GLOBALLY IMPORTANT AGRICULTURAL HERITAGE SYSTEMS

Combining agricultural biodiversity, resilient ecosystems, traditional farming practices and cultural identity
TABLE OF CONTENTS

- AGRICULTURAL HERITAGE SYSTEMS ......................... 3
- WHAT IS A GIAHS SITE? ...................................................... 4
- LOCATION OF THE ITALIAN GIAHS SITE .............. 5
  - Soave traditional vineyards .................................. 6
  - The olive groves of the slopes between Assisi and Spoleto ..................... 12
Today, the world is facing numerous challenges in front of changes in almost every sphere of life. This clearly seems to be a transition period in the economic, social, cultural, technological and political fields together with environmental change and its consequences. According to scientists, the impact of these changes is due to the effect of unsustainable practices carried out by human activities. Examples of these practices are the incorrect, imbalanced and unsustainable use of natural resources, as well as untenable development models, which do not consider long-term impacts or “side effects” of activities conducted.

Concerning the rural territory, the development model promoted in the last decades has not only shown to be ineffective to solve the economic problems of many rural areas, but also contributed to the loss of cultural values associated to rural communities. This has brought to the degradation of valuable landscapes shaped by several generations of farmers, to the abandonment of millions of hectares of farmed land and to urbanization processes, creating social degradation and increasing urban sprawl.

As one of the human activities which has a direct relationship with nature and environment, agriculture is often considered as one of the main drivers of the negative trend that is being followed, representing the greatest immediate threat to species and ecosystems. In fact, unsustainable farming practices result in land conversion leading to soil erosion and degradation, habitat loss, genetic erosion, inefficient use of water, pollution affecting animal and vegetal species and human life. Nevertheless, when agriculture is practiced in a sustainable way, it can preserve landscape, biocultural diversity, protect watersheds, and improve soil health and water quality.

In fact, the use of sustainable ecological practices is a key feature distinguishing resilient agricultures developed over centuries, based on long experience and proven traditions. This kind of farming may be considered as less productive from modern-intensive
systems, but it has ensured sustainable yield over time, thanks to time-tested technologies and traditional know-hows, using reduced external energy inputs and adapting to difficult and diverse environmental conditions.

The identification, documentation and safeguard of agricultural heritage systems that have survived using traditional techniques providing many services to the ecosystem, ancestral knowledge transmitted through generations and strong cultural and social values, intends to contribute to a new vision for the future of the planet. This vision aims at integrating human society and the environment, according to the sustainable development goals, taking landscape as the main unifying perspective.

Based on this idea, in 2002, FAO launched the idea of Globally Important Agricultural Heritage Systems (GIAHS), to identify and safeguard agricultural sites that have survived using traditional techniques and are still providing many services to the ecosystem, while maintaining magnificent landscapes, a huge agrobiodiversity, ancestral knowledge transmitted through generations, and strong cultural and social values. From 2015, based on the outcome of the 39th FAO Conference, GIAHS has become an FAO corporate programme, with a stable structure and clear contribution to FAO’s mandate and objectives.

Globally Important Agricultural Heritage Systems” (GIAHS) are outstanding landscapes of aesthetic beauty that combine agricultural biodiversity, resilient ecosystems and a valuable cultural heritage. Located in specific sites around the world, they sustainably provide multiple goods and services, food and livelihood security for millions of small-scale farmers.

Unfortunately, these agricultural systems are threatened by many factors including climate change and increased competition for natural resources. They are also dealing with migration due to low economic viability, which has resulted in traditional farming practices being abandoned and endemic species and breeds being lost.

These ancestral agricultural systems constitute the foundation for contemporary and future agricultural innovations and technologies. Their cultural, ecological and agricultural diversity is still evident in many parts of the world, maintained as unique systems of agriculture. The proposed GIAHS site will be assessed based on five criteria and an action plan. The assessment will take into account a wide variation in the specific features of the proposed site which has been formed and developed in different geographic, climatic, and socio-economic conditions.

