

TOMORROW'S TASTES

One result of a warmer climate is likely to be a substantially more diverse selection of fruit and vegetables from which UK gardeners can select. **Malcolm Withnall** previews some of the candidates. Photography by Tim Sandall

Due to our changing climate, among the fruit produced more widely in 21st-century British gardens will be dessert grapes (above right), peaches (below), kiwi fruit (opposite, top) and loquats (opposite, bottom)

FRESH, HOME-GROWN fruit and vegetables have been the delight of kitchen gardeners for generations: measuring the distance between garden and plate in metres rather than miles ensures the fullest freshness and flavour. In fact, earlier generations were past masters at manipulating growing environments. Large Victorian and Edwardian gardens had protected vineries and orangeries, ranks of cold frames for year-round vegetable production, and bottom-heated growing beds for such exotica as pineapples and melons, impossible to import at the time.

So, in a changing climate, what do we need to note for the

production of fruit and vegetables in future?

First, water is predicted to be a diminishing resource, so water conservation and collecting rainwater will be mandatory for gardeners. Second, the predicted changes in temperature patterns, particularly daytime maximums and night-time minimums, seem set to become an unavoidable part of climate change both in winter and summer.

Unlike our Victorian forbears, who responded to temperature challenges throughout the year (by skilful design, timing and cropping plans) but could usually count on the seasons' temperatures being broadly similar from year to year, today's gardeners will have to adapt to steadily rising mean temperatures, and to meet new challenges from pests and diseases (see pp52–55). The fruit and vegetables we choose to grow will likewise have to adapt to the changes – or fall from cultivation.

Fruit winners and losers

Climate models are predicting warmer temperatures worldwide, but with more warming at higher latitudes (see pp16–21). By the middle of this century, Britain's climate may be equivalent to that of the northern Mediterranean or central France, but with a milder, more

maritime influence.

Given the number of air miles and the large carbon footprint of fruit imported from warmer areas, growing your own at home makes sense both financially and as part of developing a more responsible, sustainable lifestyle.

In fact, the impact of warmer winters is already upon us. Many deciduous plants are profoundly affected by winter temperatures, both how low they fall, and for how long. Many need a specific length of time below a critical temperature, sometimes expressed as 'chilling units', to begin flower bud initiation, subsequent flower formation and an even break of dormancy in spring. In a warming climate, winters may simply not be cold enough for long enough for some traditional crops such as soft fruit.

Blackcurrants, raspberries and rhubarb are all likely to be vulnerable to a lack of chilling in southern Britain; northern gardeners are likely to enjoy somewhat more reliable results. Lack of chilling may similarly affect apples, pears, plums and cherries; it will not prevent them from being grown successfully, but the

crop yields are likely to be much more erratic given mild winters. In a reversal of the current situation, many traditional British fruit may well crop more reliably in Scotland and northern England than they will in the South East.

In the short term, there are several apple cultivars bred further south that hitherto have not ripened well in the UK, including such popular choices as 'Granny Smith', 'Cripp's Pink' (Pink Lady) and 'Golden Delicious'. But why grow these when there are so many other worthy heritage cultivars to enjoy – 'Scrumptious', 'Red Devil', 'Winter Gem', 'Limelight' and 'Herefordshire Russet' to name but a few? The choice of pears will similarly widen: forget 'Conference' when delicious French-bred dessert cultivars such as 'Williams' Bon Chrétien', 'Beurré Hardy' (and many other Beurré cultivars) become more reliable croppers in the UK.

New possibilities

Any decline in traditional fruit should, however, be compensated for by the number of new crops that warmer temperatures will allow. Rising average night temperatures in March and April will allow gardeners to grow peaches, nectarines and apricots with some certainty of fruit-set, at least in the south. Old apricot (*Prunus armeniaca*) cultivars such as 'Moorpark' and 'Isabella', and more recently bred Flavorcot ('Bayoto') and 'Tomcot' – the last two selected to suit more northern climes – will become more common. Peaches (*Prunus persica*) cultivars such as 'Peregrine', 'Rochester' and 'Red Haven') and smooth-skinned nectarines (*P. persica* var. *nectarina*) such as 'Lord Napier' and 'Early Rivers' have

the potential to crop well out of doors and may no longer need the protection of glasshouses.

Other trees from regions with Mediterranean climates that should adapt well to a warming UK climate include several nuts: almonds (*Prunus dulcis*), walnuts (*Juglans regia*, now available grafted onto dwarfing rootstocks), even pistachio (*Pistacia vera*). The warmer, longer summers that are predicted should give them a chance to ripen fully. Similarly, fig cultivars (*Ficus carica*) and olives (*Olea europaea*), which can survive in parts of the UK but rarely crop well today, should perform better. They are adapted to summer droughts (although they may not enjoy the wetter winters that are predicted, especially if they are grown on heavy soils).

Also in the 'almost-hardy-but-not-yet-cropping-reliably' bracket are exotics such as loquat (*Eriobotrya japonica*), a handsome, small evergreen tree with sweet orange or yellow fruit, and perhaps even avocado (*Persea americana*).

Vines and citrus

Whereas previously growing dessert or table grapes in the UK used to mean growing them under glass, there may soon be opportunities for those with the space to plant table-grape cultivars such as *Vitis vinifera* 'Schiava Grossa' (Black Hamburg) and white 'Foster's Seedling' out of doors as climbers, providing shade, ornament and a good crop. Kiwi fruit (*Actinidia deliciosa*) should also become more ►

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Growing apples (above) in the drier South East may be harder, but more and more tomato cultivars (below) and aubergines (below right) will be able to leave the glasshouse for the open garden



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reliable outdoors, particularly with self-fertile cultivars such as 'Jenny' and new 'Duo' becoming available.

