

A Preliminary Study on Greenhouses Farm Mechanization in Saudi Arabia

Mohamed F. Wahby and Saleh A. Al-Suhaibani

In the last ten years, the practice of greenhouse farming has been used on a large scale in the kingdom of Saudi Arabia. The agriculture production of most of these greenhouses was directed to the production of vegetable crops because of their high profit and the relatively short season.

Data were collected from greenhouses farms in the central region of the Kingdom. The collected data included a survey of mechanical and manual operations, house dimensions, operations and machines used, and machinery operating patterns inside the houses. The measurements included working width and operating and non-operating times. Actual operating speed was determined as well as field capacity and field efficiency for the various mechanical and manual operations.

The average operating speeds was 3.28, 2.65, 1.97, 4.1 and 0.83 km/hr for plowing, cultivating, ridging, line opening, and spraying respectively. It was found that the speed of tillage operations was less than that of the speeds in the open fields by 60-80%. This also was reflected on the values of field efficiency which was very low in specific for plowing, cultivating and ridging. The average values was 60.7, 53.1, and 57.1%, while the actual field capacity for the same operations was as follow: 0.298, 0.184 and 0.166 ha/hr.

The field efficiency and field capacity was directly affected by the Lower speeds as well as other factors such as: improper size of tractor and machine, the orientation of the house, the operating pattern and the obstacles inside the house.