

ALTERNATION OF CROPS, SOIL FERTILITY AND FERTILIZATION-CRUCIAL COMPONENTS FOR SUSTAINABLE DEVELOPMENT OF AGRICULTURE

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***Abstract.** The article includes data from the long-term field experiments on chernozem soils from Balti steppe, Republic of Moldova regarding the efficiency of crop rotations and fertilization for different crops. It was established a lower efficiency of fertilization in crop rotation with higher diversity of crops. The share of soil fertilization in yield formation is increasing significantly in permanent crops. Higher yield potential for new, more intensive varieties of winter wheat can be achieved only in crop rotation with higher level of soil fertility. Respecting crop rotations and a proper management of soil fertility are the basis for transition to a more sustainable farming system in the Republic of Moldova.*

Key words: crop rotation, soil fertility, fertilization, sustainable agriculture, field crops.

1.Introduction

The industrialization of agriculture based on intensive use of inputs from nonrenewable sources of energy and their derivatives have neglected the main agronomic laws (crop rotation; returning of nutrients and energy back in the soil; minimum, maximum and optimum etc). As a result many economic, ecologic and social consequences have appeared, which unfortunately are not evaluated properly or are externalized in the market economy, because of the dominated profit orientation.

Nevertheless, limited amount of nonrenewable sources of energy and increased prices for them, together with negative impact on the environment, including climate changes and health of people are reversing the industrial approach to agricultural intensification. This approach didn't achieve a sustainable development of agriculture. That's why many farmers and research organizations in all over the world are looking for alternatives to industrial model of agricultural intensification.

In this paper we present the results obtained in the long term field experiments with crop rotations and permanent crops, which are proving the significance of soil fertility and crop rotations for modern farming systems with less dependence from industrial inputs.

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