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Evaluating the Systemic Sustainability and Equity Dimensions of Controlled Environment Agriculture

Globally, agriculture faces a changing climate, declining biodiversity, rising pollution, and a growing and urbanizing population who need sustainable sources of food. Amid this polycrisis, the idea of growing food indoors, termed Controlled Environment Agriculture (CEA), has gained traction as a way to decouple food production from environmental constraints. Proponents promise CEA will grow more food with less land and less environmental impact. However, based on initial literature review, these assertions are narrowly based on CEA's projected efficiency compared to outdoor agriculture, and do not account for systemic impacts of CEA, for example on urban environments, labor markets, or local economies. This project will fill this conceptual gap by developing comprehensive, evidence-based assessments of the sustainability and equity implications of CEA on the food systems in which they propose to intervene. By combining discourse analysis, qualitative interviews, and ethnography at two CEA sites, we will compare promise against performance of CEA using the Sustainability Assessment of Food and Agriculture Systems framework developed by the United Nation's Food and Agriculture Organization, focusing specifically on environmental integrity, social well-being, governance & accountability, and economic resilience. Expected deliverables include a doctoral dissertation, three scientific manuscripts, and a white paper for industry and policymakers.

Award: \$9,920