Relatively hardy citrus fruit such as Meyer's lemon (*Citrus x meyeri* 'Meyer') and calamondin orange (*xCitrofortunella microcarpa*) could even succeed outside in time. As with many plants of borderline hardiness, the real enemy may remain late spring frosts at flowering time. Given the vagaries of the British climate, as well as the predicted increase in storms and other extreme weather events, damaging late frosts are unlikely to disappear entirely.

Changing vegetables

Probably the greatest impact on the kitchen garden will come from the opportunity to grow more vegetables, and over a longer season. Unlike fruit trees, which are longer-term investments, most vegetables are short-lived annual crops. As such, they offer adventurous gardeners the chance to respond to changing growing conditions almost immediately.

Milder winters will enable the expansion of production of winter lettuces such as 'Valdor', and the rapidly increasing range of cut-and-come-again salad leaves such as mizuna greens, pak choi, rocket, red mustard greens, corn salad and Chinese cabbage 'Kasumi'.

Growing salad leaves will definitely be more reliable in spring and autumn, but warm summers may cause cool-growing selections to run to seed more readily.

The longer, warmer growing seasons predicted will perfectly suit crops that like the sun (such as sweet corn, aubergines, sweet peppers, chillies and outdoor cucumbers), as long as adequate water is available. With March–April and October–November likely to be more favourable, kitchen gardeners will be able to start their growing season earlier and finish later, and to grow more without cloches or fleece crop covers: within this century it is likely there will be 25–30 percent more growing days a year than now.

Outdoor life

Crops traditionally grown under cover in the UK will find themselves outside, and probably taste much better for it. Far more tomatoes will crop reliably outdoors than today's handful; melons, too, will come out of the glasshouse. Seed catalogues already provide kitchen gardeners with a widening range of tomatoes such as 'Tornado', 'Marmande' and 'Roma VF' and melons such as 'Ogen', 'Sweetheart' and 'Galia' to tempt them, and there is a multitude of chilli peppers. Rain covers may be needed to protect outdoor plants from downpours however.

Some British plant breeders are already selecting specifically for the warming UK conditions, and trialling cultivars sourced from milder climates to see how they perform in UK gardens (see box, right). A stream of new vegetable cultivars means more choice in an

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ever-expanding range of crops. Who would have believed a few years ago that UK gardeners could grow sweet potatoes (*Ipomoea batatas*), for example?

Adapting cultivation

In both the fruit section of the kitchen garden and the vegetable section, the main priority will be to retain winter and summer rainfall. Achieving a high organic matter content in garden soil (substantially more than the three to four percent now normal) will be vital. To reduce evaporation and conserve soil water, mulching, using garden compost,



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green composted waste, chipped bark or woven plastic landscape fabric, will become essential.

Using collected rainwater and recycled household or 'grey' water will become more common, perhaps using permeable seep hoses or drip systems to take it straight to the roots. Rainwater can be stored, of course, but grey water is best used immediately, and efficient filtra-

tion (to make sure that irrigation systems do not clog with grease, hair or lint) and proprietary treat-

ment (to eliminate risks from harmful bacteria) may be required.

The higher summer temperatures and more intense sunlight may make fleece covers necessary in spells of hot weather to reduce sun damage and excessive transpiration by evaporation. Shading with fleece or netting may well become a vital part of the gardener's summer

armoury in the future, and may help to reduce damage from summer deluges. Unfortunately it is likely that there may also be 'explosions' of pathogens and pests in wetter, warmer weather; overwintering creatures will have higher survival rates in milder conditions.

The effects of a changing climate on the food crops we grow in the UK will be profound, but it is by no means all doom and gloom – we seem set to gain more fruit and vegetables than we lose, and providing their watering needs can be met, yields of many may increase substantially. Be bold, be flexible, but above all, keep growing. ■

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@ www.rhs.org.uk/climate for more on gardening in a changing climate, and www.rhs.org.uk/vegetables for practical advice on growing and harvesting vegetables

FRUIT AND VEGETABLE SUPPLIERS

British seed and plant suppliers are breeding new cultivars for changing conditions, and trialling fruit and vegetables usually grown further south.

Tozer Seeds (0845 430 1615, www.tozerseedsdirect.com) breeds specifically for UK conditions, and trials cultivars from the Mediterranean. It offers an increasingly large range of sweet corn, and has seen a huge increase in the popularity of its ever-widening range of chilli peppers. Tozer's new butternut squashes 'Hunter' and 'Harrier' were bred to ripen fully in UK conditions.

Thompson & Morgan (01473 695200, www.thompson-morgan.com) has new aubergines and two new blight-resistant potatoes, 'Sarpo Axona' and 'Sarpo Mira'. Cabbage 'Kilaton' and cauliflower 'Clapton' are new, bred for resistance to clubfoot. The company also offers cuttings or 'slips' of three cultivars of sweet potato, and many 'heritage' tomatoes and chillies.

Seeds of Italy (020 8427 5020, www.seedsofitaly.com) has more than 500 Mediterranean vegetables, many of them heirloom or regional cultivars new to the UK. It also supplies fruit trees.

Marshalls (01480 443390, www.marshalls-seeds.co.uk) offers a good range of vegetables, many bred in the UK; also soft and tree fruit.



The growing season for salad leaf crops such as rocket (left), lettuce and Oriental vegetables will lengthen in spring and autumn

Longer, hotter summers should make melons (below) a more realistic outdoor crop in much of the UK