



# Crop and wild plant exploitation in Italy during the Neolithic period: New data from Su Mulinu Mannu, Middle Neolithic site of Sardinia



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## ABSTRACT

This paper provides new data from Su Mulinu Mannu Late Middle Neolithic (ca. 4500–4100 cal BCE) open-air site, (Central-West Sardinia). The new archaeobotanical data from Sardinia provided us with information about an agricultural system based on the cultivation of different cereals, such as *Triticum aestivum/durum*, *Hordeum vulgare* var. *nudum* and *Hordeum vulgare*. Edible wild fruits, such as *Ficus carica*, *Olea europaea* subsp. *europaea* var. *sylvestris*, and *Pinus* sp. integrated subsistence in the site. In addition, seeds of typically Mediterranean trees and herbaceous plants such as *Pistacia lentiscus* and *Malva* sp., were also documented. This research provides the first evidence of the role of cultivated plants and wild fruit consumption in the diet of Middle Neolithic groups in Sardinia, in the broader framework of the Italian context.

## 1. Introduction

### 1.1. Brief archaeological overview of the Neolithic in Italy

The spread of agriculture and pastoralism in Italy took place at the bridge between the end of the 7th – beginnings of the 6th millennium BCE, when groups of foreign farmers coming from the opposite side of the Ionian Sea colonized the south-east of the Italian peninsula (Pessina and Tiné, 2008). In the early stages, Neolithic groups settled the coastal lands and major river valleys of the Southern Adriatic (Fugazzola Delpino et al., 2002; Pessina and Tiné, 2008). Both the absolute chronology and the production of impressed pottery support their possible arrival from the coasts of Albania and Epirus (Forenbaier and Miracle, 2005).

The first Neolithic settlements were located in Apulia and consisted of a few small- to medium-sized villages, such as Coppa Nevigata, Rendina, Trasano and Torre Sabea (Cipolloni et al., 1999; Costantini and Stancanelli, 1994; Fugazzola Delpino et al., 2002; Pessina and Tiné, 2008). In contrast to the local Epipaleolithic substrate, these communities introduced new cultural characteristics, such as the construction of large and rectangular huts of wood and earth, silos, individual burials and the use of ceramics and domestic plants and animals (Fugazzola Delpino et al., 2002; Pessina and Tiné, 2008).

In recent years, several authors tried to build models to provide

more accurate details about the dynamics of agriculture introduction and spread on the Italian mainland (Castelletti et al., 1987; Costantini and Stancanelli, 1994; Pessina, 2000; Rottoli and Pessina, 2007; Rottoli and Castiglioni, 2009; Fiorentino et al., 2013; Rottoli, 2014; Mercuri et al., 2015). Unfortunately, in the majority of Neolithic sites excavated between the '60s and '80s, systematic archaeobotanical investigations were rarely and unevenly performed, so that it is still not possible to thoroughly understand the complex phenomenon of the spread of agriculture to the Italian peninsula. In fact, some regions seem to provide more abundant and accurate data than others: for instance, most of the archaeobotanical data on southern Italy stem from Apulia, whereas in the north of Italy, details on domesticated plants are available almost exclusively for the Lombardy, Liguria, Emilia Romagna, and Friuli Venezia Giulia regions (Costantini and Stancanelli, 1994; Rottoli and Castiglioni, 2009; Rottoli, 2014; Fiorentino et al., 2013; Mercuri et al., 2015) (Table 1, Fig. 1).

On the other hand, regions such as Sicily, Calabria, Basilicata, Campania, Molise and Marche still lack information on early agriculture within the Mediterranean region (Mercuri et al., 2015).

### 1.2. Current state of research on Neolithic Sardinia

The island of Sardinia, with an area over 24,000 km<sup>2</sup>, is situated in the central part of the western Mediterranean basin. Its typical

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**Table 1**  
Remains of cultivated plants from Early Neolithic sites in Italy.

Sites	Southern Italy																				Northern Italy																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37		
<b>Cultivated cereals</b>																																							
<i>Hordeum vulgare</i> L.	x	xx	x	x?	x	x?	xxx	xxx	xx	xx?	x?		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>Hordeum vulgare</i> s.l.	x																																						
<i>H. vulgare</i> var. <i>nudum</i>																																							
<i>Triticum dicoccum</i>	xx	xxx	xxx	x	xx	x	xxx	xxx	x	xx	xxx	x	x	xx	x	xx	x	xx	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>T. monococcum</i>	x	xxx	xx		x		xxx	xxx	x	xx	xxx		x?	xx	x	xx	x	xx	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
<i>T. aestivum/durum</i>	xx	xx	x				xxx	x			x																												
New glume wheat																																							
<i>Triticum spelta</i>											x?																												
<i>Panicum/Setaria</i>																																							
<b>Fabaceae</b>																																							
<i>Lathyrus cicera/sativus</i>																																							
<i>Lens culinaris</i>																																							
<i>Pisum sativum</i>																																							
<i>Vicia ervilia</i>	x?																																						
<i>Vicia faba</i>																																							
<i>Vicia sativa</i>																																							
<i>Vicia/Lathyrus</i>																																							
<b>Oil plants</b>																																							
<i>Linum usitatissimum</i>																																							
<i>Papaver somniferum</i>																																							

Sites	Southern Italy																				Northern Italy																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36			
<b>Gathered plants</b>																																							
<i>Arbutus unedo</i>																																							
<i>Cornus mas</i>																																							
<i>Cornus sanguinea</i>																																							
<i>Corylus avellana</i>																																							
<i>Crataegus</i> sp.																																							
<i>Ficus carica</i>																																							
<i>Fragaria vesca</i>																																							
<i>Junglas regia</i>																																							
<i>Malus sylvestris</i>																																							

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