeds and plant varieties from each country separately based on rules and local regulations, it should be emphasized that conservation efforts must be conducted at the international level by all Balkan countries. Particularly, toward this direction, an innovative and functional tool would be to create a Balkan platform with all registered IFABs and LPVs that everyone can access at any time, strengthening the local products' value and also considering the consumers' knowledge perspective.

Author Contributions: Conceptualization, A.R. and I.A.G.; methodology, M.T.; validation, G.K. and A.R.; formal analysis, K.M.; investigation, M.T.; data curation, M.T.; writing—original draft preparation, M.T.; writing—review and editing, A.R. and I.A.G.; visualization, K.M.; supervision, I.A.G.; project administration, A.R.; funding acquisition, I.A.G. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. The New Common Agricultural Policy: 2023-27, from European Commission. Available online: https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/new-cap-2023-27_en (accessed on 28 June 2022).
2. Joshi, L.; Wibawa, G.; Beukema, H.; Williams, S.; van Noordwijk, M. Technological change and biodiversity in the rubber agroecosystem of Sumatra. In *Tropical Agroecosystems*; Vandermeer, J., Ed.; CRC Press: Boca Raton, FL, USA, 2000; pp. 133–155.
3. Fotiadis, G.; Vrahnakis, M.; Kazoglou, Y.; Tsiripidis, I. Dry grassland types in the Prespa National Park (NW Greece), including the southernmost occurrence of the priority habitat type "Pannonic sand steppes"(code 6260). *Hacquetia* **2014**, *13*, 171–189. [CrossRef]
4. Boettcher, P.; Oldenbroek, J.; Sponenberg, D.; Gandini, G.; Martin, J.; Joshi, B. Reviewing the roles of animal genetic resources and options for their conservation. In *In Vivo Conservation of Animal Genetic Resources*; Food and Agriculture Organization of the UN (FAO): Rome, Italy, 2013.
5. Food and Agriculture Organization of the UN (FAO). Status and Trends of Animal Genetic Resources. Available online: https://www.fao.org/3/ng620en/ng620en.pdf (accessed on 28 June 2022).
6. Giantsis, I.A.; Diakakis, N.E.; Avdi, M. Genetic composition and evaluation of the status of a non-descript indigenous horse population from Greece, the Macedonian Pacer. *J. Equine Vet. Sci.* **2018**, *71*, 64–70. [CrossRef]
7. Enhancing Agricultural Biodiversity from European Commission. Available online: https://ec.europa.eu/info/food-farming-fisheries/sustainability/environmental-sustainability/biodiversity_en (accessed on 28 June 2022).
8. Köhler-Rollefson, I. Community-based management of animal genetic resources–with special reference to pastoralists. Community-based management of animal genetic resources. In Proceedings of the Workshop Held in Mbabane, Mbabane, Swaziland, 7–11 May 2001; Food and Agriculture Organization of the UN (FAO) Publisher: Rome, Italy, 2003; pp. 13–26.
9. Karagiannis, G.; Melfou, K. Efficiency analysis in a sample of PGI bean producers in Greece. *Agric. Econ. Rev.* **2015**, *16*, 28–41.
10. Lukšić, I.; Bošković, B.; Novikova, A.; Vrbensky, R. Innovative financing of the sustainable development goals in the countries of the Western Balkans. *Energy Sustain. Soc.* **2022**, *12*, 1–19. [CrossRef]
11. Giantsis, I.A.; Antonopoulou, D.; Dekolis, N.; Zaralis, K.; Avdi, M. Origin, demographics, inbreeding, phylogenetics, and phenogenetics of Karamaniko breed, a major common ancestor of the autochthonous Greek sheep. *Trop. Anim. Health Prod.* **2022**, *54*, 73. [CrossRef]
12. Argyriadou, A.; Gelasakis, A.I.; Banos, G.; Arsenos, G. Genetic improvement of indigenous Greek sheep and goat breeds. *J. Hell. Vet. Med. Soc.* **2020**, *71*, 2063–2072. [CrossRef]
13. Giantsis, I.A.; Diakakis, N.E.; Avdi, M. High Frequencies of TNC and COL5A1 genotypes associated with low risk for superficial digital flexor tendinopathy in Greek indigenous horse breeds compared with warmblood horses. *J. Equine Vet. Sci.* **2020**, *92*, 103173. [CrossRef]
14. Snyder, H. Literature review as a research methodology: An overview and guidelines. *J. Bus. Res.* **2019**, *104*, 333–339. [CrossRef]
15. Tranfield, D.; Denyer, D.; Smart, P. Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *Br. J. Manag.* **2003**, *14*, 207–222. [CrossRef]
16. Ministry of Agriculture, Food and Forestry in Bulgaria. Establishments in the Zootechnical Field Commission Decision of 18 September 2019. Available online: https://www.mzh.government.bg/en/sectors/animal-breeding/zootechnical-issues/ (accessed on 1 June 2022).
