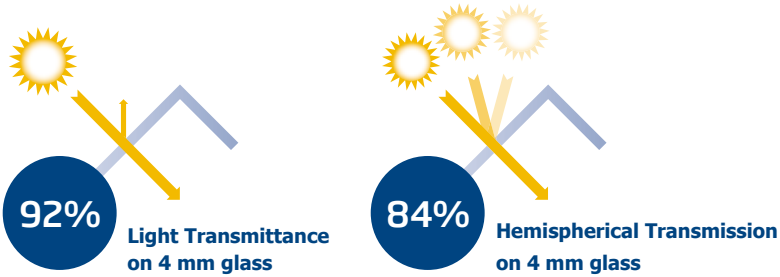
Pilkington Botanical

Pilkington **Optiwhite**™

Pilkington **Optiwhite**™ for Enhanced Photosynthesis

Pilkington **Optiwhite**™ is a practically colourless, low-iron float glass that allows increased light transmission in the photosynthetically active range (PAR).



Pilkington **Optiwhite**™ boosts transmission across the whole spectrum, preserving natural light.

1% more light = 1% more yield.

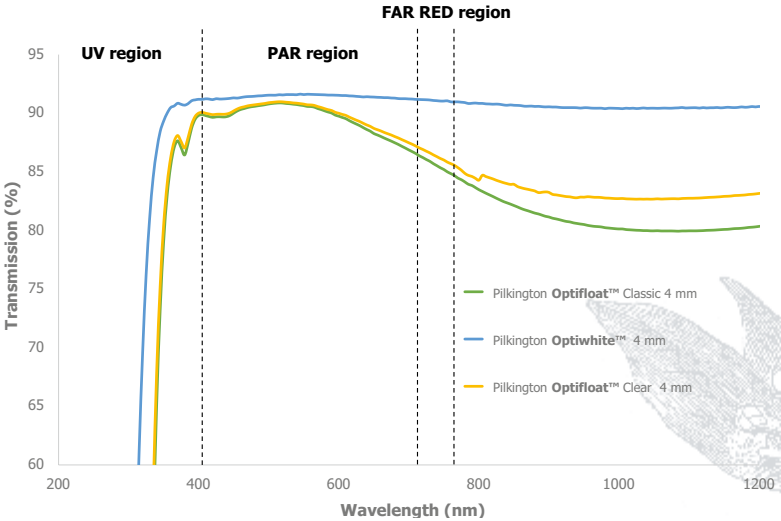
Light impacts other properties such as colour and taste. Different parts of the spectrum support different requirements for plants.

Yield increase of 2% (based on 1% light increase = 1% yield) gives a payback of **~1 year*.**

* Based on tomato crop and an incremental price difference between Pilkington **Optiwhite**™ and Pilkington **Optifloat**™ Clear, assuming an extra 2% yield increase from 2% increased hemispherical light.

Benefits in increasing T_{PAR}

- Pilkington **Optiwhite™** boosts PAR transmission (T_{PAR}) across the whole spectrum, preserving natural light
- Increased T_{PAR} impacts yield (1% T_{PAR} = 1% more yield) and other properties such as colour and taste
- Different parts of the spectrum support different requirements in different plant species



UV has many benefits, e.g. essential for pollinators and growth of red lettuce

FAR RED promotes stretching

Benefits of increased UV

- UV: Used to attract pollinators.
- UVA: Increased leaf size, dry weight, and growth potential of crops[1].
- UVB: Can make plants stronger, more adaptable to stress and produce more vibrant colours[2].
- UVB: kills pathogens harmful to plants[3].
- Pilkington **Optiwhite™** gives a 23% boost over Pilkington **Optifloat™** Clear across the UV region.
- UVB is increased by around 50%.

	4 mm Pilkington **Optifloat™** Clear	**4 mm** Pilkington **Optiwhite™**
T_{PAR}	90	91
T_{HEM}	82	84
EN410:2011 UV	70	86
EN410 UVB	5	55
EN410 UVA	71	87

[1] Photosynthetic benefits of ultraviolet-A to Pimelea ligustrina, a woody shrub of sub-alpine Australia | Oecologia (springer.com)

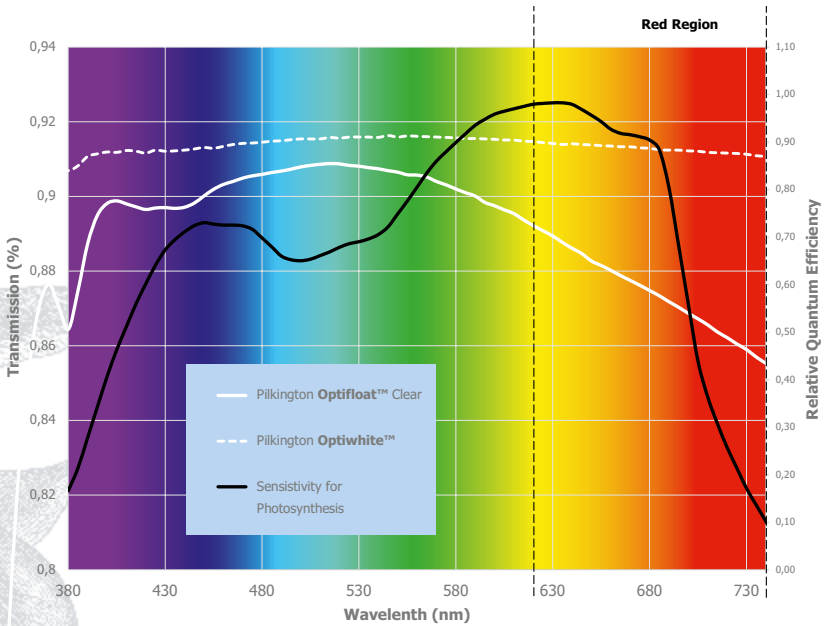
[2] UV-B light and its application potential to reduce disease and pest incidence in crops | Horticulture Research (nature.com)

[3] The potential use of the UV-A and UV-B to improve tomato quality and preference for consumers | Request PDF (researchgate.net)

Red light is the most effective region for increasing photosynthesis

Pilkington **Optiwhite™** is designed to maximise light transmission across the photosynthetically active region.

It provides a significant enhancement at red wavelengths which are the most efficient for photosynthesis.



The figure shows the relative quantum efficiency of plants relative to the light transmission of different glass types. Plants utilise light for photosynthesis from 400–700 nm.

Pilkington **Optiwhite™** enhanced transmission across the full spectrum means it is the perfect base glass for commercial greenhouses.

Available in thicknesses between 2 mm and 6 mm, its precisely controlled production process ensures the product's high quality and uniform properties. These special properties make this glass the perfect choice for this particular market.

https://botanical.pilkington.com/en/Products

CE marking confirms that a product complies with its relevant harmonised European Norm.
The CE marking label for each product, including declared values, can be found at www.pilkington.com/CE

NSG GROUP

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