

## Aspect regarding the use of renewable energy into vegetable farms of agritouristic pensions

Oana Bianca Oprea<sup>1</sup>, Cristina Popovici<sup>2</sup>, Liviu Gaceu<sup>3</sup>

### INFO

Received 28 Nov 2014

Accepted 7 Jan 2015

Available on-line 14 Jan 2015

Responsible Editor: M. Herdon

### Keywords:

micro-drip irrigation, vegetable farm, photovoltaic energy

### ABSTRACT

The main goal in the agritouristic pension design is that tourists can consume organic plant products produced in the guest house farm or its immediate neighborhood. This paper aims are on one hand to design a vegetable farm based on the necessity of specific products needed for the operation of a medium pension with 9 rooms, and secondly to assess the possibility of using photovoltaic energy for powering the micro-drip irrigation system. Starting from the amount of vegetable needs for tourists from an average agritouristic pension, it was calculated the number of plants, the required surface for the plants and the amount of water needed. Based on daily and monthly needs there were established technical and constructive parameters of the solar drip irrigation installation (diameter and length of hoses, flow, pressure and pump power and solar panel characteristics). The model can be easily adapted to other size pensions or to different climatic conditions.

## 1. Introduction

Climate change, coupled with concerns about high oil and energy prices, is driving a global trend towards the increased use of renewable energy. Unlike fossil fuels which are rapidly being depleted, renewable energy sources such as sunlight and wind are naturally replenished and therefore sustainable. Indeed, it is the perceived notion of sustainability that is driving governments around the world to introduce legislation promoting the use of renewable energy. [1]

Agritouristic pensions currently attract an increasing numbers of tourists because of the possibilities to consume organic plant products, acquired in own farms. [9]

Achieving high quality vegetable products require intensive irrigation activity in most parts of Central and S-E of Europe. Therefore, in the particular case of an agritouristic pension with vegetable farm, irrigation is essential for achieving enough vegetable quality to support catering activities.

For economic efficiency of vegetable productions on irrigated land areas, the issue is set on reducing energy consumption, together with the use of renewable energy sources.

Integration of modern drip irrigation while using photovoltaic solar energy to drive the water pump in the vegetable farm of a pension produces effective social and economic challenges

---

<sup>1</sup> Oana Bianca Oprea

Transilvania University of Brasov, Faculty of Food and Tourism, Romania  
[bianca.oprea@xu.unitbv.ro](mailto:bianca.oprea@xu.unitbv.ro)

<sup>2</sup> Cristina Popovici

Technical University of Moldavia  
[cristi\\_smile@mail.ru](mailto:cristi_smile@mail.ru)

<sup>3</sup> Liviu Gaceu

Transilvania University of Brasov, Faculty of Food and Tourism, Romania  
[gaceul@unitbv.ro](mailto:gaceul@unitbv.ro)