17. Grittner, N.; Mandić, R.; Urošević, M. Animal Genetic Resources of Serbia: Situation and Perspectives. *Pak. J. Zool.* **2021**, *53*, 1131–1147. [CrossRef]
18. Maxim, A.; Străjeru, S.; Albu, C.; Sandor, M.; Mihalescu, L.; Pauliuc, S.E. Conservation of vegetable genetic diversity in Transylvania-Romania. *Sci. Rep.* **2020**, *10*, 18416. [CrossRef]
19. Statuto, D.; Picuno, P. Valorisation of vernacular farm buildings for the sustainable development of rural tourism in mountain areas of the Adriatic-Ionian macro-region. *J. Agric. Eng.* **2017**, *48*, 21–26. [CrossRef]
20. Kebebe, K.E. Understanding Factors Affecting Technology Adoption in Smallholder Livestock Production Systems in Ethiopia: The Role of Farm Resources and the Enabling Environment. Ph.D. Thesis, Wageningen University and Research, Wageningen, The Netherlands, 2015.
21. Ragkos, A.; Koutouzidou, G.; Christodoulou, C.; Batzios, A. Which orientation for strategies and policies for local animal breeds? The role of ICT and novel technologies. In Proceedings of the International Conference on Information and Communication Technologies in Agriculture, Chania, Crete, 21–24 September 2017.
22. Roosen, J.; Fadlaoui, A.; Bertaglia, M. Economic evaluation for conservation of farm animal genetic resources. *J. Anim. Breed. Genet.* **2005**, *122*, 217–228. [CrossRef] [PubMed]
23. Schöpke, K.; Swalve, H.H. Review: Opportunities and challenges for small populations of dairy cattle in the era of genomics. *Animal* **2016**, *10*, 1050–1060. [CrossRef]
24. Bojkovski, D.; Simčič, M.; Kompan, D. Supports for local breeds in the European region–an overview. *PoljoPrivreda* **2015**, *21*, 7–10. [CrossRef]
25. Ragkos, A.; Abas, Z. Using the choice experiment method in the design of breeding goals in dairy sheep. *Animal* **2015**, *9*, 208–217. [CrossRef]
26. Petrovic, M.P.; Petrovic, V.C.; Muslic, D.R.; Maksimovic, N.; Cekic, B.; Ilic, Z.Z.; Kurcubic, V. Strategy for sustainable development and utilization of sheep and goat resources in Serbia. *KnE Life Sci.* **2017**, 11–21. [CrossRef]

27. Lianou, D.T.; Michael, C.K.; Vasileiou, N.G.C.; Liagka, D.V.; Mavrogianni, V.S.; Caroprese, M.; Fthenakis, G.C. Association of Breed of Sheep or Goats with Somatic Cell Counts and Total Bacterial Counts of Bulk-Tank Milk. *Appl. Sci.* **2021**, *11*, 7356. [CrossRef]
28. Christodoulou, V.; Bampidis, V.A.; Sossidou, E.; Ambrosiadis, J. Evaluation of Florina (Pelagonia) sheep breed for growth and carcass traits. *Small Rumin. Res.* **2007**, *70*, 239–247. [CrossRef]
29. Dodovski, P.; Sdraveski, I. Evolution and History of Pelagonia Sheep Breed in the Cross-Boder Area. Project: Protection of Autochthonous Populations of PElagonia SHEep Breed in the Cross-Border Area (PAPESHE). Bitola. 2020. Available online: http://papeshe.vet.auth.gr/wp-content/uploads/2021/03/Evolution-and-history-of-the-Pelagonia-sheep-breed-in-the-cross-boder-area-N.-MACEDONIA-D3.4.3.pdf (accessed on 4 May 2022).
