

Gardening sustainably for the future

Gardening is an important activity for many people in the UK and the horticultural industry could help to promote more sustainable gardening practices.



Photo by RHS / Paul Debois

**Living With Environmental Change
Policy and Practice Notes**

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The Living With Environmental Change Partnership brings together 22 public sector organisations that fund, carry out and use environmental research and observations. They include the UK research councils, government departments with environmental responsibilities, devolved administrations and government agencies. The private sector is represented by a Business Advisory Board.

The UK is a nation of gardeners. In 2012 we spent £6.5 billion on the UK's 22 million domestic gardens and allotments, and benefitted from £7.8 billion in garden tourism. Aside from the aesthetic importance of gardens, a growing body of evidence supports the idea that they provide much wider societal benefits. The modern private garden is highly heterogeneous throughout the UK, varying in size (3.6m² to 2290m²), with grass the dominant green cover. In recent years, there has been an increased interest in growing fruit and vegetables and in sowing cornfield and meadow plant communities within gardens.

Why are gardens important in the UK?

We know from evidence that:

- Gardening as a leisure activity has been shown to reduce stress and to help combat a range of physical and mental health problems, improving the health of the nation overall. It has the potential to save the NHS substantial costs through schemes such as the Natural Health Service and Green Prescriptions.
- Maintained private gardens and public green spaces in an area can help attract local investment to develop the local economy.
- Community gardening can help to alleviate isolation and improve social cohesion by providing places for people to meet and activities in which they can participate.
- Providing a network of green space across the urban landscape, gardens have the capacity to enhance our environment by mitigating flooding, enhancing urban biodiversity (including pollinator populations), reducing air temperature, insulating homes and improving water, air and soil quality. They also contribute to fresh food supplies.

What are the current challenges to sustainable gardening?

Unfortunately, despite the multiple benefits of gardens, the UK gardening sector faces some major challenges:

- The loss of gardens is one of the biggest environmental threats to the urban environment.
- Front gardens in particular are increasingly being lost as they are paved over to provide a low maintenance space for parking.
- Some common gardening practices are less environmentally friendly than others; for example they rely heavily on irrigation or peat-based composts.
- In 2012-13 the UK nursery-gate value of ornamental garden plants was around £1 billion across the supply chain and of those £350m worth were imported, increasing the risk of new pests and diseases being introduced to the UK.
- Production of packaged plants in heated glasshouses and importation of plants can lead to retailed products with a high carbon footprint. Furthermore plants can be lost along the supply chain through pests and diseases and the need to develop horticultural skills among retail customers.

What can gardeners do in order to garden more sustainably?

To make their gardens more sustainable individual gardeners can:

Use natural controls by:

- Using ground cover plants to suppress weeds and other non-chemical weed control methods such as deep mulches and hand weeding.
- Gardening in a way that supports wildlife and encourages natural predators of pests eg reducing hard surfacing areas, maintaining areas of both long and short grass, replacing fences with hedging, planting a range of plants from different regions, especially those noted for attracting birds, bees or other insect pollinators, leaving plant stems standing over winter, putting up boxes designed for birds, bats, bees, hedgehogs or bugs and incorporating a pond where possible.
- Adopting simple pest management practices that reduce the need for pesticides in domestic gardens eg for slug control: using copper tape as natural barriers, placing traps in flower beds, raking over soil to expose slugs to predators and releasing certified biological controls.

Reduce inputs and save water by:

- Following the instructions on garden products such as pesticides and fertilisers carefully and using only when required – eg many gardens are sufficiently nutrient rich to support plant growth, without additional inputs.
- Incorporating practices that reuse water and mitigate urban flooding eg permeable paving, rainwater harvesting,

watering gardens later in the day to avoid soil evaporation and improving soil structure through manuring and cultivation to reduce water loss.

- Implementing practices to increase soil quality, eg mulching, avoiding tillage-style practices like turning over the soil, planting species to cover garden beds all year round, and leaving dead plant matter in beds.
- Wherever possible switching from peat-based compost to recommended sustainable peat-free alternatives.
- Composting both green and kitchen vegetable waste and using this on gardens.
- Considering the use of low energy management tools or, if the gardener is able, using manual machinery and getting more exercise – eg a hand push mower for small areas of grass.

Encourage biodiversity by:

- Where possible, incorporating many layers of plant species from the ground to tree height. This replicates natural habitats that are useful to wildlife and also helps nutrient cycles within the garden, eg those for carbon and nitrogen.
- Incorporating old cut branches and other deadwood into the back of shrubberies, or using as a display feature in their own right, to support the lifecycle of some invertebrate species.
- Considering gardening in unconventional places – garden sheds can often support a small green roof, and some alpine or drought tolerant species do very well in such locations.

