Plants have a very well organized sensing system, which allows them to explore efficiently the environment and to react rapidly to potential dangerous circumstances. Below and above ground, plants are aware of the space surrounding them. Such responsiveness is, indeed, necessary to provide the appropriate actions in response to the environmental stimuli. **Plants have memory, are able to learn, to solve problems and to make decisions.** We firmly think that all the behaviors observed in plants, which look very much like learning, memory, decision-making, and intelligence observed in animals, deserve to be called by those same terms. In short: 1) plant are intelligent 2) intelligence is a quality of life and 3) the brain is not the pre-requisite for intelligence.

Plants can accurately compute their circumstances, use sophisticated cost benefit analysis, and take defined actions to mitigate and control diverse environmental insults. They are capable of a refined self and non-self recognition, exhibit territorial behaviours and have complex communication skills. Communication and signalling in plants encompasses both chemical and physical communication pathways. Plants interact with animals. They attract them with colourful flowers or fleshy fruits to make sure their flowers get pollinated and their seeds dispersed. **They offer sugary nectars to reward them for their protective services.** Plants have a very rich social life, exhibiting different cooperative or antagonistic behaviours according to the degree of relatedness among them.

Scientific interest in plant movements, sensitivity, and possible intelligence has been continuously documented since the late 1800’s. Studies on Plant Signalling covers diverse aspects of signalling and communication at all levels of plant organization, starting from single molecules and ending at ecological communities. Twentieth-century biology was dominated by attempts to reduce extremely complex biological phenomena to the actions of single molecules. While this process will continue in the future, **we also need to integrate the avalanche of obtained data using system-based approaches.** Plant Signalling will cover all plant sciences under one umbrella from the perspective of signalling and communication at all levels of biological organization by interlinking molecular biology with physiology and behaviour of individual organisms, up to the system analysis of whole plant societies and ecosystems. This integrative view will allow our understanding of communicative plants in their whole complexity.