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LOCATION OF THE ITALIAN GIAHS SITES

- SOAVE TRADITIONAL VINEYARDS
- THE OLIVE GROVES OF THE SLOPES BETWEEN ASSISI AND SPOLETO
SOAVE TRADITIONAL VINEYARDS
VENETO - Northern Italy

The GIAHS site is located on the slopes of the Lessini plateau, where the hills meet the Veronese plain, in the eastern part of the Verona Province.

The altitude of the hills starts from 30 m to 689 m above the sea level. The territory is divided based on gradients, which show that the 51% of the area has a gradient lower than 10%. Moreover, only the 15% of the soil has a gradient between 10 and 20%. Another 18% could be more useful thanks to appropriate terracing and edges. On the remain 16%, there are other cultivation such as cherry and olive trees.

SIGNIFICANCE OF THE SITE

Soave traditional vineyards are a singular agro-economic system that provide income to many families (above 3,000) since 200 years. The grape growing is completely directed to the production of a typical wine, the Soave DOC, that is one of the most famous Italian white wines, exported in 68 countries all over the world. Aside this there’s a small production of a typical product called Recioto di Soave that is made with the ancient technique of drying grapes, that finds its roots since Middle Ages.

Even though it is characterized by small or micro estates, it has succeeded in remaining competitive thanks to cooperation and innovation. This is the active role of Soave Consorzio and of the cooperative system that make this aggregation happen and thrives. Now Soave is a complete circle economic system, where about 3,000 families live on it and it creates a related economy that involves more than 10,000 people. Soils, expositions and climate define a peculiar and original identity.

It is on that hills that, thanks to the determination of the grape growers and the symbiosis between Garganega (that compose the 80% of the production) and Trebbiano di Soave (the remaining 20%), the native varieties, and the environment, that the entire system strengthens.

Since the Soave Vineyards were known in the past two hundred years as symbols of a quality wine region, the production of grapes has always been the main
crop in the area, surviving to phylloxera threat at the beginning of the 20th century and then to other diseases such as powder and downy mildew.

Garganega and Trebbiano di Soave grapes are native because their presence is documented since the Middle Ages and they are in a complete balance with the soil and the climate conditions. In addition, in the area there are other cultivations of typical varieties such as cherry trees (Mora di Cazzano) and olive trees (Grignano) that continue to be planted and used for integrate the incomes that come from viticulture. Some projects started 10 years ago, made this a pioneering area in the preservation of the soil and the landscape, to prevent erosion with arrangements such as dry-stone walls, terraces etc. and with the studies on biodiversity. On the other hand, the studies on sustainability, both for the environment and for people, try to find solutions for the technical problems originated from working on steeply slopes, starting from the maintenance to the way to lead the vineyards in terms of agricultural choices such as organic or integrated agriculture.

These factors combined with the strong determination of the grape growers to continue this kind of viticulture despite all the difficulties make Soave an example of preservation of a traditional agricultural site, recognized as the first

Soave Traditional Vineyards
Officially recognized by FAO as a Globally Important Agricultural Heritage Site
Italian rural historical landscape for its unchanged characteristics within a century.

1. FOOD AND LIVELIHOOD SECURITY

In Soave there are 3,000 farms and families, that are social cooperatives members or private grape growers. The 80 % has a dimension of less than 5 hectares and it’s the presence of the cooperative system that makes Soave competitive and profitable. Soave Wine, that is made from Garganega and Trebbiano di Soave, that exist in this area since the Middle Ages. The vineyards are combined with olive trees, cherry trees and peas, creating a balanced environment. Among them, insects, little reptiles and mammals thrive while the grape growers are working with a greater consciousness about sustainability and preservation of the environment. Especially in the vineyards the presence of useful insects could be a determining factor to contain the pests, limiting the density below the threshold for damaging. The projects started in some areas of the Soave vineyards are focused on the planting of nectariferous and other plants in the hedges as shelter and breeding of lots of micro and macro organisms.

