

前植物生产层

不同利用方式对新源县春秋草地土壤理化性质的影响

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摘要:

通过调查确定了新源县则克台镇春秋草地的4种利用方式: 打草、自由放牧、分段放牧、划区轮牧, 对比分析了不同利用方式下的土壤理化性质。结果表明, 自由放牧方式土壤砂粒含量最高, 平均达到21.23%, 粉粒含量最低, 且在10~20 cm土层显著高于划区轮牧方式 ($P < 0.05$)。4种利用方式下, 土壤容重为1.08~1.26 g·cm⁻³, 土壤没有表现出压实效应。放牧利用方式下土壤有机质、碱解氮、有效磷含量高于打草地, 其中, 划区轮牧和自由放牧草地土壤有机质含量高于分段放牧方式, 自由放牧方式仅使土壤表层碱解氮显著升高, 其土壤速效钾和有效磷的含量均低于分段放牧和划区轮牧。因此, 划区轮牧和分段放牧是研究区较为合理的利用方式, 可防止土壤养分降低。但是, 与划区轮牧相比, 分段放牧使土壤表层砂粒含量增高, 容重增大, 有机质含量降低, 所以, 采用分段放牧时, 应当适当降低利用强度。

关键词: 春秋草地 利用方式 土壤理化性质

Effects of utilization modes on soil physical and chemical properties of spring autumn grassland in the Xinyuan county

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Abstract:

The mowing grass, normal grazing, sectional grazing and rotational grazing were indentified to utilize the spring autumn grassland in Zeketai town, Xinyuan County. A field investigation was conducted to determine effects of four utilization modes on the soil physical and chemical properties of the spring autumn grassland. The results of this study showed that soil sand particle content with the average value of 21.23% was highest, and silt particle content was the lowest under the normal grazing. At 10-20 cm layer, the silt particle content of normal grazing was significantly lower than that of rotational grazing ($P < 0.05$). The utilization modes did not affect the soil bulk density, which was 1.08-1.26 g·cm⁻³. The soil organic matter, available N and Olsen P contents at grazing unitization modes were higher than those at mowing grass. The organic matter contents of normal grazing and rotational grazing were higher than that of sectional grazing. The available N of soil surface at normal grazing was significantly higher and the available K and Olsen P contents were lower than those at sectional grazing and rotational grazing. Therefore, the rotational grazing and the sectional grazing were better utilization modes than normal grazing because they maintained high soil nutrient. However, compared with rotational grazing, the sectional grazing increased the surface soil sand content and bulk density and decreased the organic matter content. This study suggested that it is necessary to reduce the use intensity when the sectional grazing was applied.

Keywords: spring autumn grassland utilization mode soil physical and chemical properties

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