基于纹理和位置特征的麦田杂草识别方法

曹晶晶 王一鸣 毛文华 张小超

中国农业大学

关键词： 杂草识别 纹理特征 颜色共生矩阵 位置特征

摘 要： 以化学防除适期麦田杂草为研究对象，对利用条播作物的位置和纹理特征识别田间杂草的方法进行了研究。根据条播作物小麦作物行的间距相对固定等位置特征，利用植物像素直方图法确定作物行的中心线和行宽，并识别行间杂草。然后，以作物行中心为基准来选取纹理块，计算量化级数为8级的H颜色空间的共生矩阵，提取5个纹理特征参数，利用K均值聚类法判别分析各块的类别来识别行内杂草。研究结果表明，杂草的正确识别率约为93%，作物的错误识别率约为7%。 Take the weeds in wheat fields as the research object, a method of weed detection by using the texture and position features was studied. According to the position feature of drilled crops that were regularly sown as a constant row space, the pixel-histogram method was used to determine the central line and the width of crop row. As a result, weeds between crop rows were detected. Moreover, the block of texture was selected on the basis of the central line of crop row. The co-occurrence matrixes of the H color space that was quantified 8 levels were computed. Based on that, five texture parameters were extracted. Then, the K means clustering method was used to recognize weeds within crop rows. The result of research showed that the correct classification of weeds was 93% and the mistake classification of crops was 7%.

查看全文 返回首页 引用本文