The Projection of a Sustainable Agriculture System Aiming for Supporting the Ecoeconomy and Ecosanogenesis Specific for the Hill-Mountain Areas – Considerations and Opinions

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**Abstract.** The Romanian integration into the European Union – and also at its technological standards – means among others the adoption and implementation of transforming measures into the conventional agriculture. Thus the farmers should apply certain technologies to enable them to obtain good productions under specific conditions of the ecoeconomy and ecosanogenesis. The implementation of such a sustainable agriculture system for Romania is discussed into this article.

**Keywords:** agriculture, sustainable, system, protection, resource, renewable.

**INTRODUCTION**

The sustainable agriculture is using first the elaboration of land cultivation systems which are quantitatively and qualitatively satisfying the current people’ needs without compromising the requirements or availability for options for the next generation and also without producing the irreversible deterioration of the environment (Puia, 2000).

Practicing a performing sustainable agriculture is a very complex process characterized by a slow evolution process during which it will be investigated certain experimental models of sustainable farming systems. Thus, this paper presents the design for implementing a sustainable farming system for hill-mountain land exploitation which is based on biological principles and is fully compliant with the European Union and international regulations and standards on sustainable agriculture as a condition for the Romanian integration into the European Union.

The basic characteristic of this paper derives from the fact that within a sustainable system design - oriented activities will take place designated for maintaining the soil functions, as considered by Bonnie Sylvie (1994) which states that the sustainable agriculture should take into account the maintaining production potential over a long period of time, using sound agricultural practices, management and protection of natural resources, maintaining agricultural biodiversity, ensuring profitability of specific activities of farmers, achieving sufficient nutritional quality to the entire population, social equity and human promoting ethics.

Another important aspect of the topics discussed in this paper highlight the consideration elaborated by experts such as the sustainable agriculture concept is also applicable to small producers even for a parcel of land.

**MATERIALS AND METHODS**

In order to design a sustainable farming system for hill-mountain area it is given special attention to ecopedoecological conditions, biological resources (plant varieties and
Designing a sustainable system that is the subject of this paper has the peculiarity that is based on promoting the culture of new species with multiple uses and also the realization and increase quality of agricultural production due to high resistance to diseases and pests of used biological resource (variety and seed quality) after a careful selection and application of appropriate technologies meant to facilitate nutrient absorption and its genetic heritage capacity in the weed’s and pests competition.

Starting from the proposed goals, designing a system of sustainable agriculture can be achieved in three stages as follows: first stage considered the preparatory stage, will pursue those actions that lead to efficient scientific research and experimental activities. Thus, there will prepared studies, documentation and ways of putting into practice the project and will recruit businesses interested in experimentation and system sustainability.

The second stage is the experiment design as a sustainable system that will assess the technological parameters and energy of the system designed in order to increase production performance using advanced techniques of sustainable agriculture applicable to direct and potential beneficiaries. This it will make possible the quantification of the measures applied over the plant health status, production and production quality. Technical and scientific results obtained will allow comparative analysis of current technology sequences and alternatives and will end with the development of experimental model, which allows the application of sustainable farming systems and sustainable economic performance to be integrated. Results will be substantiated by statistical processing using an information system based on advanced operating systems and appropriate software.

Third stage includes dissemination activities with the organization of practical demonstrations, writing scientific communication and publishing scientific articles. Expected results consist of the promotion and widespread deployment of sustainable agriculture systems performance.

To achieve a sustainable agriculture system design we propose the following activities, grouped into: pre-project implementation activities.

Developing a study on the agricultural potential of the hill-mountain area in terms of sustainability and innovative technologies also adapted to the concept of sustainability of agricultural crops grown in the hill-mountain area in southeast Transylvania. The study defines the current state of agriculture in the hill-mountain area in southeast Transylvania, development opportunities, attracting investment and accessing funds for financing, including the structural funds and implementing opportunities of the principles of sustainable agriculture and their impact on optimization quality of agricultural production and environment.

Design a sustainable agriculture system. In this activity it will be carried out the design of experimental model which will include the establishment of the structure and crop rotation after implementing a study of the biological material in terms of sustainable agriculture performance. Also a design and technology demonstration batch culture using performance sustainable agriculture techniques will be realized.

The acquisition of biological material, equipment and consumables specific to sustainable agriculture which is aimed at promoting biological material, equipment and materials to increase assets and improving working conditions through technology upgrading.

