

From ancient viticulture to actual ecologic vineyard in Baetic province.

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Abstract: In this study, we present a comparative analysis of ancient viticulture practices in the Baetic province with contemporary needs for ecological vineyard production in the “Marco del Jerez.” This renowned wine-growing region, known for the Jerez-Xeres-Sherry designation of origin, historically aligns with the territory of the Roman colony Hasta Regia. By meticulously integrating ancient literary and archaeological sources, we aim to reconnect with traditional vineyard production methods. Our primary goal is to synthesize a set of good practices that can be effectively transferred to modern ecological vineyards in the region. This research not only underscores the historical richness of the Marco del Jerez but also highlights the potential of leveraging ancient knowledge to enhance sustainable viticulture practices today.

Keywords: Ancient Viticulture, Knowledge Transfer, Jerez Framework, Good Agricultural Practices, Organic Vineyard.

Introduction

The study of history offers more than a means to remember past events; it provides valuable lessons that inform our present and future. Scientific progress builds upon knowledge accumulated over centuries, fostering the development of new techniques and methods. However, as time passes and scientific paradigms shift, much of this earlier knowledge risks being overlooked or forgotten. In an era of rapid technological advancement, the complexity and exclusivity of modern innovations often make them less accessible to broader audiences.

Nonetheless, historical analysis can yield practical insights, especially when addressing challenges that mirror contemporary issues. This article contributes to the state of the question regarding the production and transfer of wine from Roman times, focusing on its relevance to today’s wine industry. It explores how ancient practices might inspire modern ecological approaches and branding strategies, leveraging historical knowledge to address current environmental challenges and opportunities in the sector.

Knowledge transfer could be defined as the body of knowledge, experiences and skills that are disseminated from a technical or academic field to other disciplines, in our case to the current economic sector, for use, application, exploitation of knowledge and R&D capabilities (Jasimuddin & Zhang, 2009). This transfer can take place in various fields, such as storage, access and transfer of knowledge in the socio-cultural and technological fields (Rodriguez, 2006). It is generally very complex to carry out because it requires the transfer of information in both directions to generate synergies (Rogers, 2010).

The transfer of knowledge to today’s wine production sector from old agricultural practices requires a series of steps. We think that there are two main possibilities here. On the one hand, in the recovery of ecological practices, now that environmentally

friendly practices are increasingly necessary. On the other hand, in terms of heritage and marketing, the recovery of techniques, varieties and products can be used to promote the product or even as an economic driver for tourism.

Methodologically, we start from several previously published works (Lagóstena Barrios & Trapero Fernández, 2019; Trapero Fernández, 2021b), as part of the activities of the Geophysics Unit of the University of Cadiz (Ruiz Gil et al. 2019). These works have analysed the state of the art of the Baetic wine problem by studying the territory of the Lower Guadalquivir. This is an area of special relevance at present, as it is the wine-producing region of Jerez-Xerez. Surface archaeological and geophysical surveys have been carried out, as well as the study of materials and previous bibliography. From the studies carried out, we can infer general observations about how ancient viticulture might apply to modern practices, a novel topic that has not been extensively studied in recent bibliographical works (Sáez Fernández, 1987).

Current study area “Marco del Jerez” and colonia *Hasta Regia*

The study area is located in the southwest of the Iberian Peninsula, in the province of Cádiz, Spain. In Roman times the region was very different from today, as the mouth of the Guadalquivir River formed a kind of navigable lake, allowing communication by boat to areas that are currently inland (Gavala and Laborde, 1992; Lagóstena Barrios, 2014). The settlement of the area dates back to Phoenician origins through the important city of *Gadir*, later *Gades*, and the autochthonous Turdetan settlement (González Rodríguez & Ruiz Mata, 1999). The region was well connected by sea through these estuaries and by land, through the final stretch of the Via Augusta (Sillières, 1990).

In addition to the geomorphological changes in the ancient mouth of the Guadalquivir, comparing Roman-era settlement patterns with modern ones reveals significant changes, we observe a change in the pattern, since the centre was formerly *Hasta Regia* (Mesas de Asta) and nowadays it is Jerez de la Frontera. We will focus on the territory of *Hasta Regia*, an important Turdetan city that was converted into a Roman colony. There are few bibliographical studies about it (Martín-Arroyo Sánchez, 2018), although we can recognise the importance of the region through epigraphic documents such as the Bronze of Lascuta, one of the oldest in the peninsula (Hidalgo de la Vega, 1989; Ruiz Castellanos, Vega Geán & García Romero, 2016). Knowledge of the archaeology of the city is also scarce, only limited peripheral excavations were conducted during the 1950s (Esteve Guerrero, 1979). The study of the territory of the same has been carried out in recent publications, recognising indicators of viticulture in the region (Trapero Fernández, 2021).