30. Simos, E.N.; Nikolaou, E.M.; Zoiopoulos, P.E. Yield, composition and certain physicochemical characteristics of milk of the Epirus mountain sheep breed. *Small Rumin. Res.* **1996**, *20*, 67–74. [CrossRef]
31. Dimov, D.; Vuchkov, A. Sheep genetic resources in Bulgaria with focus on breeds with coloured wool. *Genet. Resour.* **2021**, *2*, 11–24. [CrossRef]
32. Juvančič, L.; Slabe-Erker, R.; Ogorevc, M.; Drucker, A.G.; Erjavec, E.; Bojkovski, D. Payments for Conservation of Animal Genetic Resources in Agriculture: One Size Fits All? *Animals* **2021**, *11*, 846. [CrossRef] [PubMed]
33. Radovan, K.; Vostrý, L.; Vostrá-Vydrová, H.; Candráková, K.; Moravčíková, N. Food Resources Biodiversity: The Case of Local Cattle in Slovakia. *Sustainability* **2021**, *13*, 1296. [CrossRef]
34. Vokurkaa, A.; Prša, K.; Pejić, I.; Jurković, Z.; Dugalić, K.; Duralija, B. An Overview of Croatian Autochthonous Varieties of Sweet Cherry. *Acta Hortic.* **2014**, *1020*, 401–406. [CrossRef]
35. Skender, A.; Hadžiabulić, S.; Ercisli, S.; Hasanbegović, J.; Dedić, S.; Almeer, R.; Sayed, A.A.; Ullah, R.; Assouguem, A. Morphological and Biochemical Properties in Fruits of Naturally Grown Cornelian Cherry (*Cornus mas* L.) Genotypes in Northwest Bosnia and Herzegovina. *Sustainability* **2022**, *14*, 4579. [CrossRef]
36. Udriste, A.-A.; Iordachescu, M.; Ciceoi, R.; Bădulescu, L. Next- Generation Sequencing of Local Romanian Tomato Varieties and Bioinformatics Analysis of the Ve Locus. *Int. J. Mol. Sci.* **2022**, *23*, 9750. [CrossRef]
37. Basile, B.; Mataffo, A.; Forlani, M.; Corrado, G. Diversity in Morphometric, Pomological, and Fruit-Quality Traits of Apricot (*Prunus armeniaca*) Traditional Varieties: Implications for Landrace Differentiation at Regional Scale. *Diversity* **2022**, *14*, 608. [CrossRef]
38. Stagnari, F.; Ficcadenti, N.; Manetta, A.C.; Platani, C.; Dattoli, M.A.; Galieni, A. Modulation of Light and Nitrogen for Quality-Traits Improvement: A Case Study of Altino Sweet Pepper. *Horticulturae* **2022**, *8*, 499. [CrossRef]
39. Agolli, M.; Terpo, M.; Terpo, D.; Meçi, E. Tourist-environmental assessment of Përmet District, traditional food processing and the typical products of the area. *Mediterr. J. Soc. Sci.* **2014**, *5*, 36. [CrossRef]
40. Pavia, N.; Gržinić, J.; Floričić, T. The perception of gastronomic events within the framework of sustainable tourism development. WIT Transactions on Ecology and the Environment. *Sustain. Tour. VI* **2014**, *187*, 277–289.
41. Alamanos, E.; Kuznesof, S.; Ritson, C. The influence of holidays on wine purchasing behaviour: Marketing and tourism insights based on a holiday experience in Greece. *Int. J. Tour. Res.* **2016**, *18*, 228–235. [CrossRef]
42. Merkouropoulos, G.; Mylona, P. Assessment of genetic diversity of Vitis vinifera local cultivars of northern Greece as a means for valorization of vine and wine territories. *Territ. Du Vin* **2018**, *8*. Available online: http://preo.u-bourgogne.fr/territoiresduvin/index.php?id=1357 (accessed on 5 May 2022).