How can choice of plants make gardens more sustainable?

Careful sourcing of plants is vital for maximising the benefits from gardens and ensuring sustainability within the sector:

- Selection of appropriate plants can provide habitats that improve and conserve pollinator populations.
- Increased sourcing of UK produced plants is one simple means of reducing threats from imported pests and diseases, encouraging economic growth and reducing the industry's carbon footprint.
- Creating a market for native plant cultivation, through promoting the planting of UK native plants of known local provenance in our gardens, can preserve, and strengthen the diversity of UK native flora.
- Wider cultivation of rare UK native species in our garden landscape can help support conservation efforts to protect those species that rely on them as a food source and maintain UK biodiversity.
- A balance of native and non-native may be best to support biodiversity, combat pollution and absorb heat. For instance, RHS Plants for Bugs research suggests that

to support pollinators a mix of native, northern hemisphere and southern hemisphere plants is best and helps extend food availability throughout the season.

- Widening the diversity of tree species in gardens could improve the resilience of our towns and cities to future climate change and new pest/disease outbreaks. This includes using more unusual native species, but also widening the use of non-native trees that provide important benefits, such as berries for wildlife, or help shade the garden/house in summer, or help block off the noise of nearby roads.
- Careful selection of sun/shade loving, drought/waterlog tolerant, naturally or selective breed pest repellent and nitrogen fixing plants to suit any particular site can reduce the need for water or chemical inputs into the domestic garden.
- Poor, low nutrient soil may be considered as an asset. Many plant species are adapted to poor soil conditions, enabling more unusual plantings and encouraging plant and insect diversity.

How can the horticultural production and retail industry support customers to garden more sustainably?

The industry can:

- Work via trade organisations to communicate research recommendations about sustainable gardening practices throughout the industry.
- Provide a range of plants to suit the heterogeneity of garden landscapes.
- Provide sufficient advice at point of sale on plant requirements and cultivation to reduce plant failure and waste.
- Market plants so gardeners can make clearer choices on their suitability for enhancing certain aspects of their local environment.
- Source more plants locally rather than relying on imports.
- Employ plant husbandry and landscape management techniques that minimize the spread of any diseases and pests from imported plant products and promote these practices to customers.
- Adopt labelling schemes such as the Royal Horticultural Society's Perfect for Pollinators logo.
- Provide information about water saving techniques, composting, pest management etc alongside appropriate products such as rainwater butts, compost bins and bug hotels.
- Market a range of products that assist gardeners in sustainable practices and ensure that products are properly labelled with appropriate information.
- Consider market advantage in using "green" products – market plants with less packaging or use recyclable packaging materials.
- Reduce the risks and impact of pesticides by implementing Integrated Pest Management policies across the supply chain to comply with the Sustainable Use Directive of the Thematic Strategy on Pesticides.
- Work with education providers, through trade organisations and the Royal Horticultural Society, to maintain and enhance the horticultural skills of future gardeners.
- Employ approaches to marketing gardening to ensure it is seen as fun, good for the environment and good for consumers' health; back these marketing themes with appropriate products, actions and information; target more engaged audiences as well as younger generations.

Further information

This policy and practice note was written by **Laura Vickers, NERC Knowledge Exchange Fellow** drawing on the **Biodiversity and Ecosystem Service Sustainability programme, Insect Pollinators Initiative, Valuing Nature Network, RHS Perfect for Pollinators, Horticultural Innovation Partnership, Horticultural Trades Association and the Tree and Plant Biosecurity Initiative.**

Useful resources:

Biodiversity and Ecosystem Service Sustainability
www.nerc-bess.net/

Insect Pollinators Initiative <https://wiki.ceh.ac.uk/display/ukipi/Home>

Valuing Nature Network www.valuing-nature.net/

RHS Perfect for Pollinators www.rhs.org.uk/science/conservation-biodiversity/wildlife/perfect-for-pollinators

Horticultural Innovation Partnership www.hip.org.uk

Horticultural Trades Association www.the-hta.org.uk

Tree and Plant Biosecurity Initiative

www.bbsrc.ac.uk/documents/thapbi-funded-projects-pdf/

Natural Health Service www.naturalhealthservice.org.uk/

Green Prescriptions (A Dose of Nature)

www.planetearth.nerc.ac.uk/features/story.aspx?id=1805&cookieConsent=A

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