Currently, the area of the Marco del Jerez, is the denomination of origin of Jerez Xerez, very fertile land (García del Barrio Ambrosy, 1988). For ancient times we know that production has very ancient origins, at least dating back to Phoenician times (Vallejo Sánchez, Castro Páez & Niveau de Villedary and Mariñas, 2002; Ruiz Mata, 2018). There is also archaeological evidence in the area of Puerto de Santa María from the Roman (López Amador & Ruiz Gil, 2007) and medieval Islamic periods (López Amador & Ruiz Gil, 2005), in an area of influence between the *Portus Gaditanus* (López Amador & Pérez Fernández, 2013), the area of expansion of *Gades* on the mainland, and the colony of *Hasta Regia*. The toponymy of the area includes names suggestive of property

ownership, particularly in the *pagos*, which are traditional wine-growing zones (Martín Gutiérrez, 2003).

Agrarian techniques in ancient literature

In ancient times, the rural economy was way more important than other sectors due to the need of food, so learn better techniques in agriculture and livestock farming was essential. An example of this is the Latin agronomic literature that has been preserved with outstanding authors such as Cato, Varron, Columella and Palladius. Of these authors, we focus on Lucius Junius Moderatus Columella, because of his origin in the city of *Gades* and the continuous references to his uncle Marcus, a farmer in *Baetica* (Holgado Redondo, 1988). On the interrelation of these authors with the study area we have published several contributions (Lagóstena Barrios & Trapero Fernández, 2019; Trapero Fernández, 2020). However, we will focus in this brief section on explaining to what extent we can use ancient literature as a vehicle for transferring knowledge.

The study of agronomy dates back to Roman times, as the Greek tradition was not specifically concerned with it, as we do not have agronomy literature itself, besides Hesiod's *Works and Days*. They can probably specialise as they have the Greek naturalistic tradition, with works such as Theophrastus' *De Causis Plantarum*. The agronomic tradition makes direct use of these sources in Islamic and modern times, only finding important changes in the modes of production with the mechanisation of the countryside with the industrial revolution. Therefore, the first idea is the continuity of many measures until recently. This is why we can compare agricultural practices with those of the early and mid-20th centuries.

A second parameter for this knowledge transfer is the certainty that the agricultural practices mentioned are used by all farmers. This doubt arises from the reality that agronomic writers are from the elite and write for the powerful, so there might be other practices not known (Martin, 1971). We cannot speak for other authors, but in the case of Columella, he focuses on creating a manual of good practices in a rational way in which he gathers information from previous literature, common practices and personal experimentation (Carandini, 1983; Agarcía Armendáriz, 1995). Specifically, we find references to the Roman tradition of vine cultivation, but also to other practices that we could call local or autochthonous.

The case of Columella and the region under study is very paradigmatic since we know that he grew up with his uncle, who was a farmer in the area and that he picked up many practices from our framework of the study, which will be discussed later on. It has been possible to make a correlation between the types of good soils for vine cultivation described in Columella with the optimal lands for current cultivation in the Jerez del Jerez area (Sáez Fernández, 1988; Trapero Fernández, 2016). These soil types are currently called “albarizas”, “barros” and “arenas”, which correspond to the soil categories of calcareous regosols, vertisols and arenosols respectively. In a recent article (P. Trapero, 2021a) this relationship has been revised with the agronomic author's references (Columella, *Rust.* 2.15.4. and 12.21.5-6) verifying the properties of the soil described with the current ones.

We cannot doubt the author's relationship with our study area, since the rest of the references he makes to his uncle deal with the area and specifically with viticulture

(Columella, *Rust.* 5.5.15; 7.2.4; 12.21.5; 12.40.2). Only one historical problem remains to be clarified and that is the two references that allude to the place name Ceret (Columella, *Rust.* 3.3.; 3.9), as there are authors who locate this place in Italy, while others locate it in the study area, specifically in the Sierra de Gíbalbín, given that there is a coin in the area and the name seems to be related to the current town of Jerez de la Frontera (Tovar Llorente, 1975; Larrea Redondo, 1975). This is a difficult problem to establish, although it has been proposed that it is the territory of Baetica, not as a city, but as a productive area such as a *pagus* or similar (P. Trapero, 2021b).

