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For permission requests, please contact Wild Orchids Southern Africa at the address below:

P.O. Box 37035

Birnampark

2015

Email: karstenwodrich@wildorchids.co.za

billmincher@wildorchids.co.za

Website: www.wildorchids.co.za

[Note: Detailed location data of indigenous orchid and endangered species sightings presented at the Conference have been removed from the papers in these Proceedings as a precautionary measure. Should you require access to this information please contact the respective speakers.](#)

Evaluating the horticultural potential of African orchids

Tinus Oberholzer, PO Box 5200, Platinus Mall 0278.

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Africa is known for the big five, the open grassland with herds of herbivores such as the great Wildebeest and Zebra migration of the East African Plains. Plant lovers know Africa, especially South Africa as the

African plants have been used to create hybrids for the huge bedding plant market. *Osteospermum*, *Pelargonium* and *Nemesia* are three of the genera that come to mind. Some South African plants such as *Clivia* and *Strelitzia* are grown as indoor plants in the colder climates, but are popular garden plants in the warmer areas of the world. Bulbous plants such as arum lilies, sword lilies, *Ornithogalum* and *Ixia* are grown in many parts of the world to be sold as pot plants or garden plants. These are all just some of the plants originating from the African continent which have proven their horticultural worth abroad. Can the plants of the Orchid family hailing from Africa and its islands compete in the same sense?

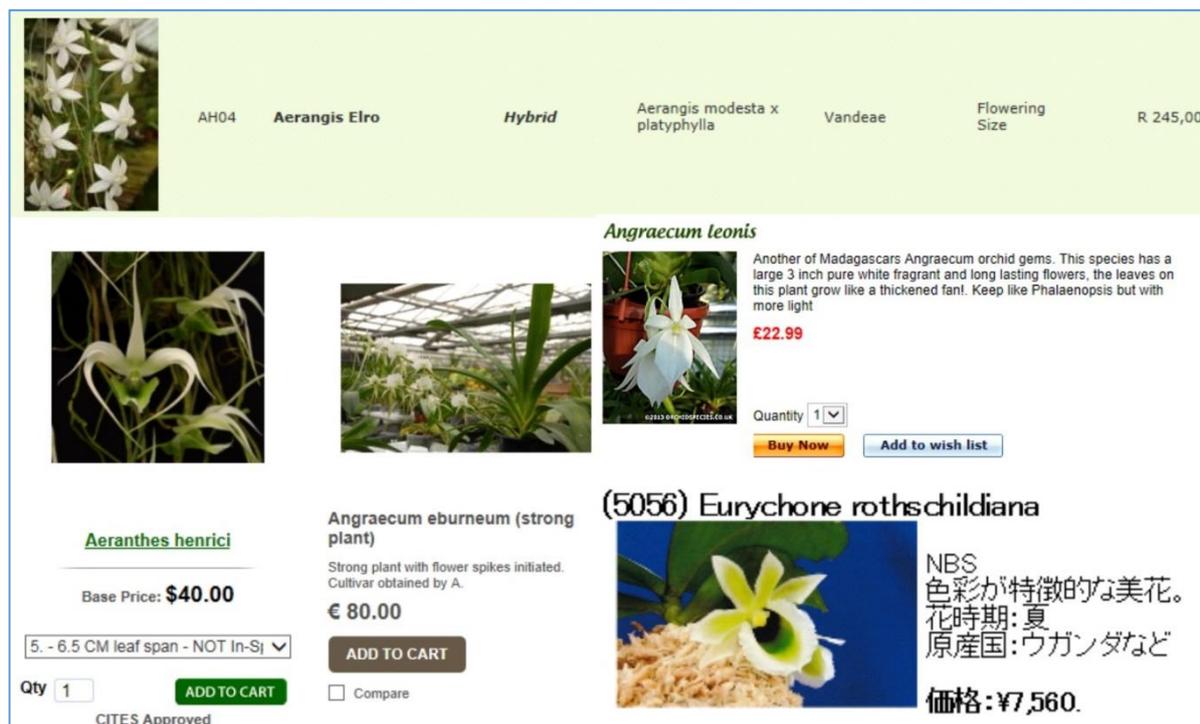


Figure 1: Page from an international website showing orchids for sale.

home of the Cape Floral Kingdom, the smallest of the 6 recognised

floral kingdoms of the world containing more than 9 000 plant species. Many South

Orchid collectors are always on the lookout for rare and unusual species and their hybrids. Orchid species originating from Africa and the surrounding islands can be seen to fetch rather high prices among collectors. The 'screen shots' of the

websites of some orchid vendors clearly illustrates the demand and subsequent pricing of these plants. Seen here, are plants from a South African Nursery as well as an American, French, British and Japanese nursery. Few will argue that these plants have value as collector's plants, the question that remains to be answered is: Will they be able to compete with orchids available in the commercial market today. [Figure 1]

