Joan Romanyà

Soil Science Professor

University of Barcelona (UB)

Joan Romanyà has worked on several projects on soil fertility and soil-plant relationships.

He currently has extensive experience in the study of nutrient cycling and changes in soil organic matter and microbiota in response to soil management. He has experience with high throughput sequencing and on stable isotope analysis to study the abundance and diversity of soil microbiomes, soil organic matter stabilization, and, to quantify symbiotic fixation of nitrogen. He has also used the Century and Roth C organic matter models to study temporal changes in soil organic matter including root dynamics.

In addition, Joan Romanyà has participated in the working group on organic matter and biodiversity for the preparation of the Thematic Strategy for Soil Protection and has been part of the group of technological innovation of the European Union (EIP-AGRI) for the optimization of the organic agriculture in arable systems. He has participated in the writing of a document addressed to the European Parliament to assess the potential carbon sequestration in agriculture to present possible policy implications and opportunities for the Common Agricultural Policy (CAP).

In recent years he has initiated a line of research on the agronomic and environmental quality of soils of organic and conventional crops under rainfed and irrigated conditions. The determination soil quality is approached from the study of the organic matter and its relationships with soil microbial communities and with nutrient cycling. As soil organic matter and its associated microbial communities can contribute to ecosystem services by improving crop yields and facilitating crop protection through (e.g. nutrient supply, competition with pathogens) or indirect (by inducing plant resistance) benefits, our current research focuses on improving soils and substrates for enhancing crop productivity and quality, and to adapt them to global change.

In the frame of H2020 project Ecostack he has investigated how the natural suppressiveness of soil compost mixtures and biological control agents (*Trichoderma asperellum* T34 strain) can contribute to crop growth and protection trough ecosystem services.
In a national project he is now studying the sensitivity of local and commercial tomato varieties to the use of carbon-rich organic amendments. From a more general perspective the research focuses on:

(1) Determine the variation of soil fertility as a result of the application of exogenous organic matter of different carbon richness.
(2) Identify agricultural practices that promote carbon sequestration and nutrient availability.
(3) Determine how the variation of organic carbon in Mediterranean soils can have relevant effects on soil microbial communities and on crop health and yield quality.