Conclusions

This book has investigated Roman fruit cultivation from a dual perspective: the 'idea' of arboriculture that can be found in the ancient literary texts and the 'reality' of arboriculture and horticulture more generally, as revealed by archaeological data. The various sections of this study have led the reader from the examination of how plants became means of elite self-representation and how literary texts discuss the engagement with the cultivation of fruit trees and transplantation of plants, to the archaeological and archaeobotanical record for arboriculture and the arrival and diffusion of new plants in Italy and the West. This journey has revealed the distinct and charged way in which arboriculture was used in elite discourse and the notable advances in horticultural practices that characterize the first century AD.

The period from the late first century BC to the early first century AD witnessed significant growth in the availability and diversity of fruit and vegetables in circulation in Roman Italy and, shortly after, in other western provinces. The Julio-Claudian period, particularly the Augustan era, has emerged as a critical time in the history of horticulture in the Roman world: a substantial leap in horticultural practices can be detected in this era. It was a period marked by considerable intensification of cultivation and by investment in infrastructure for horticulture, such as irrigation facilities. It was also a period when new and exotic fruit trees originating from the East were introduced – and started to be cultivated – in Italy. It was a period when the many newly settled provincial colonists, Romanized local elites with growing landholdings, and elite Romans diversifying their landownership portfolio with provincial estates stimulated horticultural investigations into different cultivars best suited to local environments. In short, it was a period marked by a horticultural 'revolution'.

The prominence horticulture gained in the early first century AD can be appreciated from the writings of various intellectuals active in the early Julio-Claudian period. These writers composed treatises devoted to

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specific aspects of agriculture. Simultaneously, a more precise language to indicate specific types of cultivation (e.g., *pomarium*; *vinea*) entered common usage; these are significant changes that indicate increased agricultural specialization. Archaeobotanical evidence, despite its lacunae, also suggests that, in this same period, the *variety* and *quality* of fruit and vegetables available increased. Both the literary and archaeobotanical sources speak of the more crucial commercial role achieved by the cultivation of vegetables and fruit in the early first century AD.

In our surviving literary and archaeological record, the very prominent appearance of horticulture in the Roman early imperial period was the immediate outcome of two simple but crucial factors that characterized this era: demographic growth and urbanization rates. It is incontestable that urban settlements were salient features of the Roman world and that in the imperial era there was both an increase in the number of towns and growth, population-wise, of existing urban settlements.[1] Without wanting to enter into the complex debate on the size of the population of the Roman world and the ratio between rural and urban dwellers,[2] it is irrefutable that there were more numerous and larger towns in the first century AD than in earlier periods. The urbanization rate and the number of people living in cities meant that the demand for fresh produce to feed the towns grew. The practicalities of responding to these demands for fresh food for growing urban markets propelled the advances in horticulture and arboriculture I have discussed. I have argued that the programme of colonial settlements started by Caesar and continued by Augustus in order to settle military veterans contributed to this horticultural story in two ways: first, by spurring interest in identifying the best cultivars to grow in new territories, and second by aiding the spread in the western provinces of specific agricultural practices, new plants and cultivars, and above all different dietary habits. In an era when military recruitment was still heavily centred on Italy, colonial settlers would bring with them their own technical knowledge, familiarity with certain plants, and cultivation techniques prevalent at home. As discussed in the previous sections, several fruit trees and vegetables that started to appear in the territories north of the Alps in the Roman era do not have indigenous, wild progenitors and therefore were introduced locally from elsewhere.

Years ago, in his study on agricultural practices in Roman law, Robert Buck noted that 'Trees in general were a fertile source of litigation' – indeed

[1] Hanson 2016; Morley 2011; Wilson 2011.
[2] Bowman and Wilson 2011; Hin 2013 for the demography of Roman Italy.

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disgruntled neighbours could even cut down someone else's trees, just because of some quarrel[3] – and wondered whether this indicated the economic and agricultural importance of arboriculture or 'whether trees draw lawsuits as they do lightning'.[4] From the material discussed in this book, it can be positively concluded that it was because of arboriculture's agricultural and economic importance that Roman jurisprudence had to devote so much attention to trees and litigation around trees. The economic importance of horticulture and arboriculture for key fertile and populous regions of the Roman world was not negligible and stimulated the investment of resources – capital, time, labour – in them: the commercial fruit farm excavated near S. Giovanni in Laterano in Rome, with its impressive irrigation infrastructure, while unique for us, was not so in antiquity.

