

研究报告

## 稻鸭共作及其它控草措施对稻田杂草群落的影响

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### 摘要

运用群落生态学方法研究了稻鸭共作、人工除草、化学除草3种控草措施对稻田杂草群落特征的影响及其对田间杂草的控制作用.结果表明, 稻鸭共作显著降低了田间杂草的发生密度, 对稻田主要杂草鸭舌草(*Monochoria vaginalis*)、异型莎草(*Cyperus difformis*)、矮慈姑(*Sagittaria pygmaea*)的防效均达到95%以上, 总体控草效果显著优于化学除草和人工除草.稻鸭共作使稻田杂草群落的物种丰富度及Shannon-Wiener多样性指数略有降低, 但Pielou均匀度指数显著提高, 表明群落物种组成有了很大的改变, 降低了原来优势杂草的发生危害.在不同控草措施作用下, 稻田杂草群落的结构组成也发生了一定的变化, 稻鸭共作区群落组成为陌上菜(*Lindernia procumbens*) + 异型莎草 + 水虱草(*Fimbristylis miliacea*), Whittaker群落指数显著高于化学除草、人工除草及对照区, 表明稻鸭共作对田间杂草群落结构影响较大.从Sorensen群落相似性指数及以其为距离测度指标的聚类分析结果中也可得到同样的结论.

关键词 [稻鸭共作,人工除草,化学除草,物种多样性,均匀度,相似性](#)

分类号

## Control effects of rice-duck farming and other weed management strategies on weed communities in paddy fields

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### Abstract

By the methods of community ecology, field studies were conducted to evaluate the control effects of three weed management strategies, i.e., rice-duck farming (RD), manual weeding (MW) and chemical weeding (CW), on the weed communities in paddy fields. The results showed that under rice-duck farming, the weed density in paddy fields decreased significantly, and the control effects on dominant weed species such as *Monochoria vaginalis*, *Cyperus difformis*, *Sagittaria pygmaea* were all above 95%, with an overall effect higher than CW and MW. Under RD, the species richness and Shannon-Wiener diversity indices decreased slightly, while Pielou community evenness indices increased markedly, indicating that the species composition of weed community was greatly improved, and the infestation of former dominant weed species was reduced. The structure of weed communities in paddy fields varied with different weed management strategies, e.g., under RD, *Lindernia procumbens*, *Cyperus difformis* and *Fimbristylis miliacea* constituted the major weed community, and the Whittaker index was significant higher than that of CW, MW and CK, which

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indicated that rice-duck farming had a greater effect on the structure of the weed communities. The same conclusion could be drawn from Sorensen's similarity indices and cluster analysis with Sorensen's index as the distance measurement.

**Key words**

[Rice-duck farming](#) [Manual weeding](#) [Chemical weeding](#) [Species diversity](#)  
[Evenness](#) [Similarity](#)

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