Analysis of the Agricultural Management of a Hellenistic Pieria Farmhouse Based on Archaeological Evidence and Archaeological Relevance

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Introduction

Although the social, economic and political organization of the ancient world was largely determined by people's relations with the earth and the environment the rural landscape, rural structures, and the countryside housing organization has not been an attractive subject for ancient writers and researchers of the past decades.[1] Since most open-air settlements and rural facilities are not mentioned in the written sources, their natural remains are also the only historical testimonies. The intensive surface surveys and excavations that took place in the Greek countryside in the 1980s and 1990s discovered a large number of agricultural facilities dating back to the 4th and 3rd centuries BC.[2]

In the present paper, I will examine the agricultural management of a Hellenistic farmhouse that was discovered in central Macedonia, in Greece, in the framework of a rescue excavation in the late 1990s. This attempt aims to shed light in some aspects of the rural economy of Macedonia in the Hellenistic times.

I was fortunate to participate in the excavation of the farmhouse and later had the opportunity, in the context of a doctoral dissertation, to study the primary archaeological material and to examine it in relation to the results of two relevant studies about this farmhouse, the archaeobotanical elaborated by Evi Margaritis[3] and zooarchaeological by Vasso Tzavelekidis[4].

Based on this primary archaeological material I will focus on the domestic-economic activities of the farmhouse and I will examine, as far as possible, the scale of production of certain activities, in order to draw conclusions about their trading, human potential, seasonality and ultimately the economic model. A crucial element in this debate is the question whether the purpose of this farmhouse is economic self-sufficiency or, on the contrary, the production of surplus for marketing.[5]

Background Information

Geographical Location

The farmhouse is located in central Macedonia, in Greece on the southeast edge of Pieria, at the site Tria Platania, in the coastal area between Tempi valley and Mount Olympus, next to the most important road of Antiquity, which was the natural passage of Tempi, timelessly connecting Thessaly and Macedonia (fig. 1).

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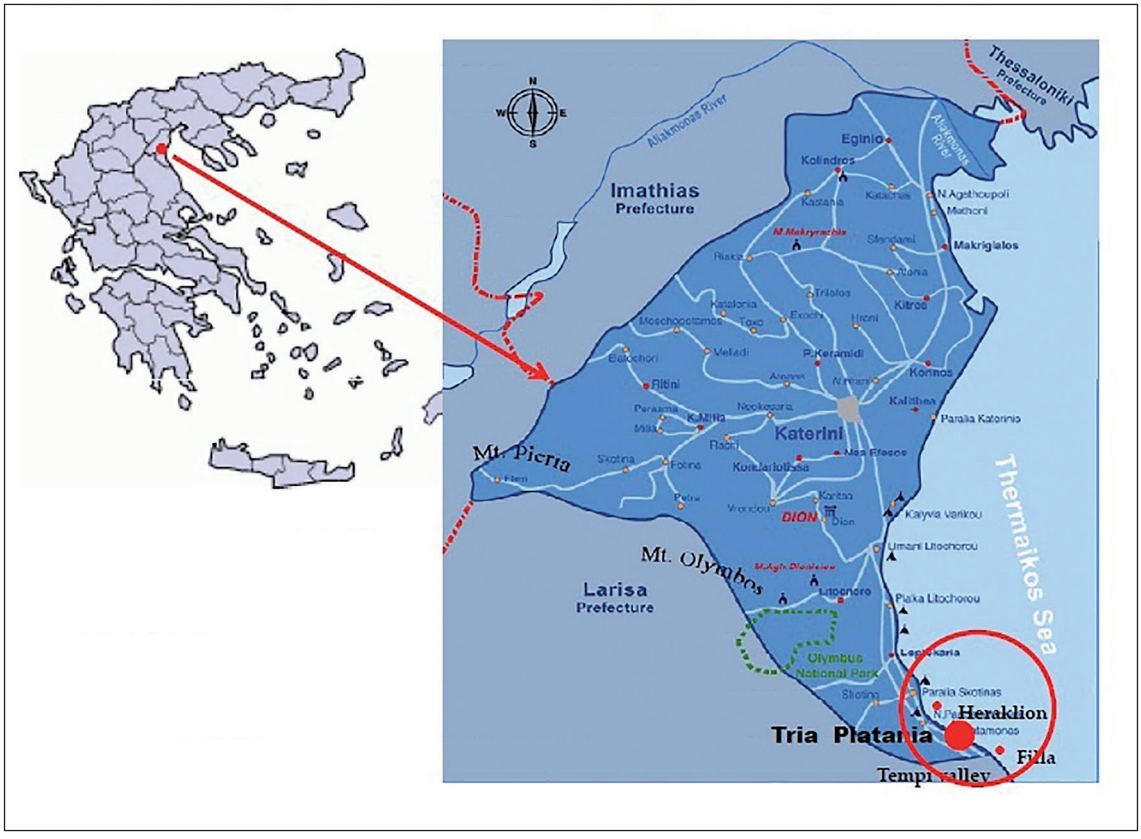

