

PRIMROSES AND VIOLETS: WHAT'S NEW!

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Our nursery is very small indeed. It will be even smaller next year for we are dropping our mail order service. However, we do pride ourselves on having a reasonably comprehensive collection of unusual plants in the gardens at Careby and have particular interest in some of the more old-fashioned 'Cottage' type plants. Furthermore, these types of plants are becoming very fashionable today.

PRIMROSES

For the purpose of this presentation, primroses means members of the genus *Primula* from Europe and their cultivars. Asiatic groups and modern hybrids such as 'Crescendo', polyanthus and 'Spectrum' primroses are not under consideration here. You must remember that we cater to a particular type of gardening where bright colours and overlarge flowers are regarded with a great deal of suspicion, unless of course they are rhododendrons. To be sure, your jazzy modern hybrids have their place, but to compare them with such gems as *Primula* 'Lady Greer', or the dark-leaved *P.* 'Garryarde Guinevere', would be as banal as trying to line Mozart up with "Wham" (I dare not mention the "Boom Town Rats"!). That is not to say that all our primulas are antiques. We are even breeding a few, for it is the character of the plant that matters, not the age of its pedigree—compare David Austin's English roses as another example where 19th century characteristics are used with modern breeds.

Culture. First the true species—*Primula veris*, *Primula vulgaris*, *Primula farinosa*, etc. We propagate these from seed, taking care to keep stocks as pure as possible where unwanted hybridisation may occur. The same techniques seem to work fairly well for all the European primulas; my private rule is that if you can succeed with wild cowslips this way, you can manage pretty well everything else.

Seed is gathered as it ripens through the summer and stored until September when it is sown. A gritty, peaty mix (it varies with the species) is used and this is firmed down *after* sowing the seed. It does not seem to be necessary to cover the seed, but a sprinkling of very coarse grit ($\frac{1}{8}$ " is not too much), helps to inhibit the growth of algae. The grit may also help to protect the young seedlings from excessive dampness as well. The pots are weathered in a cold frame which is only covered during prolonged periods of very wet weather. (Frost and snow is no problem). Germination is usually complete by the end of March. We prick out into seed trays and then

into a Rapidex system 3-in. square pot. The following spring this will have produced a single rosette plant with one large flower spike and at least one secondary bud, i.e. it is ready for marketing.

Hybrids. The *P. juliae* hybrids are propagated by division. All but the most vigorous plants are split once a year, but only in mid-summer. However, we do divide right down to the smallest rosette and, at the same time, remove as much of the rhizome as possible without destroying all the roots.

Plants of *Primula auricula* and its allies (*P. × pubescens*, *P. marginata* and all the other leathery-leaved species) establish more slowly from divisions, so we try to split them a little sooner in the year. The only disadvantage of early splitting is that it can inhibit seed collection.

Overwintering. This seems to be the area where most people (and we are no exception) seem to come unstuck. All the *juliae* primulas are fully hardy and will tolerate temperatures well below freezing for a prolonged spell. However, they will not tolerate alternate freezing and thawing—neither do they tolerate water round their necks. Here are some observations made last winter. Cowslips in Rapidex pots in an open frame froze solid. The covering of snow was helpful while it was there, but with a slow thaw in sunlight at midday, I observed that many pots were frozen an inch below the top, but had water unable to drain away, standing on the compost surface. This froze each afternoon and many cowslips were lost. Potted primulas died in the shade tunnel, while their neighbours in the same tunnel, but planted in the ground, thrived. Thus our routine is to place newly split plants into the shade tunnel then move them into a shaded polytunnel from mid to late November onwards. There they stayed last year until early May. There were few losses although we kept the plants cruelly dry. There was no sign of life in any of the pots until long after the end of the tough winter, but almost every rosette came to in time for the Harrogate Spring Show. Thus, the moist shade until winter begins, then dry shade seems to work best for us.

VIOLETS

Now to that other family near to my heart—Violaceae. People often ask me what the difference is between a pansy and a viola. I usually answer, "All pansies are violas, but not all violas, pansies." Not very helpful really. I realise that pansy growers have their own special terms but the plants we will be briefly discussing are several members of the genus, *Viola*, but will exclude pansies. Clear?

For what it is worth (for the total market potential could probably be tucked away in the corner of one of Mr. Bloom's offices), we grow a wider range of sweet violet cultivars than anyone else. I am referring to the little scented flowers that

Victorian and Edwardian gents used to buy from flower girls to give to their wives, hoping to salve their consciences after philandering. Napoleon gave them to Josephine when it was not "not tonight."!

There are thirty to forty cultivars left in cultivation today and they are enjoying something of a comeback. Of that number about a dozen are really worth growing and the following make excellent plants:

Mid-blue—	'John Raddenbury' (a successful cutting violet).
	'Saint Helena' (ground cover only)
Deep-blue—	'Baronne Alice de Rothschild' (best scent)
	'Czar' (best vigour)
Violet—	'Norah Church'
Purple—	'Amiral Avellan' (superb sharp scent, best all rounder)
Pink—	'Coeur d'Alsace' (large flowers, clear pink)
	'Rosina' (vigorous)
White—	'Rawson's White'

The only truly hardy Parma violet is 'Swanley White' or 'Compte de Brazza'. These plants are split in late summer when conditions are not too dry. It is easy to take cuttings from runners, but it saves time if each runner has a tiny amount of root. We discourage the plants from producing further runners during autumn and this promotes flowering in spring at selling time. Like primroses, sweet violets are almost impossible to sell to the general public unless they are in flower.

