

Gathering gardeners' knowledge

Noel Kingsbury

Many gardeners are frustrated by the limited amount of information given in plant reference books, particularly about the long-term performance of herbaceous perennials. We have all had the experience of plants which are described as perennials but which die after a couple of years, or of plants that take ages to establish, or which seed around to an extent which can make us regret ever having bought them.

Those who use plants professionally – designers and landscape architects – find this especially problematic. Indeed lack of knowledge about long-term performance may actively discourage many professionals from using herbaceous perennials.

Go to an HPS meeting, however, or gather together any group of gardeners, and there is a buzz of information being exchanged, much of it about just these questions of long-term performance... “spreads like crazy, doesn’t say that on the label”, “always dies after three years”, “it self-seeds in my neighbour’s garden but never mine”. It was to try to gather together some of the information from this ‘anecdotal cloud’ that I applied for funding from an EU-supported project which the Department of Landscape at the University of Sheffield had joined. The project concerned was an ‘MP4’, where practitioners in a particular field compare and

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Fig. 1 *Knautia macedonica* is popular in all its various colour forms. It is reported as relatively short-lived, but compensates through frequent self-seeding.

contrast best practice across national boundaries; this particular project was designed to look at the cost-effectiveness of the management of public space. My proposal was that I should design a simple questionnaire on long-term plant performance and persuade experienced gardeners to fill it in, in order to gain more insight into some key questions about common perennials.

A note in *The Hardy Plant* [Vol. 30 No. 1], *The Garden*, and the newsletter of the Professional Gardeners Guild resulted in a total of 66 completed questionnaires – of these 23 were from HPS members. Judging from the replies and from covering letters, many were very experienced gardeners – it felt marvellous to be able to tap into the knowledge of people with 20 or even 30 years' experience of growing particular species. Many participants said how much they enjoyed taking part, as it made them think about their plants in a new way.

Participants were asked to select plants from a list of nearly 100 perennials – all plants about which I had already collected a considerable amounts of data from research I had conducted doing a PhD in the Land-scape Department at Sheffield University. Of the plant species and varieties which participants chose to answer questions on, 62 had at least ten responses, which I judged was enough data to analyse. The overall picture confirms and illustrates something to which I have devoted much thought over the years – that herbaceous perennials fall into some definite, but overlapping and cross-cutting categories. More useful knowledge for the gardener than categories, however, are the differences in the various performance criteria.



Fig. 2 *Sedum* (Herbstfreude Group)
Herbstfreude comes out as a reliably long-lived, and relatively trouble-free plant.



Fig. 3 *Echinacea purpurea* and its various hybrids is now a very popular plant. Respondents however gave it the lowest rating for longevity, and a low rating for competitive ability. Sometimes short-lived species are reliable self-seeders — but not this one!

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Fig. 4 *Euphorbia cyparissias* is notorious as an aggressive spreader, but is easily out-competed by taller plants. Respondents in fact reported wide variations in how extensively it spread; they either found the habit useful or regretted ever having introduced it to their gardens.

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Fig. 5 *Lunaria rediviva*. Survey participants reported this to be moderately, but not reliably long-lived, and modestly self-seeding.

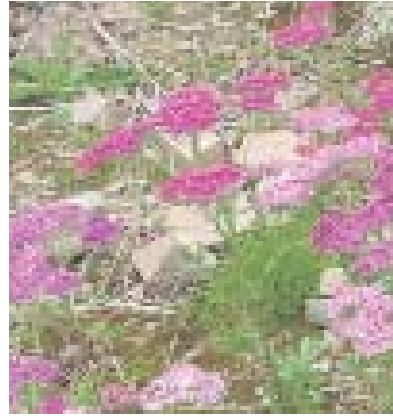
Longevity

Some 'perennials' really do die very quickly – in everyone's gardens, not just yours! The data showed that there is a gradient of longevity – from the ephemeral to those species which Bob Brown describes as 'bomb-proof' (certain geraniums, hostas – despite the slugs, *Acanthus mollis* and *Miscanthus* grasses). A great many others which would also appear to be long-lived but occasionally fail. Then there are those which definitely appear to be inherently short-lived: some of the worst are varieties of *Echinacea*, *Achillea*, *Heuchera* and *Monarda*. There are also those which are short-lived but in many gardens continue to reproduce themselves with seedlings (albeit sometimes too enthusiastically), e.g. *Knautia macedonica* (fig. 1) and *Aquilegia vulgaris*.