2. AGRO – BIODIVERSITY

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3. LOCAL AND TRADITIONAL KNOWLEDGE SYSTEMS

To prevent soil erosion and exploit the gradients, the most widely system of planting in rows is the contour plowing. Rows are positioned in parallel to the contour lines and the storm drains are dug along them in order to lead rainwater in another drain which is located along the maximum gradient line. Though this technique is common in other parts of Italy, it adapts perfectly to the Soave hills where the shape of the fields is irregular and of limited size because of the high fragmentation of the property.
In these plots of land, the mechanical processes are hampered by the slope of the land. The most common vine-growing form in the Soave area is the so-called Veronese pergola, that is typical and unique. It is a system characterized by a sloping or sub-horizontal scaffolding, which is fixed to the supporting pole and composed of wooden elements to which are fixed the wires that support the vines.

4. CULTURES, VALUE SYSTEMS AND SOCIAL ORGANISATIONS

In the area, lots of festival and other events linked to agriculture are celebrated. Undoubtedly, the most prestigious celebration in Soave is the Grape Festival, which occurs every year on the third week end of September and it’s the oldest Grape Festival in Italy. Today there’s an annual competition to decide who produced the best grapes. During the festival a local Association, the “Amici delle Antiche Torri” hang the grapes under the Medieval gate to make a particular Recioto di Soave.

5. LANDSCAPE FEATURES

Soave has been recognised as first rural historical landscape of Italy, in 2015 for the intactness of a historical landscape in the last 60 years. Dry-stone walls, the pergola veronese, delimit...
roads, capitols are the features that makes this landscape unique.

Within the varied world of Italian wine, Soave, with its aspects linked to history, production and trade, represented a major phenomenon from a stylistic and organizational point of view.

Today, on the other hand, it has become an outstanding production system, characterized by the specific nature of its products, the coherence with which it expresses itself and the reliability of the substantial volumes it puts on the market. These are the fundamental factors – along with flexibility, long sighted organization and careful management of yields – that have allowed a “phenomenon” to become a system. In this context, where there's a progressive and continue growth of vineyards planted in plain areas, that could be easily mechanized, Soave Traditional Vineyards system is characterized by some elements that makes it a reference point.

In many cases in that time farmers were encouraged to transform into vineyards their lands previously devoted to pasture and arable crops, adapting the best the small and medium sized estates to the hillside viticulture. To increase yields, there was a great improvement on specialized agriculture.

The way people prepared the hills varied from zone to zone, adapting the viticulture to gradients; to the type of soil and the presence or not of water.

The entire area has always been affected by widespread hydraulic-agrarian arrangements, which have shaped the hillsides. Where the land is steeper, there are terraces and embankments; where the slopes are less pronounced, the pergolas are arranged in a girder. The contour plowing shaped the landscape without changing it and the presence of the pergola veronese, that is a typical training system in this area, has undoubted advantages in this time of climate change. The extra-ordinary vines conversion has been realized respecting the original orography of the hills.

The vineyards were realized adopting, among the first, the “palo secco” and separating the vineyards with little woods and hedges with local varieties of plants, giving us the recognition as the First Italian
Rural Historical Heritage. The vine cultivation in this area is affected by some unique features:

- The presence of native varieties such as Garganega and Trebbiano di Soave that are endemic of this area.

- A typical training system, the Veronese Pergola, that can be managed only manually.

- A strong fragmentation of the grape growers’ owned vineyards that are usually far from each other.

- No mechanizable plantings, because of the presence of gradients contained by dry-stone walls and embankment.

The difficulties to work on steepy soils and the large numbers of families involved in the grape growing activity, has generated a series of traditions and knowledges consubstantial with this work. Forms of worship, stronger probably in the past are linked to more secular traditions and refer to the relationship between God and the farming community, that had to be preserved against natural disasters such hail or floods. That involved the whole Soave community, that is called into question to be proactive with the best practices to co adapt a modern viticulture to a very ancient shaped landscape, finding solutions to overcome difficulties. Soave vineyards are a unique model where the modern practices had to be adapted to the oldest one, where a continue positive dichotomy between business and the social keeps the entire system in place.

