

## Secrets of the garden: RHS Wisley's new horticultural science centre

Educating the public about plant biology is the focus of this 'home of gardening science'

**Jim Cable** JULY 30 2021

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Whether a gardener's aims are aesthetic or productive, it pays for them to understand something of the biology of plants. A new "home of gardening science" opened at the Royal Horticultural Society's Wisley garden last month. Called [RHS Hilltop](#), the £35m venture features a striking new eco-building by architects WilkinsonEyre, surrounded by "living laboratory" garden spaces.

The centre will house 25,000 entomology specimens, 90,000 dried plants in a herbarium and a library of more than 28,000 items of horticultural literature and art dating back 500 years.

Viewing windows allow visitors to see into three laboratories for plant pathology and research. There are also interactive exhibits, an auditorium and a café.

To the rear of the building are two gardens designed by the landscape gardener Ann-Marie Powell. The Wildlife Garden features a large pond and planting to attract beneficial garden fauna. The World Food Garden demonstrates ways to grow RHS-recommended crops as well as herbs, edible flowers and fruit and vegetables from around the globe.



Garden designers Matt Keightley and Ann-Marie Powell © RHS/Ollie Dixon

The pandemic has drawn attention to what many gardeners already knew, namely the psychological benefit humans derive from interacting with plants and nature by gardening. The RHS science team continues to collate evidence of the positive impact of gardening on our health and to undertake new research in this area. Visitors to RHS Hilltop first encounter a series of outdoor spaces cocooned by sensory planting: the Wellbeing Garden, designed by Matt Keightley.

The site as a whole offers a wealth of advice and ideas about how we can garden skilfully and responsibly. Here are some suggestions inspired by my visit.

## Make a dead hedge

At Hilltop a low “dead hedge” lines a winding path to the Wildlife Garden. It is built up from woody prunings and sticks, providing habitats for creatures such as longhorn beetles, wood wasps and voles. A taller one can act as a screen to hide a compost heap or deter nosy dogs and are effective windbreaks, too.

You will need some stout poles about 6cm-8cm in diameter and 80cm-2m tall, depending on your project. Drive them into holes to make two staggered rows of posts about 50cm apart. There should be about 1m between posts. Then lay prunings and dead branches horizontally along the gap in the middle. Top up as you generate more woody waste and the pile gradually breaks down. This saves using a shredder or having a bonfire.



The Wildlife Garden © RHS/Neil Hepworth

## Boost the phytonutrients in your crops

Many people are aware that steaming or microwaving vegetables tends to preserve their nutrient value more than, say, boiling. But how we care for homegrown crops, the varieties we choose to grow and the length of time between harvest and consumption all have a significant effect too.

Tomatoes are a good source of lycopene, an antioxidant that can reduce the risk of heart disease and strokes. Counter-intuitively, lycopene levels are highest in fruit produced by drought-stressed plants. To exploit this, water young plants freely until they are established, then water lightly and only when they begin to wilt.

Growing our own fruit and vegetables can greatly reduce the plot-to-plate time and make for more nutrient-rich meals. Glucosinolates in broccoli can help maintain a healthy heart and protect against cancer but their levels decline steadily after harvest, so it pays to pick only what you need.

Carotenoids in our diet can help protect against cancer and eye disease. Squashes are easy to grow and a good source. Post-harvest storage in this instance is a good thing: carotenoid levels in a squash harvested and put in a cool store at the end of September will be significantly higher come Christmas.



## Adopt a no-dig approach

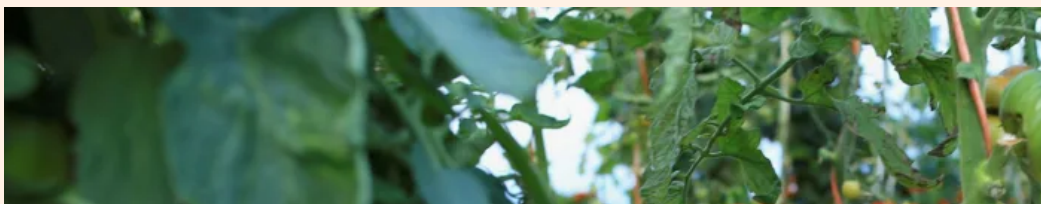
The organic gardener Charles Dowding has been sharing the advantages of leaving soil undisturbed since 1982 and has inspired a bed at Hilltop. While there may be an aesthetic benefit to a neatly turned vegetable plot, it seems there is no horticultural advantage.

In fact, a properly managed no-dig plot, where an organic mulch is left on the surface for the worms and other soil organisms to draw down into the soil, can perform better and require less work. “Soil contains a network of mycorrhizal fungi. Plant roots and the fungal filaments team up. The plants supply energy from photosynthesis and in return are helped to find moisture and nutrients. Digging in the traditional manner breaks it all up,” says Dowding.

An added advantage is fewer weeds. They tend to proliferate on disturbed soil when buried seeds are brought to the surface.



Charles Dowding, champion of the 'no-dig' garden © Jason Ingram







Dowding mixes tomatoes with marigolds in his Somerset garden 'to create different beneficial associations with mycorrhizal fungi at root level'

## Sow now for culinary heat

Mustard (*Brassica juncea*) plants are known as hyperaccumulators. They not only tolerate high levels of potentially toxic heavy metals such as mercury, cadmium and lead in the soil — they actively accumulate them. Some studies point to them being useful in phytoremediation strategies to clean up polluted ground. The phenomenon probably evolved to make the plants unpalatable to insect herbivores.

Grown in a normal garden soil, mustards are packed not with toxins but trace elements that bestow high nutritional value and complex flavours. Now until the end of September is the ideal time to sow. *Brassica juncea* Dragon's Tongue has attractive crinkly purple and green leaves. These have a mild flavour when young and are great in salads. As they mature they get hotter and more suitable for use in stir-fries and curries for their spicy richness.

