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Palmstead Soft Landscape Workshop
"What have plants ever done for us?"

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The application of science: plant selection for a positive environment

Should planting plans aim to do more to provide multiple environmental 'services'?

Plant selection and the mantra 'right plant, right place' has been a topic of much discussion for the landscape industry over the last few years as biodiversity and meeting BREEAM requirements have become increasingly important. Science has a role to play in this discussion and could also provide an interesting added dimension when compiling planting plans.

Ahead of Palmstead Nurseries '*What have plants ever done for us?*' workshop in September, we speak to **Dr Tijana Blanusa**, a speaker at the conference and a leading RHS scientist working out of the University of Reading. Dr Blanusa's work looks at the impact of vegetation in towns and cities, in particular the effect of vegetation on lowering atmospheric pollution, providing cooling and rainfall mitigation.

How can the application of science help designers in their quest to select the right plant for the right place?

My work is a very applicable science, it looks at how you can provide environmental benefits by choosing plants that would maximise the provision of localised cooling, species that help to absorb excess rainfall and in terms of pollution, choosing plants that effectively remove pollutant particles from the air.

How a plant 'adds' to our environment in terms of benefits such as 'cooling', 'water capture' 'sequestration of pollution' and 'biodiversity support' is becoming increasingly important as people migrate further to urban environments.

If we are to look at the element of science as the added 4th dimension when we select plants, what do we need to know?

Not all plants are the same and science can help us look at the difference in how they function, and how their structure can work positively or negatively. If we take trees as an example and look at the surface of the leaf and how it 'takes up' the gases in the environment we can see that if you chose a more active plant, with more 'openings' in the leaves then it has a potential to take up more pollutant gasses such as carbon monoxide, ozone or nitrous oxides.

Do specific types of plants help more than others?

In very simplified terms, one can liken plants to humans: you can have slow and sluggish people and you can have some that are full of energy. If you want a plant that will help take up pollutants better or take up more rainfall from a saturated soil, then it's good to chose the ones with lots of energy and activity. Examples of active trees are those with large canopies and leaves with lots of structure and 'pipework'. The London Plane has a large leaf area and rough hairs that also trap pollutant particles well. Conifers such as Thuja and Leyland can also be good candidates for trapping particulates from the air.

Are there 'downsides' to these choices?

There are of course other factors to include in plant selection, such as the cost of maintenance; an energetic or active plant may have a higher maintenance cost, especially if a choice is made to select a species such as a Leyland (for its pollution sucking qualities!)

What would you like to see garden designers and landscape architects think about when they chose plants/trees in urban environments?

I am a scientist first and foremost so I wouldn't say - you must chose the London Plane because it behaves like this, instead I would point to *how* it behaves, the size of its canopy, what the fine hairs do and point to what the tree can do to provide those various benefits. The designer could then look to similar species. There may be a choice that is less allergenic. I would also say that 'more is better' and to avoid mono-cultures and go for diversity. It's good to see designers who are playful, using more than one thing, thinking about perennials and mixing things up.

Why is this topic growing in importance?

Living in increasingly urban areas, we see our neighbours paving over their gardens, leaving high water levels underneath - which cannot be good long term. We need to keep talking about the issue of providing multiple benefits within the environment so that it becomes natural. Today, you don't think twice about seeing an unmown meadow - you know it's a good diverse space whereas ten years ago people might have said 'that's untidy'.

Who are your landscape architect and design heroes? As a scientist, I look for things that are practical and 'do-able'. I'm also attracted to designs that appear young at heart. Often it's the lesser known people who have the courage and willingness to experiment and bring scientific principles to life. I like to see something that has practical purpose at its core but is a firework of energy and imagination, colours and textures and various types of plants. Great plants people know what they are doing but they also listen to advice and aren't set in their ways.

Is there a definitive list we can follow? As a scientist I more comfortable sharing what the key findings are to the best of our knowledge; that is not to say that five years down the line we may find a new subtlety - science moves all the time. Plants people have various criteria that they have to meet if the garden/space is to succeed - if the client doesn't like the plants then you've lost it! I'm trying to add a fourth dimension which comes after you have put the budget together, after the aesthetics and site requirements. Our work is progressing so that in the future it can help designers to find a plant in the RHS Plant Finder that will tick all of the boxes - being affordable, aesthetic, suitable for the space and also beneficial to the environment.

Tijana Blanusa will be speaking at Palmstead Nurseries forthcoming Soft Landscape Workshop on Wednesday 21st September at the Ashford International Hotel. Palmstead's annual soft landscape workshop this year will focus on the health and well-being benefits of plants and how certain plants can enhance human health while others can really make people sick.

Other speakers at the event include: botanist Dr Mark Spencer, landscape and garden designer Jinny Blom, urban greening specialist Anne Jaluzot and medics turned garden designer Shenagh Hume (Allergy UK) with garden designer Jackie Herald. Raoul Curtis-Machin from the Horticultural Trades Association will also give a presentation on biosecurity.

Delegate booking fee £36 includes lunch and Vat. Workshop timings 09:00 – 16:00 approx. To register please visit www.palmstead.co.uk and click on events.

Tijana Blanusa (Principal Horticultural Scientist) obtained her BSc (Crop Science) and MSc (Plant Physiology) from the University of Belgrade. She joined the RHS after completing her PhD in Plant Physiology (East Malling Research / Lancaster University) in 2003. She is based at the University of Reading where she works in the Centre for Horticulture and Landscape and collaborates with other departments and external organisations (University of Sheffield and Imperial College London; Universities of Siena and Bologna, Italy; University of Belgrade, Serbia).

Her research interests lie in understanding the interaction between plants and the environment – how the changing environment, such as drying soil and elevated temperatures, affects plants, and how plants moderate the environment around them. She runs several projects investigating the contribution of green roofs and walls, garden hedges and other forms of green infrastructure to the moderation of air temperatures, capture of excess rainwater and aerial pollutants.