43. Monteiro, A.N.T.R.; Wilfart, A.; Utzeri, V.J.; Lukač, N.B.; Tomažin, U.; Costa, L.N.; Čandek-Potokar, M.; Garcia-Launay, F. Environmental impacts of pig production systems using European local breeds: The contribution of carbon sequestration and emissions from grazing. *J. Clean. Prod.* **2019**, *237*, 117843. [CrossRef]
44. Maraš, V.; Tello, J.; Gazivoda, A.; Mugoša, M.; Perišić, M.; Raičević, J.; Štajner, J.N.; Ocete, R.; Božović, V.; Popović, T.; et al. Population genetic analysis in old Montenegrin vineyards reveals ancient ways currently active to generate diversity in Vitis vinifera. *Sci. Rep.* **2020**, *10*, 1–13. [CrossRef]
45. Skalkos, D.; Kosma, I.S.; Chasioti, E.; Skendi, A.; Papageorgiou, M.; Guiné, R.P. Consumers' Attitude and Perception toward Traditional Foods of Northwest Greece during the COVID-19 Pandemic. *Appl. Sci.* **2021**, *11*, 4080. [CrossRef]
46. Anderson, S. Animal genetic resources and sustainable livelihoods. *Ecol. Econ.* **2003**, *45*, 331–339. [CrossRef]
47. Giantsis, I.A.; Laliotis, G.P.; Stoupa, O.; Avdi, M. Polymorphism of the melatonin receptor 1A (MNTR1A) gene and association with seasonality of reproductive activity in a local Greek sheep breed. *J. Biol. Res.-Thessalon.* **2016**, *23*, 1–4. [CrossRef]
48. Henderson, D.C.; Robinson, J.J. Part III Reproductive physiology. The reproductive cycle and its manipulation. In *Diseases of Sheep*; Blackwell Science: Hoboken, NJ, USA, 2007; pp. 43–53.
49. Aksoy, Y.; Çiçek, Ü.; Şen, U.; Şirin, E.; Uğurlu, M.; Önenç, A.; Kuran, M.; Ulutas, Z. Meat production characteristics of Turkish native breeds: II. meat quality, fatty acid, and cholesterol profile of lambs. *Arch. Anim. Breed.* **2019**, *62*, 41–48. [CrossRef] [PubMed]
50. Korunoska, B.; Taseska-Gjorgjijevski, M.; Nedelkovski, D.; Beleski, K.; Gjolevska-Millenkovska, R.; Milanov, G.; Rajcin, V. Examination of the content of some antioxidant substances in some autochthonous grapevine varieties (*Vitis vinifera* L.) in RN macedonia. *J. Agric. Food Environ. Sci. JAFES* **2021**, *75*, 19–27.
51. Selamovska, A.; Gjamovski, V.; Taseska-Gjorgjijevski, M.; Nedelkovski, D.; Korunoska, B.; Oreshkovikj, K.B.; Djoljevska-Milenkovska, R. Comparative studies of the content of antioxidants in fruits of some autochthonous Cherry varieties. *J. Agric. Plant Sci.* **2022**, *20*, 33–40. [CrossRef]
52. Salkić, B.; Cvrk, R.; Imširović, E.; Jašić, A.; Salkić, A. Investigating the phenological and pompological characteristics of indigenous pears in northeast Bosnia. *Int. J. Plant. Soil. Sci.* **2019**, *30*, 1–11. [CrossRef]

53. Topalović, A.; Knežević, M.; Gačnik, S.; Mikulic-Petkovsek, M. Detailed chemical composition of juice from autochthonous pomegranate genotypes (*Punica granatum* L.) grown in different locations in Montenegro. *Food Chem.* **2020**, *330*, 127261. [CrossRef] [PubMed]
54. Matejić, J.S.; Stefanović, N.; Ivković, M.; Živanović, N.; Marin, P.D.; Džamić, A.M. Traditional uses of autochthonous medicinal and ritual plants and other remedies for health in Eastern and South-Eastern Serbia. *J. Ethnopharmacol.* **2020**, *261*, 113186. [CrossRef] [PubMed]
55. Zoumpoulis, A.; Peleka, E.; Triantafyllidis, K. Life Cycle Analysis [Chapter]. In *Green Chemistry and Technology in Sustainable Development*; Kallipos, Open Academic Editions; Springer: Berlin/Heidelberg, Germany, 2015; Chapter 4; Available online: http://hdl.handle.net/11419/2324 (accessed on 11 May 2022). (In Greek)
56. Xagoraris, M.; Oikonomou, I.; Daferera, D.; Kanakis, C.; Lappa, I.K.; Giotis, C.; Pappas, C.S.; Tarantilis, P.A.; Skotti, E. Quality Evaluation of Winery By-Products from Ionian Islands Grape Varieties in the Concept of Circular Bioeconomy. *Sustainability* **2021**, *13*, 5454. [CrossRef]