Fig. 1: Map of the North edge of Pieria, Greece.

In Antiquity the site was situated between the two southern cities of Pieria, Fila and Heraklion and belonged to the territory of Heraklion city, 4,5 km away. The significance of the location shown from the numerous archaeological remains of the wider area has been a pole of attraction over time.[6]

Archaeological Remains of the Farmhouse

The excavation revealed a large building complex, a Farmhouse, oriented NW → SE and an area of 2,400 m². However, the external enclosure, extending north, shows that the living space of the farmhouse exceeded 4,000 m² (fig. 2).

Two construction phases (I, II) were identified on the building (fig. 3). The first begins in the late 4th century BC and ends with its destruction by fire, probably from the invasion of the Gauls in 279 BC. The building was rebuilt only in the northern part of the complex in the times of Antigonus Gonatas, about 275 BC and was finally abandoned in the mid-2nd century BC.[7]

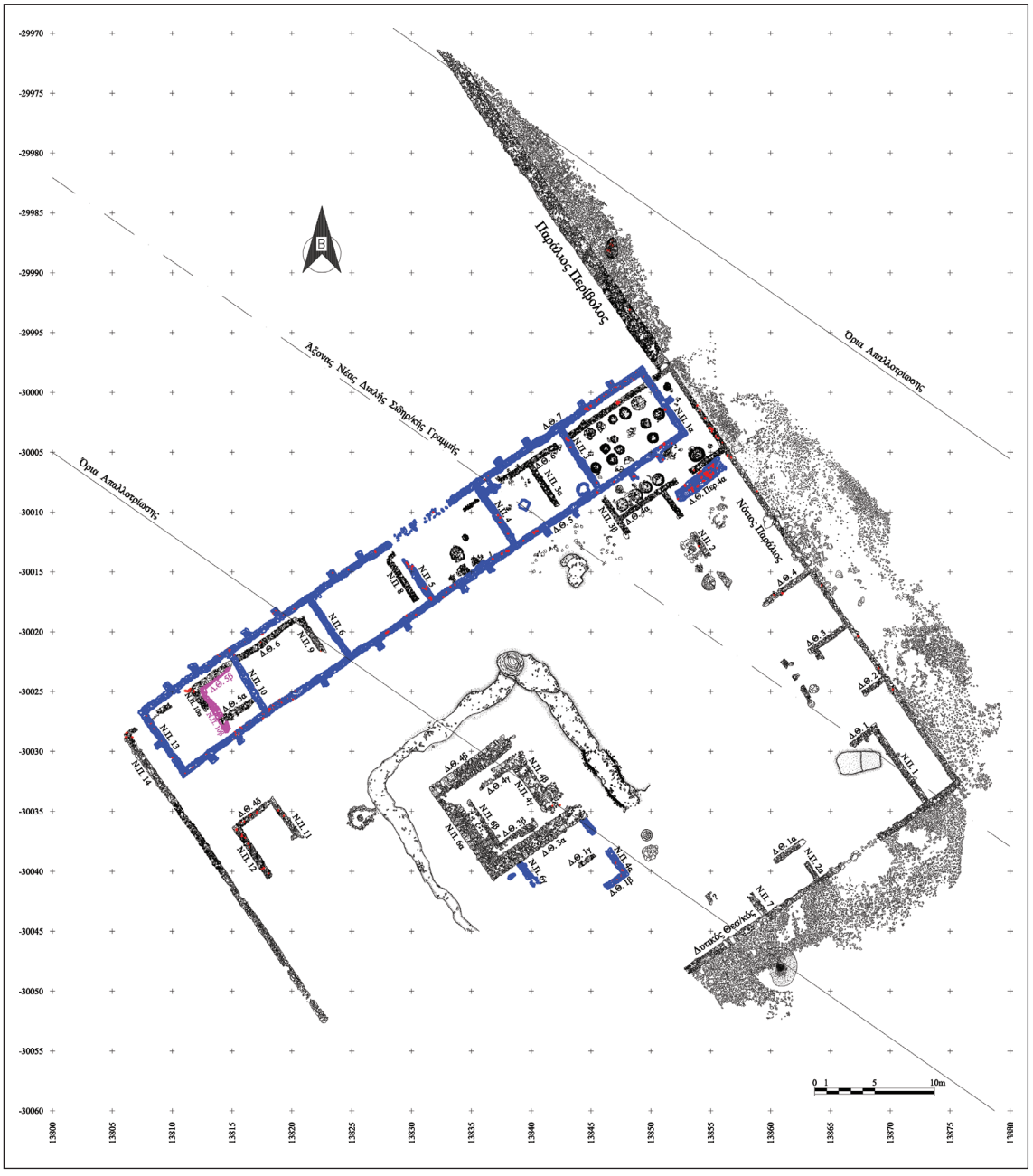

Fig. 2: Excavation plan of farmhouse at Tria Platania.

Fig. 3: Architectural remains of farmhouse at Tria Platania.

Archaeological Material

The archaeological material that came from the excavation, apart from the building remains includes numerous and varied finds that bear witness for the occupations in the farmhouse. Specifically, it includes a large number of pithoi and amphorae fragments, unpainted pots of daily use and cooking utensils, over 400 black-glazed vessels.

Moreover, it includes 1900 objects of clay, stone, lead, iron and copper, such as loom weights, grinders, millstones, lead weights, agricultural tools, spearheads and arrowheads, harness accessories, etc. In addition, 183 coins mostly cuts of Macedonian kings and a few cuts from cities of Thessaly were found.[8]

Final Architectural Plan: Organization of the Premises

Based on the aforementioned remains, we were able to form the architectural plan of the building (fig. 4). This plan concerns the early construction phase I (end of 4th century BC), which is the best attested. In this phase the farmhouse was a rectangular building with introverted organized spaces around a courtyard, had a central tower, pottery kiln, drainage ditch and a well. The building had a semi-enclosed portico[9] in the east and an open portico in the north. The main entrance was in the SW part of the complex.[10] The