Looking at the data, my conclusion is that we need to distinguish between perennials which spread vegetatively, forming clumps composed of large numbers of shoots *each with their own roots, and therefore potentially an independent plant*, and those which do not. The latter may include many, such as the border sedums (fig. 2) and *Salvia x superba* and relatives, which may be long-lived but which are always be vulnerable to damage because they do not form a constantly spreading clump. Those which are definitely short-lived are nearly always distinguishable by the single connection between their roots and the top growth. Consequently, I believe that anyone examining an unfamiliar perennial for the first time could predict its longevity from paying close attention to the way the roots and shoots connect.

Learning to recognise the potential longevity of perennials is important, as the nursery industry currently seems to favour

producing new varieties from several genera which seem to be inherently short-lived – hybrids of *Echinacea* (fig. 3) are a good case in point. It is, of course, in the interests of the nursery industry to produce short-lived plants – but it would be nice to be given a clearer and more honest assessment of expected longevity on the label! For those interested in genuine longevity, and particularly those who are responsible for spending public money, this is an area of key interest. In my final report I criticise the nursery industry for not putting enough effort into developing and promoting new varieties of reliably long-lived and robust perennials. It would also help greatly if we all recognised a new category – *short-lived perennials*.



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Fig. 6 *Achillea* (Galaxy Series)

All achilleas were reported to be relatively short-lived, and uncompetitive, although experience would appear to vary widely, particularly with longevity.

Vegetative spread

Following on from what has just been said, we can expect perennials to spread at different rates. Ecologists use two rather military terms to describe the ways in which spreading species achieve their aims: *phalanx*, where the plant moves outwards on a solid front and *guerrilla*, where odd runners are sent out over relatively long distances. The latter approach, familiar to many of us from *Euphorbia cyparissias* (fig. 4), can be seen either as a nuisance or a useful way of filling space – depending on one's gardening style! The research has helped to clarify which popular perennials use which type of spread. It also confirmed the link between the effective reach of vegetative spread and two other factors: longevity and a relative lack of self-seeding ability. There is a clear trade-off here – a plant which spreads effectively through runners or rhizomes tends not to self-seed. The exception is *Geranium x oxonianum*, the variety 'Claridge Druce' a spectacular example in the experience of several research participants, as it runs and can self-seed profusely.

Sometimes there appears to be a wide divergence in experience. Some gardeners, for example, report spreading by runners in *Centaurea montana*, others do not; quite possibly there are different forms in cultivation which behave differently, which we might expect from a species which has probably been introduced into cultivation several times over. This was another issue which came up several times in the project – that there are differences in the level of genetic variation amongst garden plants: named hybrids and cultivars are (or should be) identical, while

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Fig. 7 *Persicaria amplexicaulis* in the author's garden, a species reported by participants in the study as strongly spreading and reliably long-lived. Behind is pale blue *Campanula lactiflora* and *Telekia speciosa*, which were not included in the study; the former would appear to be a long-lived plant, the latter distinctly short-lived, both capable of moderate levels of self-seeding.

species may be derived from a single introduction and thus show little variation, or from multiple introductions, when we would expect more variation.

Competitiveness

The ability of a plant to compete with others in the garden is clearly related to its spreading ability. The following were the species which respondents recorded as being the most likely to spread and smother neighbours: *Lysimachia clethroides*, *Acanthus mollis*, *Persicaria bistorta* 'Superba', *Geranium x oxonianum* types, *Macleaya cordata* and *Euphorbia cyparissias*. Plants most likely to be smothered were

almost invariably non-spreaders and quite often short-lived too, such as *Echinacea purpurea*. However, many species which seem reliably long-lived are not greatly competitive, such as *Amsonia orientalis* and *Baptisia australis*.

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Fig. 8 *Brunnera macrophylla* was generally reported to be long-lived and moderately competitive. The species would appear to self-seed in many gardens; named cultivars appear to do this less often.

