Seasonal fluctuation of the earthworm populations in vineyard soils CHALKIA C.¹, VAVOULIDOU E.², PERDIKIS D.¹, CSUZDI C.³, EMMANUEL N.¹



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INTRODUCTION

Earthworms provide crucial ecosystem services in soils. Their ecology has been investigated extensively (1,2,3,4,5,6,7), but, their activities in vineyard soils under different soil management, in Mediterranean regions like Greece, have not been studied •Total mean densities (± SE) (individuals m⁻²)

Nemea – Organic	38.6 ± 2.4^{a}
Nemea – Conventional	5.2 ± 2.2^{b}
Spata – Abandoned	13.3 ± 2.3^{b}
Spata – Organic	9.5 ± 2.2^{b}
Spata – Conventional	8.2 ± 2.3^{b}

adequately.

AIM OF THE STUDY

To search the influence of land use on the seasonal population fluctuation of earthworms in vineyards under different cropping systems: abandoned (AB), organic (O) and conventional (CON).

MATERIALS AND METHODS

• Sampling areas: Spata in Attica, Nemea in Corinthia (N. Peloponnese)

- In Spata the soil texture was SCL and the annual rainfall 513mm. In Nemea C and 618mm, respectively.
- •In Spata an AB, O and CON vineyard was studied,

	SPATA	NEMEA
Dominant species	Octodrilus complanatus	O. complanatus Aporrectodea rosea
Species richness	4	6
Active period	November- March	August or Sept April

DISCUSSION – CONCLUSIONS

•CON management suppressed biodiversity

•O & AB managements enhanced population densities, especially under the wetter climate and heavier soil texture

in Nemea only an O and a CON one.

• Extraction method: hand shorting up to 10cm + mustard suspension.

• Sampling: once per month, from February 2016 to April 2018.

RESULTS

Densities differed between years



•*O. complanatus*, a species of Mediterranean origin, was the dominant and frequent species in both areas and in all soil managements

A. rosea, an endogeic
species, developed a
conspicuous
population only in the
wetter area, with
heavy soil, under
frequent irrigation
and organic
management

•The wetter area





The wetter area
supported more
species than the drier
The activity was
strictly connected
with climate and
mostly with moisture

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