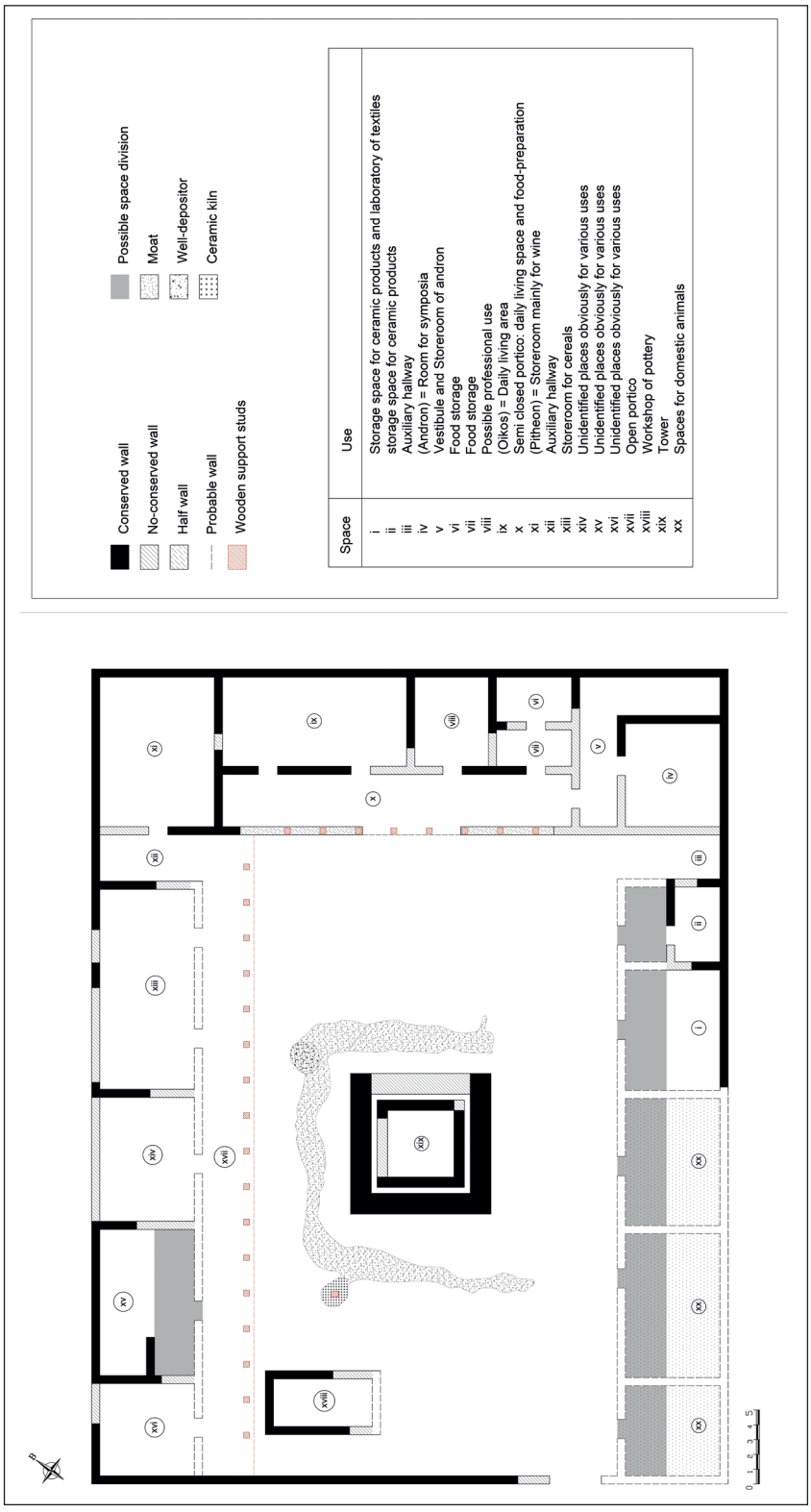

Fig. 4: Architectural plan of farmhouse at Tria Platania.

second floor was supported by the east side and perhaps the north.[11] The tower had more than two levels.[12]

Based on these characteristics, the building complex is typologically classified as the type of farmhouse with rectangular plan and central tower. Similar constructions are sought both in Macedonia and elsewhere.[13]

Interpretation of the Use of Spaces

Based on the architectural form of the building, the findings and their dispersion, we have reached conclusions about the operation of the premises of the farmhouse, which encapsulated several functions (fig. 4).

During the construction phase I, the south side of the complex was used as a laboratory for the production of textiles and also for the storage of the pottery kiln products. In the southwest corner, there was possibly a stable for horses. On the east side were mainly the daily living and food-preparation spaces. In the southeast corner there was an andron, in which the owner held symposia.[14]

On the north side were storerooms. The northeast storeroom, in which 16 pithoi were found in situ, was related to winemaking and wine storage.[15] The process of winemaking is documented only by the analysis of organic residues. No equipment has been found. While the next storeroom mainly served as a storage place for cereals, and olive kernels, which served as fuel. On the west side there was a laboratory of pottery.

In the inner courtyard were the tower, the kiln, the depositor and the moat. The tower had fortification-defensive character and supervisory role for rural activities, as well as, control of the public area of the city. Moreover, the tower as shown in every day pottery found was probably living accommodation for servants and laborers.[16] The kiln is associated with the production of mainly small vessels and operated only during the summer months. The moat and the well depositor functioned as a double pipe-gathering system of rainwater.

