Critical knowledge gaps and research priorities in global soil salinity

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(2021) *Critical knowledge gaps and research priorities in global soil salinity.* Advances in Agronomy, 169. pp. 1-191. ISSN 0065-2113

Resumen

Approximately 1 billion ha of the global land surface is currently salt-affected, representing about 7% of the earth's land surface. Whereas most of it results from natural geochemical processes, an estimated 30% of irrigated lands globally are salt-affected through secondary human-induced salinization. Application of lower quality, alternative irrigation water is further threatening expansion of the areal extent of soil salinity, in addition to climate change causing increases of salt-water intrusion in coastal areas and increasing crop water requirements. The reduced availability of freshwater resources for irrigation, the continued reduction of the world's cultivated agricultural area by land degradation and urbanization, in conjunction with a growing world population further complicates the

problem seeking sustainable solutions. This scoping review prioritizes critical knowledge gaps and makes recommendations for 10 priorities in soil salinity research toward a sustainable and productive agricultural system for a food-secure future world. We also include basin-specific case studies that illustrate progress of the world's major irrigated areas in addressing impacts of soil salinization. By identifying research priorities, we seek to accelerate enhanced research funding to bring new knowledge and innovative solutions toward mitigation of soil salinity impacts. We further want to inspire the science community to develop new directions in salinity research.

TIPO DE DOCUMENTO: Artículo

DOI: https://doi.org/10.1016/bs.agron.2021.03.001

PALABRAS CLAVE: Superficie terrestre. Salinización secundaria. Salinidad del suelo. Sistema agrícola sostenible. Seguridad alimentaria.

TEMAS: Q Ciencia > Q Ciencia (General)

S Agricultura > S Agricultura (General)

UNIDAD ACADÉMICA: Universidad Católica de Córdoba > Facultad de Ciencias Agropecuarias

Universidad Católica de Córdoba > Unidad Asociada a CONICET