When you try growing sweet violets commercially you can see why they almost became extinct. They require a lot of attention and tend to look horrible in containers. Red spider mite is the worst pest for it curls the leaves, eventually causing gall-like growths. In dry weather this can be fatal, but at the best of times it is inclined to disfigure the foliage. We spray at regular intervals with a dilute mixture of Dimethoate, Rovral to allay botrytis, and very weak foliar feed. Sweet violets are voracious feeders. The other pest is a kind of mosaic virus which will wipe out quantities of stock very rapidly. It is aphid-borne, so the Dimethoate is useful in this respect too.

If grown—as most of them are these days—as a ground cover in mixed planting schemes (especially under shrubs), they need little attention after planting out. However, for cut blooms it is necessary to treat them rather like strawberries. All runners must be removed, feeding should be generous, and they should never become overheated or too dry. Under these conditions most cultivars will flower profusely in spring but sparingly from September onwards.

OTHER VIOLET SPECIES

Apart from *Viola tricolor* types (a bit nearer to pansies), there are many violets which make first class garden plants. Classification of many highly variable species has proven baffling to even the most experienced experts and I have several plants which defy identification. One, a cream dog violet flowers perversely from July to October!

Viola cucullata is a fine plant and can be seen effectively used at Sissinghurst in the spring garden, where it has seeded well. There are some first rate variants, such as *Viola* 'Freckles', with mottled blue and white flowers looking for all the world like tiny Spode crocks, and *Viola cucullata* 'Rosea' a rather liverish pink.

Other North Americans, like *Viola septentrionalis* and *V. sororia* show up well and require less shade than our own natives. *Viola rupestris* 'Rosea' (well, it is not actually *Viola rupestris*, but more likely a form of dog violet, *Viola rivinana*) comes in several shades and is a rapid spreader.

Viola elegantula [syn. *V. bosniaca*]*—*a bright mauve sun-lover from East Europe.

Finally, the tree violet, *Viola elatior*, which can be treated as a straightforward herbaceous perennial and produces flowers at 18 inches. The colour of the blooms is quite delightful—pale Cambridge blue and white.

All the foregoing are easily propagated from seed, but the North Americans have fleshy rhizomes which can be snapped off and potted at will.

Finally, the "tricolors". The ones we grow are, again the older style plants that belong in old-fashioned schemes. One of the best loved is 'Jackanapes' (said to have been introduced by Gertrude Jekyll, but I have a feeling they were around a long time before that). Raising these plants from seed is unreliable, unless one has facilities for keeping the stocks pure.

Most of our stocks are grown from cuttings. These are taken at any time during the growing season and rooted on the mist bench. It is impossible to take anything without a flower bud, but we do trim off as many blooms as we can see. Sometimes we use rooting powder (Seradix: pink strength), but usually rooting will take place in about three weeks without it.

Heat stress can be a problem with our system, as we rely on mist propagation, heavily shaded in a polytunnel, so temperatures are inclined to be about ten degrees higher than the maximum desirable in June. The rooted plants are potted directly into 3" Rapidex pots in our usual universal compost of roughly 50–60% peat (Irish of course—what else??), 10% perlite and the rest coarse sand and a little grit.

SUMMARY

This, then, is a brief sketch of how we grow some of our primulas and violets at Careby. The old-fashioned versions of these popular spring plants are easy to propagate conventionally. As many of them hybridise so readily, it is safest to use vegetative means if stocks are to be produced which are true to name.

INFLUENCE OF THE ENVIRONMENT ON ROOTING *DAPHNE ODORA* CUTTINGS

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Abstract. Analysis of the environmental influence on volume rooting of *Daphne odora* revealed that irradiance and night temperature requirements must be fulfilled for successful *in vitro* rooting to take place.

INTRODUCTION

Within the commercial micropropagation industry competition demands that all efforts be made to optimise the productivity of the laboratory and the quality of the propagule. The very high cost of research has meant that work at this laboratory on specific difficulties has been done on high value ornamental plants from the sale of which some rapid return on investment can be achieved. The work on *Daphne odora* was done to identify some of the causes of inconsistent rooting response which have been observed in these and other woody plants at this laboratory.

From work on *Daphne* and other species it had been observed that a rooting treatment successful to a high percentage at one point in time might not yield a similar result even when repeated only a month later. From various experiments it appeared that neither the genotype of the subject nor human error in media manufacture or culture handling was responsible for the major part of rooting inconsistencies. Rather, variations in response appeared to be related to variations within the environment of the growth room itself.

It was decided, therefore, that a more detailed examination of the growth room environment was required to examine temperature and irradiance influences on rooting. For this purpose, production growth room rooting responses were compared to rooting