Without the system that has been created in the last 100 years, made of social cooperatives that guarantee the income even for small fragmentations, there would have probably been an emigration of people from this area towards the cities or a complete industrialisation of the area, like we’ve seen in the nearest valleys.

The problem we are facing now is that in the vineyards planted with pergola, all the works must be done manually. In times where there were no alternatives, the efforts and the costs were well absorbed by the market, but in this moment in Veneto we are witnessing a slipping of the viticulture towards the flat land, where everything could be mechanized cutting down the costs.
THE OLIVE GROVES OF THE SLOPES BETWEEN ASSISI AND SPOLETO

UMBRIA - Central Italy

The GIAHS site of the olive groves of the slopes between Assisi and Spoleto is located in the province of Perugia, in Umbria, a region in Central Italy.

This area extends through the territories of six municipalities: Assisi, Spello, Foligno, Trevi, Campello sul Clitunno, Spoleto, occupying an area equal to 9,213 hectares. About the 70% of the area is used for agricultural activities, with the olive-growing surface equal to about 4,570 hectares, while the 18% is classified as woodlands or shrublands. Only 11% of the total surface is classified as urban area or built up area.

HISTORICAL RELEVANCE

Olive cultivation has very ancient origin in this area: the Etruscans residing on the right bank of the Tiber river were the first to cultivate the olive tree and use its fruit for direct consumption, as shown by the discovery of pits in containers placed inside Etruscan tombs from the 7th century BC.

In Roman times, the cultivation of olive trees in southern Umbria is documented by the many productive structures and olive mills annexed to country villas revealed by archaeological digs. The fall of the Roman Empire and the invasions of the so-called barbarians led to a lull in the cultivation of the olive tree.

In the 16th and 17th centuries, the Papal States began planting olive groves on the slopes of the Umbria region. The human intervention on the natural environment is evident, a redesigning for specific purposes: tilled fields appear, with planted trees, divided and fenced in. Because of the market value of oil and how much the higher classes enjoyed it, between the 17th and the 18th centuries olive cultivation increased, and oil from the Umbria region seems to have been appreciated especially in the Roman and Florentine markets.

A large number of the olive groves present today are the result of planting carried out by the Papal States beginning in the second half of the 18th century until the Italian unification.
Thus, preexisting olive trees in convent orchards near towns or inside the latter became part of the slopes in accordance with an overall project of crop reassessment, which was carried out alongside the recovery of the valley floor, where intensive cereal crops were concentrated, interspersed with vines and trees.

**DOP UMBRIA OLIVE OIL: CHARACTERISTICS AND PRODUCTION AREA**

The olive grove slopes that stretch from Assisi to Spoleto are one of the main olive-growing areas of the Umbria region and one of the most important of Italy. Olives represent, together with wheat and vines, the three main crops representing the cultural identity of the Mediterranean area. Olive oil is also a fundamental element of the Mediterranean diet, known worldwide for its benefits for human health, and is still produced by pressing the olives as they were pressed twenty-seven centuries ago, generating extra virgin olive oil and ensuring the highest possible quality.

Today the surface destined to olive cultivation in Umbria is about 27,000 ha, with an olive production that varies, depending on the year, between 30,000 and 60,000 tons, with an average yield of about 18.5% and a final production of oil between 5,500 and 11,000 tons.

Oil production in Umbria is quite relevant economically, being in fact 5% of the gross marketable agricultural production, and involves about 27,000 farms and 270 oil mills.

From an economic point of view, for some decades now all olive growing strategies in Umbria have had the aim of raising the quality of the product as the only way of bringing greater value to a product with elevated costs. The achievement of this aim was made easi-
er by the Ministerial Decree of August 6, 1988 issued by the Ministry of Agricultural, Food and Forestry Policies, which approved the production regulations of "Umbria" extra virgin olive oil, which receives an EU certification of Protected Designation of Origin (PDO, or DOP in Italian) with Reg. 2325/97.

