

New RHS hardiness ratings

Plant hardiness is of concern to many gardeners, particularly after recent cold winters. In response, the RHS has revised and improved its system of rating plant hardiness

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RHS Director of Horticulture Jim Gardiner (above) has headed a review of the RHS hardiness ratings.

One of this nation's great preoccupations is with the weather; gardeners keep a close eye on winter temperatures in particular, especially if they are concerned about the hardiness of their plants.

About 18 months ago I looked to see if the existing RHS hardiness system – which gave plants ratings from H1 (heated glass) through H2 (unheated glass) and H3 (hardy in some regions) to H4 (generally hardy) – provided enough guidance to UK gardeners. The consensus from esteemed horticulturists was that it did not; to many, the system was inadequate and muddled. A review was long overdue.

Other hardiness systems

The Society began by discussing the relevance of other hardiness systems. Most commonly used is the American Winter Hardiness Zone Map, first developed in 1960 by the US Department of Agriculture (USDA), and based on long-term average minimum temperatures. Recently revised from 12 to 14 zones (1 = the Arctic, and 14 = Hawaii and parts of Florida), it has been considered by many to be the nearest gardeners have to a universal system. Closer to home, the European Garden Flora divides most of Europe into seven zones (H1 to H5, plus G1 and G2). Under this system, the British Isles has two zones: H4 (hardy in mild areas, withstands -5 to -10°C minimum) and H5 (hardy in favourable areas, withstands 0 to -5°C).

However, neither system was developed solely with the UK in mind – what gardeners here need is one that is simple to use, easily understood, but tailored to British growing conditions. As a result, in 2011, I asked leading authorities from across the horticultural world to form a working group to help the RHS prepare a better hardiness rating system for plant groups grown by UK gardeners.

Many variables

What we have done so far is to devise a hardiness ratings chart for plants that is temperature-based, with seven main categories: H1 for glasshouse plants to H7 for plants that are fully hardy (see table, opposite). I am conscious there are many variables when considering a plant's

hardiness – such as its physiological condition, prevailing climatic conditions, growing conditions, position in the garden, age and provenance, and so on. As well as basing our assessment on minimum winter temperatures, factors we also contend with are temperature swings (especially during spring and autumn); these are conditions not often encountered in the USA. How often do we have to contend with a growth surge, only for plant growth to be cut back by spring frosts? Similarly, during autumn, half-hardy plants and other hardy plants still in active growth are cut back or fail to ripen properly.

Same plant, new rating

By looking specifically at the hardiness of plants rather than geographical zones, we are not entering into a 'postcode lottery' – which would have been the case had we adopted a USDA-style system.

To make our hardiness ratings as reliable as possible for UK gardeners, we have carried out a review of all plants that have been given the Award of Garden Merit (AGM), which also means assessing their hardiness rating. For example, I looked at the bestselling list across RHS Plant Centres. Not surprisingly, several lavenders are included, with *Lavandula angustifolia* 'Hidcote' and *L. x chaytoriae* 'Sawyers' selling well. In our previous list, both were H4; however, in the new ratings, they are H5 and H4 respectively. So if you want one that is more robust and tolerant of being grown in a colder climate, then *L. angustifolia* 'Hidcote' will be the one to choose. Equally, if buying a shrub, you want to be certain about its long-term hardiness. In this case look for shrubs that are rated H5 or H6. *Daphne x transatlantica* Eternal Fragrance ('Blafra') is H5, while *Acer palmatum* 'Sango-kaku' is H6. Formerly these two examples were both H4.

