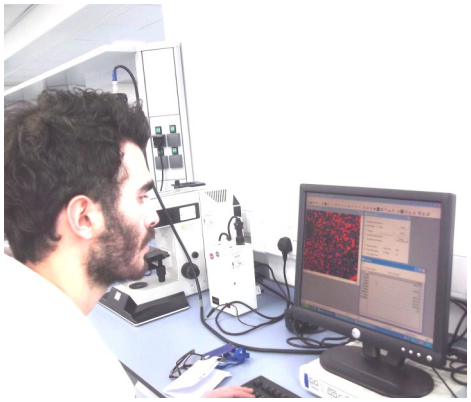
Waterproofing oilseed rape crops to protect from drought



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Current Postgraduate Research Briefing

Why waterproof?

As drought conditions are becoming more prevalent in certain areas of the world less water is available for crop growth so yields are reduced.

A novel way to cut down water loss in certain crops is by spraying a **natural waterproofing material** (derived from conifer plants) onto the plant at critical times, such as flowering. This reduces transpiration in the plant so is known as an **antitranspirant**.

Oilseed rape has become a valuable crop in recent years with expanding acreage because of its increasing use for cooking oil, and biofuel. It particularly suffers from loss of yield in drought conditions but little research has, until now, investigated the biological response of oilseed rape to antitranspirant sprays.

Study aim

This study aims to understand more about how the oilseed rape plant responds to antitranspirants so that farmers can be advised of the best treatments.

Use of The Princess Margaret Laboratories

Oilseed rape plants are being grown in experimental conditions in one of the University glasshouses. Portable laboratory equipment, including **TPS-2** and **CIRAS-1**, is used to measure transpiration and photosynthesis. Leaf samples are then undergoing analysis in **the Princess Margaret Laboratories** for spray deposit using a **high resolution scanner** and **image analysis software** (see panel).

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What next?

Glasshouse experiments are underway which will test and evaluate a variety of conditions, such as drier soils, different spray nozzles and spray rates. A later step will be to establish field experiments to validate the results on a larger scale. In the long-term this should help farmers to grow oilseed rape in drought situations without using irrigation.

PhD programme

This briefing outlines the initial work of a three-year PhD research programme by **Michele Faralli**, Postgraduate Researcher.

Director of Studies :

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Image analysis software

A marker dye is used to highlight the antitranspirant spray. The **scanner** produces an image of the leaf then the **image analysis software** measures the area of leaf covered by the spray and the number of spray droplets.

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