In the previous pages, we have followed the trajectory taken by arboriculture from two distinct but interconnected viewpoints: as elite occupation, which could be discussed and alluded to symbolically, and as part of the 'reality' of successfully running an agricultural estate and being ready to seize specific market opportunities. I have argued that in ancient Rome these two perspectives ultimately sprang out of a specific development affecting how green spaces and plants were constructed conceptually. Indeed, the blurring of boundaries between private and public architecture in terms of social and political significance that occurred in Rome throughout the first century BC helped bring about an ideological development in garden spaces. Plants displayed in a garden could convey specific meanings. When such plants were exotica imported from newly conquered lands, they also spoke of territorial conquests and military might.

The gardens of prominent Romans symbolically represented the owner's public persona and directly entered political discourse when used as venues for patronage of large groups of elite supporters and entertainment for the citizenry at large. Lucullus' gardens were a means to improve his popularity and continue active patron–client relations while waiting for his triumph outside of Rome's *pomerium*. At the same time, the Lucullan *Horti* provided a venue where the general could display his *liberalitas* and affirm his political presence near the city. Pompey's grand theatre-cum-portico project was his response to Lucullus' *Horti*, openly presenting his garden as a public space attached to a new and important urban entertainment venue. The multi-layered cultural complexity that one can find in the garden spaces of the late Republic is the background and fertile 'humus' on which horticulture and plant-transplanting grew as an elite,

[3] *Dig.* 19.2.25.4–5. [4] Buck 1983, 9.

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ideologically charged activity. Displaying live plants in the triumph, as Pompey did, or being interested in acquiring botanical knowledge became part of the late Republican discourse on imperialism and political affirmation of charismatic figures. From such a background that stressed the symbolism of plants and the idea of the taming of nature, the leap towards ideologically charged arboriculture was natural.

Grafting trees, developing new fruit cultivars, and giving them one's own name seems to have deeply fascinated upper-class Romans. This was yet another manifestation of that very Roman desire to subdue and order nature, and also a way of seeking some degree of recognition through deeds in the field of agriculture, which was both morally acceptable and conforming to traditional values. Elite fascination with taking on botanical challenges, as in nearly impossible grafts, may well have been attractive not for practical reasons but more for fame and glory. In addition, the aesthetic qualities of fruit trees were exploited as part of elite leisure activities (e.g., strolling in one's villa garden with friends) and of the ideologically charged display of agricultural productivity a villa should represent. Such aesthetic qualities were deployed not only in real gardens featuring fruit trees as part of more elaborate landscaping and plant arrangements (Pliny's garden in his villa *in Tuscis* comes to mind, with the hippodrome garden featuring, in the centre, fruit trees interspersed with box hedges pruned into diverse shapes),[5] but also in wall paintings depicting gardens. Fruit trees laden with fruit are an important feature of Roman wall paintings depicting green spaces. Vegetables, albeit important commercially as the statement by Pliny the Elder on the sizeable revenues of Corduba's small market gardens reminds us,[6] were not part of the same ideologically and aesthetically driven elite discourse that concerned fruit trees. This is not to say that vegetable cultivation did not interest wealthy Romans or did not occur on their estates, only that fruit trees and their cultivation techniques such as grafting could easily become the allegory of so much more. On the other hand, any farmer must have been preoccupied with his estate's productivity and what products to send to the market. Interest in developing new fruit cultivars was also the result of very 'real' and practical considerations about the management of one's estates and their cultivations.

Landowning in the ancient world was the criterion governing social order and hierarchy, and wealthy landowners were interested in deriving from their agricultural estates at least sufficient returns to maintain their social standing and lifestyle. What to grow on the land and whether to

[5] Plin. *Ep.* 5.6.32–6. [6] Plin. *HN* 19.152.

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invest time and labour in selecting a new and better cultivar were important decisions in managing a rural estate. Agricultural experimentation was ultimately concerned with increasing the market value of the produce and the creation of new varieties of fruit could help differentiate one's produce among the others available. As is often the case in ancient Rome, profit-seeking and financial decisions are closely interwoven with ideological constructs. From the evidence discussed in the previous chapters, it seems reasonable to infer that many arboricultural developments were primarily driven by elite activity and by the consequences of imperialism. The consequences of imperialism comprise the 'appropriation' of new plants during military campaigns discussed in Chapter 2 or the plant dispersal attested by the archaeobotanical finds in western provinces – as imports first, slowly changing dietary habits and the local supply–demand mechanisms, and as locally cultivated plants later.

