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Ideas about sustainability and commercial flower production extend well beyond the type of cover used in greenhouse construction. Dr David Bek, Reader in Sustainable economies at Coventry University UK and co-lead on the Centre for Business in Society *Sustainable Cut Flowers Project*, has spent over a decade researching the cut-flower industry supply chains and asking the question "what does a sustainable flower look like?

By Rita Feldmann

Sustainability and growing for the future

In late August last year, when Melbourne was in the depths of the second lockdown, a mini tornado passed through Silvan in Victoria's Dandenong Ranges, destroying half of TNT Flowers' polytunnels. Six weeks later, amongst the snapped poles and twisted arches, the flattened snapdragon plants readjusted their horizontal trajectory and moved towards the sun; the gutsy though diminutive stems giving rise to perfect flowering heads.

Although greatly devalued in the commercial world, 536 bunches of the extra-short snaps delivered an exceptional amount of joy to St Vincent's Hospital employees, thanks to generous individuals who sponsored buckets of the blooms to be picked and delivered for distribution by St Vincent's in-house Staff Well-being Officer.

Short but sweet snapdragons.

Buckets full - ready for delivery to St Vincent's Hospital

However, despite the charitable purpose of the event, a promotional Instagram post (in association with the Sustainable Floristry Network) attracted criticism from one user, including the statement 'There is nothing sustainable about plastic houses'. This generated some passionate responses from other growers and raised important questions about what it means to grow sustainably.

Sustainability and commercial flower growing is a complicated subject that cannot be defined by a single variable like hothouse construction materials. It is true, plastic use does present disposal issues because Australia still does not have capabilities to recycle the plastic onshore, and badly soiled plastic presents problems for recycling – this material ending up in landfill. But if this material is part of closed loop system, with efficient collection and cleaning systems and processing of used plastic back into new materials, then there are arguments for polytunnels being a justifiable use of plastic, especially given their function in efficient horticultural production.

Considerations of sustainability and growing extend far beyond the plastic problem. Dr David Bek and *Sustainable Cut Flowers Project* co-lead Dr Jill Timms have been looking at the question "what does a sustainable flower look like?" in the context of the £2 billion UK industry which imports around 90% of flowers. Despite the UK focus, many of the ideas presented through the project's website and Sustainable Flowers Guide are useful references for growers across the globe wanting to adopt more sustainable farming practices. Part of the project has been the creation of a sustainable flower standards assessment tool which looks at different practices within growing and floristry. For flower growers, this incorporates subjects such as chemical, energy, water and plastic use, waste management (including organic waste), impact on local habitat and biodiversity, and the treatment and conditions of employees and workers.

As Dr Bek Explains, the starting point for any consideration about sustainable practice is acknowledging the different 'pillars of sustainability' – People, Planet and Profit – and thinking about these factors, recognising areas of potential impact and trying to make better choices.

As with most ideas about sustainability, each subject is considered on a sliding scale - from most sustainable to least. And as with ideas about growing food sustainably, local and seasonal growing is often the starting point because, as Dr Bek says, "'local and seasonal' is a proxy for minimal input/resource-use production". From economic and social perspectives, going local is associated with benefits to the local economy and enhancing a sense of community identity and belonging for those associated with an enterprise.

However, as Dr Bek points out, localness does not necessarily mean that production systems are using lower input approaches. "People tend to think of small-scale production as being undertaken by growers who are committed to the ideals of sustainability. We

Dr Jill Timms and Dr David Bek

Flattened polytunnels at TNT flowers

should be wary of making the assumption that because something is grown locally, that it is low impact."

"Seasonality is especially important as a driver of lower impacts, as less inputs are needed for production," he explains. "Lower inputs (whether chemicals, water or power) mean lower environmental impacts. Serving local markets means that transport needs are lower therefore less energy (carbon) is required. All things being equal, 'local/seasonal' flowers will generate minimal negative impacts and may even have net beneficial impacts through promotion of biodiversity and carbon sequestration."

On the issue of greenhouse construction, Dr Bek says that so far, there has been limited debate about use of polytunnels and greenhouses in the UK, "probably because in our variable climate it would be very difficult to maintain steady production without the ability to mitigate against extremes and to lengthen production seasons".

"From a sustainability point of view, it would of course, be best to manage without polytunnels and greenhouses, but we have to be realistic. The key thing is to try to use sustainable materials wherever possible and to use materials that will last a long time, so they do not need replacing in the near future. And to avoid artificial heating if at all possible, unless renewably sourced."

As for those tornado-beaten snapdragon houses, a 2008 study[1] demonstrated that from the perspective of construction materials, polytunnels are associated with lower carbon emissions than glasshouses, taking into account lifespan and replacement of plastic every three years. This does not mean that the plastic disposal issue is mitigated, but it does demonstrate the complexity of the issue. Underneath the polytunnels, those snapdragons were grown seasonally, without the use of artificial heating, on a farm that aims for minimal chemical use with integrated pest management strategies, watered with rainwater collected on-site and grown in soil maintained through crop rotation and green cropping.

With the establishment of Kenya, Colombia and Ethiopia as growing centres over the last two decades, the Coventry group's research has focussed on the role standards, certifications and improvement models can play in addressing environmental concerns and issues related to poor worker conditions in these countries.

Their approach is to work closely with industry stakeholders on the application of standards and certifications in the future, especially with regards to climate change in flower production areas. Although certified flowers are yet to impact the Australian market, if trends in the northern hemisphere are anything to go by, the group suggests that consumers will play a significant role in driving the implementation of these schemes as they become increasingly concerned about the sustainability credentials of their purchases.

"In general terms, it is beneficial to procure flowers that are certified in some way," says Dr Bek. "Certifications are no panacea, but they are a start. That said, smaller operations who may well operate in a very sustainable fashion are unlikely to have expensive certifications."

On the touchy topic of imported flowers, Dr Bek says imported flowers are not necessarily off-limits, and there are broader sustainability benefits to supporting producers across the globe, but the rationale behind this is complicated. This is where certifications come in - through creating internationally recognisable standards for operation of farms and care of employees.

"Certainly, look for certifications for imports (preferably Fairtrade or similar) and preferably shipped rather than flown. The key thing is to be alert and ask questions of suppliers".

For those unsure of where to start along the path to saving the planet and a more sustainable future, Sir David Attenborough offers the following advice as a jumping off point: "just don't waste".

For more information about Coventry University *Sustainable Cut-Flowers Project*, see the group's website at: **www.sustainableflowers.coventry.domains/**

*Russo, G., Buttol, P. and Tarantini, M., 2008a. LCA (Life Cycle Assessment) of Roses and Cyclamens in Greenhouse Cultivation. Acta horticulturae, 801, pp. 359 – 366.