

عنوان مقاله:

Application of Data Envelopment Analysis for Performance Assessment and Energy Efficiency Improvement Opportunities in Greenhouses Cucumber Production

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تعداد صفحات اصل مقاله: 11

نویسندگان:

R. Pahlavan - *Department of Agricultural Machinery Engineering, Faculty of Agricultural Engineering and Technology, College of Agriculture and Natural Resources, University of Tehran, Karaj, Islamic Republic of Iran*

M. Omid - *Department of Agricultural Machinery Engineering, Faculty of Agricultural Engineering and Technology, College of Agriculture and Natural Resources, University of Tehran, Karaj, Islamic Republic of Iran*

A. Akram - *Department of Agricultural Machinery Engineering, Faculty of Agricultural Engineering and Technology, College of Agriculture and Natural Resources, University of Tehran, Karaj, Islamic Republic of Iran*

خلاصه مقاله:

In the present study, an attempt has been made to use Data Envelopment Analysis (DEA) for assessing the technical efficiency and return-to-scale for greenhouse cucumber production in Iran. For this purpose, the data from greenhouses in Esfahan province, during one period of plant cultivation in one year including spring plants were randomly collected. The results indicated that total input energy, total output energy and energy ratio were ۴۳۶,۸۲۴ MJ ha^{-۱}, ۱۲۸,۵۳۲ MJ ha^{-۱} and ۰.۲۹, respectively. DEA can be used to optimize the performance of any cucumber greenhouse. Based on input-oriented CRS and VRS models of DEA, the average values of pure technical efficiency, technical efficiency and scale efficiency were found to be ۰.۹۵, ۰.۸۳ and ۰.۸۸, respectively. Also the results revealed that, on average, about ۳۰.۲۷% of the total input energy could be saved without reducing the cucumber yield from its present level by adopting the recommendations based on the present study

کلمات کلیدی:

Cucumber, Data envelopment analysis, Technical Efficiency, Yield

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