The early imperial arboricultural story I have presented in this book could come to fruition because of the return to stable conditions after the cessation of the long period of civil wars. Stability and the safeguarding of property rights are very important in arboriculture: fruit trees start to bear fruit after three to four years, and most of them reach full production capacity only after ten years. Similarly, developing new cultivars by trait selection and reproduction of plants by cuttings and grafting take time. An ancient anecdote conveying an old agricultural theme and proverbial truth illustrates this point well:

> One day, emperor Hadrian was on his way to Tiberias in Judaea when he passed an old man planting fig-tree shoots. He mocked him for thus investing in the future, especially when he learned that he was 100 years old. The man calmly replied that if he was worthy, he would eat the figs, if not, he was working for his children as his ancestors had worked for him.[7]

Even emperors knew that cultivating trees required long-term planning and commitment. This type of long-term planning in the case of *large-scale* arboriculture can occur only when certain conditions are met: security about the long-term ownership or tenancy of the land; adequate size of the estate, also allowing other crops to be grown; availability of skilled labour and adequate economic resources; and presence of sufficient demand for the product to make such a long-term investment worthwhile. If a landowner and farmer is uncertain of whether he will still own or rent a given

[7] The story is preserved in the Judaic corpus of Rabbinic interpretations of the Bible: *Midrash Rabbah: Leviticus* (trans. J.J. Slotki, London, 1939), quoted from Champlin 2008.

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property in eight, ten years' time, why should he invest time and labour in something whose fruits – real and financial – will materialize only several years in the future and which, unlike seeds of improved vegetables, he cannot easily bring away with him? Even if there is sufficient market demand for fruit and adequate channels to place the product on the market, the agricultural strategies of farmers in the face of uncertain property rights will lean in a different direction.

As far as Roman Italy is concerned, by combining textual evidence with the available archaeobotanical and archaeological evidence for the cultivation of fruit trees and vegetables, ancient Campania and (eastern) Cisalpine Gaul seem to have been key regions for Roman horticulture. In ancient and modern texts, Campania and Cisalpine Gaul are often mentioned for their wine production, but horticulture and arboriculture were particularly developed in these areas and were an important component of the local economy. Moreover, both regions may have been the geographic areas where some of the new fruit trees coming from the eastern Mediterranean were first introduced into Italy: Campania in the case of the citron/lemon and Cisalpine Gaul for the peach. In both Campania and eastern Cisalpine Gaul, a higher number and greater variety of fruits and vegetables were cultivated and available on the market in the first century AD than in earlier and later periods. There was a combination of favourable conditions for these developments: sufficient aggregate demand and, I have suggested, the presence of wealthy estates whose owners could afford the long-term planning and investment of time and money arboriculture entailed.

The fact that wealthy Romans had owned villas and estates in Campania since the mid Republican period, and that several prominent individuals mentioned in the texts in the context of horticulture had properties and links with eastern Cisalpine Gaul, may have contributed to the specific horticultural and arboricultural development of the two regions. For Campania, not only did the presence of opulent villas and their wealthy occupiers stimulate the demand for high-quality fresh food, it may also have directly contributed to the development of new varieties and the acclimatization of exotic plants. The owners of these estates could afford the specialized workforce that was behind the creation of many of the new varieties of fruits that were developed throughout the later first century BC and early first century AD. The anecdotes preserved in the existing ancient sources about successful freedmen-farmers obtaining exceptional results on their agricultural estates most probably related to former slaves with specialist skills who had worked on wealthy estates before gaining their freedom. Although Cisalpine Gaul did not have the same number of

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luxury villas as the Bay of Naples, there were many agricultural estates owned by wealthy landlords – some were even individuals close to Augustus. Such estates and their personnel may have participated in the development of the large-scale commercial fruit cultivation that took off in the early imperial period.

In Cisalpine, the growth of horticulture was followed, starting from the third century AD onwards, by an apparent contraction of the amount of land under horticultural cultivation and a decrease in the variety of fruit attested. Climate change, the object of much current research, may have contributed to this picture. However, the societal and political instability that characterize late imperial Italy – with the disruption of trade networks, demographic decline, and abandonment, in northern Italy, of many rural sites due to war – had likely a more significant bearing on these agricultural changes than climate.[8]