Phalaenopsis is still by far the best selling pot plant orchid the world over, members of the *Oncidium* group and *Cymbidiums* are also popular as pot plants, although their flowers do not last as long as those of *Phalaenopsis*. In the recent years the pot plant production and sales of softcane *Dendrobium* hybrids and *Miltoniopsis* have seen a considerable increase. The large fragrant flowers of pansy orchids have always been a favourite among the collectors and the general public alike. The orchid cut flower industry is still going strong after all these years and *Cymbidium*, *Dendrobium* and the various Vandaceous hybrids seem to be the best sellers. The landscape industry is continually looking for new, exciting plants to use in the gardens of their customers. *Spathoglottis*, such as the cultivar called Grapette is used in many of the sub-tropical gardens. In areas where the winters are more severe *Bletilla striata* makes for an excellent garden plant. These are some of the plants which have proven their worth in the horticultural industry and should be kept in the back of our minds when we consider African plants for similar uses.

Let's have a quick look at possible candidates for consideration for use in pot plant or cut flower production or even for the gardening industry. To simplify this task I have divided these plants into two main groups. First in line are the epiphytic orchids and then we will move on to the terrestrial orchids found in Africa. [Table 1]

The genus *Polystachya* is represented on many continents, but by far the major share of species originate from Africa and the surrounding islands. Flowers come in various shapes and sizes. [Figure 2] Some of the *Polystachya* hybrids made in South Africa show the variety one can expect when combining different *Polystachya* species and with recent hybridisation certain plants are already in the third generation. [Figure 3]



Figure 2: *Polystachya paniculata*



Figure 3: *Polystachya* 'Duckitt Crystal'

The leopard orchid (*Ansellia africana*) can

be found growing naturally in many African countries. The range of flower colour and size is because of the wide distribution with varied climatic conditions. Figure 4 illustrates just some of the different forms to be found. [Figure 4] The best known epiphytic genus of Africa must surely be *Angraecum* with Darwin's orchid (*Angraecum sesquipedale*) as the front runner. Species depicted here only hints at the variety of plant and flower size and shapes to be found within the genus. [Figure 5, 6, 7] *Angraecum veitchii* is currently marketed as a top of the range pot plant in Europe where the prices fetched for flowering plants can be as much as ten times more than that of other pot plants. [Figure 8] More compact growing hybrids such as *Angraecum* 'Shooting Star' might prove a more cost effective route. [Figure 9] The genus *Aerangis* with mostly its pure white-



Figure 4: *Ansellia africana*, selected variants.

flowered species is much sought after by collectors and when the flowers are shown

to members of the general public there is always a sense of awe. [Figure 10] *Aerangis* hybrids show the combination of traits of the various species used which is in the flower size, flower count and plant habit. [Figure 11] The West-African species, *Plectrelminthus caudatus* as well as *Sobennikoffia* and species of the genus *Mystacidium* also form part of the Angraecoid group which can be used in hybridising. [Figure 12, 13, 14,15]

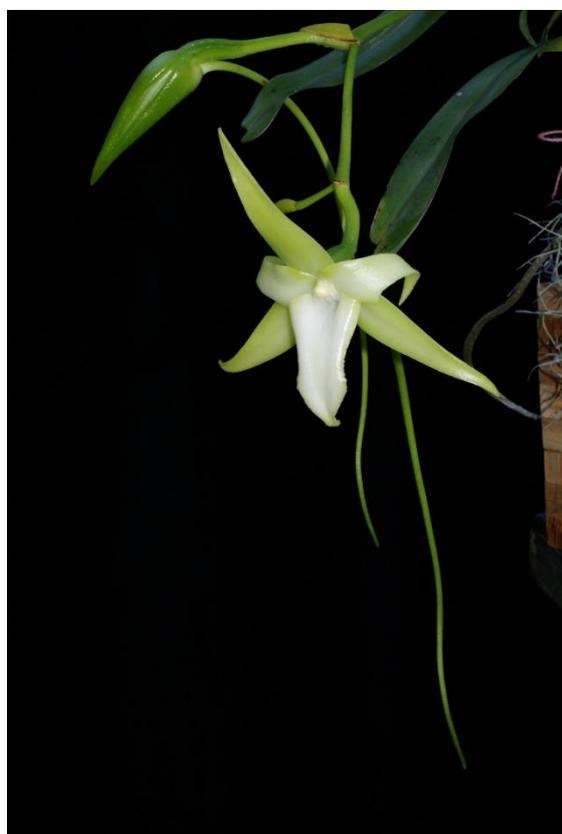


Figure 5: *Angraecum sesquipedale*



Figure 6: *Angraecum aloifolium*



Figure 7: *Angraecum eburneum* var *superbum*



Figure 8: *Angraecum* 'Veitchii'