**Frantoio cultivars must not exceed 30%; under 30% of other local cultivars can be used.**

Regarding oil production, only mechanical techniques are allowed in order to guarantee the high quality of the oil with no alteration whatsoever.

The aim of the DOP is to assure the consumer, ensure a greater profit for the farmer, promote and certify the quality of the oil through the strict observance of the production regulation, and organize the sales chain. DOP Umbria (which covers 90% of the Region) is divided into subzones and the GIAHS site is part of the subzone called Colli Assisi-Spoleto (Assisi-Spoleto Hills).

According to the production regulations of DOP Umbria olive oil, the final product must be produced with at least 60% of oil coming from the Moraiolo cultivar, while Leccino and Frantoio cultivars must not exceed 30%; under 30% of other local cultivars can be used.

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**LANDSCAPE FEATURES**

Being the result of the integration of economic, environmental and social processes in time and space, landscape plays a fundamental role in the area. From the economic point of view the quality of the landscape is an added value that cannot be replicated by a competitor, especially when combined to tourism. The full quality of typical food today is expressed by the combination of landscape features and organoleptic features. The environmental features are also the result of human intervention that shaped both morphology (as in the case of terraces) and biodiversity.

For the most part, olive farming in Umbria, including the olive grove slopes between Assisi and Spoleto, has stayed at the margins of the process of intensification of the cultivation that has interested agriculture over the last two decades and has determined profound alterations of the traditional agrarian landscape. If this has on the one hand determined the progressive marginalization and economic unsustainability of cultivations, on the other it has preserved the archaic beauty of many olive grove landscapes, fruit of the work of generations of olive farmers.

In 1975, French geographer Henri Desplanques wrote that the agrarian landscapes of the hills of Tuscany, Umbria, and Marche were created "as if there..."
were no concern other than beauty."
The lack of interest in the intensification of olive farming, with the consequent out datedness of most of the structures, is mostly due to the pedoclimatic limitations (especially the low temperatures in winter) that limit the vegetative activity and the productive potential of trees, discouraging investments in the sector. In the olive grove region between Assisi and Spoleto we can still find historically intact landscapes, with Medieval olive groves, such as the one inside the walls of Assisi, under the Basilica of Saint Francis, and the ones around the historical city center in Spello.

**DRY STONE TERRACES, LUNETTE AND EARTH TERRACES**

Dry stone terraces, lunette and earth terraces are the fundamental features of the local olive groves landscape. Several studies have also demonstrated that terraced landscapes are particularly rich in biodiversity. The biodiversity level that could be found in these areas is also higher than in modern and mechanized cultivation systems; the presence of dry stone walls enhance the percentage of flora species thanks to the particular microclimate and soil conditions created.

The terracing of the area between Assisi and Spoleto was carried out on rocky hills with an incline greater than 40%, erecting dry stone walls that ensured the containment of the soil in the terraces, which were flat or slightly inclined. The operation began in the second half of the 18th century together with the construction of lunette when, to expand the cultivation of olive trees to the upper hills, the need arose to use steeper terrains. The walls can vary in height and be parallel and continual, follow the curves of the land, or be fragmented, depending on how steep the inclines are and how wide the terraces.

The lunette system was adopted on the steepest, most inaccessible inclines with surfacing rocks. The limited amount of precious soil around the plant is sustained and contained by semicircular dry-stone walls of various heights, often staggered among adjacent rows. The rock is excavated to create a step on which to set the first stones with which the half-moon shape of the lunetta is formed, a semicircle between 3 and 6 meters in diameters. The constructions are erected entirely without mortar so as to let water flow away without hindrance. The wall is built in counterclockwise with an inclination of about 10 degrees.
As the wall rises, the space behind it is filled with stones, pebbles and detritus so as to create a drainage, which rises as the height of the wall increases. The olive tree is planted by digging a 60 cm hole in the rock, about 1 meter in diameter. Once the plant is inserted, the drainage and the hole are filled with soil. Finally, the lunetta is filled with a 20-centimeter layer of soil. The lunette system is used with inclines in average superior to 45%, where other types of terrace wouldn’t be feasible.