Domestic-Economic Activites and Scale of Production

This analysis is based only on the data of the first habitation phase. We use the data in part of the second habitation phase only for the production of olive oil.

The archaeological finds, the archaeobotanical and the zooarchaeological remains reveal that the inhabitants of the farmhouse were engaged in agriculture mainly (wheat, barley) and arboriculture (olive, grape), wine and olive oil production, the production of pottery and woven fabrics. The occupation of the inhabitants with animal husbandry was also of great importance.

Agricultural Products – Scale of Production

The scale of production of agricultural products mainly arises from the consideration of storage spaces and storage vessels. The likelihood of using skins or fabrics in storage makes production estimation more difficult.[17] Storing products for long periods of time is one of the major rural economic strategies.[18]

Cereals: As mentioned before, in one of the storerooms was grain. We cannot calculate the total amount of grain stored there. But surely saved the annual needs for wheat, which was at least 4,500 liters.[19] This suggests a small-medium size production. The size of the room was 87 m² which in combination with stored quantities in perishable materials,[20] offered great storage capabilities which could mean a larger size production.

Wine: The pithoi of the northeastern storeroom, as mentioned, were related to wine-making and wine storage. Taking into account the capacity of 100 to 350 liters each, at least 16 pithoi could store an average of 3,500 liters.[21] This quantity indicates that wine production was medium-sized.

Olive oil: Olive growing and olive oil production in both residential phases are documented only by the analysis of the archaeobotanical remains. Residues indicate an alternative mild crushing that involves very good quality olive oil.[22] The production of very good quality olive oil is likely to indicate that part of the production was (*ὀμφάκινον ἔλαιον*), that is, oil of excellent quality mainly used in medicine and in the manufacture of aromatic oils.[23]

However, olive cultivation is mainly linked to the late residential phase where olive oil is the main production of the farmhouse. The fact that the exact number of amphorae has not been estimated does not help to approach the size of production in the late residential phase II.[24]

In addition we cannot make any calculation for the quantity of olive oil produced in the early residential phase I either. Besides, the consumption of olive oil in Antiquity is difficult to calculate with precision, as the harvest of olive oil is unpredictable from year to year[25] and a household would have to store the supply of a good year turn to cover for the next.[26] One family stores about 250–300 liters of olive oil a year[27] for food, lighting, cleaning and grooming.[28]

Craft Activities – Scale of Production

Pottery: The ceramic kiln is associated with the production of small and medium size vessels. According to experimental studies carried out in kilns, a ceramic kiln with a combustion chamber diameter of 1 m can accommodate up to 150 medium sized vases with a height of 0,20–0,30 m.[29] Compared to the above, the capacity of the kiln of the farmhouse was of around 200 medium sized vases, as its combustion chamber had a diameter of 1, 40 m.[30]

Taking into account the time required by the vessel manufacturing process, about three weeks to complete the construction of 200 vessels,[31] and since it only worked

during the summer months, we conclude that the kiln burned three to four times a year and produced a total of 600 to 800 vases annually.

From the above, it appears that the ceramic workshop is related to part-time production and is characterized as a small-scale domestic craft.[32]

Weaving: The weaving activity is derived from the total of 138 loom weights found in different areas. The data reveals advanced weaving activity. The loom weights in three groups, of 20 weights each, indicate the existence of at least three looms.[33]

The looms were medium sized with a width of about 160–180 m.[34] The weight of the loom weights ranging from 140 to 180 grams shows that the main activity was the weaving of woolen fabrics.[35] From the above we conclude that the scale of weaving production was medium-large.[36]

Livestock

Animal husbandry is documented by the zooarchaeological remains belonging to cattle, pigs, sheep, goats, horses and dogs[37] and the archaeological finds, such as, the iron seal for animals (fig. 5), the scissors for sheep and goats mowing (fig. 6), the bronze flipper[38] (fig. 7) and the large number of loom weights.

Additional elements that prove livestock farming activity include the natural environment of the area with exceptionally mountainous and summer pastures and abundant water sources,[39] the need to ensure manure to improve soil fertility,[40] the need for sacrificial animals[41] and finally the epigraphic testimonies, according to which the inhabitants of Heraklion during Hellenistic times were also engaged in livestock farming.[42] All the above allows us to assume that the owner had a significant livestock. Breeding a variety of animals also indicates the multiplicity of breeding goals,[43] such as livestock products,[44] use in agricultural work and transport[45] as well as animals for sacrifices.[46]

Fig. 5: Iron seal.