Applied research activities.
Foundation design, study, experimentation and evaluation of technological options (rotation, varieties, inputs) specific to a sustainable farming system. This activity aims at determining the process and energy parameters of the experimental model in order to increase system performance in sustainable agricultural production using sustainable agriculture techniques applicable to direct and potential beneficiaries. Special attention will be given to both biological activity assessment and sustainable agriculture techniques and also to the development of methodologies to exploit the performance of sustainable agriculture systems which proved to be functional and useful experimental model. Thus it will be assessed the technological and energy parameters of the experimental model, a practical demonstration will be held with the participation of specialists with higher education in agricultural undertakings interested in the assimilation of the proposed model and it will prepare financial and economic documentation of settlement activity.

Improving the scientific and technical capacity of the implementation team aims to raise its awareness of science and technical knowledge. Within this activity it will give special attention to creating the appropriate conditions for participation of the implementation team into visits for documentation on experimental techniques for sustainable agriculture.

The project is interested also in the large scale dissemination of the results on the performances of the experimental model of sustainable farming system. The implementation of this activity will be achieved by developing information materials to widely disseminate the results, scientific papers publication in national conferences / international project specific areas of scientific communications, publications, pilot schemes, etc.)..

RESULTS AND DISCUSSIONS

A first category of results is oriented to the biological material selection belonging to the tested crop species (facelia, potato, bean, cereals) suitable to be grown by applying specific practices for a performing sustainable agriculture in the hill-mountain area in southeast Transylvania. On the basis of biological criteria (productivity, precocity, natural resistance to pest specific attack), ecological factor, soil requirements (acidity, clay content in calcium, etc.) and climate (frost resistance, heat resistance), technical (system suitability to sustainable culture) and economic factors (crop period, consumer preferences, the level of complexity to the domestic market) it will be developed a specific crop range, respecting also the criteria for zoning and micro-zoning.

A second category of results will follow the impact of resources applied to soil on the physiological, phytosanitary status and protection and the productive potential of plants as well as on physicochemical and microbiological attributes of soil. Thus, it will be determined the performance indicators of the plant and soil attributes upon the influence of non-renewable materials (fertilizers, pesticides, promoters, etc.), especially under the influence of specific recyclable materials under the influence of microorganisms to minerals and soluble substances organic including organic compounds with structural role (use of manure and other composted plant materials, using crop rotation that includes improving cultivated with a waterfall sole perennial legume, etc.) and it will be indicated the optimal dose, the moments of application respectively.

It is also expected to obtain the maintenance for long term of the resources: soil, water quantity and especially quality of soil biodiversity and avoiding the spoilage of agroecosystems. The results will consist of quantifying the status measures applied to the plant health, production and quality, production forecasting and control measures. Technical and scientific results obtained will allow comparative analysis of current technology
sequences and alternative and will end with the development of sustainable agriculture techniques adopted in the system of sustainable agriculture and sustainable economically integrated. Results obtained for the field work will be valorized through the implementation of sustainable farming systems in farms growing in hill-mountain area of the southern-east of Transylvania which will bring a healthy and harmonious environment, such as the quality of soil, water, air, vegetation as well as of the food in sufficient quantity and quality. This means that farmers will make decisions to change their farm use so as to not damage the environment and achieve sustainable production and income they will be helped by the government by providing advice and financial support so that he or she can draw a conversion plan for the farm (Radulescu, 2003).

The results obtained will allow farmers to choose the more discerning biological resources for a sustainable agriculture techniques performance and its proper system. Thus farmers will capitalize the crops in the hill-mountain area of southern - east of Transylvania, by modernizing culture techniques, especially by increasing product quality.

**CONCLUSIONS**

The sustainable agriculture is to rural areas, the best approach, able to provide an integrated solution for economic, social and environmental issues.

Sustainable agriculture requires the proper use of natural resources and vegetation factors.

Sustainable agriculture can be a guarantee of stability if successful in more sustainable food security and safety, so necessary for peace and prosperity of our nation is registered

Sustainable agriculture can be promoted only if they successfully meet certain conditions by farmers, especially in relation with crop rotation, fertilization, pests control and reduced energy consumption. Reducing power consumption is achieved through the "System for Soil Conservation Practices: SSCP".

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**REFERENCES**