The picture sketched in the preceding pages for Roman Italy and the 'Augustan horticultural revolution' finds matching evidence in the provinces. In the Roman provinces of the Iberian Peninsula and the territory formerly occupied by the Gallic provinces, agricultural strategies and the plants grown in the Roman period changed. The number and variety of fruits and vegetables cultivated and consumed started to increase in the late first century BC, with notable peaks in the early first century AD. The connection between the Roman presence and the appearance of new food plants, first as imports, later as acclimatized, locally cultivated plants, is very clear for the central and north regions of France. Some of the vegetables and fruits that started to be cultivated from the first century AD onwards included plants native to the south of France that were brought northwards, such as the walnut and the chard. Others were proper imports, acclimatized and developed into various varieties over time, like the bottle gourd. The incorporation of the region into the Roman state changed local diet, as is apparent in urban centres, and impacted also on the farming of crops already cultivated in the region before the Roman conquest, above all cereals. In this case, a shift from husked to naked cereals occurred. This change was a specific response to exchange and processing systems centred on towns and/or military settlements.

The diffusion of plants – completely novel plants or new varieties of familiar ones – was not a social game but a matter of people moving around; the geographic mobility of ordinary people certainly contributed much to the diffusion of some horticultural cultivations and new dietary

[8] Marzano 2021.

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preferences in provincial territories. Geographic mobility is another important theme that has emerged from the discussion in this book. The growth of urban population and the urbanization rate mentioned above as relevant factors in explaining the growth of horticulture is, in fact, only one aspect of the story; by itself, it can only account for the emergence of commercial horticulture in the proximity of urban markets. The introduction of new plant foods requires an additional condition: geographic mobility. Historically, clever farmers moving around the Mediterranean and throughout the Roman empire, traders bringing seeds and actual plants, multi-property owners getting ideas from their estate agents abroad, officers learning new things to personal advantage, but also looking to keep their soldiers well-fed, soldiers using their spare time in a little vegetable patch, and colonists receiving a piece of land in the provinces may have done more for horticultural diffusion and plant diversity than we can imagine.

The Roman army was an impressive machine of geographic mobility, even though, with time, once units were stationed in a stable location, they started to recruit locally. Hadrian's Wall, the far-flung northern border of the empire, was manned by troops coming from various corners of the Roman world, such as the 500 Syrian bowmen from the city of Hama, in the Orontes Valley. Soldiers like these brought with them their culture, habits, and foodways; they probably sometimes brought with them seeds and possibly, depending on how far they had travelled from, plant cuttings too. We have seen documentary and archaeological evidence for cultivated vegetable plots around military forts, although it is rarely possible to determine whether local populations or the soldiers were responsible for such horticultural initiatives. Despite the scantiness of the archaeological data about cultivated surfaces, evidence for vegetable plots near military sites, growing the same vegetables and herbs, has emerged in opposite corners of the empire, from Roman Britain to the Eastern Desert of Egypt.

As past research has clearly highlighted, military settlements, with their combination of multiple dietary and culinary habits, were aggregate generators of demand that catalysed trade – some organized by the state to supply the military, some private – bringing in a range of plant foods, alongside other foods and goods. In some cases, these initial food imports could be acclimatized and grown locally. The recently discovered Vindolanda Tablet I have discussed in Chapter 2 offers us a small glimpse of military involvement with arboriculture and plant dispersal. The epistle mentions plant cuttings and attests to the existence of a specialist tool used to take these cuttings that officers were borrowing from one another; this

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type of horticultural exchange may have been a regular occurrence. Traders, of course, are not to be forgotten as agents of diffusion of seeds and cuttings that may have helped establish the cultivation of a given plant in a new area.

Once settled on a piece of land, military veterans probably contributed notably to the establishment of certain cultivations and the diffusion of specific cultivars. As far as veterans and colonists are concerned, their role in, and contribution to, the agricultural sector can be more readily appreciated in the case of viticulture. The examples of the farms in southern France, at Gasquinoy and elsewhere in the region, or of the monument of the Flavii at Cillium in North Africa, show us the commitment of these veterans to viticulture from the very start. The added value that wine had, combined with its shelf life that made it suitable for long-distance trade, was attractive to these colonial settlers, even if some of them had to resort to using a combination of wild and cultivated grape vines for their vineyards. Modest means, difficulty in accessing sources of young plants and cuttings, and the search for grape varieties best suited to the local environment are likely explanations for these choices. Nevertheless, modest colonial farms such as the ones at Gasquinoy were instrumental in establishing southern Gaul as an important wine-producing region. There is, in fact, a surprising lack of evidence for *early* elite villas in Narbonensis, where the bulk of early imperial villas were built only around the last third of the first century AD.[9] Even though in the specific geographic and chronological context of late Republican Italy the financial profitability of wine production has been seriously doubted,[10] vineyards were clearly among the top cultivations chosen on commercial estates of the Roman world, whether large or small. The archaeological evidence for grape-processing facilities in late Republican and early imperial Roman Italy, Tarraconensis, and the Adriatic region is abundant. The evidence for the Gasquinoy farms also supports the idea that it was primarily sizeable estates that engaged in large-scale commercial cultivation of fruit trees and not smaller landowners, who chose vineyards and olive groves because wine and oil had long shelf life and could be traded also outside their region of production.

