

**THE ROLE OF ROOT TO SHOOT SIGNALLING IN COORDINATING
RESPONSES TO SOIL COMPACTION**

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Soil compaction may impose both physical and hypoxic stresses on the root system, reducing shoot growth and stomatal conductance. The hormones ethylene and ABA act as long distance signals mediating responses to various stresses including soil drying, flooding and compaction. To investigate the role of these hormones in mediating plant growth under compacted conditions, a combination of strategies was employed including the use of transgenic plants and mutants with a reduced capacity to produce ABA or ethylene and a novel growth system using ballotini beads of different sizes, to simulate varying degrees of compaction severity. The role of ABA and ethylene as long-distance messengers mediating responses to a sub-critical compaction stress, at the gene and whole plant level is discussed.