

# Thoughts on *Dendrobium speciosum* SMITH

By  
Michael Harrison of Macquarie Native Orchids

An interesting discussion about flowering of *Dendrobium speciosum* took place at the August, 1991, meeting of A.N.O.S. Sydney Group Inc., and this prompted me to put down in writing some thoughts on this matter.

It was noted that the unseasonably mild winter weather during June and the first half of July, 1991, had resulted in the earlier than usual development of inflorescences on many of our native dendrobiums during 1991. A number of growers mentioned *Dendrobium speciosum* in particular as being well advanced, with many clones reportedly already in flower by mid-August. As well as flowering early, it was agreed that this year flower numbers are well up on average, with most plants carrying more inflorescences than is normally the case. However, this increase in flower numbers is being compensated by a general decrease in the size of individual flowers.

*Dendrobium speciosum* is renowned for its variability in flowering. Flower size is dependant upon overall numbers; the more flowers a plant is carrying, the smaller is each flower. This rule also extends to the inflorescence; the more flowers on an inflorescence, the smaller is each flower, which explains why there are often discrepancies in flower size from one raceme to the next. The logic of this situation is clear. Each plant has limited energy resources to devote to flower production in any given season; hence, flower size is directly proportional to flower number in the sense of expenditure of energy.

The flowering habits of *Dendrobium speciosum* are also variable from year to year. Growers talk about good years, poor years and average years. I have heard it said that some sort of cyclical effect is at work here. The conventional wisdom says that a "good" season for flowering in *D. speciosum* occurs only once in every four years, the routine supposedly being good year, poor year, average year, poor year, good year, etc. Experience has shown me that this simply is not so in any absolute sense: plants flower in response to environmental conditions, in particular prevailing weather conditions, and are limited only by their reserves. Therefore, if consecutive "good" years occur, and plants have the energy resources to flower strongly for two years in a row, then they will do just that, regardless of the good year/poor year theory.

It should be borne in mind that good flowering in *Dendrobium speciosum* is dependant upon suitable weather conditions at the time of initiation of inflorescences, during autumn, rather than at the actual time of flowering, in spring. Of course, weather conditions during the subsequent period of inflorescence development through to the flowers opening are also critical. Over the years I have seen some fine flowerings damaged by excessively cold and/or wet winters, or dull, rainy weather in spring. The point to make is that if conditions are not inductive to good inflorescence initiation, then a good flowering simply cannot occur, regardless of how kind winter and spring may turn out to be.

Certainly, an excellent period for inflorescence initiation occurred for *Dendrobium speciosum* in autumn 1991, and we enjoyed the benefits in spring of that year. I wonder what confluence of conditions was responsible for this? My memories of the 1991 summer and autumn are of long, hot days, with the mercury above 40 C so often that it just about became the norm. And the weather was so dry for so long that the garden forgot what rain looked like. The lawn eventually expired in the belief that the greenhouse effect had turned East Kurrajong into the Simpson Desert. Apart from a few thundery showers, we had no real rain from the end of August 1990 until May 1991.

Perhaps it was exactly these conditions that resulted in the excellent flowering we enjoyed in 1991. I believe that mature plants in good condition will be stimulated by hot, dry weather into sexual reproduction, and as far as plants are concerned, this means producing flowers. Cooler, wetter seasons are used primarily for vegetative growth, to increase plant bulk and store reserves of food and water in order to support a strong flowering when conditions are right. Of course, *Dendrobium speciosum* always has a bet each way, by producing at least some flowers during cooler, wetter seasons. In certain years, *D. speciosum* will produce just a handful of inflorescences over a whole colony of hundreds of plants, whereas another year, come spring, the same colony will be a spectacular mass of procreative splendour.

If we accept that a warm, dry summer will produce a strong flowering in *Dendrobium speciosum* the following spring, then we must ask why this is so and how such behaviour benefits the species. The object of the exercise is, of course, to perpetuate the species, and that means to produce plenty of viable seed and to have that seed distributed. The final step in the process, after seed production and distribution, is the germination and continued growth of seedlings. This is beyond the control of the parent plant(s), and relies upon the suitability of the location into which the seed falls, and the subsequent weather. But, the thing the parent plant of *D. speciosum* is able to do, is to produce that seed, or at least the majority of the seed, to coincide with a season that will foster good germination and growth. It seems unlikely that *D. speciosum* has the ability to foresee future weather conditions (although I do not discount this possibility entirely), so we must conclude that it simply plays the odds as best it can.

