

## Wheat production in Saudi Arabia between feasibility and efficiency

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### Abstract

The cultivation of wheat in Saudi Arabia has been claimed to be resource depletable. Huge amounts of high quality inputs, especially water, seeds, and nitrogen fertilizers, have been applied to the sandy Saudi soils to increase productivity. However, the economic feasibility of wheat production has been totally neglected, mainly for political reasons. Classical production functions analysis has not yielded significant conclusions regarding the use of inputs. A 3-year experiment on an educational farm with a soil type representative of the agricultural soil in Saudi Arabia, yielded some interesting results concerning the use of inputs. The findings were obtained through the stochastic dominance efficiency criterion which assessed the efficient levels of seeds, water, and nitrogen fertilizers in wheat cultivation when production risk was considered.

### 1. Introduction

The cultivation of wheat is considered controversial in the Kingdom of Saudi Arabia. The controversy arises from it being a 'strategic' crop that can provide food security, but which can only be grown at relatively high cost. The severity of the problem stems from the scarcity of resources, in general, and water in particular. In the Kingdom, as in most other Middle East countries, water is the scarcest natural resource. Exhaustible groundwater resources and costly desalinated sea water are the main sources utilized in the Kingdom for all uses, i.e. agricultural, domestic, municipal, and industrial. Recently, treated sewage water has been used for some agricultural purposes.

The Kingdom has experienced an agricultural 'revolution' in the past two decades. The objective of the revolution was to achieve food security for Saudi citizens. The decision-making entities concerned with wheat cultivation were faced with the question of economic feasibility and political dignity. Apparently, the political side dominated. The reason was that the consequences of not locally producing wheat may cause high social costs in the form of not achieving food security. Accordingly, the Saudi government adopted some quick and effective strategies towards wheat production, some of which are: distribution of lands free of charge to wheat producers; provision of grants, subsidies, and free-interest loans; and the adoption of modern production techniques regarding water use and production practices. More importantly, the government has created some marketing channels for wheat producers and also assists them by purchasing their production at prices in excess of current world prices.

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