Speed of establishment

Most perennials establish quickly, but not all, and in some cases reliably long-lived and/or relatively competitive species may be slow to get going, and because of this may fail in their first couple of years, either because of competition or vulnerability to various environmental stresses; examples are *Amsonia orientalis*, *Anemone x hybrida*, *Baptisia australis*, *Helleborus x hybridus*, *Iris sibirica*, and *Liriope muscari*. Evidence from other sources, both technical and anecdotal, indicates that what these plants are doing is investing in

extensive root-systems in their early years; this habit appears to be of benefit later, as many are notably long-lived and resilient plants.

Self-seeding

For some gardeners this is a curse, either because soil types favour the germination of every seed which hits the ground, or because the tidier-minded do not appreciate so much spontaneity; for others it is a blessing, as it can result in the development of a dynamic and natural-feeling planting. Where species tend to be short-lived, such as *Aquilegia vulgaris*, it is important for their survival in the garden, but it may be a nuisance if they are also spreaders through vegetative growth, as with *Alchemilla mollis* and some of the more strongly-spreading geraniums. Some species, which are not spreaders and have a physically quite narrow profile, can self-seed extensively and create attractive mass effects as they do so, as with *Geranium sylvaticum*, *Lunaria rediviva* (fig. 5) and *Thalictrum aquilegifolium*. Few of us begrudge the extensive seedling production of *Helleborus x hybridus* either.



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Fig. 9 *Rudbeckia fulgida*. A number of different forms of this species are in cultivation, all appearing to be long-lived and with a moderately spreading habit. One of those plants for which no one had a bad word.

This survey was also an interesting, although very limited, opportunity to assess the popularity of perennials with experienced gardeners. The top five were, in descending order, were *Helleborus x hybridus*, *Alchemilla mollis* (viewed either as indispensable or hated for its seeding abilities), varieties of *Crocsmia* (although there appears to be a huge variation in hardiness between different cultivars), varieties of *Miscanthus sinensis* and of *Pulmonaria*.

My experience with this project has convinced me that it is possible to gather together the extensive, but often very disparate, knowledge that gardeners have, and draw useful conclusions from it. Such conclusions can then be useful for professional as well as amateur gardeners. I am very interested in carrying out further research using this methodology, though as ever that will depend on funding, so I may well be appealing to your generosity in sharing your great fund of knowledge and experience again. 🐛

Noel Kingsbury is a teacher, lecturer, horticultural consultant and writer – about plants, gardens and the environment.

The ten plants most frequently reported as being short-lived (most often short-lived first)

Echinacea purpurea and hybrids
Achillea interspecific hybrids
Aquilegia vulgaris and cvs.
Achillea millefolium cvs. (fig. 6)
Heuchera micrantha and hybrids
Monarda hybrids
Knautia macedonica and cvs.
Dictamnus albus and cv.
Anemanthele lessoniana
Aster x frikartii 'Mönch'

Plants always reported as being reliably long-lived:

Geranium x oxonianum types
Hosta, various taxa
Geranium sylvaticum cvs.
Acanthus mollis
Liriope muscari and cvs.
Miscanthus sinensis and cvs.

The ten top spreaders by vegetative means (greatest spreading ability first):

Euphorbia cyparissias and cvs.
Macleaya cordata
Persicaria bistorta 'Superba' (fig. 7)
Persicaria amplexicaulis and cvs.
Filipendula rubra and cvs.
Lysimachia clethroides
Monarda hybrids
Anemone x hybrida cvs.
Geranium x oxonianum types
Phlomis russeliana

The ten species reported as being the slowest to establish (slowest to establish first)

Dictamnus albus and cvs.
Baptisia australis
Amsonia orientalis
Anemone x hybrida and cvs.
Geranium renardii and cvs.
Helleborus x hybridus
Aster x frikartii 'Mönch'
Euphorbia polychroma and cvs.
Liriope muscari and cvs.
Iris sibirica cvs.

The ten species reported as being the most effective self-seeders (the most effective first)

Aquilegia vulgaris and cvs.
Alchemilla mollis
Anemanthele lessoniana
Helleborus x hybridus
Geranium x oxonianum types
Brunnera macrophylla (fig. 8)
Geranium pratense and cvs.
Centaurea montana and cvs.
Lunaria rediviva
Thalictrum aquilegifolium and cvs.

If you would like to contribute to possible future research, or you would like a copy of the full report, please contact me via email – noel@noelkingsbury.com