

# PlantNetGem: Exploring the process of urbanisation in the Roman provinces of Germania through the study of food plant commerce. HORIZON-MSCA-2021-PF-01 n.101063192

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The arrival of the Romans in large parts of current Europe had a major impact on society, with the creation of a new transport network and the development of cities being two of the most significant and lasting changes. However, so far, little work has been done to quantify and understand their connection, how this developed and its lasting consequences. Through the study of imported/introduced food plants into the provinces of Germania in the Roman period, PlantNetGem aims to contribute to a better understanding of foodways and the role of transport and commerce in the development of the population nuclei in this area. It will apply a novel, interdisciplinary approach, combining archaeobotany, computational archaeology and data science through practical training by the supervisory team that pioneered part of the proposed methodology. The project will start by creating a geodatabase where archaeobotanical and archaeological information from the study area will be stored. These will provide the analytical basis to identify which food plants arrived and when, who had access to these and the reasons why. Network science will be applied to reconstruct settlement connectivity in relation to a) their access to the introduced food plants, and b) their position within and access to the Roman transport network. Agent-Based Modelling and statistical analyses will be applied to further allow testing hypotheses concerning settlement position and hierarchy in relation to commerce to ultimately evaluate

the role of the ancient transport network in the distribution and importance of urban centres and analyse to which degree these patterns have endured in time up to the modern period. PlantNetGem builds upon the candidate's solid expertise and involves training on big data management, network analysis, agent based modelling and associated geostatistical analysis to equip her with innovative skills that will add a new dimension to her analytical potential and boost her career.