

Socio-Economic Influences on Soilless Agriculture

Authors : George Vernon Byrd, Bhim Bahadur Ghaley, Eri Hayashi

Abstract : In urban farming, research and innovation are taking place at an unprecedented pace, and soilless growing technologies are emerging at different rates motivated by different objectives in various parts of the world. Local food production is ultimately a main objective everywhere, but adoption rates and expressions vary with socio-economic drivers. Herein, the status of hydroponics and aquaponics is summarized for four countries with diverse socio-economic settings: Europe (Denmark), Asia (Japan and Nepal) and North America (US). In Denmark, with a strong environmental ethic, soilless growing is increasing in urban agriculture because it is considered environmentally friendly. In Japan, soil-based farming is being replaced with commercial plant factories using advanced technology such as complete environmental control and computer monitoring. In Nepal, where rapid loss of agriculture land is occurring near cities, dozens of hydroponics and aquaponics systems have been built in the past decade, particularly in “non-traditional” sites such as roof tops to supplement family food. In the US, where there is also strong interest in locally grown fresh food, backyard and commercial systems have proliferated. Nevertheless, soilless growing is still in the research and development and early adopter stages, and the broad contribution of hydroponics and aquaponics to food security is yet to be fully determined. Nevertheless, current adoption of these technologies in diverse environments in different socio-economic settings highlights the potential contribution to food security with social and environmental benefits which contribute to several Sustainable Development Goals.

Keywords : aquaponics, hydroponics, soilless agriculture, urban agriculture

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