Reducing food waste through photomanipulation of leaf senescence

Supervisory team:

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Project description:

Sustainably enhancing the quality and shelf-life of fresh produce is a major objective for the horticulture industry. One way in which this can be achieved is by delaying senescence-induced chlorophyll breakdown.

Leaf senescence can be triggered by age, abiotic stress and pathogen infection. Age-, dark- and heat-induced leaf senescence are regulated by the PHYTOCHROME INTERACTING FACTOR (PIF) group of transcription factors.

This project will explore how light quality manipulation designed to reduce PIF activity can be used to delay age- and abiotic stress-induced leaf senescence in Arabidopsis and a range of horticulturally important species. The molecular mechanisms underlying these responses will be investigated in Arabidopsis using molecular and biochemical techniques. The project will also explore whether light quality treatments designed to delay leaf senescence can additionally suppress the growth and pathogenicity of a range of crop pathogens, further enhancing crop quality and reducing waste.