As well as working with knowledgeable RHS Plant Committee members and others from specialist societies to ensure accuracy, we have been consulting with the Garden Centre Association, Horticultural Trades Association, label manufacturers and the horticultural press to ensure information about the Award of Garden Merit – and the new RHS hardiness ratings – is well publicised. ●

Temperature guide to RHS hardiness ratings

rating	temperature ranges °C (°F)	category	definition	
H1a	warmer than 15 (> 59)	Heated glasshouse - tropical	Needs to be grown under glass or as a house plant all year. ❖ Examples include <i>Medinilla magnifica</i> , <i>Dieffenbachia</i> 'Tropic Snow' and <i>Anthurium andraeanum</i> (flamingo flower, right).	RHS / HERBARIUM
H1b	10 to 15 (50-59)	Heated glasshouse - subtropical	Can be grown outdoors in summer in warm, sunny and sheltered locations (such as city-centre areas), but will generally perform better under glass or as a house plant all year. ❖ Examples include <i>Monstera deliciosa</i> (Swiss cheese plant), <i>Howea forsteriana</i> (kentia palm) and <i>Hibiscus rosa-sinensis</i> 'Cooperi' (right).	RHS / GRAHAM TITCHMARSH
H1c	5 to 10 (41-50)	Heated glasshouse - warm temperate	Can be grown outdoors in summer throughout most of the UK while daytime temperatures are high enough to promote growth. ❖ Examples include most bedding plants such as <i>Pelargonium</i> and <i>Solenostemon</i> (coleus), <i>Brugmansia</i> (right) and fruiting vegetables such as tomatoes and cucumbers.	RHS / TIM SANDALL
H2	1 to 5 (34-41)	Tender - cool or frost-free glasshouse	Tolerant of low temperatures, but will not survive being frozen. Except in frost-free inner-city areas or coastal extremities, requires glasshouse conditions in winter, but can be grown outdoors once risk of frost is over. ❖ Examples include temperate and subtropical plants such as <i>Agapetes</i> 'Ludgvan Cross' (right) and <i>Citrus x meyeri</i> 'Meyer' (Meyer's lemon), some succulents, annual bedding plants, and many spring-sown vegetables.	RHS / TIM SANDALL
H3	-5 to 1 (23-34)	Half-hardy - unheated glasshouse/ mild winter	Hardy in coastal/mild areas, except in hard winters and at risk from sudden (early) frosts. May be hardy elsewhere with wall shelter or good microclimate. Likely to be damaged or killed in cold winters, particularly with no snow cover or if potted. Can survive with artificial winter protection. ❖ Examples include Mediterranean-climate plants, such as <i>Clanthus puniceus</i> (right), and spring-sown vegetables for later harvesting.	RHS / WULF HALLDORF
H4	-10 to -5 (14-23)	Hardy - average winter	Hardy through most of the UK apart from inland valleys, at altitude and central/northerly locations. May suffer foliage damage and stem dieback in harsh winters in cold gardens. Some normally hardy plants may die in long, wet winters in heavy or poorly drained soil. Plants in pots are more vulnerable. ❖ Examples include many herbaceous and woody plants, such as <i>Lavandula x chaytoriae</i> 'Sawyers' (right), winter brassicas, leeks.	RHS / HERBARIUM
H5	-15 to -10 (5-14)	Hardy - cold winter	Hardy in most places throughout the UK even in severe winters. May not withstand open/exposed sites or central/northern locations. Many evergreens suffer foliage damage, and plants in pots will be at increased risk. ❖ Examples include herbaceous and woody plants, such as <i>Daphne x transatlantica</i> Eternal Fragrance ('Blafra') (right), some brassicas, leeks.	RHS / CAROL SHEPPARD
H6	-20 to -15 (-4-5)	Hardy - very cold winter	Hardy across the UK and northern Europe. Many plants grown in containers will be damaged unless given protection. ❖ Examples include many herbaceous and woody plants such as <i>Acer palmatum</i> 'Sango-kaku' (right), <i>Chaenomeles speciosa</i> 'Moerloosei' and <i>Magnolia</i> 'Susan', especially those from continental climates.	RHS / CECILE MOISAN
H7	colder than -20 (< -4)	Very hardy	Hardy in the severest European continental climates including exposed upland locations in the UK. ❖ Examples include many herbaceous and woody plants from continental climates such as <i>Cornus alba</i> 'Sibirica' (right), selections of <i>Potentilla fruticosa</i> , <i>Erica carnea</i> and <i>Calluna vulgaris</i> cultivars.	RHS / JIMIE SLIECH