However, when wanting to zoom in more precisely on the places of horticultural production, things become hazier. Did large estates, if located in the proximity of urban markets, also undertake the cultivation of

[9] Marzano 2013b; Buffatt 2018. [10] Rosenstein 2008.

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vegetables or did they rather leave vegetable growing for the market to tenants, who would rent small parcels of land? Did small proprietors in the close proximity of towns go for vegetable cultivation rather than grape and olives? Scale is an essential factor, and assessing the scale of *typical* horticultural operations is elusive. In written and archaeological sources, there are hints that large-scale commercial fruit cultivation was undertaken primarily on the estates of the wealthy, whereas growing vegetables often occurred on smaller plots cultivated by 'ordinary Romans'. The evidence pertaining to cisterns destined for irrigation from elite villas in the surroundings of Rome has been seen as indirect evidence of the growth of arboriculture and horticultural cultivations because of the demands of the capital city and the extremely large elite households.[11] When it comes to the archaeological evidence for plots devoted to fruit cultivation, the examples are not abundant. The commercial gardens excavated by Jashemski in Pompeii, the recently discovered first-century AD large fruit farm in Rome, and the two large orchards excavated near Valros in France remain rare attestations.

Recently, in an ecological approach to the study of the Roman empire, the characterizing elements of Roman civilization – urbanism and connectivity – have been seen as instrumental in the development of the first pandemics, from the so-called Antonine Plague of the second century to the Justinianic Plague of the sixth, passing through the Plague of Cyprian.[12] Urbanism, connectivity, the movement of people and, with them, of tastes were also instrumental to the 'horticultural revolution' that I have traced in the chapters of this book.

Bringing together the diverse evidence presented in this study and the perspective offered by literary texts and archaeological evidence, it is undeniable that commercial horticulture underwent a notable expansion in the first century AD. Roman ideology exalting the ancient morality of agriculture and the search for successful commercial agricultural production on the estates of the rich and of 'ordinary' people were indissolubly linked together. The strict association between the idea of *fructus* (profit, gain) and the cultivation of plants bearing *fructus* (fruit) is beautifully encapsulated by one of the fables of C. Iulius Phaedrus, the first-century AD fabulist and freedman of Augustus. The short fable can be taken as representative of the attitudes and mentality of the time, and this text is an appropriate closing for this book:

[11] Thomas and Wilson 1994; Wilson 2008. [12] Harper 2017.

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Olim quas uellent esse in tutela sua
diui legerunt arbores. Quercus Ioui,
at myrtus Veneri placuit, Phoebo laurea,
pinus Cybebae, populus celsa Herculi.
Minerua admirans quare steriles sumerent
interrogauit. Causam dixit Iuppiter:
"Honorem fructu ne uideamur uendere."
"At mehercules narrabit quod quis uoluerit,
oliua nobis propter fructum est gratior."
Tum sic deorum genitor atque hominum sator:
"O nata, merito sapiens dicere omnibus.
Nisi utile est quod facimus, stulta est gloria."

(Phaedr. 3.17)

Once long ago the gods chose trees which they would have each under his own patronage. Jupiter decided for the oak, Venus for the myrtle, Phoebus for the laurel, Cybebe for the pine tree, and Hercules for the lofty poplar. Minerva wondered why they chose trees that bore **no fruit**, and asked them about it. Jupiter gave the reason as follows: 'Lest we seem to be selling the honour at the **price of the fruit**.' 'Now, on my oath,' said she, 'let anyone say what he will, my olive suits me better just because of **its fruit**.' Then the father of the gods and creator of men thus spoke: 'My daughter, it is for good cause that you are called wise by all alike. Unless what we do is **useful**, it is foolish to take pride in it.' (trans. B.E. Perry, bold mine)

The play on the double meaning of *fructus*, as 'profit' and 'fruit', is evident: Minerva chooses the olive tree because of its fruit and because of the profit it brings. Jupiter's comment that unless something is useful the glory that derives from it is foolish brings to mind Pliny the Elder's remark about grafting that we have seen in Chapter 4: even something small (but *utilis*!) can provide great *gloria*.

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