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4s2b: Food system transitions in deltas under pressure

How Knowledge on Crop Resilience to Abiotic Stress can be Capitalised in Agriculture

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Trends of increasing population, negative impact of climate change and declining arable crop area all contribute to the current global food insecurity. Abiotic stresses of salinity and drought account for huge crop losses annually further exacerbating yield gap, thereby increasing pressure on food insecurity. Although fundamental research on abiotic stresses have been extensive to an extent, successful translation into useable strategies at the farm level has been somewhat lacking. This opinion paper bridges the gap by highlighting practical application salinity and drought stress mitigation strategies and important steps to create smooth transition on the farm. An analysis of previous projects that have focused on ameliorating salinity and drought gives an overview of current strategies adopted at the farm level. By critically discussing positive outcomes, limitations and recommendations of the case studies, we highlight knowledge transferrable for similar situations or adaptable for other farm-field scenarios. The variation in locations and sizes/ scale of the discussed case studies present opportunities for wider application of the abiotic stress mitigation strategies. Lastly, we focus on the impact of salinity and drought mitigation strategies on the overall farming system: the trade-offs that occur, as well as ways to effectively transition these stress mitigation strategies at a systems level. The farmer is the central focal point and the interaction with various key stakeholders is necessary for adoption and implementation of strategies that combat salinity and drought stress. Overall, our opinion paper emphasises how mitigation strategies can be effectively implemented in a farming system thereby promoting crop growth on saline- and drought-prone soils.

Keywords: salinity, drought, mitigation strategies, farm level, systems level