Climate change and global warming became a real concern for global food security. The world population explosion is a critical factor that results in enormous emissions of greenhouse gasses (GHGs), required to cover the growing demands of freshwater, food, and shelter. The United Arab Emirates (UAE) is a significant oil–producing country, which is included in the list of 55 countries that produce at least 55% of the world's GHGs and thus involved in the top 30 countries over the world with emission deficits. At the same time, the UAE is located in an arid region of the world, with harsh environmental conditions. The sharp population increases and the massive growth in urbanization are primary sources, lead to further stresses on the agricultural sector. Thus, the future of the food production industry in the country is a challenging situation. Consequently, the primary objective of this work is to shed light on the current concerns related to climate change and food security, by describing the implications of climate change on the food production sector of the UAE. Tailored solutions that can rescue the future of food security in the country are also highlighted.