Geophysical Research Abstracts
Vol. 13, EGU2011-64-1, 2011
EGU General Assembly 2011

The use of wind pumps for irrigating greenhouse tomato crops: a case study in Cuba

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Wind pumps are widely used throughout the world. Multivane models are the most commonly used since their performance is good even when winds are only moderate to weak. The present work examines the possibility of using wind energy to irrigate tomato (Lycopersicon esculentum Mill, cv. FL-5) crops in greenhouses in Cuba as a means of helping guarantee sustainable vegetable production. The same technology could be used in other areas where similar energy demands could be met by harnessing the wind. Weather data were collected from a weather station for calculating crop water requirements, the water volumes needed to be pumped, the necessary water storage tank volumes and the potential irrigable areas when using Veleta and Poldaw windpumps. These calculations took into account different elevation heights and wind speeds.