LIGHT FANTASTIC

Polycarbonate is coming into its own as an alternative to glass, says **Bunny Guinness**

MMGI/MARIANNE MAJERUS

I suppose I am a bit of a traditionalist at heart and if challenged would defend glass as the best material for greenhouses, cold frames and the like. Any "working" garden with a brimming and beautiful greenhouse and some cold frames complete with clusters of plants in various stages of training or development gets me far more excited than any shop window in Hatton Garden. Now it seems I have been left behind. Many gardeners in Europe (especially Germany) are using polycarbonate rather than glass, while over here we remain largely unaware of its many virtues.

With the massive trend in "grow your own", many more gardeners are finding that if you have some permanently covered space, you can raise plants in an environment where they can establish to a stage where they are less vulnerable to the vagaries of weather or peckish pests. The payback period for a traditional pukka greenhouse would, if assessed in purely financial terms, probably make it cheaper to have your vegetables shipped from Fortnum's weekly. But off-the-peg polycarbonate greenhouses start at less than £200, have improved considerably in appearance and two of you can assemble one easily in under a day.

Over the years I have been aware of the drawbacks of polycarbonate but now, with new coatings and processes, its qualities in many respects are superior to glass. Last year I was tending my plants in the greenhouse (home-made from reclaimed windows with a twin-wall polycarbonate roof) and a sparrowhawk flew in with a speed that made the local RAF Harriers appear sluggish. It hit the glass then went very wide-eyed as it bounced back into a pot of penstemon cuttings amid a shower of glass. It survived the ordeal, much to the local songbird population's disgust, but of course I had to trot off to my local glazier for yet another replacement panel.

At a recent show sporting ranges of polycarbonate greenhouses, the sales team offered passersby a hammer and promised a free greenhouse if they could break a polycarbonate sheet. Despite Herculean attempts, no one managed it. My cold frames were more prone to breakages, due to their lower height and gentler incline. Large pheasants have been known to drop through them, apples pepper them in autumnal gales and even careless opening and shutting can shatter them. In addition to longevity, the safety factor of polycarbonate over glass – especially when younger children or the elderly are involved – is a big plus.

The insulation properties are another big concern for me. Does polycarbonate sheet retain the heat radiated from the ground at night? This is crucial in my greenhouse, where I overwinter argyranthemums, tender perennials, citrus and other prize possessions. I have a small electric heater on a thermostat set to keep it just frost-free.

Pukka protection: glasshouses, above, and cold frames, below, allow gardeners to raise plants until they are at the stage where they are less vulnerable to weather or pests

The thermal insulation of a material is the "R" value. Horticultural glass is usually 3mm thick and a single layer has an R value of 0.93 while clear, single-layer polycarbonate retains slightly less heat with a value of 0.83. So in order to keep the snug levels up, I would need to use bubble wrap or add fleece to tender plants in cold snaps. If, however, I opted for the 4mm twin-wall polycarbonate, as is most popular in Germany apparently, the "R" value rises considerably to 1.42, helping to keep my electricity bill lower, too.

So I have just replaced the glass on the frames with clear twin-wall polycarbonate and, like for like, it is a bit more expensive. One pane of 3mm horticultural glass to fit my Dutch light frame (725 x 1420mm) costs £14.05, whereas the 4mm twin-wall sheet costs £21.27. Of course, it will last a lot longer than the cheaper glass; it has a 10-year guarantee but should, apparently, last considerably longer than that.

Polycarbonate had a reputation of clouding over time, the yellowness index as it is called, but these problems have been overcome with the development of new films. With the twin-wall material, which is cut to size, you do need to put special tape over the cut ends to stop moisture getting in and algae spreading into it though.

The other worry, as a gardener, is the amount of light that gets through to my plants. Single-skin polycarbonate has around 94-96 per cent light transmission compared to 3mm glass having a value of 97-98 per cent; 4mm polycarbonate has a value of 80-84 per cent. Although the transmission value for the latter looks significantly lower than glass because the light is scattered as it passes through the twin wall, it becomes more diffuse, meaning it penetrates into areas that light coming through glass does not, so this can be quite an advantage.

In my lean-to greenhouse, where I have a twin-wall polycarbonate roof with glass sides, the lightness of the twin-wall sheet has huge advantages over glass in that I need only a few minimal timbers to support it. The way it is sited means that you are unaware of the aesthetics from the garden, only when inside the building. With the modern greenhouses available, the number of support structures are far reduced, allowing better light penetration, less draught potential and making it all much more favourable on your bank balance.

The final advantage for any nudist gardeners among us is that polycarbonate filters out nearly all harmful UV rays, so you need have no fear of sunburn.

WHERE TO BUY

Good garden centres and DIY stores sell polycarbonate sheeting in different sizes and thicknesses. **Wickes** has 2.5m lengths of 700mm twin-wall sheeting for £20.66 (www.wickes.co.uk). **Palram** sells greenhouses with polycarbonate sheet walls and roofs, as well as sheeting (www.palram.com).

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