

Original article

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## Effect of Runoff-Regulating Forest Strip of Combined Design with Low-Growing Shrubs on Meltwater Runoff in the Central Forest-Steppe

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**Abstract.** The purpose of scientific research is to study the influence of low-growing shrubs in a runoff-regulating forest belt of a combined design on the main natural factors. Research work was carried out in the experimental farm of the Federal State Unitary Enterprise “Novosilskoye” in the Novosilsky district of the Oryol region.

In a multifactorial stationary experiment, field observations of snow accumulation, soil freezing and moisture, snowmelt, spring meltwater runoff, soil thawing and water absorption were carried out.

As a result of observations, the role of the main natural factors and their interaction on the formation of water runoff in the spring was revealed. The regularities of snow deposition in the combined runoff-regulating forest belt with stunted shrubs are also given. It has been established that shallow freezing of the soil contributes to the gradual infiltration of melt water into the soil. On the agrobbackground “autumn plowing”, taking into account the absence of forest plantations (control), the water absorption of melt water averaged 71.2 mm, runoff – 2.9 mm. On the agrobbackground “plowing” with a runoff-regulating forest belt and undersized shrubs, these indicators were higher and equaled 80.7–87.3 mm, runoff – 1.5–1.8 mm, i.e. more snow water leaked out, and the surface runoff was less compared to the control.

**Key words:** soil, erosion, runoff-regulating forest belt, snow deposition, soil freezing, low shrubs, snow reserves, precipitation, runoff, water absorption.

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