Finally, there is an interesting quality in these works, since Columella refers to common practices that the Romans would implement in the study territory and other techniques that are local or local to the area. We know that there is a continuity of pre-Roman practices in the area (Jiménez Flores & García Fernández 2006). We will likely find in the author's references not only information on Roman practices but also on autochthonous ones. The origin of these practices is more difficult to determine, as they could be Turdetan or Phoenician. In any case, we know the Punic influence, originated from the presence of the Carthaginians before the Second Punic War. We only have a few examples where this influence has been demonstrated (López Castro, Martínez Hahn Müller & Pardo Barrionuevo, 2010).

With this information, we can extrapolate many of the references made by Columella to the region under study, given that much of the agronomist's experience was developed in the area. Other authors are less relevant, although they also have some direct references to Baetica, such as Varro, who was governor of the province.

Archaeology of wine production

In addition to the classical literature, we have another series of indicators that allow us to know what ancient viticulture was like. The recognition of viticulture indicators is based on the different phases of production, transformation and distribution of products (Tchernia, 1986; Brun, 2003; Brun, 2004; Peña Cervantes, 2023). There is an important update of the research state specially with new outcomes about regional analysis and spatial analysis (Poux, 2011; Martín Oliveras, 2015; Stubert et al. 2020; Dodd, 2022; Bernigaud et al. 2021). We must highlight a recent book that covers the actual state of the art (Dodd & van Limbergen, 2024).

The cultivation processes generally leave very few archaeological remains, beyond the aforementioned tracks and planting pits. We can also recognise fieldwork tools (Forbes, 1993), although it is a difficult phase to study as it combines other agricultural processes, given that tools and planting frames can be shared with other crops, as in the case of the olive tree (Revilla Calvo, 1999).

The transformation does involve a series of processes where archaeology can find materials, such as the *cella vinaria* both for transforming or storing the product (Van Limbergen, 2014). Indicators such as dolia or press weights indicate the presence of wine production, although in the case of presses they can be confused with oil production (Carrillo Díaz-Pinés, 1997). We know that for the Baetic territory there are cases of production with different models to other areas of the Iberian Peninsula, given that the press rooms are different (Peña Cervantes, 2010). Few direct indicators exist due to the limited archaeological excavations conducted in the study area, although we

have well-studied peculiar cases such as in the villa of Monte Alto (López Rosendo, 2007) and Torre Megarejo (Rambla Torralvo, 2016).

The distribution phase is characterised by the type of product and the vessel, mainly amphorae for the Roman period. The study region is an important region of pottery production (Lagóstena Barrios & Bernal Casasola, 2004), with amphorae of the fish salting type standing out. The province of Ulterior Baetica is known to have produced a type of wine amphora known as Haltern 70 (Berni Millet, 2011), although its production area or specific content was not well known, as it could be wine or another grape derivative such as defrutum (Silvino, Pouz, Garnier, 2005). One of the main regions of this production proposed to have been located in the Lower Guadalquivir (Carreras Monfort, 2001).

It has been demonstrated that the Lower Guadalquivir region and specifically the colony of Hasta Regia was an important grape-producing area, which has been recognised in most of the archaeological sites. These have mainly been the local imitation Haltern 70 and Dressel 1 wine amphorae. In addition, small dolia containers have been discovered alongside other structural elements of the *cella vinaria* (P. Trapero, 2021b).

Other sources and continuity for medieval and modern times

We have included this section to explain other relevant sources of information to produce knowledge transfer, as well as the continuity of the different measures and productions in subsequent periods. For example, in medieval Sicily there are evidences of wine commercialization thanks to analytical studies (Drieu et al. 2021).

On the first question, the use of Geographic Information Systems is necessary to analyse agricultural practices, as it allows the integration of sources from other disciplines, especially geographical, but also environmental, geological, edaphological, etc. Historical cartography is also important, as these methods make it possible to geo-reference plans to make them more realistic. Finally, these tools make it possible to make predictive and deductive models, where parameters for the economy and historical landscape can be mathematised.

