



Research Papers In The Geography
Of The Kingdom Of Saudi Arabia



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**TEMPERATURE AND THE COST OF
EXTENDING TOMATO'S PRODUCTION
SEASON IN THE AIR-CONDITIONED
GREENHOUSES IN AL-HASSA OASIS**

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ABSTRACT

The Al-Hassa Oasis is located in the Eastern Province of Saudi Arabia. It is one of the traditional open-field agricultural areas of the Kingdom. The Oasis is characterized by a wide range of temperature extremes where the average temperatures during the long summer months and the short winter months are 33.87°C and 15.81°C respectively.

In spite of both water shortage and temperature extremes in the Oasis, the acreage of vegetable crops has increased five-folds between 1974 and 1982. The attraction of higher prices coupled with the great demand for vegetables, however, motivated the introduction of the controlled environment of the greenhouse into the agricultural make-up of the Oasis.

The controlled ambience of the greenhouse requires a great amount of energy input for both the cooling and heating systems and that, in turn, is associated with both the temperature variations outside the greenhouse and the production costs.

This study intends to elucidate the three major contentions that: a) temperature variations outside the greenhouse affects temperatures inside; b) temperature variations inside the greenhouse is positively associated with the amount of energy input required by the cooling and heating systems; and c) temperatures both inside and outside the greenhouse are related to the growing period of the tomato crop.

The analysis and the subsequent results manifested, in the affirmative, the relationships stated in the study objectives with respect to the tomato crop in Al-Hassa Oasis.