

The Best Way to plant up a container:

It's simple, right? What's to know? Pop in some gravel and a few large shards of broken pot for good drainage, perhaps even a bit of sand to take up space, and fill with potting soil. Finally, pop in the plant.

Not so fast.

Superstitions and folklore abound in gardening, adhered to by many because, well, you just never know. The rest of us follow guidelines given by garden websites, blogs and books, or learned at our mother's garden apron strings. And we've done this for years without questioning the advice as, for the most part, it seems entirely plausible; sensible even. Take the age-old advice of placing stones/ gravel, broken pot shards, and even polystyrene, at the bottom of a container to ensure good drainage. Hands up how many of you do this. For it seems to make sense; water does pass rapidly through stones. Yet, it goes against soil physics, and the science has been around for a century debunking this advice courtesy one Henry Darcy who proved that water would only move from a fine-textured material to a coarse-textured one once the finer mix was saturated. So the addition of gravel to aid drainage is, in fact, counterproductive.

So, how does this science relate to a flower pot?

Looking at your container from the top down, it contains potting mix sitting over a coarser layer of, to simplify things, gravel. You pour enough water into the container to keep the plant happy for a few days, fully expecting the surplus to drip out of the holes at the bottom. For that's the point; good drainage. Excepting, as per soil physics, the water will not drain through the gravel until the potting mixture becomes saturated; only then does it cross the gravel/ soil barrier and out through the container drainage holes.

Why is this? Fine-textured soils, with smaller spaces between particles, hold onto water better than does gravel, for example, and this powerful capillary or wicking action of the soil can withstand the downward pull of gravity - for a time at least. Water then pools at this textured interface, creating what hydrologists call a 'perched' water table, one that is higher up than it should be. Only once the soil is saturated and heavy with water will gravity overcome the capillary force, and drain quickly through the gravel. Small pots are especially prone to saturated soils where plant roots sit in water, leading to death-by-water. The negative impact of the gravel layer, especially if it is quite thick, is that it brings the sodden section of soil, the 'perched' water table at the gravel/ soil barrier, up to root level. Plus, it reduces the volume of potting mix available for the plant roots.

So, rather use a good quality potting mix throughout the container to maximise drainage, and air movement – for the drainage holes also provide the all important root aeration. And, as long as there is a hole in the bottom of the container, water will find its way out without the need for stones.