*Dendrobium speciosum* is usually well in flower by the second week in September, and if flowers are pollinated and fruits develop, then mature seed will be released by mid-December. This generally coincides with seasonal increase in rainfall. In south-eastern Australia, September and October are statistically the driest months of the year, and then rainfall increases through to February and March, the two wettest months. So, seed released during December should have just the right conditions, warm weather with increasing rainfall, to germinate, grow and establish a foothold in its designated situation. However, if a long, hot dry summer occurs, without decent rainfall, then seed will fail to germinate, or developing protocorms will shrivel and dry; either way the attrition rate will be high.

Such an event would be wasteful and certainly not in the best interests of the species, so *D. speciosum* has evolved to deal with seasonal variability by being variable itself in its flowering habits. A long, hot summer that may damage a crop of developing protocorms, is the trigger for a strong initiation of inflorescences in April/May, which will produce a strong flowering the following September, and which, in turn will culminate in a heavy release of seed in December. More likely than not, that summer will not be as hot and dry as the preceding summer, and conditions will be suitable for seed germination. Conversely, a cooler, wetter summer will not provide the stimulus for plants to produce many inflorescences, because it is more probable that the following season will be a hotter one, and that developing protocorms would be put at risk. Of course, nature gives no guarantees and anything could happen, but *Dendrobium speciosum* plays the odds and takes its opportunities.

The final variable factor in *D. speciosum*, and the one I find most confusing and difficult to rationalise, is flower colour. It has long been recognised that *D. speciosum* varies from year to year in the colour of its flowers, with certain known clones producing yellow, cream, white and even, rarely, red-spotted or blotched flowers in successive years. So often I hear growers saying last year this was a pure white, but now it's just a cream", or "when I first got this one it was a good yellow, but I've never flowered it like that since", or words to that effect. I know in my own collection that colour can vary from year to year, and unfortunately it seems to be that horticulturally desirable colours (i.e. strong yellows and pure whites) often end up in the cream to light yellow range. However, this is not always the case and every now and then a plant will flower true to my memory of it. In 1991, I had a couple of clones which flowered a better yellow than I have seen them for quite a while, but why this is so, I do not know precisely.

Nutrition, or lack of it, probably figures strongly in the equation. I was feeding my plants of *D. speciosum* quite regularly last growing season (once a week with Nitrosol, Fish Emulsion or Aquasol from October to April), and I believe an effective feeding programme is important for such a large-growing, heavy-feeding species as this. I know some growers who literally heap Dynamic Lifter around their plants, and they thrive on this treatment. I cannot say whether such feeding ultimately intensifies the colour of flowers, but it is probably logical to assume good nutrition plays its part.

Another factor which may be relevant is the presence of eucalyptus leaf mulch around the plant. In the bush, *D. speciosum* usually grows on rocks or cliff-faces, very often under gum trees. Leaves and twigs from these trees fall onto and accumulate around and behind the plants, and slowly break down, releasing their nutrients. It may be that some compound which intensifies colour is present there. Or perhaps the fact that *D. speciosum* grows on rock in the bush is significant, in that some mineral component slowly released by weathering is being absorbed and used by the plant.

Apart from nutrition, weather conditions must be considered. So far, the 1991-92 season has seen mostly mild, sunny days and crisp, cool nights, and no significant rain has fallen during late winter/early spring. The only unpleasant aspect of the weather has been the strong westerly winds, which have also brought low levels of humidity, but the plants and developing flowers have shown no ill-effects, except for the occasional blown-over pot. Perhaps plenty of bright, sunny weather results in strong colour, or conversely, plants growing in shady situations

may have better colour.

I wonder whether temperature has any bearing. Do warmer than usual maximums or cooler than usual minimums affect colour, or is the maximum/minimum differential a significant factor?

Finally, the thing to remember is that *Dendrobium speciosum* does not flower to impress or please humans. Its reproductive habits have evolved for one purpose, and one purpose only, to perpetuate itself. It takes years for a seedling to reach flowering size, 8 to 10 years in cultivation, and no doubt even longer at times in the bush. Flowering is a big investment for *D. speciosum* and it cannot afford too many mistakes. That it thrives over a large range, and in many places is still a common plant, is testimony to the fact that *D. speciosum* is finely tuned to and is successfully exploiting its environment. It is also one of our most beautiful orchids, but that is just a bonus.

*Ed. - This article was published first in The Orchidophile, in September, 1991, and is reprinted here in the interests of the wider readership of The Orchadian.*

*Printed in The Orcadian Volume 10, Number 8, p268-271*

*Reprinted with permission of the author and editor of The Orcadian.*