Regarding the second question, the historical evolution of settlement in the study territory can make it difficult to pervade certain practices, due to the historical exploitation of different cultures, late roman times with visigothic rulers until 711 CE when most of Iberian Peninsula was conquest by the muslim Omeyan Empire and then when the Cristian kingdom of Castille conquer again. There is no break in measures and ways of understanding the land for the late Roman period, exemplified in the work of Palladius, although we do have the Islamic and Christian periods. The former corresponds from the arrival of the Muslim caliphate to the Iberian Peninsula until the conquest of the area by King Ferdinand III of Castile in 1247, more than 500 years later. From an agronomic point of view, there is no break in knowledge given that Islamic authors knew and used Latin sources, combined with others of Eastern origin (Piqueras Haba, 2014). However, there are two issues to take into account. On the one hand, it is the prohibition of drinking wine of the Muslim religion, which is why they thought of smaller production, focused on table grapes and sultanas, although we know the survival of wine for other communities such as the Christian or Jewish. On the other

hand, the creation of the city of Jerez de la Frontera at some point during this period modified the centre of action of Hasta Regia (González Gordon, 1970). Both of these conditioning factors modified the perception of the existing agronomy, although there are few literary references to the specific area of study in terms of agriculture (Borrego Soto, 2015).

The second moment is after the Christian conquest, where Jerez de la Frontera is a royal city and enjoys considerable power and important wine production, although the settlers come from the north and the territory previously had no special production of grapes, but of olives. In any case, it is a time that is very well studied by the archival sources preserved (Martín Gutiérrez, 2002; Ruiz Pilares, 2018). In agronomic matters, Alonso de Herrera is the author of reference, who, even reading directly to authors such as Columela, we can already find for the first time studies of more complex edaphological origin. However, at the technological level, we have to wait for the mechanisation of the countryside to see substantial differences.

Therefore, we can summarise the periods of different agricultural practices in at least 5. One before the Romans of uncertain origin of Phoenicians, Turdetans or both, a second of Roman influence, a change with the Islamic world, a return to a model more similar to the Roman one, but more scientific in modern and contemporary times, until the fifth period which would be the current one.

Results. Transfer of agricultural practices

The transfer of knowledge can be carried out in several ways, as we have already indicated, so we will comment on each point from the choice of the vineyard itself, through cultivation practices, processing and finally the products that are generated.

Firstly, the determining factors for the choice of vineyard land are very similar to those of today. The good soils for vineyards are mainly albarizas, muds and sands, as we have already mentioned. Marcus Columela's comments refer to these types of soils so that no change in the vineyard cultivation areas would be required.

Secondly, where there would be a notable difference is in the technique of planting vines. Roman vines used to be planted in ditches or pits, which nowadays can easily be done with modern machinery if necessary. In this aspect, we should consider the use of hoeing, to pull out the weeds and roots that might be present in the defined lanes. In addition to this, Roman agronomy shows us two ways of positioning the vines, utilizing barbados or cabezudos (Columella, *Rust.* 3.15.2.). Undoubtedly, because of phylloxera, it is nowadays necessary to use the cabezudo, i.e. we cannot plant the vine directly in the ground, but employing a vine trunk already acclimatised. This is an interesting aspect to improve current techniques, in this sense, these old vine trunks could be used as a support to generate the new ones, grafting the new vine variety onto the pre-existing trunk. Thus, it would be advisable to use the old vines that are going to be uprooted to be used for the Roman vineyard.

There are different ways of planting vines, from those that would be laid on the ground, through bushes and, finally, those that would be supported. In general, in Baetica, a ditch was dug in the shape of a V where two ends of the vine were dug out on each side. In our case, the aforementioned vines could be used for this task. Among the

different types of vines, the most widespread must have been the one with a stake and, therefore, it could be paired with others. The technique would be called *alveus*, consisting of a furrow for two vines that was filled with other soil or stones (Martín Oliveras, 2013, p. 330). In the case of vines with stakes, the use of materials such as elm or cane for these tasks should be highlighted. Reeds in the early stages of the vine, and elm or similar for mature vines. In this regard, the possible organoleptic properties of this pairing of elm or similar with vines should be considered (Fuentes-Ultrilla, López-Rodríguez & Gil, 2004).

Regarding the separation of the vineyards, the average ditch is usually three Roman feet, which is equivalent to approximately one metre. A trench of approximately two feet deep is usually made and, in general, another three feet of separation between the different vines. This planting framework is quite similar to that existing in the Jerez framework, with the difference that there were two vines for each central point instead of one, not only making lanes in one direction but in several.

