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PLANT BIOLOGY ABSTRACTS

P7.43 NUTRIENT AVAILABILITY TO WHEAT ROOTS MODULATES THEIR RESPONSE TO THE PRESENCE OF BLACKGRASS

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The effect of neighbouring plants on crop root system architecture may directly interfere with seedling establishment, water and nutrient acquisition, yet this important and interesting aspect of competition remains poorly understood. We used a simplified growth system based on gelled medium, to grow wheat (*Triticum aestivum* L.) alongside a neighbour, either another wheat plant, a blackgrass (a major weed in Northern Europe) or *Brachypodium distachyon* individual (a model grass). A detailed analysis of wheat seminal root system architecture showed that the presence of a neighbour principally affected the root length, rather than number or diameter under high nutrient levels. In particular, the length of first order lateral roots decreased significantly in the presence of blackgrass and *Brachypodium*. However, this effect was not noted when wheat plants were grown in low nutrient conditions. This suggests that the presence of a neighbour may affect nutrient uptake especially under high nutrient conditions. We also found genetic variability in root response to the presence of blackgrass.

P7.45 PHOTORECEPTORS ARE INVOLVED IN *ARABIDOPSIS* ROOT ARCHITECTURE AND GRAVITY TROPISM UNDER SALT CONDITIONS *IN VITRO*

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It is well known that photoreceptors are involved in gravitropism, but poorly known their involvement in other tropisms. NaCl is always regarded as a stress factor, but it is also the stimulating factor for the hydrotropism of roots. The role of the photoreceptors that are located both in shoots and roots in these phenomena are still not established. We have previously tested how the mutants on photoreceptors could be involved in root growth of *Arabidopsis* on the early plant growth stages under different salt conditions. Today we are studying the root architecture of the mature (18-30 DAG) plants in Petri dishes under full vertical illumination (22°C, 16-h photoperiod, 70 $\mu\text{mol m}^{-2} \text{s}^{-1}$) in several mutants on photoreceptors of *Arabidopsis*, growing on MS/2, supplied with 100 mM NaCl. The point is that stable to the salt *Arabidopsis* mutants on photoreceptors continue root growth during 30 DAG, but differently to the gravity vector.