



“Gheorghe Asachi” Technical University of Iasi, Romania



STUDY ON ENERGY RESOURCES INTEGRATION AND SUSTAINABILITY OF THE NEW MODULAR AGRICULTURE PATTERN

Romulus Gruia

*Transilvania University of Braşov, Faculty of Food and Tourism, 29 Eroilor Blvd., 500036 Braşov, Romania
e-mail: rocagruia@unitbv.ro, Phone: 0268472222*

Abstract

The paper aims to present the new pattern of modular agriculture, as evolution of agri-food production in the coming decades as well as to highlight the direct relation between this pattern and the massive energy support it requires.

The paper basically deals with reactions to climate change, reductions of carbon emission, in addition to high quality and safety requirements for food production. The author envisages the PAC measures called for in order to ensure a sustainable development of agriculture, water, energetic plants and organic agriculture. The modular agriculture pattern describes a totally different vision on agriculture, environmental perspectives and exploitation, water usage and saving, with a focus on reducing costs of renewable energy and on a better utilization of resources to create green energy

Addressing the non-conventional energy resources (solar, wind, biofuel, biomass), the systems and equipment needed to optimize conventional energies as well as the systems and equipment to reduce pollution, the author analyses the ways to implement the new energy sources. The author is attempting to find new and emerging solutions to reduce energy costs, to manage domestic energy systems by means of modular agriculture and vertical farms.

Modular agriculture is supported by revolutionary technologies in the field (underfloor electric heating systems, microhydroaggregates, photovoltaic panels, wind turbines, solar panels, geothermal heating systems, solar thermal energy accumulators, condensing boilers with low exhaust emissions, production of rapeseed-based biofuels; expansion strategies for the use of biomass taking into account that wood production is concentrated in the Carpathians and Sub-Carpathians area, while related agricultural products are found in the South and Moldova etc.).

The agri-food and energy are central to current and future challenges. In other words, the paper highlights the solution of a new agricultural production and food pattern in controlled space and environment in relation to energy support, aiming to address the food industry, environment and energy - related challenges, which represents the CHALLENGES FACED BY HUMANITY. These reasons are enough to guarantee the future of agriculture, food quality and well-being, including the MODULAR AGRICULTURE pattern.

Key words: conventional energy, integrative food, management, modular agriculture, non-conventional energy, renewable energy

Received: May, 2011; Revised final: August, 2011; Accepted: August, 2011