57. Schmitt, E.; Galli, F.; Menozzi, D.; Maye, D.; Touzard, J.M.; Marescotti, A.; Six, J.; Brunori, G. Comparing the sustainability of local and global food products in Europe. *J. Clean. Prod.* **2017**, *165*, 346–359. [CrossRef]
58. Menger, A.K.; Hamm, U. Consumers' knowledge and perceptions of endangered livestock breeds: How wording influences conservation efforts. *Ecol. Econ.* **2021**, *188*, 107117. [CrossRef]
59. Kallas, Z.; Varela, E.; Čandek-Potokar, M.; Pugliese, C.; Cerjak, M.; Tomažin, U.; Karolyi, D.; Aquilani, C.; Vitale, M.; Gil, J.M. Can innovations in traditional pork products help thriving EU untapped pig breeds? A non-hypothetical discrete choice experiment with hedonic evaluation. *Meat Sci.* **2019**, *154*, 75–85. [CrossRef]
60. Vlontzos, G.; Kyrgiakos, L.; Duquenne, M.N. What are the main drivers of young consumers purchasing traditional food products? European field research. *Foods* **2018**, *7*, 22. [CrossRef]
61. Haas, R.; Imami, D.; Miftari, I.; Ymeri, P.; Grunert, K.; Meixner, O. Consumer perception of food quality and safety in western balkan countries: Evidence from albania and kosovo. *Foods* **2021**, *10*, 160. [CrossRef]
62. Vitale, M.; Kallas, Z.; Rivera-Toapanta, E.; Karolyi, D.; Cerjak, M.; Lebret, B.; Lenoire, H.; Pugliesef, C.; Aquilanif, C.; Čandek-Potokarg, M.; et al. Consumers' expectations and liking of traditional and innovative pork products from European autochthonous pig breeds. *Meat Sci.* **2020**, *168*, 108179. [CrossRef]
63. Dragomir, L.; Mazilu, M.; Dobrescu, A.; Malmare, R. Certification and promotion of sustainable tourism: Consumers attitude towards EU Ecolabel. *Forum Geogr.* **2021**, *20*, 118–123. [CrossRef]
64. Perrea, T.; Mamalis, S.; Melfou, K.; Papanagiotou, P.; Krystallis, A. Exploring the Moderating Role of Consumer Ethnocentrism on Consumer Value Perceptions Towards Own-Country Geographic Indication (GI) Foods. In Proceedings of the 145th Seminar, Parma, Italy, 14–15 April 2015; pp. 1–21, No. 714-2016-48632.
65. BăLăşescu, M. Solutions for improving the Romanian Consumers Trust in the Authenticity of Traditional Local Food. Bulletin of the Transilvania University of Brasov. *Ser. V Econ. Sci.* **2017**, *10*, 3–10.
66. Ragkos, A.; Papoutsi, G.; Tzouramani, E.; Theodoropoulou, E.; Bardiounioti, M. An integrated framework for highlighting and valuing the values of plant genetic resources. In Proceedings of the 17th Conference of Greek Scientific Society for Genetic Improvement of Plants (Gssgip), Patra, Greece, 17–19 October 2018.
67. Kizos, T.; Vakoufaris, H. Valorisation of a local asset: The case of olive oil on Lesvos Island. *Food Policy* **2011**, *36*, 705–714. [CrossRef]
68. Gaspar, P.; Escribano, A.J.; Mesías, F.J.; Escribano, M.; Pulido, A.F. Goat systems of Villuercas-Ibores area in SW Spain: Problems and perspectives of traditional farming systems. *Small Rumin. Res.* **2011**, *97*, 1–11. [CrossRef]
69. Marsoner, T.; Vigl, L.E.; Manck, F.; Jaritz, G.; Tappeiner, U.; Tasser, E. Indigenous livestock breeds as indicators for cultural ecosystem services: A spatial analysis within the Alpine Space. *Ecol. Indic.* **2018**, *94*, 55–63. [CrossRef]
70. Spilioti, M.; Stahtiaris, S.; Kominakis, A.; Karanikolas, P.; Tsiboukas, K. Advancing the Value of Local Livestock Breeds: The Case of Greek Cheese Ladotyri Mytilinis. In Proceedings of the 9th International Conference on Information and Communication Technologies in Agriculture, Food and Environment (HAICTA 2020), Thessaloniki, Greece, 24–27 September 2020; pp. 309–316.