

## **Improving the quality of glasshouse crops via light quality manipulation**

### **Supervisory team:**

**Main supervisor:** Dr Kerry Franklin (University of Bristol)

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### **Project description:**

Despite comprising a small component of sunlight, UV-B wavelengths (280-315 nm) regulate a diverse array of regulatory processes in plants, including growth, metabolite content and resistance to pests and diseases. UV-B is attenuated by common greenhouse materials such as glass and polycarbonate and is therefore depleted in many commercial growing environments. Plant aesthetic quality, robustness and shelf life are fundamental to the glasshouse crops industry. We have previously shown that UV-B can reduce plant height and increase leaf antioxidant content in coriander, thereby improving the quality of this major selling herb. UV-B supplementation is, however, economically and environmentally undesirable on a large scale. A number of novel glasshouse materials are now available which transmit UV-B. The impact of these materials on potted herb quality has not been assessed. This project aims to combine fundamental environmental signalling in *Arabidopsis* with translational crop science. The role of UV-B in enhancing plant tolerance to abiotic stress will be investigated in the model species, *Arabidopsis thaliana*, using a range of physiological and molecular techniques. Together with our industrial partner, Vitacress, we additionally aim to compare the growth, development and abiotic stress tolerance of coriander and basil plants grown under UV-B-attenuating and transmitting glass. This project will require the student to spend time at the Vitacress site, in Chichester, West Sussex.