



A mixed oak and silver lime forest in north-east Romania. This picture was taken during a warm day; in these conditions the outer crown periphery of the silver lime is clear silver white – a clever strategy reflecting away some of the sunlight which thus avoids their becoming too hot.

The Plantsman's Choice Presenting promising urban trees

Silver lime – a better choice for inner-city environments

Henrik Sjöman and Andrew Hiron



To deal with warm and dry habitats, silver lime has developed a dense mat of star-shaped hairs on the underside of the leaf.

Towns and cities require plant material that can handle their climatic and site conditions. Silver lime (*Tilia tomentosa*) is a tree species that has the ability to cope with challenging urban environments as, compared with other lime species, it has a greater tolerance for hot and dry conditions.

Limes (*Tilia* spp.) are the most common urban trees in northern Europe; they are used in street environments as well as in parks. The most common species of lime used in urban environments are small-leaved lime (*T. cordata*), large-leaved lime (*T. platyphyllos*) and the hybrid between these species, the common lime (*T. × europaea*). These limes perform best in cool, humid environments – preferably with unlimited root space. Such growing conditions are mainly found in park and garden habitats where we also see the most beautiful lime tree specimens. However, in street environments and other paved sites these species perform often poorly with clear drought damage and wilting leaves after warm and dry summer weeks. This is especially true of larger specimens that require larger volumes of water. A clear effect of drought stress in many lime trees is a large outbreak of aphids, which then contributes to extensive honeydew on pavements, park benches, cars, etc. For these more challenging sites silver lime is a much better choice, as it originates from the steppe forests of Eastern Europe and similar growing conditions to street environments in the UK.

A successful strategy that silver lime has developed for dealing with warm and dry habitats is a dense mat of star-shaped (stellate) hairs on the underside of the leaf. These hairs slow the movement of



T. tomentosa 'Brabrant' is a narrow-crown cultivar of silver lime.

air across the leaf and, consequently, slow the rate of water loss from the leaf. Similar features can be found on other drought-adapted trees from warm regions, such as olives (*Olea europaea*). Another strategy used by silver lime during warm periods is to turn the leaves of the outer crown periphery and expose the silvery underside. Through this manoeuvre, the silver lime reflects some of the sunlight and thus avoids becoming too hot. As such the leaves remain relatively cool and reduce dysfunction associated with water scarcity and heat. For this reason, silver limes look more silvery on warm days compared with cooler, cloudy days when the unturned leaves just present a green crown. The stellate hairs on the underside of the leaves also stop outbreaks of aphids which, in turn, lessens the problems with honeydew. These combined features make the species extremely useful in paved environments and parking areas.

Today there are several cultivars of silver lime available from tree nurseries, often with narrow and compact habits. Using specially selected specimens from nurseries is advised since seed-propagated trees of silver lime normally result in great variation in size and habit: a feature of all seed-

grown lime species. However, despite a range of useful cultivars, there is one limitation in using silver limes. Normally, lime trees have a very dense branch structure which requires comprehensive formative pruning to make the tree useful for street environments. Therefore, when choosing silver lime for street environments you should be aware that it will need a little attention in early years to create a stable crown that is without defects. However, in the longer-term, the pruning will be worth the effort due to its superior capacity for dealing with the stressful conditions found in challenging urban environments.



Henrik Sjöman is a Lecturer at the Department of Landscape Architecture, Planning and Management for the Swedish University of Agricultural Sciences and a Scientific Curator at Gothenburg Botanic Garden, Sweden.

Andrew Hiron is a Senior Lecturer in Arboriculture and Urban Forestry at Myerscough College. He is also currently developing tree species selection guidance for urban environments as part of a NERC funded Green Infrastructure Knowledge Exchange project.



Silver lime trees have a very dense branch structure which requires comprehensive formative pruning to make the tree useful for street environments – this tree has not had that pruning.



A mature silver lime, Iași, Romania.