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Functional agroecological role of soil organic matter in Yili steppe Chernozem

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Steppe meadow Chernozems are traditionally considered as richest soils in Yili region due to their high content of soil organic matter (SOM), available for crops nitrogen, phosphorus and potassium. In mountain conditions they are characterized by increased spatial variability that need take into consideration in procedure of these lands agroecological evaluation and recommendation development for land-use agroecological optimizing. The regional agroecological monitoring has been done with support of NSFC Project # 41461048 to study local regularities of SOM profile distribution, its effect on the available N, P, K content differentiation with soil depth, and the contrary, profile changes in pH values impact on the humus accumulation (SOM = -82.108* pH+734.124, r2=0.760). The monitoring results have shown the extremely significant correlation (P<0.01) between topsoil organic matter and available N (SOM =1.445*N+24.008, r2=0.511). Usually there are significant or extremely significant positive correlation (P<0.01) between different horizons' soil organic matter and available K too (SOM =0.594*K-85.490, r2=0.672). The correlation between organic matter and available P contents didn't reach significant level, but they are enough closed too (SOM =3.079*P, r2=0.438). Obtained result will be useful for similar land agroecological quality prediction and sustainable land-use planning with maximum use of the steppe meadow Chernozems' resources.