Fig. 6: Iron scissors.

Fig. 7: Bronze flipper.

Conclusions

According to the data we have drown initial conclusions concerning the seasonality, human potential, productive model and scale of production and trading. These conclusions lead to larger-scale ones related to the economic model.

Initial Conclusions

As far as seasonality[47] is concerned, the size of the farmhouse, the large number of daily use vessels and diversity of parallel activities, indicate that the farmhouse was permanent habitation[48] but it was not necessarily the only residence of the owner.[49]

Regarding the human potential, the variety and scale of activities lead to the conclusion that there was a workforce of slaves and workers, while the management of

all the tasks was under the supervision of an administrator.[50] Although it is difficult to calculate the exact number of people living within a farm, however 12 to 15 people can be estimated (family 5 to 6 members, workers and slaves also 5 to 6, the potter and the administrator). At the time of harvesting, the workforce was likely to be boosted by working peasants living in the city or in neighboring settlements.[51]

Regarding the productive model, the farmhouse at Tria Platania was an autonomous, economic unit based on mixed agricultural and stock raising activities and crafts. This conclusion strengthens the views that support the coexistence of agriculture with specialized livestock farming[52] as opposed to those who support the separation of agriculture from livestock.[53]

Concerning the scale of production and trading, the data indicate that the production of most farm products was medium-sized and associated with local trading, while only in the second phase the olive oil production was of a large scale.

Final Conclusions

Economic model: As mentioned above these conclusions lead to larger-scale ones related to the economic model. All the data, as we already have seen, describe a landscape of varied and parallel activities (wine, olive oil, weaving, pottery, livestock). The variety of activities combined with the size of their production reveals an economic model in two directions: a) self-sufficiency activities and b) profit oriented activities.

The first one is related to cereals, pottery and olive oil in the first residential phase. The second one is related to wine, textiles, olive oil in the second residential phase. There is also an element that concerns both aspects of the model, (self-sufficiency and profit), which is related to livestock farming and the need for sacrificial animals. In this case the size of livestock seems to be reaching profit margins, which may indicate that sacrificial animals were not only meant to cover religious duties (self-sufficiency) but also for generating profit. Naturally, other livestock and agricultural products could be included in this category.

Interpretation of the character of the profit oriented market and its varied activities in the Farmhouse: Finally, in an attempt to make an interpretation of the character of the profit oriented market and its varied activities, in our case, I would say that my approach coincides with the view of L. Foxhall, who asserts that the diversity is developing in unstable environments and indicates a deliberate strategy that aims to maximize potential opportunities for profit and gaining wealth in the context of occasional friendships and political alliances, unlike modern formalist theory scholars, who often characterize the diversity of activities as the irrationality of the Greek attitude to profit.[54]

The reason why this argument coincides with Faxhall's aspect is strengthened by the fact that when the activities in the farmhouse are taking place is characterized by dynastic and political instability. This is associated with the period when successive crises and quarrels are developing in Macedonia among the successors of Alexander.[55]

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Notes

[1] Bintliff 2012, 270; Snodgrass 1990, 114 f; van Andel – Runnels 1987, 3 f; Osborne 1985, 119.

[2] See Gerofoka 2015, 69–75; Especially for the Macedonian farmhouses, see Adam-Veleni 2009; Adam-Veleni et al. 2003.

[3] Margaritis 2005.

[4] The zooarcheological study is incorporated as an annex in the aforementioned dissertation see Gerofoka 2015, 317–326.

[5] See Morris – Papadopoulos 2005, 99 f; Hanson 1999, 52.

[6] For historical and archaeological context of the area of the farmhouse, see Gerofoka 2015, 79–93.

[7] For the chronology of the farmhouse as indicated by stratigraphy, coins and pottery, see Gerofoka 2015, 199. 200.

[8] For typology and interpretation of movable findings, see Gerofoka 2015, 153–197.

