

Using a microscope with a digital camera facility to demonstrate cell structures in Plant and Crop Sciences

Dr Mike Davey



Students in the lab using the digital microscope and digital camera



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Dr Davey is a Research Officer in the Plant and Crop Sciences Division at Sutton Bonington Campus. He has been involved in the culture of plant cells and tissues since 1967, and has been exploiting this technology to genetically manipulate plants by transformation and somatic hybridisation.

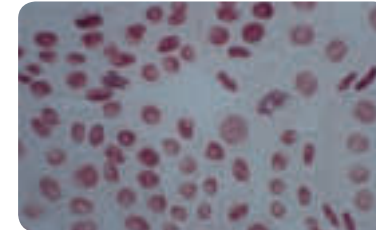
Overview

We installed a Nikon 50i microscope with a DSFi1 high resolution digital camera and large format monitor. It is an excellent teaching facility that delivers research-quality images. It is freely available for use by colleagues from other disciplines (e.g. Animal Sciences) who may wish to obtain images of living material and preserved specimens.

The instrumentation has been used extensively in the Academic Sessions 2007-08 and 2008-09 in the teaching of practical techniques on the plant genetic manipulation module, and also in the area of plant biotechnology.

There has been excellent feedback from students taking these modules. After the equipment was used to demonstrate cell structure to undergraduate students, five of the students opted to carry out their Final Year Projects in plant cell culture. The equipment is also exploited routinely to train PhD students and research visitors in cell structure and function. The fluorescence facility has been especially useful in investigations of cell multiplication and gene expression.

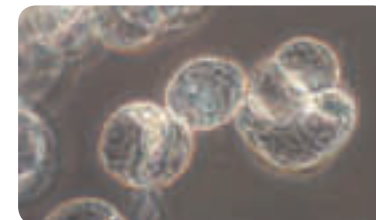
“This microscope has, and will continue to be, an excellent teaching facility, and the specimens that we have examined have certainly inspired some of our students to carry out their research projects in the laboratory”



Nuclei and chromosomes in cells from an onion root tip



A germinating pollen grain of petunia



Cultured cells of petunia



Chromosomes in cultured cells of petunia