

基于图像处理的柑橘测产方法 Estimation of Citrus Yield Based on Image Processing

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摘要: 利用机器视觉技术可以快速、无损预测柑橘产量。采集了10幅生长中的柑橘果树照片,同时测量了每棵果树的柑橘产量。基于RGB颜色模型,对柑橘图像进行分割,柑橘与背景的分割条件为 $(R-B>100)$ 且 $(R>G)$ 。通过提取柑橘个数、柑橘总周长、柑橘总面积3个特征参数,分析了特征参数和柑橘单株产量之间的关系。实验证明,经过图像分析后得出的柑橘数与柑橘单株产量之间的相关系数最高,达到0.97,说明了利用图像分析方法预测柑橘产量具有良好的应用前景。The estimation of citrus yield is important to citrus precision management. Fast non-destructed measure could be achieved using machine vision technology. Ten images of citrus were used in this experiment and yield of each tree was measured in advance. The citrus image was segmented based on the RGB color model. The segment condition for citrus and background is:  $(R-B>100)$  &  $(R>G)$ . The total number, the total perimeter and total area of citrus were computed from the segmented image. The relationship between each image parameter and citrus yield was analysis. The result of experiment shows that the correlation coefficient between the total citrus number and the yield of citrus is 0.97 and indicates that it is has good prospect in the future.

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