Figure 10: *Aerangis articulata*



Figure 9: *Angraecum* 'Shooting Stars'



Figure 11: *Aerangis* 'Mire'



Figure 12: *Plectrelminthus caudatus*
'Boscia's Pixie'



Figure 13: *Sobennikoffia robusta*



Figure 14: *Mystacidium capense*



Figure 15: *Mystacidium brayboniae*

Disa uniflora, known as the Pride of Table Mountain makes a fitting start to the terrestrial group of orchids we will consider as it is well known. One of the other evergreen species used in hybridising can be seen in Figure 16, *Disa aurata*. [Figure 16] At around 440 hybrids, there are many different colours, sizes and flower counts to choose from. Some growers produce *Disa* plants purely for the use as cut flowers, others for hobbyist growers and there are those plants which are produced for the pot plant trade. [Figure 17] One must not forget the numerous striking deciduous *Disa* species with a large range of flowers shapes, sizes and colours. [Figure 18, 19, 20] *Stenoglottis* species and hybrids may at a first glance appear the same, but the size and fullness of the flower as well as flower count has been improved upon in most hybrids. [Figure 21] All the species in the terrestrial genus *Bonatea* might have flowers which are coloured green and white, but the three species shown clearly illustrates the

variation to be found in this genus. [Figure 22] Some of the first hybrids to flower show promise in having wider floral parts and a good combination of traits of the parent species. One must however remember that this is the first step in the breeding program and these are young plants flowering for the first time. [Figure 23, 24] The *Gastrorchis* species from Madagascar and its close ally, *Calanthe sylvatica* are grouped with the terrestrials although they often grow epiphytically or as humus epiphytes. The species tend to be a little rigid as far as growing requirements are considered and could prove to be troublesome to certain growers. [Figure 25] On the other hand, the hybrids have proven their worth as garden plants for the warmer climates or lush, flowering pot plants in other areas. [Figure 26] In the summer rainfall area of Africa a beautiful selection of *Satyrium* species can be found. Flower colour varies from the one species to the next. [Figure 27, 28] The *Satyrium* species found in the winter rainfall area are just as colourful. These flower mostly in spring and early summer in contrast to the summer and early autumn flowering period of the species found in areas with a summer rainfall. [Figure 29] Shown here are two hybrids illustrating good flower count and a pleasing arrangement of pastel-coloured flowers. Further breeding could perhaps provide a larger colour range. [Figure 30, 31] With only a few exceptions, *Eulophia* flowers tend to be in combinations of yellow, green and brown. The growing conditions of the species are rather variable; marshy conditions, coastal sand dunes, grassland and dry rocky soil are some of the notable ones. [Figure 32]

Perhaps lesser known to the South Africans, the species occurring further north in Africa which are perhaps even more special than some of the species to be found within South Africa. Other terrestrials to consider would be the many *Habenaria* species, *Holothrix orthoceras* has beautiful patterned leaves, and do not forget about the genus *Disperis*. Having considered a wide range of African orchids we will now go on to evaluate the horticultural potential. [Figure 33]



Figure 16: *Disa aurata*



Figure 17: *Disa* 'Betty's Bay'



Figure 18: *Disa amoena*



Figure 19: *Disa clavicornis*



Figure 20: *Disa polygonoides*



Figure 21: *Stenoglottis* 'Mars'



Figure 23: *Bonatea* 'Emerald Dream'



Figure 22: *Bonatea polypodantha*



Figure 24: *Bonatea* Emerald Spider 'Boscia Huntsman'



Figure 25: *Gastrorchis pulchra*



Figure 27: *Satyrium sphaerocarpum*



Figure 26: x*Gastrophaius* Dan Rosenberg
'Golden Chalice'



Figure 28: *Satyrium ocellatum*



Figure 29: *Satyrium coriifolium*



Figure 31: *Satyrium* 'Cape Amber'



Figure 30: *Satyrium* 'Johanna Augustyn'



Figure 32: *Eulophia speciosa* 'Frik Karusse'



Figure 33: *Habeneria dives*

Firstly, decide on the avenue of use for the plants in question. This could be either for the pot plant trade, cut flower market or to be used as a garden plant. Some plants might prove to be useful in more than just the one market. As already mentioned, *Disa* species and hybrids are produced for the pot plant trade as well as the cut flower market. Take careful note of the desirable traits to be found in the plants and see if these might fill a current gap in the market. If so, the plants stand a much better chance of making it as a profitable horticultural line, rather than just a collector's plant. Ease of replication will be one of the deciding factors. If you have a beautiful plant which cannot be multiplied for mass production it will not be worth the effort. One will have to consider the germinating of seed, in order to continue breeding in that line as well as cloning of a

selected plant. Once all boundaries of replication have been overcome, the production and growing of these plants will have to be evaluated. If it will be too difficult to grow, very few growers will consider said plant for production. Certain plants have many desirable traits but the correct growing method has eluded us up to now. The beautiful *Disa amoena* is just such a plant. They have proven almost impossible to grow out of their natural habitat. However, if this is crossed with another summer rainfall species which is easier to grow, such boundaries could be overcome. Production time, or the time it takes from a small plant to a saleable product will have a huge price implication. Angraecoids will take many years to first flowering, while *Disas*' can flower within a year to 18 months from deflasking.