## Grow some lesser-known crops

Sheila Das is the garden manager at RHS Wisley responsible for the new World Food Garden. "It is all about global cuisine," she explains. "We are going to bring in groups from different cultures. We want to find out what people are growing on their allotments. This will become a collaboration with the community." To kickstart the conversation, there is already a wealth of unusual herbs and vegetable varieties on show in the World Food Garden.



The Oyster plant from Greenland and northern Canada is a coastal plant, as its Latin name *Mertensia maritima* suggests. It has fleshy glaucous leaves with the savoury tang of seafood. It is a hardy perennial that grows well in a shallow pan or gravel garden in full sun. Sweet tea vine (*Gynostemma pentaphyllum*) is a hardy herbaceous climber, known as Jiaogulan in China, whose glossy palmate leaves are used to make a herbal tonic tea. It tastes of sweet cucumbers, the plant being a member of the cucumber family.



The World Food Garden features unusual herbs and vegetable varieties from as far afield as Greenland and China © RHS/Oliver Dixon





© RHS/Paul Debois

## Plant for a calming space

It was a conversation with his brother, who had been on four tours to Afghanistan with the RAF, that originally made Matt Keightley want to hone his work to maximise mental health benefits.

“A beautiful garden can help give people some clear head space,” says Keightley. Multisensory planting schemes can help us calm down. Keightley recommends flower beds in organic shapes with mounded soil profiles to raise the height of the planting. This helps create a sense of enclosure in open spaces between beds. Paths should meander rather than be direct routes from A to B.

He uses plants that add textural contrasts and movement such as the grass *Pennisetum alopecuroides* Hameln. In the Wellbeing Garden upright spikes of *Salvia nemorosa* Amethyst contrast with the flat plates of *Achillea* Credo. A cool colour palette is calming but can be enlivened by yellows, reds and oranges.





The Wellbeing Garden, designed by Matt Keightley: 'A beautiful garden can help give people some clear head space' © RHS/Oliver Dixon

## Mix up your ornamental and edible plantings

Planting for beauty and function in the same space makes sense. As Charles Dowding says, “It is good to mix things up. It creates different beneficial associations with mycorrhizal fungi at root level in ways we don’t yet fully understand.” Monocultures tend to be susceptible to pest and disease problems.

“Even farmers find growing different varieties of wheat together has a positive effect on yield as long as they all mature at the same time,” says Dowding.

Many edible crops can be decorative. Think of the rainbow-coloured stems of Chard Bright Lights, golden courgette flowers or the dusky leaves of purple basil. The potager style of mixing herbs, ornamentals and vegetables now has scientific as well as aesthetic approval.

## How to convert your lawn to a planet-friendly, flower-rich gravel garden

For a bigger overhaul of your garden, here is a low-maintenance suggestion. Janet Manning, a water management specialist for the RHS, says: “We can continue to expect hotter, drier summers and more intense rainfall when it does arrive because of climate change. Gravel gardens work well at the extremes, coping with heat in the summer and draining the excess rainwater in the winter.”

While families with children might want some lawn for a play area, a sense of open space — with the added interest of Mediterranean-style planting — can also be achieved with a gravel garden.

Dry-climate plants tend not to like being waterlogged in winter. A free-draining gravel garden provides the correct habitat. Pale stones reflect the light and act as the perfect foil for plants such as lavender, cistus and ornamental cages.

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Many sources advocate laying down a fabric membrane before spreading the gravel and planting through slits. I would avoid this. It is hard to keep the fabric hidden and sooner or later a weed will poke through, its roots safely out of reach from the gardener's fork. Pure gravel acts as a weed deterrent in itself. The odd invader can easily be removed and some may be seedlings from a neighbouring cultivated plant, which deserve to get a foothold.

### **To make a gravel garden**

Ensure the area is clear of weeds. If the area is lawn, use a turf cutter to strip it and stack the turfs upside down elsewhere to rot down.

If you garden on anything heavier than a sandy soil, fork in some grit to improve drainage.

Choose your aggregate. Pea gravel can be hard to walk on; larger chippings are usually better. The stones should blend with natural rocks in the vicinity. A local quarry is often the best source, both to keep the carbon cost low and for aesthetics. Spread gravel to a depth of 5cm-7cm.

Arrange plants until you are happy. Since the entire area is covered in gravel, "paths" are merely gaps between planting. Make them as expansive or narrow as you like.

Soak potted plants in a bucket of water for a few minutes and then insert into place, ensuring the rootballs make contact with the soil below. Water until established.



Beth Chatto's garden near Elmstead Market, Essex © GAP Photos/Marcus Harpur

### **The following gardens offer inspiration**

- Olivier Filippi's, near Sète, in the south of France. The author of *The Dry*



Chiver's Apple, near Cole, in the south of France. The author of the *Dry Gardening Handbook* has created a tapestry of plants that offer scent and foliage contrasts.

- Beth Chatto's near Elmstead Market, Essex. A former car park became a gravel garden under the skilful direction of the woman behind the phrase, "right plant, right place".
- Although not open to the public, look to images of Emily Erlam's garden near Dungeness in Kent. Not far from Derek Jarman's patch, it is an eco-garden within a Site of Special Scientific Interest.



Emily Erlam's garden near Dungeness, Kent © Peter Marlow/Magnum

### **Some plants for a gravel garden**

- *Euphorbia myrsinites*
- *Achillea millefolium*
- *Crambe maritima*
- *Eryngium bourgatii*
- *Papaver rupifragum*
- *Rosmarinus officinalis* Majorca Pink
- *Aloe striatula*

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