[9] Graham 1953, 203–206.

[10] For typological classification in houses with an internal courtyard and an entrance, see Nevett 1999; Nevett 2005, 83. 84.

[11] For the existence of the second floor based on the example of an Attic farmhouse in Vari, see Jones et al. 1973, 426–428.

[12] For the height and individual architectural features of the towers of the Classical and Hellenistic period, see Osborne 1986, 168 pl. 8; Morris – Papadopoulos 2005, 156 fig. 4; Morris 2001; Korres 2005.

[13] The most congenial example from Macedonia is a farmhouse in Asprobalta at the site of Liotopi Routscheli, see Adam-Veleni et al. 2003, 101–107; For more examples from Macedonia and elsewhere, see Gerofoka 2015, 69–74.

[14] For the position of the andron on the side of the daily living space, see Graham 1953, 203; Nevett 1995, 371; Jameson 1990b, 104; Antonaccio 2000, 526; For the opposite view, Mylonas 1940, 402.

[15] For the contents of the jars and the assumption that the jars contained grain before their destruction, see Gerofoka 2015, 137. 138.

[16] Morris – Papadopoulos 2005.

[17] Davies 2001, 28.

[18] Cahill 2002, 226.

[19] For annual storage in wheat of a nuclear family, see Foxhall – Forbes 1982, 71. 72; Gallant 1991, 27–33.

[20] For storage of cereals in leather and cloth bags in the storage areas of the houses of Olynthos, see Cahill 2002, 229.

[21] For the capacity of jars, see Cahill 2002, 227; Amyx 1958, 170–173.

[22] Margaritis – Martins 2008, 398–399.
[23] Faklaris-Stamatopoulou 2004, 57. 58.
[24] The study of the amphorae that will give more information is a work in progress.
[25] Foxhall 2007, 85.
[26] Foxhall – Forbes 1982, 384. 385.
[27] Foxhall 1996b, 105. 106.
[28] For the uses of olive oil, see Margaritis 2015; Foxhall 2007, 85–95; Faklaris – Stamatopoulou 2004, 55–60; Foxhall 1996b.
[29] Hasaki 2012, 260.
[30] For the pottery kiln, see Gerofoka 2015, 113. 114. 145.
[31] Hasaki 2012.
[32] Hasaki 2000, 267.
[33] For vertical looms with weights, see Tzachili 1997, 156–158 fig. 69; For the mobile looms in Greek house, see Jameson 1990a, 186. 187.
[34] For the size of looms, see Cahill 2005, 58.
[35] Tzachili 1997, 181.
[36] For an example of calculation of the production capabilities of the vertical loom with weights based on experimental applications on a loom of this type, see Tzachili 1997, 252.
[37] See the zooarcheological study in Gerofoka 2015, 317–326.
[38] We mention the bronze flipper as an indication of having a horse and not as a sign of engaging in livestock farming.
[39] On the importance of water in agriculture and livestock farming, see Krasilnikoff 2002, 57; Krasilnikoff 2010; Chang – Koster 1986, 113; For the opposite view, see Isager – Skydsgaard 1992, 112.
[40] Forbes 1995, 328. 329.
[41] Howe 2011, 12.
[42] Arvanitopoulos 1913.
[43] Halstead 1987b; Burford 1993, 146. 147.
[44] Prummel 2003, 216.
[45] Isager – Skydsgaard 1992, 89.
[46] Ekroth 2007.
[47] On the seasonal and permanent residence, Pecirka 1973, 115; Lohmann 1992, 29–60; Osborne 1992, 22; Bintliff – Snodgrass 1985; Acheson 1997, 171–178.
[48] Hanson 1992, 166; For isolated permanent residence, see Jones 2004, 42–44.
[49] Jameson 1990a 173; Osborne 1992, 21.
[50] Carlsen 2002; For land management mainly in Attica, see Burford 1993, 167. 168.
[51] To care for the vineyard that required work throughout the year, see Hanson 1992, 165.
[52] Halstead 1987a; Hodkinson 1988, 35–74.
[53] Isager – Skydsgaard 1992.
[54] Foxhall 2007, 43.
[55] For historical evidence, see Hammond – Walbank 1988.

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