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Agric. Econ. – Czech

Alabdulkader A.M., Al-Amoud A.I., Awad F.S.:

Optimization of the cropping pattern in Saudi Arabia using a mathematical programming sector model

Agric. Econ. – Czech, 58 (2012): 56-60

A mathematical sector model has been

formulated to optimize the cropping pattern in Saudi Arabia aiming at maximizing the net annual return of the agricultural sector in Saudi Arabia and ensuring the efficient allocation of the scarce water resources and arable land among the competing crops. The results showed the potential for Saudi Arabia to optimize its cropping pattern and to generate an estimated net return equivalent to about 2.42 billion US$ per year. The optimized cropping pattern in Saudi Arabia has been coupled with about 53% saving in the water use and about 48% reduction in the arable land use compared to the base-year cropping pattern. Comparable weights was given to different crop groups by allocating about 48.4%, 35.4%, 13.1%, and 3.2% to grow cereals, fruits, forages, and vegetables, respectively. These findings were in line with the national strategy to rationalize the cultivation of water-intensive crops in favour of highly water-efficient crops.

Keywords:

maximum net return, efficient water allocation, LINGO optimizer modelling

program

[fulltext]