

Planting to Fight Pollution: You Can Make a Difference!

Air pollution is all around us in towns and cities; largely unseen, it is inhaled with every breath. High-profile changes such as the push toward electric cars by 2040 will reduce levels of pollutants, but there is still the immediate problem. This is where plants can really help. From planting around a playground to a row of street trees, stems, leaves and trunks can contribute usefully to the removal of pollution from the air around us.

The main cause for concern comes from dust-like material, which is known as either particulate pollution or airborne particulate matter. This affects more people than any other atmospheric pollutant, causing an estimated 3.7 million premature deaths worldwide each year.

Danger of particulates

Particulate matter caused by human activity, such as fuel combustion in power generation and motor vehicles, can be directly emitted into the atmosphere, or formed from gases such as Sulphur dioxide, nitrous oxides and ammonia.

Particulate matter is removed from the air by various mechanisms. Plants in cities provide surfaces onto which particulates are temporarily deposited (until washed off by rain), reducing air concentrations of these polluting particulates. *Research suggests that plants with large, dense canopies and rough hairy leaves are especially effective at catching pollutants.*

Conifers such as Leyland Cypress (*x Cuprocypar* *leylandii*) and pines (*pinus*) accumulate more large particles (those larger than 2.5 micrometers), on the surfaces than broadleaved tree species such as poplars, maples or whitebeams. However, *broadleaved and coniferous species have both been shown to accumulate well the finest particles, which are potentially the most detrimental to human health. Furthermore, evergreens provide the greatest benefits, as their leaves capture particles all year round.*

Garden plants fighting pollution

The Royal Horticulture Society in London's research on garden hedges shows plants such as Western Red Cedar (*Thuja plicata*), Yew (*Taxus bacatta*) and *Cotoneaster* species and cultivars are excellent at capturing particulates in periods of dry weather.

Taxus, in fact, a native evergreen conifer suitable for growing as a tree, shrub or dense hedge, produces



Cotoneaster
www.wordpress.com

red, berry-like fruit for the birds. *Conifer hedges have fallen from grace in recent years -- since they gained a reputation for quickly growing too large. But, regularly clipped or pruned, they may play a vital role in supporting health.* To have an effect on particulate pollution, hedges need to be of sufficient height (ideally 5 to 6 1/2 feet) and depth (39 inches to 5 feet). See below for an alternative plan...

This is where science gives indications on how to make the most of garden plants. Studies highlight that positioning of plants is important. Plants can only catch particles around them and need to be placed between the pollution source and where people



American Hornbeam leaves
www.carolinanature.com

breathe particulates in. Road pollution, from cars and wear of the road surface, is an issue for more than 90 percent of the UK population living in urban areas. One logical conclusion is that planting along the front boundary of a plot can really help.



American Hornbeam (*Carpinus betulus*)

Planting strategies

Although a hedge is the obvious choice, and the most space-saving, it needs to be a minimum of 39 inches wide. A good alternative is to use a thinner hedge, with shrubs behind to form a border of diverse ornamental interest. Where space allows, it is useful to use trees. One suitable tree is the Hornbeam (*Carpinus betulus*), a deciduous tree, shrub or hedge with dense twiggy growth; it also provides shelter to birds and other wildlife.

As scientific knowledge increases, we continue to learn what an integral part plants play in making the places we live so hospitable. All they require in return is that gardeners give them a home.

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