

Annotation

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Cultivation of winter rye in the organic production on drained drag turf-gley soil

The current situation concerning meeting human needs for food products of high quality requires scientific study of organic agriculture and development of technologies based on it, preventing harmful substances in its content. This is one of the most important tasks of a modern agricultural science which requires an integrated system approach [2, 3]. An important part in solving these problems is to use drained lands where there is sufficient moisture as one of the main factors of fertility and in some cases they are well provided with nature-occurring compounds of nitrogen.

The aim of the study is to justify feasibility of the structural reclamation of shallow drained lowland moors in Forest-Steppe using interlaying mineral gley massive material for growing grain crops on them in the context of the organic production.

The study was conducted in 2013–2015 as a stationary experiment on drained calciferous drag turf-gley soils of Panfil'skaya Research Station NSC "Institute of Agriculture NAAS".

Peat soil has width of 45-50 cm; the total content (%) of nitrogen is 1.9%, phosphorus – 0.4%, potassium – 0.17% and lime – 20%. The interlaying maternal rock is gleyed light loam of the density of 1,65 g/cm³ and total nitrogen content of 0.12 %, phosphorus – 0.1% and potassium of 0.4%.

In order to increase fertility of the shallow lowland moor, plowing of the maternal rock to drag turf is carried out of 8-10 and 16-18 cm layers and depth of 55 and 65 cm.

According to the experimental design, during the growing season three types of fertilizers – humisol, humifild and potassium humate + microelements were applied. The variant without fertilizers was the check variant. The variant with the applying of N₄₅P₄₅K₁₂₀ was provided to compare economic efficiency in the experimental design.

On drained drag turf-gley calciferous old-arable soils it is advisable to conduct deep-plowing on the depth of 55 cm with the introduction of humate with microelements in the organic production. Thus, the basic cultivation provided 4.8 t/ha of organic winter rye grain and prevented reducing fertility of drag turf-gley soils.

Key words: *basic cultivation, fertilizers, winter rye, yield, quality, drag turf-gley soils.*