PERENNIALS, BULBS, AND SMALL SHRUBS FOR THE BEGINNER

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Many a young nursery worker dreams of setting up his (her) own nursery; most have very little capital to buy land, often ending up with a position that is not the best, to say the least! Our site is on the cold side of a steep hill; the largest flat area faces south and is windy. Also we do not have an overabundant supply of water, but the view is very pleasant.

Selecting plants that would be saleable in our general area has been a highly personal choice with the tendency towards perennials, bulbs, and smaller shrubs, with the prerequisite of drought and wind tolerance. Many of these plants have quite a long nursery life before they are ready for sale; also quite a number have been fairly difficult to propagate in any quantity, i.e. *Alstroemeria* 'Walter Fleming', but growing them is a challenge and is rewarding, even if not over remunerative. Data on these plants, many of which are now rare, is not over-abundant and then often suitable only for United Kingdom conditions. Some of these older cultivars are also unobtainable now and endangered to the point of extinction.

The climate here in New Zealand, being milder and damper than in the United Kingdom, makes for plant growth that is faster, softer, and prone to fungal attack, resulting in the need for frequent divison or repropagation in species that can stay *in situ* for a number of years in colder climates. Our long growing period of 9 to 10 months has the advantage, perhaps, of producing larger amounts of plant material, but lack of cold to break dormancy makes for sparse flowering in many species. Foliage has a longer display period and bulbs grow at a faster rate, e.g. hardy cyclamen takes 1 to 2 years to reach flowering size.

We can see then a need for perennials, bulbs, and shrubs to be selected that will perform well in our climate, with an eye, perhaps, for export as whole plants or as cut flowers.

Examples: *Helleborus orientalis* is a free-flowering plant in our climate with many colour forms. With a little help these could become a popular winter flowering garden subject by selecting plants with flowers having fuller petals and with cleaner colour or special markings and better cut flower qualities.

Nerine. This is a good flowering bulb for our climate, producing a range of cut flowers and garden material for pots. With the selection of newer, free-flowering types over the years since the 1930's much has been achieved. The potential for different forms is accelerating with some of the seedlings now showing double

flowers and the vase life extended by back breeding into the species. There are many points to consider, i.e. length of stem, number of flowers per stem, number of stems per bulb, etc.

The list of plants is endless, I am sure; most of the South African bulbs have hardly been touched by the hybridizer. South American bulbs and perennials, and Australian perennials all have a potential to be useful in our climate with selection and breeding, and a critical eye to the pitfalls on the way. In short, the field is vast for enthusiasts.

MICROPROPAGATION OF *XERONEMA CALLISTEMON*

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Abstract. A micropropagation method for *Xeronema callistemon,* a rare liliaceous plant endemic to New Zealand, is described. The explant material, consisting of the meristem sheathed in several leaves, was excised and sterilised. The trials were conducted with various media, supplemented with a range of cytokinins and auxins. The culture conditions were: light intensity, 2000 lux; photoperiod, 16 hr; and temperature, 25°C.

After preliminary stimulation on a medium containing full strength Murashige and Skoog minerals with 3 mg/l kinetin and 1 mg/l indoleacetic acid (IAA), shoot growth was best maintained on a medium containing 2 mg/l kinetin.

Shoot growth was dissected for further multiplication or transferred to a rooting medium containing half strength Murashige and Skoog minerals with 3 mg/l indolebutyric acid (IBA). The rooted plantlets were deflasked and gradually acclimatised to the greenhouse environment with a 98% success rate.

INTRODUCTION

Xeronema callistemon was discovered about 1920, on the Poor Knights Islands some 13 miles offshore from the North Island of New Zealand. The plants grow high on rocky windswept cliffs. Their closest and only relative is *X. moorei,* which grows in the mountains of New Caledonia.

X. callistemon looks very like a small flax plant with fan-like clumps of sword-shaped rigid leaves, each up to one metre long and 50 mm wide. In early spring (September) a stout flower stem appears, bearing a dense spike of bright red flowers up to 350 mm long, arranged in a brush-like cluster on the upper side. The flowers lack petals, but narrow red tepals hang below the pistil with the six stamens pointing upwards. From December the flowers mature into