In the vine maintenance phase, the winter digging is paradigmatic, which has been carried out until recently in Jerez and is reminiscent of the Roman period (Columella, *Rust.* 4.8.2.), so its recovery as a technique typical of the area is recommendable. Along with it, we would have the “*despampano*”, the pruning and the ordinary digging, which in essence are very similar to the traditional ones that have been used in the region. The tools used for these tasks are also similar. Among them, we would highlight the stork, to place the vine shoots (Columella, *Rust.* 3.13.11; White, 1975, p 39). There are no excessive differences between the approach of a Roman vineyard and a traditional one, except for the distance and type of vine planting. The rest of the related activities are very similar.

However, if we talk about the types of grapes for these Roman vineyards, the question is very different. We must first consider the different types of Roman wine and the ancient taste, which is very different from today. Therefore, reproducing a Roman wine would be impractical, as it would not be to the taste of consumers. Experiments could well be carried out by trying to combine elements of Roman wine with today's wine, such as the resination of the container or the addition of saltwater, although these issues would have to be analysed by an oenologist.

The difficulty here is that the Romans had no way of controlling the process of transforming alcohol into acetic acid and therefore used various techniques to try to regulate it, such as adding gypsum, pitch, salt water or heating to reduce the must. Oenology provides a good understanding of these issues (Hidalgo, 2003) so that in any case, it would be possible to recreate uncontrolled processes in the past, but there is little point in transferring them to the present day.

Therefore, the recovery of a certain wine product cannot be considered without a research project, something that would require a much more exhaustive analysis of the Roman recipe book. What is being suggested here is the recovery of agricultural practices to produce a grape under Roman parameters. Within the wide variety of grapes in the territory, probably the closest to a Roman variety is the Muscatel according to some authors like Sáez (1989), as the one most likely to be related to the Cocolobin grape, cited as one of the main ones in our area (Columella, *Rust.* 3.2.19.). The analysis of current production shows that this is one of the oldest grapes in the area (AA.VV., 2002).

The revival of traditional farming techniques has had a great impact nowadays, especially among small producers who can differentiate their products. In the same way, the search for the organic seal, whatever type it may be, is currently in vogue, not only to try to market it, but it is a trend that is gaining more and more strength in the general social conscience. Faced with these questions, Roman practices provide us with many solutions to the realities of cultivation, where a large part of the techniques used are ecological. The first point, as mentioned above, is the use of plant materials for all the ties and stakes required for the vines. The use of chestnut, cane or esparto grass is highly recommended by the Roman agronomists, as it is the only existing way to make them. It may not be necessary to use these materials directly, but other similar materials may be used to replace the piles and wire mesh.

Along with reality, we must consider that the Roman vineyard was largely self-sufficient, i.e. it produced the materials it needed in its environment. This is a model that could be used in today's organic vineyards, where part of the land is used for the cultivation of these plants. This would not only partially save the cost of purchasing the materials, but could also lead to a qualitative improvement of the estate. The worst areas for vineyards, such as streams, could be used for the cultivation of these plants. Initially, it may require more attention with the arrival of water, but once the roots hold the soil, erosion of these areas, which are a problem in many sloping areas where large gullies are formed, could be halted.

Vines have long been planted using literarily rubbish in their roots instead of rocks for moisture retention. An alternative to this could be the use of rocks, or better still, grape pomace and manure (Columella, *Rust.* 4.16.4.) The same Carthaginian author approves of applying grape pomace mixed with manure to the plants already in the holes. Mago the Carthaginian approves of applying grape pomace mixed with manure to the plants already in the holes. In this respect, the stones that generally end up piled up in piles around the farm could be used for this purpose. Alternatively, the use of wine processing residues or the manure itself for these tasks is very interesting. Precisely these practices are designed to retain the humidity of the soil, while at the same time allowing the roots of the vine not to become waterlogged, which is precisely the possible problem that this crop would have in our study. In addition, using pomace would be an environmentally friendly way of reusing the waste from grape pressing to feed the new vines.

Another issue relevant to ecology in the field is usually the type of grape and the use of products to control possible pests. Regarding the former, it would be recommended to use the most common grape in the area. In the second case, the use of "Alpechín", the residue of olives when pressed, which the Romans used as an insecticide (Columella, *Rust.* 2.9.10.) Others, when the crop starts to become infested, spray the furrows with this same water and with "Alpechín" without salt, thus eliminating the pests, and could therefore be used as an ecological product to combat this problem.