Of vital importance is the lasting quality of the flowers. This is important not only for the pot plant industry but especially for the cut flower industry. *Ansellia* flowers might last long on the plant, but quickly wilt when cut. Angraecoids have flowers which bruise easily resulting in brownish marks on the white flowers. *Disa versicolor* have flowers with beautiful colour which soon turns brown after opening. [Figure 34] Looking at a bright red *Disa* which flower over the December period in the Southern Hemisphere, one should immediately consider the Christmas market. It will however not fit the season in the Northern hemisphere, but might coincide with another special day. Pink *Stenoglottis* flower just in time for the Southern Hemisphere Mother's day. These are all important factors to consider as the sales

will depend on the flowering season. *Satyriums* originating from the winter rainfall areas could perhaps be valuable in the Northern Hemisphere if sold as garden or pot plants as they flower in spring. The late summer to Autumn-flowering summer rainfall species might just work for the Valentine of mother's day market in the Southern Hemisphere. The range of colours within the species or possibilities with hybrids will influence the number of plants which could be sold. *Stenoglottis* are all in shades of pink. You can also choose any colour of *Angraecum* as long as it is white. Other groups with a wider colour range might prove more successful. Plant size and pot size in relation to pot size is another important factor. It will be of no use if you have an excellent product which is too large to transport and which will be too big for your customers to display. If pot plants sold in Europe are too big, they will take up too much space on the Dutch trolleys which could add a lot to the selling price of said plants. The relation of the size of the plant to that of the pot is just as important. Should a plant require too big a pot in order to grow well and flower, it will have a tremendous influence on the costs of pots, potting media, growing space, the space it will take when delivered and so forth. Some of the *Eulophias* would be typical examples as they seem to require rather large containers to be grown to full potential.

Once all these factors have been considered and the plants are growing successfully, sometime has to be spent on the proper marketing of the plants in question. It is vital that the plants which

are produced are now sold, otherwise the whole exercise would just cost money and not be profitable. Other garden and pot plants have proven that one must get the marketing right the first time. If the launch is a flop, such a variety seldom recovers from that setback and never makes it in the horticultural industry. This could result in years of breeding and trialling amounting to nothing. There is definitely space in the market for those unconventional pot plants such as *Ludisia discolor*. [Figure 35] Then there is also *Angraecum veitchii* and various *Cypripediums* which are sold at much higher prices than other orchid plants as they take longer to mature and therefore the production costs escalates. Some failures within South Africa would be *Polystachya* hybrids. These were pushed onto the market too soon and there was no selection done from which a variety or two or three could be selected for production. All seedlings with flowers on were sold, no matter what the flower quality. *Ansellia* plants have been sold as pot plants for many years in SA, but it has never been a big hit as there was no marketing to go with it. A lovely colour tag with a photo of a leopard or a sleeve with leopard print might have helped sales on. As with many other plants, giving the range or a single cultivar an interesting name could prove very profitable as members of the public might remember the name.

In conclusion, one must remember that most plants sold in the potplant or cut flower trade are as a result of many years of breeding and selection and one cannot compare the African Orchids with these yet. With the exception of *Disa* hybrids,

most other groups are only in the infant stages of breeding and selection. In future one might see many exciting things from African orchids which could fill a gap in some horticultural industry.

The possibilities are endless....

Table 1.

<u>Epiphytes</u>	<u>Terrestrials</u>
<ul style="list-style-type: none"> • <i>Polystachya</i> 	<ul style="list-style-type: none"> • <i>Disa</i> - evergreen & deciduous
<ul style="list-style-type: none"> • <i>Ansellia</i> 	<ul style="list-style-type: none"> • <i>Stenoglottis</i>
<ul style="list-style-type: none"> • Angraecoids - <i>Angraecum</i>, <i>Aerangis</i> & others 	<ul style="list-style-type: none"> • <i>Eulophia</i>
	<ul style="list-style-type: none"> • <i>Bonatea</i>
	<ul style="list-style-type: none"> • <i>Calanthe/ Gastrorchis</i>
	<ul style="list-style-type: none"> • <i>Satyrium</i> – summer & winter rainfall area
	<ul style="list-style-type: none"> • Other terrestrials •



Figure 34: *Disa versicolor*

Acknowledgements:

All photos by Nollie Cilliers, Plantae Orchids.



Figure 35: *Ludisia discolor*