基于分形理论的水稻单产计算机视觉预测技术 Per-square-meter Yield Estimation of Paddy Based on Fractal Analysis

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关键词： 水稻 单产 预测 计算机视觉 分形

摘 要： 以武育粳3号为试验品种，用自制计算机视觉系统，拍摄成熟期水稻群体图像，应用分形理论分析水稻群体图像的分形特征，在此基础上提取了图像的差分计盒维数和多重分形曲线；并进一步分析得出水稻单位面积产量与水稻图像分形维数具有线性相关关系，最后建立水稻单位面积产量模型，模型精度为92.57%。 A method for estimating paddy yield on the basis of the fractal theory was proposed. The paddy variety was Wuyujing No 3. The image samples of mature paddy were obtained by the self-developed computer vision system. The fractal feature parameters of the images were analyzed. The linear correlation between the fractal dimension and per-square-meter yield of paddy was studied. The mathematical model was established and accuracy reached to 92.57%.

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