Finally, in the organic cultivation of vines, the use of agricultural machinery may be eliminated or reduced, which is why we refer to the comments on the approach to a Roman vineyard.

In addition, Marcus Columella's technique of protecting the vines with palm leaves (Columella, *Rust.* 5.5.15.) could also be of interest and could be an interesting practice in cases where the weather conditions due to the wind are bothersome. In addition, this

would have a significant visual impact on the territory, which could make it a characteristic tourist attraction.

Conclusion

We have analysed the various sources of information on wine production in ancient times and how knowledge is transferred. Sources such as Columella or archaeology itself show this production, although the transfer is usually made from literary sources, which are much richer in detail. In our case, there is a direct relationship between the practices narrated in the sources and many of the techniques considered traditional in the territory. Along with these, many others have been lost and are useful for the ecological vision of a vineyard.

A significant portion of research on southern Baetica could greatly benefit from experimental archaeology, which remains challenging due to the current state of investigation and the limited number of archaeological excavations. Nevertheless, existing models and practices offer valuable examples that could inspire similar initiatives. For instance, *Senarum Vinea: Un percorso di ricerca nel paesaggio vitato della città di Siena* showcases an integrative approach to studying historical vineyards, while *Les Vinalia 2012*, focusing on Roman grape harvest reenactments at the Musée Gallo-Romain, highlights the potential of immersive reconstruction techniques. Similarly, works like Ferreira and Harutyunyan (2018), demonstrates how the study of ancient wine production methods can bridge historical traditions with modern innovation. These examples underline the potential of experimental archaeology to advance our understanding of ancient viticulture in Baetica.

Concerning the heritage vision, a project for the recovery of a Roman vineyard can be an important attraction for the brand, as the product can be sold as a Roman wine, with confirmation from the academic world. This type of project is relatively new in our country, although we have examples of this implementation between the productive and academic sectors in Italy (Cittadelvino, 2021)

However, the most striking aspect of these ancient processes would be precisely the section on the transformation of the product in the wine cellar. The reconstruction of one of these spaces, both archaeological and as an interpretation centre, is a major cultural attraction. On the other hand, the construction of a Roman press could be an important economic expense, as opposed to the rest of the recommendations mentioned above, which would not involve a significant investment. In the latter case, the potential would be greater, but also the initial cost. There are several archaeological projects in other countries with good results (Indelicato, Malfitana & Cicciaguerra, 2017).

In any case, the archaeology of the territory itself could be used as a tourist attraction, especially in those places where archaeological remains of relevance are found, such as the *calcatorium* of Crespellina. The high costs associated with excavating and preserving these sites often hinder traditional agricultural activities in these areas. However, by employing non-invasive research technologies, we can minimize disruptions. For instance, in locations with indicators of historical production, techniques such as geophysical surveys could be used to map the layout of potential structures. This approach significantly reduces expenses while still providing valuable

historical and cultural insights. Furthermore, leveraging methods like 3D reconstructions could enhance the site's value for educational and tourism purposes without compromising its agricultural utility.

Another approach to this type of study could involve the use of oral sources. Specifically, in the Baetic region, this form of documentation has not been systematically addressed in recent years, despite the existence of numerous traditional practices that have been gradually abandoned over time. Efforts to recover and maintain these practices are primarily led by the Regulatory Council of Jerez Wine, which holds a significant portion of related documentation in its archives.

However, a dedicated campaign to collect and document techniques and regional peculiarities from older generations would be essential to prevent the loss of this valuable knowledge. Such an initiative could ensure that these traditions are preserved and potentially transferred to future generations.

In short, in this reflection, we have analysed the different techniques that we know can be applied to the reconstruction of a Roman wine estate. Their implementation in the Marco de Jerez can be of great use to small and large landowners, as a start to a major study of the good ancient practices that can be recovered, both in the search for greater visibility of the product, as well as in the achievement of an ecological production environment and perhaps even in the recovery of products. There is currently tourist interest in these spaces where the focus is on the unique techniques and varieties and the age of the winery (Barquín, 2009). The process of implementing the theoretical information provided by the academy must be correctly contextualised by the researcher in charge of transmitting the information to the productive sector, interpreting, on the one hand, the existing ideas in ancient sources, with the problems and improvements that may arise today (Siegel, Waldman & Atwater, 2004).

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