

Daffodil bulb identification research published

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The RHS and Reading University mapped a daffodil's chloroplast genome for the first time.



RHS Tim Sandall

When sold as dry bulbs daffodils are impossible to tell apart, with 1,766 different cultivars - including pink, green, trumpeted and double-headed – available in the UK.

In the first step towards identifying different cultivars in bulb form, researchers from the RHS and Reading University mapped the entire code which makes up the chloroplast genome – the DNA responsible for photosynthesis in plants.

The code was built by extracting DNA from the leaf material of a pheasant's eye daffodil (*Narcissus poeticus*) grown at RHS Garden Wisley. The data was then examined and the 2% relating to the chloroplast genome pulled out and assembled.

The team can now look for variations in the genome that could serve as genetic markers and be effective in distinguishing between cultivars. This could eventually be used to avoid the wrong bulbs being traded and aid conservation efforts, new breeding and the registration of cultivars.

The work could also be applied to other bulbous plants like snowdrops, crocus and hyacinths.

RHS horticultural taxonomy head John David said: "This is an exciting first step in identifying daffodil varieties at the point they are most popularly bought but when there is nothing to tell them apart. With so many bulbs due to be planted this autumn it is a huge industry and we hope our work might avoid disappointment for professionals who plant en masse and gardeners who will often seek out their tried and tested favourites."

Reading University botany associate professor Alastair Culham added: "The technology used in this project is fast moving and it will be both practical and affordable for routine use within the next 10 years. As a keen gardener I have sometimes been disappointed to find special bulbs I've planted in the autumn have turned out to be less good varieties when they come in to flower in the spring. Better management of the supply chain and the ability to authenticate dormant bulbs should stop such mistakes in the future."

The first paper detailing the research is published in Mitochondrial DNA Part B.

This autumn has seen a quick ending to the daffodil bulb planting season because dry summer weather and poor spring weather has led to a shortage of bulbs.