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缓冲带截除农业面源强污染的效果

Removal efficiency of buffer on agricultural non-point and intensive pollution

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中文关键词: [农田径流](#), [氮](#), [磷](#), [草皮缓冲带](#), [高浓度污染负荷](#)

英文关键词: [agricultural runoff](#) [nitrogen](#) [phosphorus](#) [grass buffer](#) [high concentration shock load](#)

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作者 单位

[唐 浩](#) [1.上海市环境科学研究院应用生态研究所, 上海 200233](#)

[熊丽君](#) [1.上海市环境科学研究院应用生态研究所, 上海 200233](#)

[鄢忠纯](#) [1.上海市环境科学研究院应用生态研究所, 上海 200233](#)

[李银生](#) [2.上海交通大学农业与生物学院, 上海 200240](#); [3.农业部都市农业\(南方\)重点开放实验室, 上海 200240](#)

[黄沈发](#) [1.上海市环境科学研究院应用生态研究所, 上海 200233](#)

[邱江平](#) [2.上海交通大学农业与生物学院, 上海 200240](#)

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中文摘要:

为了摸清草皮缓冲带对农田径流冲击负荷的耐受能力,通过工程尺度的现场试验,研究了高浓度污染负荷冲击对百慕大草皮缓冲带截除农业面源污染物能力的影响。结果表明:在高浓度污染负荷下,百慕大缓冲带能有效地截留农田径流中的悬浮固体(suspended solids, SS),SS浓度变化趋势与一般浓度污染负荷基本一致,前端下降速度较快,后端逐渐趋缓,2种污染负荷条件下末端出水SS质量浓度均在90mg/L以下,高浓度污染负荷冲击对农田径流SS的去除基本没有影响。缓冲带对高浓度氮磷污染负荷具有一定的净化效果,径流途径总氮(total nitrogen, TN)、氨态氮(ammonia nitrogen, NH₄⁺-N)、总磷(total phosphorus, TP)的末端去除率为23%、16%和26%,分别为一般浓度污染负荷下末端去除率的59%、55%和70%;百慕大草皮缓冲带对渗流途径TN、TP具有一定的净化效果,2种浓度污染负荷下渗流水TN、TP浓度变化趋势基本一致,两者无显著差异(p>0.05),但TP去除速率较TN慢。该文为滨岸缓冲带的优化设计、维护管理及推广应用提供了依据。

英文摘要:

In order to find out the tolerance ability of grass buffer on shock load from agricultural runoff pollutant, the effect of shock load of high concentration on the removal efficiency of riparian buffer on agricultural runoff pollutants were investigated by engineering-scale fields test on site. The results showed that under shock load of high concentration pollutant, grass buffer had good removal efficiency on runoff SS(suspended solids), the concentration of SS showed the same downward trend, fasted at the front, then gradually slowed down, the concentration of SS at end were both under 90mg/L for 2 kind of concentration load, which indicated that high concentration load had no significant effect on the removal of agricultural runoff SS. Buffer had certain purification ability on runoff nutritional pollutants under the impact of high concentrations load, the end removal ratio of runoff TN (total nitrogen), NH₄⁺-N (ammonia nitrogen), TP (total phosphorus) removal was 23%, 16% and 26% respectively, accounted 59%, 55% and 70% for which under common concentration load. It suggests that Bermuda grass buffer had certain purification ability on TN and TP in seepage water, the concentration variation of which had the same trend under two kinds of concentration, Which had no significant difference (p>0.05), and the TP removal rate was slower than TN. The research provides a scientific basis for the optimal designation, maintenance, management and application of riparian buffer.

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