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### **Effect of salinity on germination and growth of *Echinochloa crus-galli* and *Oryza sativa***

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Salinization is a phenomenon of growing importance in several regions, including European rice growing areas. Salinization may directly affect rice, but it can also have an influence on weeds: among other effects, it could be hypothesized that salinity may interact with herbicide resistance. The study was aimed at evaluating the effect of salinity and herbicide application on germination and growth of barnyardgrass (*Echinochloa crus-galli*) (both sensitive and resistant to ALS-inhibitors) and weedy rice (*Oryza sativa*) populations. Trials were conducted in greenhouse; plants were grown in alveolar trays filled with sand and placed in basins containing growing solutions with salt concentrations ranging from 0 mM NaCl to 250 mM NaCl. The results showed a reduction of germination capacity, speed of germination, plant height, shoot and root fresh weight with increasing saline concentrations. A variable salt response was observed for SPAD (soil plant analysis development) readings on leaves, which are correlated to chlorophyll activity, and content of chlorophyll and carotenoids. Barnyardgrass populations showed a moderate salt tolerance for concentrations up to 150 mM NaCl with an average plant height, shoot and root fresh weight of 23.52 cm, 2.02 g and 3.04 g, respectively. The resistant population exhibited a salinity tolerance greater than that of the sensitive ones. Tolerance to salinity in weedy rice was lower than that found for barnyardgrass: seedling emergence occurred at concentrations up to 100 mM but it was followed by plant desiccation in few days. Response to herbicide application was only poorly influenced by salinity; in general, herbicide-treated plants showed a decrease in plant height, chlorophyll and carotenoids content, when grown under saline conditions. The good ability to adapt to the salt conditions shown by the barnyardgrass suggests that this weed would still to be highly problematic in rice field even in a scenario of increased water salinity.