The simplest adaptation are earth terraces, which were built beginning in the 14th and 15th century: thin, long terraces are created, as adherent as possible to the orography of the area, with few movements of soil around natural horizontal spaces and banks created with the solidification of the soil, sometimes simply pressed, in other cases with the brink solidified by clumps of grass or rocks in the steeper spots. The earth terrace system was employed on hills with inclines under 40%. The areas where olive trees are planted are narrow and long, often inclined, and follow the orography of the area, supported and separated from one another by very steep, but not vertical, grassy inclines, erected by pressing the earth. The olive trees are usually in a single line following the edge of the embankment.

SETTLEMENTS AND INFRASTRUCTURES

All of the historical constructions are present either as scattered buildings or centralized settlements. Scattered throughout the countryside we mostly find farmhouses, as well as manor houses, villas, and in general buildings for residential and agricultural use with their annexes, but also a fair number of religious buildings (churches, convents, abbeys, sanctuaries, hermitages, aedicules, and votive chapels), military structures (towers, citadels, and castles) and civilian buildings with specific non-residential uses (old mills, trading posts, remains of bridges and old roads, etc).

Historical cities are complex settlements with urban areas often still defined by one or more walls and articulated in an original nucleus and later additions. They are often of Roman or pre-Roman foundation, with a hegemonic role over the surrounding territories from their origins, confirmed, institutionalized, and increased in later historical phases. The most important cities in the olive-grove area are Spoleto, Trevi, Foligno, Spello, and Assisi, and they are all arranged along piedmont axes, which became roads with the construction of the Consolare Flaminia.

PROMOTION OF THE OIL AND OLIVE TREE CULTURE

As a consequence of the inscription in GIAHS program, in the Assisi–Spoleto site the interests of local communities and farmers has increased. Firstly, the local administrative bodies has started to promote the area at national level through commu-
cation thanks to the media and active participation of the inhabitants during exhibitions. Secondly, farmers have increased the level of cooperation testifying a higher attachment to this territory. The importance of the local agricultural sector is testified by the number of farms. In the municipalities interested by the site there are over 6,000 farms. Compared to the total surface of the territory this is an elevated number, attesting that the local agricultural system is based on small farmers instead of few land owners. Moreover, the abandonment rate of the agricultural surface is lower than in the rest of the region (-12.5% in the period 1954-2011) especially if we consider only the olive groves (-7%). The local agricultural system is not based solely on olive groves, but it also comprises other production, such as vines, truffles, saffron, honey and local varieties of onions, beans and celery. Agricultural operations are still carried out using traditional techniques, with a low level of mechanization due to the morphology of the territory.

The good conservation of the rural aspects and local traditions has contributed to improve the tourism. This kind of tourism is mainly related to the quality of the local products and the good maintenance of pathways, rural buildings and historical villages. So that it is quite common that the tourist goes directly to farmhouses to buy the products and search for an accommodation in the middle of the countryside. Nowadays there are 131 farmhouses in the site. Many initiatives testify the close relation between the agricultural heritage and the identity of the place. The main one is the Museum of Olive Culture, established in an historical building by the Trevi Municipality with financial contributions from the Umbria Region and the European Union. Here, the visitors can experience the close relationship between olive farming, its product, and the transformation of the environment in which it has grown for centuries. The Olive Trail is instead a hiking trail created by the local CAI (The Club Alpino Italiano, which is in charge of climbing competitions, operating alpine huts, marking and maintaining paths), that runs for about 75 km at 500-600 meters in altitude in the middle of the olive groves area.